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**Interim Remedial Action Report  
Site B - Verbeek Wrecking Yard  
Bothell, Washington  
VCP No. Site NW1982**

**Prepared for:  
Puget Sound Energy  
City of Seattle**

**Dalton, Olmsted & Fuglevand, Inc.** *Environmental Consultants*

6034 N Star Rd. • Ferndale, Washington 98248

January 7, 2011

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Bothell, Washington  
VCP No. Site: NW 1982 (FSID 51544175)  
January 7, 2011**

## **INTRODUCTION**

This interim remedial action report summarizes the remedial activities and compliance sampling completed within the Site B portion of the Verbeek Wrecking Yard property, located at 18416 Bothell Everett Highway, Bothell, Washington (Figures 1 and 2). The remedial work was completed on behalf of Puget Sound Energy (PSE) and the City of Seattle (Seattle) under the Washington State Department of Ecology's (Ecology) Voluntary Cleanup Program (VCP). The VCP site identification number is NW1982.

Contaminants on the Verbeek property comprised two groupings; one was composed of those associated with automobile wrecking yards and the other group was associated with gas manufacturing (Ecology 2010). Contaminants within Site B are those associated with gas manufacturing. Site characterization data indicated little mixing of contaminants from the two sources.

### ***Cleanup Plans and Ecology Opinion Letter***

Remediation of the Verbeek property was guided by two cleanup plans. Site B remedial work was guided by an Interim Remedial Action Plan (IRAP) prepared by Dalton, Olmsted & Fuglevand, Inc. (DOF 2010). Cleanup of the remainder of the Verbeek property was guided by a Cleanup Action Plan (CAP) prepared by Landau Associates (2009) for the site owner. Based on review of these plans, Ecology (2010) concluded the following:

- Upon completion of the proposed cleanup, no further remedial action will likely be necessary to cleanup contamination at the Site.
- The January 2010 Dalton, Olmsted & Fuglevand and December 2009 Landau reports, combined, provide an RI, FS and Cleanup Action Plan for the Site.
- The cleanup action proposed in the two plans for the site meets the substantive requirements of the Model Toxics Control Act (MTCA).

### ***Description of Site B and Contaminants of Concern***

Site B comprises the southeastern portion of the Verbeek property (Figure 2). The focus of the interim remedial action documented in this report was fill material containing

polycyclic aromatic hydrocarbons (PAHs) that appeared to have originated from the Gas Works Park (GWP) site adjacent to Lake Union in Seattle. GWP was the site of a former manufactured gas plant (MGP) and tar refinery. Fill material from GWP is referred to herein as "*GWP-Fill*".

Prior to preparation of the Site B IRAP, a remedial contractor (GreenCo.) hired by the site owner, excavated a portion of the GWP-Fill located within the southeastern portion of the Verbeek property (Site B) and stockpiled the excavated material within the western portion of the property (Figure 2). In addition, GWP-Fill was placed in a landfarm test area constructed immediately north of the stockpile to evaluate whether GWP-Fill could be bioremediated on-site. The landfarm test was unsuccessful, so removal included both the stockpile and landfarmed test area GWP-Fill as part of the IRAP. GreenCo. also reconstructed a storm water sewer line through the GreenCo. excavation area.

Test pits and push-probes were used to estimate the in-situ extent of GWP-Fill (Figure 3). The site characterization data indicated that in-situ GWP-Fill was present in two lobes separated by the GreenCo excavation. It had been assumed that GWP-Fill had been removed below the trend of a stormwater line installed by GreenCo. As discussed later in this report, GWP-Fill present beneath the stormwater line was removed as part of this remedial effort. To accomplish the GWP-Fill removal, a portion of the line was removed and re-installed while placing backfill.

The goal of the Site B interim action was to reduce concentrations of GWP-Fill constituents to below unrestricted site use cleanup levels (CULs). The primary contaminants of concern (COCs) contained in GWP-Fill are PAHs. The primary PAHs of concern are carcinogenic PAHs (cPAHs). While a number of other constituents might be associated with GWP-Fill, the primary remediation driver is the human health based cPAH CUL<sup>i</sup>.

The IRAP proposed a cPAH cleanup level based on Method B (0.14 mg/kg). After review of the IRAP by Ecology and subsequent discussions, it was decided to use the slightly more conservative cPAH Method A CUL (0.1 mg/kg). An analysis of site characterization data indicated that if the cPAH CUL was achieved, CULs for other potential COCs would also be achieved within the Site B area (see Attachment F to IRAP - Compliance Monitoring Plan). In addition to the cPAH CUL, the Method A total naphthalene CUL of 5 mg/kg was used to supplement the cleanup compliance analysis.

## **REMEDIAL TEAM**

- **Greg Andrina** - Sr. Environmental Scientist with PSE generally managed the Site B contracting and project coordination.

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<sup>i</sup> Using the toxicity equivalency methodology in WAC 173-340-708(8) and Ecology (2007).

- **Matthew Dalton** LG, LHG - Sr. Consulting Hydrogeologist with DOF provided technical oversight of the Site B remedial efforts.
- **Dave Cooper** LG - Sr. Consulting Geologist with DOF worked with the remedial contractor to complete the work, generally documented the Site B remedial efforts and collected compliance samples for laboratory analysis.
- **Clearcreek Contractors** - provided the equipment and operators to complete the remedial work and coordinated with the disposal facilities.
- **The Hydroseeder** - placed grass seed and fertilizer over the post remedial surfaces on the Verbeek property.
- **Analytical Resources Inc.** (ARI) completed the laboratory analyses.

## **PERMITTING**

A Grading and Temporary Erosion and Sediment Control (GTESC) Plan was prepared by Landau Associates Inc. for Verbeek Properties LLC, which was approved by Snohomish County. Landau Associates Inc. also prepared a Stormwater Pollution Prevention Plan (SWPPP), submitted to the Washington State Department of Ecology (Ecology). Underground utility locators (one-call) were notified by Clearcreek Contractors and utilities were located in accordance with Chapter 19.122 RCW.

## **REMEDIAL ACTION NARRATIVE**

### ***Site Preparation***

Prior to remediation, erosion control measures and a construction entrance were installed in accordance with the GTESC plan. The site had previously been secured by temporary fencing to restrict site access. A perimeter haul road was established to provide access to the GWP-Fill Stockpile (GWSP) at the west side of the property. A 21,000 gallon mobile storage tank was brought onsite to manage water entering the excavation.

### ***Soil Excavation and Disposal***

Remediation of the GWP-Fill was generally conducted between July 12 and October 22, 2010. Separate remedial work pertaining to former Wrecking yard issues for Verbeek LLC was conducted concurrently under the oversight of Landau Associates Inc. beginning August 13, 2010.

The GWP-Fill remedial work was generally completed in four areas of the Verbeek property (Figures 2 to 5):

1. GWP-Fill stockpile area present on the western portion of the property,
2. The "Landfarm" area immediately north of the GWP-Fill stockpile,
3. Area BN, north of the former GeenCo excavation (eventually extending around the west end of the GreenCo excavation), and
4. Area BS, south of the GreenCo excavation (also extending west and north to intersect with Area BN).

**General Approach.** The general approach to complete the remedial excavation was as follows:

- Excavation was generally accomplished with a Zaxis/Hitachi 330 track-hoe equipped with a smooth bladed bucket, loading directly into waiting truck/trailers.
- Water from the excavation was pumped into the mobile storage tank or waiting tanker trucks to allow excavation, sampling and backfilling of a dry bottom. All surface water runoff was routed into the working excavations. Groundwater seepage was minimal and observed at approximately 8 to 10 feet below site grade.
- GWP-Fill soils were visually different from surrounding non-GWP-Fill soils. Visually clean overburden soils were stockpiled and sampled for possible use as backfill. Overburden soils with concentrations above CULs were loaded into trucks and disposed off-site.
- Excavation proceeded until GWP-Fill soils were removed based on visual observations. Compliance soil samples were then obtained and analyzed for PAHs. If cPAH concentrations were above 0.1 mg/kg, additional soils were excavated and the area was re-sampled to confirm that GWP-Fill soils had been removed to a sufficient degree to meet cPAH CULs.
- The extent of excavation and compliance sample coordinates were determined using a Trimble GPS.
- Backfill was placed after the confirmation sampling indicated CULs has been achieved. Backfill was placed in Areas BN and BS as well as in the former GreenCo excavation area to bring the GWP-Fill remedial area up to the grades specified in the GTESC plan (see Landau construction report).

Backfill consisted of clean (based on analytical testing) stripped overburden soil and fill imported from off-site sources. Backfilling took place, weather permitting, through October 15, 2010. This also included work accomplished under contract to the property owner. Backfill was generally placed in one-foot thick lifts and compacted using a vibratory roller or hoe-pac. The intent of the compactive effort was to place the material (both onsite and import) back at an equivalent or better density than previously existed. Mayes Testing Engineers, Inc. conducted density testing during initial placement of the fill to verify

sufficient compactive effort and continued testing within the upper 3 feet of final grade to show that the fill met Grading Plan specifications.

- After final grades were achieved, Site B and other portions of the Verbeek property were hydroseeded. This occurred on October 22, 2010.

**GWP-Fill Stockpile and Landfarm Soils.** Excavation and loading of the GWP-Fill stockpile and landfarm materials took place between July 13 and 27, 2010. Approximately 13,600 tons was removed from GWP-Fill stockpile and approximately 1,000 tons of GWP-Fill was removed from the landfarm area. The subgrade of these areas and adjacent truck lane was subsequently scraped using the track-hoe to remove all visually stained soils. Some former wrecking yard debris-laden soils were also removed with this effort.

**Area BN.** Excavation of Area BN took place between July 28 and August 3, 2010. Approximately 5,840 tons of GWP-Fill was removed from this area. An attempt was made to strip off overburden material for use as backfill. This material was placed in stockpiles designated as SP1-2, SP3, SP4, SP5, SP5A, SP6 and SP6A (SP1 & SP-2 were co-mingled as Stockpile SP 1-2). Overburden soils from stockpiles SP4 and SP6-6A were used as backfill based on analysis of representative samples from each stockpile (Table 1). The remaining stockpiles were subsequently hauled off-site. As stockpiles SP1-2 and SP5 were located outside of the excavation footprint, the subgrades of these stockpiles were scraped and representative confirmation samples taken. The analytical results of these samples were below CULs as summarized in Table 1. Sample locations are shown on Figure 5.

The remainder of area BN was excavated and consisted of black GWP-Fill, generally intermixed with wrecking yard debris fill. Excavation depths ranged from a surface scrape of the northern area (see Figure 5) to 10 feet below ground surface towards the southwest, west of the GreenCo excavation. During excavation it was necessary to abandon monitoring well MW-2. The well was backfilled with bentonite chips, in accordance with Chapter 173-160 WAC by Cascade Drilling Inc. on July 30, 2010.

**Area BS.** Excavation of Area BS took place between August 3 and 25, 2010. Approximately 4,950 cubic yards of clean overburden soils were initially excavated, the majority used as backfill for Area BN and the GreenCo excavation area. The backfill material consisted of gravelly, sand from the eastern bench adjacent to the highway and an in-situ silt fill from the bulk of the area overlying the GWP-Fill. Overburden samples were obtained as it was bunched-up in preparation for spreading as fill by a bulldozer. The samples results indicated PAH concentrations below CULs as summarized in Table 2 and this material was used to backfill Area BN and the GreenCo excavation area.

Below the clean overburden soils, a distinctive layer of black GWP-Fill was observed that ranged in thickness from ~1 foot to 3 feet and generally sloped downward to the west from 3 to 10 feet below ground surface. Approximately 6,479 tons of GWP-Fill was



removed from this area. The southern property line adjacent to Gold's Gym was excavated following deconstruction of an ecology block retaining wall. The sidewall of the excavation followed the property line with final depths ranging from 5.5 feet at the east end to 12 feet at the west end.

Excavation along the south property line adjacent to Gold's Gym was accomplished by cutting 10 foot wide slots and immediately backfilling, so that a vertical face could be excavated neat to the property line. The south sidewall followed the southern face of the ecology block wall and fence line, which followed the south property line, as determined by the Western Engineers topographic survey (May 2010). A GWP-fill layer was still evident in the sidewall adjacent to Gold's Gym, south of the excavation/property line. A generally 1 to 1.5 foot thick layer, the bottom of which was approximately 6 to 7 feet below Gold's back-alley grade, extended 130 feet along the property line (Figure 5), pinching out to the west. The excavation extended into the Gold's Gym alley approximately 1 to 2 feet, because of raveling of loose surface gravel in the Gold's gym alley. Both the Gold's alleyway and ecology block wall were reconstructed as originally built.

Area BS was backfilled with a gravelly, silty, sand (glacial till), imported from Issaquah, WA. In late September, additional fill was imported from an approved Lynnwood site. To finish up final grading by October 15<sup>th</sup> 2010, select fill was imported from Cemex. Along the southern property line, the ecology block wall was reconstructed (in its original position) as backfill was placed and compacted.

Backfilling took place, weather permitting, through October 15<sup>th</sup>. This also included work accomplished under contract to Landau/Verbeek. All exposed areas of the site were hydroseeded by October 22, 2010.

#### **SUMMARY OF MATERIAL VOLUMES DISPOSED OFF-SITE**

A total of 26,943 tons of GWP-Fill soil was excavated and disposed/treated off-site at the following facilities:

- Regional Disposal Intermodal facility (Allied Waste Subtitle D Landfill) - 15,288 tons
- Systech /LaFarge Seattle thermal treatment facility - 11,055 tons
- Cemex Everett thermal treatment facility – 600 tons

A total of approximately 9,300 gallons of fluids were pumped from the excavation. These fluids were transported for treatment and disposal by Emerald Services Inc.

A disposal ticket summary prepared by Clearcreek for payment purposes is presented in Appendix A.

## RESULTS OF SOIL COMPLIANCE SAMPLING AND TESTING

Compliance monitoring was conducted in accordance with the Compliance Monitoring Plan-Site B (Attachment F to the IRAP). In general, compliance samples were obtained from the excavation sidewalls and bottom after obvious GWP-Fill was removed as follows:

### *GWP-Fill Excavation (Areas BN and BS)*

- **Sidewall Sampling.** Sidewall samples were obtained approximately every 30 lineal feet of sidewall. A vertical channel sample was collected from the approximate GWP-Fill depth interval observed near the edge of the excavation. Sample thickness depended on the thickness of the GWP-Fill interval.
- **Bottom Sampling.** Bottom samples were obtained on approximately 30 foot centers using a 30-foot square grid pattern. Within each grid square (or partial grid square), a sample was taken at the approximate center of the grid from the top half foot of soil (sample depth 0 to 0.5 feet).

In all, 100 compliance soil samples were obtained and analyzed for cPAHs in Areas BN and BS. Compliance sample locations are shown on Figure 5. The analytical results are summarized in Tables 3 and 4.

### *GWP-Fill Stockpile Post-Removal Sampling*

- **Bottom Sampling.** Compliance samples were obtained on approximately 30 foot centers along the longitudinal trend of the pile.

Twenty stockpile (bottom) compliance samples were obtained and analyzed for cPAHs. Compliance sample locations are shown on Figure 4. The analytical results are summarized in Table 5.

### *GWP-Fill Landfarm Post-Removal Sampling*

- **Bottom Sampling.** Compliance samples were obtained on approximately 30 foot centers in a grid pattern beneath the footprint of the pile.

Twelve stockpile (bottom) compliance samples were obtained and analyzed for cPAHs. Compliance sample locations are shown on Figure 4. The analytical results are summarized in Table 6.

### **Laboratory Analyses**

Compliance samples were analyzed for the cPAHs listed below using EPA Method 8270-SIM to achieve a reporting limit of 0.1 mg/kg. Laboratory data sheets are presented in Appendix B (on CD). Benzo(a)pyrene equivalent concentrations were calculated using the toxicity equivalency factors (TEFs) listed below.

<b>cPAH</b>	<b>TEF</b>
<b>Benzo(a)anthracene</b>	0.1
<b>Benzo(b)fluoranthene</b>	0.1
<b>Benzo(k)fluoranthene</b>	0.1
<b>Benzo(a)pyrene</b>	1
<b>Chrysene</b>	0.01
<b>Dibenzo(a,h)anthracene</b>	1
<b>Indeno(1,2,3-cd)pyrene</b>	0.1

Note: TEF - Toxicity Equivalency Factor

### **Compliance Sample Comparison with CULs**

A comparison of the compliance sample analyses with the PAH CULs indicates that the CULs were achieved on the Site B portion of the Verbeek property (Figure 5). Concentrations of total naphthalenes and benzo(a)pyrene equivalent concentrations were below the Method A unrestricted site use CULs of 5 mg/kg and 0.1 mg/kg, respectively.

Along a portion of the southeastern Site B (Verbeek) property boundary, GWP-Fill was observed to extend onto the Gold's Gym property (Figure 5). The ecology block wall was deconstructed to allow the maximum practical amount of GWP-Fill to be removed without jeopardizing the foundation of the gym building. Excavation was completed one to two feet beyond (south of) the Verbeek property line based on the Western Engineers topographic survey.

Sidewall observations along the Gold's Gym building indicated the remaining GWP-Fill is present in a 1 to 1.5 feet thick layer, the bottom of which was observed to be approximately 6 to 7 feet below the Gold's Gym back-alley grade. Soil samples were obtained (VBK-BS-CS-SW18A to VBK-BS-CS-SW19C) and analyzed above ("A" samples), within ("B" samples) and below ("C" samples) the GWP-Fill layer. As summarized in Table 4, concentrations of PAHs in samples collected approximately 1 foot above and below the GWP-Fill layer were below CULs. PAH concentrations of the GWP-Fill layer ("B" samples) were above CULs.

## **REFERENCES**

DOF (Dalton, Olmsted & Fuglevand, Inc.), 2010, Interim Remedial Action Plan, Site B Portion of Verbeek Wrecking Yard, Bothell, Washington, Prepared for Puget Sound Energy and City of Seattle, Ecology Review Draft dated January 15, 2010.

Ecology (Washington State Department of Ecology), 2007, Evaluating the Toxicity and Assessing the Carcinogenic Risk of Environmental Mixtures Using Toxicity Equivalency Factors.

Ecology (Washington State Department of Ecology), 2010, Opinion on Proposed Cleanup of the Verbeek Wrecking Site, letter to Renee West (Verbeek) from Mark Adams, May 26, 2010.

Landau Associates, 2009, Ecology Review Draft, Cleanup Action Plan, Verbeek Wrecking Property, 18416 Bothell-Everett Highway, Bothell, Washington, December 24, 2009.

## **CLOSING**

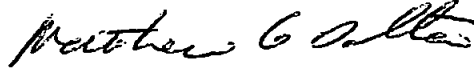
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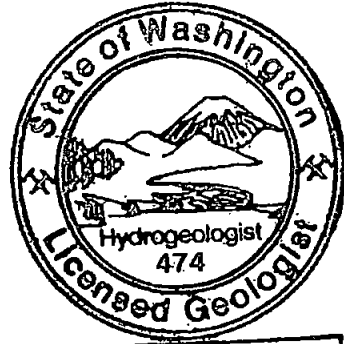
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*Dalton, Olmsted & Fuglevand, Inc.*



Matthew G. Dalton  
Sr. Consulting Hydrogeologist.



Matthew G. Dalton

**TABLE 1 - Stockpile (SP) Soil Analytical Data and Status**

Number	VBK-BN SP1	VBK-BN SP2	VBK-BN SP3	VBK-BN SP4	VBK-BN SP5	VBK-BN SP5A	VBK-BN SP6	VBK-BN SP6A	VBK-SP1 CS-B1
Date	7/20/10	7/20/10	7/20/10	8/3/10	8/3/10	8/3/10	8/3/10	8/5/10	8/5/10
Northing	----	----	----	----	----	----	----	----	306242
Easting	----	----	----	----	----	----	----	----	1302062
Status	Disposed	Disposed	Disposed	Disposed	Disposed	Disposed	Disposed	Backfilled	Subgrade of SP1
Type	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	Stockpile	
ARI Delivery Group	RF00	RF00	RF00	RH10	RH10	RH10	RH10	RN48	RH48
<b>Non-Carcinogenic PAHs (ug/kg)</b>									
Naphthalene	46	54	22	61	80	230	12	<5.0	<4.6
2-Methylnaphthalene	11	25	8.0	22	34	130	4.9	<5.0	<4.6
1-Methylnaphthalene	5.5	13	4.7	12	21	83	<4.9	<5.0	<4.6
Total Naphthalenes	63	92	35	95	135	443	17	nd	nd
Acenaphthylene	5.5	46	13	10	51	60	6.9	<5.0	<4.6
Acenaphthene	<4.6	<4.8	<4.7	<4.5	11	65	<4.9	<5.0	<4.6
Fluorene	<4.6	14	<4.7	<4.5	26	65	<4.9	<5.0	<4.6
Phenanthrene	26	150	32	44	190	350	16	<5.0	<4.6
Anthracene	6.0	34	7.1	9.9	49	80	<4.9	<5.0	<4.6
Fluoranthene	42	300	73	66	290	490	40	<5.0	<4.6
Pyrene	67	480	120	69	410	670	56	<5.0	<4.6
Benzo(g,h,i)perylene	50	390	110	41	210	400	44	<5.0	<4.6
Dibenzofuran	<4.6	<4.8	<4.7	<4.5	<4.9	7.9	<4.9	<5.0	<4.6
<b>Carcinogenic PAHs (ug/kg)</b>									
Benzo(a)anthracene	16	140	31	29	130	270	20	<5.0	<4.6
Chrysene	23	200	42	36	150	310	23	<5.0	<4.6
Total Benzofluoranthenes	42	340	88	57	230	470	42	<5.0	<4.6
Benzo(a)pyrene	36	320	81	47	240	450	44	<5.0	<4.6
Indeno(1,2,3-cd)pyrene	33	250	72	29	140	270	29	<5.0	<4.6
Dibenzo(a,h)anthracene	5.1	37	9.9	5.8	34	66	7.4	<5.0	<4.6
BaPEq Sum	50.4	432	110	65	326	620	60.7	<11.6	10.6

Notes: < - Less than indicated value  
 J - Estimated value  
 nd - Not detected  
 (R) - Initial sample above CULs. Result of second sample  
 after additional excavation  
 Q - Analyte was detected but initial or continuing calibration did not meet  
 established acceptance criteria

**TABLE 1 - Stockpile (SP) Soil Analytical Data and Status**

Number	VBK-SP1 CS-B2	VBK-SP5 CS-B1
Date	8/5/10	8/11/10
Northing	306272	305898
Easting	1302062	1302158
Status Type	Subgrade of SP1	Subgrade of SP5
ARI Delivery Group	RH48	RI13
<b>Non-Carcinogenic PAHs (ug/kg)</b>		
Naphthalene	<4.7	44
2-Methylnaphthalene	<4.7	7.2 Q
1-Methylnaphthalene	<4.7	5.0
Total Naphthalenes	nd	51
Acenaphthylene	<4.7	5.4
Acenaphthene	<4.7	<4.5
Fluorene	<4.7	<4.5
Phenanthrene	<4.7	9.0
Anthracene	<4.7	<4.5
Fluoranthene	<4.7	13
Pyrene	<4.7	19
Benzo(g,h,i)perylene	<4.7	14
Dibenzofuran	<4.7	<4.5
<b>Carcinogenic PAHs (ug/kg)</b>		
Benzo(a)anthracene	<4.7	5.4 Q
Chrysene	<4.7	6.8
Total Benzofluoranthenes	<4.7	13
Benzo(a)pyrene	<4.7	13
Indeno(1,2,3-cd)pyrene	<4.7	9.0
Dibenzo(a,h)anthracene	<4.7	<4.5
BaPEq Sum	<10.9	20.3

**Notes:** < - Less than indicated value  
 J - Estimated value  
 nd - Not detected  
 (R) - Initial sample above CULs. Result of second sample  
 after additional excavation  
 Q - Analyte was detected but initial or continuing calibration did not meet  
 established acceptance criteria

**TABLE 2 - Overburden Backfill (Area BS) - Soil Analytical Data And Status**

Number	VBK-BS BF1	VBK-BS BF2	VBK-BS BF3	VBK-BS BF4	VBK-BS BF5	VBK-BS BF6
Date	8/6/10	8/7/10	8/9/10	8/10/10	8/12/10	8/13/10
Northing	-----	-----	-----	-----	-----	-----
Easting	-----	-----	-----	-----	-----	-----
Type	Overburden	Overburden	Overburden	Overburden	Overburden	Overburden
Status	Backfilled	Backfilled	Backfilled	Backfilled	Backfilled	Backfilled
ARI Delivery Group	RH92	RH92	RH92	RH92	RI87	RI87
<b>Non-Carcinogenic PAHs (ug/kg)</b>						
Naphthalene	7.6	23	<4.8	<4.6	<4.6	<4.6
2-Methylnaphthalene	<4.8	6.7 Q	<4.8	<4.6	<4.6	<4.6
1-Methylnaphthalene	<4.8	4.8	<4.8	<4.6	<4.6	<4.6
Total Naphthalenes	7.6	35	nd	nd	nd	nd
Acenaphthylene	<4.8	<4.8	<4.8	<4.6	<4.6	<4.6
Acenaphthene	<4.8	<4.8	<4.8	<4.6	<4.6	<4.6
Fluorene	<4.8	<4.8	<4.8	<4.6	<4.6	<4.6
Phenanthrene	15	50	8.6	<4.6	<4.6	<4.6
Anthracene	<4.8	5.8	<4.8	<4.6	<4.6	<4.6
Fluoranthene	42	64	17	<4.6	<4.6	<4.6
Pyrene	58	62	25	<4.6	<4.6	<4.6
Benzo(g,h,i)perylene	26	17	13	<4.6	<4.6	<4.6
Dibenzofuran	<4.8	<4.8	<4.8	<4.6	<4.6	<4.6
<b>Carcinogenic PAHs (ug/kg)</b>						
Benzo(a)anthracene	17	17	8.6	<4.6	<4.6	<4.6
Chrysene	20	22	14	<4.6	<4.6	<4.6
Total Benzofluoranthenes	30	25	20	<4.6	<4.6	<4.6
Benzo(a)pyrene	30	20	15	<4.6	<4.6	<4.6
Indeno(1,2,3-cd)pyrene	17	12	9.1	<4.6	<4.6	<4.6
Dibenzo(a,h)anthracene	<4.8	<4.8	<4.8	<4.6	<4.6	<4.6
BaPEq Sum	41.4	30.4	23.7	<10.6	<10.6	<10.6

Notes: < - Less than indicated value  
 J - Estimated value  
 nd - Not detected  
 (R) - Initial sample above CULs. Result of second sample after additional excavation  
 Q - Analyte was detected but initial or continuing calibration did not meet established acceptance criteria



**TABLE 3 - Area BN - Compliance Soil Analytical Data**

Verbeek Site  
Bothell, WA

Number	VBK-BN CS-B1	VBK-BN CS-B2	VBK-BN CS-B3	VBK-BN PS-SW1(R)	VBK-BN CS-B4	VBK-BN CS-B5	VBK-BN CS-B6	VBK-BN CS-B7	VBK-BN CS-B8	VBK-BN CS-SW1
Northing	305913	305915	305921	305912	305925	305948	305953	305959	305986	305931
Easting	1302353	1302323	1302294	1302362	1302271	1302328	1302299	1302269	1302303	1302340
Date	7/28/10	7/28/10	7/28/10	8/20/10	7/29/10	7/29/10	7/29/10	7/29/10	7/29/10	7/29/10
Type	Bottom	Bottom	Bottom	Sidewall	Bottom	Bottom	Bottom	Bottom	Bottom	Sidewall
ARI Delivery Group	RG07	RG07	RG07	RJ89(a)	RG20	RG20	RG20	RG20	RG20	RG20
<b>Non-Carcinogenic PAHs (ug/kg)</b>										
Naphthalene	<4.9	140	7.7	<5.0	<4.9	<4.8	4.7	11	8.1	18
2-Methylnaphthalene	<4.9	7.0	<4.8	<5.0	<4.9	<4.8	<4.7	8.7	<4.5	7.8
1-Methylnaphthalene	<4.9	6.5	<4.8	<5.0	<4.9	<4.8	<4.7	6.9	<4.5	14
<b>Total Naphthalenes</b>	nd	<b>154</b>	<b>7.7</b>	nd	nd	nd	<b>4.7</b>	<b>27</b>	<b>8.1</b>	<b>40</b>
Acenaphthylene	<4.9	<5.0	<4.8	<5.0	<4.9	<4.8	<4.7	<4.6	<4.5	8.3
Acenaphthene	<4.9	<5.0	<4.8	<5.0	<4.9	<4.8	<4.7	<4.6	<4.5	<4.9
Fluorene	<4.9	<5.0	<4.8	<5.0	<4.9	<4.8	<4.7	<4.6	<4.5	11
Phenanthrene	<4.9	10	4.8	<5.0	<4.9	<4.8	<4.7	12	12	100
Anthracene	<4.9	<5.0	<4.8	<5.0	<4.9	<4.8	<4.7	<4.6	<4.5	19
Fluoranthene	<4.9	8.0	<4.8	<5.0	<4.9	<4.8	<4.7	8.3	14	120
Pyrene	<4.9	19	<4.8	<5.0	<4.9	5.3	<4.7	8.7	19	200
Benzo(g,h,i)perylene	<4.9	<5.0	<4.8	<5.0	<4.9	<4.8	<4.7	<4.6	5.4	26
Dibenzofuran	<4.9	<5.0	<4.8	----	<4.9	<4.8	<4.7	<4.6	<4.5	<4.9
<b>Carcinogenic PAHs (ug/kg)</b>										
Benzo(a)anthracene	<4.9	6.5	<4.8	<5.0	<4.9	<4.8	<4.7	<4.6	<4.5	36
Chrysene	<4.9	10	<4.8	<5.0	<4.9	<4.8	7.0	5.5	5.4	49
Total Benzofluoranthenes	<4.9	10	<4.8	<5.0	<4.9	<4.8	7.9	7.3	9.0	57
Benzo(a)pyrene	<4.9	7.5	<4.8	<5.0	<4.9	<4.8	<4.7	<4.6	8.1	48
Indeno(1,2,3-cd)pyrene	<4.9	<5.0	<4.8	<5.0	<4.9	<4.8	<4.7	<4.6	<4.5	18
Dibenzo(a,h)anthracene	<4.9	<5.0	<4.8	<5.0	<4.9	<4.8	<4.7	<4.6	<4.5	<4.9
<b>BaPEq Sum</b>	<b>&lt;11.3</b>	<b>14.8</b>	<b>&lt;11.1</b>	<b>&lt;11.6</b>	<b>&lt;11.3</b>	<b>&lt;11.1</b>	<b>11.2</b>	<b>10.9</b>	<b>14.5</b>	<b>64.5</b>

Notes: < - Less than indicated value  
 J - Estimated value  
 nd - Not detected  
 (R) - Initial sample above CULs. Result of second sample after additional excavation  
 (a) - Analysis by Fremont Analytical under subcontract to ARI

**TABLE 3 - Area BN - Compliance Soil Analytical Data**

Verbeek Site  
Bothell, WA

Number	VBK-BN CS-SW2(R)	VBK-BN CS-B9	VBK-BN CS-B10	VBK-BN CS-B11	VBK-BN CS-B12	VBK-BN CS-B13	VBK-BN CS-B14	VBK-BN CS-SW3(R)	VBK-BN CS-SW4(R)	VBK-BN PS-B1
Northing	305968	305927	305932	305934	305939	305959	305961	305926	305927	305984
Easting	1302323	1302237	1302208	1302179	1302149	1302237	1302207	1302190	1302159	1302270
Date	8/20/10	8/2/10	8/2/10	8/2/10	8/2/10	8/2/10	8/2/10	8/11/10	8/11/10	8/2/10
Type	Sidewall	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Sidewall	Sidewall	Bottom
ARI Delivery Group	RJ89(a)	RG77	RG77	RG77	RG77	RG77	RG77	RI13	RI13	RG77
<b>Non-Carcinogenic PAHs (ug/kg)</b>										
Naphthalene	<5.0	22	<4.6	<4.8	750	13	460	<4.6	5.4	14
2-Methylnaphthalene	<5.0	9.8	<4.6	<4.8	8.6	14	52	<4.6	<4.9	<14
1-Methylnaphthalene	<5.0	6.6	<4.6	<4.8	9.5	4.7	41	<4.6	<4.9	<14
<b>Total Naphthalenes</b>	<b>&lt;5.0</b>	<b>38</b>	<b>nd</b>	<b>nd</b>	<b>768</b>	<b>32</b>	<b>553</b>	<b>nd</b>	<b>5.4</b>	<b>14</b>
Acenaphthylene	<5.0	<4.7	<4.6	<4.8	<4.8	<4.7	<4.7	<4.6	<4.9	<14
Acenaphthene	<5.0	<4.7	<4.6	<4.8	<4.8	<4.7	4.7	<4.6	<4.9	<14
Fluorene	<5.0	<4.7	<4.6	<4.8	<4.8	<4.7	<4.7	<4.6	<4.9	<14
Phenanthrene	<5.0	20	28	<4.8	<4.8	6.6	18	<4.6	<4.9	45
Anthracene	<5.0	<4.7	8.3	<4.8	<4.8	<4.7	<4.7	<4.6	<4.9	<14
Fluoranthene	5.2	34	50	<4.8	<4.8	14	32	<4.6	<4.9	84
Pyrene	8.3	41	42	<4.8	<4.8	27	53	<4.6	<4.9	120
Benzo(g,h,i)perylene	5.2	16	<4.6	<4.8	<4.8	14	20	<4.6	<4.9	48
Dibenzofuran	----	<4.7	<4.6	<4.8	<4.8	<4.7	<4.7	<4.6	<4.9	<14
<b>Carcinogenic PAHs (ug/kg)</b>										
Benzo(a)anthracene	<5.0	14	9.6	<4.8	<4.8	7.1	12	<4.6	<4.9	40
Chrysene	4.2 J	24	6.4	<4.8	<4.8	11	18	<4.6	<4.9	60
Total Benzofluoranthenes	<5.0	32	5.5	<4.8	4.8	21	29	<4.6	<4.9	88
Benzo(a)pyrene	4.2 J	21	<4.6	<4.8	<4.8	16	23	<4.6	<4.9	63
Indeno(1,2,3-cd)pyrene	<5.0	11	<4.6	<4.8	<4.8	9.0	14	<4.6	<4.9	35
Dibenzo(a,h)anthracene	<5.0	<4.7	<4.6	<4.8	<4.8	<4.7	<4.7	<4.6	<4.9	<14
<b>BaPEq Sum</b>	<b>10.7</b>	<b>31.6</b>	<b>11.2</b>	<b>&lt;11.1</b>	<b>11.1</b>	<b>24.6</b>	<b>33.4</b>	<b>&lt;10.6</b>	<b>&lt;11.3</b>	<b>93.9</b>

Notes: < - Less than indicated value  
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 (a) - Analysis by Fremont Analytical under subcontract to ARI

**TABLE 3 - Area BN - Compliance Soil Analytical Data**

Verbeek Site  
Bothell, WA

Number	VBK-BN CS-B15	VBK-BN CS-B16	VBK-BN CS-B17	VBK-BN CS-B18	VBK-BN CS-B19	VBK-BN CS-B20	VBK-BN CS-B21	VBK-BN CS-B22	VBK-BN CS-B23	VBK-BN CS-B24	VBK-BN CS-B25
Northing	305965	305969	305941	305995	305993	305992	305990	306022	306022	305201	306021
Easting	1302180	1302147	1302121	1302153	1302182	1302209	1302238	1302185	1302211	1302241	1302271
Date	8/3/10	8/3/10	8/3/10	8/3/10	8/3/10	8/3/10	8/3/10	8/3/10	8/3/10	8/3/10	8/3/10
Type	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom
ARI Delivery Group	RH10	RH10	RH10	RH10	RH10	RH10	RH10	RH10	RH10	RH10	RH10
<b>Non-Carcinogenic PAHs (ug/kg)</b>											
Naphthalene	<4.6	11	38	940	50	<4.5	<4.9	1400	5.1	<4.8	150
2-Methylnaphthalene	<4.6	<4.9	<4.7	30	<4.6	<4.5	<4.9	15	<4.7	<4.8	220
1-Methylnaphthalene	<4.6	<4.9	<4.7	24	<4.6	<4.5	<4.9	8.5	<4.7	<4.8	160
<b>Total Naphthalenes</b>	<b>nd</b>	<b>11</b>	<b>38</b>	<b>994</b>	<b>50</b>	<b>nd</b>	<b>nd</b>	<b>1424</b>	<b>5.1</b>	<b>nd</b>	<b>530</b>
Acenaphthylene	<4.6	<4.9	<4.7	<15	<4.6	<4.5	<4.9	<4.7	<4.7	<4.8	<5.0
Acenaphthene	<4.6	<4.9	<4.7	<15	<4.6	<4.5	<4.9	<4.7	<4.7	<4.8	<5.0
Fluorene	<4.6	<4.9	<4.7	<15	<4.6	<4.5	<4.9	<4.7	<4.7	<4.8	<5.0
Phenanthrene	<4.6	<4.9	4.7	15	<4.6	<4.5	<4.9	4.7	<4.7	<4.8	24
Anthracene	<4.6	<4.9	<4.7	<15	<4.6	<4.5	<4.9	<4.7	<4.7	<4.8	5.0
Fluoranthene	<4.6	<4.9	<4.7	27	<4.6	<4.5	7.3	<4.7	<4.7	<4.8	29
Pyrene	<4.6	<4.9	<4.7	37	<4.6	4.5	12	69	<4.7	<4.8	31
Benzo(g,h,i)perylene	<4.6	<4.9	<4.7	28	<4.6	<4.5	8.3	26	<4.7	<4.8	19
Dibenzofuran	<4.6	<4.9	<4.7	<15	<4.6	<4.5	<4.9	<4.7	<4.7	<4.8	<5.0
<b>Carcinogenic PAHs (ug/kg)</b>											
Benzo(a)anthracene	<4.6	<4.9	<4.7	<15	<4.6	<4.5	<4.9	<4.7	<4.7	<4.8	10
Chrysene	<4.6	<4.9	<4.7	<15	<4.6	<4.5	4.9	51	<4.7	<4.8	15
Total Benzofluoranthenes	<4.6	<4.9	<4.7	18	<4.6	<4.5	7.8	<4.7	<4.7	<4.8	29
Benzo(a)pyrene	<4.6	<4.9	<4.7	<15	<4.6	<4.5	5.9	34	<4.7	<4.8	16
Indeno(1,2,3-cd)pyrene	<4.6	<4.9	<4.7	<15	<4.6	<4.5	5.9	10	<4.7	<4.8	12
Dibenzo(a,h)anthracene	<4.6	<4.9	<4.7	<15	<4.6	<4.5	<4.9	<4.7	<4.7	<4.8	<5.0
<b>BaPEq Sum</b>	<b>&lt;10.6</b>	<b>&lt;11.3</b>	<b>&lt;10.9</b>	<b>35.0</b>	<b>&lt;10.6</b>	<b>&lt;10.4</b>	<b>12.7</b>	<b>41.2</b>	<b>&lt;10.9</b>	<b>&lt;11.1</b>	<b>26.3</b>

Notes: < - Less than indicated value  
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 (R) - Initial sample above CULs. Result of second sample after additional excavation  
 (a) - Analysis by Fremont Analytical under subcontract to ARI

**TABLE 3 - Area BN - Compliance Soil Analytical Data**

Verbeek Site  
Bothell, WA

Number	VBK-BN CS-SW5(R)	VBK-BN CS-SW6	VBK-BN CS-SW7	VBK-BN CS-B26	VBK-BN CS-B27	VBK-BN CS-B28	VBK-BN CS-B29	VBK-BN CS-B30	VBK-BN CS-SW8	VBK-BN CS-SW9
Northing	305980	306010	306025	306051	306054	306055	305912	305887	305909	305880
Easting	1302132	1302155	1302183	1302244	1302213	1302184	1302114	1302110	1302141	1302134
Date	8/20/10	8/3/10	8/3/10	8/3/10	8/3/10	8/3/10	8/3/10	8/3/10	8/3/10	8/3/10
Type	Sidewall	Sidewall	Sidewall	Bottom	Bottom	Bottom	Bottom	Bottom	Sidewall	Sidewall
ARI Delivery Group	RJ89(a)	RH10	RH10	RH48	RH48	RH48	RH48	RH48	RH48	RH48
<b>Non-Carcinogenic PAHs (ug/kg)</b>										
Naphthalene	<5.0	<4.7	<4.6	<4.7	<4.7	<4.8	<4.9	120	11	<4.9
2-Methylnaphthalene	<5.0	<4.7	<4.6	<4.7	<4.7	<4.8	<4.9	<4.7	5.3	<4.9
1-Methylnaphthalene	<5.0	<4.7	<4.6	<4.7	<4.7	<4.8	<4.9	<4.7	<4.8	<4.9
<b>Total Naphthalenes</b>	nd	nd	nd	nd	nd	nd	nd	<b>120</b>	<b>16.3</b>	nd
Acenaphthylene	<5.0	<4.7	<4.6	<4.7	<4.7	<4.8	<4.9	<4.7	8.2	<4.9
Acenaphthene	<5.0	<4.7	<4.6	<4.7	<4.7	<4.8	<4.9	<4.7	<4.8	<4.9
Fluorene	<5.0	<4.7	<4.6	<4.7	<4.7	<4.8	<4.9	<4.7	8.7	<4.9
Phenanthrene	<5.0	5.7	<4.6	<4.7	<4.7	<4.8	<4.9	<4.7	88	6.3
Anthracene	<5.0	<4.7	<4.6	<4.7	<4.7	<4.8	<4.9	<4.7	21	<4.9
Fluoranthene	<5.0	16	<4.6	<4.7	<4.7	<4.8	<4.9	<4.7	88	11
Pyrene	<5.0	24	<4.6	<4.7	<4.7	<4.8	<4.9	<4.7	81	14
Benzo(g,h,i)perylene	<5.0	13	<4.6	<4.7	<4.7	<4.8	<4.9	<4.7	42	6.3
Dibenzofuran	----	<4.7	<4.6	<4.7	<4.7	<4.8	<4.9	<4.7	<4.8	<4.9
<b>Carcinogenic PAHs (ug/kg)</b>										
Benzo(a)anthracene	<5.0	6.6	<4.6	<4.7	<4.7	<4.8	<4.9	<4.7	27	5.3
Chrysene	<5.0	13	<4.6	<4.7	<4.7	<4.8	<4.9	<4.7	37	7.8
Total Benzofluoranthenes	<5.0	15	<4.6	<4.7	<4.7	<4.8	<4.9	<4.7	54	8.8
Benzo(a)pyrene	<5.0	14	<4.6	<4.7	<4.7	<4.8	<4.9	<4.7	49	6.3
Indeno(1,2,3-cd)pyrene	<5.0	8.0	<4.6	<4.7	<4.7	<4.8	<4.9	<4.7	27	<4.9
Dibenzo(a,h)anthracene	<5.0	<4.7	<4.6	<4.7	<4.7	<4.8	<4.9	<4.7	7.7	<4.9
<b>BaPEq Sum</b>	<b>&lt;11.6</b>	<b>21.8</b>	<b>&lt;10.6</b>	<b>&lt;10.9</b>	<b>&lt;10.9</b>	<b>&lt;11.1</b>	<b>&lt;11.3</b>	<b>&lt;10.9</b>	<b>67.9</b>	<b>13.2</b>

Notes: < - Less than indicated value  
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 nd - Not detected  
 (R) - Initial sample above CULs. Result of second sample after additional excavation  
 (a) - Analysis by Fremont Analytical under subcontract to ARI

**TABLE 3 - Area BN - Compliance Soil Analytical Data**

Number	VBK-BN CS-SW10	VBK-BN CS-SW11	VBK-BN CS-SW12	VBK-BN CS-SW13	VBK-BN CS-SW14
Northing	305883	305892	305920	305949	305973
Easting	1302109	1302085	1302090	1302100	1302112
Date	8/3/10	8/3/10	8/3/10	8/3/10	8/3/10
Type	Sidewall	Sidewall	Sidewall	Sidewall	Sidewall
ARI Delivery Group	RH48	RH48	RH48	RH48	RH48
<b>Non-Carcinogenic PAHs (ug/kg)</b>					
Naphthalene	<5.0	6.6	<4.6	<4.8	<5.0
2-Methylnaphthalene	<5.0	<4.7	<4.6	<4.8	<5.0
1-Methylnaphthalene	<5.0	<4.7	<4.6	<4.8	<5.0
<b>Total Naphthalenes</b>	nd	<b>6.6</b>	nd	nd	nd
Acenaphthylene	<5.0	7.6	<4.6	<4.8	<5.0
Acenaphthene	<5.0	<4.7	<4.6	<4.8	<5.0
Fluorene	<5.0	<4.7	<4.6	<4.8	<5.0
Phenanthrene	<5.0	54	<4.6	33	<5.0
Anthracene	<5.0	7.1	<4.6	11	<5.0
Fluoranthene	<5.0	100	<4.6	61	<5.0
Pyrene	<5.0	85	<4.6	61	<5.0
Benzo(g,h,i)perylene	<5.0	33	<4.6	18	<5.0
Dibenzofuran	<5.0	<4.7	<4.6	<4.8	<5.0
<b>Carcinogenic PAHs (ug/kg)</b>					
Benzo(a)anthracene	<5.0	<b>36</b>	<4.6	<b>30</b>	<5.0
Chrysene	<5.0	<b>47</b>	<4.6	<b>32</b>	<5.0
Total Benzofluoranthenes	<5.0	<b>77</b>	<4.6	<b>42</b>	<5.0
Benzo(a)pyrene	<5.0	<b>52</b>	<4.6	<b>32</b>	<5.0
Indeno(1,2,3-cd)pyrene	<5.0	<b>28</b>	<4.6	<b>15</b>	<5.0
Dibenzo(a,h)anthracene	<5.0	<b>9.5</b>	<4.6	<b>7.8</b>	<5.0
<b>BaPEq Sum</b>	<b>&lt;11.6</b>	<b>76.1</b>	<b>&lt;10.6</b>	<b>48.8</b>	<b>&lt;11.6</b>

**Notes:** < - Less than indicated value  
 J - Estimated value  
 nd - Not detected  
 (R) - Initial sample above CULs. Result of second sample after additional excavation  
 (a) - Analysis by Fremont Analytical under subcontract to ARI

**TABLE 4 - Area BS - Compliance Soil Analytical Data**

Verbeek Site  
Bothell, WA

Number	VBK-BS CS-B1	VBK-BS CS-B2	VBK-BS CS-B3	VBK-BS CS-B4	VBK-BS CS-B5	VBK-BS CS-B6	VBK-BS CS-B7	VBK-BS CS-B8	VBK-BS CS-B9	VBK-BS CS-B10	VBK-BS CS-B11
Northing	305758	305786	305817	305758	305787	305817	305757	305786	305764	305790	305765
Easting	1302347	1302348	1302350	1302318	1302319	1302320	1302288	1302289	1302144	1302141	1302172
Date	8/11/10	8/11/10	8/11/10	8/11/10	8/11/10	8/11/10	8/17/10	8/17/10	8/16/10	8/16/10	8/16/10
Type	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom
ARI Delivery Group	RI13	RI13	RI13	RI13	RI13	RI13	RJ00	RJ00	RI87	RI87	RI87
Comment	---	---	---	---	---	---	---	---	---	---	---
<b>Non-Carcinogenic PAHs (ug/kg)</b>											
Naphthalene	4100	4400	12	260	810	640	930	590	5.6	220	47
2-Methylnaphthalene	47 Q	73 Q	41 Q	40 Q	140 Q	100 Q	55	78	<4.7	<4.8	<4.5
1-Methylnaphthalene	57	80	49	34	130	140	230	110	<4.7	17	10
<b>Total Naphthalenes</b>	<b>4204</b>	<b>4553</b>	<b>102</b>	<b>334</b>	<b>1080</b>	<b>880</b>	<b>1215</b>	<b>778</b>	<b>5.6</b>	<b>237</b>	<b>57</b>
Acenaphthylene	<14	<4.7	<4.7	<4.8	100	6.8	<4.5	<4.5	<4.7	<4.8	<4.5
Acenaphthene	<14	<4.7	65	11	26	110	50	41	<4.7	<4.8	<4.5
Fluorene	<14	<4.7	42	<4.8	90	8.2	<4.5	<4.5	<4.7	<4.8	<4.5
Phenanthrene	51	11	160	<4.8	24	<4.5	<4.5	<4.5	10	<4.8	<4.5
Anthracene	<14	<4.7	15	<4.8	<4.6	<4.5	<4.5	<4.5	<4.7	<4.8	<4.5
Fluoranthene	72	16	42	<4.8	<4.6	<4.5	<4.5	<4.5	<4.7	<4.8	<4.5
Pyrene	87	15	56	<4.8	<4.6	<4.5	<4.5	<4.5	<4.7	<4.8	5.4
Benzo(g,h,i)perylene	51	8.0	<4.7	<4.8	<4.6	<4.5	<4.5	<4.5	<4.7	<4.8	<4.5
Dibenzofuran	<14	<4.7	<4.7	<4.8	8.2	<4.5	<4.5	<4.5	<4.7	<4.8	<4.5
<b>Carcinogenic PAHs (ug/kg)</b>											
Benzo(a)anthracene	<b>41 Q</b>	<b>6.6 Q</b>	<4.7	<4.8	<4.6	<4.5	<4.5	<4.5	<4.7	<4.8	<4.5
Chrysene	<b>61</b>	<b>9.8</b>	<4.7	<4.8	<4.6	<4.5	<4.5	<4.5	<4.7	<4.8	<4.5
Total Benzofluoranthenes	<b>90</b>	<b>13</b>	<4.7	<4.8	<4.6	<4.5	<4.5	<4.5	<4.7	<4.8	<4.5
Benzo(a)pyrene	<b>53</b>	<b>7.5</b>	<4.7	<4.8	<4.6	<4.5	<4.5	<4.5	<4.7	<4.8	<4.5
Indeno(1,2,3-cd)pyrene	<b>36</b>	<b>5.1</b>	<4.7	<4.8	<4.6	<4.5	<4.5	<4.5	<4.7	<4.8	<4.5
Dibenzo(a,h)anthracene	<14	<4.7	<4.7	<4.8	<4.6	<4.5	<4.5	<4.5	<4.7	<4.8	<4.5
<b>BaPEq:Sum</b>	<b>84.3</b>	<b>14.8</b>	<b>&lt;10.9</b>	<b>&lt;11.1</b>	<b>&lt;10.6</b>	<b>&lt;10.4</b>	<b>&lt;10.4</b>	<b>&lt;10.4</b>	<b>&lt;10.9</b>	<b>&lt;11.1</b>	<b>&lt;10.4</b>

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**TABLE 4 - Area BS - Compliance Soil Analytical Data**

Verbeek Site  
Bothell, WA

Number	VBK-BS CS-B12	VBK-BS CS-B13	VBK-BS CS-B14	VBK-BS CS-B15	VBK-BS CS-B16	VBK-BS CS-B17	VBK-BS CS-B18	VBK-BS CS-B19	VBK-BS CS-B20	VBK-BS CS-B21	VBK-BS CS-B22
Northing	305789	305817	305818	305765	305792	305763	305787	305758	305786	305856	305852
Easting	1302172	1302144	1302171	1302200	1302198	1302230	1302231	1302257	1302257	1302147	1302121
Date	8/16/10	8/17/10	8/17/10	8/17/10	8/17/10	8/17/10	8/17/10	8/17/10	8/17/10	8/22/10	8/22/10
Type	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom
ARI Delivery Group	RI87	RJ00	RJ00	RJ00	RJ00	RJ00	RJ00	RJ00	RJ00	RJ89(a)	RJ89(a)
Comment	---	---	---	---	---	---	---	---	---	---	---
<b>Non-Carcinogenic PAHs (ug/kg)</b>											
Naphthalene	130	<4.6	<4.7	20	<4.6	7.2	<4.7	410	270	<5.0	121
2-Methylnaphthalene	20	<4.6	<4.7	21	<4.6	<4.8	36	13	40	<5.0	<5.0
1-Methylnaphthalene	21	<4.6	<4.7	11	<4.6	<4.8	150	24	17	<5.0	<5.0
<b>Total Naphthalenes</b>	<b>171</b>	<b>nd</b>	<b>nd</b>	<b>52</b>	<b>nd</b>	<b>7.2</b>	<b>186</b>	<b>447</b>	<b>327</b>	<b>nd</b>	<b>121</b>
Acenaphthylene	7.3	<4.6	<4.7	<4.7	<4.6	<4.8	7.0	<4.8	<4.8	<5.0	<5.0
Acenaphthene	5.4	<4.6	<4.7	<4.7	<4.6	<4.8	5.1	<4.8	<4.8	<5.0	<5.0
Fluorene	6.8	<4.6	<4.7	5.7	<4.6	<4.8	<4.7	<4.8	11	<5.0	<5.0
Phenanthrene	55	<4.6	<4.7	31	<4.6	<4.8	5.1	<4.8	52	<5.0	<5.0
Anthracene	11	<4.6	<4.7	6.6	<4.6	<4.8	<4.7	<4.8	12	<5.0	<5.0
Fluoranthene	68	<4.6	<4.7	42	<4.6	<4.8	14	<4.8	67	<5.0	<5.0
Pyrene	91	<4.6	<4.7	71	<4.6	<4.8	15	7.6	87	<5.0	<5.0
Benzo(g,h,i)perylene	31	<4.6	<4.7	20	<4.6	<4.8	<4.7	5.7	24	<5.0	<5.0
Dibenzofuran	5.4	<4.6	<4.7	<4.7	<4.6	<4.8	<4.7	<4.8	<4.8	----	----
<b>Carcinogenic PAHs (ug/kg)</b>											
Benzo(a)anthracene	<b>38</b>	<4.6	<4.7	<b>20 Q</b>	<4.6	<4.8	<4.7	<4.8	<b>36 Q</b>	<5.0	<5.0
Chrysene	<b>45</b>	<4.6	<4.7	<b>26</b>	<4.6	<4.8	<b>7.5</b>	<b>9.5</b>	<b>39</b>	<5.0	<5.0
<b>Total Benzofluoranthenes</b>	<b>59</b>	<4.6	<4.7	<b>31</b>	<4.6	<4.8	<b>7.0</b>	<b>6.7</b>	<b>41</b>	<5.0	<5.0
Benzo(a)pyrene	<b>47</b>	<4.6	<4.7	<b>25</b>	<4.6	<4.8	<4.7	<4.8	<b>36</b>	<5.0	<5.0
Indeno(1,2,3-cd)pyrene	<b>24</b>	<4.6	<4.7	<b>14</b>	<4.6	<4.8	<4.7	<4.8	<b>15</b>	<5.0	<5.0
Dibenzo(a,h)anthracene	<b>10</b>	<4.6	<4.7	<4.7	<4.6	<4.8	<4.7	<4.8	<4.8	<5.0	<5.0
<b>BaPEq. Sum</b>	<b>69.6</b>	<b>&lt;10.6</b>	<b>&lt;10.9</b>	<b>36.5</b>	<b>&lt;10.6</b>	<b>&lt;11.1</b>	<b>11.1</b>	<b>11.3</b>	<b>50.4</b>	<b>&lt;11.6</b>	<b>&lt;11.6</b>

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**TABLE 4 - Area BS - Compliance Soil Analytical Data**

Verbeek Site  
Bothell, WA

Number	VBK-BS CS-B23	VBK-BS CS-B24(R)	VBK-BS CS-B25	VBK-BS CS-B26	VBK-BS CS-B27	VBK-BS CS-B28	VBK-BS CS-B29	VBK-BS CS-SW1	VBK-BS CS-SW2	VBK-BS CS-SW3	VBK-BS CS-SW4
Northing	305872	305852	305820	305820	305818	305817	305842	305760	305749	305755	305783
Easting	1302124	1302175	1302201	1302233	1302260	1302290	1302202	1302364	1302168	1302136	1302135
Date	8/22/10	8/24/10	8/22/10	8/22/10	8/22/10	8/22/10	8/24/10	8/17/10	8/16/10	8/16/10	8/16/10
Type	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Sidewall	Sidewall	Sidewall	Sidewall
ARI Delivery Group	RJ89(a)	RK56(a)	RJ89(a)	RJ89(a)	RJ89(a)	RJ89(a)	RK23(a)	RJ00	RI87	RI87	RI87
Comment	---	---	---	---	---	---	---	---	---	---	---
<b>Non-Carcinogenic PAHs (ug/kg)</b>											
Naphthalene	<5.0	<5.0	<5.0	<5.0	<5.0	53	<5.0	<4.7	<5.0	<4.7	9.1
2-Methylnaphthalene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<4.7	<5.0	<4.7	4.8
1-Methylnaphthalene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<4.7	<5.0	<4.7	<4.8
<b>Total Naphthalenes</b>	nd	nd	nd	nd	nd	<b>53</b>	nd	nd	nd	nd	<b>14</b>
Acenaphthylene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<4.7	<5.0	<4.7	<4.8
Acenaphthene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<4.7	<5.0	<4.7	<4.8
Fluorene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<4.7	<5.0	<4.7	<4.8
Phenanthrene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	8.4	<4.7	<5.0	<4.7	8.6
Anthracene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<4.7	<5.0	<4.7	<4.8
Fluoranthene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	17	<4.7	<5.0	<4.7	10
Pyrene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	23	<4.7	<5.0	<4.7	17
Benzo(g,h,i)perylene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	19	<4.7	<5.0	<4.7	8.1
Dibenzofuran	----	----	----	----	----	----	----	<4.7	<5.0	<4.7	<4.8
<b>Carcinogenic PAHs (ug/kg)</b>											
Benzo(a)anthracene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	11	<4.7	<5.0	<4.7	4.8
Chrysene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	12	<4.7	<5.0	<4.7	5.7
<b>Total Benzofluoranthenes</b>	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	11	<4.7	<5.0	<4.7	9.1
Benzo(a)pyrene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	11	<4.7	<5.0	<4.7	6.2
Indeno(1,2,3-cd)pyrene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	7.3	<4.7	<5.0	<4.7	4.8
Dibenzo(a,h)anthracene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<4.7	<5.0	<4.7	<4.8
<b>BaPEq Sum</b>	<b>&lt;11.6</b>	<b>&lt;11.6</b>	<b>&lt;11.6</b>	<b>&lt;11.6</b>	<b>&lt;11.6</b>	<b>&lt;11.6</b>	<b>18.4</b>	<b>&lt;10.9</b>	<b>&lt;11.6</b>	<b>&lt;10.9</b>	<b>12.9</b>

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**TABLE 4 - Area BS - Compliance Soil Analytical Data**

Verbeek Site  
Bothell, WA

Number	VBK-BS CS-SW5	VBK-BS CS-SW6	VBK-BS CS-SW7	VBK-BS CS-SW8	VBK-BS CS-SW9	VBK-BS CS-SW10	VBK-BS CS-SW11(R)	VBK-BS CS-SW12	VBK-BS CS-SW13	VBK-BS CS-SW14	VBK-BS CS-SW15
Northing	305819	305786	305815	305854	305877	305880	305871	305841	305840	305842	305836
Easting	1302123	1302360	1302366	1302108	1302112	1302147	1302175	1302262	1302291	1302320	1302350
Date	8/17/10	8/17/10	8/17/10	8/22/10	8/22/10	8/22/10	8/24/10	8/22/10	8/22/10	8/22/10	8/22/10
Type	Sidewall	Sidewall	Sidewall	Sidewall	Sidewall	Sidewall	Sidewall	Sidewall	Sidewall	Sidewall	Sidewall
ARI Delivery Group	RJ00	RJ00	RJ00	RJ89(a)	RJ89(a)	RJ89(a)	RK56(a)	RJ89(a)	RJ89(a)	RJ89(a)	RJ89(a)
Comment	---	---	---	---	---	---	---	---	---	---	---
<b>Non-Carcinogenic PAHs (ug/kg)</b>											
Naphthalene	<4.7	<4.7	<4.8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Methylnaphthalene	<4.7	<4.7	<4.8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1-Methylnaphthalene	<4.7	<4.7	<4.8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
<b>Total Naphthalenes</b>	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Acenaphthylene	<4.7	<4.7	<4.8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Acenaphthene	<4.7	<4.7	<4.8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Fluorene	<4.7	<4.7	<4.8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Phenanthrene	<4.7	<4.7	<4.8	<5.0	<5.0	6.8	<5.0	<5.0	<5.0	<5.0	<5.0
Anthracene	<4.7	<4.7	<4.8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Fluoranthene	<4.7	<4.7	<4.8	<5.0	<5.0	9.0	<5.0	<5.0	<5.0	<5.0	<5.0
Pyrene	<4.7	<4.7	<4.8	<5.0	<5.0	14.6	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(g,h,i)perylene	<4.7	<4.7	<4.8	<5.0	<5.0	7.9	<5.0	<5.0	<5.0	<5.0	<5.0
Dibenzofuran	<4.7	<4.7	<4.8	----	----	----	<5.0	----	----	----	----
<b>Carcinogenic PAHs (ug/kg)</b>											
Benzo(a)anthracene	<4.7	<4.7	<4.8	<5.0	<5.0	5.6	<5.0	<5.0	<5.0	<5.0	<5.0
Chrysene	<4.7	<4.7	<4.8	<5.0	<5.0	5.6	<5.0	<5.0	<5.0	<5.0	<5.0
<b>Total Benzofluoranthenes</b>	<4.7	<4.7	<4.8	<5.0	<5.0	5.6	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(a)pyrene	<4.7	<4.7	<4.8	<5.0	<5.0	5.6	<5.0	<5.0	<5.0	<5.0	<5.0
Indeno(1,2,3-cd)pyrene	<4.7	<4.7	<4.8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dibenzo(a,h)anthracene	<4.7	<4.7	<4.8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
<b>BaPEq Sum</b>	<10.9	<10.9	<11.1	<11.6	<11.6	12.3	<11.6	<11.6	<11.6	<11.6	<11.6

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**TABLE 4 - Area BS - Compliance Soil Analytical Data**

Verbeek Site  
Bothell, WA

Number	VBK-BS CS-SW16	VBK-BS CS-SW17	VBK-BS CS-SW18A	VBK-BS CS-SW18B	VBK-BS CS-SW18C	VBK-BS CS-SW19A	VBK-BS CS-SW19B	VBK-BS CS-SW19C	VBK-BS CS-SW20	VBK-BS CS-SW21
Northing	305866	305843	305745	305745	305745	305745	305745	305745	305746	305746
Easting	1302201	1302233	1302340	1302340	1302340	1302275	1302275	1302275	1302235	1302205
Date	8/24/10	8/24/10	8/24/10	8/24/10	8/24/10	8/24/10	8/24/10	8/24/10	8/25/10	8/25/10
Type	Sidewall	Sidewall	Sidewall	Sidewall	Sidewall	Sidewall	Sidewall	Sidewall	Sidewall	Sidewall
ARI Delivery Group	RK23(a)	RK23(a)	RK23(a)	RK23(a)	RK23(a)	RK23(a)	RK23(a)	RK23(a)	RK56(a)	RK56(a)
Comment	---	---	---	Gold's	---	---	Gold's	---	---	---
<b>Non-Carcinogenic PAHs (ug/kg)</b>										
Naphthalene	<5.0	<5.0	6.7	11000	516	15	10100	182	<5.0	<5.0
2-Methylnaphthalene	<5.0	<5.0	<5.0	4040	682	14	2990	57	<5.0	<5.0
1-Methylnaphthalene	<5.0	<5.0	<5.0	1670	16.2	<5.0	1950	<14	<5.0	<5.0
<b>Total Naphthalenes</b>	<b>nd</b>	<b>nd</b>	<b>6.7</b>	<b>16710</b>	<b>1214</b>	<b>29.4</b>	<b>15040</b>	<b>239</b>	<b>nd</b>	<b>nd</b>
Acenaphthylene	<5.0	<5.0	<5.0	1250	387	24	4810	19.8	<5.0	<5.0
Acenaphthene	<5.0	<5.0	<5.0	10300	<5.0	<5.0	2990	<5.0	<5.0	<5.0
Fluorene	<5.0	<5.0	<5.0	7660	<5.0	<5.0	4550	<5.0	<5.0	<5.0
Phenanthrene	<5.0	<5.0	10	119000	<5.0	<5.0	42300	<5.0	<5.0	<5.0
Anthracene	<5.0	<5.0	<5.0	15300	<5.0	<5.0	7540	<5.0	<5.0	<5.0
Fluoranthene	8.3	9.4	35	157000	<5.0	<5.0	51100	<5.0	<5.0	<5.0
Pyrene	14	13	57	202000	<5.0	<5.0	65200	7.0	<5.0	<5.0
Benzo(g,h,i)perylene	8.3	9.4	47	51100	<5.0	<5.0	20200	7.0	<5.0	<5.0
Dibenzofuran	----	----	----	----	----	----	----	----	----	----
<b>Carcinogenic PAHs (ug/kg)</b>										
Benzo(a)anthracene	5.2	5.2	18	43900	<5.0	<5.0	16100	<5.0	<5.0	<5.0
Chrysene	5.2	5.2	18	30800	<5.0	<5.0	16100	<5.0	<5.0	<5.0
Total Benzofluoranthenes	<5.0	<5.0	30	32750	<5.0	<5.0	19290	<5.0	<5.0	<5.0
Benzo(a)pyrene	5.2	5.2	33	36800	<5.0	<5.0	19000	<5.0	<5.0	<5.0
Indeno(1,2,3-cd)pyrene	<5.0	<5.0	24	25300	<5.0	<5.0	12200	<5.0	<5.0	<5.0
Dibenzo(a,h)anthracene	<5.0	<5.0	11	18700	<5.0	<5.0	10500	<5.0	<5.0	<5.0
<b>BaPEq Sum</b>	<b>11.8</b>	<b>11.8</b>	<b>51.2</b>	<b>66003</b>	<b>&lt;11.6</b>	<b>&lt;11.6</b>	<b>34420</b>	<b>&lt;11.6</b>	<b>&lt;11.6</b>	<b>&lt;11.6</b>

**Notes:** < - Less than indicated value  
 J - Estimated value  
 nd - Not detected  
 (R) - Initial sample above CULs. Result of second sample after additional excavation  
 (a) - Analysis by Fremont Analytical under subcontract to ARI  
 Q - Analyte was detected but initial or continuing calibration did not meet established acceptance criteria

**TABLE 5 - GWPSP Area - Compliance Soil Analytical Data**

Verbeek Site  
Bothell, WA

Number	VBK-GWPSP CS-B1	VBK-GWPSP CS-B2	VBK-GWPSP CS-B3	VBK-GWPSP CS-B4	VBK-GWPSP CS-B5	VBK-GWPSP CS-B6	VBK-GWPSP CS-B7(R)
Northing	306350	306320	306290	306260	306229	306201	306171
Easting	1301777	1301779	1301782	1301783	1301787	1301790	1391792
Date	7/20/10	7/20/10	7/20/10	7/20/10	7/20/10	7/20/10	8/20/10
Type	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom
ARI Delivery Group	RF00	RF00	RF00	RF00	RF69	RF69	RJ89(a)
<b>Non-Carcinogenic PAHs (ug/kg)</b>							
Naphthalene	<4.8	<4.5	<4.6	<4.9	<4.6	<4.8	6.3
2-Methylnaphthalene	<4.8	<4.5	<4.6	<4.9	<4.6	<4.8	<5.0
1-Methylnaphthalene	<4.8	<4.5	<4.6	<4.9	<4.6	<4.8	<5.0
Total Naphthalenes	nd	nd	nd	nd	nd	nd	6.3
Acenaphthylene	<4.8	<4.5	<4.6	<4.9	<4.6	<4.8	<5.0
Acenaphthene	<4.8	7.2	<4.6	7.4	<4.6	<4.8	<5.0
Fluorene	<4.8	5.9	<4.6	5.9	<4.6	<4.8	<5.0
Phenanthrene	<4.8	80	24	80	<4.6	<4.8	4.2 J
Anthracene	<4.8	14	<4.6	14	<4.6	<4.8	<5.0
Fluoranthene	<4.8	52	16	51	<4.6	<4.8	11
Pyrene	5.2	110	33	110	<4.6	6.2	19
Benzo(g,h,i)perylene	<4.8	33	11	31	<4.6	11	16
Dibenzofuran	<4.8	<4.5	<4.6	<4.9	<4.6	<4.8	----
<b>Carcinogenic PAHs (ug/kg)</b>							
Benzo(a)anthracene	<4.8	46	14	44	<4.6	<4.8	5.2
Chrysene	5.2	67	21	66	<4.6	<4.8	7.3
Total Benzofluoranthenes	4.8	53	19	51	<4.6	<4.8	14
Benzo(a)pyrene	<4.8	59	18	55	<4.6	<4.8	10
Indeno(1,2,3-cd)pyrene	<4.8	19	6.9	19	<4.6	<4.8	8.3
Dibenzo(a,h)anthracene	<4.8	7.2	<4.6	5.9	<4.6	<4.8	<5.0
BaPEq: Sum	11.1	78.7	26.8	73.0	<10.6	<11.1	18.2

**Notes:** < - Less than indicated value  
 J - Estimated value  
 nd - Not detected  
 (R) - Initial sample above CULs. Result of second sample after additional excavation  
 (a) -Analysis by Fremont Analytical under subcontract to ARI

**TABLE 5 - GWPSP Area - Compliance Soil Analytical Data**

Verbeek Site  
Bothell, WA

Number	VBK-GWPSP CS-B8	VBK-GWPSP CS-B9	VBK-GWPSP CS-B10	VBK-GWPSP CS-B11	VBK-GWPSP CS-B12	VBK-GWPSP CS-B13	VBK-GWPSP CS-B14
Northing	306143	306114	306083	306051	306020	304991	305967
Easting	1301793	1301793	1301797	1301801	1301809	1301818	1301836
Date	7/20/10	7/30/10	7/30/10	7/30/10	7/30/10	7/30/10	7/30/10
Type	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom
ARI Delivery Group	RF69	RG65	RG65	RG65	RG65	RG65	RG65
<b>Non-Carcinogenic PAHs (ug/kg)</b>							
Naphthalene	<4.6	<5.0	<4.9	<4.6	<4.9	10	<4.8
2-Methylnaphthalene	<4.6	<5.0	<4.9	<4.6	<4.9	<4.6	<4.8
1-Methylnaphthalene	<4.6	<5.0	<4.9	<4.6	<4.9	<4.6	<4.8
Total Naphthalenes	nd	nd	nd	nd	nd	10	nd
Acenaphthylene	<4.6	<5.0	<4.9	<4.6	<4.9	<4.6	<4.8
Acenaphthene	<4.6	<5.0	<4.9	<4.6	<4.9	<4.6	<4.8
Fluorene	<4.6	<5.0	<4.9	<4.6	<4.9	<4.6	<4.8
Phenanthrene	6.0	<5.0	<4.9	<4.6	<4.9	<4.6	5.8
Anthracene	<4.6	<5.0	<4.9	<4.6	<4.9	<4.6	<4.8
Fluoranthene	<4.6	<5.0	<4.9	<4.6	<4.9	<4.6	7.7
Pyrene	7.9	<5.0	<4.9	<4.6	<4.9	<4.6	5.8
Benzo(g,h,i)perylene	<4.6	<5.0	<4.9	8.8	<4.9	<4.6	<4.8
Dibenzofuran	<4.6	<5.0	<4.9	<4.6	<4.9	<4.6	<4.8
<b>Carcinogenic PAHs (ug/kg)</b>							
Benzo(a)anthracene	<4.6	<5.0	<4.9	<4.6	<4.9	<4.6	<4.8
Chrysene	5.1	<5.0	<4.9	<4.6	<4.9	<4.6	<4.8
Total Benzofluoranthenes	<4.6	<5.0	<4.9	<4.6	<4.9	<4.6	5.8
Benzo(a)pyrene	<4.6	<5.0	<4.9	<4.6	<4.9	<4.6	<4.8
Indeno(1,2,3-cd)pyrene	<4.6	<5.0	<4.9	<4.6	<4.9	<4.6	<4.8
Dibenzo(a,h)anthracene	<4.6	<5.0	<4.9	<4.6	<4.9	<4.6	<4.8
BaPEq Sum	<10.6	<11.6	<11.3	<10.6	<11.3	<10.6	11.2

Notes: < - Less than indicated value  
 J - Estimated value  
 nd - Not detected  
 (R) - Initial sample above CULs. Result of second sample  
 after additional excavation  
 (a) -Analysis by Fremont Analytical under subcontract to ARI

**TABLE 5 - GWSPSP Area - Compliance Soil Analytical Data**

Verbeek Site  
Bothell, WA

Number	VBK-GWSPSP CS-B15	VBK-GWSPSP CS-B16	VBK-GWSPSP CS-B17	VBK-GWSPSP CS-B18	VBK-GWSPSP CS-B19	VBK-GWSPSP CS-B20
Northing	305956	305950	305944	305941	305939	305932
Easting	1301865	1301895	1301927	1301957	1301988	1302021
Date	7/30/10	7/30/10	7/30/10	7/30/10	7/30/10	7/30/10
Type	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom
ARI Delivery Group	RG65	RG65	RG65	RG65	RG65	RG65
<b>Non-Carcinogenic PAHs (ug/kg)</b>						
Naphthalene	<4.8	<4.6	<4.6	<5.0	<4.6	<4.7
2-Methylnaphthalene	<4.8	<4.6	<4.6	<5.0	<4.6	<4.7
1-Methylnaphthalene	<4.8	<4.6	<4.6	<5.0	<4.6	<4.7
Total Naphthalenes	nd	nd	nd	nd	nd	nd
Acenaphthylene	<4.8	<4.6	<4.6	<5.0	<4.6	<4.7
Acenaphthene	<4.8	<4.6	<4.6	<5.0	<4.6	<4.7
Fluorene	<4.8	<4.6	<4.6	<5.0	<4.6	<4.7
Phenanthrene	<4.8	<4.6	<4.6	<5.0	<4.6	<4.7
Anthracene	<4.8	<4.6	<4.6	<5.0	<4.6	<4.7
Fluoranthene	<4.8	<4.6	<4.6	<5.0	<4.6	<4.7
Pyrene	<4.8	<4.6	<4.6	<5.0	<4.6	<4.7
Benzo(g,h,i)perylene	<4.8	<4.6	<4.6	<5.0	<4.6	<4.7
Dibenzofuran	<4.8	<4.6	<4.6	<5.0	<4.6	<4.7
<b>Carcinogenic PAHs (ug/kg)</b>						
Benzo(a)anthracene	<4.8	<4.6	<4.6	<5.0	<4.6	<4.7
Chrysene	<4.8	<4.6	<4.6	<5.0	<4.6	<4.7
Total Benzofluoranthenes	<4.8	<4.6	<4.6	<5.0	<4.6	<4.7
Benzo(a)pyrene	<4.8	<4.6	<4.6	<5.0	<4.6	<4.7
Indeno(1,2,3-cd)pyrene	<4.8	<4.6	<4.6	<5.0	<4.6	<4.7
Dibenzo(a,h)anthracene	<4.8	<4.6	<4.6	<5.0	<4.6	<4.7
BaPEq Sum	<11.1	<10.6	<10.6	<11.6	<10.6	<10.9

Notes: < - Less than indicated value  
 J - Estimated value  
 nd - Not detected  
 (R) - Initial sample above CULs. Result of second sample after additional excavation  
 (a) -Analysis by Fremont Analytical under subcontract to ARI

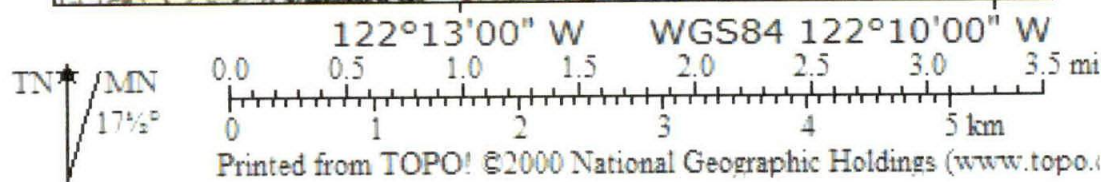
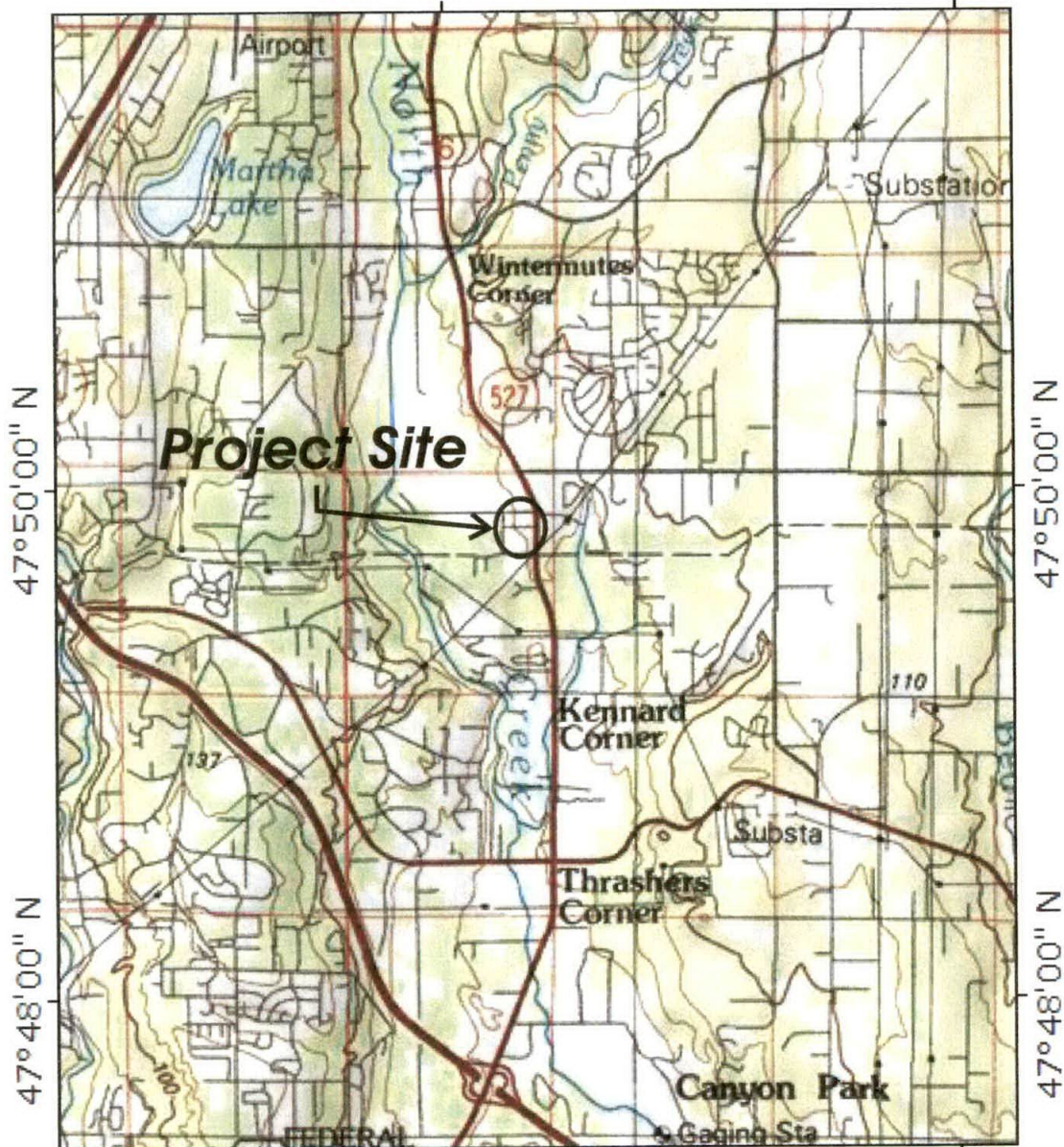
**TABLE 6 - LF Area - Compliance Soil Analytical Data**

Verbeek Site  
Bothell, WA

Number	VBK-LF CS-B1	VBK-LF CS-B2	VBK-LF CS-B3	VBK-LF CS-B4	VBK-LF CS-B5	VBK-LF CS-B6	VBK-LF CS-B7	VBK-LF CS-B8	VBK-LF CS-B9	VBK-LF CS-B10	VBK-LF CS-B11	VBK-LF CS-B12
Northing	306433	306432	306430	306429	306404	306403	306401	306399	306375	306373	306371	306370
Easting	1301747	1301774	1301805	1301834	1301745	1301775	1301804	1301834	1301741	1301774	1301804	1301834
Date	7/28/10	7/28/10	4/18/64	7/28/10	7/28/10	7/28/10	7/28/10	7/28/10	7/28/10	7/28/10	7/28/10	7/28/10
Type	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom
ARI Delivery Group	RG08	RG08	RG08	RG08	RG08	RG08	RG08	RG08	RG08	RG08	RG08	RG08
<b>Non-Carcinogenic PAHs (ug/kg)</b>												
Naphthalene	<4.8	<4.8	<4.8	10	<4.6	<4.6	<4.5	<4.7	<4.9	<4.4	<4.6	<4.8
2-Methylnaphthalene	<4.8	<4.8	7.7	11	<4.6	<4.6	<4.5	<4.7	<4.9	<4.4	5.5	<4.8
1-Methylnaphthalene	<4.8	<4.8	<4.8	6.3	<4.6	<4.6	<4.5	<4.7	<4.9	<4.4	<4.6	<4.8
Total Naphthalenes	nd	nd	7.7	27	nd	nd	nd	nd	nd	nd	5.5	nd
Acenaphthylene	<4.8	<4.8	<4.8	<4.9	<4.6	<4.6	<4.5	<4.7	<4.9	<4.4	<4.6	<4.8
Acenaphthene	<4.8	<4.8	<4.8	9.7	<4.6	<4.6	<4.5	<4.7	<4.9	<4.4	<4.6	<4.8
Fluorene	<4.8	<4.8	<4.8	7.8	<4.6	<4.6	<4.5	<4.7	<4.9	<4.4	<4.6	<4.8
Phenanthrene	<4.8	33	23	99	<4.6	<4.6	<4.5	<4.7	<4.9	12	44	23
Anthracene	<4.8	5.8	<4.8	18	<4.6	<4.6	<4.5	<4.7	<4.9	<4.4	7.8	<4.8
Fluoranthene	<4.8	24	15	57	<4.6	<4.6	<4.5	<4.7	<4.9	11	26	15
Pyrene	5.8	50	30	150	<4.6	<4.6	<4.5	<4.7	5.9	19	61	32
Benzo(g,h,i)perylene	<4.8	12	9.6	31	<4.6	<4.6	<4.5	<4.7	<4.9	5.8	17	9.0
Dibenzofuran	<4.8	<4.8	<4.8	<4.9	<4.6	<4.6	<4.5	<4.7	<4.9	<4.4	<4.6	<4.8
<b>Carcinogenic PAHs (ug/kg)</b>												
Benzo(a)anthracene	<4.8	22	12	53	<4.6	<4.6	<4.5	<4.7	<4.9	7.1	23	13
Chrysene	<4.8	31	16	77	<4.6	<4.6	<4.5	<4.7	<4.9	11	34	19
Total Benzofluoranthenes	6.2	31	16	76	<4.6	<4.6	<4.5	<4.7	<4.9	9.7	25	14
Benzo(a)pyrene	4.8	30	14	72	<4.6	<4.6	<4.5	<4.7	<4.9	8.8	31	16
Indeno(1,2,3-cd)pyrene	<4.8	7.7	4.8	21	<4.6	<4.6	<4.5	<4.7	<4.9	<4.4	10	5.7
Dibenzo(a,h)anthracene	<4.9	<4.8	<4.8	<4.9	<4.6	<4.6	<4.5	<4.7	<4.9	<4.4	<4.6	<4.8
BaPEq:Sum	11.3	41.2	22.2	92.7	<10.6	<10.6	<10.4	<10.9	<11.3	15.4	41.7	24.3

Notes: < - Less than indicated value  
 J - Estimated value  
 nd - Not detected  
 (R) - Initial sample above CULs. Result of second sample after additional excavation

map printed on 03/20/09 from "Washington.tpo" and "Untitled  
122°13'00" W WGS84 122°10'00" W

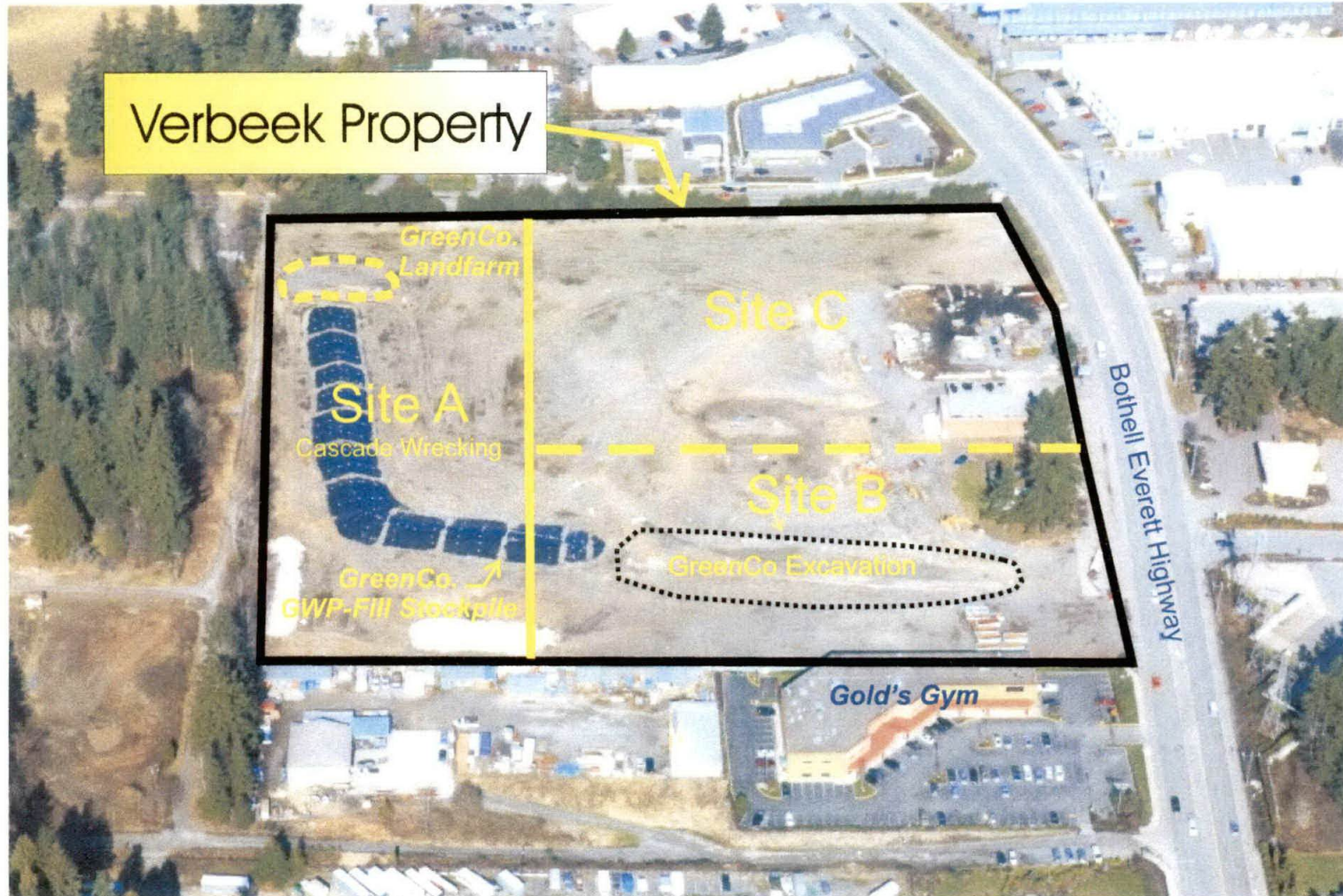


Former Verbeek Wrecking Yard  
Bothell, WA

**Vicinity Map**

PSE-004-00 **FIGURE 1** March 2009  
Dalton, Olmsted & Fuglevand, Inc.

Ref: Vicinity Map.cdr



Verbeek Property

GreenCo.  
Landfarm

Site C

Site A

Cascade Wrecking

Site B

GreenCo. Excavation

GreenCo.  
GWP-FIII Stockpile

Bothell Everett Highway

Gold's Gym

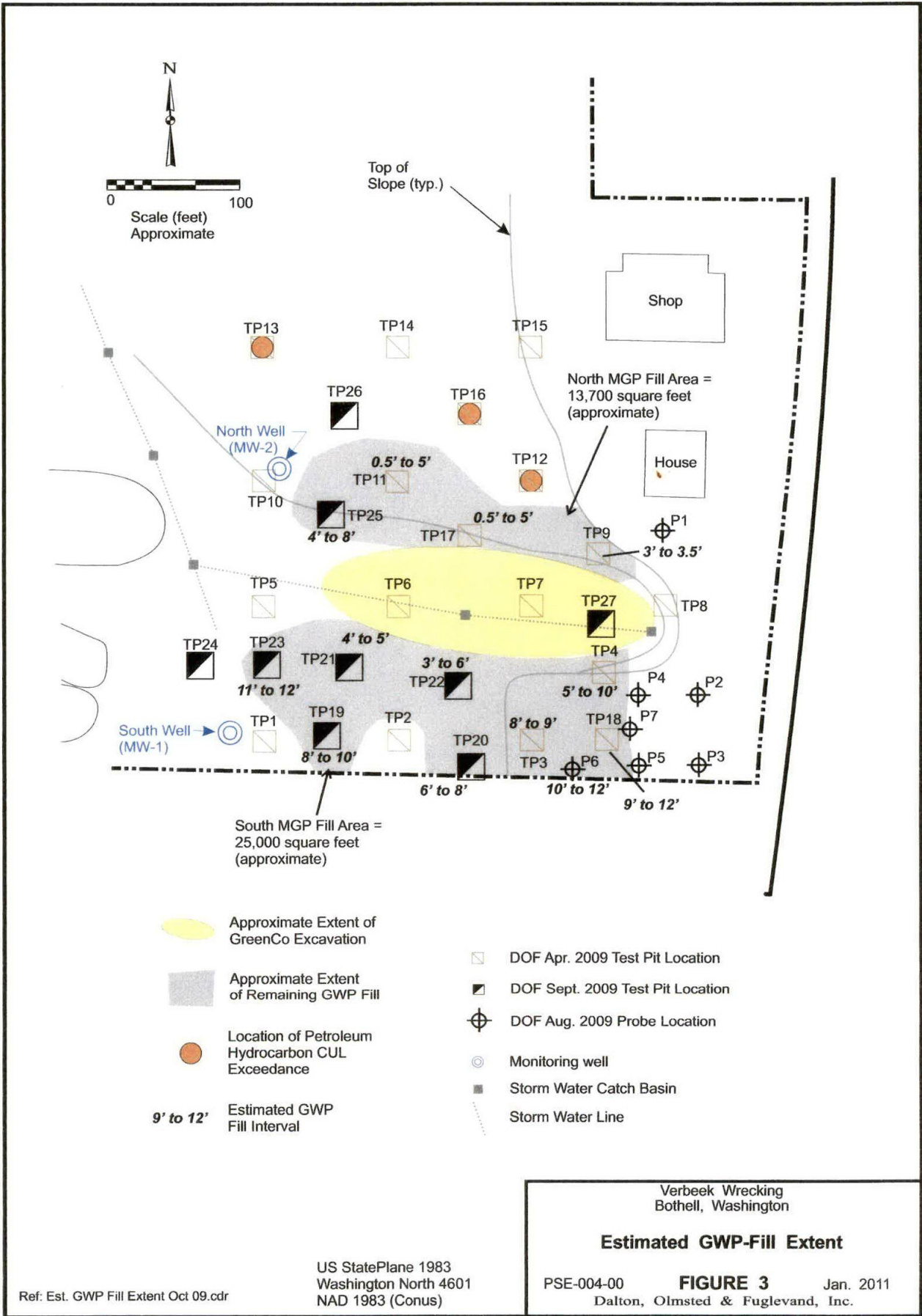
Photo by Aequalis Photography  
3-6-09

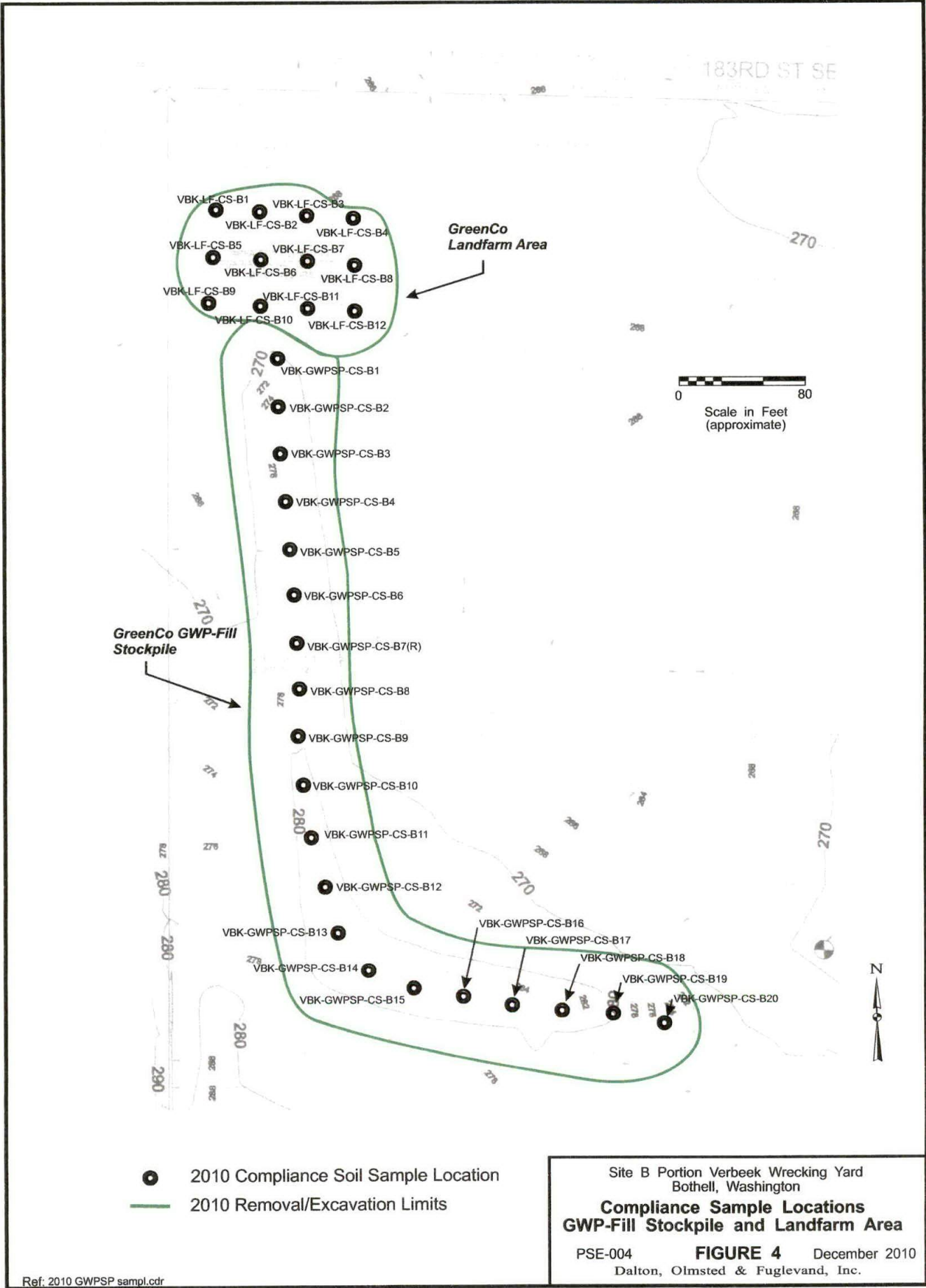


Verbeek Site B  
Bothell, Washington  
**Site Air Photograph - March 2009**

PSE-004-00 **FIGURE 2** Dec. 2010  
Dalton, Olmsted & Fuglevand, Inc.



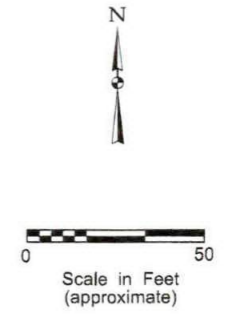




Ref: 2010 GWPSP sampl.cdr



- ▲ Area BN Compliance Soil Sample Location
- Area BS Compliance Soil Sample Location
- GWP-Fill Excavation Limits
- - - GWP-Fill Layer in Sidewall
- Stormwater Catch Basin
- · - Stormwater Pipe



Site B Portion Verbeek Wrecking Yard  
Bothell, Washington  
**Compliance Sample Locations  
Site B Excavation Areas**  
PSE-004 **FIGURE 5** December 2010  
Dalton, Olmsted & Fuglevand, Inc.

Ref: Verbeek Site B 2010 GWP compli sampl 1-7-11.cdr

**APPENDIX A**  
Clearcreek Contractors  
Disposal and Import Summary

# Clearcreek



CONTRACTORS

Environmental/Civil

## PSE Verbeek Site Remediation Material Handling Import / Export Summary

Job #	Date	Facility	Material Type	Scale/Ticket #	Trucking Co.	Truck #	BOL #	Tons	Cubic Yards	Quantity	Units
210077	7/13/2010	Lafarge	Class III/IV Soil	30450	Clearcreek	44/51	4990	31.90			
210077	7/13/2010	Lafarge	Class III/IV Soil	30451	Clearcreek	43/50	5257	32.96			
210077	7/13/2011	Lafarge	Class III/IV Soil	30452	Interwest	538/191	10021	31.92			
210077	7/13/2010	Lafarge	Class III/IV Soil	30453	Interwest	528/529	13681	28.94			
210077	7/13/2010	Lafarge	Class III/IV Soil	30454	Interwest	524/525	13960	31.08			
210077	7/13/2010	Lafarge	Class III/IV Soil	30455	Interwest	582/583	14413	28.10			
210077	7/13/2011	Lafarge	Class III/IV Soil	30456	Interwest	568/569	14947	28.58			
210077	7/13/2010	Lafarge	Class III/IV Soil	30457	Interwest	586/587	10204	28.69			
210077	7/13/2011	Lafarge	Class III/IV Soil	30458	Interwest	576/577	13196	28.52			
210077	7/13/2010	Lafarge	Class III/IV Soil	30459	Interwest	172/173	13731	30.86			
210077	7/13/2010	Lafarge	Class III/IV Soil	30460	Interwest	158/165	13033	34.64			
210077	7/13/2010	Lafarge	Class III/IV Soil	30461	Interwest	592	14575	29.72			
210077	7/13/2010	Lafarge	Class III/IV Soil	30462	Clearcreek	44/51	4990	36.90			
210077	7/13/2010	Lafarge	Class III/IV Soil	30463	Clearcreek	43/50	5257	35.73			
210077	7/13/2010	Lafarge	Class III/IV Soil	30464	Interwest	538/191	10021	34.08			
210077	7/13/2010	Lafarge	Class III/IV Soil	30465	Interwest	528/529	13681	34.74			
210077	7/13/2010	Lafarge	Class III/IV Soil	30466	Interwest	524/525	13960	36.08			
210077	7/13/2010	Lafarge	Class III/IV Soil	30467	Interwest	582/583	14413	30.68			
210077	7/13/2010	Lafarge	Class III/IV Soil	30468	Interwest	568/569	14947	29.29			
210077	7/13/2010	Lafarge	Class III/IV Soil	30469	Interwest	586/587	10204	29.17			
210077	7/13/2010	Lafarge	Class III/IV Soil	30470	Interwest	576	13196	31.94			
210077	7/13/2010	Lafarge	Class III/IV Soil	30471	Interwest	172/173	13731	35.67			
210077	7/13/2010	Lafarge	Class III/IV Soil	30472	Interwest	158/165	13033	38.32			
210077	7/13/2010	Lafarge	Class III/IV Soil	30473	Interwest	592	14575	30.54			
210077	7/13/2010	Lafarge	Class III/IV Soil	30475	Clearcreek	44/51	4990	33.03			
210077	7/13/2010	Lafarge	Class III/IV Soil	30476	Clearcreek	43/50	5257	28.74			
210077	7/13/2010	Lafarge	Class III/IV Soil	30477	Interwest	538/191	10021	31.66			
210077	7/13/2010	Lafarge	Class III/IV Soil	30478	Interwest	528/529	13681	29.68			
210077	7/13/2010	Lafarge	Class III/IV Soil	30479	Interwest	524/525	13960	30.30			
210077	7/13/2010	Lafarge	Class III/IV Soil	30480	Interwest	582/583	14413	27.68			
210077	7/13/2010	Lafarge	Class III/IV Soil	30481	Interwest	568/569	14947	29.81			
210077	7/13/2010	Lafarge	Class III/IV Soil	30482	Interwest	586/587	10204	26.54			
210077	7/13/2010	Lafarge	Class III/IV Soil	30483	Interwest	576	13196	26.99			
210077	7/13/2010	Lafarge	Class III/IV Soil	30484	Interwest	172/173	13731	28.72			
210077	7/13/2010	Lafarge	Class III/IV Soil	30485	Interwest	158/165	13033	31.21			
210077	7/13/2010	Lafarge	Class III/IV Soil	30486	Interwest	592	14575	30.11			
210077	7/13/2011	Lafarge	Class III/IV Soil	30487	Clearcreek	44/51	4990	31.55			
210077	7/13/2010	Lafarge	Class III/IV Soil	30488	Interwest	538/191	10021	31.91			

210077	7/13/2010	Lafarge	Class III/IV Soil	30489	Interwest	528/529	13681	28.31
210077	7/13/2010	Lafarge	Class III/IV Soil	30490	Interwest	524/525	13960	30.42
210077	7/13/2010	Lafarge	Class III/IV Soil	30491	Interwest	568/569	14947	29.32
210077	7/13/2010	Lafarge	Class III/IV Soil	30492	Interwest	586/587	10204	29.45
210077	7/13/2010	Lafarge	Class III/IV Soil	30493	Interwest	576	13196	30.53
210077	7/13/2010	Lafarge	Class III/IV Soil	30494	Interwest	172/173	13731	31.07
210077	7/13/2010	Lafarge	Class III/IV Soil	30495	Interwest	158/165	13033	32.90
210077	7/13/2010	Lafarge	Class III/IV Soil	30496	Interwest	592	14575	30.02
210077	7/13/2010	Lafarge	Class III/IV Soil	30497	Interwest	582/583	14413	30.46
210077	7/14/2010	Lafarge	Class III/IV Soil	30498	Clearcreek	43/50	5259	28.35
210077	7/14/2010	Lafarge	Class III/IV Soil	30499	Clearcreek	44/51	4991	34.72
210077	7/14/2010	Lafarge	Class III/IV Soil	30500	Interwest	530/531	13989	30.23
210077	7/14/2010	Lafarge	Class III/IV Soil	30501	Interwest	R-27	14864	37.00
210077	7/14/2010	Lafarge	Class III/IV Soil	30502	Interwest	515	14186	35.02
210077	7/14/2010	Lafarge	Class III/IV Soil	30504	Interwest	568/569	14693	26.88
210077	7/14/2010	Lafarge	Class III/IV Soil	30505	Interwest	R-30	14863	32.60
210077	7/14/2010	Lafarge	Class III/IV Soil	30506	Interwest	595/593	8151	30.10
210077	7/14/2010	Lafarge	Class III/IV Soil	30507	Interwest	172/173	13732	31.94
210077	7/14/2010	Lafarge	Class III/IV Soil	30508	Interwest	R-24	14185	36.55
210077	7/14/2010	Lafarge	Class III/IV Soil	30509	Interwest	190/175	16126	30.95
210077	7/14/2010	Lafarge	Class III/IV Soil	30510	Interwest	R-25	14857	29.20
210077	7/14/2010	Lafarge	Class III/IV Soil	30512	Clearcreek	43/50	5259	36.98
210077	7/14/2010	Lafarge	Class III/IV Soil	30513	Interwest	106/107	14859	36.02
210077	7/14/2010	Lafarge	Class III/IV Soil	30514	Clearcreek	44/51	4991	33.62
210077	7/14/2010	Lafarge	Class III/IV Soil	30515	Interwest	530/531	13989	33.65
210077	7/14/2010	Lafarge	Class III/IV Soil	30516	Interwest	R-27	14864	39.13
210077	7/14/2010	Lafarge	Class III/IV Soil	30517	Interwest	568/569	14693	32.33
210077	7/14/2010	Lafarge	Class III/IV Soil	30518	Interwest	595/593	8151	31.23
210077	7/14/2010	Lafarge	Class III/IV Soil	30519	Interwest	R-30	14863	34.53
210077	7/14/2010	Lafarge	Class III/IV Soil	30520	Interwest	172/173	13732	36.03
210077	7/14/2010	Lafarge	Class III/IV Soil	30521	Interwest	R-24	14185	39.13
210077	7/14/2010	Lafarge	Class III/IV Soil	30522	Interwest	190/175	16126	33.90
210077	7/14/2010	Lafarge	Class III/IV Soil	30523	Interwest	R-25	14857	33.22
210077	7/14/2010	Lafarge	Class III/IV Soil	30525	Clearcreek	43/50	5259	33.69
210077	7/14/2010	Lafarge	Class III/IV Soil	30526	Interwest	530/531	13989	33.23
210077	7/14/2010	Lafarge	Class III/IV Soil	30527	Interwest	106/107	14859	30.22
210077	7/14/2010	Lafarge	Class III/IV Soil	30528	Clearcreek	44/51	4991	33.11
210077	7/14/2010	Lafarge	Class III/IV Soil	30529	Interwest	568/569	14693	30.04
210077	7/14/2010	Lafarge	Class III/IV Soil	30530	Interwest	R-27	14864	38.55
210077	7/14/2010	Lafarge	Class III/IV Soil	30531	Interwest	R-30	14863	34.29
210077	7/14/2010	Lafarge	Class III/IV Soil	30532	Interwest	172/173	13732	33.69
210077	7/14/2010	Lafarge	Class III/IV Soil	30533	Interwest	190/175	16126	32.98
210077	7/14/2010	Lafarge	Class III/IV Soil	30534	Interwest	R-24	14185	36.04
210077	7/14/2010	Lafarge	Class III/IV Soil	30535	Interwest	595/593	8151	30.62
210077	7/14/2010	Lafarge	Class III/IV Soil	30536	Interwest	R-25	14857	31.56
210077	7/14/2010	Lafarge	Class III/IV Soil	30537	Interwest	515	14186	39.07

210077	7/14/2010	Lafarge	Class III/IV Soil	30538	Clearcreek	43/50	5259	33.48
210077	7/14/2010	Lafarge	Class III/IV Soil	30539	Interwest	530/531	13989	33.17
210077	7/14/2010	Lafarge	Class III/IV Soil	30540	Clearcreek	44/51	4991	33.21
210077	7/14/2010	Lafarge	Class III/IV Soil	30541	Interwest	106/107	14859	29.78
210077	7/14/2010	Lafarge	Class III/IV Soil	30542	Interwest	568/569	14693	32.54
210077	7/14/2010	Lafarge	Class III/IV Soil	30543	Interwest	R-30	14863	29.05
210077	7/14/2010	Lafarge	Class III/IV Soil	30544	Interwest	R-27	14864	38.10
210077	7/14/2010	Lafarge	Class III/IV Soil	30545	Interwest	172/173	13732	33.09
210077	7/14/2010	Lafarge	Class III/IV Soil	30546	Interwest	575	16126	32.59
210077	7/14/2010	Lafarge	Class III/IV Soil	30547	Interwest	190	8151	30.80
210077	7/14/2010	Lafarge	Class III/IV Soil	30548	Interwest	R-24	14185	34.27
210077	7/14/2010	Lafarge	Class III/IV Soil	30549	Interwest	R-25	14857	31.55
210077	7/15/2010	Lafarge	Class III/IV Soil	30550	Clearcreek	43/50	5260	29.47
210077	7/15/2010	Lafarge	Class III/IV Soil	30551	Clearcreek	44/51	4992	31.97
210077	7/15/2010	Lafarge	Class III/IV Soil	30552	Interwest	530/531	13990	30.53
210077	7/15/2010	Lafarge	Class III/IV Soil	30553	Interwest	588/589	14415	27.00
210077	7/15/2010	Lafarge	Class III/IV Soil	30554	Interwest	568/569	14694	29.99
210077	7/15/2010	Lafarge	Class III/IV Soil	30555	Interwest	190/175	16127	32.59
210077	7/15/2010	Lafarge	Class III/IV Soil	30556	Interwest	592/593	8152	30.00
210077	7/15/2010	Lafarge	Class III/IV Soil	30557	Interwest	584/585	13769	29.95
210077	7/15/2010	Lafarge	Class III/IV Soil	30558	Interwest	172/173	13733	33.03
210077	7/15/2010	Lafarge	Class III/IV Soil	30559	Interwest	R-27	14867	37.64
210077	7/15/2010	Lafarge	Class III/IV Soil	30560	Interwest	158/165	13036	34.48
210077	7/15/2010	Lafarge	Class III/IV Soil	30561	Interwest	R-30	14866	33.17
210077	7/15/2010	Lafarge	Class III/IV Soil	30562	Interwest	515/516	14868	31.93
210077	7/15/2010	Lafarge	Class III/IV Soil	30563	Interwest	198/199	13868	32.14
210077	7/15/2010	Lafarge	Class III/IV Soil	30564	Interwest	R-24	14862	36.13
210077	7/15/2010	Lafarge	Class III/IV Soil	30565	Interwest	106/107	14865	33.62
210077	7/15/2010	Lafarge	Class III/IV Soil	30566	Clearcreek	44/51	4992	34.92
210077	7/15/2010	Lafarge	Class III/IV Soil	30567	Interwest	530/531	13990	31.65
210077	7/15/2010	Lafarge	Class III/IV Soil	30568	Interwest	588/589	14415	31.80
210077	7/15/2010	Lafarge	Class III/IV Soil	30569	Interwest	568/569	14694	30.34
210077	7/15/2010	Lafarge	Class III/IV Soil	30570	Interwest	190/175	16127	32.62
210077	7/15/2010	Lafarge	Class III/IV Soil	30572	Interwest	172/173	13733	31.93
210077	7/15/2010	Lafarge	Class III/IV Soil	30573	Interwest	592/593	8152	31.09
210077	7/15/2010	Lafarge	Class III/IV Soil	30574	Interwest	R-24	14862	34.78
210077	7/15/2010	Lafarge	Class III/IV Soil	30575	Interwest	584/585	13769	29.75
210077	7/15/2010	Lafarge	Class III/IV Soil	30576	Interwest	R-27	14867	38.62
210077	7/15/2010	Lafarge	Class III/IV Soil	30577	Interwest	158/165	13036	34.03
210077	7/15/2010	Lafarge	Class III/IV Soil	30579	Interwest	R-30	14866	33.92
210077	7/15/2010	Lafarge	Class III/IV Soil	30580	Interwest	198/199	13868	35.65
210077	7/15/2010	Lafarge	Class III/IV Soil	30581	Interwest	106/107	14865	32.91
210077	7/15/2010	Lafarge	Class III/IV Soil	30582	Interwest	530/531	13990	32.63
210077	7/15/2010	Lafarge	Class III/IV Soil	30583	Clearcreek	44/51	4992	35.88
210077	7/15/2010	Lafarge	Class III/IV Soil	30584	Interwest	588/589	14415	31.55
210077	7/15/2010	Lafarge	Class III/IV Soil	30585	Interwest	568/569	14694	30.09

210077	7/15/2010	Lafarge	Class III/IV Soil	30586	Interwest	190/175	16127	31.99
210077	7/15/2010	Lafarge	Class III/IV Soil	30587	Interwest	R-24	14862	37.41
210077	7/15/2010	Lafarge	Class III/IV Soil	30588	Interwest	592/593	8152	32.13
210077	7/15/2010	Lafarge	Class III/IV Soil	30589	Interwest	584/585	13769	31.14
210077	7/15/2010	Lafarge	Class III/IV Soil	30590	Clearcreek	43/50	5260	33.10
210077	7/15/2010	Lafarge	Class III/IV Soil	30591	Interwest	R-27	14867	38.13
210077	7/15/2010	Lafarge	Class III/IV Soil	30592	Interwest	158/165	13036	35.27
210077	7/15/2010	Lafarge	Class III/IV Soil	30593	Interwest	R-30	14866	31.52
210077	7/15/2010	Lafarge	Class III/IV Soil	30594	Interwest	106/107	14865	31.98
210077	7/15/2010	Lafarge	Class III/IV Soil	30595	Interwest	530/531	13990	33.70
210077	7/15/2010	Lafarge	Class III/IV Soil	30596	Interwest	198/199	13868	32.60
210077	7/15/2010	Lafarge	Class III/IV Soil	30598	Clearcreek	44/51	4992	32.47
210077	7/15/2010	Lafarge	Class III/IV Soil	30599	Interwest	588/589	14415	30.05
210077	7/15/2010	Lafarge	Class III/IV Soil	30600	Interwest	568/569	14694	31.56
210077	7/15/2010	Lafarge	Class III/IV Soil	30601	Interwest	190/175	16127	32.89
210077	7/15/2010	Lafarge	Class III/IV Soil	30602	Interwest	R-24	14862	35.29
210077	7/15/2010	Lafarge	Class III/IV Soil	30603	Interwest	172/173	13733	32.52
210077	7/15/2010	Lafarge	Class III/IV Soil	30604	Interwest	592/593	8152	29.82
210077	7/15/2010	Lafarge	Class III/IV Soil	30605	Interwest	584/585	13769	30.10
210077	7/15/2010	Lafarge	Class III/IV Soil	30606	Clearcreek	43/50	5260	30.48
210077	7/15/2010	Lafarge	Class III/IV Soil	30607	Interwest	158/165	13036	33.21
210077	7/15/2010	Lafarge	Class III/IV Soil	30608	Interwest	R-30	14866	31.58
210077	7/15/2010	Lafarge	Class III/IV Soil	30609	Interwest	R-27	14867	35.88
210077	7/15/2010	Lafarge	Class III/IV Soil	30610	Interwest	106/107	14865	32.62
210077	7/15/2010	Lafarge	Class III/IV Soil	30611	Interwest	530/531	13990	36.15
210077	7/16/2010	Lafarge	Class III/IV Soil	30612	Interwest	530	13991	31.72
210077	7/16/2010	Lafarge	Class III/IV Soil	30614	Interwest	524/525	13964	31.56
210077	7/16/2010	Lafarge	Class III/IV Soil	30615	Interwest	588/589	14416	32.32
210077	7/16/2010	Lafarge	Class III/IV Soil	30616	Interwest	568/569	14695	31.21
210077	7/16/2010	Lafarge	Class III/IV Soil	30617	Interwest	590/591	13672	31.25
210077	7/16/2010	Lafarge	Class III/IV Soil	30618	Interwest	582/583	13842	30.44
210077	7/16/2010	Lafarge	Class III/IV Soil	30619	Interwest	526/527	13622	32.21
210077	7/16/2010	Lafarge	Class III/IV Soil	30620	Interwest	595	5326	32.80
210077	7/16/2010	Lafarge	Class III/IV Soil	30621	Interwest	586/587	10207	31.42
210077	7/16/2010	Lafarge	Class III/IV Soil	30622	Interwest	190	16128	33.30
210077	7/16/2010	Lafarge	Class III/IV Soil	30623	Interwest	172/173	13734	34.79
210077	7/16/2010	Lafarge	Class III/IV Soil	30624	Interwest	578/579	13715	32.92
210077	7/16/2010	Lafarge	Class III/IV Soil	30625	Interwest	158/165	13037	37.47
210077	7/16/2010	Lafarge	Class III/IV Soil	30626	Interwest	584/585	13771	31.95
210077	7/16/2010	Lafarge	Class III/IV Soil	30628	Interwest	530	13991	34.20
210077	7/16/2010	Lafarge	Class III/IV Soil	30629	Interwest	524/525	13964	37.66
210077	7/16/2010	Lafarge	Class III/IV Soil	30630	Interwest	588/589	14416	31.15
210077	7/16/2010	Lafarge	Class III/IV Soil	30631	Interwest	568/569	14695	35.12
210077	7/16/2010	Lafarge	Class III/IV Soil	30632	Interwest	590/591	13672	34.10
210077	7/16/2010	Lafarge	Class III/IV Soil	30633	Interwest	582/583	13842	32.64
210077	7/16/2010	Lafarge	Class III/IV Soil	30634	Interwest	526/527	13622	35.27



210077	7/16/2010	Lafarge	Class III/IV Soil	30635	Interwest	595	5326	32.46
210077	7/16/2010	Lafarge	Class III/IV Soil	30636	Interwest	586/587	10207	31.78
210077	7/16/2010	Lafarge	Class III/IV Soil	30637	Interwest	190	16128	33.73
210077	7/16/2010	Lafarge	Class III/IV Soil	30638	Interwest	172/173	13734	35.66
210077	7/16/2010	Lafarge	Class III/IV Soil	30639	Interwest	578/579	13715	30.47
210077	7/16/2010	Lafarge	Class III/IV Soil	30641	Interwest	158/165	13037	32.37
210077	7/16/2010	Lafarge	Class III/IV Soil	30642	Interwest	584/585	13771	31.60
210077	7/16/2010	Lafarge	Class III/IV Soil	30643	Interwest	530	13991	36.04
210077	7/16/2010	Lafarge	Class III/IV Soil	30645	Clearcreek	43	5262	33.20
210077	7/16/2010	Lafarge	Class III/IV Soil	30646	Interwest	524/525	13964	35.02
210077	7/16/2010	Lafarge	Class III/IV Soil	30647	Interwest	588/589	14416	30.88
210077	7/16/2010	Lafarge	Class III/IV Soil	30648	Interwest	568/569	14695	32.43
210077	7/16/2010	Lafarge	Class III/IV Soil	30649	Interwest	590/591	13672	30.25
210077	7/16/2010	Lafarge	Class III/IV Soil	30650	Interwest	582/583	13842	30.18
210077	7/16/2010	Lafarge	Class III/IV Soil	30651	Interwest	526/527	13622	34.61
210077	7/16/2010	Lafarge	Class III/IV Soil	30652	Interwest	595	5326	30.93
210077	7/16/2010	Lafarge	Class III/IV Soil	30653	Interwest	586/587	10207	31.56
210077	7/16/2010	Lafarge	Class III/IV Soil	30654	Interwest	190	16128	32.10
210077	7/16/2010	Lafarge	Class III/IV Soil	30655	Interwest	172/173	13734	33.26
210077	7/16/2010	Lafarge	Class III/IV Soil	30656	Interwest	578/579	13715	31.49
210077	7/16/2010	Lafarge	Class III/IV Soil	30657	Interwest	158/165	13037	35.47
210077	7/16/2010	Lafarge	Class III/IV Soil	30658	Interwest	584/585	13771	32.10
210077	7/16/2010	Lafarge	Class III/IV Soil	30659	Interwest	538/191	10274	32.84
210077	7/16/2010	Lafarge	Class III/IV Soil	30660	Interwest	530	13991	34.49
210077	7/16/2010	Lafarge	Class III/IV Soil	30661	Interwest	524/525	13964	35.38
210077	7/16/2010	Lafarge	Class III/IV Soil	30662	Clearcreek	43	5262	31.48
210077	7/16/2010	Lafarge	Class III/IV Soil	30663	Interwest	588/589	14416	29.74
210077	7/16/2010	Lafarge	Class III/IV Soil	30664	Interwest	568/569	14695	35.23
210077	7/16/2010	Lafarge	Class III/IV Soil	30665	Interwest	590/591	13672	29.19
210077	7/16/2010	Lafarge	Class III/IV Soil	30666	Interwest	582/583	13842	31.88
210077	7/16/2010	Lafarge	Class III/IV Soil	30667	Interwest	526/527	13622	35.39
210077	7/16/2010	Lafarge	Class III/IV Soil	30668	Interwest	595	5326	31.00
210077	7/16/2010	Lafarge	Class III/IV Soil	30669	Interwest	586/587	10207	29.25
210077	7/16/2010	Lafarge	Class III/IV Soil	30670	Interwest	190	16128	32.64
210077	7/16/2010	Lafarge	Class III/IV Soil	30671	Interwest	172/173	13734	34.09
210077	7/16/2010	Lafarge	Class III/IV Soil	30672	Interwest	578/579	13715	30.44
210077	7/16/2010	Lafarge	Class III/IV Soil	30673	Interwest	158/165	13037	31.59
210077	7/16/2010	Lafarge	Class III/IV Soil	30674	Interwest	584/585	13771	35.75
210077	7/16/2010	Lafarge	Class III/IV Soil	30675	Interwest	538/191	10274	32.13
210077	7/19/2010	Lafarge	Class III/IV Soil	30676	Clearcreek	43	5263	29.18
210077	7/19/2010	Lafarge	Class III/IV Soil	30677	Interwest	528/529	13691	29.92
210077	7/19/2010	Lafarge	Class III/IV Soil	30678	Interwest	588/589	14417	28.12
210077	7/19/2010	Lafarge	Class III/IV Soil	30679	Interwest	568/569	14696	31.48
210077	7/19/2010	Lafarge	Class III/IV Soil	30680	Interwest	515	14189	31.22
210077	7/19/2010	Lafarge	Class III/IV Soil	30681	Interwest	526/527	13623	32.43
210077	7/19/2010	Lafarge	Class III/IV Soil	30682	Interwest	172/173	13735	33.04

210077	7/19/2010	Lafarge	Class III/IV Soil	30683	Interwest	24	3731	33.20
210077	7/19/2010	Lafarge	Class III/IV Soil	30684	Interwest	106	14869	31.85
210077	7/19/2010	Lafarge	Class III/IV Soil	30685	Interwest	25	3730	29.13
210077	7/19/2010	Lafarge	Class III/IV Soil	30686	Interwest	27	14870	35.05
210077	7/19/2010	Lafarge	Class III/IV Soil	30687	Interwest	30	11926	31.92
210077	7/19/2010	Lafarge	Class III/IV Soil	30688	Interwest	584/585	13773	30.10
210077	7/19/2010	Lafarge	Class III/IV Soil	30689	Interwest	178/179	14997	31.04
210077	7/19/2010	Lafarge	Class III/IV Soil	30690	Interwest	22	3735	27.47
210077	7/19/2010	Lafarge	Class III/IV Soil	30691	Clearcreek	44/51	4998	31.87
210077	7/19/2010	Lafarge	Class III/IV Soil	30692	Interwest	528/529	13691	32.66
210077	7/19/2010	Lafarge	Class III/IV Soil	30693	Interwest	588/589	14417	30.46
210077	7/19/2010	Lafarge	Class III/IV Soil	30694	Interwest	568/569	14696	30.15
210077	7/19/2010	Lafarge	Class III/IV Soil	30695	Interwest	515	14189	31.94
210077	7/19/2010	Lafarge	Class III/IV Soil	30696	Interwest	526/527	13623	31.99
210077	7/19/2010	Lafarge	Class III/IV Soil	30697	Interwest	172/173	13735	34.28
210077	7/19/2010	Lafarge	Class III/IV Soil	30698	Interwest	24	3731	34.05
210077	7/19/2010	Lafarge	Class III/IV Soil	30699	Interwest	106	14869	31.39
210077	7/19/2010	Lafarge	Class III/IV Soil	30700	Interwest	25	3730	30.11
210077	7/19/2010	Lafarge	Class III/IV Soil	30701	Interwest	27	14870	39.20
210077	7/19/2010	Lafarge	Class III/IV Soil	30702	Interwest	30	11926	33.10
210077	7/19/2010	Lafarge	Class III/IV Soil	30703	Interwest	584/585	13773	31.17
210077	7/19/2010	Lafarge	Class III/IV Soil	30704	Interwest	178/179	14997	33.49
210077	7/19/2010	Lafarge	Class III/IV Soil	30705	Interwest	22	3735	29.51
210077	7/19/2010	Lafarge	Class III/IV Soil	30706	Clearcreek	44/51	4998	34.24
210077	7/19/2010	Lafarge	Class III/IV Soil	30707	Interwest	528/529	13691	36.03
210077	7/19/2010	Lafarge	Class III/IV Soil	30708	Interwest	588/589	14417	32.96
210077	7/19/2010	Lafarge	Class III/IV Soil	30709	Interwest	568/569	14696	32.92
210077	7/19/2010	Lafarge	Class III/IV Soil	30710	Interwest	515	14189	38.23
210077	7/19/2010	Lafarge	Class III/IV Soil	30711	Interwest	526/527	13623	33.39
210077	7/19/2010	Lafarge	Class III/IV Soil	30712	Interwest	172/173	13735	34.36
210077	7/19/2010	Lafarge	Class III/IV Soil	30713	Interwest	24	3731	38.35
210077	7/19/2010	Lafarge	Class III/IV Soil	30714	Interwest	106	14869	37.69
210077	7/19/2010	Lafarge	Class III/IV Soil	30715	Interwest	27	14870	41.08
210077	7/19/2010	Lafarge	Class III/IV Soil	30716	Interwest	30	11926	36.60
210077	7/19/2010	Lafarge	Class III/IV Soil	30717	Interwest	25	3730	34.73
210077	7/19/2010	Lafarge	Class III/IV Soil	30718	Interwest	584/585	13773	33.42
210077	7/19/2010	Lafarge	Class III/IV Soil	30719	Interwest	178/179	14997	35.09
210077	7/19/2010	Lafarge	Class III/IV Soil	30720	Interwest	22	3735	33.72
210077	7/19/2010	Lafarge	Class III/IV Soil	30721	Clearcreek	44/51	4998	32.63
210077	7/19/2010	Lafarge	Class III/IV Soil	30722	Interwest	528/529	13691	35.63
210077	7/19/2010	Lafarge	Class III/IV Soil	30723	Interwest	588/589	14417	31.58
210077	7/19/2010	Lafarge	Class III/IV Soil	30724	Interwest	568/569	14696	35.05
210077	7/19/2010	Lafarge	Class III/IV Soil	30725	Interwest	515	14189	39.21
210077	7/19/2010	Lafarge	Class III/IV Soil	30726	Interwest	526/527	13623	33.37
210077	7/19/2010	Lafarge	Class III/IV Soil	30727	Interwest	172/173	13735	34.90
210077	7/19/2010	Lafarge	Class III/IV Soil	30728	Interwest	24	3731	40.63

210077	7/19/2010	Lafarge	Class III/IV Soil	30729	Interwest	106	14869	39.20
210077	7/19/2010	Lafarge	Class III/IV Soil	30730	Interwest	27	14870	43.80
210077	7/19/2010	Lafarge	Class III/IV Soil	30731	Interwest	30	11926	36.34
210077	7/19/2010	Lafarge	Class III/IV Soil	30732	Interwest	584/585	13773	35.73
210077	7/19/2010	Lafarge	Class III/IV Soil	30733	Interwest	25	3730	35.17
210077	7/20/2010	Lafarge	Class III/IV Soil	30734	Interwest	530	13993	35.17
210077	7/20/2010	Lafarge	Class III/IV Soil	30735	Interwest	588/589	14418	32.07
210077	7/20/2010	Lafarge	Class III/IV Soil	30736	Clearcreek	44/51	4999	32.15
210077	7/20/2010	Lafarge	Class III/IV Soil	30737	Interwest	568/569	14697	32.11
210077	7/20/2010	Lafarge	Class III/IV Soil	30738	Interwest	172/17	13736	32.84
210077	7/20/2010	Lafarge	Class III/IV Soil	30739	Interwest	584/585	13774	31.60
210077	7/20/2010	Lafarge	Class III/IV Soil	30740	Interwest	526	16802	33.78
210077	7/20/2010	Lafarge	Class III/IV Soil	30741	Interwest	592	8154	30.85
210077	7/20/2010	Lafarge	Class III/IV Soil	30742	Interwest	106	14871	35.04
210077	7/20/2010	Lafarge	Class III/IV Soil	30743	Interwest	25	3738	33.98
210077	7/20/2010	Lafarge	Class III/IV Soil	30744	Interwest	27	14872	45.51
210077	7/20/2010	Lafarge	Class III/IV Soil	30745	Interwest	22	3736	32.75
210077	7/20/2010	Lafarge	Class III/IV Soil	30746	Interwest	30	11927	33.43
210077	7/20/2010	Lafarge	Class III/IV Soil	30747	Interwest	515	14190	39.95
210077	7/20/2010	Lafarge	Class III/IV Soil	30748	Interwest	24	3732	36.54
210077	7/20/2010	Lafarge	Class III/IV Soil	30749	Interwest	530	13993	38.20
210077	7/20/2010	Lafarge	Class III/IV Soil	30750	Interwest	588/589	14418	34.09
210077	7/20/2010	Lafarge	Class III/IV Soil	30751	Clearcreek	44/51	4999	36.09
210077	7/20/2010	Lafarge	Class III/IV Soil	30752	Interwest	568/569	14697	39.41
210077	7/20/2010	Lafarge	Class III/IV Soil	30753	Interwest	172/17	13736	36.92
210077	7/20/2010	Lafarge	Class III/IV Soil	30754	Interwest	592	8154	32.08
210077	7/20/2010	Lafarge	Class III/IV Soil	30755	Interwest	584/585	13774	33.56
210077	7/20/2010	Lafarge	Class III/IV Soil	30756	Interwest	106	14871	34.33
210077	7/20/2010	Lafarge	Class III/IV Soil	30757	Interwest	526	16802	34.35
210077	7/20/2010	Lafarge	Class III/IV Soil	30758	Interwest	30	11927	34.39
210077	7/20/2010	Lafarge	Class III/IV Soil	30759	Interwest	27	14872	42.18
210077	7/20/2010	Lafarge	Class III/IV Soil	30760	Interwest	25	3738	36.27
210077	7/20/2010	Lafarge	Class III/IV Soil	30761	Interwest	515	14190	38.69
210077	7/20/2010	Lafarge	Class III/IV Soil	30762	Interwest	22	3736	31.28
210077	7/20/2010	Lafarge	Class III/IV Soil	30763	Interwest	24	3732	40.45
210077	7/20/2010	Lafarge	Class III/IV Soil	30764	Interwest	530	13993	34.54
210077	7/20/2010	Lafarge	Class III/IV Soil	30765	Clearcreek	44/51	4999	33.18
210077	7/20/2010	Lafarge	Class III/IV Soil	30766	Interwest	568/569	14697	32.24
210077	7/20/2010	Lafarge	Class III/IV Soil	30767	Interwest	588/589	14418	34.11
210077	7/20/2010	Lafarge	Class III/IV Soil	30768	Interwest	172/17	13736	33.92
210077	7/20/2010	Lafarge	Class III/IV Soil	30770	Interwest	592	8154	33.04
210077	7/20/2010	Lafarge	Class III/IV Soil	30771	Interwest	584/585	13774	32.89
210077	7/20/2010	Lafarge	Class III/IV Soil	30772	Interwest	30	11927	32.97
210077	7/20/2010	Lafarge	Class III/IV Soil	30773	Interwest	106	14871	34.34
210077	7/20/2010	Lafarge	Class III/IV Soil	30774	Interwest	526	16802	35.50
210077	7/20/2010	Lafarge	Class III/IV Soil	30775	Interwest	27	14872	38.16

210077	7/20/2010	Lafarge	Class III/IV Soil	30776	Interwest	25	3738	32.74	
210077	7/20/2010	Lafarge	Class III/IV Soil	30777	Interwest	22	3736	31.75	
210077	7/20/2010	Lafarge	Class III/IV Soil	30778	Interwest	515	14190	35.66	
210077	7/20/2010	Lafarge	Class III/IV Soil	30779	Interwest	24	3732	36.85	
210077	7/20/2010	Lafarge	Class III/IV Soil	30780	Clearcreek	44/51	4999	32.81	
210077	7/20/2010	Lafarge	Class III/IV Soil	30781	Interwest	530	13993	34.62	
210077	7/20/2010	Lafarge	Class III/IV Soil	30782	Interwest	568/569	14697	31.47	
210077	7/20/2010	Lafarge	Class III/IV Soil	30783	Interwest	588/589	14418	32.97	
210077	7/20/2010	Lafarge	Class III/IV Soil	30784	Interwest	172/17	13736	32.50	
210077	7/20/2010	Lafarge	Class III/IV Soil	30785	Interwest	584/585	13774	32.79	
210077	7/20/2010	Lafarge	Class III/IV Soil	30786	Interwest	592	8154	29.79	
210077	7/20/2010	Lafarge	Class III/IV Soil	30787	Interwest	30	11927	34.50	
210077	7/20/2010	Lafarge	Class III/IV Soil	30788	Interwest	106	14871	35.09	
210077	7/20/2010	Lafarge	Class III/IV Soil	30789	Interwest	27	14872	39.23	
210077	7/20/2010	Lafarge	Class III/IV Soil	30790	Interwest	526	16802	36.74	
210077	7/20/2010	Lafarge	Class III/IV Soil	30791	Interwest	25	3738	29.51	
210077	7/20/2010	Lafarge	Class III/IV Soil	30792	Interwest	22	3736	30.11	
210077	7/20/2010	Lafarge	Class III/IV Soil	30793	Interwest	515	14190	34.64	
210077	7/20/2010	Lafarge	Class III/IV Soil	30794	Interwest	24	3732	36.66	
210077	7/20/2010	Lafarge	Class III/IV Soil	30795	Clearcreek	43/50	5267	34.41	
<b>Lafarge Class III/IV Soil Total: 1105491</b>									
210077	7/26/2010	Allied Waste	Class III/IV Soil	331292	Interwest	172/173	13741	17.35	LW-10314
210077	7/27/2010	Allied Waste	Class III/IV Soil	331959	Clearcreek	44/51	5209	33.49	LW-10314
210077	7/27/2010	Allied Waste	Class III/IV Soil	331910	Interwest	526/527	7087	36.19	LW-10314
210077	7/27/2010	Allied Waste	Class III/IV Soil	331929	Interwest	536/501	16098	33.19	LW-10314
210077	7/27/2010	Allied Waste	Class III/IV Soil	332012	Interwest	178/179	13280	34.24	LW-10314
210077	7/27/2010	Allied Waste	Class III/IV Soil	331990	Interwest	582/583	16380	28.50	LW-10314
210077	7/27/2010	Allied Waste	Class III/IV Soil	331998	Interwest	27	13479	40.26	LW-10314
210077	7/27/2010	Allied Waste	Class III/IV Soil	331920	Interwest	515	14195	32.85	LW-10314
210077	7/27/2010	Allied Waste	Class III/IV Soil	331917	Interwest	176	16882	35.76	LW-10314
210077	7/27/2010	Allied Waste	Class III/IV Soil	331889	Interwest	586/587	10216	29.93	LW-10314
210077	7/27/2010	Allied Waste	Class III/IV Soil	331991	Interwest	172/177	13742	33.77	LW-10314
210077	7/28/2010	Allied Waste	Class III/IV Soil	332416	Clearcreek	43/50	5280	34.83	LW-10314
210077	7/28/2010	Allied Waste	Class III/IV Soil	332320	Clearcreek	43/50	5277	30.09	LW-10314
210077	7/28/2010	Allied Waste	Class III/IV Soil	332232	Clearcreek	43/50	5277	33.42	LW-10314
210077	7/28/2010	Allied Waste	Class III/IV Soil	332393	Clearcreek	44/51	5210	27.75	LW-10314
210077	7/28/2010	Allied Waste	Class III/IV Soil	332280	Clearcreek	44/51	5210	32.73	LW-10314
210077	7/28/2010	Allied Waste	Class III/IV Soil	332193	Clearcreek	44/51	5210	33.41	LW-10314
210077	7/28/2010	Allied Waste	Class III/IV Soil	332147	Clearcreek	44/51	5210	32.36	LW-10314
210077	7/28/2010	Allied Waste	Class III/IV Soil	332400	Interwest	586/587	10217	27.83	LW-10314
210077	7/28/2010	Allied Waste	Class III/IV Soil	332299	Interwest	586/587	10217	31.30	LW-10314
210077	7/28/2010	Allied Waste	Class III/IV Soil	332219	Interwest	586/587	10217	31.19	LW-10314
210077	7/28/2010	Allied Waste	Class III/IV Soil	332155	Interwest	586/587	10217	27.51	LW-10314
210077	7/28/2010	Allied Waste	Class III/IV Soil	332162	Interwest	592	8158	30.69	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332916	Interwest	515	14196	35.85	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332835	Interwest	515	14196	29.41	LW-10314

210077	7/29/2010	Allied Waste	Class III/IV Soil	332775	Interwest	515	14196	34.24	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332676	Interwest	515	14196	31.58	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332611	Interwest	515	14196	30.93	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332678	Interwest	158/165	16031	32.91	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332606	Interwest	158/165	16031	29.93	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332596	Interwest	576	13163	29.77	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332867	Clearcreek	44/51	5211	34.65	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332799	Clearcreek	44/51	5211	31.19	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332705	Clearcreek	44/51	5211	32.50	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332631	Clearcreek	44/51	5211	31.44	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332577	Clearcreek	44/51	5211	28.80	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332715	Clearcreek	43/50	5278	33.60	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332634	Clearcreek	43/50	5278	34.18	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332576	Clearcreek	43/50	5278	27.56	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332834	Interwest	106	14197	35.55	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332772	Interwest	106	14197	32.15	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332672	Interwest	106	14197	31.33	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332609	Interwest	106	14197	32.03	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332845	Interwest	536	17328	32.59	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332782	Interwest	536	17328	28.65	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332685	Interwest	536	17328	34.12	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332616	Interwest	536	17328	25.94	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332886	Interwest	584	13584	30.01	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332816	Interwest	584	13584	29.07	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332758	Interwest	584	13584	28.43	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332664	Interwest	584	13584	30.87	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332600	Interwest	584	13584	32.13	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332876	Interwest	582/583	16386	28.47	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332806	Interwest	582/583	16386	31.29	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332742	Interwest	582/583	16386	33.07	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332651	Interwest	582/583	16386	30.57	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332592	Interwest	582/583	16386	26.24	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332857	Interwest	588/589	16579	31.55	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332793	Interwest	588/589	16579	30.83	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332723	Interwest	588/589	16579	29.96	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332637	Interwest	588/589	16579	28.72	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332587	Interwest	588/589	16579	32.58	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332869	Interwest	528/529	17253	29.43	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332797	Interwest	528/529	17253	32.90	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332728	Interwest	528/529	17253	33.67	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332644	Interwest	528/529	17253	32.15	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332589	Interwest	528/529	17253	27.62	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332879	Interwest	592	8159	30.44	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332811	Interwest	592	8159	30.48	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332750	Interwest	592	8159	28.17	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332660	Interwest	592	8159	28.51	LW-10314

210077	7/29/2010	Allied Waste	Class III/IV Soil	332599	Interwest	592	8159	25.47	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332859	Interwest	178/179	13282	34.01	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332795	Interwest	178/179	13282	32.94	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332681	Interwest	178/179	13282	31.54	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332617	Interwest	178/179	13282	33.49	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332872	Interwest	586/587	10218	27.02	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332802	Interwest	586/587	10218	30.48	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332736	Interwest	586/587	10218	30.09	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332647	Interwest	586/587	10218	33.55	LW-10314
210077	7/29/2010	Allied Waste	Class III/IV Soil	332590	Interwest	586/587	10218	32.02	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333146	Interwest	176	16886	30.48	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333060	Interwest	176	16886	31.78	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333127	Interwest	R30	11930	30.81	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333054	Interwest	R30	11930	31.32	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333133	Interwest	178/179	13283	32.25	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333056	Interwest	178/179	13283	30.38	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333162	Interwest	528/529	17254	33.57	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333071	Interwest	528/529	17254	31.84	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333018	Interwest	528/529	17254	33.64	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333165	Interwest	568/569	17479	28.77	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333070	Interwest	568/569	17479	26.70	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333030	Interwest	568/569	17479	30.61	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333124	Interwest	586/587	10219	28.60	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333051	Interwest	586/587	10219	28.27	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333026	Interwest	586/587	10219	33.01	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333176	Interwest	588/589	16580	29.85	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333082	Interwest	588/589	16580	27.80	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333023	Interwest	588/589	16580	31.15	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333152	Interwest	R28	11931	33.28	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333063	Interwest	R28	11931	28.47	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333168	Clearcreek	43/61	5280	33.16	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333077	Clearcreek	43/61	5280	30.42	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333021	Clearcreek	43/61	5280	33.89	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333066	Clearcreek	44/51	5212	33.38	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333014	Clearcreek	44/51	5212	36.65	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333116	Interwest	R26	14199	30.22	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333096	Interwest	515	14198	32.52	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333032	Interwest	515	14198	31.09	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333094	Interwest	582/583	16387	28.18	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333028	Interwest	582/583	16387	26.42	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333091	Interwest	590/591	16568	26.43	LW-10314
210077	7/30/2010	Allied Waste	Class III/IV Soil	333025	Interwest	590/591	16568	31.81	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333789	Interwest	190/175	16106	33.01	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333711	Interwest	190/175	16106	31.47	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333621	Interwest	190/175	16106	29.91	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333537	Interwest	190/175	16106	32.33	LW-10314

210077	8/2/2010	Allied Waste	Class III/IV Soil	333806	Interwest	570	17601	30.28	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333720	Interwest	570	17601	29.96	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333637	Interwest	570	17601	31.11	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333553	Interwest	570	17601	28.02	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333810	Interwest	578	17177	30.15	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333722	Interwest	578	17177	31.49	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333638	Interwest	578	17177	28.62	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333558	Interwest	578	17177	23.61	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333803	Interwest	22	17526	29.35	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333715	Interwest	22	17526	28.74	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333630	Interwest	22	17526	29.33	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333550	Interwest	22	17526	29.87	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333838	Interwest	22	17526	30.86	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333772	Interwest	22	17526	29.52	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333688	Interwest	22	17526	29.79	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333601	Interwest	22	17526	31.05	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333533	Interwest	22	17526	32.78	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333833	Interwest	515	14200	34.12	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333765	Interwest	515	14200	35.31	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333669	Interwest	515	14200	29.40	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333588	Interwest	515	14200	32.25	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333529	Interwest	515	14200	33.27	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333835	Interwest	28	13140	30.86	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333769	Interwest	28	13140	29.74	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333679	Interwest	28	13140	31.28	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333598	Interwest	28	13140	27.92	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333531	Interwest	28	13140	30.57	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333841	Interwest	178/179	13284	33.14	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333776	Interwest	178/179	13284	32.11	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333690	Interwest	178/179	13284	30.84	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333543	Interwest	178/179	13284	31.57	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333793	Interwest	176	16887	34.26	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333714	Interwest	176	16887	31.17	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333627	Interwest	176	16887	32.65	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333540	Interwest	176	16887	31.37	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333788	Interwest	158/165	16037	31.82	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333708	Interwest	158/165	16037	31.38	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333620	Interwest	158/165	16037	34.28	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333526	Interwest	158/165	16037	34.31	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333830	Interwest	538/191	13139	35.25	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333754	Interwest	538/191	13139	32.14	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333665	Interwest	538/191	13139	28.32	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333586	Interwest	538/191	13139	27.50	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333528	Interwest	538/191	13139	33.46	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333823	Interwest	586/587	10220	30.54	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333739	Interwest	586/587	10220	30.20	LW-10314

210077	8/2/2010	Allied Waste	Class III/IV Soil	333655	Interwest	586/587	10220	31.20	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333574	Interwest	586/587	10220	30.86	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333518	Interwest	586/587	10220	29.35	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333820	Interwest	588-589	16582	31.52	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333735	Interwest	588-589	16582	26.88	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333649	Interwest	588-589	16582	30.38	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333571	Interwest	588-589	16582	33.24	LW-10314
210077	8/2/2010	Allied Waste	Class III/IV Soil	333517	Interwest	588-589	16582	28.51	LW-10314
210077	8/3/2010	Allied Waste	Class III/IV Soil	333988	Interwest	590/591	16572	30.78	LW-10314
210077	8/3/2010	Allied Waste	Class III/IV Soil	333972	Interwest	524/525	17676	34.02	LW-10314
210077	8/3/2010	Allied Waste	Class III/IV Soil	333982	Interwest	158/165	16038	34.87	LW-10314
210077	8/3/2010	Allied Waste	Class III/IV Soil	333974	Interwest	526/527	7093	32.11	LW-10314
210077	8/3/2010	Allied Waste	Class III/IV Soil	333971	Interwest	588/589	16583	30.91	LW-10314
210077	8/3/2010	Allied Waste	Class III/IV Soil	334172	Clearcreek	43/50	5043	33.78	LW-10314
210077	8/3/2010	Allied Waste	Class III/IV Soil	334096	Clearcreek	43/50	5043	30.10	LW-10314
210077	8/3/2010	Allied Waste	Class III/IV Soil	333970	Clearcreek	43/50	5043	31.62	LW-10314
210077	8/3/2010	Allied Waste	Class III/IV Soil	334242	Clearcreek	44/51	5214	31.01	LW-10314
210077	8/3/2010	Allied Waste	Class III/IV Soil	334181	Clearcreek	44/51	5214	33.14	LW-10314
210077	8/3/2010	Allied Waste	Class III/IV Soil	334092	Clearcreek	44/51	5214	28.87	LW-10314
210077	8/3/2010	Allied Waste	Class III/IV Soil	333967	Clearcreek	44/51	5214	33.27	LW-10314
210077	8/3/2010	Allied Waste	Class III/IV Soil	333977	interwest	586/587	10221	30.46	LW-10314
210077	8/3/2010	Allied Waste	Class III/IV Soil	334016	Interwest	584	13588	31.31	LW-10314
210077	8/3/2010	Allied Waste	Class III/IV Soil	334083	Interwest	570	17602	24.99	LW-10314
210077	8/3/2010	Allied Waste	Class III/IV Soil	334031	Interwest	178/179	13285	28.67	LW-10314
210077	8/3/2010	Allied Waste	Class III/IV Soil	334023	Interwest	174/123	16843	32.56	LW-10314
210077	8/4/2010	Allied Waste	Class III/IV Soil	334674	Interwest	22	13814	26.89	LW-10314
210077	8/4/2010	Allied Waste	Class III/IV Soil	334422	Interwest	22	13814	28.70	LW-10314
210077	8/4/2010	Allied Waste	Class III/IV Soil	334652	Interwest	515	16136	32.39	LW-10314
210077	8/4/2010	Allied Waste	Class III/IV Soil	334390	Interwest	515	16136	30.91	LW-10314
210077	8/4/2010	Allied Waste	Class III/IV Soil	334680	Interwest	24	11934	31.35	LW-10314
210077	8/4/2010	Allied Waste	Class III/IV Soil	334394	Interwest	24	11934	32.61	LW-10314
210077	8/4/2010	Allied Waste	Class III/IV Soil	334666	Interwest	30	11935	29.69	LW-10314
210077	8/4/2010	Allied Waste	Class III/IV Soil	334391	Interwest	30	11935	31.22	LW-10314
210077	8/4/2010	Allied Waste	Class III/IV Soil	334624	Interwest	28	13812	29.72	LW-10314
210077	8/4/2010	Allied Waste	Class III/IV Soil	334417	Interwest	28	13812	31.56	LW-10314
210077	8/5/2010	Allied Waste	Class III/IV Soil	334838	Interwest	28	13815	27.85	LW-10314
210077	8/5/2010	Allied Waste	Class III/IV Soil	334867	Interwest	22	13816	28.90	LW-10314
210077	8/5/2010	Allied Waste	Class III/IV Soil	334815	Interwest	22	13816	27.11	LW-10314
210077	8/5/2010	Allied Waste	Class III/IV Soil	334872	Interwest	526/527	7098	28.01	LW-10314
210077	8/5/2010	Allied Waste	Class III/IV Soil	334814	Interwest	526/527	7098	28.90	LW-10314
210077	8/5/2010	Allied Waste	Class III/IV Soil	335035	Interwest	30	11936	28.88	LW-10314
210077	8/5/2010	Allied Waste	Class III/IV Soil	334931	Interwest	30	11936	34.34	LW-10314
210077	8/5/2010	Allied Waste	Class III/IV Soil	334848	Interwest	30	11936	33.11	LW-10314
210077	8/5/2010	Allied Waste	Class III/IV Soil	334806	Interwest	30	11936	30.05	LW-10314
210077	8/5/2010	Allied Waste	Class III/IV Soil	335033	Interwest	515	16137	35.16	LW-10314
210077	8/5/2010	Allied Waste	Class III/IV Soil	334920	Interwest	515	16137	41.08	LW-10314



210077	8/5/2010	Allied Waste	Class III/IV Soil	334846	Interwest	515	16137	31.86	LW-10314
210077	8/5/2010	Allied Waste	Class III/IV Soil	334822	Interwest	178/179	13288	29.77	LW-10314
210077	8/5/2010	Allied Waste	Class III/IV Soil	334880	Interwest	178/179	13288	30.06	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336883	Interwest	30	11938	27.29	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336818	Interwest	30	11938	36.04	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336729	Interwest	30	11938	29.30	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336641	Interwest	30	11938	32.85	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336605	Interwest	30	11938	35.38	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336940	Interwest	174	23053	34.00	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336880	Interwest	174	23053	29.25	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336798	Interwest	174	23053	30.62	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336694	Interwest	174	23053	31.81	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336620	Interwest	174	23053	40.22	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336939	Interwest	584	13597	29.77	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336874	Interwest	584	13597	27.52	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	337803	Interwest	584	13597	30.67	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336714	Interwest	584	13597	29.38	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336730	Interwest	584	13597	34.95	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336836	Interwest	568/569	17489	31.08	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336764	Interwest	568/569	17489	29.81	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336663	Interwest	568/569	17489	28.82	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336615	Interwest	568/569	17489	32.88	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336905	Interwest	178/179	13295	27.54	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336820	Interwest	178/179	13295	31.46	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336702	Interwest	178/179	13295	32.48	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336630	Interwest	178/179	13295	34.64	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336908	Interwest	592	5331	27.67	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336824	Interwest	592	5331	28.88	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336704	Interwest	592	5331	30.39	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336633	Interwest	592	5331	32.88	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336911	Interwest	526/527	13635	29.04	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336833	Interwest	526/527	13635	33.99	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336754	Interwest	526/527	13635	28.29	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336650	Interwest	526/527	13635	34.61	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336610	Interwest	526/527	13635	35.65	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336913	Interwest	27	13817	35.66	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336825	Interwest	27	13817	40.50	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336744	Interwest	27	13817	32.42	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336647	Interwest	27	13817	42.88	LW-10314
210077	8/11/2010	Allied Waste	Class III/IV Soil	336606	Interwest	27	13817	40.95	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338674	Interwest	27	13822	35.98	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338690	Interwest	R22	11944	29.10	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338393	Interwest	588/589	17436	32.23	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338395	Interwest	592	5340	32.58	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338675	Interwest	30	11943	29.40	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338595	Interwest	30	11943	28.46	LW-10314

210077	8/17/2010	Allied Waste	Class III/IV Soil	338413	Interwest	30	11943	31.52	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338371	Interwest	30	11943	25.85	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338462	Interwest	592	5340	31.24	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338649	Interwest	515	16139	32.90	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338576	Interwest	515	16139	35.76	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338481	Interwest	515	16139	35.14	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338406	Interwest	515	16139	33.36	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338367	Interwest	515	16139	30.82	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338396	Interwest	584/585	23454	32.25	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338605	338419	22	11944	30.46	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338533	338419	22	11944	33.98	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338419	Interwest	R22	11944	34.67	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338377	Interwest	22	11944	31.00	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338583	Interwest	27	13822	38.75	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338414	Interwest	27	13822	40.38	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338372	Interwest	27	13822	36.69	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338598	Clearcreek	44/51	5224	30.28	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338531	Clearcreek	44/51	5224	34.05	LW-10314
210077	8/17/2010	Allied Waste	Class III/IV Soil	338384	Clearcreek	44/51	5224	31.23	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	339063	Interwest	R515	16140	37.98	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338970	Interwest	R515	16140	33.01	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	339048	Interwest	R27	13823	36.27	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338948	Interwest	R27	13823	35.38	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338870	Interwest	R27	13823	40.81	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338831	Interwest	R27	13823	40.46	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	339042	Interwest	22	3742	30.84	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338956	Interwest	22	3742	30.59	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338872	Interwest	22	3742	32.67	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338833	Interwest	22	3742	33.37	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	339070	Interwest	588/589	17437	32.73	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338971	Interwest	588/589	17437	29.68	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338889	Interwest	588/589	17437	32.88	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338837	Interwest	588/589	17437	33.01	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	339087	Interwest	176/177	17539	32.91	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338985	Interwest	176/177	17539	32.18	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338901	Interwest	176/177	17539	33.24	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338844	Interwest	176/177	17539	34.93	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	339004	Interwest	570	10178	29.44	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338910	Interwest	570	10178	29.96	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338853	Interwest	570	10178	33.55	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	339102	Interwest	28	3734	33.35	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338980	Interwest	28	3734	26.97	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338898	Interwest	28	3734	32.68	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338843	Interwest	28	3734	33.73	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	339077	Interwest	172/173	17648	30.60	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338977	Interwest	172/173	17648	30.81	LW-10314

210077	8/18/2010	Allied Waste	Class III/IV Soil	338894	Interwest	172/173	17648	29.67	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338840	Interwest	172/173	17648	34.76	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	339000	Interwest	584/585	23455	32.35	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338905	Interwest	584/585	23455	30.50	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338846	Interwest	584/585	23455	33.46	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338896	Clearcreek	43/50	5292	32.47	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338820	Clearcreek	43/50	5292	13.97	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	339023	Clearcreek	44/51	5225	30.48	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338924	Clearcreek	44/51	5225	28.40	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338861	Clearcreek	44/51	5225	33.11	LW-10314
210077	8/18/2010	Allied Waste	Class III/IV Soil	338827	Clearcreek	44/51	5225	31.64	LW-10314
210077	8/20/2010	Allied Waste	Class III/IV Soil	340007	Interwest	178/179	23604	32.36	LW-10314
210077	8/20/2010	Allied Waste	Class III/IV Soil	339999	Interwest	172/173	17650	30.45	LW-10314
210077	8/20/2010	Allied Waste	Class III/IV Soil	339938	Interwest	172/173	17650	33.71	LW-10314
210077	8/20/2010	Allied Waste	Class III/IV Soil	339868	Interwest	172/173	17650	31.42	LW-10314
210077	8/20/2010	Allied Waste	Class III/IV Soil	339802	Interwest	172/173	17650	26.91	LW-10314
210077	8/20/2010	Allied Waste	Class III/IV Soil	339765	Interwest	172/173	17650	26.34	LW-10314
210077	8/20/2010	Allied Waste	Class III/IV Soil	339950	Interwest	178/179	23604	35.43	LW-10314
210077	8/20/2010	Allied Waste	Class III/IV Soil	339882	Interwest	178/179	23604	32.93	LW-10314
210077	8/20/2010	Allied Waste	Class III/IV Soil	339810	Interwest	178/179	23604	30.98	LW-10314
210077	8/20/2010	Allied Waste	Class III/IV Soil	339772	Interwest	178/179	23604	32.48	LW-10314
210077	8/20/2010	Allied Waste	Class III/IV Soil	340004	Interwest	158/165	23288	32.88	LW-10314
210077	8/20/2010	Allied Waste	Class III/IV Soil	339946	Interwest	158/165	23288	37.23	LW-10314
210077	8/20/2010	Allied Waste	Class III/IV Soil	339874	Interwest	158/165	23288	30.95	LW-10314
210077	8/20/2010	Allied Waste	Class III/IV Soil	339808	Interwest	158/165	23288	33.04	LW-10314
210077	8/20/2010	Allied Waste	Class III/IV Soil	339771	Interwest	158/165	23288	29.09	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340434	Interwest	R24	16142	35.25	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340362	Interwest	R24	16142	37.49	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340296	Interwest	R24	16142	32.22	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340255	Interwest	R24	16142	35.14	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340403	Interwest	R22	17351	31.40	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340324	Interwest	R22	17351	30.35	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340267	Interwest	R22	17351	27.79	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340376	Interwest	R28	3733	34.20	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340298	Interwest	R28	3733	29.54	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340259	Interwest	R28	3733	29.81	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340389	Interwest	158/165	23290	33.76	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340319	Interwest	158/165	23290	31.59	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340265	Interwest	158/165	23290	32.49	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340398	Interwest	190/175	16125	33.78	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340322	Interwest	190/175	16125	32.18	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340266	Interwest	190/175	16125	29.97	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340384	Interwest	174/123	23063	36.99	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340312	Interwest	174/123	23063	33.53	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340262	Interwest	174/123	23063	31.86	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340439	Clearcreek	44/51	5230	32.15	LW-10314

210077	8/23/2010	Allied Waste	Class III/IV Soil	340360	Clearcreek	44/51	5230	32.65	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340373	Clearcreek	43/50	5297	33.05	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340306	Clearcreek	43/50	5297	29.50	LW-10314
210077	8/23/2010	Allied Waste	Class III/IV Soil	340247	Clearcreek	43/50	5297	16.88	LW-10314
210077	8/24/2010	Allied Waste	Class III/IV Soil	340958	Interwest	R28	13480	30.57	LW-10314
210077	8/24/2010	Allied Waste	Class III/IV Soil	340949	Interwest	R22	17352	25.98	LW-10314
210077	8/24/2010	Allied Waste	Class III/IV Soil	340950	Interwest	178/179	23608	30.78	LW-10314
210077	8/24/2010	Allied Waste	Class III/IV Soil	340889	Clearcreek	44/51	5232	30.07	LW-10314
210077	8/24/2010	Allied Waste	Class III/IV Soil	340837	Clearcreek	44/51	5232	30.45	LW-10314
210077	8/24/2010	Allied Waste	Class III/IV Soil	340762	Clearcreek	44/51	5232	30.51	LW-10314
210077	8/24/2010	Allied Waste	Class III/IV Soil	340693	Clearcreek	44/51	5232	30.56	LW-10314
210077	8/24/2010	Allied Waste	Class III/IV Soil	340870	Clearcreek	43/50	5300	32.47	LW-10314
210077	8/24/2010	Allied Waste	Class III/IV Soil	340795	Clearcreek	43/50	5300	32.32	LW-10314
210077	8/24/2010	Allied Waste	Class III/IV Soil	340726	Clearcreek	43/50	5300	30.13	LW-10314
210077	8/25/2010	Allied Waste	Class III/IV Soil	341128	Clearcreek	43/50	4053	27.74	LW-10314
210077	8/25/2010	Allied Waste	Class III/IV Soil	341199	Interwest	R22	17354	25.42	LW-10314
210077	8/25/2010	Allied Waste	Class III/IV Soil	341190	Interwest	R24	13481	28.64	LW-10314
210077	8/25/2010	Allied Waste	Class III/IV Soil	341080	Interwest	R22	17354	24.21	LW-10314
210077	8/25/2010	Allied Waste	Class III/IV Soil	341139	Interwest	158/165	23296	27.46	LW-10314
210077	8/25/2010	Allied Waste	Class III/IV Soil	341284	Clearcreek	43/50	4053	32.39	LW-10314
210077	8/25/2010	Allied Waste	Class III/IV Soil	341219	Clearcreek	43/50	4053	32.10	LW-10314
210077	8/25/2010	Allied Waste	Class III/IV Soil	341263	Clearcreek	44/51	5234	33.96	LW-10314
210077	8/25/2010	Allied Waste	Class III/IV Soil	341108	Clearcreek	44/51	5234	30.05	LW-10314
210077	8/26/2010	Allied Waste	Class III/IV Soil	341460	Clearcreek	44/51	5235	30.94	LW-10314
210077	8/26/2010	Allied Waste	Class III/IV Soil	341511	Clearcreek	43/50	4055	27.90	LW-10314
210077	8/26/2010	Allied Waste	Class III/IV Soil	341437	Clearcreek	43/50	4055	30.07	LW-10314

**Grand Total Class III/IV BOI #LW-10314 11719.85**

210077	7/23/2010	Allied Waste	Class III/IV Soil	330946	Interwest	576	13159	28.55	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	330793	Interwest	576	13159	29.73	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	330997	Interwest	R25	3740	29.26	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	330858	Interwest	R25	3740	31.24	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	330995	Interwest	R27	13476	40.69	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	330866	Interwest	R27	13476	38.7	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	331008	Interwest	R30	11929	31.26	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	330882	Interwest	R30	11929	26.47	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	331009	Interwest	190/175	16135	30.11	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	330890	Interwest	190/175	16135	28.24	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	330774	Interwest	190/175	16135	35.19	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	331020	Interwest	515	14192	32.64	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	331027	Interwest	R22	3741	28.88	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	330911	Interwest	R22	3741	31.61	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	330974	Interwest	178/179	13278	31.15	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	330833	Interwest	178/179	13278	31.57	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	330934	Interwest	172/173	13740	32.32	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	330782	Interwest	172/173	13740	34.45	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	330971	Interwest	158/165	13046	32.41	LW-10307

210077	7/23/2010	Allied Waste	Class III/IV Soil	330813	Interwest	158/165	13046	24.25	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	330965	Interwest	176	16878	32.15	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	330803	Interwest	176	16878	32.9	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	330918	Interwest	49	R	33.05	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	331000	Clearcreek	44/51	5206	31.91	LW-10307
210077	7/23/2010	Allied Waste	Class III/IV Soil	330877	Clearcreek	44/51	5206	32.73	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331871	Clearcreek	44/51	5209	33.84	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331774	Clearcreek	44/51	5209	29.06	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331715	Clearcreek	44/51	5209	27.69	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331984	Interwest	526/527	7087	34.48	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331802	Interwest	526/527	7087	29.89	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331732	Interwest	526/527	7087	30.65	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	332017	Interwest	536/501	16098	29.12	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331829	Interwest	536/501	16098	28.27	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331748	Interwest	536/501	16098	31.69	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331931	Interwest	178/179	13280	35.86	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331821	Interwest	178/179	13280	31.37	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331743	Interwest	178/179	13280	30.42	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331961	Interwest	190/175	16102	35.9	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331876	Interwest	190/175	16102	32.78	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331780	Interwest	190/175	16102	29.57	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331722	Interwest	190/175	16102	26.97	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331913	Interwest	582/583	16380	30.52	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331806	Interwest	582/583	16380	32.63	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331733	Interwest	582/583	16380	29.11	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	332016	Interwest	592	8157	29.97	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331937	Interwest	592	8157	34.48	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331835	Interwest	592	8157	33.17	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331749	Interwest	592	8157	29.53	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331927	Interwest	27	13479	39.44	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331812	Interwest	27	13479	32.26	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331734	Interwest	27	13479	39.62	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	332001	Interwest	515	14195	33.53	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331818	Interwest	515	14195	35.78	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331735	Interwest	515	14195	34.98	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331996	Interwest	176	16882	34.38	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331815	Interwest	176	16882	31	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331740	Interwest	176	16882	28.52	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331966	Interwest	586/587	10216	33.94	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331790	Interwest	586/587	10216	31.21	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331725	Interwest	586/587	10216	31.76	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331919	Interwest	172/177	13742	32.53	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331814	Interwest	172/177	13742	30.46	LW-10307
210077	7/27/2010	Allied Waste	Class III/IV Soil	331737	Interwest	172/177	13742	29.08	LW-10307
210077	7/28/2010	Allied Waste	Class III/IV Soil	332417	Interwest	592	8158	25.87	LW-10307
210077	7/28/2010	Allied Waste	Class III/IV Soil	332325	Interwest	592	8158	30.59	LW-10307

210077	7/28/2010	Allied Waste	Class III/IV Soil	332230	Interwest	592	8158	35.55	LW-10307
210077	7/28/2010	Allied Waste	Class III/IV Soil	332410	Interwest	584/585	13583	30.54	LW-10307
210077	7/28/2010	Allied Waste	Class III/IV Soil	332335	Interwest	584/585	13583	26.73	LW-10307
210077	7/28/2010	Allied Waste	Class III/IV Soil	332247	Interwest	584/585	13583	35.53	LW-10307
210077	7/28/2010	Allied Waste	Class III/IV Soil	332174	Interwest	584/585	13583	34.24	LW-10307
210077	7/28/2010	Allied Waste	Class III/IV Soil	332405	Interwest	190/175	16103	26.98	LW-10307
210077	7/28/2010	Allied Waste	Class III/IV Soil	332309	Interwest	190/175	16103	32.05	LW-10307
210077	7/28/2010	Allied Waste	Class III/IV Soil	332225	Interwest	190/175	16103	34.46	LW-10307
210077	7/28/2010	Allied Waste	Class III/IV Soil	332157	Interwest	190/175	16103	33.56	LW-10307
210077	7/28/2010	Allied Waste	Class III/IV Soil	332459	Interwest	178/179	13281	30.93	LW-10307
210077	7/28/2010	Allied Waste	Class III/IV Soil	332384	Interwest	178/179	13281	31.6	LW-10307
210077	7/28/2010	Allied Waste	Class III/IV Soil	332282	Interwest	178/179	13281	36.25	LW-10307
210077	7/28/2010	Allied Waste	Class III/IV Soil	332191	Interwest	178/179	13281	36.82	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331517	Interwest	172/173	13741	34.34	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331436	Interwest	172/173	13741	36.57	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331345	Interwest	172/173	13741	35.86	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331296	Interwest	172/173	13741	14.33	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331493	Interwest	190/175	16101	28.5	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331409	Interwest	190/175	16101	33.47	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331324	Interwest	190/175	16101	35.99	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331281	Interwest	190/175	16101	33.41	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331521	Interwest	592	8156	31.25	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331443	Interwest	592	8156	32.6	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331355	Interwest	592	8156	33.21	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331295	Interwest	592	8156	30.17	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331528	Interwest	515	14194	35.26	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331452	Interwest	515	14194	29.66	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331365	Interwest	515	14194	38.68	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331305	Interwest	515	14194	34.29	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331527	Interwest	584/585	13580	31.26	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331457	Interwest	584/585	13580	29.33	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331370	Interwest	584/585	13580	33.97	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331304	Interwest	584/585	13580	28.61	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331535	Interwest	27	13478	37.32	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331464	Interwest	27	13478	37.62	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331377	Interwest	27	13478	40.98	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331298	Interwest	27	13478	37.18	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331557	Interwest	178/179	13279	34.46	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331473	Interwest	178/179	13279	36.01	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331381	Interwest	178/179	13279	34.79	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331301	Interwest	178/179	13279	34.28	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331563	Interwest	588/589	47724	30.22	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331487	Interwest	588/589	47724	27.24	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331402	Interwest	588/589	47724	29.43	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331323	Interwest	588/589	47724	31.85	LW-10307
210077	7/26/2010	Allied Waste	Class III/IV Soil	331276	Interwest	588/589	47724	27.81	LW-10307

**Grand Total Class III/IV BOL #LW-10314 3568.57**

210077	8/23/2010	Cemex	Class III/IV Soil	1876048870	Clearcreek	43/50	5297	36.30
210077	8/4/2010	Cemex	Class III/IV Soil	1876048729	Interwest	28	13812	33.14
210077	8/4/2010	Cemex	Class III/IV Soil	1876048735	Interwest	22	13814	29.77
210077	8/4/2010	Cemex	Class III/IV Soil	1876048728	Interwest	22	13814	29.48
210077	8/4/2010	Cemex	Class III/IV Soil	1876048721	Interwest	22	13814	35.00
210077	8/4/2010	Cemex	Class III/IV Soil	1876048732	Interwest	515	16136	32.45
210077	8/4/2010	Cemex	Class III/IV Soil	1876048724	Interwest	515	16136	36.63
210077	8/4/2010	Cemex	Class III/IV Soil	1876048717	Interwest	515	16136	33.30
210077	8/4/2010	Cemex	Class III/IV Soil	1876048713	Interwest	515	16136	34.16
210077	8/4/2010	Cemex	Class III/IV Soil	1876048737	Interwest	24	11934	33.67
210077	8/4/2010	Cemex	Class III/IV Soil	1876048727	Interwest	24	11934	33.20
210077	8/4/2010	Cemex	Class III/IV Soil	1876048719	Interwest	24	11934	35.79
210077	8/4/2010	Cemex	Class III/IV Soil	1876048715	Interwest	24	11934	37.85
210077	8/4/2010	Cemex	Class III/IV Soil	1876048733	Interwest	30	11935	29.81
210077	8/4/2010	Cemex	Class III/IV Soil	1876048726	Interwest	30	11935	31.03
210077	8/4/2010	Cemex	Class III/IV Soil	1876048718	Interwest	30	11935	34.72
210077	8/4/2010	Cemex	Class III/IV Soil	1876048714	Interwest	30	11935	33.62
210077	8/4/2010	Cemex	Class III/IV Soil	1876048720	Interwest	28	13812	30.12

**Cemex Class III/IV Total 600.04**

210077	8/26/2010	Emerald Services	Non-regulated Liquids	50490	Emerald Service	148/355	50490	4665
210077	8/26/2010	Emerald Services	Non-regulated Liquids	50629	Emerald Service	148/355	50629	4491
210077	9/1/2010	Emerald Services	Non-regulated Liquids	93369	Emerald Service	35/80	93369	175

**Non-regulated Liquids Total 9331**

210077	8/23/2010	Aero Construction	General Fill	208027	Aero Construction	15	208027	88
210077	8/23/2010	Aero Construction	General Fill	222531	Aero Construction	24	222531	88
210077	8/23/2010	Aero Construction	General Fill	222689	Aero Construction	18	222689	60
210077	8/23/2010	Aero Construction	General Fill	223262	Aero Construction	26	223262	88
210077	8/23/2010	Aero Construction	General Fill	224918	Aero Construction	12	224918	88
210077	8/23/2010	Aero Construction	General Fill	225063	Aero Construction	34	225063	88
210077	8/23/2010	Aero Construction	General Fill	229358	Aero Construction	22	229358	66
210077	8/23/2010	Aero Construction	General Fill	229448	Aero Construction	14	229448	88
210077	8/23/2010	Aero Construction	General Fill	231458	Aero Construction	41	231458	40
210077	8/23/2010	Aero Construction	General Fill	232052	Aero Construction	36	232052	88
210077	8/23/2010	Aero Construction	General Fill	232252	Aero Construction	19	232252	88
210077	8/23/2010	Aero Construction	General Fill	232655	Aero Construction	23	232655	66
210077	8/24/2010	Aero Construction	General Fill	208032	Aero Construction	15	208032	88
210077	8/24/2010	Aero Construction	General Fill	223268	Aero Construction	26	223268	88
210077	8/24/2010	Aero Construction	General Fill	224495	Aero Construction	27	224495	66
210077	8/24/2010	Aero Construction	General Fill	224922	Aero Construction	12	224922	22
210077	8/24/2010	Aero Construction	General Fill	225028	Aero Construction	49	225028	44
210077	8/24/2010	Aero Construction	General Fill	225066	Aero Construction	34	225066	88
210077	8/24/2010	Aero Construction	General Fill	229450	Aero Construction	16	229450	88
210077	8/24/2010	Aero Construction	General Fill	231410	Aero Construction	23	231410	110
210077	8/24/2010	Aero Construction	General Fill	232056	Aero Construction	36	232056	88

210077	8/24/2010	Aero Construction	General Fill	232527	Aero Construction	17	232527	66
210077	8/24/2010	Aero Construction	General Fill	232560	Aero Construction	13	232560	88
210077	8/25/2010	Aero Construction	General Fill	208037	Aero Construction	15	208037	22
210077	8/25/2010	Aero Construction	General Fill	222535	Aero Construction	24	222535	110
210077	8/25/2010	Aero Construction	General Fill	223272	Aero Construction	26	223272	88
210077	8/25/2010	Aero Construction	General Fill	225032	Aero Construction	49	225032	88
210077	8/25/2010	Aero Construction	General Fill	225071	Aero Construction	34	225071	44
210077	8/25/2010	Aero Construction	General Fill	229369	Aero Construction	22	229369	110
210077	8/25/2010	Aero Construction	General Fill	231412	Aero Construction	23	231412	110
210077	8/25/2010	Aero Construction	General Fill	232260	Aero Construction	19	232260	110
210077	8/25/2010	Aero Construction	General Fill	232530	Aero Construction	17	232530	88
210077	8/25/2010	Aero Construction	General Fill	232663	Aero Construction	32	232663	22
210077	8/26/2010	Aero Construction	General Fill	208039	Aero Construction	15	208039	110
210077	8/26/2010	Aero Construction	General Fill	223277	Aero Construction	26	223277	88
210077	8/26/2010	Aero Construction	General Fill	224931	Aero Construction	12	224931	110
210077	8/26/2010	Aero Construction	General Fill	225036	Aero Construction	49	225036	110
210077	8/26/2010	Aero Construction	General Fill	225076	Aero Construction	34	225076	22
210077	8/26/2010	Aero Construction	General Fill	229371	Aero Construction	22	229371	110
210077	8/26/2010	Aero Construction	General Fill	231414	Aero Construction	16	231414	110
210077	8/26/2010	Aero Construction	General Fill	232062	Aero Construction	36	232062	110
210077	8/26/2010	Aero Construction	General Fill	232263	Aero Construction	19	232263	66
210077	8/26/2010	Aero Construction	General Fill	232533	Aero Construction	17	232533	110
210077	8/26/2010	Aero Construction	General Fill	232607	Aero Construction	16	232607	88
210077	8/30/2010	Aero Construction	General Fill	222539	Aero Construction	24	222539	110
210077	8/30/2010	Aero Construction	General Fill	224549	Aero Construction	33	224549	88
210077	8/30/2010	Aero Construction	General Fill	224779	Aero Construction	14	224779	88
210077	8/30/2010	Aero Construction	General Fill	224935	Aero Construction	15	224935	88
210077	8/30/2010	Aero Construction	General Fill	226742	Aero Construction	26	226742	88
210077	8/30/2010	Aero Construction	General Fill	232013	Aero Construction	15	232013	88
210077	8/30/2010	Aero Construction	General Fill	232267	Aero Construction	19	232267	110
210077	8/30/2010	Aero Construction	General Fill	232536	Aero Construction	17	232536	88
210077	8/30/2010	Aero Construction	General Fill	336090	Aero Construction	34	225080	88
210077	9/2/2010	Aero Construction	General Fill	224792	Aero Construction	14	224792	66
210077	9/2/2010	Aero Construction	General Fill	224942	Aero Construction	12	224942	110
210077	9/2/2010	Aero Construction	General Fill	225088	Aero Construction	34	225088	110
210077	9/2/2010	Aero Construction	General Fill	229379	Aero Construction	22	229379	110
210077	9/2/2010	Aero Construction	General Fill	232278	Aero Construction	19	232278	66
210077	9/2/2010	Aero Construction	General Fill	232543	Aero Construction	17	232543	110
210077	9/2/2010	Aero Construction	General Fill	232577	Aero Construction	12	232577	66
210077	9/2/2010	Aero Construction	General Fill	232711	Aero Construction	15	232711	110
210077	9/10/2010	Aero Construction	General Fill	223296	Aero Construction	26	223296	110
210077	9/10/2010	Aero Construction	General Fill	228911	Aero Construction	33	228911	110
210077	9/10/2010	Aero Construction	General Fill	229007	Aero Construction	17/17A	229007	66
210077	9/10/2010	Aero Construction	General Fill	229052	Aero Construction	24	229052	110
210077	9/10/2010	Aero Construction	General Fill	229386	Aero Construction	22/22A	229386	110
210077	9/10/2010	Aero Construction	General Fill	231113	Aero Construction	19	231113	110



210077	9/10/2010	Aero Construction	General Fill	231442	Aero Construction	27/27A	231442	88
210077	9/10/2010	Aero Construction	General Fill	232084	Aero Construction	36	232084	110
210077	9/10/2010	Aero Construction	General Fill	232289	Aero Construction	33	232289	88
210077	9/10/2010	Aero Construction	General Fill	232633	Aero Construction	16	232633	110
210077	9/13/2010	Aero Construction	General Fill	223297	Aero Construction	26	223297	66
210077	9/13/2010	Aero Construction	General Fill	225041	Aero Construction	24	225041	66
210077	9/13/2010	Aero Construction	General Fill	228702	Aero Construction	15	228702	66
210077	9/13/2010	Aero Construction	General Fill	231448	Aero Construction	19	231448	66
210077	9/13/2010	Aero Construction	General Fill	232293	Aero Construction	36	232293	88
210077	9/13/2010	Aero Construction	General Fill	232594	Aero Construction	13	232594	66
210077	9/13/2010	Aero Construction	General Fill	232723	Aero Construction	14	232723	308
210077	9/15/2010	Aero Construction	General Fill	228352	Aero Construction	13	228352	66
210077	9/15/2010	Aero Construction	General Fill	228452	Aero Construction	49	228452	12
210077	9/15/2010	Aero Construction	General Fill	228653	Aero Construction	188D	228653	100
210077	9/15/2010	Aero Construction	General Fill	228803	Aero Construction	418D	228803	80
210077	9/15/2010	Aero Construction	General Fill	229019	Aero Construction	17	229019	88
210077	9/15/2010	Aero Construction	General Fill	229059	Aero Construction	24	229059	66
210077	9/15/2010	Aero Construction	General Fill	231151	Aero Construction	22	231151	88
210077	9/15/2010	Aero Construction	General Fill	231152	Aero Construction	22A	231152	88
210077	9/15/2010	Aero Construction	General Fill	231230	Aero Construction	23	231230	66
210077	9/15/2010	Aero Construction	General Fill	232090	Aero Construction	36	232090	44
210077	9/15/2010	Aero Construction	General Fill	232725	Aero Construction	14	232725	44
210077	9/16/2010	Aero Construction	General Fill	228306	Aero Construction	34	228306	22
210077	9/16/2010	Aero Construction	General Fill	228455	Aero Construction	49	228455	22
210077	9/16/2010	Aero Construction	General Fill	228867	Aero Construction	26	228867	22
210077	9/16/2010	Aero Construction	General Fill	231122	Aero Construction	27	231122	22
210077	9/16/2010	Aero Construction	General Fill	231154	Aero Construction	22A	231154	22
210077	9/16/2010	Aero Construction	General Fill	231232	Aero Construction	23	231232	22
210077	9/16/2010	Aero Construction	General Fill	232728	Aero Construction	14	232728	22
210077	9/20/2010	Aero Construction	General Fill	224952	Aero Construction	16	224952	44
210077	9/20/2010	Aero Construction	General Fill	228204	Aero Construction	23	228204	110
210077	9/20/2010	Aero Construction	General Fill	228314	Aero Construction	34	228314	110
210077	9/20/2010	Aero Construction	General Fill	228465	Aero Construction	49	228465	88
210077	9/20/2010	Aero Construction	General Fill	228817	Aero Construction	618D	228817	100
210077	9/20/2010	Aero Construction	General Fill	228868	Aero Construction	26	228868	110
210077	9/20/2010	Aero Construction	General Fill	229061	Aero Construction	24	229061	44
210077	9/20/2010	Aero Construction	General Fill	231128	Aero Construction	27	231128	44
210077	9/20/2010	Aero Construction	General Fill	231160	Aero Construction	22	231160	110
210077	9/20/2010	Aero Construction	General Fill	232043	Aero Construction	19	232043	110
210077	9/20/2010	Aero Construction	General Fill	232097	Aero Construction	36	232097	88
210077	10/6/2010	NW Construction	General Fill	T#36/Tlr#32	NW Construction	36/32	T#36/Tlr#32	198
210077	10/6/2010	NW Construction	General Fill	NW1993	NW Construction	37/41	NW1993	264
210077	10/6/2010	NW Construction	General Fill	17569	NW Construction	51/39	17569	198
210077	10/6/2010	NW Construction	General Fill	12808	NW Construction	48/38	12808	88
210077	10/6/2010	NW Construction	General Fill	15541	NW Construction	39/23	15541	231
210077	10/6/2010	NW Construction	General Fill	NW1795	NW Construction	34	NW1795	110

210077	10/2/2010	NW Construction	General Fill	13415	NW Construction	45/44	13415	132
210077	10/2/2010	NW Construction	General Fill	NW1691	NW Construction	33/45	NW1691	132
210077	10/2/2010	NW Construction	General Fill	15974	NW Construction	40/40	15974	132
210077	10/2/2010	NW Construction	General Fill	13548	NW Construction	41/37	13548	132
210077	10/2/2010	NW Construction	General Fill	17565	NW Construction	51/39	17565	132
210077	10/2/2010	NW Construction	General Fill	NW1863	NW Construction	35/25	NW1863	132
210077	10/2/2010	NW Construction	General Fill	13355	NW Construction	49/41	13355	132
210077	10/2/2010	NW Construction	General Fill	NW2171	NW Construction	47/43	NW2171	132
210077	10/2/2010	NW Construction	General Fill	17243	NW Construction	38/34	17243	132
210077	10/1/2010	NW Construction	General Fill	NW1793	NW Construction	44/33	NW1793	110
210077	10/1/2010	NW Construction	General Fill	13346	NW Construction	42/35	13346	220
210077	10/1/2010	NW Construction	General Fill	NW1808	NW Construction	40/40	NW1808	242
210077	10/1/2010	NW Construction	General Fill	13354	NW Construction	49/41	13354	242
210077	10/1/2010	NW Construction	General Fill	17564	NW Construction	51/39	17564	132
210077	10/1/2010	NW Construction	General Fill	12879	NW Construction	32/27	12879	132
210077	10/1/2010	NW Construction	General Fill	NW1689	NW Construction	33/45	NW1689	110
210077	10/1/2010	NW Construction	General Fill	15538	NW Construction	34/24	15538	110
210077	10/1/2010	NW Construction	General Fill	13384	NW Construction	43/36	13384	220
210077	10/1/2010	NW Construction	General Fill	12874	NW Construction	39/23	12874	88
210077	10/1/2010	NW Construction	General Fill	13431	NW Construction	46/46	13431	44
210077	10/1/2010	NW Construction	General Fill	12805	NW Construction	48/38	12805	88
210077	10/1/2010	NW Construction	General Fill	17242	NW Construction	38/34	17242	110
210077	10/1/2010	NW Construction	General Fill	13325	NW Construction	47/43	13325	110
210077	10/1/2010	NW Construction	General Fill	13547	NW Construction	41/37	13547	220

<b>General Fill total</b>								<b>13225</b>
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210077	10/14/2010	Cemex	Sand	1875316679	Cemex		1875316679	32.50
210077	10/14/2010	Cemex	Sand	1875316680	Cemex		1875316680	33.35
210077	10/14/2010	Cemex	Sand	1875316681	Cemex		1875316681	32.76
210077	10/14/2010	Cemex	Sand	1875316682	Cemex		1875316682	31.93
210077	10/14/2010	Cemex	Sand	1875316683	Cemex		1875316683	33.36
210077	10/14/2010	Cemex	Sand	1875316684	Cemex		1875316684	33.39
210077	10/14/2010	Cemex	Sand	1875316685	Cemex		1875316685	32.55
210077	10/14/2010	Cemex	Sand	1875316686	Cemex		1875316686	31.35
210077	10/14/2010	Cemex	Sand	1875316687	Cemex		1875316687	32.30
210077	10/14/2010	Cemex	Sand	1875316688	Cemex		1875316688	33.02
210077	10/14/2010	Cemex	Sand	1875316692	Cemex		1875316692	33.81
210077	10/14/2010	Cemex	Sand	1875316693	Cemex		1875316693	30.46
210077	10/14/2010	Cemex	Sand	1875316698	Cemex		1875316698	32.20
210077	10/14/2010	Cemex	Sand	1875316700	Cemex		1875316700	33.08
210077	10/14/2010	Cemex	Sand	1875316701	Cemex		1875316701	32.03
210077	10/14/2010	Cemex	Sand	1875316702	Cemex		1875316702	32.42
210077	10/14/2010	Cemex	Sand	1875316703	Cemex		1875316703	32.10
210077	10/14/2010	Cemex	Sand	1875316706	Cemex		1875316706	32.32
210077	10/14/2010	Cemex	Sand	1875316708	Cemex		1875316708	31.98
210077	10/14/2010	Cemex	Sand	1875316710	Cemex		1875316710	32.25
210077	10/14/2010	Cemex	Sand	1875316711	Cemex		1875316711	32.10

210077	10/14/2010	Cemex	Sand	1875316715	Cemex	1875316715	30.49
210077	10/14/2010	Cemex	Sand	1875316718	Cemex	1875316718	33.21
210077	10/14/2010	Cemex	Sand	1875316719	Cemex	1875316719	33.07
210077	10/14/2010	Cemex	Sand	1875316721	Cemex	1875316721	31.99
210077	10/14/2010	Cemex	Sand	1875316723	Cemex	1875316723	31.49
210077	10/14/2010	Cemex	Sand	1875316725	Cemex	1875316725	32.04
210077	10/14/2010	Cemex	Sand	1875316727	Cemex	1875316727	32.09
210077	10/14/2010	Cemex	Sand	1875316729	Cemex	1875316729	32.01
210077	10/14/2010	Cemex	Sand	1875316730	Cemex	1875316730	33.18
210077	10/14/2010	Cemex	Sand	1875316733	Cemex	1875316733	31.97
210077	10/14/2010	Cemex	Sand	1875316734	Cemex	1875316734	31.84
210077	10/14/2010	Cemex	Sand	1875316735	Cemex	1875316735	32.11
210077	10/14/2010	Cemex	Sand	1875316737	Cemex	1875316737	29.37
210077	10/14/2010	Cemex	Sand	1875316739	Cemex	1875316739	32.57
210077	10/14/2010	Cemex	Sand	1875316740	Cemex	1875316740	30.88
210077	10/14/2010	Cemex	Sand	1875316741	Cemex	1875316741	32.69
210077	10/14/2010	Cemex	Sand	1875316742	Cemex	1875316742	33.99
210077	10/14/2010	Cemex	Sand	1875316744	Cemex	1875316744	31.73
210077	10/14/2010	Cemex	Sand	1875316746	Cemex	1875316746	32.58
210077	10/14/2010	Cemex	Sand	1875316747	Cemex	1875316747	32.61
210077	10/14/2010	Cemex	Sand	1875316748	Cemex	1875316748	33.39
210077	10/14/2010	Cemex	Sand	1875316751	Cemex	1875316751	32.86
210077	10/14/2010	Cemex	Sand	1875316752	Cemex	1875316752	32.32
210077	10/14/2010	Cemex	Sand	1875316753	Cemex	1875316753	31.41
210077	10/14/2010	Cemex	Sand	1875316757	Cemex	1875316757	31.78
210077	10/14/2010	Cemex	Sand	1875316758	Cemex	1875316758	29.61
210077	10/14/2010	Cemex	Sand	1875316759	Cemex	1875316759	32.88
210077	10/14/2010	Cemex	Sand	1875316760	Cemex	1875316760	31.03
210077	10/14/2010	Cemex	Sand	1875316762	Cemex	1875316762	32.52
210077	10/14/2010	Cemex	Sand	1875316763	Cemex	1875316763	32.47
210077	10/14/2010	Cemex	Sand	1875316764	Cemex	1875316764	34.05
210077	10/14/2010	Cemex	Sand	1875316768	Cemex	1875316768	32.62
210077	10/14/2010	Cemex	Sand	1875316769	Cemex	1875316769	32.82
210077	10/14/2010	Cemex	Sand	1875316771	Cemex	1875316771	32.61
210077	10/14/2010	Cemex	Sand	1875316776	Cemex	1875316776	32.73
210077	10/14/2010	Cemex	Sand	1875316777	Cemex	1875316777	31.64
210077	10/14/2010	Cemex	Sand	1875316779	Cemex	1875316779	32.83
210077	10/14/2010	Cemex	Sand	1875316780	Cemex	1875316780	31.72
210077	10/14/2010	Cemex	Sand	1875316783	Cemex	1875316783	33.36
210077	10/14/2010	Cemex	Sand	1875316784	Cemex	1875316784	30.69
210077	10/14/2010	Cemex	Sand	1875316785	Cemex	1875316785	32.97
210077	10/14/2010	Cemex	Sand	1875316786	Cemex	1875316786	32.90
210077	10/14/2010	Cemex	Sand	1875316787	Cemex	1875316787	33.16
210077	10/14/2010	Cemex	Sand	1875316788	Cemex	1875316788	33.78
210077	10/14/2010	Cemex	Sand	1875316790	Cemex	1875316790	32.58
210077	10/14/2010	Cemex	Sand	1875316791	Cemex	1875316791	32.41

210077	10/14/2010	Cemex	Sand	1875316792	Cemex	1875316792	33.19
210077	10/14/2010	Cemex	Sand	1875316794	Cemex	1875316794	32.98
210077	10/14/2010	Cemex	Sand	1875316795	Cemex	1875316795	33.49
210077	10/14/2010	Cemex	Sand	1875316796	Cemex	1875316796	32.29
210077	10/14/2010	Cemex	Sand	1875316797	Cemex	1875316797	32.92
210077	10/14/2010	Cemex	Sand	1875316798	Cemex	1875316798	32.59
210077	10/14/2010	Cemex	Sand	1875316799	Cemex	1875316799	32.80
210077	10/14/2010	Cemex	Sand	1875316800	Cemex	1875316800	33.10
210077	10/14/2010	Cemex	Sand	1875316801	Cemex	1875316801	33.78
210077	10/14/2010	Cemex	Sand	1875316803	Cemex	1875316803	30.94
210077	10/14/2010	Cemex	Sand	1875316804	Cemex	1875316804	33.66
210077	10/14/2010	Cemex	Sand	1875316807	Cemex	1875316807	34.18
210077	10/14/2010	Cemex	Sand	1875316809	Cemex	1875316809	32.99
210077	10/14/2010	Cemex	Sand	1875316810	Cemex	1875316810	32.84
210077	10/14/2010	Cemex	Sand	1875316811	Cemex	1875316811	33.03
210077	10/14/2010	Cemex	Sand	1875316812	Cemex	1875316812	32.26
210077	10/14/2010	Cemex	Sand	1875316813	Cemex	1875316813	32.61
210077	10/14/2010	Cemex	Sand	1875316814	Cemex	1875316814	32.81
210077	10/14/2010	Cemex	Sand	1875316815	Cemex	1875316815	32.96
210077	10/14/2010	Cemex	Sand	1875316816	Cemex	1875316816	32.29
210077	10/14/2010	Cemex	Sand	1875316819	Cemex	1875316819	31.85
210077	10/14/2010	Cemex	Sand	1875316820	Cemex	1875316820	32.95
210077	10/14/2010	Cemex	Sand	1875316821	Cemex	1875316821	32.40
210077	10/14/2010	Cemex	Sand	1875316822	Cemex	1875316822	33.22
210077	10/14/2010	Cemex	Sand	1875316823	Cemex	1875316823	30.76
210077	10/14/2010	Cemex	Sand	1875316827	Cemex	1875316827	34.00
210077	10/14/2010	Cemex	Sand	1875316828	Cemex	1875316828	32.77
210077	10/14/2010	Cemex	Sand	1875316831	Cemex	1875316831	32.98
210077	10/14/2010	Cemex	Sand	1875316833	Cemex	1875316833	33.67
210077	10/14/2010	Cemex	Sand	1875316835	Cemex	1875316835	32.57
210077	10/14/2010	Cemex	Sand	1875316836	Cemex	1875316836	32.70
210077	10/14/2010	Cemex	Sand	1875316837	Cemex	1875316837	32.48
210077	10/14/2010	Cemex	Sand	1875316838	Cemex	1875316838	32.71
210077	10/14/2010	Cemex	Sand	1875316839	Cemex	1875316839	32.03
210077	10/14/2010	Cemex	Sand	1875316876	Cemex	1875316876	32.57
210077	10/15/2010	Cemex	Sand	1875316881	Cemex	1875316881	31.76
210077	10/15/2010	Cemex	Sand	1875316892	Cemex	1875316892	32.43
210077	10/15/2010	Cemex	Sand	1875316889	Cemex	1875316889	33.10
210077	10/15/2010	Cemex	Sand	1875316896	Cemex	1875316896	31.34
210077	10/15/2010	Cemex	Sand	1875316883	Cemex	1875316883	30.79
210077	10/15/2010	Cemex	Sand	1875316874	Cemex	1875316874	30.86
210077	10/15/2010	Cemex	Sand	1875316876	Cemex	1875316876	32.57

Sand Total

8536.53

**APPENDIX B**  
COMPLIANCE SAMPLE  
LABORATORY DATA SHEETS  
(On CD)

<b>ARI Delivery Group</b>	<b>Date</b>
RF00	July 26, 2010
RF69	July 30, 2010
RG20	August 3, 2010
RG07	August 4, 2010
RG08	August 5, 2010
RG65	August 9, 2010
RG77	August 9, 2010
RH10	August 9, 2010
RH48	August 11, 2010
RH92	August 13, 2010
RI13	August 18, 2010
RI87	August 20, 2010
RJ00	August 25, 2010
RJ89	September 1, 2010
RK23	September 20, 2010
RK56	September 20, 2010

**ATTACHMENT B**  
CONFIRMATION SAMPLE  
LABORATORY DATA SHEETS  
(On CD)

<b>ARI Delivery Group</b>	<b>Date</b>
RF00	July 26, 2010
RF69	July 30, 2010
RG20	August 3, 2010
RG07	August 4, 2010
RG08	August 5, 2010
RG65	August 9, 2010
RG77	August 9, 2010
RH10	August 9, 2010
RH48	August 11, 2010
RH92	August 13, 2010
RI13	August 18, 2010
RI87	August 20, 2010
RJ00	August 25, 2010
RJ89	September 1, 2010
RK23	September 20, 2010
RK56	September 20, 2010



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

July 26, 2010

Matt Dalton  
Dalton, Olmsted & Fuglevand, Inc.  
6034 N Star Road  
Ferndale, WA 98248

**RE: Project: Verbeek, PSE-004**  
**ARI Job No: RF00**

Dear Matt:

Please find enclosed the original Chain-of-Custody (COC) record, sample receipt documentation, and the final analytical results for samples from the referenced project. Analytical Resources, Inc. (ARI) accepted seven soil samples on July 20, 2010. For further details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for SIM PNA, as requested on the COC.

There were no anomalies associated with the analysis of these samples.

An electronic copy of this report as well as all associated raw data will be kept on file with ARI. Should you have any questions, please feel free to contact me at any time.

Sincerely,

ANALYTICAL RESOURCES, INC.

*E. Joshi for*  
Susan D. Dunning  
Director, Client Services  
206-695-6207  
sue@arilabs.com

Enclosures

cc: Efile RF00

# Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: **RF00**  
 Turn-around Requested: **5-DAY**  
 ARI Client Company: **PSE/DDF** Phone: **206 660 3466**  
 Client Contact: **DAVE GOUGH / MIT DILDEN**  
 Client Project Name: **VENISIL**  
 Client Project #: **PSE-004** Samplers: **DG WORTH**

Page: **1** of **1**  
 Date: **7/20/10** Ice Present?  
 No. of Coolers: Cooler Temps:



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								Notes/Comments		
					PAHs-SIM	BZTD									
VBK-GWASP-CS-B1	7/20/10	1000	SOIL	1	X										MDL <0.1 mg/kg
VBK-GWASP-CS-B2		1015			X										
VBK-GWASP-CS-B3		1030			X										
VBK-GWASP-CS-B4		1045			X										
VBK-BN-SP-1		1100			X										
VBK-BN-SP-2		1115			X										
VBK-BN-SP-3		1130			X										

Comments/Special Instructions <b>MDL &lt;0.1 mg/kg</b>	Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature) <i>[Signature]</i>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: <b>DG WORTH</b>	Printed Name: <b>Rich Hudson</b>	Printed Name:	Printed Name:
	Company: <b>PSE</b>	Company: <b>ARI</b>	Company:	Company:
	Date & Time: <b>7/20/10 1155</b>	Date & Time: <b>7/20/10 1155</b>	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, notwithstanding 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.

RF00:00002





# Cooler Receipt Form

ARI Client: PSE/DOF

Project Name: Verboek

COC No(s): \_\_\_\_\_ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: RF00 (NA)

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)..... 2.9

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90877952

Cooler Accepted by: [Signature] Date: 7/20/10 Time: 1305

**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: [Signature] Date: 7/20/10 Time: 1338

**\*\* 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: \_\_\_\_\_

<p>Small Air Bubbles -2mm</p>	<p>Peabubbles 2-4 mm</p>	<p>LARGE Air Bubbles &gt; 4 mm</p>	Small → "sm"
			Peabubbles → "pb"
			Large → "lg"
			Headspace → "hs"



## Data Reporting Qualifiers

Effective 7/10/2009

### 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  $\geq$  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  $\leq 5$  times the Reporting Limit and the replicate control limit defaults to  $\pm 1$  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.
- 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  $\geq 40\%$  RPD with no obvious chromatographic interference

### **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

**ORGANICS ANALYSIS DATA SHEET**  
**PNA's by SIM SW8270D-SIM GC/MS**  
 Page 1 of 1

**Sample ID: MB-072210**  
**METHOD BLANK**

Lab Sample ID: MB-072210  
 LIMS ID: 10-17094  
 Matrix: Soil  
 Data Release Authorized: *[Signature]*  
 Reported: 07/26/10

QC Report No: RF00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: NA  
 Date Received: NA

Date Extracted: 07/22/10  
 Date Analyzed: 07/24/10 14:11  
 Instrument/Analyst: NT11/YZ  
 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
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 74.3%  
 d14-Dibenzo(a,h)anthracen 84.0%

**ORGANICS ANALYSIS DATA SHEET**  
**PNA's by SIM SW8270D-SIM GC/MS**  
 Page 1 of 1

**Sample ID: VBK-GWPSP-CS-B1**  
**SAMPLE**

Lab Sample ID: RF00A  
 LIMS ID: 10-17091  
 Matrix: Soil  
 Data Release Authorized: *RB*  
 Reported: 07/26/10

QC Report No: RF00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: 07/20/10  
 Date Received: 07/20/10

Date Extracted: 07/22/10  
 Date Analyzed: 07/24/10 16:50  
 Instrument/Analyst: NT11/YZ  
 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: 7.1%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	< 4.8 U
91-57-6	2-Methylnaphthalene	4.8	< 4.8 U
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	< 4.8 U
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	< 4.8 U
<b>129-00-0</b>	<b>Pyrene</b>	<b>4.8</b>	<b>5.2</b>
56-55-3	Benzo(a)anthracene	4.8	< 4.8 U
<b>218-01-9</b>	<b>Chrysene</b>	<b>4.8</b>	<b>5.2</b>
50-32-8	Benzo(a)pyrene	4.8	< 4.8 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	< 4.8 U
53-70-3	Dibenz(a,h)anthracene	4.8	< 4.8 U
191-24-2	Benzo(g,h,i)perylene	4.8	< 4.8 U
132-64-9	Dibenzofuran	4.8	< 4.8 U
<b>TOTBFA</b>	<b>Total Benzofluoranthenes</b>	<b>4.8</b>	<b>4.8</b>

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 58.3%  
 d14-Dibenzo(a,h)anthracen 69.3%

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

**Sample ID: VBK-GWPSP-CS-B2**  
**SAMPLE**

Lab Sample ID: RF00B  
 LIMS ID: 10-17092  
 Matrix: Soil  
 Data Release Authorized: *AB*  
 Reported: 07/26/10

QC Report No: RF00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: 07/20/10  
 Date Received: 07/20/10

Date Extracted: 07/22/10  
 Date Analyzed: 07/24/10 17:16  
 Instrument/Analyst: NT11/YZ  
 GPC Cleanup: No  
 Silica Gel Cleanup: Yes  
 Alumina Cleanup: No

Sample Amount: 11.07 g-dry-wt  
 Final Extract Volume: 0.5 mL  
 Dilution Factor: 1.00  
 Percent Moisture: 9.1%


CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.5	< 4.5 U
91-57-6	2-Methylnaphthalene	4.5	< 4.5 U
90-12-0	1-Methylnaphthalene	4.5	< 4.5 U
208-96-8	Acenaphthylene	4.5	< 4.5 U
83-32-9	Acenaphthene	4.5	7.2
86-73-7	Fluorene	4.5	5.9
85-01-8	Phenanthrene	4.5	80
120-12-7	Anthracene	4.5	14
206-44-0	Fluoranthene	4.5	52
129-00-0	Pyrene	4.5	110
56-55-3	Benzo (a) anthracene	4.5	46
218-01-9	Chrysene	4.5	67
50-32-8	Benzo (a) pyrene	4.5	59
193-39-5	Indeno (1,2,3-cd) pyrene	4.5	19
53-70-3	Dibenz (a,h) anthracene	4.5	7.2
191-24-2	Benzo (g,h,i) perylene	4.5	33
132-64-9	Dibenzofuran	4.5	< 4.5 U
TOTBFA	Total Benzofluoranthenes	4.5	53

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 62.3%  
 d14-Dibenzo(a,h)anthracen 73.0%

Sample ID: VBK-GWPSP-CS-B3  
 SAMPLE

Lab Sample ID: RF00C  
 LIMS ID: 10-17093  
 Matrix: Soil  
 Data Release Authorized:   
 Reported: 07/26/10

QC Report No: RF00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: 07/20/10  
 Date Received: 07/20/10

Date Extracted: 07/22/10  
 Date Analyzed: 07/24/10 17:42  
 Instrument/Analyst: NT11/YZ  
 GPC Cleanup: No  
 Silica Gel Cleanup: Yes  
 Alumina Cleanup: No

Sample Amount: 10.89 g-dry-wt  
 Final Extract Volume: 0.5 mL  
 Dilution Factor: 1.00  
 Percent Moisture: 10.7%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	24
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	16
129-00-0	Pyrene	4.6	33
56-55-3	Benzo (a) anthracene	4.6	14
218-01-9	Chrysene	4.6	21
50-32-8	Benzo (a) pyrene	4.6	18
193-39-5	Indeno (1,2,3-cd) pyrene	4.6	6.9
53-70-3	Dibenz (a,h) anthracene	4.6	< 4.6 U
191-24-2	Benzo (g,h,i) perylene	4.6	11
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	19


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 66.0%  
 d14-Dibenzo(a,h)anthracen 76.7%

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

Sample ID: VBK-GWPSP-CS-B4  
SAMPLE

Lab Sample ID: RF00D  
LIMS ID: 10-17094  
Matrix: Soil  
Data Release Authorized:   
Reported: 07/26/10

QC Report No: RF00-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 07/20/10  
Date Received: 07/20/10

Date Extracted: 07/22/10  
Date Analyzed: 07/24/10 18:09  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.14 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 7.9%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	< 4.9 U
91-57-6	2-Methylnaphthalene	4.9	< 4.9 U
90-12-0	1-Methylnaphthalene	4.9	< 4.9 U
208-96-8	Acenaphthylene	4.9	< 4.9 U
83-32-9	Acenaphthene	4.9	7.4
86-73-7	Fluorene	4.9	5.9
85-01-8	Phenanthrene	4.9	80
120-12-7	Anthracene	4.9	14
206-44-0	Fluoranthene	4.9	51
129-00-0	Pyrene	4.9	110
56-55-3	Benzo (a) anthracene	4.9	44
218-01-9	Chrysene	4.9	66
50-32-8	Benzo (a) pyrene	4.9	55
193-39-5	Indeno (1,2,3-cd) pyrene	4.9	19
53-70-3	Dibenz (a,h) anthracene	4.9	5.9
191-24-2	Benzo (g,h,i) perylene	4.9	31
132-64-9	Dibenzofuran	4.9	< 4.9 U
TOTBFA	Total Benzofluoranthenes	4.9	51

Reported in µg/kg (ppb)


**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 64.3%  
d14-Dibenzo(a,h)anthracen 73.3%



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

Sample ID: VBK-BN-SP-1  
SAMPLE

Lab Sample ID: RF00E  
LIMS ID: 10-17095  
Matrix: Soil  
Data Release Authorized:   
Reported: 07/26/10

QC Report No: RF00-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 07/20/10  
Date Received: 07/20/10

Date Extracted: 07/22/10  
Date Analyzed: 07/26/10 11:26  
Instrument/Analyst: NT11/YZ  
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: 4.7%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	46
91-57-6	2-Methylnaphthalene	4.6	11
90-12-0	1-Methylnaphthalene	4.6	5.5
208-96-8	Acenaphthylene	4.6	5.5
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	26
120-12-7	Anthracene	4.6	6.0
206-44-0	Fluoranthene	4.6	42
129-00-0	Pyrene	4.6	67
56-55-3	Benzo (a) anthracene	4.6	16
218-01-9	Chrysene	4.6	23
50-32-8	Benzo (a) pyrene	4.6	36
193-39-5	Indeno (1,2,3-cd) pyrene	4.6	33
53-70-3	Dibenz (a,h) anthracene	4.6	5.1
191-24-2	Benzo (g,h,i) perylene	4.6	50
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	42

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 65.0%  
d14-Dibenzo(a,h)anthracen 83.7%

Sample ID: VBK-BN-SP-2  
 SAMPLE

Lab Sample ID: RF00F  
 LIMS ID: 10-17096  
 Matrix: Soil  
 Data Release Authorized: *AB*  
 Reported: 07/26/10

QC Report No: RF00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: 07/20/10  
 Date Received: 07/20/10

Date Extracted: 07/22/10  
 Date Analyzed: 07/24/10 19:54  
 Instrument/Analyst: NT11/YZ  
 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: 6.3%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	54
91-57-6	2-Methylnaphthalene	4.8	25
90-12-0	1-Methylnaphthalene	4.8	13
208-96-8	Acenaphthylene	4.8	46
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	14
85-01-8	Phenanthrene	4.8	150
120-12-7	Anthracene	4.8	34
206-44-0	Fluoranthene	4.8	300
129-00-0	Pyrene	4.8	480
56-55-3	Benzo (a) anthracene	4.8	140
218-01-9	Chrysene	4.8	200
50-32-8	Benzo (a) pyrene	4.8	320
193-39-5	Indeno (1,2,3-cd) pyrene	4.8	250
53-70-3	Dibenz (a,h) anthracene	4.8	37
191-24-2	Benzo (g,h,i) perylene	4.8	390
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	340


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 59.3%  
 d14-Dibenzo(a,h)anthracen 81.7%

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

Sample ID: VBK-BN-SP-3  
SAMPLE

Lab Sample ID: RF00G  
LIMS ID: 10-17097  
Matrix: Soil  
Data Release Authorized:   
Reported: 07/26/10

QC Report No: RF00-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 07/20/10  
Date Received: 07/20/10

Date Extracted: 07/22/10  
Date Analyzed: 07/24/10 20:21  
Instrument/Analyst: NT11/YZ  
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: 5.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	22
91-57-6	2-Methylnaphthalene	4.7	8.0
90-12-0	1-Methylnaphthalene	4.7	4.7
208-96-8	Acenaphthylene	4.7	13
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	32
120-12-7	Anthracene	4.7	7.1
206-44-0	Fluoranthene	4.7	73
129-00-0	Pyrene	4.7	120
56-55-3	Benzo (a) anthracene	4.7	31
218-01-9	Chrysene	4.7	42
50-32-8	Benzo (a) pyrene	4.7	81
193-39-5	Indeno (1,2,3-cd) pyrene	4.7	72
53-70-3	Dibenz (a,h) anthracene	4.7	9.9
191-24-2	Benzo (g,h,i) perylene	4.7	110
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	88

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 66.7%  
d14-Dibenzo(a,h)anthracen 85.3%

**SIM SW8270 SURROGATE RECOVERY SUMMARY**

Matrix: Soil

QC Report No: RF00-DOF  
Project: Verbeek  
PSE-004

<u>Client ID</u>	<u>MNP</u>	<u>DBA</u>	<u>TOT OUT</u>
VBK-GWPSP-CS-B1	58.3%	69.3%	0
VBK-GWPSP-CS-B2	62.3%	73.0%	0
VBK-GWPSP-CS-B3	66.0%	76.7%	0
MB-072210	74.3%	84.0%	0
LCS-072210	78.7%	87.7%	0
LCSD-072210	77.3%	86.7%	0
VBK-GWPSP-CS-B4	64.3%	73.3%	0
VBK-GWPSP-CS-B4 MS	60.7%	78.0%	0
VBK-GWPSP-CS-B4 MSD	66.0%	83.0%	0
VBK-BN-SP-1	65.0%	83.7%	0
VBK-BN-SP-2	59.3%	81.7%	0
VBK-BN-SP-3	66.7%	85.3%	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: 10-17091 to 10-17097

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

**Sample ID: VBK-GWPSP-CS-B4**  
**MATRIX SPIKE**

Lab Sample ID: RF00D  
 LIMS ID: 10-17094  
 Matrix: Soil  
 Data Release Authorized: *B*  
 Reported: 07/26/10

QC Report No: RF00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: 07/20/10  
 Date Received: 07/20/10

Date Extracted MS/MSD: 07/22/10  
 Date Analyzed MS: 07/24/10 18:35  
 MSD: 07/26/10 11:00  
 Instrument/Analyst MS: NT11/YZ  
 MSD: NT11/YZ


Sample Amount MS: 10.2 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
Naphthalene	< 4.9 U	82.2	148	55.5%	91.2	147	62.0%	10.4%
2-Methylnaphthalene	< 4.9 U	88.6	148	59.9%	96.6	147	65.7%	8.6%
1-Methylnaphthalene	< 4.9 U	88.6	148	59.9%	95.1	147	64.7%	7.1%
Acenaphthylene	< 4.9 U	93.5	148	63.2%	100	147	68.0%	6.7%
Acenaphthene	7.4	96.0	148	59.9%	100	147	63.0%	4.1%
Fluorene	5.9	106	148	67.6%	107	147	68.8%	0.9%
Phenanthrene	79.9	159	148	53.4%	159	147	53.8%	0.0%
Anthracene	14.3	121	148	72.1%	122	147	73.3%	0.8%
Fluoranthene	51.3	153	148	68.7%	151	147	67.8%	1.3%
Pyrene	110	186	148	51.4%	201	147	61.9%	7.8%
Benzo(a)anthracene	44.4	146	148	68.6%	151	147	72.5%	3.4%
Chrysene	65.6	154	148	59.7%	158	147	62.9%	2.6%
Benzo(a)pyrene	55.2	153	148	66.1%	156	147	68.6%	1.9%
Indeno(1,2,3-cd)pyrene	18.7	123	148	70.5%	131	147	76.4%	6.3%
Dibenz(a,h)anthracene	5.9	115	148	73.7%	121	147	78.3%	5.1%
Benzo(g,h,i)perylene	30.6	135	148	70.5%	142	147	75.8%	5.1%
Dibenzofuran	< 4.9 U	90.1	148	60.9%	94.1	147	64.0%	4.3%
Total Benzofluoranthenes	50.8	261	295	71.3%	266	294	73.2%	1.9%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Sample ID: VBK-GWPSP-CS-B4  
MATRIX SPIKE

Lab Sample ID: RF00D  
LIMS ID: 10-17094  
Matrix: Soil  
Data Release Authorized:   
Reported: 07/26/10

QC Report No: RF00-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 07/20/10  
Date Received: 07/20/10

Date Extracted: 07/22/10  
Date Analyzed: 07/24/10 18:35  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.16 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 7.9%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	---
91-57-6	2-Methylnaphthalene	4.9	---
90-12-0	1-Methylnaphthalene	4.9	---
208-96-8	Acenaphthylene	4.9	---
83-32-9	Acenaphthene	4.9	---
86-73-7	Fluorene	4.9	---
85-01-8	Phenanthrene	4.9	---
120-12-7	Anthracene	4.9	---
206-44-0	Fluoranthene	4.9	---
129-00-0	Pyrene	4.9	---
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	---
191-24-2	Benzo(g,h,i)perylene	4.9	---
132-64-9	Dibenzofuran	4.9	---
TOTBFA	Total Benzofluoranthenes	4.9	---

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 60.7%  
d14-Dibenzo(a,h)anthracen 78.0%

**ORGANICS ANALYSIS DATA SHEET**  
**PNA's by SIM SW8270D-SIM GC/MS**  
 Page 1 of 1

**Sample ID: VBK-GWPSP-CS-B4**  
**MATRIX SPIKE DUPLICATE**

Lab Sample ID: RF00D  
 LIMS ID: 10-17094  
 Matrix: Soil  
 Data Release Authorized: *MB*  
 Reported: 07/26/10

QC Report No: RF00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: 07/20/10  
 Date Received: 07/20/10

Date Extracted: 07/22/10  
 Date Analyzed: 07/26/10 11:00  
 Instrument/Analyst: NT11/YZ  
 GPC Cleanup: No  
 Silica Gel Cleanup: Yes  
 Alumina Cleanup: No

Sample Amount: 10.20 g-dry-wt  
 Final Extract Volume: 0.5 mL  
 Dilution Factor: 1.00  
 Percent Moisture: 7.9%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	---
91-57-6	2-Methylnaphthalene	4.9	---
90-12-0	1-Methylnaphthalene	4.9	---
208-96-8	Acenaphthylene	4.9	---
83-32-9	Acenaphthene	4.9	---
86-73-7	Fluorene	4.9	---
85-01-8	Phenanthrene	4.9	---
120-12-7	Anthracene	4.9	---
206-44-0	Fluoranthene	4.9	---
129-00-0	Pyrene	4.9	---
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	---
191-24-2	Benzo(g,h,i)perylene	4.9	---
132-64-9	Dibenzofuran	4.9	---
TOTBFA	Total Benzofluoranthenes	4.9	---

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 66.0%  
 d14-Dibenzo(a,h)anthracen 83.0%

Sample ID: LCS-072210  
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-072210  
 LIMS ID: 10-17094  
 Matrix: Soil  
 Data Release Authorized: *AB*  
 Reported: 07/26/10

QC Report No: RF00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: NA  
 Date Received: NA

Date Extracted: 07/22/10  
 Date Analyzed LCS: 07/24/10 14:38  
 LCSD: 07/24/10 15:04  
 Instrument/Analyst LCS: NT11/YZ  
 LCSD: NT11/YZ

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		LCS	LCSD	Spike		RPD
		Added-LCS	Recovery			Added-LCSD	Recovery	
Naphthalene	109	150	72.7%	109	150	72.7%	0.0%	
2-Methylnaphthalene	110	150	73.3%	110	150	73.3%	0.0%	
1-Methylnaphthalene	108	150	72.0%	111	150	74.0%	2.7%	
Acenaphthylene	110	150	73.3%	110	150	73.3%	0.0%	
Acenaphthene	112	150	74.7%	110	150	73.3%	1.8%	
Fluorene	116	150	77.3%	116	150	77.3%	0.0%	
Phenanthrene	120	150	80.0%	119	150	79.3%	0.8%	
Anthracene	126	150	84.0%	124	150	82.7%	1.6%	
Fluoranthene	138	150	92.0%	138	150	92.0%	0.0%	
Pyrene	140	150	93.3%	138	150	92.0%	1.4%	
Benzo(a)anthracene	136	150	90.7%	134	150	89.3%	1.5%	
Chrysene	132	150	88.0%	132	150	88.0%	0.0%	
Benzo(a)pyrene	138	150	92.0%	136	150	90.7%	1.5%	
Indeno(1,2,3-cd)pyrene	130	150	86.7%	130	150	86.7%	0.0%	
Dibenz(a,h)anthracene	125	150	83.3%	128	150	85.3%	2.4%	
Benzo(g,h,i)perylene	132	150	88.0%	132	150	88.0%	0.0%	
Dibenzofuran	106	150	70.7%	106	150	70.7%	0.0%	
Total Benzofluoranthenes	272	300	90.7%	275	300	91.7%	1.1%	

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

**SIM Semivolatile Surrogate Recovery**

	LCS	LCSD
d10-2-Methylnaphthalene	78.7%	77.3%
d14-Dibenzo(a,h)anthracene	87.7%	86.7%





**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

July 30, 2010

Matt Dalton  
Dalton, Olmsted & Fuglevand, Inc.  
6034 N Star Road  
Ferndale, WA 98248

**RE: Project: Verbeek, PSE-004**  
**ARI Job No: RF69**

Dear Matt:

Please find enclosed the original Chain-of-Custody (COC) record, sample receipt documentation, and the final analytical results for samples from the referenced project. Analytical Resources, Inc. (ARI) accepted four soil samples on July 26, 2010. For further details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for SIM PNA, as requested on the COC.

There were no anomalies associated with the analysis of these samples.

An electronic copy of this report as well as all associated raw data will be kept on file with ARI. Should you have any questions, please feel free to contact me at any time.

Sincerely,

ANALYTICAL RESOURCES, INC.

*S. D. Dunnihoo*  
*for*

Susan D. Dunnihoo  
Director, Client Services  
206-695-6207  
sue@arilabs.com

Enclosures

cc: Efile RF69

# Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: **R09** Turn-around Requested: **5-DAY** Page: **1** of **1**

ARI Client Company: **PSE/DEF** Phone: **206 660 3466** Date: **7/24/01** Ice Present?

Client Contact: **DAVID COOPER / MATT DUTTON** Cooler Temps: **No. of Coolers:**

Client Project Name: **VENISEK** Client Project #: **PSE-004** Samplers: **DA COOP**



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				Notes/Comments
					PHH	BZTO-SIN			
VISK-GWSP-CS-B5	7/24/01	0730	Soil	1	X				MAL < 0.1 mg/kg ↓
VISK-GWSP-CS-B6	7/24/01	0745		1	X				
VISK-GWSP-CS-B7	7/24/01	0800		1	X				
VISK-GWSP-CS-B8	7/24/01	0815		1	X				
Comments/Special Instructions									
Relinquished by: <i>[Signature]</i>					Received by: <i>[Signature]</i>				
Printed Name: <b>DA COOP</b>					Printed Name: <b>TRIKKA TULUMBUN</b>				
Company: <b>PSE</b>					Company: <b>ARI</b>				
Date & Time: <b>7/24/01 1040</b>					Date & Time: <b>7/26/01 1040</b>				

**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.

2000-08-09



# Cooler Receipt Form

ARI Client: DOF

Project Name: PSE-004

COC No(s): \_\_\_\_\_ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: RF09

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 (YES) NO

Were custody papers properly filled out (ink, signed, etc.) ..... YES (YES) NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)..... 3.1

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: \_\_\_\_\_

Cooler Accepted by: MH Date: 7/26/10 Time: 1040

**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 (YES) NO

Were all bottle labels complete and legible? ..... YES (YES) NO

Did the number of containers listed on COC match with the number of containers received? ..... YES (YES) NO

Did all bottle labels and tags agree with custody papers? ..... YES (YES) NO

Were all bottles used correct for the requested analyses? ..... YES (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 (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: AV Date: 7/26/10 Time: 1100

**\*\* 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"



# Cooler Temperature Compliance Form

RF69

Cooler#:	Temperature(°C): 13.1	
Sample ID	Bottle Count	Bottle Type
All samples associated with this job arrived out of temp compliance		

Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type

Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type

Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type

Completed by: AV Date: 7/26/10 Time: 1102



## Data Reporting Qualifiers

Effective 7/10/2009

### 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  $\geq$  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  $\leq 5$  times the Reporting Limit and the replicate control limit defaults to  $\pm 1$  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.
- 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  $\geq 40\%$  RPD with no obvious chromatographic interference

### **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

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

Sample ID: MB-072710  
METHOD BLANK

Lab Sample ID: MB-072710  
LIMS ID: 10-17564  
Matrix: Soil  
Data Release Authorized: *AS*  
Reported: 07/29/10

QC Report No: RF69-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: NA  
Date Received: NA

Date Extracted: 07/27/10  
Date Analyzed: 07/29/10 10:47  
Instrument/Analyst: NT11/YZ  
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
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 78.0%  
d14-Dibenzo(a,h)anthracen 87.0%

**SIM SW8270 SURROGATE RECOVERY SUMMARY**

Matrix: Soil

QC Report No: RF69-DOF  
Project: Verbeek  
PSE-004

<u>Client ID</u>	<u>MNP</u>	<u>DBA</u>	<u>TOT OUT</u>
MB-072710	78.0%	87.0%	0
LCS-072710	72.0%	81.0%	0
VBK-GWPSP-CS-B5	57.0%	65.3%	0
VBK-GWPSP-CS-B6	62.7%	86.0%	0
VBK-GWPSP-CS-B7	65.0%	82.3%	0
VBK-GWPSP-CS-B8	63.3%	75.7%	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: 10-17564 to 10-17567



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

Sample ID: VBK-GWPSP-CS-B5  
SAMPLE

Lab Sample ID: RF69A  
LIMS ID: 10-17564  
Matrix: Soil  
Data Release Authorized:   
Reported: 07/29/10

QC Report No: RF69-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 07/26/10  
Date Received: 07/26/10

Date Extracted: 07/27/10  
Date Analyzed: 07/29/10 11:39  
Instrument/Analyst: NT11/YZ  
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: 11.6%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 57.0%  
d14-Dibenzo(a,h)anthracen 65.3%

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

Sample ID: VBK-GWPSP-CS-B6  
SAMPLE

Lab Sample ID: RF69B  
LIMS ID: 10-17565  
Matrix: Soil  
Data Release Authorized:   
Reported: 07/29/10

QC Report No: RF69-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 07/26/10  
Date Received: 07/26/10

Date Extracted: 07/27/10  
Date Analyzed: 07/29/10 12:06  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.45 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 6.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	< 4.8 U
91-57-6	2-Methylnaphthalene	4.8	< 4.8 U
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	< 4.8 U
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	< 4.8 U
<b>129-00-0</b>	<b>Pyrene</b>	<b>4.8</b>	<b>6.2</b>
56-55-3	Benzo (a) anthracene	4.8	< 4.8 U
218-01-9	Chrysene	4.8	< 4.8 U
50-32-8	Benzo (a) pyrene	4.8	< 4.8 U
193-39-5	Indeno (1,2,3-cd) pyrene	4.8	< 4.8 U
53-70-3	Dibenz (a,h) anthracene	4.8	< 4.8 U
<b>191-24-2</b>	<b>Benzo (g,h,i) perylene</b>	<b>4.8</b>	<b>11</b>
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	< 4.8 U


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 62.7%  
d14-Dibenzo(a,h)anthracen 86.0%

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

Sample ID: VBK-GWPSP-CS-B7  
SAMPLE

Lab Sample ID: RF69C  
LIMS ID: 10-17566  
Matrix: Soil  
Data Release Authorized:   
Reported: 07/29/10

QC Report No: RF69-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 07/26/10  
Date Received: 07/26/10

Date Extracted: 07/27/10  
Date Analyzed: 07/29/10 12:32  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 11.04 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 9.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.5	34
91-57-6	2-Methylnaphthalene	4.5	17
90-12-0	1-Methylnaphthalene	4.5	10
208-96-8	Acenaphthylene	4.5	11
83-32-9	Acenaphthene	4.5	9.5
86-73-7	Fluorene	4.5	11
85-01-8	Phenanthrene	4.5	100
120-12-7	Anthracene	4.5	22
206-44-0	Fluoranthene	4.5	150
129-00-0	Pyrene	4.5	340
56-55-3	Benzo (a) anthracene	4.5	71
218-01-9	Chrysene	4.5	96
50-32-8	Benzo (a) pyrene	4.5	110
193-39-5	Indeno (1,2,3-cd) pyrene	4.5	74
53-70-3	Dibenz (a,h) anthracene	4.5	14
191-24-2	Benzo (g,h,i) perylene	4.5	120
132-64-9	Dibenzofuran	4.5	< 4.5 U
TOTBEA	Total Benzofluoranthenes	4.5	120


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 65.0%  
d14-Dibenzo(a,h)anthracen 82.3%

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

Sample ID: VBK-GWPSP-CS-B8  
SAMPLE

Lab Sample ID: RF69D  
LIMS ID: 10-17567  
Matrix: Soil  
Data Release Authorized:   
Reported: 07/29/10

QC Report No: RF69-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 07/26/10  
Date Received: 07/26/10

Date Extracted: 07/27/10  
Date Analyzed: 07/29/10 12:58  
Instrument/Analyst: NT11/YZ  
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: 17.4%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
<b>85-01-8</b>	<b>Phenanthrene</b>	<b>4.6</b>	<b>6.0</b>
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
<b>129-00-0</b>	<b>Pyrene</b>	<b>4.6</b>	<b>7.9</b>
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
<b>218-01-9</b>	<b>Chrysene</b>	<b>4.6</b>	<b>5.1</b>
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 63.3%  
d14-Dibenzo(a,h)anthracen 75.7%

**ORGANICS ANALYSIS DATA SHEET**

PNA's by SW8270D-SIM GC/MS

Page 1 of 1

Sample ID: LCS-072710

LAB CONTROL SAMPLE

Lab Sample ID: LCS-072710  
LIMS ID: 10-17564  
Matrix: Soil  
Data Release Authorized:  
Reported: 07/29/10

QC Report No: RF69-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: NA  
Date Received: NA

Date Extracted: 07/27/10  
Date Analyzed LCS: 07/29/10 11:13  
Instrument/Analyst LCS: NT11/YZ

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
Naphthalene	97.5	150	65.0%
2-Methylnaphthalene	101	150	67.3%
1-Methylnaphthalene	101	150	67.3%
Acenaphthylene	102	150	68.0%
Acenaphthene	101	150	67.3%
Fluorene	108	150	72.0%
Phenanthrene	111	150	74.0%
Anthracene	115	150	76.7%
Fluoranthene	125	150	83.3%
Pyrene	130	150	86.7%
Benzo(a)anthracene	122	150	81.3%
Chrysene	122	150	81.3%
Benzo(a)pyrene	119	150	79.3%
Indeno(1,2,3-cd)pyrene	117	150	78.0%
Dibenz(a,h)anthracene	114	150	76.0%
Benzo(g,h,i)perylene	114	150	76.0%
Dibenzofuran	96.5	150	64.3%
Total Benzofluoranthenes	240	300	80.0%

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene	72.0%
d14-Dibenzo(a,h)anthracen	81.0%



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

August 3, 2010

Matt Dalton  
Dalton, Olmsted, & Fuglevand  
10827 NE 68th, Suite B  
Kirkland, WA 98033

**RE: Client Project: Verbeek – PSE-004**  
**ARI Job No.: RG20**

Dear Matt:

Please find enclosed the original Chain-of-Custody records (COC), sample receipt documentation, and the final analytical results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted seven soil samples on July 29, 2010. For further details regarding sample receipt, refer to the enclosed Cooler Receipt Form.

The samples were analyzed for SIM PNAs, as requested on the COC.

The LCSD percent recovery of fluoranthene and pyrene were outside the control limits high. The LCS percent recovery for each of these compounds was within control limits. All other QC parameters were within compliance. As the recoveries were high but within 20% of true, no corrective action was taken.

An electronic copy of this report 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.

A handwritten signature in black ink, appearing to read "Susan Dunnihoo".

Susan Dunnihoo  
Director, Client Services  
sue@arilabs.com  
206-695-6207

Enclosures

cc: eFile RG20

# Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: **RG20**  
 Turn-around Requested: **2-3M**  
 Client Company: **DDF/PSE**  
 Phone: **(602) 660-2466**  
 Client Contact: **Dariusz Gosciniak / PSE**  
 Client Project Name: **VERBSEK**  
 Client Project #: **PSE-004**



Analytical Resources, Incorporated  
 Analytical Chemists and Consultants  
 4611 South 134th Place, Suite 100  
 Tukwila, WA 98168  
 206-695-6200 206-695-6201 (fax)

Page: **1** of **1**  
 Date: **7/29/10**  
 Ice Present? **Yes**  
 No. of Coolers: **1**  
 Cooler Temps: **7.4**

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested				Notes/Comments
					PHAS	B270-SM			
VSK-BN-CS-B4	7/29/10	0900	SOIL	1	X				MNL < 0.1 mg/kg
" -B5		0910			X				
" -B6		0920			X				
" -B7		0930			X				
" -B8		0940			X				
" -SW1		0950			X				
" -SW2		1000			X				
Comments/Special Instructions									
Relinquished by: <i>Dariusz Gosciniak</i>					Received by: <i>[Signature]</i>				
Printed Name: <b>Dariusz Gosciniak</b>					Printed Name: <b>Rich Anderson</b>				
Company: <b>DDF</b>					Company: <b>ARI</b>				
Date & Time: <b>7/29/10 1115</b>					Date & Time: <b>7/29/10 1115</b>				

**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.



# Cooler Receipt Form

ARI Client: DOF/PSE

Project Name: VERBEEK

COC No(s): \_\_\_\_\_ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: RG 20

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) \_\_\_\_\_  
 If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90941619 <sup>7.4</sup>

Cooler Accepted by: [Signature] Date: 7/29/10 Time: 1215

**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? sm 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 sm 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: sm Date: 7/29/10 Time: 1240

**\*\* 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"





# Cooler Temperature Compliance Form

RG20

Cooler#: 1		Temperature(°C): 7.4	
Sample ID	Bottle Count	Bottle Type	
All samples	1	8 oz jars	

Cooler#: _____		Temperature(°C): _____	
Sample ID	Bottle Count	Bottle Type	

Cooler#: _____		Temperature(°C): _____	
Sample ID	Bottle Count	Bottle Type	

Cooler#: _____		Temperature(°C): _____	
Sample ID	Bottle Count	Bottle Type	

Completed by: JM Date: 7/29/10 Time: 1240



## Data Reporting Qualifiers

Effective 7/10/2009

### 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  $\geq$  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  $\leq 5$  times the Reporting Limit and the replicate control limit defaults to  $\pm 1$  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.
- 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  $\geq 40\%$  RPD with no obvious chromatographic interference

### **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



## Spike Recovery Control Limits for Polycyclic Aromatic Hydrocarbons Selected Ion Monitoring (SIM) EPA Method SW-846-8270D-Modified <sup>(1,7)</sup>

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. <http://www.arilabs.com/portal/downloads/ARI-CLs.zip>

Sample Matrix	Water		Soil	
Sample Volume / Final Volume	500 mL to 0.5 mL		7.5 g / 0.5 mL	
	Control Limits	ME Limits <sup>(2)</sup>	Control Limits	ME Limits <sup>(2)</sup>
<b>LCS Spike Recovery <sup>(6)</sup></b>				
Napthalene	39 - <b>100</b>	30 - 102	37 - <b>100</b>	27 - 107
2-Methylnapthalene	39 - <b>100</b>	31 - <b>100</b>	37 - <b>100</b>	28 - <b>100</b>
1-Methylnapthalene	30 - 160 <sup>(3)</sup>	30 - 160 <sup>(3)</sup>	30 - 160 <sup>(3)</sup>	30 - 160 <sup>(3)</sup>
Acenaphthylene	37 - 100	27 - 111	35 - <b>100</b>	26 - 102
Acenaphthene	42 - <b>100</b>	33 - 107	39 - <b>100</b>	31 - <b>100</b>
Dibenzofuran	46 - <b>100</b>	38 - 101	39 - <b>100</b>	31 - <b>100</b>
Fluorene	49 - 101	40 - 110	42 - <b>100</b>	33 - 106
Phenanthrene	55 - 101	47 - 109	47 - <b>100</b>	38 - 108
Anthracene	47 - 102	38 - 111	41 - 106	30 - 117
Fluoranthene	60 - 106	52 - 114	52 - 109	43 - 119
Pyrene	55 - 110	46 - 119	47 - 111	36 - 122
Benz(a)anthracene	56 - 104	48 - 112	47 - 114	36 - 125
Chrysene	58 - 104	50 - 112	51 - 106	42 - 115
Benzo(b)fluoranthene	51 - 126	39 - 139	52 - 114	42 - 124
Benzo(k)fluoranthene	55 - 123	44 - 134	48 - 117	37 - 129
Benzo(a)pyrene	32 - 110	19 - 123	44 - 111	33 - 122
Indeno(1,2,3-cd)pyrene	50 - 114	39 - 125	41 - 114	29 - 126
Dibenzo(a,h)anthracene	42 - 121	29 - 134	42 - 116	30 - 128
Benzo(g,h,i)perylene	50 - 113	40 - 124	37 - 115	27 - 107
<b>MB / LCS Surrogate Recovery</b>				
d10-2-Methylnapthalene	36 - 101	(4)	35 - <b>100</b>	(4)
d14-Dibenzo(a,h)anthracene	42 - 121	(4)	37 - 120	(4)
<b>Sample Surrogate Recovery</b>				
d10-2-Methylnapthalene	30 - 106	(4)	34 - <b>100</b>	(4)
d14-Dibenzo(a,h)anthracene	<b>10</b> - 130	(4)	<b>10</b> - 117	(4)

(1) ARI's Control limits calculated using all available spike recovery data from 1/1/08 through 12/31/08.

(2) **ME** = A **marginal exceedance** defined in the NELAC Standard <sup>(5)</sup> as beyond the LCS-CL but still within the ME limits. ME limits are between 3 and 4 standard deviations around the mean. A maximum of one marginal exceedance is acceptable. Two or more marginal exceedances require corrective action.

(3) 30 - 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses.

(4) Marginal Exceedances not allowed for surrogate standards.


(5) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.

(6) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.

(7) Highlighted control limits (**bold font**) adjusted to demonstrate that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.

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

Sample ID: MB-073010  
METHOD BLANK

Lab Sample ID: MB-073010  
LIMS ID: 10-18010  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/03/10

QC Report No: RG20-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: NA  
Date Received: NA

Date Extracted: 07/30/10  
Date Analyzed: 08/02/10 17:29  
Instrument/Analyst: NT11/YZ  
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
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 92.3%  
d14-Dibenzo(a,h)anthracen 76.7%

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

Sample ID: VBK-BN-CS-B4  
SAMPLE

Lab Sample ID: RG20A  
LIMS ID: 10-18010  
Matrix: Soil  
Data Release Authorized: *[Signature]*  
Reported: 08/03/10

QC Report No: RG20-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/29/10  
Date Received: 07/29/10

Date Extracted: 07/30/10  
Date Analyzed: 08/02/10 18:48  
Instrument/Analyst: NT11/YZ  
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: 7.7%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	< 4.9 U
91-57-6	2-Methylnaphthalene	4.9	< 4.9 U
90-12-0	1-Methylnaphthalene	4.9	< 4.9 U
208-96-8	Acenaphthylene	4.9	< 4.9 U
83-32-9	Acenaphthene	4.9	< 4.9 U
86-73-7	Fluorene	4.9	< 4.9 U
85-01-8	Phenanthrene	4.9	< 4.9 U
120-12-7	Anthracene	4.9	< 4.9 U
206-44-0	Fluoranthene	4.9	< 4.9 U
129-00-0	Pyrene	4.9	< 4.9 U
56-55-3	Benzo(a)anthracene	4.9	< 4.9 U
218-01-9	Chrysene	4.9	< 4.9 U
50-32-8	Benzo(a)pyrene	4.9	< 4.9 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.9	< 4.9 U
53-70-3	Dibenz(a,h)anthracene	4.9	< 4.9 U
191-24-2	Benzo(g,h,i)perylene	4.9	< 4.9 U
132-64-9	Dibenzofuran	4.9	< 4.9 U
TOTBFA	Total Benzofluoranthenes	4.9	< 4.9 U


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 82.7%  
d14-Dibenzo(a,h)anthracen 70.3%

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

Sample ID: VBK-BN-CS-B5  
SAMPLE

Lab Sample ID: RG20B  
LIMS ID: 10-18011  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/03/10

QC Report No: RG20-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/29/10  
Date Received: 07/29/10

Date Extracted: 07/30/10  
Date Analyzed: 08/02/10 19:15  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.35 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 6.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	< 4.8 U
91-57-6	2-Methylnaphthalene	4.8	< 4.8 U
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	< 4.8 U
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	< 4.8 U
<b>129-00-0</b>	<b>Pyrene</b>	<b>4.8</b>	<b>5.3</b>
56-55-3	Benzo(a)anthracene	4.8	< 4.8 U
218-01-9	Chrysene	4.8	< 4.8 U
50-32-8	Benzo(a)pyrene	4.8	< 4.8 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	< 4.8 U
53-70-3	Dibenz(a,h)anthracene	4.8	< 4.8 U
191-24-2	Benzo(g,h,i)perylene	4.8	< 4.8 U
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	< 4.8 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 90.7%  
d14-Dibenzo(a,h)anthracen 81.3%

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

Sample ID: VBK-BN-CS-B6  
SAMPLE

Lab Sample ID: RG20C  
LIMS ID: 10-18012  
Matrix: Soil  
Data Release Authorized:  
Reported: 08/03/10

QC Report No: RG20-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/29/10  
Date Received: 07/29/10

Date Extracted: 07/30/10  
Date Analyzed: 08/02/10 19:41  
Instrument/Analyst: NT11/YZ  
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: 20.0%

CAS Number	Analyte	RL	Result
<b>91-20-3</b>	<b>Naphthalene</b>	<b>4.7</b>	<b>4.7</b>
91-57-6	2-Methylnaphthalene	4.7	< 4.7 U
90-12-0	1-Methylnaphthalene	4.7	< 4.7 U
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	< 4.7 U
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	< 4.7 U
129-00-0	Pyrene	4.7	< 4.7 U
56-55-3	Benzo(a)anthracene	4.7	< 4.7 U
<b>218-01-9</b>	<b>Chrysene</b>	<b>4.7</b>	<b>7.0</b>
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
191-24-2	Benzo(g,h,i)perylene	4.7	< 4.7 U
132-64-9	Dibenzofuran	4.7	< 4.7 U
<b>TOTBFA</b>	<b>Total Benzofluoranthenes</b>	<b>4.7</b>	<b>7.9</b>

Reported in µg/kg (ppb)


**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 81.0%  
d14-Dibenzo(a,h)anthracen 71.3%



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

Sample ID: VBK-BN-CS-B7  
SAMPLE

Lab Sample ID: RG20D  
LIMS ID: 10-18013  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/03/10

QC Report No: RG20-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/29/10  
Date Received: 07/29/10

Date Extracted: 07/30/10  
Date Analyzed: 08/02/10 20:07  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.90 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 9.7%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	11
91-57-6	2-Methylnaphthalene	4.6	8.7
90-12-0	1-Methylnaphthalene	4.6	6.9
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	12
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	8.3
129-00-0	Pyrene	4.6	8.7
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	5.5
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	7.3


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 88.0%  
d14-Dibenzo(a,h)anthracen 78.3%

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

Sample ID: VBK-BN-CS-B8  
SAMPLE

Lab Sample ID: RG20E  
LIMS ID: 10-18014  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/03/10

QC Report No: RG20-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/29/10  
Date Received: 07/29/10

Date Extracted: 07/30/10  
Date Analyzed: 08/02/10 20:34  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 11.07 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 10.9%

CAS Number	Analyte	RL	Result
91-20-3	<b>Naphthalene</b>	4.5	8.1
91-57-6	2-Methylnaphthalene	4.5	< 4.5 U
90-12-0	1-Methylnaphthalene	4.5	< 4.5 U
208-96-8	Acenaphthylene	4.5	< 4.5 U
83-32-9	Acenaphthene	4.5	< 4.5 U
86-73-7	Fluorene	4.5	< 4.5 U
85-01-8	<b>Phenanthrene</b>	4.5	12
120-12-7	Anthracene	4.5	< 4.5 U
206-44-0	<b>Fluoranthene</b>	4.5	14
129-00-0	<b>Pyrene</b>	4.5	19
56-55-3	Benzo(a)anthracene	4.5	< 4.5 U
218-01-9	<b>Chrysene</b>	4.5	5.4
50-32-8	<b>Benzo(a)pyrene</b>	4.5	8.1
193-39-5	Indeno(1,2,3-cd)pyrene	4.5	< 4.5 U
53-70-3	Dibenz(a,h)anthracene	4.5	< 4.5 U
191-24-2	<b>Benzo(g,h,i)perylene</b>	4.5	5.4
132-64-9	Dibenzofuran	4.5	< 4.5 U
TOTBFA	<b>Total Benzofluoranthenes</b>	4.5	9.0

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 89.3%  
d14-Dibenzo(a,h)anthracen 77.3%

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

Sample ID: VBK-BN-CS-SW1  
SAMPLE

Lab Sample ID: RG20F  
LIMS ID: 10-18015  
Matrix: Soil  
Data Release Authorized:  
Reported: 08/03/10

QC Report No: RG20-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/29/10  
Date Received: 07/29/10

Date Extracted: 07/30/10  
Date Analyzed: 08/02/10 21:00  
Instrument/Analyst: NT11/YZ  
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: 8.2%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	18
91-57-6	2-Methylnaphthalene	4.9	7.8
90-12-0	1-Methylnaphthalene	4.9	14
208-96-8	Acenaphthylene	4.9	8.3
83-32-9	Acenaphthene	4.9	< 4.9 U
86-73-7	Fluorene	4.9	11
85-01-8	Phenanthrene	4.9	100
120-12-7	Anthracene	4.9	19
206-44-0	Fluoranthene	4.9	120
129-00-0	Pyrene	4.9	200
56-55-3	Benzo (a) anthracene	4.9	36
218-01-9	Chrysene	4.9	49
50-32-8	Benzo (a) pyrene	4.9	48
193-39-5	Indeno (1,2,3-cd) pyrene	4.9	18
53-70-3	Dibenz (a, h) anthracene	4.9	< 4.9 U
191-24-2	Benzo (g, h, i) perylene	4.9	26
132-64-9	Dibenzofuran	4.9	< 4.9 U
TOTBFA	Total Benzofluoranthenes	4.9	57


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 95.3%  
d14-Dibenzo (a, h) anthracen 77.3%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BN-CS-SW2  
SAMPLE

Lab Sample ID: RG20G  
LIMS ID: 10-18016  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/03/10

QC Report No: RG20-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/29/10  
Date Received: 07/29/10

Date Extracted: 07/30/10  
Date Analyzed: 08/02/10 21:26  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.63 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 7.1%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	52
91-57-6	2-Methylnaphthalene	4.7	24
90-12-0	1-Methylnaphthalene	4.7	31
208-96-8	Acenaphthylene	4.7	26
83-32-9	Acenaphthene	4.7	15
86-73-7	Fluorene	4.7	32
85-01-8	Phenanthrene	4.7	190
120-12-7	Anthracene	4.7	39
206-44-0	Fluoranthene	4.7	250
129-00-0	Pyrene	4.7	410
56-55-3	Benzo (a) anthracene	4.7	92
218-01-9	Chrysene	4.7	120
50-32-8	Benzo (a) pyrene	4.7	160
193-39-5	Indeno (1,2,3-cd) pyrene	4.7	74
53-70-3	Dibenz (a,h) anthracene	4.7	11
191-24-2	Benzo (g,h,i) perylene	4.7	100
132-64-9	Dibenzofuran	4.7	5.2
TOTBFA	Total Benzofluoranthenes	4.7	190

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 89.3%  
d14-Dibenzo(a,h)anthracen 70.7%

**SIM SW8270 SURROGATE RECOVERY SUMMARY**

Matrix: Soil

QC Report No: RG20-DOF  
Project: VERBEEK  
PSE-004

<u>Client ID</u>	<u>MNP</u>	<u>DBA</u>	<u>TOT OUT</u>
MB-073010	92.3%	76.7%	0
LCS-073010	90.3%	81.3%	0
LCSD-073010	95.0%	83.7%	0
VBK-BN-CS-B4	82.7%	70.3%	0
VBK-BN-CS-B5	90.7%	81.3%	0
VBK-BN-CS-B6	81.0%	71.3%	0
VBK-BN-CS-B7	88.0%	78.3%	0
VBK-BN-CS-B8	89.3%	77.3%	0
VBK-BN-CS-SW1	95.3%	77.3%	0
VBK-BN-CS-SW2	89.3%	70.7%	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: 10-18010 to 10-18016

**ORGANICS ANALYSIS DATA SHEET**

**PNA's by SW8270D-SIM GC/MS**

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**Sample ID: LCS-073010**

**LAB CONTROL SAMPLE**

Lab Sample ID: LCS-073010

LIMS ID: 10-18010

Matrix: Soil

Data Release Authorized:

Reported: 08/03/10

QC Report No: RG20-DOF

Project: VERBEEK

Event: PSE-004

Date Sampled: NA

Date Received: NA

Date Extracted: 07/30/10

Sample Amount LCS: 10.0 g-dry-wt

LCS D: 10.0 g-dry-wt

Date Analyzed LCS: 08/02/10 17:55

Final Extract Volume LCS: 0.50 mL

LCS D: 08/02/10 18:22

LCS D: 0.50 mL

Instrument/Analyst LCS: NT11/YZ

Dilution Factor LCS: 1.00

LCS D: NT11/YZ

LCS D: 1.00

Analyte	LCS	Spike		LCS D	Spike		RPD
		Added-LCS	Recovery		Added-LCS D	Recovery	
Naphthalene	118	150	78.7%	126	150	84.0%	6.6%
2-Methylnaphthalene	128	150	85.3%	136	150	90.7%	6.1%
1-Methylnaphthalene	127	150	84.7%	136	150	90.7%	6.8%
Acenaphthylene	127	150	84.7%	138	150	92.0%	8.3%
Acenaphthene	122	150	81.3%	132	150	88.0%	7.9%
Fluorene	133	150	88.7%	144	150	96.0%	7.9%
Phenanthrene	138	150	92.0%	150	150	100%	8.3%
Anthracene	144	150	96.0%	158	150	105%	9.3%
Fluoranthene	156	150	104%	167	150	111%	6.8%
Pyrene	159	150	106%	171	150	114%	7.3%
Benzo(a)anthracene	160	150	107%	168	150	112%	4.9%
Chrysene	151	150	101%	158	150	105%	4.5%
Benzo(a)pyrene	155	150	103%	164	150	109%	5.6%
Indeno(1,2,3-cd)pyrene	110	150	73.3%	117	150	78.0%	6.2%
Dibenz(a,h)anthracene	112	150	74.7%	120	150	80.0%	6.9%
Benzo(g,h,i)perylene	91.5	150	61.0%	97.0	150	64.7%	5.8%
Dibenzofuran	118	150	78.7%	126	150	84.0%	6.6%
Total Benzofluoranthenes	316	300	105%	322	300	107%	1.9%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

**SIM Semivolatile Surrogate Recovery**

	LCS	LCS D
d10-2-Methylnaphthalene	90.3%	95.0%
d14-Dibenzo(a,h)anthracene	81.3%	83.7%



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

August 4, 2010

Matt Dalton  
Dalton, Olmsted, & Fuglevand  
10827 NE 68th, Suite B  
Kirkland, WA 98033

**RE: Client Project: Verbeek – PSE-004**  
**ARI Job No.: RG07**

Dear Matt:

Please find enclosed the original Chain-of-Custody records (COC), sample receipt documentation, and the final analytical results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted four soil samples on July 28, 2010. For further details regarding sample receipt, refer to the enclosed Cooler Receipt Form.

The samples were analyzed for SIM PNAs, as requested on the COC.

There were no anomalies associated with these analyses.

An electronic copy of this report 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.

*Sue Dunniho*

*- For -*

Susan Dunniho  
Director, Client Services  
sue@arilabs.com  
206-695-6207

Enclosures

cc: eFile RG07

**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: RG07  
 Turn-around Requested: 38-DAY  
 ARI Client Company: RSE  
 Phone: 206 660 3466  
 Client Contact: DAVID COON/MIT ARROW  
 Client Project Name: VENSEX  
 Client Project #: PSE-004

Page: 1 of 1  
 Date: 7/28/10  
 No. of Coolers: 1  
 Ice Present? YES  
 Cooler Temps: 12.7

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested						Notes/Comments	
VBK-BU-CS-B1	7/28/10	0730	SOIL	1								MAL <0.1 mg/kg
VBK-BU-CS-B2		0745										
VBK-BU-CS-B3		0800										
VBK-BU-PS-SU1		0815										

Analysis Requested  
 # 870-517  
 PSE

Received by: (Signature) *[Signature]*  
 Printed Name: Rich Hanson  
 Company: ARI  
 Date & Time: 7/28/10 1210

Relinquished by: (Signature) *[Signature]*  
 Printed Name: Rich Hanson  
 Company: ARI  
 Date & Time: 7/28/10 1210

Comments/Special Instructions

**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, notwithstanding 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.





# Cooler Receipt Form

ARI Client: ASE/DOF

Project Name: Ver book

COC No(s): \_\_\_\_\_ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: RG07

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) \_\_\_\_\_ 12.7

If cooler temperature is out of compliance fill out form 00070F

Cooler Accepted by: [Signature] Date: 7/28/10 Time: 1430 Temp Gun ID#: 90877952

**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: \_\_\_\_\_


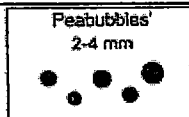

Samples Logged by: JM Date: 7/28/10 Time: 1445

**\*\* 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"



Analytical Resources, Incorporated  
Analytical Chemists and Consultants

# Cooler Temperature Compliance Form

RG07

Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type
All samples	1	8 oz jar

Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type

Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type

Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type

Completed by: JM Date: 7/28/10 Time: 1845



## Data Reporting Qualifiers

Effective 7/10/2009

### 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  $\geq$  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  $\leq 5$  times the Reporting Limit and the replicate control limit defaults to  $\pm 1$  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.
- 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  $\geq 40\%$  RPD with no obvious chromatographic interference

### **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

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

Sample ID: MB-073010  
METHOD BLANK

Lab Sample ID: MB-073010  
LIMS ID: 10-17883  
Matrix: Soil  
Data Release Authorized: *BR*  
Reported: 08/04/10

QC Report No: RG07-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: NA  
Date Received: NA

Date Extracted: 07/30/10  
Date Analyzed: 08/03/10 15:02  
Instrument/Analyst: NT11/YZ  
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
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 84.7%  
d14-Dibenzo(a,h)anthracen 75.3%

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

Sample ID: VBK-BN-CS-B1  
SAMPLE

Lab Sample ID: RG07A  
LIMS ID: 10-17883  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/04/10

QC Report No: RG07-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/28/10  
Date Received: 07/28/10

Date Extracted: 07/30/10  
Date Analyzed: 08/03/10 15:55  
Instrument/Analyst: NT11/YZ  
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: 8.2%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	< 4.9 U
91-57-6	2-Methylnaphthalene	4.9	< 4.9 U
90-12-0	1-Methylnaphthalene	4.9	< 4.9 U
208-96-8	Acenaphthylene	4.9	< 4.9 U
83-32-9	Acenaphthene	4.9	< 4.9 U
86-73-7	Fluorene	4.9	< 4.9 U
85-01-8	Phenanthrene	4.9	< 4.9 U
120-12-7	Anthracene	4.9	< 4.9 U
206-44-0	Fluoranthene	4.9	< 4.9 U
129-00-0	Pyrene	4.9	< 4.9 U
56-55-3	Benzo(a)anthracene	4.9	< 4.9 U
218-01-9	Chrysene	4.9	< 4.9 U
50-32-8	Benzo(a)pyrene	4.9	< 4.9 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.9	< 4.9 U
53-70-3	Dibenz(a,h)anthracene	4.9	< 4.9 U
191-24-2	Benzo(g,h,i)perylene	4.9	< 4.9 U
132-64-9	Dibenzofuran	4.9	< 4.9 U
TOTBFA	Total Benzofluoranthenes	4.9	< 4.9 U


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 78.0%  
d14-Dibenzo(a,h)anthracen 67.0%

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

Sample ID: VBK-BN-CS-B2  
SAMPLE

Lab Sample ID: RG07B  
LIMS ID: 10-17884  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/04/10

QC Report No: RG07-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/28/10  
Date Received: 07/28/10

Date Extracted: 07/30/10  
Date Analyzed: 08/03/10 17:14  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.03 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 8.8%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	5.0	140
91-57-6	2-Methylnaphthalene	5.0	7.0
90-12-0	1-Methylnaphthalene	5.0	6.5
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	10
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	8.0
129-00-0	Pyrene	5.0	19
56-55-3	Benzo (a) anthracene	5.0	6.5
218-01-9	Chrysene	5.0	10
50-32-8	Benzo (a) pyrene	5.0	7.5
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
191-24-2	Benzo (g, h, i) perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	5.0	< 5.0 U
TOTBFA	Total Benzofluoranthenes	5.0	10


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 87.0%  
d14-Dibenzo (a, h) anthracene 72.0%

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

Sample ID: VBK-BN-CS-B3  
SAMPLE

Lab Sample ID: RG07C  
LIMS ID: 10-17885  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/04/10

QC Report No: RG07-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/28/10  
Date Received: 07/28/10

Date Extracted: 07/30/10  
Date Analyzed: 08/03/10 17:41  
Instrument/Analyst: NT11/YZ  
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: 15.2%

CAS Number	Analyte	RL	Result
91-20-3	<b>Naphthalene</b>	<b>4.8</b>	<b>7.7</b>
91-57-6	2-Methylnaphthalene	4.8	< 4.8 U
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
<b>85-01-8</b>	<b>Phenanthrene</b>	<b>4.8</b>	<b>4.8</b>
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	< 4.8 U
129-00-0	Pyrene	4.8	< 4.8 U
56-55-3	Benzo(a)anthracene	4.8	< 4.8 U
218-01-9	Chrysene	4.8	< 4.8 U
50-32-8	Benzo(a)pyrene	4.8	< 4.8 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	< 4.8 U
53-70-3	Dibenz(a,h)anthracene	4.8	< 4.8 U
191-24-2	Benzo(g,h,i)perylene	4.8	< 4.8 U
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	< 4.8 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 84.3%  
d14-Dibenzo(a,h)anthracen 68.3%



**ORGANICS ANALYSIS DATA SHEET**  
**PNA's by SIM SW8270D-SIM GC/MS**  
 Page 1 of 1

Sample ID: VBK-BN-PS-SW1  
 SAMPLE

Lab Sample ID: RG07D  
 LIMS ID: 10-17886  
 Matrix: Soil  
 Data Release Authorized: *AB*  
 Reported: 08/05/10

QC Report No: RG07-DOF  
 Project: VERBEEK  
 Event: PSE-004  
 Date Sampled: 07/28/10  
 Date Received: 07/28/10

Date Extracted: 07/30/10  
 Date Analyzed: 08/03/10 18:07  
 Instrument/Analyst: NT11/YZ  
 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: 6.7%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	460
91-57-6	2-Methylnaphthalene	4.9	220
90-12-0	1-Methylnaphthalene	4.9	160
208-96-8	Acenaphthylene	4.9	400
83-32-9	Acenaphthene	4.9	94
86-73-7	Fluorene	4.9	270
85-01-8	Phenanthrene	4.9	2,200 E
120-12-7	Anthracene	4.9	720 E
206-44-0	Fluoranthene	4.9	3,300 E
129-00-0	Pyrene	4.9	7,200 E
56-55-3	Benzo (a) anthracene	4.9	2,000 E
218-01-9	Chrysene	4.9	2,300 E
50-32-8	Benzo (a) pyrene	4.9	3,000 E
193-39-5	Indeno (1,2,3-cd) pyrene	4.9	1,200 E
53-70-3	Dibenz (a,h) anthracene	4.9	240
191-24-2	Benzo (g,h,i) perylene	4.9	1,500 E
132-64-9	Dibenzofuran	4.9	45
TOTBEA	Total Benzofluoranthenes	4.9	3,600 E

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 88.7%  
 d14-Dibenzo(a,h)anthracen 64.7%

**ORGANICS ANALYSIS DATA SHEET**  
**PNA's by SIM SW8270D-SIM GC/MS**  
 Page 1 of 1

**Sample ID: VBK-BN-PS-SW1**  
**DILUTION**

Lab Sample ID: RG07D  
 LIMS ID: 10-17886  
 Matrix: Soil  
 Data Release Authorized: *AB*  
 Reported: 08/05/10

QC Report No: RG07-DOF  
 Project: VERBEEK  
 Event: PSE-004  
 Date Sampled: 07/28/10  
 Date Received: 07/28/10

Date Extracted: 07/30/10  
 Date Analyzed: 08/04/10 12:30  
 Instrument/Analyst: NT11/YZ  
 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: 40.0  
 Percent Moisture: 6.7%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	200	680
91-57-6	2-Methylnaphthalene	200	310
90-12-0	1-Methylnaphthalene	200	230
208-96-8	Acenaphthylene	200	550
83-32-9	Acenaphthene	200	< 200 U
86-73-7	Fluorene	200	390
85-01-8	Phenanthrene	200	4,600
120-12-7	Anthracene	200	1,100
206-44-0	Fluoranthene	200	8,100
129-00-0	Pyrene	200	12,000
56-55-3	Benzo (a) anthracene	200	2,900
218-01-9	Chrysene	200	3,400
50-32-8	Benzo (a) pyrene	200	4,400
193-39-5	Indeno (1,2,3-cd) pyrene	200	2,600
53-70-3	Dibenz (a,h) anthracene	200	490
191-24-2	Benzo (g,h,i) perylene	200	3,600
132-64-9	Dibenzofuran	200	< 200 U
TOTBFA	Total Benzofluoranthenes	200	4,700

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene D  
 d14-Dibenzo (a,h) anthracen D

**SIM SW8270 SURROGATE RECOVERY SUMMARY**

Matrix: Soil

QC Report No: RG07-DOF  
Project: VERBEEK  
PSE-004

<u>Client ID</u>	<u>MNP</u>	<u>DBA</u>	<u>TOT OUT</u>
MB-073010	84.7%	75.3%	0
LCS-073010	81.3%	74.0%	0
VBK-BN-CS-B1	78.0%	67.0%	0
VBK-BN-CS-B1 MS	88.0%	71.0%	0
VBK-BN-CS-B1 MSD	87.0%	71.7%	0
VBK-BN-CS-B2	87.0%	72.0%	0
VBK-BN-CS-B3	84.3%	68.3%	0
VBK-BN-PS-SW1	88.7%	64.7%	0
VBK-BN-PS-SW1 DL	D	D	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: 10-17883 to 10-17886

**ORGANICS ANALYSIS DATA SHEET**

**PNA's by SW8270D-SIM GC/MS**

Page 1 of 1

**Sample ID: VBK-BN-CS-B1  
MATRIX SPIKE**

Lab Sample ID: RG07A

LIMS ID: 10-17883

Matrix: Soil

Data Release Authorized:

Reported: 08/04/10

QC Report No: RG07-DOF

Project: VERBEEK

Event: PSE-004

Date Sampled: 07/28/10

Date Received: 07/28/10

Date Extracted MS/MSD: 07/30/10

Sample Amount MS: 10.7 g-dry-wt

MSD: 10.6 g-dry-wt

Date Analyzed MS: 08/03/10 16:21

Final Extract Volume MS: 0.50 mL

MSD: 08/03/10 16:48

MSD: 0.50 mL

Instrument/Analyst MS: NT11/YZ

Dilution Factor MS: 1.00

MSD: NT11/YZ

MSD: 1.00


Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Naphthalene	< 4.9 U	108	140	77.1%	112	142	78.9%	3.6%
2-Methylnaphthalene	< 4.9 U	115	140	82.1%	120	142	84.5%	4.3%
1-Methylnaphthalene	< 4.9 U	116	140	82.9%	119	142	83.8%	2.6%
Acenaphthylene	< 4.9 U	115	140	82.1%	118	142	83.1%	2.6%
Acenaphthene	< 4.9 U	110	140	78.6%	114	142	80.3%	3.6%
Fluorene	< 4.9 U	118	140	84.3%	122	142	85.9%	3.3%
Phenanthrene	< 4.9 U	122	140	87.1%	126	142	88.7%	3.2%
Anthracene	< 4.9 U	128	140	91.4%	130	142	91.5%	1.6%
Fluoranthene	< 4.9 U	137	140	97.9%	139	142	97.9%	1.4%
Pyrene	< 4.9 U	140	140	100%	142	142	100%	1.4%
Benzo(a)anthracene	< 4.9 U	138	140	98.6%	139	142	97.9%	0.7%
Chrysene	< 4.9 U	130	140	92.9%	131	142	92.3%	0.8%
Benzo(a)pyrene	< 4.9 U	137	140	97.9%	140	142	98.6%	2.2%
Indeno(1,2,3-cd)pyrene	< 4.9 U	90.0	140	64.3%	96.6	142	68.0%	7.1%
Dibenz(a,h)anthracene	< 4.9 U	91.9	140	65.6%	98.0	142	69.0%	6.4%
Benzo(g,h,i)perylene	< 4.9 U	79.8	140	57.0%	84.8	142	59.7%	6.1%
Dibenzofuran	< 4.9 U	108	140	77.1%	110	142	77.5%	1.8%
Total Benzofluoranthenes	< 4.9 U	282	280	101%	283	284	99.6%	0.4%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

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

Sample ID: VBK-BN-CS-B1  
MATRIX SPIKE

Lab Sample ID: RG07A  
LIMS ID: 10-17883  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/04/10

QC Report No: RG07-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/28/10  
Date Received: 07/28/10

Date Extracted: 07/30/10  
Date Analyzed: 08/03/10 16:21  
Instrument/Analyst: NT11/YZ  
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: 8.2%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	---
91-57-6	2-Methylnaphthalene	4.7	---
90-12-0	1-Methylnaphthalene	4.7	---
208-96-8	Acenaphthylene	4.7	---
83-32-9	Acenaphthene	4.7	---
86-73-7	Fluorene	4.7	---
85-01-8	Phenanthrene	4.7	---
120-12-7	Anthracene	4.7	---
206-44-0	Fluoranthene	4.7	---
129-00-0	Pyrene	4.7	---
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	---
191-24-2	Benzo(g,h,i)perylene	4.7	---
132-64-9	Dibenzofuran	4.7	---
TOTBFA	Total Benzofluoranthenes	4.7	---

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 88.0%  
d14-Dibenzo(a,h)anthracene 71.0%

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

Sample ID: VBK-BN-CS-B1  
MATRIX SPIKE DUPLICATE

Lab Sample ID: RG07A  
LIMS ID: 10-17883  
Matrix: Soil  
Data Release Authorized: *AS*  
Reported: 08/04/10

QC Report No: RG07-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/28/10  
Date Received: 07/28/10

Date Extracted: 07/30/10  
Date Analyzed: 08/03/10 16:48  
Instrument/Analyst: NT11/YZ  
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: 8.2%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	---
91-57-6	2-Methylnaphthalene	4.7	---
90-12-0	1-Methylnaphthalene	4.7	---
208-96-8	Acenaphthylene	4.7	---
83-32-9	Acenaphthene	4.7	---
86-73-7	Fluorene	4.7	---
85-01-8	Phenanthrene	4.7	---
120-12-7	Anthracene	4.7	---
206-44-0	Fluoranthene	4.7	---
129-00-0	Pyrene	4.7	---
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	---
191-24-2	Benzo(g,h,i)perylene	4.7	---
132-64-9	Dibenzofuran	4.7	---
TOTBFA	Total Benzofluoranthenes	4.7	---

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 87.0%  
d14-Dibenzo(a,h)anthracen 71.7%

**ORGANICS ANALYSIS DATA SHEET**

**PNA's by SW8270D-SIM GC/MS**

Page 1 of 1


**Sample ID: LCS-073010**

**LAB CONTROL SAMPLE**

Lab Sample ID: LCS-073010

LIMS ID: 10-17883

Matrix: Soil

Data Release Authorized: 

Reported: 08/04/10

QC Report No: RG07-DOF

Project: VERBEEK

Event: PSE-004

Date Sampled: NA

Date Received: NA

Date Extracted: 07/30/10

Date Analyzed LCS: 08/03/10 15:28

Instrument/Analyst LCS: NT11/YZ

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
Naphthalene	109	150	72.7%
2-Methylnaphthalene	116	150	77.3%
1-Methylnaphthalene	116	150	77.3%
Acenaphthylene	116	150	77.3%
Acenaphthene	111	150	74.0%
Fluorene	120	150	80.0%
Phenanthrene	128	150	85.3%
Anthracene	134	150	89.3%
Fluoranthene	148	150	98.7%
Pyrene	148	150	98.7%
Benzo(a)anthracene	152	150	101%
Chrysene	142	150	94.7%
Benzo(a)pyrene	154	150	103%
Indeno(1,2,3-cd)pyrene	100	150	66.7%
Dibenz(a,h)anthracene	102	150	68.0%
Benzo(g,h,i)perylene	87.5	150	58.3%
Dibenzofuran	108	150	72.0%
Total Benzofluoranthenes	322	300	107%

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene	81.3%
d14-Dibenzo(a,h)anthracen	74.0%



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

August 5, 2010

Matt Dalton  
Dalton, Olmsted, & Fuglevand  
10827 NE 68th, Suite B  
Kirkland, WA 98033

**RE: Client Project: Verbeek – PSE-004**  
**ARI Job No.: RG08**

Dear Matt:

Please find enclosed the original Chain-of-Custody records (COC), sample receipt documentation, and the final analytical results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted twelve soil samples on July 28, 2010. For further details regarding sample receipt, refer to the enclosed Cooler Receipt Form.

The samples were analyzed for SIM PNAs, as requested on the COC.

There were no anomalies associated with these analyses.

An electronic copy of this report 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.

*Sue Dunniho*  
- For -

Susan Dunniho  
Director, Client Services  
sue@arilabs.com  
206-695-6207

Enclosures

cc: eFile RG08



# Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: **RG08** Turn-around Requested: **ASAP 5-DAY**  
 ARI Client Company: **DOF/PSE** Phone: **206 660 3466**  
 Client Contact: **DAVID GORDON / PTT DATED**  
 Client Project Name: **VERSEN**  
 Client Project #: **PSE - 004**



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				Notes/Comments
					Page	of	Ice Present?	Cooler Temps:	
V08-LF-CS-B1	7/28/10	0900	soil	1	1	2	yes	12.7	MDL < 0.1 mg/kg
" - B2		0910			X				
" - B3		0920			X				
" - B4		0930			X				
" - B5		0940			X				
" - B6		0950			X				
" - B7		1000			X				
" - B8		1010			X				
" - B9		1020			X				
" - B10		1030			X				
Comments/Special Instructions	Relinquished by: <i>[Signature]</i> Received by: <i>[Signature]</i>				Relinquished by: <i>[Signature]</i> Received by: <i>[Signature]</i>				
	Printed Name: <b>David Gordon</b> Printed Name: <b>Rich Huber</b>				Printed Name: <b>Rich Huber</b>				
	Company: <b>DOF</b> Company: <b>ARI</b>				Company: <b>ARI</b>				
	Date & Time: <b>7/28/10 1210</b> Date & Time: <b>7/28/10 1210</b>				Date & Time: <b>7/28/10 1210</b>				

RG08: 00002

**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.





# Cooler Receipt Form

ARI Client: ASE/DOF

Project Name: JM VERBEEK

COC No(s): \_\_\_\_\_ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: RG08

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)..... 12.7

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90877952

Cooler Accepted by: [Signature] Date: 7/28/10 Time: 1430

**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: 7/28/10 Time: 1530

**\*\* 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"



# Cooler Temperature Compliance Form

RG08

Cooler#: 1 Temperature(°C): 12.7

Sample ID	Bottle Count	Bottle Type
All samples	1	8 oz jar

Cooler#: \_\_\_\_\_ Temperature(°C): \_\_\_\_\_

Sample ID	Bottle Count	Bottle Type

Cooler#: \_\_\_\_\_ Temperature(°C): \_\_\_\_\_

Sample ID	Bottle Count	Bottle Type

Cooler#: \_\_\_\_\_ Temperature(°C): \_\_\_\_\_

Sample ID	Bottle Count	Bottle Type

Completed by: JM

Date: 7/28/10

Time: 1530



## Data Reporting Qualifiers

Effective 7/10/2009

### 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  $\geq$  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  $\leq 5$  times the Reporting Limit and the replicate control limit defaults to  $\pm 1$  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.
- 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  $\geq 40\%$  RPD with no obvious chromatographic interference

### **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

**ORGANICS ANALYSIS DATA SHEET**  
**PNA's by SIM SW8270D-SIM GC/MS**  
 Page 1 of 1

**Sample ID: MB-073010**  
**METHOD BLANK**

Lab Sample ID: MB-073010  
 LIMS ID: 10-17887  
 Matrix: Soil  
 Data Release Authorized:   
 Reported: 08/04/10

QC Report No: RG08-DOF  
 Project: VERBEEK  
 Event: PSE-004  
 Date Sampled: NA  
 Date Received: NA

Date Extracted: 07/30/10  
 Date Analyzed: 08/03/10 15:02  
 Instrument/Analyst: NT11/YZ  
 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
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 84.7%  
 d14-Dibenzo(a,h)anthracen 75.3%

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

Sample ID: VBK-LF-CS-B1  
SAMPLE

Lab Sample ID: RG08A  
LIMS ID: 10-17887  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/04/10

QC Report No: RG08-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/28/10  
Date Received: 07/28/10

Date Extracted: 07/30/10  
Date Analyzed: 08/03/10 18:34  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.40 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 8.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	< 4.8 U
91-57-6	2-Methylnaphthalene	4.8	< 4.8 U
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	< 4.8 U
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	< 4.8 U
<b>129-00-0</b>	<b>Pyrene</b>	<b>4.8</b>	<b>5.8</b>
56-55-3	Benzo(a)anthracene	4.8	< 4.8 U
218-01-9	Chrysene	4.8	< 4.8 U
<b>50-32-8</b>	<b>Benzo(a)pyrene</b>	<b>4.8</b>	<b>4.8</b>
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	< 4.8 U
53-70-3	Dibenz(a,h)anthracene	4.8	< 4.8 U
191-24-2	Benzo(g,h,i)perylene	4.8	< 4.8 U
132-64-9	Dibenzofuran	4.8	< 4.8 U
<b>TOTBFA</b>	<b>Total Benzofluoranthenes</b>	<b>4.8</b>	<b>6.2</b>

Reported in µg/kg (ppb)


**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 80.7%  
d14-Dibenzo(a,h)anthracen 65.3%



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

Sample ID: VBK-LF-CS-B2  
SAMPLE

Lab Sample ID: RG08B  
LIMS ID: 10-17888  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/04/10

QC Report No: RG08-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/28/10  
Date Received: 07/28/10

Date Extracted: 07/30/10  
Date Analyzed: 08/03/10 19:00  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.35 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 7.7%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	< 4.8 U
91-57-6	2-Methylnaphthalene	4.8	< 4.8 U
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	33
120-12-7	Anthracene	4.8	5.8
206-44-0	Fluoranthene	4.8	24
129-00-0	Pyrene	4.8	50
56-55-3	Benzo (a) anthracene	4.8	22
218-01-9	Chrysene	4.8	31
50-32-8	Benzo (a) pyrene	4.8	30
193-39-5	Indeno (1,2,3-cd) pyrene	4.8	7.7
53-70-3	Dibenz (a, h) anthracene	4.8	< 4.8 U
191-24-2	Benzo (g, h, i) perylene	4.8	12
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	31

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 85.3%  
d14-Dibenzo(a,h)anthracen 72.0%

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Sample ID: VBK-LF-CS-B3  
SAMPLE

Lab Sample ID: RG08C  
LIMS ID: 10-17889  
Matrix: Soil  
Data Release Authorized:  
Reported: 08/04/10

QC Report No: RG08-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/28/10  
Date Received: 07/28/10

Date Extracted: 07/30/10  
Date Analyzed: 08/03/10 19:27  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.40 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 8.1%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	< 4.8 U
<b>91-57-6</b>	<b>2-Methylnaphthalene</b>	<b>4.8</b>	<b>7.7</b>
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
<b>85-01-8</b>	<b>Phenanthrene</b>	<b>4.8</b>	<b>23</b>
120-12-7	Anthracene	4.8	< 4.8 U
<b>206-44-0</b>	<b>Fluoranthene</b>	<b>4.8</b>	<b>15</b>
<b>129-00-0</b>	<b>Pyrene</b>	<b>4.8</b>	<b>30</b>
<b>56-55-3</b>	<b>Benzo (a) anthracene</b>	<b>4.8</b>	<b>12</b>
<b>218-01-9</b>	<b>Chrysene</b>	<b>4.8</b>	<b>16</b>
<b>50-32-8</b>	<b>Benzo (a) pyrene</b>	<b>4.8</b>	<b>14</b>
<b>193-39-5</b>	<b>Indeno (1,2,3-cd) pyrene</b>	<b>4.8</b>	<b>4.8</b>
53-70-3	Dibenz (a, h) anthracene	4.8	< 4.8 U
<b>191-24-2</b>	<b>Benzo (g, h, i) perylene</b>	<b>4.8</b>	<b>9.6</b>
132-64-9	Dibenzofuran	4.8	< 4.8 U
<b>TOTBFA</b>	<b>Total Benzofluoranthenes</b>	<b>4.8</b>	<b>16</b>

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 85.7%  
d14-Dibenzo(a,h)anthracen 71.0%

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Sample ID: VBK-LF-CS-B4  
SAMPLE

Lab Sample ID: RG08D  
LIMS ID: 10-17890  
Matrix: Soil  
Data Release Authorized:  
Reported: 08/04/10

QC Report No: RG08-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/28/10  
Date Received: 07/28/10

Date Extracted: 07/30/10  
Date Analyzed: 08/03/10 19:53  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.28 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 8.8%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	10
91-57-6	2-Methylnaphthalene	4.9	11
90-12-0	1-Methylnaphthalene	4.9	6.3
208-96-8	Acenaphthylene	4.9	< 4.9 U
83-32-9	Acenaphthene	4.9	9.7
86-73-7	Fluorene	4.9	7.8
85-01-8	Phenanthrene	4.9	99
120-12-7	Anthracene	4.9	18
206-44-0	Fluoranthene	4.9	57
129-00-0	Pyrene	4.9	150
56-55-3	Benzo (a) anthracene	4.9	53
218-01-9	Chrysene	4.9	77
50-32-8	Benzo (a) pyrene	4.9	72
193-39-5	Indeno (1,2,3-cd) pyrene	4.9	21
53-70-3	Dibenz (a,h) anthracene	4.9	< 4.9 U
191-24-2	Benzo (g,h,i) perylene	4.9	31
132-64-9	Dibenzofuran	4.9	< 4.9 U
TOTBFA	Total Benzofluoranthenes	4.9	76


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 80.7%  
d14-Dibenzo (a,h) anthracen 61.7%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-LF-CS-B5  
SAMPLE

Lab Sample ID: RG08E  
LIMS ID: 10-17891  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/04/10

QC Report No: RG08-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/28/10  
Date Received: 07/28/10

Date Extracted: 07/30/10  
Date Analyzed: 08/03/10 20:19  
Instrument/Analyst: NT11/YZ  
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: 17.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 86.0%  
d14-Dibenzo(a,h)anthracen 64.3%

**ORGANICS ANALYSIS DATA SHEET**  
**PNA's by SIM SW8270D-SIM GC/MS**  
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**Sample ID: VBK-LF-CS-B6**  
**SAMPLE**

Lab Sample ID: RG08F  
 LIMS ID: 10-17892  
 Matrix: Soil  
 Data Release Authorized:   
 Reported: 08/04/10

QC Report No: RG08-DOF  
 Project: VERBEEK  
 Event: PSE-004  
 Date Sampled: 07/28/10  
 Date Received: 07/28/10

Date Extracted: 07/30/10  
 Date Analyzed: 08/03/10 20:46  
 Instrument/Analyst: NT11/YZ  
 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: 17.8%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 83.7%  
 d14-Dibenzo(a,h)anthracen 55.3%

**ORGANICS ANALYSIS DATA SHEET**  
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**Sample ID: VBK-LF-CS-B7**  
**SAMPLE**

Lab Sample ID: RG08G  
 LIMS ID: 10-17893  
 Matrix: Soil  
 Data Release Authorized:  
 Reported: 08/04/10

QC Report No: RG08-DOF  
 Project: VERBEEK  
 Event: PSE-004  
 Date Sampled: 07/28/10  
 Date Received: 07/28/10

Date Extracted: 07/30/10  
 Date Analyzed: 08/04/10 11:37  
 Instrument/Analyst: NT11/YZ  
 GPC Cleanup: No  
 Silica Gel Cleanup: Yes  
 Alumina Cleanup: No

Sample Amount: 11.22 g-dry-wt  
 Final Extract Volume: 0.5 mL  
 Dilution Factor: 1.00  
 Percent Moisture: 11.3%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.5	< 4.5 U
91-57-6	2-Methylnaphthalene	4.5	< 4.5 U
90-12-0	1-Methylnaphthalene	4.5	< 4.5 U
208-96-8	Acenaphthylene	4.5	< 4.5 U
83-32-9	Acenaphthene	4.5	< 4.5 U
86-73-7	Fluorene	4.5	< 4.5 U
85-01-8	Phenanthrene	4.5	< 4.5 U
120-12-7	Anthracene	4.5	< 4.5 U
206-44-0	Fluoranthene	4.5	< 4.5 U
129-00-0	Pyrene	4.5	< 4.5 U
56-55-3	Benzo(a)anthracene	4.5	< 4.5 U
218-01-9	Chrysene	4.5	< 4.5 U
50-32-8	Benzo(a)pyrene	4.5	< 4.5 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.5	< 4.5 U
53-70-3	Dibenz(a,h)anthracene	4.5	< 4.5 U
191-24-2	Benzo(g,h,i)perylene	4.5	< 4.5 U
132-64-9	Dibenzofuran	4.5	< 4.5 U
TOTBFA	Total Benzofluoranthenes	4.5	< 4.5 U


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 80.7%  
 d14-Dibenzo(a,h)anthracen 87.0%

**ORGANICS ANALYSIS DATA SHEET**  
**PNA's by SIM SW8270D-SIM GC/MS**  
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**Sample ID: VBK-LF-CS-B8**  
**SAMPLE**

Lab Sample ID: RG08H  
 LIMS ID: 10-17894  
 Matrix: Soil  
 Data Release Authorized:   
 Reported: 08/04/10

QC Report No: RG08-DOF  
 Project: VERBEEK  
 Event: PSE-004  
 Date Sampled: 07/28/10  
 Date Received: 07/28/10

Date Extracted: 07/30/10  
 Date Analyzed: 08/04/10 12:04  
 Instrument/Analyst: NT11/YZ  
 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: 5.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	< 4.7 U
91-57-6	2-Methylnaphthalene	4.7	< 4.7 U
90-12-0	1-Methylnaphthalene	4.7	< 4.7 U
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	< 4.7 U
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	< 4.7 U
129-00-0	Pyrene	4.7	< 4.7 U
56-55-3	Benzo(a)anthracene	4.7	< 4.7 U
218-01-9	Chrysene	4.7	< 4.7 U
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
191-24-2	Benzo(g,h,i)perylene	4.7	< 4.7 U
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	< 4.7 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 79.0%  
 d14-Dibenzo(a,h)anthracen 88.3%

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**Sample ID: VBK-LF-CS-B9**  
**SAMPLE**

Lab Sample ID: RG08I  
 LIMS ID: 10-17895  
 Matrix: Soil  
 Data Release Authorized: *[Signature]*  
 Reported: 08/04/10

QC Report No: RG08-DOF  
 Project: VERBEEK  
 Event: PSE-004  
 Date Sampled: 07/28/10  
 Date Received: 07/28/10

Date Extracted: 07/30/10  
 Date Analyzed: 08/04/10 12:56  
 Instrument/Analyst: NT11/YZ  
 GPC Cleanup: No  
 Silica Gel Cleanup: Yes  
 Alumina Cleanup: No

Sample Amount: 10.16 g-dry-wt  
 Final Extract Volume: 0.5 mL  
 Dilution Factor: 1.00  
 Percent Moisture: 7.6%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	< 4.9 U
91-57-6	2-Methylnaphthalene	4.9	< 4.9 U
90-12-0	1-Methylnaphthalene	4.9	< 4.9 U
208-96-8	Acenaphthylene	4.9	< 4.9 U
83-32-9	Acenaphthene	4.9	< 4.9 U
86-73-7	Fluorene	4.9	< 4.9 U
85-01-8	Phenanthrene	4.9	< 4.9 U
120-12-7	Anthracene	4.9	< 4.9 U
206-44-0	Fluoranthene	4.9	< 4.9 U
<b>129-00-0</b>	<b>Pyrene</b>	<b>4.9</b>	<b>5.9</b>
56-55-3	Benzo(a)anthracene	4.9	< 4.9 U
218-01-9	Chrysene	4.9	< 4.9 U
50-32-8	Benzo(a)pyrene	4.9	< 4.9 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.9	< 4.9 U
53-70-3	Dibenz(a,h)anthracene	4.9	< 4.9 U
191-24-2	Benzo(g,h,i)perylene	4.9	< 4.9 U
132-64-9	Dibenzofuran	4.9	< 4.9 U
TOTBFA	Total Benzofluoranthenes	4.9	< 4.9 U

Reported in µg/kg (ppb)


**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 78.0%  
 d14-Dibenzo(a,h)anthracen 95.7%



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Sample ID: VBK-LF-CS-B10  
SAMPLE

Lab Sample ID: RG08J  
LIMS ID: 10-17896  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/04/10

QC Report No: RG08-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/28/10  
Date Received: 07/28/10

Date Extracted: 07/30/10  
Date Analyzed: 08/04/10 13:23  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 11.30 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 9.8%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.4	< 4.4 U
91-57-6	2-Methylnaphthalene	4.4	< 4.4 U
90-12-0	1-Methylnaphthalene	4.4	< 4.4 U
208-96-8	Acenaphthylene	4.4	< 4.4 U
83-32-9	Acenaphthene	4.4	< 4.4 U
86-73-7	Fluorene	4.4	< 4.4 U
<b>85-01-8</b>	<b>Phenanthrene</b>	<b>4.4</b>	<b>12</b>
120-12-7	Anthracene	4.4	< 4.4 U
<b>206-44-0</b>	<b>Fluoranthene</b>	<b>4.4</b>	<b>11</b>
<b>129-00-0</b>	<b>Pyrene</b>	<b>4.4</b>	<b>19</b>
<b>56-55-3</b>	<b>Benzo (a) anthracene</b>	<b>4.4</b>	<b>7.1</b>
<b>218-01-9</b>	<b>Chrysene</b>	<b>4.4</b>	<b>11</b>
<b>50-32-8</b>	<b>Benzo (a) pyrene</b>	<b>4.4</b>	<b>8.8</b>
193-39-5	Indeno (1, 2, 3-cd) pyrene	4.4	< 4.4 U
53-70-3	Dibenz (a, h) anthracene	4.4	< 4.4 U
<b>191-24-2</b>	<b>Benzo (g, h, i) perylene</b>	<b>4.4</b>	<b>5.8</b>
132-64-9	Dibenzofuran	4.4	< 4.4 U
<b>TOTBFA</b>	<b>Total Benzofluoranthenes</b>	<b>4.4</b>	<b>9.7</b>

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 78.3%  
d14-Dibenzo (a, h) anthracen 93.7%

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Sample ID: VBK-LF-CS-B11  
SAMPLE

Lab Sample ID: RG08K  
LIMS ID: 10-17897  
Matrix: Soil  
Data Release Authorized: *AS*  
Reported: 08/04/10

QC Report No: RG08-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/28/10  
Date Received: 07/28/10

Date Extracted: 07/30/10  
Date Analyzed: 08/04/10 13:49  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.93 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 11.1%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
<b>91-57-6</b>	<b>2-Methylnaphthalene</b>	<b>4.6</b>	<b>5.5</b>
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
<b>85-01-8</b>	<b>Phenanthrene</b>	<b>4.6</b>	<b>44</b>
<b>120-12-7</b>	<b>Anthracene</b>	<b>4.6</b>	<b>7.8</b>
<b>206-44-0</b>	<b>Fluoranthene</b>	<b>4.6</b>	<b>26</b>
<b>129-00-0</b>	<b>Pyrene</b>	<b>4.6</b>	<b>61</b>
<b>56-55-3</b>	<b>Benzo (a) anthracene</b>	<b>4.6</b>	<b>23</b>
<b>218-01-9</b>	<b>Chrysene</b>	<b>4.6</b>	<b>34</b>
<b>50-32-8</b>	<b>Benzo (a) pyrene</b>	<b>4.6</b>	<b>31</b>
<b>193-39-5</b>	<b>Indeno (1,2,3-cd)pyrene</b>	<b>4.6</b>	<b>10</b>
53-70-3	Dibenz (a, h) anthracene	4.6	< 4.6 U
<b>191-24-2</b>	<b>Benzo (g, h, i) perylene</b>	<b>4.6</b>	<b>17</b>
132-64-9	Dibenzofuran	4.6	< 4.6 U
<b>TOTBFA</b>	<b>Total Benzofluoranthenes</b>	<b>4.6</b>	<b>25</b>


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 85.0%  
d14-Dibenzo (a, h) anthracen 97.0%

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Sample ID: VBK-LF-CS-B12  
SAMPLE

Lab Sample ID: RG08L  
LIMS ID: 10-17898  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/04/10

QC Report No: RG08-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/28/10  
Date Received: 07/28/10

Date Extracted: 07/30/10  
Date Analyzed: 08/04/10 14:16  
Instrument/Analyst: NT11/YZ  
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: 6.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	< 4.8 U
91-57-6	2-Methylnaphthalene	4.8	< 4.8 U
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
<b>85-01-8</b>	<b>Phenanthrene</b>	<b>4.8</b>	<b>23</b>
120-12-7	Anthracene	4.8	< 4.8 U
<b>206-44-0</b>	<b>Fluoranthene</b>	<b>4.8</b>	<b>15</b>
<b>129-00-0</b>	<b>Pyrene</b>	<b>4.8</b>	<b>32</b>
<b>56-55-3</b>	<b>Benzo (a) anthracene</b>	<b>4.8</b>	<b>13</b>
<b>218-01-9</b>	<b>Chrysene</b>	<b>4.8</b>	<b>19</b>
<b>50-32-8</b>	<b>Benzo (a) pyrene</b>	<b>4.8</b>	<b>16</b>
<b>193-39-5</b>	<b>Indeno (1,2,3-cd) pyrene</b>	<b>4.8</b>	<b>5.7</b>
53-70-3	Dibenz (a, h) anthracene	4.8	< 4.8 U
<b>191-24-2</b>	<b>Benzo (g, h, i) perylene</b>	<b>4.8</b>	<b>9.0</b>
132-64-9	Dibenzofuran	4.8	< 4.8 U
<b>TOTBFA</b>	<b>Total Benzofluoranthenes</b>	<b>4.8</b>	<b>14</b>

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 81.7%  
d14-Dibenzo (a, h) anthracen 90.7%

**SIM SW8270 SURROGATE RECOVERY SUMMARY**

Matrix: Soil

QC Report No: RG08-DOF  
Project: VERBEEK  
PSE-004

<u>Client ID</u>	<u>MNP</u>	<u>DBA</u>	<u>TOT OUT</u>
MB-073010	84.7%	75.3%	0
LCS-073010	81.3%	74.0%	0
VBK-LF-CS-B1	80.7%	65.3%	0
VBK-LF-CS-B2	85.3%	72.0%	0
VBK-LF-CS-B3	85.7%	71.0%	0
VBK-LF-CS-B4	80.7%	61.7%	0
VBK-LF-CS-B5	86.0%	64.3%	0
VBK-LF-CS-B6	83.7%	55.3%	0
VBK-LF-CS-B7	80.7%	87.0%	0
VBK-LF-CS-B8	79.0%	88.3%	0
VBK-LF-CS-B9	78.0%	95.7%	0
VBK-LF-CS-B10	78.3%	93.7%	0
VBK-LF-CS-B11	85.0%	97.0%	0
VBK-LF-CS-B12	81.7%	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: 10-17887 to 10-17898

**ORGANICS ANALYSIS DATA SHEET**

**PNAs by SW8270D-SIM GC/MS**

Page 1 of 1


**Sample ID: LCS-073010**

**LAB CONTROL SAMPLE**

Lab Sample ID: LCS-073010

LIMS ID: 10-17887

Matrix: Soil

Data Release Authorized: 

Reported: 08/04/10

QC Report No: RG08-DOF

Project: VERBEEK

Event: PSE-004

Date Sampled: NA

Date Received: NA

Date Extracted: 07/30/10

Date Analyzed LCS: 08/03/10 15:28

Instrument/Analyst LCS: NT11/YZ

Sample Amount LCS: 10.0 g-dry-wt

Final Extract Volume LCS: 0.50 mL

Dilution Factor LCS: 1.00

<b>Analyte</b>	<b>LCS</b>	<b>Spike Added</b>	<b>Recovery</b>
Naphthalene	109	150	72.7%
2-Methylnaphthalene	116	150	77.3%
1-Methylnaphthalene	116	150	77.3%
Acenaphthylene	116	150	77.3%
Acenaphthene	111	150	74.0%
Fluorene	120	150	80.0%
Phenanthrene	128	150	85.3%
Anthracene	134	150	89.3%
Fluoranthene	148	150	98.7%
Pyrene	148	150	98.7%
Benzo(a)anthracene	152	150	101%
Chrysene	142	150	94.7%
Benzo(a)pyrene	154	150	103%
Indeno(1,2,3-cd)pyrene	100	150	66.7%
Dibenz(a,h)anthracene	102	150	68.0%
Benzo(g,h,i)perylene	87.5	150	58.3%
Dibenzofuran	108	150	72.0%
Total Benzofluoranthenes	322	300	107%

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene	81.3%
d14-Dibenzo(a,h)anthracen	74.0%



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

August 9, 2010

Matt Dalton  
Dalton, Olmsted, & Fuglevand  
10827 NE 68th, Suite B  
Kirkland, WA 98033

**RE: Client Project: Verbeek -- PSE-004**  
**ARI Job No.: RG65**

Dear Matt:

Please find enclosed the original Chain-of-Custody records (COC), sample receipt documentation, and the final analytical results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted twelve soil samples on July 30, 2010. For further details regarding sample receipt, refer to the enclosed Cooler Receipt Form.


The samples were analyzed for SIM PNAs, as requested on the COC.

There were no anomalies associated with this analysis.

An electronic copy of this report 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.

  
Susan Dunning  
Director, Client Services  
sue@arilabs.com  
206-695-6207

Enclosures

cc: eFile RG65

# Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: RG65 Turn-around Requested: 5 DAY Page: 1 of 2

ARI Client Company: PSE/PSE Phone: 206 660 3466 Date: 7/30/10 Ice Present?

Client Contact: DAVID COOPER / MATT HADSON No. of Coolers: 1 Cooler Temps:

Client Project Name: VERBEN Client Project #: PSE-004 Samplers: DL COOPER



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				Notes/Comments
					PATH	SEM	EDS	OTHER	
VEX-GWASA-CS-189	7/30/10	0730	SOIL	1	X				MAL < 0.1 mg/kg
" - 180		0740			X				
" - 181		0750			X				
" - 182		0800			X				
" - 183		0810			X				
" - 184		0820			X				
" - 185		0830			X				
" - 186		0840			X				
" - 187		0850			X				
" - 188		0900			X				
Comments/Special Instructions	Relinquished by: <u>DL Cooper</u> (Signature) <u>DL Cooper</u> (Printed Name) Company: <u>PSE</u> Date & Time: <u>7/30/10 1220</u>				Relinquished by: <u>Rich Hadson</u> (Signature) <u>Rich Hadson</u> (Printed Name) Company: <u>ARI</u> Date & Time: <u>7/30/10 1220</u>				Received by: <u>Rich Hadson</u> (Signature) <u>Rich Hadson</u> (Printed Name) Company: <u>ARI</u> Date & Time: <u>7/30/10 1220</u>

**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.

RG65: 00002







# Cooler Receipt Form

ARI Client: DOF/PSE

Project Name: VERBEEK

COC No(s): \_\_\_\_\_ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: RG65

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)..... \_\_\_\_\_ <sup>8.1</sup>

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90941619

Cooler Accepted by: [Signature] Date: 7/30/10 Time: 1410

**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: 7/30/10 Time: 1750

**\*\* 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"



# Cooler Temperature Compliance Form

RG65

Cooler#: 1 Temperature(°C): 8.

Sample ID	Bottle Count	Bottle Type
All samples	1	8 oz jar

Cooler#: \_\_\_\_\_ Temperature(°C): \_\_\_\_\_

Sample ID	Bottle Count	Bottle Type

Cooler#: \_\_\_\_\_ Temperature(°C): \_\_\_\_\_

Sample ID	Bottle Count	Bottle Type

Cooler#: \_\_\_\_\_ Temperature(°C): \_\_\_\_\_

Sample ID	Bottle Count	Bottle Type

Completed by: JM Date: 7/30/10 Time: 1750



## Data Reporting Qualifiers

Effective 7/10/2009

### 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  $\geq$  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  $\leq 5$  times the Reporting Limit and the replicate control limit defaults to  $\pm 1$  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.
- 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  $\geq 40\%$  RPD with no obvious chromatographic interference

### **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

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

Sample ID: MB-080410  
METHOD BLANK

Lab Sample ID: MB-080410  
LIMS ID: 10-18328  
Matrix: Soil  
Data Release Authorized: *TMM*  
Reported: 08/06/10

QC Report No: RG65-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: NA  
Date Received: NA

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 14:40  
Instrument/Analyst: NT8/YZ  
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
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 74.0%  
d14-Dibenzo(a,h)anthracen 89.7%

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

Sample ID: VBK-GWPSP-CS-B9  
SAMPLE

Lab Sample ID: RG65A  
LIMS ID: 10-18319  
Matrix: Soil  
Data Release Authorized: *W*  
Reported: 08/06/10

QC Report No: RG65-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/30/10  
Date Received: 07/30/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 15:23  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.06 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 16.4%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 72.7%  
d14-Dibenzo(a,h)anthracen 72.3%

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

Sample ID: VBK-GWPSP-CS-B10  
SAMPLE

Lab Sample ID: RG65B  
LIMS ID: 10-18320  
Matrix: Soil  
Data Release Authorized: *mmw*  
Reported: 08/06/10

QC Report No: RG65-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/30/10  
Date Received: 07/30/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 15:44  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.19 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 21.8%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	< 4.9 U
91-57-6	2-Methylnaphthalene	4.9	< 4.9 U
90-12-0	1-Methylnaphthalene	4.9	< 4.9 U
208-96-8	Acenaphthylene	4.9	< 4.9 U
83-32-9	Acenaphthene	4.9	< 4.9 U
86-73-7	Fluorene	4.9	< 4.9 U
85-01-8	Phenanthrene	4.9	< 4.9 U
120-12-7	Anthracene	4.9	< 4.9 U
206-44-0	Fluoranthene	4.9	< 4.9 U
129-00-0	Pyrene	4.9	< 4.9 U
56-55-3	Benzo(a)anthracene	4.9	< 4.9 U
218-01-9	Chrysene	4.9	< 4.9 U
50-32-8	Benzo(a)pyrene	4.9	< 4.9 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.9	< 4.9 U
53-70-3	Dibenzo(a,h)anthracene	4.9	< 4.9 U
191-24-2	Benzo(g,h,i)perylene	4.9	< 4.9 U
132-64-9	Dibenzofuran	4.9	< 4.9 U
TOTBFA	Total Benzofluoranthenes	4.9	< 4.9 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 65.3%  
d14-Dibenzo(a,h)anthracen 64.0%

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

Sample ID: VBK-GWPSP-CS-B11  
SAMPLE

Lab Sample ID: RG65C  
LIMS ID: 10-18321  
Matrix: Soil  
Data Release Authorized: *mw*  
Reported: 08/06/10

QC Report No: RG65-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/30/10  
Date Received: 07/30/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 16:05  
Instrument/Analyst: NT8/YZ  
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: 17.3%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	<b>Benzo(g,h,i)perylene</b>	<b>4.6</b>	<b>8.8</b>
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 67.0%  
d14-Dibenzo(a,h)anthracen 67.7%



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

Sample ID: VBK-GWPSP-CS-B12  
SAMPLE

Lab Sample ID: RG65D  
LIMS ID: 10-18322  
Matrix: Soil  
Data Release Authorized: *WVW*  
Reported: 08/06/10

QC Report No: RG65-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/30/10  
Date Received: 07/30/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 16:26  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.13 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 8.4%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	< 4.9 U
91-57-6	2-Methylnaphthalene	4.9	< 4.9 U
90-12-0	1-Methylnaphthalene	4.9	< 4.9 U
208-96-8	Acenaphthylene	4.9	< 4.9 U
83-32-9	Acenaphthene	4.9	< 4.9 U
86-73-7	Fluorene	4.9	< 4.9 U
85-01-8	Phenanthrene	4.9	< 4.9 U
120-12-7	Anthracene	4.9	< 4.9 U
206-44-0	Fluoranthene	4.9	< 4.9 U
129-00-0	Pyrene	4.9	< 4.9 U
56-55-3	Benzo(a)anthracene	4.9	< 4.9 U
218-01-9	Chrysene	4.9	< 4.9 U
50-32-8	Benzo(a)pyrene	4.9	< 4.9 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.9	< 4.9 U
53-70-3	Dibenzo(a,h)anthracene	4.9	< 4.9 U
191-24-2	Benzo(g,h,i)perylene	4.9	< 4.9 U
132-64-9	Dibenzofuran	4.9	< 4.9 U
TOTBFA	Total Benzofluoranthenes	4.9	< 4.9 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 67.7%  
d14-Dibenzo(a,h)anthracen 72.7%

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Sample ID: VBK-GWPSP-CS-B13  
SAMPLE

Lab Sample ID: RG65E  
LIMS ID: 10-18323  
Matrix: Soil  
Data Release Authorized: *mm*  
Reported: 08/06/10

QC Report No: RG65-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/30/10  
Date Received: 07/30/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 16:47  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.91 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 9.3%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	10
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 65.7%  
d14-Dibenzo(a,h)anthracen 62.7%

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PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-GWPSP-CS-B14  
SAMPLE

Lab Sample ID: RG65F  
LIMS ID: 10-18324  
Matrix: Soil  
Data Release Authorized: *mmw*  
Reported: 08/06/10

QC Report No: RG65-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/30/10  
Date Received: 07/30/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 17:08  
Instrument/Analyst: NT8/YZ  
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: 14.2%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	< 4.8 U
91-57-6	2-Methylnaphthalene	4.8	< 4.8 U
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	5.8
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	7.7
129-00-0	Pyrene	4.8	5.8
56-55-3	Benzo(a)anthracene	4.8	< 4.8 U
218-01-9	Chrysene	4.8	< 4.8 U
50-32-8	Benzo(a)pyrene	4.8	< 4.8 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	< 4.8 U
53-70-3	Dibenz(a,h)anthracene	4.8	< 4.8 U
191-24-2	Benzo(g,h,i)perylene	4.8	< 4.8 U
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	5.8

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 74.0%  
d14-Dibenzo(a,h)anthracen 69.3%

ORGANICS ANALYSIS DATA SHEET  
PNA's by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-GWPSP-CS-B15  
SAMPLE

Lab Sample ID: RG65G  
LIMS ID: 10-18325  
Matrix: Soil  
Data Release Authorized: *MMW*  
Reported: 08/06/10

QC Report No: RG65-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/30/10  
Date Received: 07/30/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 17:29  
Instrument/Analyst: NT8/YZ  
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: 13.6%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	< 4.8 U
91-57-6	2-Methylnaphthalene	4.8	< 4.8 U
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	< 4.8 U
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	< 4.8 U
129-00-0	Pyrene	4.8	< 4.8 U
56-55-3	Benzo(a)anthracene	4.8	< 4.8 U
218-01-9	Chrysene	4.8	< 4.8 U
50-32-8	Benzo(a)pyrene	4.8	< 4.8 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	< 4.8 U
53-70-3	Dibenzo(a,h)anthracene	4.8	< 4.8 U
191-24-2	Benzo(g,h,i)perylene	4.8	< 4.8 U
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	< 4.8 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 75.3%  
d14-Dibenzo(a,h)anthracen 71.0%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-GWPSP-CS-B16  
SAMPLE

Lab Sample ID: RG65H  
LIMS ID: 10-18326  
Matrix: Soil  
Data Release Authorized: *WWW*  
Reported: 08/06/10

QC Report No: RG65-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/30/10  
Date Received: 07/30/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 17:50  
Instrument/Analyst: NT8/YZ  
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: 9.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenzo(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 76.0%  
d14-Dibenzo(a,h)anthracen 70.7%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-GWPSP-CS-B17  
SAMPLE

Lab Sample ID: RG65I  
LIMS ID: 10-18327  
Matrix: Soil  
Data Release Authorized: *mmw*  
Reported: 08/06/10

QC Report No: RG65-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/30/10  
Date Received: 07/30/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 18:11  
Instrument/Analyst: NT8/YZ  
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: 9.9%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 64.7%  
d14-Dibenzo(a,h)anthracen 71.0%

ORGANICS ANALYSIS DATA SHEET  
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Sample ID: VBK-GWPSP-CS-B18  
SAMPLE

Lab Sample ID: RG65J  
LIMS ID: 10-18328  
Matrix: Soil  
Data Release Authorized: *TNW*  
Reported: 08/06/10

QC Report No: RG65-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/30/10  
Date Received: 07/30/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 18:32  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.05 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 8.9%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 65.0%  
d14-Dibenzo(a,h)anthracen 67.0%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-GWPSP-CS-B18  
MATRIX SPIKE

Lab Sample ID: RG65J  
LIMS ID: 10-18328  
Matrix: Soil  
Data Release Authorized: *MW*  
Reported: 08/06/10

QC Report No: RG65-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/30/10  
Date Received: 07/30/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 18:53  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.09 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 8.9%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	5.0	---
91-57-6	2-Methylnaphthalene	5.0	---
90-12-0	1-Methylnaphthalene	5.0	---
208-96-8	Acenaphthylene	5.0	---
83-32-9	Acenaphthene	5.0	---
86-73-7	Fluorene	5.0	---
85-01-8	Phenanthrene	5.0	---
120-12-7	Anthracene	5.0	---
206-44-0	Fluoranthene	5.0	---
129-00-0	Pyrene	5.0	---
56-55-3	Benzo(a)anthracene	5.0	---
218-01-9	Chrysene	5.0	---
50-32-8	Benzo(a)pyrene	5.0	---
193-39-5	Indeno(1,2,3-cd)pyrene	5.0	---
53-70-3	Dibenz(a,h)anthracene	5.0	---
191-24-2	Benzo(g,h,i)perylene	5.0	---
132-64-9	Dibenzofuran	5.0	---
TOTBFA	Total Benzofluoranthenes	5.0	---

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 72.7%  
d14-Dibenzo(a,h)anthracen 74.0%



ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-GWPSP-CS-B18  
MATRIX SPIKE DUPLICATE

Lab Sample ID: RG65J  
LIMS ID: 10-18328  
Matrix: Soil  
Data Release Authorized: *mw*  
Reported: 08/06/10

QC Report No: RG65-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/30/10  
Date Received: 07/30/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 19:14  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.04 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 8.9%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	5.0	---
91-57-6	2-Methylnaphthalene	5.0	---
90-12-0	1-Methylnaphthalene	5.0	---
208-96-8	Acenaphthylene	5.0	---
83-32-9	Acenaphthene	5.0	---
86-73-7	Fluorene	5.0	---
85-01-8	Phenanthrene	5.0	---
120-12-7	Anthracene	5.0	---
206-44-0	Fluoranthene	5.0	---
129-00-0	Pyrene	5.0	---
56-55-3	Benzo(a)anthracene	5.0	---
218-01-9	Chrysene	5.0	---
50-32-8	Benzo(a)pyrene	5.0	---
193-39-5	Indeno(1,2,3-cd)pyrene	5.0	---
53-70-3	Dibenz(a,h)anthracene	5.0	---
191-24-2	Benzo(g,h,i)perylene	5.0	---
132-64-9	Dibenzofuran	5.0	---
TOTBFA	Total Benzofluoranthenes	5.0	---

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 61.0%  
d14-Dibenzo(a,h)anthracen 66.7%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-GWPSP-CS-B19  
SAMPLE

Lab Sample ID: RG65K  
LIMS ID: 10-18329  
Matrix: Soil  
Data Release Authorized: *MMW*  
Reported: 08/06/10

QC Report No: RG65-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/30/10  
Date Received: 07/30/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 19:36  
Instrument/Analyst: NT8/YZ  
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: 10.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 55.7%  
d14-Dibenzo(a,h)anthracen 68.3%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-GWPSP-CS-B20  
SAMPLE

Lab Sample ID: RG65L  
LIMS ID: 10-18330  
Matrix: Soil  
Data Release Authorized: *MW*  
Reported: 08/06/10

QC Report No: RG65-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 07/30/10  
Date Received: 07/30/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 19:57  
Instrument/Analyst: NT8/YZ  
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: 11.1%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	< 4.7 U
91-57-6	2-Methylnaphthalene	4.7	< 4.7 U
90-12-0	1-Methylnaphthalene	4.7	< 4.7 U
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	< 4.7 U
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	< 4.7 U
129-00-0	Pyrene	4.7	< 4.7 U
56-55-3	Benzo(a)anthracene	4.7	< 4.7 U
218-01-9	Chrysene	4.7	< 4.7 U
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
191-24-2	Benzo(g,h,i)perylene	4.7	< 4.7 U
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	< 4.7 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 59.3%  
d14-Dibenzo(a,h)anthracen 67.7%

**SIM SW8270 SURROGATE RECOVERY SUMMARY**

Matrix: Soil

QC Report No: RG65-DOF  
Project: VERBEEK  
PSE-004

<u>Client ID</u>	<u>MNP</u>	<u>DBA</u>	<u>TOT OUT</u>
VBK-GWPSP-CS-B9	72.7%	72.3%	0
VBK-GWPSP-CS-B10	65.3%	64.0%	0
VBK-GWPSP-CS-B11	67.0%	67.7%	0
VBK-GWPSP-CS-B12	67.7%	72.7%	0
VBK-GWPSP-CS-B13	65.7%	62.7%	0
VBK-GWPSP-CS-B14	74.0%	69.3%	0
VBK-GWPSP-CS-B15	75.3%	71.0%	0
VBK-GWPSP-CS-B16	76.0%	70.7%	0
VBK-GWPSP-CS-B17	64.7%	71.0%	0
MB-080410	74.0%	89.7%	0
LCS-080410	87.7%	98.0%	0
VBK-GWPSP-CS-B18	65.0%	67.0%	0
VBK-GWPSP-CS-B18 MS	72.7%	74.0%	0
VBK-GWPSP-CS-B18 MSD	61.0%	66.7%	0
VBK-GWPSP-CS-B19	55.7%	68.3%	0
VBK-GWPSP-CS-B20	59.3%	67.7%	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: 10-18319 to 10-18330

**ORGANICS ANALYSIS DATA SHEET**

PNA's by SW8270D-SIM GC/MS

Page 1 of 1

Sample ID: VBK-GWPSP-CS-B18

MATRIX SPIKE

Lab Sample ID: RG65J

QC Report No: RG65-DOF

LIMS ID: 10-18328

Project: VERBEEK

Matrix: Soil

Event: PSE-004

Data Release Authorized: *MMW*

Date Sampled: 07/30/10

Reported: 08/06/10

Date Received: 07/30/10

Date Extracted MS/MSD: 08/04/10

Sample Amount MS: 10.1 g-dry-wt

MSD: 10.0 g-dry-wt

Date Analyzed MS: 08/05/10 18:53

Final Extract Volume MS: 0.50 mL

MSD: 08/05/10 19:14

MSD: 0.50 mL

Instrument/Analyst MS: NT8/YZ

Dilution Factor MS: 1.00

MSD: NT8/YZ

MSD: 1.00

Analyte	Sample	MS	Spike		MS		Spike		RPD
			Added-MS	Recovery	MSD	Added-MSD	Recovery		
Naphthalene	< 5.0 U	91.7	149	61.5%	80.2	149	53.8%	13.4%	
2-Methylnaphthalene	< 5.0 U	104	149	69.8%	86.2	149	57.9%	18.7%	
1-Methylnaphthalene	< 5.0 U	105	149	70.5%	88.1	149	59.1%	17.5%	
Acenaphthylene	< 5.0 U	110	149	73.8%	83.7	149	56.2%	27.2%	
Acenaphthene	< 5.0 U	106	149	71.1%	84.7	149	56.8%	22.3%	
Fluorene	< 5.0 U	113	149	75.8%	86.2	149	57.9%	26.9%	
Phenanthrene	< 5.0 U	108	149	72.5%	91.1	149	61.1%	17.0%	
Anthracene	< 5.0 U	121	149	81.2%	95.6	149	64.2%	23.5%	
Fluoranthene	< 5.0 U	131	149	87.9%	119	149	79.9%	9.6%	
Pyrene	< 5.0 U	123	149	82.6%	104	149	69.8%	16.7%	
Benzo(a)anthracene	< 5.0 U	133	149	89.3%	117	149	78.5%	12.8%	
Chrysene	< 5.0 U	114	149	76.5%	93.6	149	62.8%	19.7%	
Benzo(a)pyrene	< 5.0 U	121	149	81.2%	107	149	71.8%	12.3%	
Indeno(1,2,3-cd)pyrene	< 5.0 U	103	149	69.1%	90.6	149	60.8%	12.8%	
Dibenz(a,h)anthracene	< 5.0 U	107	149	71.8%	97.6	149	65.5%	9.2%	
Benzo(g,h,i)perylene	< 5.0 U	99.6	149	66.8%	90.6	149	60.8%	9.5%	
Dibenzofuran	< 5.0 U	101	149	67.8%	75.7	149	50.8%	28.6%	
Total Benzofluoranthenes	< 5.0 U	217	297	73.1%	191	299	63.9%	12.7%	

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

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

Sample ID: LCS-080410  
LAB CONTROL SAMPLE

Lab Sample ID: LCS-080410  
LIMS ID: 10-18328  
Matrix: Soil  
Data Release Authorized: *MW*  
Reported: 08/06/10

QC Report No: RG65-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: NA  
Date Received: NA

Date Extracted: 08/04/10  
Date Analyzed LCS: 08/05/10 15:01  
Instrument/Analyst LCS: NT8/YZ

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
Naphthalene	117	150	78.0%
2-Methylnaphthalene	126	150	84.0%
1-Methylnaphthalene	122	150	81.3%
Acenaphthylene	123	150	82.0%
Acenaphthene	134	150	89.3%
Fluorene	140	150	93.3%
Phenanthrene	134	150	89.3%
Anthracene	151	150	101%
Fluoranthene	160	150	107%
Pyrene	172	150	115%
Benzo(a)anthracene	156	150	104%
Chrysene	138	150	92.0%
Benzo(a)pyrene	164	150	109%
Indeno(1,2,3-cd)pyrene	142	150	94.7%
Dibenz(a,h)anthracene	141	150	94.0%
Benzo(g,h,i)perylene	148	150	98.7%
Dibenzofuran	118	150	78.7%
Total Benzofluoranthenes	297	300	99.0%

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene	87.7%
d14-Dibenzo(a,h)anthracen	98.0%



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

August 9, 2010

Matt Dalton  
Dalton, Olmsted, & Fuglevand  
10827 NE 68th, Suite B  
Kirkland, WA 98033

**RE: Client Project: Verbeek – PSE-004**  
**ARI Job No.: RG77**

Dear Matt:

Please find enclosed the original Chain-of-Custody records (COC), sample receipt documentation, and the final analytical results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted nine soil samples on August 2, 2010. For further details regarding sample receipt, refer to the enclosed Cooler Receipt Form.

The samples were analyzed for SIM PNAs, as requested on the COC.

2-Methylnaphthalene and 1-Methylnaphthalene were outside of QC limits high in the 080610 continuing calibration (CCAL). Q flags have been applied to all detections for these compounds associated with this CCAL. No further corrective action was necessary.

There were no further anomalies associated with this analysis.

An electronic copy of this report 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.

  
Susan Dunning  
Director, Client Services  
sue@arilabs.com  
206-695-6207

Enclosures

cc: eFile RG77

10-18404 to 10-18412

**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: **RG77**  
 Turn-around Requested: **2-Day**  
 Page: **1** of **1**  
 ARI Client Company: **DOE/PSE**  
 Phone: **206 660 3466**  
 Ice Present?   
 Date: **8/2/11**  
 Cooler Temps:  
 No. of Coolers:

Client Contact: **DAVIS GORDON / MT DAVEN**  
 Client Project Name: **VERBEN**  
 Client Project #: **PSE-004**

Sample ID: **VERBEN**  
 Date: **8/2/11**  
 Time: **0730**  
 Matrix: **soil**  
 No. Containers: **1**

Sample ID	Date	Time	Matrix	No. Containers
VERBEN-CS-B9	8/2/10	0730	soil	1
" B10		0740		
" B11		0750		
" B12		0800		
" B13		0830		
" B14		0840		
" SW3		0810		
" SW4		0820		
VERBEN-PS-B1		0850		

Analysis Requested: **PAK B710-SM**

Relinquished by: **[Signature]**  
 (Signature) **MM**  
 Printed Name: **Mikha Hulum bu**  
 Company: **ARI**

Received by: **[Signature]**  
 (Signature) **MM**  
 Printed Name: **Mikha Hulum bu**  
 Company: **ARI**

Date & Time: **8/2/10 1040**

Comments/Special Instructions

**MDL < 0.1 mg/kg**

**Y**

**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 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.





# Cooler Receipt Form

ARI Client: POF

Project Name: \_\_\_\_\_

COC No(s): \_\_\_\_\_ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: \_\_\_\_\_

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) 3.7

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90877952

Cooler Accepted by: MM Date: 8/2/10 Time: 1040

**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: E Joshi Date: 8/2/10 Time: 1111

**\*\* 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: \_\_\_\_\_

<p>Small Air Bubbles - 2mm</p>	<p>Peabubbles 2-4 mm</p>	<p>LARGE Air Bubbles &gt; 4 mm</p>	Small → "sm" Peabubbles → "pb" Large → "lg" Headspace → "hs"
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## Data Reporting Qualifiers

Effective 7/10/2009

### 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  $\geq$  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  $\leq 5$  times the Reporting Limit and the replicate control limit defaults to  $\pm 1$  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.
- 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  $\geq 40\%$  RPD with no obvious chromatographic interference

### **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

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

Sample ID: MB-080410  
METHOD BLANK

Lab Sample ID: MB-080410  
LIMS ID: 10-18404  
Matrix: Soil  
Data Release Authorized: *mw*  
Reported: 08/06/10

QC Report No: RG77-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: NA  
Date Received: NA

Date Extracted: 08/04/10  
Date Analyzed: 08/04/10 16:55  
Instrument/Analyst: NT11/YZ  
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
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 82.3%  
d14-Dibenzo(a,h)anthracen 89.0%

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

Sample ID: VBK-BN-CS-B9  
SAMPLE

Lab Sample ID: RG77A  
LIMS ID: 10-18404  
Matrix: Soil  
Data Release Authorized: *WV*  
Reported: 08/06/10

QC Report No: RG77-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/02/10  
Date Received: 08/02/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 18:38  
Instrument/Analyst: NT11/YZ  
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: 8.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	22
91-57-6	2-Methylnaphthalene	4.7	9.8
90-12-0	1-Methylnaphthalene	4.7	6.6
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	20
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	34
129-00-0	Pyrene	4.7	41
56-55-3	Benzo (a) anthracene	4.7	14
218-01-9	Chrysene	4.7	24
50-32-8	Benzo (a) pyrene	4.7	21
193-39-5	Indeno (1,2,3-cd) pyrene	4.7	11
53-70-3	Dibenz (a, h) anthracene	4.7	< 4.7 U
191-24-2	Benzo (g, h, i) perylene	4.7	16
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBEA	Total Benzofluoranthenes	4.7	32

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 80.7%  
d14-Dibenzo (a, h) anthracen 89.0%

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

Sample ID: VBK-BN-CS-B9  
MATRIX SPIKE

Lab Sample ID: RG77A  
LIMS ID: 10-18404  
Matrix: Soil  
Data Release Authorized: *WVW*  
Reported: 08/06/10

QC Report No: RG77-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/02/10  
Date Received: 08/02/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 19:04  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.35 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 8.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	---
91-57-6	2-Methylnaphthalene	4.8	---
90-12-0	1-Methylnaphthalene	4.8	---
208-96-8	Acenaphthylene	4.8	---
83-32-9	Acenaphthene	4.8	---
86-73-7	Fluorene	4.8	---
85-01-8	Phenanthrene	4.8	---
120-12-7	Anthracene	4.8	---
206-44-0	Fluoranthene	4.8	---
129-00-0	Pyrene	4.8	---
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	---
191-24-2	Benzo(g,h,i)perylene	4.8	---
132-64-9	Dibenzofuran	4.8	---
TOTBFA	Total Benzofluoranthenes	4.8	---

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 83.0%  
d14-Dibenzo(a,h)anthracen 81.3%

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

Sample ID: VBK-BN-CS-B9  
MATRIX SPIKE DUPLICATE

Lab Sample ID: RG77A  
LIMS ID: 10-18404  
Matrix: Soil  
Data Release Authorized: *MW*  
Reported: 08/06/10

QC Report No: RG77-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/02/10  
Date Received: 08/02/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 19:31  
Instrument/Analyst: NT11/YZ  
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: 8.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	---
91-57-6	2-Methylnaphthalene	4.8	---
90-12-0	1-Methylnaphthalene	4.8	---
208-96-8	Acenaphthylene	4.8	---
83-32-9	Acenaphthene	4.8	---
86-73-7	Fluorene	4.8	---
85-01-8	Phenanthrene	4.8	---
120-12-7	Anthracene	4.8	---
206-44-0	Fluoranthene	4.8	---
129-00-0	Pyrene	4.8	---
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	---
191-24-2	Benzo (g,h,i) perylene	4.8	---
132-64-9	Dibenzofuran	4.8	---
TOTBFA	Total Benzofluoranthenes	4.8	---

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 87.7%  
d14-Dibenzo(a,h)anthracen 80.7%

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

Sample ID: VBK-BN-CS-B10  
SAMPLE

Lab Sample ID: RG77B  
LIMS ID: 10-18405  
Matrix: Soil  
Data Release Authorized: *WW*  
Reported: 08/06/10

QC Report No: RG77-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/02/10  
Date Received: 08/02/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 19:57  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.90 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 17.4%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	28
120-12-7	Anthracene	4.6	8.3
206-44-0	Fluoranthene	4.6	50
129-00-0	Pyrene	4.6	42
56-55-3	Benzo (a) anthracene	4.6	9.6
218-01-9	Chrysene	4.6	6.4
50-32-8	Benzo (a) pyrene	4.6	< 4.6 U
193-39-5	Indeno (1,2,3-cd) pyrene	4.6	< 4.6 U
53-70-3	Dibenz (a, h) anthracene	4.6	< 4.6 U
191-24-2	Benzo (g, h, i) perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBEA	Total Benzofluoranthenes	4.6	5.5

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 89.0%  
d14-Dibenzo(a,h)anthracen 92.3%



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Sample ID: VBK-BN-CS-B11  
SAMPLE

Lab Sample ID: RG77C  
LIMS ID: 10-18406  
Matrix: Soil  
Data Release Authorized: *MMW*  
Reported: 08/06/10

QC Report No: RG77-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/02/10  
Date Received: 08/02/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 20:23  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.35 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 14.7%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	< 4.8 U
91-57-6	2-Methylnaphthalene	4.8	< 4.8 U
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	< 4.8 U
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	< 4.8 U
129-00-0	Pyrene	4.8	< 4.8 U
56-55-3	Benzo(a)anthracene	4.8	< 4.8 U
218-01-9	Chrysene	4.8	< 4.8 U
50-32-8	Benzo(a)pyrene	4.8	< 4.8 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	< 4.8 U
53-70-3	Dibenz(a,h)anthracene	4.8	< 4.8 U
191-24-2	Benzo(g,h,i)perylene	4.8	< 4.8 U
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	< 4.8 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 80.7%  
d14-Dibenzo(a,h)anthracen 81.0%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BN-CS-B12  
SAMPLE

Lab Sample ID: RG77D  
LIMS ID: 10-18407  
Matrix: Soil  
Data Release Authorized: *WV*  
Reported: 08/06/10

QC Report No: RG77-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/02/10  
Date Received: 08/02/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 20:50  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.50 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 26.6%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	720 E
91-57-6	2-Methylnaphthalene	4.8	8.6
90-12-0	1-Methylnaphthalene	4.8	9.5
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	< 4.8 U
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	< 4.8 U
129-00-0	Pyrene	4.8	< 4.8 U
56-55-3	Benzo(a)anthracene	4.8	< 4.8 U
218-01-9	Chrysene	4.8	< 4.8 U
50-32-8	Benzo(a)pyrene	4.8	< 4.8 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	< 4.8 U
53-70-3	Dibenz(a,h)anthracene	4.8	< 4.8 U
191-24-2	Benzo(g,h,i)perylene	4.8	< 4.8 U
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	4.8

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 79.7%  
d14-Dibenzo(a,h)anthracene 83.7%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BN-CS-B12  
DILUTION

Lab Sample ID: RG77D  
LIMS ID: 10-18407  
Matrix: Soil  
Data Release Authorized: *WVW*  
Reported: 08/06/10

QC Report No: RG77-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/02/10  
Date Received: 08/02/10

Date Extracted: 08/04/10  
Date Analyzed: 08/06/10 12:20  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.50 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 3.00  
Percent Moisture: 26.6%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	14	750
91-57-6	2-Methylnaphthalene	14	< 14 U
90-12-0	1-Methylnaphthalene	14	< 14 U
208-96-8	Acenaphthylene	14	< 14 U
83-32-9	Acenaphthene	14	< 14 U
86-73-7	Fluorene	14	< 14 U
85-01-8	Phenanthrene	14	< 14 U
120-12-7	Anthracene	14	< 14 U
206-44-0	Fluoranthene	14	< 14 U
129-00-0	Pyrene	14	< 14 U
56-55-3	Benzo(a)anthracene	14	< 14 U
218-01-9	Chrysene	14	< 14 U
50-32-8	Benzo(a)pyrene	14	< 14 U
193-39-5	Indeno(1,2,3-cd)pyrene	14	< 14 U
53-70-3	Dibenz(a,h)anthracene	14	< 14 U
191-24-2	Benzo(g,h,i)perylene	14	< 14 U
132-64-9	Dibenzofuran	14	< 14 U
TOTBFA	Total Benzofluoranthenes	14	< 14 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 80.0%  
d14-Dibenzo(a,h)anthracen 98.0%

ORGANICS ANALYSIS DATA SHEET  
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Sample ID: VBK-BN-CS-B13  
SAMPLE

Lab Sample ID: RG77E  
LIMS ID: 10-18408  
Matrix: Soil  
Data Release Authorized: *WWW*  
Reported: 08/06/10

QC Report No: RG77-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/02/10  
Date Received: 08/02/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 21:16  
Instrument/Analyst: NT11/YZ  
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: 12.3%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	13
91-57-6	2-Methylnaphthalene	4.7	14
90-12-0	1-Methylnaphthalene	4.7	4.7
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	6.6
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	14
129-00-0	Pyrene	4.7	27
56-55-3	Benzo (a) anthracene	4.7	7.1
218-01-9	Chrysene	4.7	11
50-32-8	Benzo (a) pyrene	4.7	16
193-39-5	Indeno (1,2,3-cd) pyrene	4.7	9.0
53-70-3	Dibenz (a, h) anthracene	4.7	< 4.7 U
191-24-2	Benzo (g, h, i) perylene	4.7	14
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	21

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 83.0%  
d14-Dibenzo(a,h)anthracen 70.0%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BN-CS-B14  
SAMPLE

Lab Sample ID: RG77F  
LIMS ID: 10-18409  
Matrix: Soil  
Data Release Authorized: *WV*  
Reported: 08/06/10

QC Report No: RG77-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/02/10  
Date Received: 08/02/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 21:43  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.60 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 12.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	460
91-57-6	2-Methylnaphthalene	4.7	52
90-12-0	1-Methylnaphthalene	4.7	41
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	4.7
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	18
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	32
129-00-0	Pyrene	4.7	53
56-55-3	Benzo (a) anthracene	4.7	12
218-01-9	Chrysene	4.7	18
50-32-8	Benzo (a) pyrene	4.7	23
193-39-5	Indeno (1,2,3-cd) pyrene	4.7	14
53-70-3	Dibenz (a, h) anthracene	4.7	< 4.7 U
191-24-2	Benzo (g, h, i) perylene	4.7	20
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	29

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 80.0%  
d14-Dibenzo (a, h) anthracen 82.3%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BN-CS-SW3  
SAMPLE

Lab Sample ID: RG77G  
LIMS ID: 10-18410  
Matrix: Soil  
Data Release Authorized: *WVW*  
Reported: 08/06/10

QC Report No: RG77-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/02/10  
Date Received: 08/02/10

Date Extracted: 08/04/10  
Date Analyzed: 08/05/10 22:09  
Instrument/Analyst: NT11/YZ  
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: 11.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.5	30
91-57-6	2-Methylnaphthalene	4.5	8.2
90-12-0	1-Methylnaphthalene	4.5	4.5
208-96-8	Acenaphthylene	4.5	12
83-32-9	Acenaphthene	4.5	< 4.5 U
86-73-7	Fluorene	4.5	< 4.5 U
85-01-8	Phenanthrene	4.5	35
120-12-7	Anthracene	4.5	8.6
206-44-0	Fluoranthene	4.5	90
129-00-0	Pyrene	4.5	150
56-55-3	Benzo (a) anthracene	4.5	45
218-01-9	Chrysene	4.5	66
50-32-8	Benzo (a) pyrene	4.5	96
193-39-5	Indeno (1,2,3-cd) pyrene	4.5	57
53-70-3	Dibenz (a,h) anthracene	4.5	10
191-24-2	Benzo (g,h,i) perylene	4.5	84
132-64-9	Dibenzofuran	4.5	< 4.5 U
TOTBEA	Total Benzofluoranthenes	4.5	110

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 74.0%  
d14-Dibenzo (a,h) anthracen 87.3%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BN-CS-SW4  
SAMPLE

Lab Sample ID: RG77H  
LIMS ID: 10-18411  
Matrix: Soil  
Data Release Authorized: ~~WWW~~  
Reported: 08/06/10

QC Report No: RG77-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/02/10  
Date Received: 08/02/10

Date Extracted: 08/04/10  
Date Analyzed: 08/06/10 11:27  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.57 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 3.00  
Percent Moisture: 15.1%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	14	1,400
91-57-6	2-Methylnaphthalene	14	520 Q
90-12-0	1-Methylnaphthalene	14	360 Q
208-96-8	Acenaphthylene	14	570
83-32-9	Acenaphthene	14	510
86-73-7	Fluorene	14	300
85-01-8	Phenanthrene	14	3,300 E
120-12-7	Anthracene	14	850
206-44-0	Fluoranthene	14	5,600 E
129-00-0	Pyrene	14	8,100 E
56-55-3	Benzo (a) anthracene	14	2,600 E
218-01-9	Chrysene	14	3,300 E
50-32-8	Benzo (a) pyrene	14	3,800 E
193-39-5	Indeno (1,2,3-cd) pyrene	14	2,400 E
53-70-3	Dibenz (a,h) anthracene	14	440
191-24-2	Benzo (g,h,i) perylene	14	3,500 E
132-64-9	Dibenzofuran	14	81
TOTBFA	Total Benzofluoranthenes	14	4,200 E

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 87.0%  
d14-Dibenzo(a,h)anthracen 102%

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Sample ID: VBK-BN-CS-SW4  
DILUTION

Lab Sample ID: RG77H  
LIMS ID: 10-18411  
Matrix: Soil  
Data Release Authorized: *MM*  
Reported: 08/06/10

QC Report No: RG77-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/02/10  
Date Received: 08/02/10

Date Extracted: 08/04/10  
Date Analyzed: 08/06/10 12:47  
Instrument/Analyst: NT11/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.57 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 30.0  
Percent Moisture: 15.1%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	140	1,300
91-57-6	2-Methylnaphthalene	140	510 Q
90-12-0	1-Methylnaphthalene	140	360 Q
208-96-8	Acenaphthylene	140	550
83-32-9	Acenaphthene	140	480
86-73-7	Fluorene	140	300
85-01-8	Phenanthrene	140	3,500
120-12-7	Anthracene	140	820
206-44-0	Fluoranthene	140	6,800
129-00-0	Pyrene	140	10,000
56-55-3	Benzo (a) anthracene	140	2,600
218-01-9	Chrysene	140	3,300
50-32-8	Benzo (a) pyrene	140	4,000
193-39-5	Indeno (1,2,3-cd) pyrene	140	2,400
53-70-3	Dibenz (a,h) anthracene	140	410
191-24-2	Benzo (g,h,i) perylene	140	3,400
132-64-9	Dibenzofuran	140	< 140 U
TOTBFA	Total Benzofluoranthenes	140	4,300

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene D  
d14-Dibenzo(a,h) anthracen D



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Sample ID: VBK-BN-PS-B1  
SAMPLE

Lab Sample ID: RG77I  
LIMS ID: 10-18412  
Matrix: Soil  
Data Release Authorized: *WVW*  
Reported: 08/06/10

QC Report No: RG77-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/02/10  
Date Received: 08/02/10

Date Extracted: 08/04/10  
Date Analyzed: 08/06/10 11:54  
Instrument/Analyst: NT11/YZ  
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: 3.00  
Percent Moisture: 26.1%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	14	14
91-57-6	2-Methylnaphthalene	14	< 14 U
90-12-0	1-Methylnaphthalene	14	< 14 U
208-96-8	Acenaphthylene	14	< 14 U
83-32-9	Acenaphthene	14	< 14 U
86-73-7	Fluorene	14	< 14 U
85-01-8	Phenanthrene	14	45
120-12-7	Anthracene	14	< 14 U
206-44-0	Fluoranthene	14	84
129-00-0	Pyrene	14	120
56-55-3	Benzo (a) anthracene	14	40
218-01-9	Chrysene	14	60
50-32-8	Benzo (a) pyrene	14	63
193-39-5	Indeno (1,2,3-cd) pyrene	14	35
53-70-3	Dibenz (a, h) anthracene	14	< 14 U
191-24-2	Benzo (g, h, i) perylene	14	48
132-64-9	Dibenzofuran	14	< 14 U
TOTBEA	Total Benzofluoranthenes	14	88

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 89.0%  
d14-Dibenzo (a, h) anthracen 42.0%

**SIM SW8270 SURROGATE RECOVERY SUMMARY**

Matrix: Soil

QC Report No: RG77-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
PSE-004

<u>Client ID</u>	<u>MNP</u>	<u>DBA</u>	<u>TOT OUT</u>
MB-080410	82.3%	89.0%	0
LCS-080410	78.7%	97.3%	0
LCSD-080410	81.0%	86.7%	0
VBK-BN-CS-B9	80.7%	89.0%	0
VBK-BN-CS-B9 MS	83.0%	81.3%	0
VBK-BN-CS-B9 MSD	87.7%	80.7%	0
VBK-BN-CS-B10	89.0%	92.3%	0
VBK-BN-CS-B11	80.7%	81.0%	0
VBK-BN-CS-B12	79.7%	83.7%	0
VBK-BN-CS-B12 DL	80.0%	98.0%	0
VBK-BN-CS-B13	83.0%	70.0%	0
VBK-BN-CS-B14	80.0%	82.3%	0
VBK-BN-CS-SW3	74.0%	87.3%	0
VBK-BN-CS-SW4	87.0%	102%	0
VBK-BN-CS-SW4 DL	D	D	0
VBK-BN-PS-B1	89.0%	42.0%	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: 10-18404 to 10-18412

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Sample ID: VBK-BN-CS-B9  
MATRIX SPIKE

Lab Sample ID: RG77A  
LIMS ID: 10-18404  
Matrix: Soil  
Data Release Authorized: *mmw*  
Reported: 08/06/10

QC Report No: RG77-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/02/10  
Date Received: 08/02/10

Date Extracted MS/MSD: 08/04/10  
Date Analyzed MS: 08/05/10 19:04  
MSD: 08/05/10 19:31  
Instrument/Analyst MS: NT11/YZ  
MSD: NT11/YZ

Sample Amount MS: 10.4 g-dry-wt  
MSD: 10.3 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
Naphthalene	21.6	125	145	71.3%	124	145	70.6%	0.8%
2-Methylnaphthalene	9.8	123	145	78.1%	128	145	81.5%	4.0%
1-Methylnaphthalene	6.6	125	145	81.7%	126	145	82.3%	0.8%
Acenaphthylene	< 4.7 U	123	145	84.8%	124	145	85.5%	0.8%
Acenaphthene	< 4.7 U	118	145	81.4%	121	145	83.4%	2.5%
Fluorene	< 4.7 U	132	145	91.0%	136	145	93.8%	3.0%
Phenanthrene	20.2	146	145	86.8%	152	145	90.9%	4.0%
Anthracene	< 4.7 U	134	145	92.4%	142	145	97.9%	5.8%
Fluoranthene	34.2	163	145	88.8%	176	145	97.8%	7.7%
Pyrene	41.3	179	145	95.0%	193	145	105%	7.5%
Benzo(a)anthracene	14.1	149	145	93.0%	158	145	99.2%	5.9%
Chrysene	24.4	147	145	84.6%	159	145	92.8%	7.8%
Benzo(a)pyrene	20.6	153	145	91.3%	160	145	96.1%	4.5%
Indeno(1,2,3-cd)pyrene	11.3	121	145	75.7%	123	145	77.0%	1.6%
Dibenz(a,h)anthracene	< 4.7 U	116	145	80.0%	114	145	78.6%	1.7%
Benzo(g,h,i)perylene	15.5	120	145	72.1%	114	145	67.9%	5.1%
Dibenzofuran	< 4.7 U	115	145	79.3%	116	145	80.0%	0.9%
Total Benzofluoranthenes	31.9	293	290	90.0%	301	290	92.8%	2.7%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

**ORGANICS ANALYSIS DATA SHEET**

PNAs by SW8270D-SIM GC/MS

Page 1 of 1

Sample ID: LCS-080410

LAB CONTROL SAMPLE

Lab Sample ID: LCS-080410

LIMS ID: 10-18404

Matrix: Soil

Data Release Authorized: *WWW*

Reported: 08/06/10

QC Report No: RG77-Dalton, Olmsted & Fuglevand, Inc

Project: Verbeek

Event: PSE-004

Date Sampled: NA

Date Received: NA

Date Extracted: 08/04/10

Sample Amount LCS: 10.0 g-dry-wt

LCSD: 10.0 g-dry-wt

Date Analyzed LCS: 08/04/10 17:22

Final Extract Volume LCS: 0.50 mL

LCSD: 08/04/10 17:48

LCSD: 0.50 mL

Instrument/Analyst LCS: NT11/YZ

Dilution Factor LCS: 1.00

LCSD: NT11/YZ

LCSD: 1.00

Analyte	LCS			LCSD			RPD
	LCS	Spike Added-LCS	Recovery	LCSD	Spike Added-LCSD	Recovery	
Naphthalene	104	150	69.3%	111	150	74.0%	6.5%
2-Methylnaphthalene	110	150	73.3%	118	150	78.7%	7.0%
1-Methylnaphthalene	112	150	74.7%	116	150	77.3%	3.5%
Acenaphthylene	114	150	76.0%	118	150	78.7%	3.4%
Acenaphthene	108	150	72.0%	114	150	76.0%	5.4%
Fluorene	120	150	80.0%	124	150	82.7%	3.3%
Phenanthrene	128	150	85.3%	124	150	82.7%	3.2%
Anthracene	131	150	87.3%	130	150	86.7%	0.8%
Fluoranthene	148	150	98.7%	142	150	94.7%	4.1%
Pyrene	142	150	94.7%	139	150	92.7%	2.1%
Benzo(a)anthracene	142	150	94.7%	140	150	93.3%	1.4%
Chrysene	134	150	89.3%	133	150	88.7%	0.7%
Benzo(a)pyrene	142	150	94.7%	132	150	88.0%	7.3%
Indeno(1,2,3-cd)pyrene	142	150	94.7%	124	150	82.7%	13.5%
Dibenz(a,h)anthracene	139	150	92.7%	128	150	85.3%	8.2%
Benzo(g,h,i)perylene	138	150	92.0%	120	150	80.0%	14.0%
Dibenzofuran	106	150	70.7%	110	150	73.3%	3.7%
Total Benzofluoranthenes	276	300	92.0%	262	300	87.3%	5.2%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

**SIM Semivolatile Surrogate Recovery**

	LCS	LCSD
d10-2-Methylnaphthalene	78.7%	81.0%
d14-Dibenzo(a,h)anthracene	97.3%	86.7%



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

August 9, 2010

Matt Dalton  
Dalton, Olmsted, & Fuglevand  
10827 NE 68th, Suite B  
Kirkland, WA 98033

**RE: Client Project: Verbeek -- PSE-004**  
**ARI Job No.: RH10**

Dear Matt:

Please find enclosed the original Chain-of-Custody records (COC), sample receipt documentation, and the final analytical results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted eighteen soil samples on August 4, 2010. For further details regarding sample receipt, refer to the enclosed Cooler Receipt Form.

The samples were analyzed for SIM PNAs, as requested on the COCs.

The August 9, 2010 continuing calibration (CCAL) of 2-Methylnaphalene was outside the 20% control limit high. All detected results associated with this CCAL have been flagged with a "Q" qualifier. No further corrective action

There were no other anomalies associated with the analysis of these samples.

An electronic copy of this report 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  
Project Manager

-For-

Susan Dunnihoo  
Director, Client Services  
sue@arilabs.com  
206-695-6207

Enclosures

cc: eFile RH10

10-18727 to 10-18744

**Chain of Custody Record & Laboratory Analysis Request**

ARI Assigned Number: RA10 Turn-around Requested: 3-DAY Page: 1 of 2

ARI Client Company: DEF/ASE Phone: 206 660-3466 Ice Present? Y

Client Contact: DAVID COOPER / MAST MORDEN No. of Coolers: 1 Cooler Temps: 3.8

Client Project Name: VOLVO Coolers: 1

Client Project #: RSE-004

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				Notes/Comments
					PARS	PHYS	OTHER	OTHER	
VSK-BU-CS-B15	8/3/10	1200	SOIL	1	X				MDL < 0.1 mg/kg
" -B16		1210			X				
" -B17		1220			X				
" -B18		1230			X				
" -B19		1240			X				
" -B20		1250			X				
" -B21		1300			X				
" -B22		1310			X				
" -B23		1320			X				
" -B24		1330			X				
Comments/Special Instructions	Relinquished by: (Signature) <u>[Signature]</u> Date & Time: <u>8/4/10 1030</u>				Received by: (Signature) <u>[Signature]</u> Date & Time: <u>8/4/10 1030</u>				
	Printed Name: <u>DAVID COOPER</u> Company: <u>ARI</u>				Printed Name: <u>A. Volgardsen</u> Company: <u>ARI</u>				

**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.

RI10: 00002

# Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: **3-DAY**  
 Turn-around Requested: **3-DAY**  
 Page: **2** of **2**



ARI Client Company: **DOF/PSI**  
 Phone: **206 460 3666**  
 Client Contact: **DAVID COFFIN/MST ORZAN**  
 Client Project Name:

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				Notes/Comments
					PHAs	BZ70-SIM			
VBK-BN-CS-BZ5	8/3/10	1340	SOLL	1	X				MSL < 0.1 mg/kg
" -SW5		1350			X				
" -SW6		1400			X				
" -SW7		1410			X				
VBK-BN-SP4		1420			X				
VBK-BN-SP5		1430			X				
VBK-BN-SP5A	8/4/10	09100			X				
VBK-BN-SP6		0930			X				
Comments/Special Instructions	Relinquished by: <i>[Signature]</i> (Signature) Printed Name: <b>A. Volgarovlsen</b> Company: <b>ARF</b>				Received by: <i>[Signature]</i> (Signature) Printed Name: <b>A. Volgarovlsen</b> Company: <b>ARF</b>				Relinquished by: <i>[Signature]</i> (Signature) Printed Name: Company: Date & Time:
	Relinquished by: <i>[Signature]</i> (Signature) Printed Name: <b>DOF</b> Company: <b>DOF</b>				Received by: <i>[Signature]</i> (Signature) Printed Name: <b>DOF</b> Company: <b>DOF</b>				Relinquished by: <i>[Signature]</i> (Signature) Printed Name: Company: Date & Time:
	Date & Time: <b>8/4/10 1030</b>				Date & Time: <b>8/4/10 1030</b>				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.

RH10: 00003



# Cooler Receipt Form

ARI Client: DOF

Project Name: Verbeek

COC No(s): \_\_\_\_\_ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: RH10

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)..... 38 \_\_\_\_\_  
 If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90941619

Cooler Accepted by: AV Date: 8/4/10 Time: 1030

**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: afestli Date: 8/4/10 Time: 1033  
**\*\* 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"



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

Sample ID: VBK-BN-CS-B15  
SAMPLE

Lab Sample ID: RH10A  
LIMS ID: 10-18727  
Matrix: Soil  
Data Release Authorized: *MW*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 14:04  
Instrument/Analyst: NT8/YZ  
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: 20.6%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methyl-naphthalene	4.6	< 4.6 U
90-12-0	1-Methyl-naphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methyl-naphthalene 66.7%  
d14-Dibenzo(a,h)anthracene 74.7%

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

Sample ID: VBK-BN-CS-B16  
SAMPLE

Lab Sample ID: RH10B  
LIMS ID: 10-18728  
Matrix: Soil  
Data Release Authorized: *mw*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 14:25  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.17 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 32.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	11
91-57-6	2-Methylnaphthalene	4.9	< 4.9 U
90-12-0	1-Methylnaphthalene	4.9	< 4.9 U
208-96-8	Acenaphthylene	4.9	< 4.9 U
83-32-9	Acenaphthene	4.9	< 4.9 U
86-73-7	Fluorene	4.9	< 4.9 U
85-01-8	Phenanthrene	4.9	< 4.9 U
120-12-7	Anthracene	4.9	< 4.9 U
206-44-0	Fluoranthene	4.9	< 4.9 U
129-00-0	Pyrene	4.9	< 4.9 U
56-55-3	Benzo(a)anthracene	4.9	< 4.9 U
218-01-9	Chrysene	4.9	< 4.9 U
50-32-8	Benzo(a)pyrene	4.9	< 4.9 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.9	< 4.9 U
53-70-3	Dibenz(a,h)anthracene	4.9	< 4.9 U
191-24-2	Benzo(g,h,i)perylene	4.9	< 4.9 U
132-64-9	Dibenzofuran	4.9	< 4.9 U
TOTBFA	Total Benzofluoranthenes	4.9	< 4.9 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 64.3%  
d14-Dibenzo(a,h)anthracen 67.0%

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

Sample ID: VBK-BN-CS-B17  
SAMPLE

Lab Sample ID: RH10C  
LIMS ID: 10-18729  
Matrix: Soil  
Data Release Authorized: *TTW*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 14:46  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.54 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 29.9%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	38
91-57-6	2-Methylnaphthalene	4.7	< 4.7 U
90-12-0	1-Methylnaphthalene	4.7	< 4.7 U
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	4.7
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	< 4.7 U
129-00-0	Pyrene	4.7	< 4.7 U
56-55-3	Benzo(a)anthracene	4.7	< 4.7 U
218-01-9	Chrysene	4.7	< 4.7 U
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
191-24-2	Benzo(g,h,i)perylene	4.7	< 4.7 U
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	< 4.7 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 74.3%  
d14-Dibenzo(a,h)anthracen 78.0%

Sample ID: VBK-BN-CS-B18  
SAMPLE

Lab Sample ID: RH10D  
LIMS ID: 10-18730  
Matrix: Soil  
Data Release Authorized: *WV*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 15:07  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.05 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 3.00  
Percent Moisture: 37.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	15	940
91-57-6	2-Methylnaphthalene	15	30
90-12-0	1-Methylnaphthalene	15	24
208-96-8	Acenaphthylene	15	< 15 U
83-32-9	Acenaphthene	15	< 15 U
86-73-7	Fluorene	15	< 15 U
85-01-8	Phenanthrene	15	15
120-12-7	Anthracene	15	< 15 U
206-44-0	Fluoranthene	15	27
129-00-0	Pyrene	15	37
56-55-3	Benzo(a)anthracene	15	< 15 U
218-01-9	Chrysene	15	< 15 U
50-32-8	Benzo(a)pyrene	15	< 15 U
193-39-5	Indeno(1,2,3-cd)pyrene	15	< 15 U
53-70-3	Dibenz(a,h)anthracene	15	< 15 U
191-24-2	Benzo(g,h,i)perylene	15	28
132-64-9	Dibenzofuran	15	< 15 U
TOTBFA	Total Benzofluoranthenes	15	18

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 76.0%  
d14-Dibenzo(a,h)anthracen 77.0%

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

Sample ID: VBK-BN-CS-B19  
SAMPLE

Lab Sample ID: RH10E  
LIMS ID: 10-18731  
Matrix: Soil  
Data Release Authorized: *MW*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 15:28  
Instrument/Analyst: NT8/YZ  
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: 24.1%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	50
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 69.3%  
d14-Dibenzo(a,h)anthracen 75.3%

Lab Sample ID: RH10F  
LIMS ID: 10-18732  
Matrix: Soil  
Data Release Authorized: *mmj*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 15:49  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 11.17 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 17.1%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.5	< 4.5 U
91-57-6	2-Methyl-naphthalene	4.5	< 4.5 U
90-12-0	1-Methyl-naphthalene	4.5	< 4.5 U
208-96-8	Acenaphthylene	4.5	< 4.5 U
83-32-9	Acenaphthene	4.5	< 4.5 U
86-73-7	Fluorene	4.5	< 4.5 U
85-01-8	Phenanthrene	4.5	< 4.5 U
120-12-7	Anthracene	4.5	< 4.5 U
206-44-0	Fluoranthene	4.5	< 4.5 U
129-00-0	<b>Pyrene</b>	<b>4.5</b>	<b>4.5</b>
56-55-3	Benzo(a)anthracene	4.5	< 4.5 U
218-01-9	Chrysene	4.5	< 4.5 U
50-32-8	Benzo(a)pyrene	4.5	< 4.5 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.5	< 4.5 U
53-70-3	Dibenz(a,h)anthracene	4.5	< 4.5 U
191-24-2	Benzo(g,h,i)perylene	4.5	< 4.5 U
132-64-9	Dibenzofuran	4.5	< 4.5 U
TOTBFA	Total Benzofluoranthenes	4.5	< 4.5 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methyl-naphthalene	79.0%
d14-Dibenzo(a,h)anthracen	78.0%

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Sample ID: VBK-BN-CS-B21  
SAMPLE

Lab Sample ID: RH10G  
LIMS ID: 10-18733  
Matrix: Soil  
Data Release Authorized: *WWW*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 16:10  
Instrument/Analyst: NT8/YZ  
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: 8.3%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	< 4.9 U
91-57-6	2-Methylnaphthalene	4.9	< 4.9 U
90-12-0	1-Methylnaphthalene	4.9	< 4.9 U
208-96-8	Acenaphthylene	4.9	< 4.9 U
83-32-9	Acenaphthene	4.9	< 4.9 U
86-73-7	Fluorene	4.9	< 4.9 U
85-01-8	Phenanthrene	4.9	< 4.9 U
120-12-7	Anthracene	4.9	< 4.9 U
206-44-0	Fluoranthene	4.9	7.3
129-00-0	Pyrene	4.9	12
56-55-3	Benzo (a) anthracene	4.9	< 4.9 U
218-01-9	Chrysene	4.9	4.9
50-32-8	Benzo (a) pyrene	4.9	5.9
193-39-5	Indeno (1,2,3-cd) pyrene	4.9	5.9
53-70-3	Dibenz (a,h) anthracene	4.9	< 4.9 U
191-24-2	Benzo (g,h,i) perylene	4.9	8.3
132-64-9	Dibenzofuran	4.9	< 4.9 U
TOTBFA	Total Benzofluoranthenes	4.9	7.8

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 72.0%  
d14-Dibenzo (a,h) anthracen 73.3%

Lab Sample ID: RH10H  
LIMS ID: 10-18734  
Matrix: Soil  
Data Release Authorized: *WV*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 16:30  
Instrument/Analyst: NT8/YZ  
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: 20.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	1,600 E
91-57-6	2-Methylnaphthalene	4.7	15
90-12-0	1-Methylnaphthalene	4.7	8.5
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	4.7
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	< 4.7 U
129-00-0	Pyrene	4.7	69
56-55-3	Benzo(a)anthracene	4.7	< 4.7 U
218-01-9	Chrysene	4.7	51
50-32-8	Benzo(a)pyrene	4.7	34
193-39-5	Indeno(1,2,3-cd)pyrene	4.7	10
53-70-3	Dibenz(a,h)anthracene	4.7	< 4.7 U
191-24-2	Benzo(g,h,i)perylene	4.7	26
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	< 4.7 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 76.7%  
d14-Dibenzo(a,h)anthracen 70.3%



Lab Sample ID: RH10H  
LIMS ID: 10-18734  
Matrix: Soil  
Data Release Authorized: *YWW*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/09/10 10:11  
Instrument/Analyst: NT8/YZ  
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: 10.0  
Percent Moisture: 20.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	47	1,400
91-57-6	2-Methylnaphthalene	47	< 47 U
90-12-0	1-Methylnaphthalene	47	< 47 U
208-96-8	Acenaphthylene	47	< 47 U
83-32-9	Acenaphthene	47	< 47 U
86-73-7	Fluorene	47	< 47 U
85-01-8	Phenanthrene	47	< 47 U
120-12-7	Anthracene	47	< 47 U
206-44-0	Fluoranthene	47	< 47 U
129-00-0	Pyrene	47	75
56-55-3	Benzo(a)anthracene	47	< 47 U
218-01-9	Chrysene	47	56
50-32-8	Benzo(a)pyrene	47	< 47 U
193-39-5	Indeno(1,2,3-cd)pyrene	47	< 47 U
53-70-3	Dibenz(a,h)anthracene	47	< 47 U
191-24-2	Benzo(g,h,i)perylene	47	< 47 U
132-64-9	Dibenzofuran	47	< 47 U
TOTBFA	Total Benzofluoranthenes	47	< 47 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 73.3%  
d14-Dibenzo(a,h)anthracen 76.7%

Lab Sample ID: RH10I  
LIMS ID: 10-18735  
Matrix: Soil  
Data Release Authorized: *W*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 16:51  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.70 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 10.8%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	5.1
91-57-6	2-Methylnaphthalene	4.7	< 4.7 U
90-12-0	1-Methylnaphthalene	4.7	< 4.7 U
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	< 4.7 U
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	< 4.7 U
129-00-0	Pyrene	4.7	< 4.7 U
56-55-3	Benzo(a)anthracene	4.7	< 4.7 U
218-01-9	Chrysene	4.7	< 4.7 U
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
191-24-2	Benzo(g,h,i)perylene	4.7	< 4.7 U
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	< 4.7 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 73.7%  
d14-Dibenzo(a,h)anthracen 72.0%

Lab Sample ID: RH10J  
LIMS ID: 10-18736  
Matrix: Soil  
Data Release Authorized: *MMW*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 17:12  
Instrument/Analyst: NT8/YZ  
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: 7.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	< 4.8 U
91-57-6	2-Methylnaphthalene	4.8	< 4.8 U
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	< 4.8 U
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	< 4.8 U
129-00-0	Pyrene	4.8	< 4.8 U
56-55-3	Benzo(a)anthracene	4.8	< 4.8 U
218-01-9	Chrysene	4.8	< 4.8 U
50-32-8	Benzo(a)pyrene	4.8	< 4.8 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	< 4.8 U
53-70-3	Dibenz(a,h)anthracene	4.8	< 4.8 U
191-24-2	Benzo(g,h,i)perylene	4.8	< 4.8 U
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	< 4.8 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene	61.7%
d14-Dibenzo(a,h)anthracene	63.0%

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Sample ID: VBK-BN-CS-B25  
SAMPLE

Lab Sample ID: RH10K  
LIMS ID: 10-18737  
Matrix: Soil  
Data Release Authorized: *YWW*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 18:15  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.05 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 8.8%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	5.0	150
91-57-6	2-Methylnaphthalene	5.0	220
90-12-0	1-Methylnaphthalene	5.0	160
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	24
120-12-7	Anthracene	5.0	5.0
206-44-0	Fluoranthene	5.0	29
129-00-0	Pyrene	5.0	31
56-55-3	Benzo (a) anthracene	5.0	10
218-01-9	Chrysene	5.0	15
50-32-8	Benzo (a) pyrene	5.0	16
193-39-5	Indeno (1,2,3-cd) pyrene	5.0	12
53-70-3	Dibenz (a,h) anthracene	5.0	< 5.0 U
191-24-2	Benzo (g,h,i) perylene	5.0	19
132-64-9	Dibenzofuran	5.0	< 5.0 U
TOTBFA	Total Benzofluoranthenes	5.0	29

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 76.0%  
d14-Dibenzo (a,h) anthracen 71.7%

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Sample ID: VBK-BN-CS-SW5  
SAMPLE

Lab Sample ID: RH10L  
LIMS ID: 10-18738  
Matrix: Soil  
Data Release Authorized: *WVW*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 18:36  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.23 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 5.00  
Percent Moisture: 14.9%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	24	< 24 U
91-57-6	2-Methylnaphthalene	24	< 24 U
90-12-0	1-Methylnaphthalene	24	< 24 U
208-96-8	Acenaphthylene	24	< 24 U
83-32-9	Acenaphthene	24	24
86-73-7	Fluorene	24	< 24 U
85-01-8	Phenanthrene	24	290
120-12-7	Anthracene	24	51
206-44-0	Fluoranthene	24	530
129-00-0	Pyrene	24	420
56-55-3	Benzo (a) anthracene	24	260
218-01-9	Chrysene	24	310
50-32-8	Benzo (a) pyrene	24	270
193-39-5	Indeno (1,2,3-cd) pyrene	24	150
53-70-3	Dibenz (a,h) anthracene	24	56
191-24-2	Benzo (g,h,i) perylene	24	200
132-64-9	Dibenzofuran	24	< 24 U
TOTBFA	Total Benzofluoranthenes	24	440


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 76.7%  
d14-Dibenzo (a,h) anthracen 75.0%

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Sample ID: VBK-BN-CS-SW6  
SAMPLE

Lab Sample ID: RH10M  
LIMS ID: 10-18739  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 18:57  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.60 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 12.3%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	< 4.7 U
91-57-6	2-Methylnaphthalene	4.7	< 4.7 U
90-12-0	1-Methylnaphthalene	4.7	< 4.7 U
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	5.7
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	16
129-00-0	Pyrene	4.7	24
56-55-3	Benzo (a) anthracene	4.7	6.6
218-01-9	Chrysene	4.7	13
50-32-8	Benzo (a) pyrene	4.7	14
193-39-5	Indeno (1,2,3-cd) pyrene	4.7	8.0
53-70-3	Dibenz (a,h) anthracene	4.7	< 4.7 U
191-24-2	Benzo (g,h,i) perylene	4.7	13
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	15

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 69.0%  
d14-Dibenzo (a,h) anthracen 74.0%

Lab Sample ID: RH10N  
LIMS ID: 10-18740  
Matrix: Soil  
Data Release Authorized: *MMW*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 19:18  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.75 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 12.8%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene	75.7%
d14-Dibenzo(a,h)anthracen	74.7%

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Sample ID: VBK-BN-SP4  
SAMPLE

Lab Sample ID: RH100  
LIMS ID: 10-18741  
Matrix: Soil  
Data Release Authorized: *MMW*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 19:39  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 11.15 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 9.8%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.5	61
91-57-6	2-Methyl-naphthalene	4.5	22
90-12-0	1-Methyl-naphthalene	4.5	12
208-96-8	Acenaphthylene	4.5	10
83-32-9	Acenaphthene	4.5	< 4.5 U
86-73-7	Fluorene	4.5	< 4.5 U
85-01-8	Phenanthrene	4.5	44
120-12-7	Anthracene	4.5	9.9
206-44-0	Fluoranthene	4.5	66
129-00-0	Pyrene	4.5	69
56-55-3	Benzo (a) anthracene	4.5	29
218-01-9	Chrysene	4.5	36
50-32-8	Benzo (a) pyrene	4.5	47
193-39-5	Indeno (1,2,3-cd) pyrene	4.5	29
53-70-3	Dibenz (a,h) anthracene	4.5	5.8
191-24-2	Benzo (g,h,i) perylene	4.5	41
132-64-9	Dibenzofuran	4.5	< 4.5 U
TOTBFA	Total Benzofluoranthenes	4.5	57

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methyl-naphthalene 85.3%  
d14-Dibenzo (a,h) anthracen 75.0%



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Sample ID: VBK-BN-SP5  
SAMPLE

Lab Sample ID: RH10P  
LIMS ID: 10-18742  
Matrix: Soil  
Data Release Authorized:  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 20:00  
Instrument/Analyst: NT8/YZ  
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: 8.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	80
91-57-6	2-Methylnaphthalene	4.9	34
90-12-0	1-Methylnaphthalene	4.9	21
208-96-8	Acenaphthylene	4.9	51
83-32-9	Acenaphthene	4.9	11
86-73-7	Fluorene	4.9	26
85-01-8	Phenanthrene	4.9	190
120-12-7	Anthracene	4.9	49
206-44-0	Fluoranthene	4.9	290
129-00-0	Pyrene	4.9	410
56-55-3	Benzo (a) anthracene	4.9	130
218-01-9	Chrysene	4.9	150
50-32-8	Benzo (a) pyrene	4.9	240
193-39-5	Indeno (1,2,3-cd) pyrene	4.9	140
53-70-3	Dibenz (a,h) anthracene	4.9	34
191-24-2	Benzo (g,h,i) perylene	4.9	210
132-64-9	Dibenzofuran	4.9	< 4.9 U
TOTBFA	Total Benzofluoranthenes	4.9	230

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 77.7%  
d14-Dibenzo (a,h) anthracen 79.0%

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

Sample ID: VBK-BN-SP5A  
SAMPLE

Lab Sample ID: RH10Q  
LIMS ID: 10-18743  
Matrix: Soil  
Data Release Authorized: *mw*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/04/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 20:21  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.75 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 11.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	230
91-57-6	2-Methylnaphthalene	4.6	130
90-12-0	1-Methylnaphthalene	4.6	83
208-96-8	Acenaphthylene	4.6	60
83-32-9	Acenaphthene	4.6	65
86-73-7	Fluorene	4.6	65
85-01-8	Phenanthrene	4.6	350
120-12-7	Anthracene	4.6	80
206-44-0	Fluoranthene	4.6	520 E
129-00-0	Pyrene	4.6	720 E
56-55-3	Benzo (a) anthracene	4.6	270
218-01-9	Chrysene	4.6	310
50-32-8	Benzo (a) pyrene	4.6	450
193-39-5	Indeno (1,2,3-cd) pyrene	4.6	270
53-70-3	Dibenz (a,h) anthracene	4.6	66
191-24-2	Benzo (g,h,i) perylene	4.6	400
132-64-9	Dibenzofuran	4.6	7.9
TOTBFA	Total Benzofluoranthenes	4.6	470

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene	67.0%
d14-Dibenzo (a,h) anthracen	69.3%

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

Sample ID: VBK-BN-SP5A  
DILUTION

Lab Sample ID: RH10Q  
LIMS ID: 10-18743  
Matrix: Soil  
Data Release Authorized: *MMJ*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/04/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/09/10 10:32  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.75 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 3.00  
Percent Moisture: 11.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	14	210
91-57-6	2-Methylnaphthalene	14	110 Q
90-12-0	1-Methylnaphthalene	14	75
208-96-8	Acenaphthylene	14	53
83-32-9	Acenaphthene	14	60
86-73-7	Fluorene	14	67
85-01-8	Phenanthrene	14	340
120-12-7	Anthracene	14	67
206-44-0	Fluoranthene	14	490
129-00-0	Pyrene	14	670
56-55-3	Benzo (a) anthracene	14	240
218-01-9	Chrysene	14	280
50-32-8	Benzo (a) pyrene	14	390
193-39-5	Indeno (1,2,3-cd) pyrene	14	240
53-70-3	Dibenz (a,h) anthracene	14	52
191-24-2	Benzo (g,h,i) perylene	14	350
132-64-9	Dibenzofuran	14	< 14 U
TOTBFA	Total Benzofluoranthenes	14	440

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 59.0%  
d14-Dibenzo (a,h) anthracen 63.0%

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

Sample ID: VBK-BN-SP6  
SAMPLE

Lab Sample ID: RH10R  
LIMS ID: 10-18744  
Matrix: Soil  
Data Release Authorized: *WWW*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/04/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 20:42  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.20 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 7.6%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	12
91-57-6	2-Methylnaphthalene	4.9	4.9
90-12-0	1-Methylnaphthalene	4.9	< 4.9 U
208-96-8	Acenaphthylene	4.9	6.9
83-32-9	Acenaphthene	4.9	< 4.9 U
86-73-7	Fluorene	4.9	< 4.9 U
85-01-8	Phenanthrene	4.9	16
120-12-7	Anthracene	4.9	< 4.9 U
206-44-0	Fluoranthene	4.9	40
129-00-0	Pyrene	4.9	56
56-55-3	Benzo (a) anthracene	4.9	20
218-01-9	Chrysene	4.9	23
50-32-8	Benzo (a) pyrene	4.9	44
193-39-5	Indeno (1,2,3-cd) pyrene	4.9	29
53-70-3	Dibenz (a,h) anthracene	4.9	7.4
191-24-2	Benzo (g,h,i) perylene	4.9	44
132-64-9	Dibenzofuran	4.9	< 4.9 U
TOTBFA	Total Benzofluoranthenes	4.9	42

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 76.3%  
d14-Dibenzo (a,h) anthracen 79.0%

**SIM SW8270 SURROGATE RECOVERY SUMMARY**

Matrix: Soil

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
PSE-004

<u>Client ID</u>	<u>MNP</u>	<u>DBA</u>	<u>TOT OUT</u>
VBK-BN-CS-B15	66.7%	74.7%	0
VBK-BN-CS-B16	64.3%	67.0%	0
VBK-BN-CS-B17	74.3%	78.0%	0
VBK-BN-CS-B18	76.0%	77.0%	0
VBK-BN-CS-B19	69.3%	75.3%	0
VBK-BN-CS-B20	79.0%	78.0%	0
VBK-BN-CS-B21	72.0%	73.3%	0
VBK-BN-CS-B22	76.7%	70.3%	0
VBK-BN-CS-B22 DL	73.3%	76.7%	0
VBK-BN-CS-B23	73.7%	72.0%	0
MB-080510	78.0%	85.3%	0
LCS-080510	80.3%	88.3%	0
VBK-BN-CS-B24	61.7%	63.0%	0
VBK-BN-CS-B24 MS	78.7%	81.3%	0
VBK-BN-CS-B24 MSD	80.3%	80.0%	0
VBK-BN-CS-B25	76.0%	71.7%	0
VBK-BN-CS-SW5	76.7%	75.0%	0
VBK-BN-CS-SW6	69.0%	74.0%	0
VBK-BN-CS-SW7	75.7%	74.7%	0
VBK-BN-SP4	85.3%	75.0%	0
VBK-BN-SP5	77.7%	79.0%	0
VBK-BN-SP5A	67.0%	69.3%	0
VBK-BN-SP5A DL	59.0%	63.0%	0
VBK-BN-SP6	76.3%	79.0%	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: 10-18727 to 10-18744

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

Sample ID: VBK-BN-CS-B24  
MATRIX SPIKE

Lab Sample ID: RH10J  
LIMS ID: 10-18736  
Matrix: Soil  
Data Release Authorized: *mm*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted MS/MSD: 08/05/10  
Date Analyzed MS: 08/07/10 17:33  
MSD: 08/07/10 17:54  
Instrument/Analyst MS: NT8/YZ  
MSD: NT8/YZ

Sample Amount MS: 10.3 g-dry-wt  
MSD: 10.3 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
Naphthalene	< 4.8 U	90.8	146	62.2%	98.7	145	68.1%	8.3%
2-Methylnaphthalene	< 4.8 U	114	146	78.1%	115	145	79.3%	0.9%
1-Methylnaphthalene	< 4.8 U	106	146	72.6%	116	145	80.0%	9.0%
Acenaphthylene	< 4.8 U	105	146	71.9%	115	145	79.3%	9.1%
Acenaphthene	< 4.8 U	100	146	68.5%	109	145	75.2%	8.6%
Fluorene	< 4.8 U	104	146	71.2%	116	145	80.0%	10.9%
Phenanthrene	< 4.8 U	109	146	74.7%	111	145	76.6%	1.8%
Anthracene	< 4.8 U	116	146	79.5%	120	145	82.8%	3.4%
Fluoranthene	< 4.8 U	134	146	91.8%	136	145	93.8%	1.5%
Pyrene	< 4.8 U	118	146	80.8%	121	145	83.4%	2.5%
Benzo(a)anthracene	< 4.8 U	130	146	89.0%	140	145	96.6%	7.4%
Chrysene	< 4.8 U	111	146	76.0%	115	145	79.3%	3.5%
Benzo(a)pyrene	< 4.8 U	120	146	82.2%	127	145	87.6%	5.7%
Indeno(1,2,3-cd)pyrene	< 4.8 U	105	146	71.9%	109	145	75.2%	3.7%
Dibenz(a,h)anthracene	< 4.8 U	113	146	77.4%	115	145	79.3%	1.8%
Benzo(g,h,i)perylene	< 4.8 U	95.1	146	65.1%	100	145	69.0%	5.0%
Dibenzofuran	< 4.8 U	94.2	146	64.5%	99.7	145	68.8%	5.7%
Total Benzofluoranthenes	< 4.8 U	219	291	75.3%	227	290	78.3%	3.6%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

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

Sample ID: VBK-BN-CS-B24  
MATRIX SPIKE

Lab Sample ID: RH10J  
LIMS ID: 10-18736  
Matrix: Soil  
Data Release Authorized: *WVW*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 17:33  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.30 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 7.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	---
91-57-6	2-Methylnaphthalene	4.8	---
90-12-0	1-Methylnaphthalene	4.8	---
208-96-8	Acenaphthylene	4.8	---
83-32-9	Acenaphthene	4.8	---
86-73-7	Fluorene	4.8	---
85-01-8	Phenanthrene	4.8	---
120-12-7	Anthracene	4.8	---
206-44-0	Fluoranthene	4.8	---
129-00-0	Pyrene	4.8	---
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	---
191-24-2	Benzo(g,h,i)perylene	4.8	---
132-64-9	Dibenzofuran	4.8	---
TOTBFA	Total Benzofluoranthenes	4.8	---

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 78.7%  
d14-Dibenzo(a,h)anthracene 81.3%

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

Sample ID: VBK-BN-CS-B24  
MATRIX SPIKE DUPLICATE

Lab Sample ID: RH10J  
LIMS ID: 10-18736  
Matrix: Soil  
Data Release Authorized: *WVW*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/03/10  
Date Received: 08/04/10

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 17:54  
Instrument/Analyst: NT8/YZ  
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: 7.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	---
91-57-6	2-Methylnaphthalene	4.8	---
90-12-0	1-Methylnaphthalene	4.8	---
208-96-8	Acenaphthylene	4.8	---
83-32-9	Acenaphthene	4.8	---
86-73-7	Fluorene	4.8	---
85-01-8	Phenanthrene	4.8	---
120-12-7	Anthracene	4.8	---
206-44-0	Fluoranthene	4.8	---
129-00-0	Pyrene	4.8	---
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	---
191-24-2	Benzo(g,h,i)perylene	4.8	---
132-64-9	Dibenzofuran	4.8	---
TOTBFA	Total Benzofluoranthenes	4.8	---

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 80.3%  
d14-Dibenzo(a,h)anthracen 80.0%



**ORGANICS ANALYSIS DATA SHEET**

PNAs by SW8270D-SIM GC/MS

Page 1 of 1

Sample ID: LCS-080510

LAB CONTROL SAMPLE

Lab Sample ID: LCS-080510

LIMS ID: 10-18736

Matrix: Soil

Data Release Authorized: *MW*

Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc

Project: Verbeek

Event: PSE-004

Date Sampled: NA

Date Received: NA

Date Extracted: 08/05/10

Date Analyzed LCS: 08/07/10 13:43

Instrument/Analyst LCS: NT8/YZ

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
Naphthalene	110	150	73.3%
2-Methylnaphthalene	122	150	81.3%
1-Methylnaphthalene	122	150	81.3%
Acenaphthylene	118	150	78.7%
Acenaphthene	107	150	71.3%
Fluorene	116	150	77.3%
Phenanthrene	113	150	75.3%
Anthracene	120	150	80.0%
Fluoranthene	130	150	86.7%
Pyrene	132	150	88.0%
Benzo(a)anthracene	142	150	94.7%
Chrysene	114	150	76.0%
Benzo(a)pyrene	130	150	86.7%
Indeno(1,2,3-cd)pyrene	126	150	84.0%
Dibenz(a,h)anthracene	125	150	83.3%
Benzo(g,h,i)perylene	118	150	78.7%
Dibenzofuran	106	150	70.7%
Total Benzofluoranthenes	243	300	81.0%

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene	80.3%
d14-Dibenzo(a,h)anthracen	88.3%

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

Sample ID: MB-080510  
METHOD BLANK

Lab Sample ID: MB-080510  
LIMS ID: 10-18736  
Matrix: Soil  
Data Release Authorized: *TWW*  
Reported: 08/09/10

QC Report No: RH10-Dalton, Olmsted & Fuglevand, Inc  
Project: Verbeek  
Event: PSE-004  
Date Sampled: NA  
Date Received: NA

Date Extracted: 08/05/10  
Date Analyzed: 08/07/10 13:22  
Instrument/Analyst: NT8/YZ  
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
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 78.0%  
d14-Dibenzo(a,h)anthracene 85.3%



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

August 11, 2010

Matt Dalton  
Dalton, Olmsted, & Fuglevand  
10827 NE 68th, Suite B  
Kirkland, WA 98033

**RE: Client Project: Verbeek – PSE-004**  
**ARI Job No.: RH48**

Dear Matt:

Please find enclosed the original Chain-of-Custody records (COC), sample receipt documentation, and the final analytical results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted fifteen soil samples on August 6, 2010. For further details regarding sample receipt, refer to the enclosed Cooler Receipt Form.

The samples were analyzed for SIM PNAs, as requested on the COCs.

The percent recovery for Fluoranthene was high following the analysis of the LCSD associated with these samples. All other QC was within compliance and no further corrective action was taken.

There were no other anomalies associated with the analysis of these samples.

An electronic copy of this report 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.

Susan Dunninghoo  
Director, Client Services  
sue@arilabs.com  
206-695-6207

Enclosures

cc: eFile RH48

# Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: RA49 Turn-around Requested: 2-DAY Page: 1 of 2

ARI Client Company: DOF PSE Phone: 206 660 3466 Date: 8/6/10 Ice Present? Y

Client Contact: DAVID COOPER / MAST DRAGON No. of Coolers: 1 Cooler Temps: 0.6

Client Project Name: VORBECK

Client Project #: PSE-004



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	Samplers:			Analysis Requested				Notes/Comments
	Date	Time	Matrix	No. Containers				
VBK-BN-SP6A	8/5/10	1200	SOIL	1				MDL < 0.1 mg/kg
VBK-SP1-CS-B1		1210						
VBK-SP1-CS-B2		1220						
VBK-BN-CS-B26		1230						
VBK-BN-CS-B27		1240						
VBK-BN-CS-B28		1250						
VBK-BN-CS-B29		1300						
VBK-BN-CS-B30		1310						
VBK-BN-CS-SWB		1320						
VBK-BN-CS-SW9		1330						
Comments/Special Instructions	Relinquished by: <u>[Signature]</u> Received by: <u>[Signature]</u>			Relinquished by: <u>[Signature]</u> Received by: <u>[Signature]</u>				
	Printed Name: <u>David Cooper</u>			Printed Name: <u>Tulla Tullummaa</u>				
	Company: <u>DOF</u>			Company: <u>ARI</u>				
	Date & Time: <u>8/6/10 0650</u>			Date & Time: <u>8/6/10 0650</u>				

**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.





# Cooler Receipt Form

ARI Client: DOF

Project Name: Verbeek

COC No(s): \_\_\_\_\_ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: RH48

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 YES NO  
 Were custody papers properly filled out (ink, signed, etc.) ..... YES YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)..... 0.6

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90877952

Cooler Accepted by: PH Date: 8/6/10 Time: 0650

**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 YES NO  
 Did all bottles arrive in good condition (unbroken)? ..... YES YES NO  
 Were all bottle labels complete and legible? ..... YES YES NO  
 Did the number of containers listed on COC match with the number of containers received? ..... YES YES NO  
 Did all bottle labels and tags agree with custody papers? ..... YES YES NO  
 Were all bottles used correct for the requested analyses? ..... YES 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 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: MM Date: 8/6/10 Time: 0800

**\*\* 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"



## Data Reporting Qualifiers

Effective 7/10/2009

### 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  $\geq$  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  $\leq 5$  times the Reporting Limit and the replicate control limit defaults to  $\pm 1$  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.
- 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  $\geq 40\%$  RPD with no obvious chromatographic interference

### **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



ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: MB-080910  
METHOD BLANK

Lab Sample ID: MB-080910  
LIMS ID: 10-18995  
Matrix: Soil  
Data Release Authorized: *MW*  
Reported: 08/11/10

QC Report No: RH48-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: NA  
Date Received: NA

Date Extracted: 08/09/10  
Date Analyzed: 08/10/10 15:12  
Instrument/Analyst: NT8/YZ  
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
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 84.3%  
d14-Dibenzo(a,h)anthracen 96.0%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BN-SP6A  
SAMPLE

Lab Sample ID: RH48A  
LIMS ID: 10-18987  
Matrix: Soil  
Data Release Authorized: *MW*  
Reported: 08/11/10

QC Report No: RH48-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/05/10  
Date Received: 08/06/10

Date Extracted: 08/09/10  
Date Analyzed: 08/10/10 17:39  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.07 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 16.6%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 84.0%  
d14-Dibenzo(a,h)anthracen 83.7%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-SP1-CS-B1  
SAMPLE

Lab Sample ID: RH48B  
LIMS ID: 10-18988  
Matrix: Soil  
Data Release Authorized: *MW*  
Reported: 08/11/10

QC Report No: RH48-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/05/10  
Date Received: 08/06/10

Date Extracted: 08/09/10  
Date Analyzed: 08/10/10 18:00  
Instrument/Analyst: NT8/YZ  
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: 9.2%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 79.7%  
d14-Dibenzo(a,h)anthracen 82.7%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-SP1-CS-B2  
SAMPLE

Lab Sample ID: RH48C  
LIMS ID: 10-18989  
Matrix: Soil  
Data Release Authorized: *mw*  
Reported: 08/11/10

QC Report No: RH48-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/05/10  
Date Received: 08/06/10

Date Extracted: 08/09/10  
Date Analyzed: 08/10/10 18:21  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.67 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 18.2%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	< 4.7 U
91-57-6	2-Methylnaphthalene	4.7	< 4.7 U
90-12-0	1-Methylnaphthalene	4.7	< 4.7 U
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	< 4.7 U
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	< 4.7 U
129-00-0	Pyrene	4.7	< 4.7 U
56-55-3	Benzo(a)anthracene	4.7	< 4.7 U
218-01-9	Chrysene	4.7	< 4.7 U
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
191-24-2	Benzo(g,h,i)perylene	4.7	< 4.7 U
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	< 4.7 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 82.3%  
d14-Dibenzo(a,h)anthracen 83.7%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BN-CS-B26  
SAMPLE

Lab Sample ID: RH48D

QC Report No: RH48-DOF

LIMS ID: 10-18990

Project: VERBEEK

Matrix: Soil

Event: PSE-004

Data Release Authorized: *W*

Date Sampled: 08/05/10

Reported: 08/11/10

Date Received: 08/06/10

Date Extracted: 08/09/10

Sample Amount: 10.60 g-dry-wt

Date Analyzed: 08/10/10 18:42

Final Extract Volume: 0.5 mL

Instrument/Analyst: NT8/YZ

Dilution Factor: 1.00

GPC Cleanup: No

Percent Moisture: 3.6%

Silica Gel Cleanup: Yes

Alumina Cleanup: No

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	< 4.7 U
91-57-6	2-Methylnaphthalene	4.7	< 4.7 U
90-12-0	1-Methylnaphthalene	4.7	< 4.7 U
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	< 4.7 U
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	< 4.7 U
129-00-0	Pyrene	4.7	< 4.7 U
56-55-3	Benzo(a)anthracene	4.7	< 4.7 U
218-01-9	Chrysene	4.7	< 4.7 U
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
191-24-2	Benzo(g,h,i)perylene	4.7	< 4.7 U
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	< 4.7 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 71.0%  
d14-Dibenzo(a,h)anthracen 68.3%

Sample ID: VBK-BN-CS-B27  
SAMPLE

Lab Sample ID: RH48E  
LIMS ID: 10-18991  
Matrix: Soil  
Data Release Authorized: *WW*  
Reported: 08/11/10

QC Report No: RH48-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/05/10  
Date Received: 08/06/10

Date Extracted: 08/09/10  
Date Analyzed: 08/10/10 19:03  
Instrument/Analyst: NT8/YZ  
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: 1.00  
Percent Moisture: 4.2%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	< 4.7 U
91-57-6	2-Methylnaphthalene	4.7	< 4.7 U
90-12-0	1-Methylnaphthalene	4.7	< 4.7 U
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	< 4.7 U
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	< 4.7 U
129-00-0	Pyrene	4.7	< 4.7 U
56-55-3	Benzo(a)anthracene	4.7	< 4.7 U
218-01-9	Chrysene	4.7	< 4.7 U
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
191-24-2	Benzo(g,h,i)perylene	4.7	< 4.7 U
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	< 4.7 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 78.3%  
d14-Dibenzo(a,h)anthracen 72.7%

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Sample ID: VBK-BN-CS-B28  
SAMPLE

Lab Sample ID: RH48F  
LIMS ID: 10-18992  
Matrix: Soil  
Data Release Authorized: *MW*  
Reported: 08/11/10

QC Report No: RH48-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/05/10  
Date Received: 08/06/10

Date Extracted: 08/09/10  
Date Analyzed: 08/10/10 19:24  
Instrument/Analyst: NT8/YZ  
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: 5.6%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	< 4.8 U
91-57-6	2-Methylnaphthalene	4.8	< 4.8 U
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	< 4.8 U
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	< 4.8 U
129-00-0	Pyrene	4.8	< 4.8 U
56-55-3	Benzo (a) anthracene	4.8	< 4.8 U
218-01-9	Chrysene	4.8	< 4.8 U
50-32-8	Benzo (a) pyrene	4.8	< 4.8 U
193-39-5	Indeno (1,2,3-cd) pyrene	4.8	< 4.8 U
53-70-3	Dibenz (a,h) anthracene	4.8	< 4.8 U
191-24-2	Benzo (g,h,i) perylene	4.8	< 4.8 U
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	< 4.8 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 72.7%  
d14-Dibenzo (a,h) anthracen 70.7%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BN-CS-B29  
SAMPLE

Lab Sample ID: RH48G  
LIMS ID: 10-18993  
Matrix: Soil  
Data Release Authorized: *WVW*  
Reported: 08/11/10

QC Report No: RH48-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/05/10  
Date Received: 08/06/10

Date Extracted: 08/09/10  
Date Analyzed: 08/10/10 19:45  
Instrument/Analyst: NT8/YZ  
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: 15.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	< 4.9 U
91-57-6	2-Methylnaphthalene	4.9	< 4.9 U
90-12-0	1-Methylnaphthalene	4.9	< 4.9 U
208-96-8	Acenaphthylene	4.9	< 4.9 U
83-32-9	Acenaphthene	4.9	< 4.9 U
86-73-7	Fluorene	4.9	< 4.9 U
85-01-8	Phenanthrene	4.9	< 4.9 U
120-12-7	Anthracene	4.9	< 4.9 U
206-44-0	Fluoranthene	4.9	< 4.9 U
129-00-0	Pyrene	4.9	< 4.9 U
56-55-3	Benzo(a)anthracene	4.9	< 4.9 U
218-01-9	Chrysene	4.9	< 4.9 U
50-32-8	Benzo(a)pyrene	4.9	< 4.9 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.9	< 4.9 U
53-70-3	Dibenz(a,h)anthracene	4.9	< 4.9 U
191-24-2	Benzo(g,h,i)perylene	4.9	< 4.9 U
132-64-9	Dibenzofuran	4.9	< 4.9 U
TOTBFA	Total Benzofluoranthenes	4.9	< 4.9 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 67.3%  
d14-Dibenzo(a,h)anthracen 65.3%



ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BN-CS-B30  
SAMPLE

Lab Sample ID: RH48H  
LIMS ID: 10-18994  
Matrix: Soil  
Data Release Authorized: *MMW*  
Reported: 08/11/10

QC Report No: RH48-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/05/10  
Date Received: 08/06/10

Date Extracted: 08/09/10  
Date Analyzed: 08/10/10 20:06  
Instrument/Analyst: NT8/YZ  
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: 29.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	120
91-57-6	2-Methylnaphthalene	4.7	< 4.7 U
90-12-0	1-Methylnaphthalene	4.7	< 4.7 U
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	< 4.7 U
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	< 4.7 U
129-00-0	Pyrene	4.7	< 4.7 U
56-55-3	Benzo(a)anthracene	4.7	< 4.7 U
218-01-9	Chrysene	4.7	< 4.7 U
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
191-24-2	Benzo(g,h,i)perylene	4.7	< 4.7 U
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	< 4.7 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 68.0%  
d14-Dibenzo(a,h)anthracen 64.0%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BN-CS-SW8  
SAMPLE

Lab Sample ID: RH48I  
LIMS ID: 10-18995  
Matrix: Soil  
Data Release Authorized: *TW*  
Reported: 08/11/10

QC Report No: RH48-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/05/10  
Date Received: 08/06/10

Date Extracted: 08/09/10  
Date Analyzed: 08/10/10 20:27  
Instrument/Analyst: NT8/YZ  
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: 6.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	11
91-57-6	2-Methylnaphthalene	4.8	5.3
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	8.2
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	8.7
85-01-8	Phenanthrene	4.8	88
120-12-7	Anthracene	4.8	21
206-44-0	Fluoranthene	4.8	88
129-00-0	Pyrene	4.8	81
56-55-3	Benzo (a) anthracene	4.8	27
218-01-9	Chrysene	4.8	37
50-32-8	Benzo (a) pyrene	4.8	49
193-39-5	Indeno (1,2,3-cd) pyrene	4.8	27
53-70-3	Dibenz (a,h) anthracene	4.8	7.7
191-24-2	Benzo (g,h,i) perylene	4.8	42
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	54

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene 80.3%  
d14-Dibenzo (a,h) anthracen 75.0%

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

Sample ID: VBK-BN-CS-SW8  
MATRIX SPIKE

Lab Sample ID: RH48I  
LIMS ID: 10-18995  
Matrix: Soil  
Data Release Authorized: *MW*  
Reported: 08/11/10

QC Report No: RH48-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/05/10  
Date Received: 08/06/10

Date Extracted: 08/09/10  
Date Analyzed: 08/10/10 20:48  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.28 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 6.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	---
91-57-6	2-Methylnaphthalene	4.9	---
90-12-0	1-Methylnaphthalene	4.9	---
208-96-8	Acenaphthylene	4.9	---
83-32-9	Acenaphthene	4.9	---
86-73-7	Fluorene	4.9	---
85-01-8	Phenanthrene	4.9	---
120-12-7	Anthracene	4.9	---
206-44-0	Fluoranthene	4.9	---
129-00-0	Pyrene	4.9	---
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	---
191-24-2	Benzo(g,h,i)perylene	4.9	---
132-64-9	Dibenzofuran	4.9	---
TOTBFA	Total Benzofluoranthenes	4.9	---

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 85.7%  
d14-Dibenzo(a,h)anthracen 77.3%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BN-CS-SW8  
MATRIX SPIKE DUPLICATE

Lab Sample ID: RH48I  
LIMS ID: 10-18995  
Matrix: Soil  
Data Release Authorized: *WW*  
Reported: 08/11/10

QC Report No: RH48-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/05/10  
Date Received: 08/06/10

Date Extracted: 08/09/10  
Date Analyzed: 08/10/10 21:09  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.30 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 6.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	---
91-57-6	2-Methylnaphthalene	4.8	---
90-12-0	1-Methylnaphthalene	4.8	---
208-96-8	Acenaphthylene	4.8	---
83-32-9	Acenaphthene	4.8	---
86-73-7	Fluorene	4.8	---
85-01-8	Phenanthrene	4.8	---
120-12-7	Anthracene	4.8	---
206-44-0	Fluoranthene	4.8	---
129-00-0	Pyrene	4.8	---
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	---
191-24-2	Benzo(g,h,i)perylene	4.8	---
132-64-9	Dibenzofuran	4.8	---
TOTBFA	Total Benzofluoranthenes	4.8	---

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 88.7%  
d14-Dibenzo(a,h)anthracen 78.0%

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

Sample ID: VBK-BN-CS-SW9  
SAMPLE

Lab Sample ID: RH48J  
LIMS ID: 10-18996  
Matrix: Soil  
Data Release Authorized: *MW*  
Reported: 08/11/10

QC Report No: RH48-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/05/10  
Date Received: 08/06/10

Date Extracted: 08/09/10  
Date Analyzed: 08/10/10 21:30  
Instrument/Analyst: NT8/YZ  
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: 14.3%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	< 4.9 U
91-57-6	2-Methylnaphthalene	4.9	< 4.9 U
90-12-0	1-Methylnaphthalene	4.9	< 4.9 U
208-96-8	Acenaphthylene	4.9	< 4.9 U
83-32-9	Acenaphthene	4.9	< 4.9 U
86-73-7	Fluorene	4.9	< 4.9 U
85-01-8	Phenanthrene	4.9	6.3
120-12-7	Anthracene	4.9	< 4.9 U
206-44-0	Fluoranthene	4.9	11
129-00-0	Pyrene	4.9	14
56-55-3	Benzo (a) anthracene	4.9	5.3
218-01-9	Chrysene	4.9	7.8
50-32-8	Benzo (a) pyrene	4.9	6.3
193-39-5	Indeno (1,2,3-cd) pyrene	4.9	< 4.9 U
53-70-3	Dibenz (a,h) anthracene	4.9	< 4.9 U
191-24-2	Benzo (g,h,i) perylene	4.9	6.3
132-64-9	Dibenzofuran	4.9	< 4.9 U
TOTBFA	Total Benzofluoranthenes	4.9	8.8

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 85.7%  
d14-Dibenzo (a,h) anthracen 80.0%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BN-CS-SW10  
SAMPLE

Lab Sample ID: RH48K  
LIMS ID: 10-18997  
Matrix: Soil  
Data Release Authorized: *MW*  
Reported: 08/11/10

QC Report No: RH48-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/05/10  
Date Received: 08/06/10

Date Extracted: 08/09/10  
Date Analyzed: 08/10/10 21:51  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.11 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 16.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 80.7%  
d14-Dibenzo(a,h)anthracen 74.0%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BN-CS-SW11  
SAMPLE

Lab Sample ID: RH48L  
LIMS ID: 10-18998  
Matrix: Soil  
Data Release Authorized: *MW*  
Reported: 08/11/10

QC Report No: RH48-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/05/10  
Date Received: 08/06/10

Date Extracted: 08/09/10  
Date Analyzed: 08/10/10 22:12  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.57 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 12.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	6.6
91-57-6	2-Methylnaphthalene	4.7	< 4.7 U
90-12-0	1-Methylnaphthalene	4.7	< 4.7 U
208-96-8	Acenaphthylene	4.7	7.6
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	54
120-12-7	Anthracene	4.7	7.1
206-44-0	Fluoranthene	4.7	100
129-00-0	Pyrene	4.7	85
56-55-3	Benzo (a) anthracene	4.7	36
218-01-9	Chrysene	4.7	47
50-32-8	Benzo (a) pyrene	4.7	52
193-39-5	Indeno (1,2,3-cd) pyrene	4.7	28
53-70-3	Dibenz (a,h) anthracene	4.7	9.5
191-24-2	Benzo (g,h,i) perylene	4.7	33
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	77

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 83.0%  
d14-Dibenzo (a,h) anthracen 75.0%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BN-CS-SW12  
SAMPLE

Lab Sample ID: RH48M  
LIMS ID: 10-18999  
Matrix: Soil  
Data Release Authorized: *TWJ*  
Reported: 08/11/10

QC Report No: RH48-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/05/10  
Date Received: 08/06/10

Date Extracted: 08/09/10  
Date Analyzed: 08/10/10 22:33  
Instrument/Analyst: NT8/YZ  
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: 17.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 76.7%  
d14-Dibenzo(a,h)anthracen 82.3%



ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BN-CS-SW13  
SAMPLE

Lab Sample ID: RH48N  
LIMS ID: 10-19000  
Matrix: Soil  
Data Release Authorized: *mm*  
Reported: 08/11/10

QC Report No: RH48-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/05/10  
Date Received: 08/06/10

Date Extracted: 08/09/10  
Date Analyzed: 08/10/10 22:54  
Instrument/Analyst: NT8/YZ  
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: 14.4%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	< 4.8 U
91-57-6	2-Methylnaphthalene	4.8	< 4.8 U
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	33
120-12-7	Anthracene	4.8	11
206-44-0	Fluoranthene	4.8	61
129-00-0	Pyrene	4.8	61
56-55-3	Benzo (a) anthracene	4.8	30
218-01-9	Chrysene	4.8	32
50-32-8	Benzo (a) pyrene	4.8	32
193-39-5	Indeno (1,2,3-cd) pyrene	4.8	15
53-70-3	Dibenz (a,h) anthracene	4.8	7.8
191-24-2	Benzo (g,h,i) perylene	4.8	18
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	42

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 80.3%  
d14-Dibenzo (a,h) anthracen 79.0%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BN-CS-SW14  
SAMPLE

Lab Sample ID: RH480  
LIMS ID: 10-19001  
Matrix: Soil  
Data Release Authorized: *MW*  
Reported: 08/11/10

QC Report No: RH48-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/05/10  
Date Received: 08/06/10

Date Extracted: 08/09/10  
Date Analyzed: 08/10/10 23:15  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.03 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 16.7%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 75.3%  
d14-Dibenzo(a,h)anthracene 76.3%

**SIM SW8270 SURROGATE RECOVERY SUMMARY**

Matrix: Soil

QC Report No: RH48-DOF  
Project: VERBEEK  
PSE-004

<u>Client ID</u>	<u>MNP</u>	<u>DBA</u>	<u>TOT OUT</u>
VBK-BN-SP6A	84.0%	83.7%	0
VBK-SP1-CS-B1	79.7%	82.7%	0
VBK-SP1-CS-B2	82.3%	83.7%	0
VBK-BN-CS-B26	71.0%	68.3%	0
VBK-BN-CS-B27	78.3%	72.7%	0
VBK-BN-CS-B28	72.7%	70.7%	0
VBK-BN-CS-B29	67.3%	65.3%	0
VBK-BN-CS-B30	68.0%	64.0%	0
MB-080910	84.3%	96.0%	0
LCS-080910	88.3%	98.7%	0
LCSD-080910	89.3%	98.3%	0
VBK-BN-CS-SW8	80.3%	75.0%	0
VBK-BN-CS-SW8 MS	85.7%	77.3%	0
VBK-BN-CS-SW8 MSD	88.7%	78.0%	0
VBK-BN-CS-SW9	85.7%	80.0%	0
VBK-BN-CS-SW10	80.7%	74.0%	0
VBK-BN-CS-SW11	83.0%	75.0%	0
VBK-BN-CS-SW12	76.7%	82.3%	0
VBK-BN-CS-SW13	80.3%	79.0%	0
VBK-BN-CS-SW14	75.3%	76.3%	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: 10-18987 to 10-19001

**ORGANICS ANALYSIS DATA SHEET**

PNA's by SW8270D-SIM GC/MS

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Sample ID: LCS-080910

LAB CONTROL SAMPLE

Lab Sample ID: LCS-080910

LIMS ID: 10-18995

Matrix: Soil

Data Release Authorized: *MW*

Reported: 08/11/10

QC Report No: RH48-DOF

Project: VERBEEK

Event: PSE-004

Date Sampled: NA

Date Received: NA

Date Extracted: 08/09/10

Sample Amount LCS: 10.0 g-dry-wt

LCSD: 10.0 g-dry-wt

Date Analyzed LCS: 08/10/10 15:33

Final Extract Volume LCS: 0.50 mL

LCSD: 08/10/10 15:54

LCSD: 0.50 mL

Instrument/Analyst LCS: NT8/YZ

Dilution Factor LCS: 1.00

LCSD: NT8/YZ

LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Naphthalene	110	150	73.3%	120	150	80.0%	8.7%
2-Methylnaphthalene	126	150	84.0%	132	150	88.0%	4.7%
1-Methylnaphthalene	124	150	82.7%	131	150	87.3%	5.5%
Acenaphthylene	124	150	82.7%	130	150	86.7%	4.7%
Acenaphthene	118	150	78.7%	122	150	81.3%	3.3%
Fluorene	126	150	84.0%	134	150	89.3%	6.2%
Phenanthrene	126	150	84.0%	135	150	90.0%	6.9%
Anthracene	136	150	90.7%	144	150	96.0%	5.7%
Fluoranthene	153	150	102%	165	150	110%	7.5%
Pyrene	152	150	101%	162	150	108%	6.4%
Benzo(a)anthracene	164	150	109%	170	150	113%	3.6%
Chrysene	137	150	91.3%	146	150	97.3%	6.4%
Benzo(a)pyrene	148	150	98.7%	160	150	107%	7.8%
Indeno(1,2,3-cd)pyrene	138	150	92.0%	146	150	97.3%	5.6%
Dibenz(a,h)anthracene	144	150	96.0%	152	150	101%	5.4%
Benzo(g,h,i)perylene	129	150	86.0%	135	150	90.0%	4.5%
Dibenzofuran	111	150	74.0%	118	150	78.7%	6.1%
Total Benzofluoranthenes	284	300	94.7%	306	300	102%	7.5%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

**SIM Semivolatile Surrogate Recovery**

	LCS	LCSD
d10-2-Methylnaphthalene	88.3%	89.3%
d14-Dibenzo(a,h)anthracen	98.7%	98.3%

**ORGANICS ANALYSIS DATA SHEET**

PNA's by SW8270D-SIM GC/MS

Page 1 of 1

Sample ID: VBK-BN-CS-SW8  
MATRIX SPIKE

Lab Sample ID: RH48I

LIMS ID: 10-18995

Matrix: Soil

Data Release Authorized: *[Signature]*

Reported: 08/11/10

QC Report No: RH48-DOF

Project: VERBEEK

Event: PSE-004

Date Sampled: 08/05/10

Date Received: 08/06/10

Date Extracted MS/MSD: 08/09/10

Sample Amount MS: 10.3 g-dry-wt

MSD: 10.3 g-dry-wt

Date Analyzed MS: 08/10/10 20:48

Final Extract Volume MS: 0.50 mL

MSD: 08/10/10 21:09

MSD: 0.50 mL

Instrument/Analyst MS: NT8/YZ

Dilution Factor MS: 1.00

MSD: NT8/YZ

MSD: 1.00

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Naphthalene	10.6	116	146	72.2%	126	146	79.0%	8.3%
2-Methylnaphthalene	5.3	128	146	84.0%	139	146	91.6%	8.2%
1-Methylnaphthalene	< 4.8 U	126	146	86.3%	131	146	89.7%	3.9%
Acenaphthylene	8.2	134	146	86.2%	140	146	90.3%	4.4%
Acenaphthene	< 4.8 U	115	146	78.8%	120	146	82.2%	4.3%
Fluorene	8.7	125	146	79.7%	131	146	83.8%	4.7%
Phenanthrene	88.5	140	146	35.3%	153	146	44.2%	8.9%
Anthracene	21.3	129	146	73.8%	138	146	79.9%	6.7%
Fluoranthene	88.5	240	146	104%	262	146	119%	8.8%
Pyrene	81.2	278	146	135%	286	146	140%	2.8%
Benzo(a)anthracene	26.6	178	146	104%	211	146	126%	17.0%
Chrysene	37.2	165	146	87.5%	194	146	107%	16.2%
Benzo(a)pyrene	49.3	226	146	121%	258	146	143%	13.2%
Indeno(1,2,3-cd)pyrene	27.1	165	146	94.5%	174	146	101%	5.3%
Dibenz(a,h)anthracene	7.7	127	146	81.7%	133	146	85.8%	4.6%
Benzo(g,h,i)perylene	41.6	179	146	94.1%	189	146	101%	5.4%
Dibenzofuran	< 4.8 U	108	146	74.0%	114	146	78.1%	5.4%
Total Benzofluoranthenes	54.2	324	292	92.4%	359	291	105%	10.2%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

August 13, 2010

Matt Dalton  
Dalton, Olmsted, & Fuglevand  
10827 NE 68th, Suite B  
Kirkland, WA 98033

**RE: Client Project: Verbeek – PSE-004**  
**ARI Job No.: RH92**

Dear Matt:

Please find enclosed the original Chain-of-Custody records (COC), sample receipt documentation, and the final analytical results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted four soil samples on August 10, 2010. For further details regarding sample receipt, refer to the enclosed Cooler Receipt Form.

The samples were analyzed for SIM PNAs, as requested on the COCs.

2-Methylnaphalene was outside the 20% control limit high in the continuing calibration (CCAL). All detected results associated with this CCAL have been flagged with a "Q" qualifier. No further corrective action was necessary.

There were no other anomalies associated with this analysis.

An electronic copy of this report 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.

*Sue Cunningham*  
- For -

Susan Dunninghoo  
Director, Client Services  
sue@arilabs.com  
206-695-6207

Enclosures

cc: eFile RH92

# Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: **RA92** Turn-around Requested: **2-DAY** Page: **1** of **1**

ARI Client Company: **WEX / PSE** Phone: **206 660 3466** Date: **8/10/10** Ice Present? **Yes**

Client Contact: **DAVID GORAN** Client Project Name: **VERBEN** No. of Coolers: **1** Cooler Temps: **9.2**



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				Notes/Comments
					PAHS	PCDDs	PCDFs	PCBs	
VSK-BS-BF-1	8/6/10	0800	SOIL	1	X				MAX < 0.1 mg/kg
VSK-BS-BF-2	8/9/10	1000		1	X				
VSK-BS-BF-3	8/9/10	1300		1	X				
VSK-BS-BF-4	8/10/10	1000		1	X				
Comments/Special Instructions									
Relinquished by: (Signature) <i>[Signature]</i>					Received by: (Signature) <i>[Signature]</i>				
Printed Name: <b>DAVID GORAN</b>					Printed Name: <b>NIRUKA TULUMBUN</b>				
Company: <b>WEX</b>					Company: <b>ARI</b>				
Date & Time: <b>8/10/10 1325</b>					Date & Time: <b>8/10/10 1325</b>				

**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.



# Cooler Receipt Form

ARI Client: Dof

Project Name: VERBEEK

COC No(s): \_\_\_\_\_ (NA)

Delivered by: Fed-Ex UPS Courier  Hand Delivered  Other: \_\_\_\_\_

Assigned ARI Job No: RH92

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)..... 9.2

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90877932

Cooler Accepted by: MM Date: 8/10/10 Time: 1325

**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: JM

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: 8/10/10 Time: 1330

**\*\* 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: \_\_\_\_\_

<p>Small Air Bubbles -2mm</p>	<p>Peabubbles 2-4 mm</p>	<p>LARGE Air Bubbles &gt; 4 mm</p>	<p>Small → "sm"</p> <p>Peabubbles → "pb"</p> <p>Large → "lg"</p> <p>Headspace → "hs"</p>
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# Cooler Temperature Compliance Form

RH92

Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type
VBK-BS-BF-1	1	8 oz jar
VBK-BS-BF-2	1	I
VBK-BS-BF-3	1	I
VBK-BS-BF-4	1	I

Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type

Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type

Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type

Completed by: JM Date: 8/10/10 Time: 1335



## Data Reporting Qualifiers

Effective 7/10/2009

### 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  $\geq$  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  $\leq 5$  times the Reporting Limit and the replicate control limit defaults to  $\pm 1$  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.
- 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  $\geq 40\%$  RPD with no obvious chromatographic interference

### **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

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

Sample ID: MB-081110  
METHOD BLANK

Lab Sample ID: MB-081110  
LIMS ID: 10-19279  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/12/10

QC Report No: RH92-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: NA  
Date Received: NA

Date Extracted: 08/11/10  
Date Analyzed: 08/12/10 10:41  
Instrument/Analyst: NT8/YZ  
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
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 88.3%  
d14-Dibenzo(a,h)anthracen 92.3%

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

Sample ID: VBK-BS-BF-1  
SAMPLE

Lab Sample ID: RH92A  
LIMS ID: 10-19279  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/12/10

QC Report No: RH92-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/06/10  
Date Received: 08/10/10

Date Extracted: 08/11/10  
Date Analyzed: 08/12/10 11:23  
Instrument/Analyst: NT8/YZ  
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: 6.1%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	7.6
91-57-6	2-Methylnaphthalene	4.8	< 4.8 U
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	15
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	42
129-00-0	Pyrene	4.8	58
56-55-3	Benzo (a) anthracene	4.8	17
218-01-9	Chrysene	4.8	20
50-32-8	Benzo (a) pyrene	4.8	30
193-39-5	Indeno (1,2,3-cd) pyrene	4.8	17
53-70-3	Dibenz (a, h) anthracene	4.8	< 4.8 U
191-24-2	Benzo (g, h, i) perylene	4.8	26
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	30


Reported in ug/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 84.3%  
d14-Dibenzo (a, h) anthracen 83.7%

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

Sample ID: VBK-BS-BF-2  
SAMPLE

Lab Sample ID: RH92B  
LIMS ID: 10-19280  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/12/10

QC Report No: RH92-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/06/10  
Date Received: 08/10/10

Date Extracted: 08/11/10  
Date Analyzed: 08/12/10 11:44  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.40 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 6.3%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	23
91-57-6	2-Methylnaphthalene	4.8	6.7 Q
90-12-0	1-Methylnaphthalene	4.8	4.8
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	50
120-12-7	Anthracene	4.8	5.8
206-44-0	Fluoranthene	4.8	64
129-00-0	Pyrene	4.8	62
56-55-3	Benzo (a) anthracene	4.8	17
218-01-9	Chrysene	4.8	22
50-32-8	Benzo (a) pyrene	4.8	20
193-39-5	Indeno (1,2,3-cd)pyrene	4.8	12
53-70-3	Dibenz (a,h) anthracene	4.8	< 4.8 U
191-24-2	Benzo (g,h,i) perylene	4.8	17
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	25


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 90.7%  
d14-Dibenzo (a,h) anthracen 79.7%

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

Sample ID: VBK-BS-BF-3  
SAMPLE

Lab Sample ID: RH92C  
LIMS ID: 10-19281  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/12/10

QC Report No: RH92-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/09/10  
Date Received: 08/10/10

Date Extracted: 08/11/10  
Date Analyzed: 08/12/10 12:05  
Instrument/Analyst: NT8/YZ  
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: 6.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	< 4.8 U
91-57-6	2-Methylnaphthalene	4.8	< 4.8 U
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	8.6
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	17
129-00-0	Pyrene	4.8	25
56-55-3	Benzo (a) anthracene	4.8	8.6
218-01-9	Chrysene	4.8	14
50-32-8	Benzo (a) pyrene	4.8	15
193-39-5	Indeno (1,2,3-cd) pyrene	4.8	9.1
53-70-3	Dibenz (a,h) anthracene	4.8	< 4.8 U
191-24-2	Benzo (g,h,i) perylene	4.8	13
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	20


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 87.3%  
d14-Dibenzo(a,h)anthracen 82.3%

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

Sample ID: VBK-BS-BF-4  
SAMPLE

Lab Sample ID: RH92D  
LIMS ID: 10-19282  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/12/10

QC Report No: RH92-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/10/10  
Date Received: 08/10/10

Date Extracted: 08/11/10  
Date Analyzed: 08/12/10 12:26  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.96 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 9.2%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 82.3%  
d14-Dibenzo(a,h)anthracen 85.0%



**SIM SW8270 SURROGATE RECOVERY SUMMARY**

Matrix: Soil

QC Report No: RH92-DOF  
Project: VERBEEK  
PSE-004

<u>Client ID</u>	<u>MNP</u>	<u>DBA</u>	<u>TOT OUT</u>
MB-081110	88.3%	92.3%	0
LCS-081110	97.0%	98.7%	0
VBK-BS-BF-1	84.3%	83.7%	0
VBK-BS-BF-2	90.7%	79.7%	0
VBK-BS-BF-3	87.3%	82.3%	0
VBK-BS-BF-4	82.3%	85.0%	0

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

Prep Method: SW3546  
Log Number Range: 10-19279 to 10-19282

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

Sample ID: LCS-081110  
LAB CONTROL SAMPLE

Lab Sample ID: LCS-081110  
LIMS ID: 10-19279  
Matrix: Soil  
Data Release Authorized: *RB*  
Reported: 08/12/10

QC Report No: RH92-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: NA  
Date Received: NA

Date Extracted: 08/11/10  
Date Analyzed LCS: 08/12/10 11:02  
Instrument/Analyst LCS: NT8/YZ

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
Naphthalene	115	150	76.7%
2-Methylnaphthalene	142 Q	150	94.7%
1-Methylnaphthalene	137	150	91.3%
Acenaphthylene	126	150	84.0%
Acenaphthene	118	150	78.7%
Fluorene	124	150	82.7%
Phenanthrene	129	150	86.0%
Anthracene	132	150	88.0%
Fluoranthene	153	150	102%
Pyrene	147	150	98.0%
Benzo(a)anthracene	156	150	104%
Chrysene	135	150	90.0%
Benzo(a)pyrene	143	150	95.3%
Indeno(1,2,3-cd)pyrene	133	150	88.7%
Dibenz(a,h)anthracene	138	150	92.0%
Benzo(g,h,i)perylene	124	150	82.7%
Dibenzofuran	112	150	74.7%
Total Benzofluoranthenes	271	300	90.3%

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 97.0%  
d14-Dibenzo(a,h)anthracen 98.7%



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

August 18, 2010

Matt Dalton  
Dalton, Olmsted, & Fuglevand  
10827 NE 68th, Suite B  
Kirkland, WA 98033

**RE: Client Project: Verbeek – PSE-004**  
**ARI Job No.: RI13**

Dear Matt:

Please find enclosed the original Chain-of-Custody records (COC), sample receipt documentation, and the final analytical results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted nine soil samples on August 11, 2010. For further details regarding sample receipt, refer to the enclosed Cooler Receipt Form.

The samples were analyzed for SIM PNAs, as requested on the COCs.

The August 17, 2010 continuing calibration (CCAL) for 2-Methylnaphthalene and Benzo(a)anthracene were outside the 20% control limit high. All detected results associated with this CCAL were flagged with a "Q" qualifier. No further corrective action was taken.

There were no other anomalies associated with this analysis.

An electronic copy of this report 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  
Project Manager

-For

Susan Dunninghoo  
Director, Client Services  
sue@arilabs.com  
206-695-6207

Enclosures

cc: eFile RI13

# Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: R113  
 ARI Client Company: DDF/ARF  
 Client Contact: DAVID BOORIN / MITT ORLOW  
 Client Project Name: VERUSEN  
 Client Project #: RF-004

Turn-around Requested: 2-DAY  
 Phone: 206 660 3466  
 Page: 1 of 1  
 Date: 8/11/10  
 No. of Coolers: 1  
 Ice Present? Yes  
 Cooler Temps: 8.0



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				Notes/Comments
					Relinquished by (Signature)	Relinquished by (Printed Name)	Relinquished by (Signature)	Relinquished by (Printed Name)	
VSK-SFS-CS-B1	8/11/10	1000	soil	1	<i>[Signature]</i>	Jennifer Millsap	ARI	8/11/10 1510	
VSK-BN-CS-SW3(R)		1015			X				MAL < 0.1 mg/kg
VSK-BN-CS-SW4(R)		1030			X				
VSK-B35-CS-B1		1045			X				
" -B2		1100			X				
" -B3		1115			X				
" -B4		1130			X				
" -B5		1200			X				
" -B6		1215			X				

**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.



# Cooler Receipt Form

ARI Client: DOF

Project Name: VERBEEK

COC No(s): \_\_\_\_\_ (NA)

Delivered by: Fed-Ex UPS Courier (Hand Delivered) Other: \_\_\_\_\_

Assigned ARI Job No: RI13

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)..... 8.0

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 9094619

Cooler Accepted by: JM Date: 8/11/10 Time: 1510

**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: AV Date: 8/11/10 Time: 1545

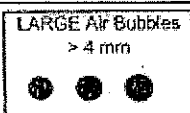
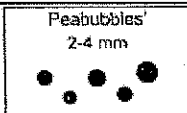
**\*\* Notify Project Manager of discrepancies or concerns \*\***

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"



# Cooler Temperature Compliance Form

RI13

Cooler#: <u>1</u>		Temperature(°C): <u>2.0</u>	
Sample ID	Bottle Count	Bottle Type	
All samples associated with this job arrived out of temp compliance.			

Cooler#: _____		Temperature(°C): _____	
Sample ID	Bottle Count	Bottle Type	

Cooler#: _____		Temperature(°C): _____	
Sample ID	Bottle Count	Bottle Type	

Cooler#: _____		Temperature(°C): _____	
Sample ID	Bottle Count	Bottle Type	

Completed by: AV Date: 2/11/10 Time: 1547



## Data Reporting Qualifiers

Effective 7/10/2009

### 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  $\geq$  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  $\leq 5$  times the Reporting Limit and the replicate control limit defaults to  $\pm 1$  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.
- 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  $\geq 40\%$  RPD with no obvious chromatographic interference

### **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



**ORGANICS ANALYSIS DATA SHEET**  
**PNA's by SIM SW8270D-SIM GC/MS**  
 Page 1 of 1

Sample ID: VBK-SP5-CS-B1  
 SAMPLE

Lab Sample ID: RI13A  
 LIMS ID: 10-19394  
 Matrix: Soil  
 Data Release Authorized:  
 Reported: 08/18/10

QC Report No: RI13-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: 08/11/10  
 Date Received: 08/11/10

Date Extracted: 08/17/10  
 Date Analyzed: 08/17/10 17:43  
 Instrument/Analyst: NT8/YZ  
 GPC Cleanup: No  
 Silica Gel Cleanup: Yes  
 Alumina Cleanup: No

Sample Amount: 11.06 g-dry-wt  
 Final Extract Volume: 0.5 mL  
 Dilution Factor: 1.00  
 Percent Moisture: 9.1%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.5	44
91-57-6	2-Methylnaphthalene	4.5	7.2 Q
90-12-0	1-Methylnaphthalene	4.5	5.0
208-96-8	Acenaphthylene	4.5	5.4
83-32-9	Acenaphthene	4.5	< 4.5 U
86-73-7	Fluorene	4.5	< 4.5 U
85-01-8	Phenanthrene	4.5	9.0
120-12-7	Anthracene	4.5	< 4.5 U
206-44-0	Fluoranthene	4.5	13
129-00-0	Pyrene	4.5	19
56-55-3	Benzo (a) anthracene	4.5	5.4 Q
218-01-9	Chrysene	4.5	6.8
50-32-8	Benzo (a) pyrene	4.5	13
193-39-5	Indeno (1,2,3-cd) pyrene	4.5	9.0
53-70-3	Dibenz (a,h) anthracene	4.5	< 4.5 U
191-24-2	Benzo (g,h,i) perylene	4.5	14
132-64-9	Dibenzofuran	4.5	< 4.5 U
TOTBFA	Total Benzofluoranthenes	4.5	13


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 55.0%  
 d14-Dibenzo(a,h)anthracene 64.3%

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

Sample ID: VBK-BN-CS-SW3 (R)  
SAMPLE

Lab Sample ID: RI13B  
LIMS ID: 10-19395  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/18/10

QC Report No: RI13-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/11/10  
Date Received: 08/11/10

Date Extracted: 08/17/10  
Date Analyzed: 08/17/10 18:04  
Instrument/Analyst: NT8/YZ  
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: 9.4%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo (a) anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo (a) pyrene	4.6	< 4.6 U
193-39-5	Indeno (1,2,3-cd) pyrene	4.6	< 4.6 U
53-70-3	Dibenz (a,h) anthracene	4.6	< 4.6 U
191-24-2	Benzo (g,h,i) perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 52.0%  
d14-Dibenzo (a,h) anthracen 58.3%

Lab Sample ID: RI13C  
LIMS ID: 10-19396  
Matrix: Soil  
Data Release Authorized: *AS*  
Reported: 08/18/10

QC Report No: RI13-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/11/10  
Date Received: 08/11/10

Date Extracted: 08/17/10  
Date Analyzed: 08/17/10 18:25  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.15 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 8.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.9	5.4
91-57-6	2-Methylnaphthalene	4.9	< 4.9 U
90-12-0	1-Methylnaphthalene	4.9	< 4.9 U
208-96-8	Acenaphthylene	4.9	< 4.9 U
83-32-9	Acenaphthene	4.9	< 4.9 U
86-73-7	Fluorene	4.9	< 4.9 U
85-01-8	Phenanthrene	4.9	< 4.9 U
120-12-7	Anthracene	4.9	< 4.9 U
206-44-0	Fluoranthene	4.9	< 4.9 U
129-00-0	Pyrene	4.9	< 4.9 U
56-55-3	Benzo(a)anthracene	4.9	< 4.9 U
218-01-9	Chrysene	4.9	< 4.9 U
50-32-8	Benzo(a)pyrene	4.9	< 4.9 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.9	< 4.9 U
53-70-3	Dibenz(a,h)anthracene	4.9	< 4.9 U
191-24-2	Benzo(g,h,i)perylene	4.9	< 4.9 U
132-64-9	Dibenzofuran	4.9	< 4.9 U
TOTBFA	Total Benzofluoranthenes	4.9	< 4.9 U


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene	61.7%
d14-Dibenzo(a,h)anthracen	65.0%

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

Sample ID: VBK-BS-CS-B1  
SAMPLE

Lab Sample ID: RI13D  
LIMS ID: 10-19397  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/18/10

QC Report No: RI13-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/11/10  
Date Received: 08/11/10

Date Extracted: 08/17/10  
Date Analyzed: 08/17/10 18:46  
Instrument/Analyst: NT8/YZ  
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: 25.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	14	4,500 E
91-57-6	2-Methylnaphthalene	14	47 Q
90-12-0	1-Methylnaphthalene	14	57
208-96-8	Acenaphthylene	14	< 14 U
83-32-9	Acenaphthene	14	< 14 U
86-73-7	Fluorene	14	< 14 U
85-01-8	Phenanthrene	14	51
120-12-7	Anthracene	14	< 14 U
206-44-0	Fluoranthene	14	72
129-00-0	Pyrene	14	87
56-55-3	Benzo (a) anthracene	14	41 Q
218-01-9	Chrysene	14	61
50-32-8	Benzo (a) pyrene	14	53
193-39-5	Indeno (1,2,3-cd) pyrene	14	36
53-70-3	Dibenz (a, h) anthracene	14	< 14 U
191-24-2	Benzo (g, h, i) perylene	14	51
132-64-9	Dibenzofuran	14	< 14 U
TOTBFA	Total Benzofluoranthenes	14	90


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 55.0%  
d14-Dibenzo(a,h)anthracen 57.0%

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

Sample ID: VBK-BS-CS-B1  
DILUTION

Lab Sample ID: RI13D  
LIMS ID: 10-19397  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/18/10

QC Report No: RI13-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/11/10  
Date Received: 08/11/10

Date Extracted: 08/17/10  
Date Analyzed: 08/18/10 12:16  
Instrument/Analyst: NT8/YZ  
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: 30.0  
Percent Moisture: 25.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	140	4,100
91-57-6	2-Methylnaphthalene	140	< 140 U
90-12-0	1-Methylnaphthalene	140	< 140 U
208-96-8	Acenaphthylene	140	< 140 U
83-32-9	Acenaphthene	140	< 140 U
86-73-7	Fluorene	140	< 140 U
85-01-8	Phenanthrene	140	< 140 U
120-12-7	Anthracene	140	< 140 U
206-44-0	Fluoranthene	140	< 140 U
129-00-0	Pyrene	140	< 140 U
56-55-3	Benzo(a)anthracene	140	< 140 U
218-01-9	Chrysene	140	< 140 U
50-32-8	Benzo(a)pyrene	140	< 140 U
193-39-5	Indeno(1,2,3-cd)pyrene	140	< 140 U
53-70-3	Dibenz(a,h)anthracene	140	< 140 U
191-24-2	Benzo(g,h,i)perylene	140	< 140 U
132-64-9	Dibenzofuran	140	< 140 U
TOTBFA	Total Benzofluoranthenes	140	< 140 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene D  
d14-Dibenzo(a,h)anthracen D

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

Sample ID: VBK-BS-CS-B2  
SAMPLE

Lab Sample ID: RI13E  
LIMS ID: 10-19398  
Matrix: Soil  
Data Release Authorized: *AB*  
Reported: 08/18/10

QC Report No: RI13-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/11/10  
Date Received: 08/11/10

Date Extracted: 08/17/10  
Date Analyzed: 08/17/10 19:08  
Instrument/Analyst: NT8/YZ  
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: 13.4%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	3,100 ES
91-57-6	2-Methylnaphthalene	4.7	73 Q
90-12-0	1-Methylnaphthalene	4.7	80
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	11
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	16
129-00-0	Pyrene	4.7	15
56-55-3	Benzo (a) anthracene	4.7	6.6 Q
218-01-9	Chrysene	4.7	9.8
50-32-8	Benzo (a) pyrene	4.7	7.5
193-39-5	Indeno (1,2,3-cd) pyrene	4.7	5.1
53-70-3	Dibenz (a,h) anthracene	4.7	< 4.7 U
191-24-2	Benzo (g,h,i) perylene	4.7	8.0
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	13


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene	56.7%
d14-Dibenzo(a,h)anthracen	63.3%

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

Sample ID: VBK-BS-CS-B2  
DILUTION

Lab Sample ID: RI13E  
LIMS ID: 10-19398  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/18/10

QC Report No: RI13-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/11/10  
Date Received: 08/11/10

Date Extracted: 08/17/10  
Date Analyzed: 08/18/10 12:37  
Instrument/Analyst: NT8/YZ  
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: 20.0  
Percent Moisture: 13.4%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	94	4,400
91-57-6	2-Methylnaphthalene	94	< 94 U
90-12-0	1-Methylnaphthalene	94	< 94 U
208-96-8	Acenaphthylene	94	< 94 U
83-32-9	Acenaphthene	94	< 94 U
86-73-7	Fluorene	94	< 94 U
85-01-8	Phenanthrene	94	< 94 U
120-12-7	Anthracene	94	< 94 U
206-44-0	Fluoranthene	94	< 94 U
129-00-0	Pyrene	94	< 94 U
56-55-3	Benzo(a)anthracene	94	< 94 U
218-01-9	Chrysene	94	< 94 U
50-32-8	Benzo(a)pyrene	94	< 94 U
193-39-5	Indeno(1,2,3-cd)pyrene	94	< 94 U
53-70-3	Dibenz(a,h)anthracene	94	< 94 U
191-24-2	Benzo(g,h,i)perylene	94	< 94 U
132-64-9	Dibenzofuran	94	< 94 U
TOTBFA	Total Benzofluoranthenes	94	< 94 U


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene D  
d14-Dibenzo(a,h)anthracen D

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

Sample ID: VBK-BS-CS-B3  
SAMPLE

Lab Sample ID: RI13F  
LIMS ID: 10-19399  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/18/10

QC Report No: RI13-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/11/10  
Date Received: 08/11/10

Date Extracted: 08/17/10  
Date Analyzed: 08/17/10 19:29  
Instrument/Analyst: NT8/YZ  
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: 10.7%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	12
91-57-6	2-Methylnaphthalene	4.7	41 Q
90-12-0	1-Methylnaphthalene	4.7	49
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	65
86-73-7	Fluorene	4.7	42
85-01-8	Phenanthrene	4.7	160
120-12-7	Anthracene	4.7	15
206-44-0	Fluoranthene	4.7	42
129-00-0	Pyrene	4.7	56
56-55-3	Benzo(a)anthracene	4.7	< 4.7 U
218-01-9	Chrysene	4.7	< 4.7 U
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
191-24-2	Benzo(g,h,i)perylene	4.7	< 4.7 U
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	< 4.7 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 64.0%  
d14-Dibenzo(a,h)anthracen 70.0%



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

Sample ID: VBK-BS-CS-B4  
SAMPLE

Lab Sample ID: RI13G  
LIMS ID: 10-19400  
Matrix: Soil  
Data Release Authorized: *[Signature]*  
Reported: 08/18/10

QC Report No: RI13-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/11/10  
Date Received: 08/11/10

Date Extracted: 08/17/10  
Date Analyzed: 08/17/10 19:50  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.37 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 8.2%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	260
91-57-6	2-Methylnaphthalene	4.8	40 Q
90-12-0	1-Methylnaphthalene	4.8	34
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	11
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	< 4.8 U
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	< 4.8 U
129-00-0	Pyrene	4.8	< 4.8 U
56-55-3	Benzo(a)anthracene	4.8	< 4.8 U
218-01-9	Chrysene	4.8	< 4.8 U
50-32-8	Benzo(a)pyrene	4.8	< 4.8 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	< 4.8 U
53-70-3	Dibenz(a,h)anthracene	4.8	< 4.8 U
191-24-2	Benzo(g,h,i)perylene	4.8	< 4.8 U
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	< 4.8 U


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 58.0%  
d14-Dibenzo(a,h)anthracen 63.0%

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

Sample ID: VBK-BS-CS-B5  
SAMPLE

Lab Sample ID: RI13H  
LIMS ID: 10-19401  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/18/10

QC Report No: RI13-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/11/10  
Date Received: 08/11/10

Date Extracted: 08/17/10  
Date Analyzed: 08/17/10 20:11  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.93 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 9.3%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	780 E
91-57-6	2-Methylnaphthalene	4.6	140 Q
90-12-0	1-Methylnaphthalene	4.6	130
208-96-8	Acenaphthylene	4.6	100
83-32-9	Acenaphthene	4.6	26
86-73-7	Fluorene	4.6	90
85-01-8	Phenanthrene	4.6	24
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	8.2
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 63.7%  
d14-Dibenzo(a,h)anthracen 67.3%

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

Sample ID: VBK-BS-CS-B5  
DILUTION

Lab Sample ID: RI13H  
LIMS ID: 10-19401  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/18/10

QC Report No: RI13-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/11/10  
Date Received: 08/11/10

Date Extracted: 08/17/10  
Date Analyzed: 08/18/10 12:58  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.93 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 10.0  
Percent Moisture: 9.3%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	46	810
91-57-6	2-Methylnaphthalene	46	130
90-12-0	1-Methylnaphthalene	46	140
208-96-8	Acenaphthylene	46	100
83-32-9	Acenaphthene	46	< 46 U
86-73-7	Fluorene	46	87
85-01-8	Phenanthrene	46	< 46 U
120-12-7	Anthracene	46	< 46 U
206-44-0	Fluoranthene	46	< 46 U
129-00-0	Pyrene	46	< 46 U
56-55-3	Benzo(a)anthracene	46	< 46 U
218-01-9	Chrysene	46	< 46 U
50-32-8	Benzo(a)pyrene	46	< 46 U
193-39-5	Indeno(1,2,3-cd)pyrene	46	< 46 U
53-70-3	Dibenz(a,h)anthracene	46	< 46 U
191-24-2	Benzo(g,h,i)perylene	46	< 46 U
132-64-9	Dibenzofuran	46	< 46 U
TOTBFA	Total Benzofluoranthenes	46	< 46 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 63.3%  
d14-Dibenzo(a,h)anthracen 63.3%

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

Sample ID: VBK-BS-CS-B6  
SAMPLE

Lab Sample ID: RI13I  
LIMS ID: 10-19402  
Matrix: Soil  
Data Release Authorized: *AS*  
Reported: 08/18/10

QC Report No: RI13-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/11/10  
Date Received: 08/11/10

Date Extracted: 08/17/10  
Date Analyzed: 08/17/10 20:32  
Instrument/Analyst: NT8/YZ  
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: 9.3%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.5	630 E
91-57-6	2-Methylnaphthalene	4.5	100 Q
90-12-0	1-Methylnaphthalene	4.5	140
208-96-8	Acenaphthylene	4.5	6.8
83-32-9	Acenaphthene	4.5	110
86-73-7	Fluorene	4.5	8.2
85-01-8	Phenanthrene	4.5	< 4.5 U
120-12-7	Anthracene	4.5	< 4.5 U
206-44-0	Fluoranthene	4.5	< 4.5 U
129-00-0	Pyrene	4.5	< 4.5 U
56-55-3	Benzo(a)anthracene	4.5	< 4.5 U
218-01-9	Chrysene	4.5	< 4.5 U
50-32-8	Benzo(a)pyrene	4.5	< 4.5 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.5	< 4.5 U
53-70-3	Dibenz(a,h)anthracene	4.5	< 4.5 U
191-24-2	Benzo(g,h,i)perylene	4.5	< 4.5 U
132-64-9	Dibenzofuran	4.5	< 4.5 U
TOTBFA	Total Benzofluoranthenes	4.5	< 4.5 U


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 60.0%  
d14-Dibenzo(a,h)anthracen 62.3%

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

Sample ID: VBK-BS-CS-B6  
DILUTION

Lab Sample ID: RI13I  
LIMS ID: 10-19402  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/18/10

QC Report No: RI13-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/11/10  
Date Received: 08/11/10

Date Extracted: 08/17/10  
Date Analyzed: 08/18/10 13:19  
Instrument/Analyst: NT8/YZ  
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: 10.0  
Percent Moisture: 9.3%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	45	640
91-57-6	2-Methylnaphthalene	45	100
90-12-0	1-Methylnaphthalene	45	140
208-96-8	Acenaphthylene	45	< 45 U
83-32-9	Acenaphthene	45	120
86-73-7	Fluorene	45	< 45 U
85-01-8	Phenanthrene	45	< 45 U
120-12-7	Anthracene	45	< 45 U
206-44-0	Fluoranthene	45	< 45 U
129-00-0	Pyrene	45	< 45 U
56-55-3	Benzo(a)anthracene	45	< 45 U
218-01-9	Chrysene	45	< 45 U
50-32-8	Benzo(a)pyrene	45	< 45 U
193-39-5	Indeno(1,2,3-cd)pyrene	45	< 45 U
53-70-3	Dibenz(a,h)anthracene	45	< 45 U
191-24-2	Benzo(g,h,i)perylene	45	< 45 U
132-64-9	Dibenzofuran	45	< 45 U
TOTBFA	Total Benzofluoranthenes	45	< 45 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 53.3%  
d14-Dibenzo(a,h)anthracen 60.0%

**SIM SW8270 SURROGATE RECOVERY SUMMARY**

Matrix: Soil

QC Report No: RI13-DOF  
Project: Verbeek  
PSE-004

<u>Client ID</u>	<u>MNP</u>	<u>DBA</u>	<u>TOT OUT</u>
MB-081710	74.0%	76.3%	0
LCS-081710	77.7%	89.0%	0
LCSD-081710	67.7%	73.7%	0
VBK-SP5-CS-B1	55.0%	64.3%	0
VBK-BN-CS-SW3 (R)	52.0%	58.3%	0
VBK-BN-CS-SW4 (R)	61.7%	65.0%	0
VBK-BS-CS-B1	55.0%	57.0%	0
VBK-BS-CS-B1 DL	D	D	0
VBK-BS-CS-B2	56.7%	63.3%	0
VBK-BS-CS-B2 DL	D	D	0
VBK-BS-CS-B3	64.0%	70.0%	0
VBK-BS-CS-B4	58.0%	63.0%	0
VBK-BS-CS-B5	63.7%	67.3%	0
VBK-BS-CS-B5 DL	63.3%	63.3%	0
VBK-BS-CS-B6	60.0%	62.3%	0
VBK-BS-CS-B6 DL	53.3%	60.0%	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: 10-19394 to 10-19402

**ORGANICS ANALYSIS DATA SHEET**

PNAs by SW8270D-SIM GC/MS

Page 1 of 1

Sample ID: LCS-081710

LAB CONTROL SAMPLE

Lab Sample ID: LCS-081710

LIMS ID: 10-19394

Matrix: Soil

Data Release Authorized:

Reported: 08/18/10

QC Report No: RI13-DOF

Project: Verbeek

Event: PSE-004

Date Sampled: NA

Date Received: NA

Date Extracted: 08/17/10

Sample Amount LCS: 10.0 g-dry-wt

LCS D: 10.0 g-dry-wt

Date Analyzed LCS: 08/17/10 17:01

Final Extract Volume LCS: 0.50 mL

LCS D: 08/17/10 17:22

LCS D: 0.50 mL

Instrument/Analyst LCS: NT8/YZ

Dilution Factor LCS: 1.00

LCS D: NT8/YZ

LCS D: 1.00

Analyte	LCS			LCS D			RPD
	LCS	Spike Added-LCS	LCS Recovery	LCS D	Spike Added-LCS D	LCS D Recovery	
Naphthalene	95.0	150	63.3%	86.0	150	57.3%	9.9%
2-Methylnaphthalene	112 Q	150	74.7%	102 Q	150	68.0%	9.3%
1-Methylnaphthalene	116	150	77.3%	100	150	66.7%	14.8%
Acenaphthylene	110	150	73.3%	99.0	150	66.0%	10.5%
Acenaphthene	105	150	70.0%	91.0	150	60.7%	14.3%
Fluorene	111	150	74.0%	97.0	150	64.7%	13.5%
Phenanthrene	119	150	79.3%	94.5	150	63.0%	23.0%
Anthracene	128	150	85.3%	102	150	68.0%	22.6%
Fluoranthene	151	150	101%	122	150	81.3%	21.2%
Pyrene	136	150	90.7%	116	150	77.3%	15.9%
Benzo(a)anthracene	150 Q	150	100%	130 Q	150	86.7%	14.3%
Chrysene	122	150	81.3%	108	150	72.0%	12.2%
Benzo(a)pyrene	142	150	94.7%	112	150	74.7%	23.6%
Indeno(1,2,3-cd)pyrene	127	150	84.7%	102	150	68.0%	21.8%
Dibenz(a,h)anthracene	131	150	87.3%	105	150	70.0%	22.0%
Benzo(g,h,i)perylene	120	150	80.0%	98.0	150	65.3%	20.2%
Dibenzofuran	99.5	150	66.3%	85.0	150	56.7%	15.7%
Total Benzofluoranthenes	258	300	86.0%	209	300	69.7%	21.0%

Reported in µg/kg (ppb)


RPD calculated using sample concentrations per SW846.

**SIM Semivolatile Surrogate Recovery**

	LCS	LCS D
d10-2-Methylnaphthalene	77.7%	67.7%
d14-Dibenzo(a,h)anthracene	89.0%	73.7%

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

Sample ID: MB-081710  
METHOD BLANK

Lab Sample ID: MB-081710  
LIMS ID: 10-19394  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/18/10

QC Report No: RI13-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: NA  
Date Received: NA

Date Extracted: 08/17/10  
Date Analyzed: 08/17/10 16:40  
Instrument/Analyst: NT8/YZ  
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
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 74.0%  
d14-Dibenzo(a,h)anthracen 76.3%





**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

August 20, 2010

Matt Dalton  
Dalton, Olmsted, & Fuglevand  
10827 NE 68th, Suite B  
Kirkland, WA 98033

**RE: Client Project: Verbeek – PSE-004**  
**ARI Job No.: RI87**

Dear Matt:

Please find enclosed the original Chain-of-Custody records (COC), sample receipt documentation, and the final analytical results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted nine soil samples on August 16, 2010. For further details regarding sample receipt, refer to the enclosed Cooler Receipt Form.

The samples were analyzed for SIM PNAs, as requested on the COC.

There were no anomalies associated with this analysis.

An electronic copy of this report 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.

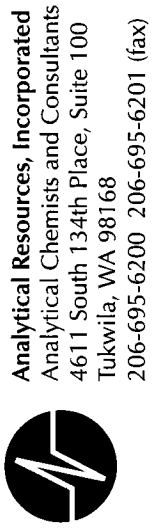
*Sue Dunniho*  
*- AR -*  
Susan Dunniho  
Director, Client Services  
sue@arilabs.com  
206-695-6207

Enclosures

cc: eFile RI87

# Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: R187 Turn-around Requested: 2-DM  
 ARI Client Company: RY/ASE Phone: 206-660-3466  
 Client Contact: DANA GOORN / MATT ANDERSON  
 Client Project Name: VERIGEEK  
 Client Project #: ASE-006



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				Notes/Comments
					Ice Present?	Cooler Temps.	No. of Coolers	Date	
VBK-B5-BF-65	8/12	1000	SAL	1	Y	1.9	1	8/16/10	MAX 20.1 mg/kg
VBK-B5-BF-6	8/13	1100			Y				
VBK-B5-C5-B9	8/16	1000			Y				
" - B10		1015			Y				
" - B11		1030			Y				
" - B12		1045			Y				
" - SW2		1100			Y				
" - SW3		1115			Y				
" - SW4	8/16	1130			Y				
Comments/Special Instructions	Relinquished by: (Signature) <u>D. Goorn</u> Printed Name: <u>D. Goorn</u> Company: <u>ARI</u> Date & Time: <u>8/16/10 1500</u>				Relinquished by: (Signature) <u>[Signature]</u> Printed Name: <u>A. Volgardsen</u> Company: <u>ARI</u> Date & Time: <u>8/16/10 1500</u>				Received by: (Signature) <u>[Signature]</u> Printed Name: <u>[Signature]</u> Company: <u>[Signature]</u> Date & Time: <u>[Signature]</u>

**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.



# Cooler Receipt Form

ARI Client: DOF

Project Name: VERBEEK

COC No(s): \_\_\_\_\_ (NA)

Delivered by: Fed-Ex UPS Courier (Hand Delivered) Other: \_\_\_\_\_

Assigned ARI Job No: R182

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)..... 1.9

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 91077982

Cooler Accepted by: AV Date: 8/16/10 Time: 1500

**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 :  YES Date/Time: \_\_\_\_\_ Equipment: \_\_\_\_\_ Split by: \_\_\_\_\_

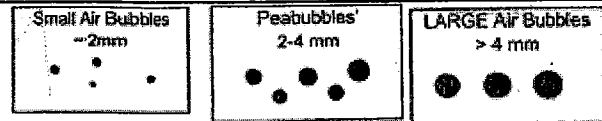
Samples Logged by: JM Date: 8/16/10 Time: 1626

**\*\* 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"



## Data Reporting Qualifiers

Effective 7/10/2009

### 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  $\geq$  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  $\leq 5$  times the Reporting Limit and the replicate control limit defaults to  $\pm 1$  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.
- 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  $\geq 40\%$  RPD with no obvious chromatographic interference

### **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

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

Sample ID: MB-081810  
METHOD BLANK

Lab Sample ID: MB-081810  
LIMS ID: 10-19950  
Matrix: Soil  
Data Release Authorized: *[Signature]*  
Reported: 08/19/10

QC Report No: RI87-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: NA  
Date Received: NA

Date Extracted: 08/18/10  
Date Analyzed: 08/18/10 14:46  
Instrument/Analyst: NT8/YZ  
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
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 62.7%  
d14-Dibenzo(a,h)anthracen 73.7%

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

Sample ID: VBK-BS-BF-5  
SAMPLE

Lab Sample ID: RI87A  
LIMS ID: 10-19950  
Matrix: Soil  
Data Release Authorized: *[Signature]*  
Reported: 08/19/10

QC Report No: RI87-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/12/10  
Date Received: 08/16/10

Date Extracted: 08/18/10  
Date Analyzed: 08/18/10 15:49  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.90 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 10.1%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 52.0%  
d14-Dibenzo(a,h)anthracen 60.3%

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

Sample ID: VBK-BS-BF-6  
SAMPLE

Lab Sample ID: RI87B  
LIMS ID: 10-19951  
Matrix: Soil  
Data Release Authorized:  
Reported: 08/19/10

QC Report No: RI87-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/13/10  
Date Received: 08/16/10

Date Extracted: 08/18/10  
Date Analyzed: 08/18/10 16:10  
Instrument/Analyst: NT8/YZ  
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: 9.8%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U

Reported in µg/kg (ppb)


**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 63.7%  
d14-Dibenzo(a,h)anthracen 71.0%



ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BS-CS-B9  
SAMPLE

Lab Sample ID: RI87C  
LIMS ID: 10-19952  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/19/10

QC Report No: RI87-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/16/10  
Date Received: 08/16/10

Date Extracted: 08/18/10  
Date Analyzed: 08/18/10 16:31  
Instrument/Analyst: NT8/YZ  
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: 12.1%

CAS Number	Analyte	RL	Result
91-20-3	<b>Naphthalene</b>	<b>4.7</b>	<b>5.6</b>
91-57-6	2-Methylnaphthalene	4.7	< 4.7 U
90-12-0	1-Methylnaphthalene	4.7	< 4.7 U
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
<b>85-01-8</b>	<b>Phenanthrene</b>	<b>4.7</b>	<b>10</b>
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	< 4.7 U
129-00-0	Pyrene	4.7	< 4.7 U
56-55-3	Benzo(a)anthracene	4.7	< 4.7 U
218-01-9	Chrysene	4.7	< 4.7 U
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
191-24-2	Benzo(g,h,i)perylene	4.7	< 4.7 U
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	< 4.7 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 59.0%  
d14-Dibenzo(a,h)anthracen 64.7%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BS-CS-B10  
SAMPLE

Lab Sample ID: RI87D  
LIMS ID: 10-19953  
Matrix: Soil  
Data Release Authorized: *AB*  
Reported: 08/19/10

QC Report No: RI87-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/16/10  
Date Received: 08/16/10

Date Extracted: 08/18/10  
Date Analyzed: 08/18/10 16:52  
Instrument/Analyst: NT8/YZ  
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: 15.8%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	220
91-57-6	2-Methylnaphthalene	4.8	< 4.8 U
90-12-0	1-Methylnaphthalene	4.8	17
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	< 4.8 U
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	< 4.8 U
129-00-0	Pyrene	4.8	< 4.8 U
56-55-3	Benzo(a)anthracene	4.8	< 4.8 U
218-01-9	Chrysene	4.8	< 4.8 U
50-32-8	Benzo(a)pyrene	4.8	< 4.8 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	< 4.8 U
53-70-3	Dibenz(a,h)anthracene	4.8	< 4.8 U
191-24-2	Benzo(g,h,i)perylene	4.8	< 4.8 U
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	< 4.8 U


Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 71.7%  
d14-Dibenzo(a,h)anthracen 72.3%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BS-CS-B11  
SAMPLE

Lab Sample ID: RI87E  
LIMS ID: 10-19954  
Matrix: Soil  
Data Release Authorized:   
Reported: 08/19/10

QC Report No: RI87-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/16/10  
Date Received: 08/16/10

Date Extracted: 08/18/10  
Date Analyzed: 08/18/10 17:13  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 11.06 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 9.8%

CAS Number	Analyte	RL	Result
91-20-3	<b>Naphthalene</b>	<b>4.5</b>	<b>47</b>
91-57-6	2-Methylnaphthalene	4.5	< 4.5 U
90-12-0	<b>1-Methylnaphthalene</b>	<b>4.5</b>	<b>10</b>
208-96-8	Acenaphthylene	4.5	< 4.5 U
83-32-9	Acenaphthene	4.5	< 4.5 U
86-73-7	Fluorene	4.5	< 4.5 U
85-01-8	Phenanthrene	4.5	< 4.5 U
120-12-7	Anthracene	4.5	< 4.5 U
206-44-0	Fluoranthene	4.5	< 4.5 U
129-00-0	<b>Pyrene</b>	<b>4.5</b>	<b>5.4</b>
56-55-3	Benzo(a)anthracene	4.5	< 4.5 U
218-01-9	Chrysene	4.5	< 4.5 U
50-32-8	Benzo(a)pyrene	4.5	< 4.5 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.5	< 4.5 U
53-70-3	Dibenz(a,h)anthracene	4.5	< 4.5 U
191-24-2	Benzo(g,h,i)perylene	4.5	< 4.5 U
132-64-9	Dibenzofuran	4.5	< 4.5 U
TOTBFA	Total Benzofluoranthenes	4.5	< 4.5 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 64.7%  
d14-Dibenzo(a,h)anthracene 60.7%

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

Sample ID: VBK-BS-CS-B12  
SAMPLE

Lab Sample ID: RI87F  
LIMS ID: 10-19955  
Matrix: Soil  
Data Release Authorized: *B*  
Reported: 08/19/10

QC Report No: RI87-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/16/10  
Date Received: 08/16/10

Date Extracted: 08/18/10  
Date Analyzed: 08/18/10 17:34  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 11.02 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 10.1%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.5	130
91-57-6	2-Methylnaphthalene	4.5	20
90-12-0	1-Methylnaphthalene	4.5	21
208-96-8	Acenaphthylene	4.5	7.3
83-32-9	Acenaphthene	4.5	5.4
86-73-7	Fluorene	4.5	6.8
85-01-8	Phenanthrene	4.5	55
120-12-7	Anthracene	4.5	11
206-44-0	Fluoranthene	4.5	68
129-00-0	Pyrene	4.5	91
56-55-3	Benzo (a) anthracene	4.5	38
218-01-9	Chrysene	4.5	45
50-32-8	Benzo (a) pyrene	4.5	47
193-39-5	Indeno (1,2,3-cd) pyrene	4.5	24
53-70-3	Dibenz (a,h) anthracene	4.5	10
191-24-2	Benzo (g,h,i) perylene	4.5	31
132-64-9	Dibenzofuran	4.5	5.4
TOTBFA	Total Benzofluoranthenes	4.5	59

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 63.0%  
d14-Dibenzo (a,h) anthracen 71.0%

ORGANICS ANALYSIS DATA SHEET  
PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BS-CS-SW2  
SAMPLE

Lab Sample ID: RI87G  
LIMS ID: 10-19956  
Matrix: Soil  
Data Release Authorized: *AB*  
Reported: 08/19/10

QC Report No: RI87-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/16/10  
Date Received: 08/16/10

Date Extracted: 08/18/10  
Date Analyzed: 08/18/10 17:55  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.09 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 8.6%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 71.3%  
d14-Dibenzo(a,h)anthracen 63.7%

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

Sample ID: VBK-BS-CS-SW3  
SAMPLE

Lab Sample ID: RI87H  
LIMS ID: 10-19957  
Matrix: Soil  
Data Release Authorized: *AS*  
Reported: 08/19/10

QC Report No: RI87-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/16/10  
Date Received: 08/16/10

Date Extracted: 08/18/10  
Date Analyzed: 08/18/10 18:16  
Instrument/Analyst: NT8/YZ  
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: 19.3%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	< 4.7 U
91-57-6	2-Methylnaphthalene	4.7	< 4.7 U
90-12-0	1-Methylnaphthalene	4.7	< 4.7 U
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	< 4.7 U
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	< 4.7 U
129-00-0	Pyrene	4.7	< 4.7 U
56-55-3	Benzo(a)anthracene	4.7	< 4.7 U
218-01-9	Chrysene	4.7	< 4.7 U
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
191-24-2	Benzo(g,h,i)perylene	4.7	< 4.7 U
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	< 4.7 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 63.3%  
d14-Dibenzo(a,h)anthracen 62.3%

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

Sample ID: VBK-BS-CS-SW4  
SAMPLE

Lab Sample ID: RI87I  
LIMS ID: 10-19958  
Matrix: Soil  
Data Release Authorized: *AB*  
Reported: 08/19/10

QC Report No: RI87-DOF  
Project: VERBEEK  
Event: PSE-004  
Date Sampled: 08/16/10  
Date Received: 08/16/10

Date Extracted: 08/18/10  
Date Analyzed: 08/18/10 18:37  
Instrument/Analyst: NT8/YZ  
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: 15.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	9.1
91-57-6	2-Methylnaphthalene	4.8	4.8
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	8.6
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	10
129-00-0	Pyrene	4.8	17
56-55-3	Benzo (a) anthracene	4.8	4.8
218-01-9	Chrysene	4.8	5.7
50-32-8	Benzo (a) pyrene	4.8	6.2
193-39-5	Indeno (1,2,3-cd) pyrene	4.8	4.8
53-70-3	Dibenz (a,h) anthracene	4.8	< 4.8 U
191-24-2	Benzo (g,h,i) perylene	4.8	8.1
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	9.1

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 70.3%  
d14-Dibenzo(a,h)anthracen 66.3%

**SIM SW8270 SURROGATE RECOVERY SUMMARY**

Matrix: Soil

QC Report No: RI87-DOF  
Project: VERBEEK  
PSE-004

<u>Client ID</u>	<u>MNP</u>	<u>DBA</u>	<u>TOT OUT</u>
MB-081810	62.7%	73.7%	0
LCS-081810	74.7%	76.7%	0
LCSD-081810	77.0%	78.0%	0
VBK-BS-BF-5	52.0%	60.3%	0
VBK-BS-BF-6	63.7%	71.0%	0
VBK-BS-CS-B9	59.0%	64.7%	0
VBK-BS-CS-B10	71.7%	72.3%	0
VBK-BS-CS-B11	64.7%	60.7%	0
VBK-BS-CS-B12	63.0%	71.0%	0
VBK-BS-CS-SW2	71.3%	63.7%	0
VBK-BS-CS-SW3	63.3%	62.3%	0
VBK-BS-CS-SW4	70.3%	66.3%	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: 10-19950 to 10-19958



**ORGANICS ANALYSIS DATA SHEET**

**PNA's by SW8270D-SIM GC/MS**

Page 1 of 1

**Sample ID: LCS-081810**

**LAB CONTROL SAMPLE**

Lab Sample ID: LCS-081810

LIMS ID: 10-19950

Matrix: Soil

Data Release Authorized: *AS*

Reported: 08/19/10

QC Report No: RI87-DOF

Project: VERBEEK

Event: PSE-004

Date Sampled: NA

Date Received: NA

Date Extracted: 08/18/10

Sample Amount LCS: 10.0 g-dry-wt

LCSD: 10.0 g-dry-wt

Date Analyzed LCS: 08/18/10 15:07

Final Extract Volume LCS: 0.50 mL

LCSD: 08/18/10 15:28

LCSD: 0.50 mL

Instrument/Analyst LCS: NT8/YZ

Dilution Factor LCS: 1.00

LCSD: NT8/YZ

LCSD: 1.00

Analyte	LCS	Spike		LCS	LCSD	Spike		RPD
		Added-LCS	Recovery			Added-LCSD	Recovery	
Naphthalene	95.5	150	63.7%	96.0	150	64.0%	0.5%	
2-Methylnaphthalene	104	150	69.3%	113	150	75.3%	8.3%	
1-Methylnaphthalene	104	150	69.3%	112	150	74.7%	7.4%	
Acenaphthylene	104	150	69.3%	110	150	73.3%	5.6%	
Acenaphthene	97.5	150	65.0%	102	150	68.0%	4.5%	
Fluorene	102	150	68.0%	110	150	73.3%	7.5%	
Phenanthrene	100	150	66.7%	109	150	72.7%	8.6%	
Anthracene	103	150	68.7%	112	150	74.7%	8.4%	
Fluoranthene	116	150	77.3%	128	150	85.3%	9.8%	
Pyrene	124	150	82.7%	132	150	88.0%	6.2%	
Benzo(a)anthracene	126	150	84.0%	136	150	90.7%	7.6%	
Chrysene	106	150	70.7%	111	150	74.0%	4.6%	
Benzo(a)pyrene	118	150	78.7%	127	150	84.7%	7.3%	
Indeno(1,2,3-cd)pyrene	106	150	70.7%	112	150	74.7%	5.5%	
Dibenz(a,h)anthracene	108	150	72.0%	115	150	76.7%	6.3%	
Benzo(g,h,i)perylene	99.5	150	66.3%	106	150	70.7%	6.3%	
Dibenzofuran	92.5	150	61.7%	98.5	150	65.7%	6.3%	
Total Benzofluoranthenes	220	300	73.3%	239	300	79.7%	8.3%	

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

**SIM Semivolatile Surrogate Recovery**

	LCS	LCSD
d10-2-Methylnaphthalene	74.7%	77.0%
d14-Dibenzo(a,h)anthracene	76.7%	78.0%



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

August 25, 2010

Matt Dalton  
Dalton, Olmsted, & Fuglevand  
10827 NE 68th, Suite B  
Kirkland, WA 98033

**RE: Client Project: Verbeek – PSE-004**  
**ARI Job No.: RJ00**

Dear Matt:

Please find enclosed the original Chain-of-Custody (COC) records, sample receipt documentation, and the final analytical results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted fourteen soil samples on August 17, 2010. For further details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for SIM PNAs, as requested on the COCs.

The continuing calibration of Benzo(a)anthracene was outside the 20% control limit high for the initial SIM PNA analysis. All detected results for this compound on the date of analysis have been flagged with a "Q" qualifier. No further corrective action was taken.

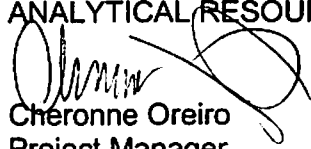
The continuing calibration of 2-Methylnaphthalene, 1-Methylnaphthalene, and Benzo(a)anthracene were outside the 20% control limit high for the dilution SIM PNA analysis. All detected results for these compounds on the date of analysis have been flagged with a "Q" qualifier. No further corrective action was taken.

There were no other anomalies associated with this analysis.

An electronic copy of this report 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  
Project Manager

-For-

Susan Dunnihoo  
Director, Client Services  
sue@arilabs.com  
206-695-6207

Enclosures

cc: eFile RJ00

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# 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: <b>R300</b>	Turn-around Requested: <b>2 DAY</b>	Page: <b>1</b> of <b>2</b>
ARI Client Company: <b>DOF - PSE</b>	Phone: <b>206 660 3466</b>	Date: <b>8/17/10</b>
Client Contact: <b>DAVID COOPER / MATT HUDSON</b>		Ice Present? <b></b>
Client Project Name: <b>VENUEX</b>		No. of Coolers: <b></b>
Client Project #: <b>PSE-004</b>	Samplers: <b>DL Cooper</b>	Cooler Temps: <b></b>

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested						Notes/Comments	
					PAHs	PCBs	PCDDs	PCDFs	SVOCs	VOCs		
MSK-BS-CS-SW1	8/17/10	0945	SOIL	1	X							ML < 0.1 mg/kg
-SW5		1130			X							
-SW6		1145			X							
-SW7		1200			X							
-B7		0900			X							
-B8		0915			X							
-B13		0930			X							
-B14		0945			X							
-B15		1000			X							
-B16		1015			X							

Comments/Special Instructions	Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature) <i>[Signature]</i>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: <b>DL Cooper</b>	Printed Name: <b>Rich Hudson</b>	Printed Name:	Printed Name:
	Company: <b>DOF</b>	Company: <b>ARI</b>	Company:	Company:
	Date & Time: <b>8/17/10 1215</b>	Date & Time: <b>8/17/10 1215</b>	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, notwithstanding 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.

R300:00002

# 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: <b>2-DAY</b>	Page: <b>2</b> of <b>2</b>
ARI Client Company: <b>DOF/ARL</b>	Phone: <b>206 660 3466</b>	Date: <b>8/17/10</b> Ice Present?
Client Contact: <b>DANA COOPER / MATT NELSON</b>	No. of Coolers:	Cooler Temps:

Client Project Name: <b>VX20454</b>	Analysis Requested	Notes/Comments
Client Project #: <b>ARL-001</b>		
Samplers: <b>DG Cooper</b>		

Sample ID	Date	Time	Matrix	No. Containers	PAHS	BZD	SIM											
VXK-BS-CS-B17	8/17/10	1030	SOIL	1	X													MDL < 0.1 mg/kg
↓ - B18	↓	1045	↓	↓	X													↓
↓ - B19	↓	1100	↓	↓	X													↓
↓ - B20	↓	1115	↓	↓	X													↓

Comments/Special Instructions	Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature) <i>[Signature]</i>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: <b>DG Cooper</b>	Printed Name: <b>Rich Hudson</b>	Printed Name:	Printed Name:
	Company: <b>DOF</b>	Company: <b>ARI</b>	Company:	Company:
	Date & Time: <b>8/17/10 1215</b>	Date & Time: <b>8/17/10 1215</b>	Date & Time:	Date & Time:

R100:00003

**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, notwithstanding 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.



# Cooler Receipt Form

ARI Client: DOF - PSE

Project Name: Verbeek

COC No(s): \_\_\_\_\_ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: RJ00

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)..... 15.9

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 908 77952

Cooler Accepted by: [Signature] Date: 8/17/10 Time: 1350

**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: AV Date: 8/17/10 Time: 1450

**\*\* 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: \_\_\_\_\_

<p>Small Air Bubbles -2mm</p>	<p>Peabubbles 2-4 mm</p>	<p>LARGE Air Bubbles &gt; 4 mm</p>	Small → "sm" Peabubbles → "pb" Large → "lg" Headspace → "hs"
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# Cooler Temperature Compliance Form

RJ00

Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type
All samples associated with this job arrived out of temp compliance.		

Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type

Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type

Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type

Completed by: AV Date: 8/14/10 Time: 1451



## Data Reporting Qualifiers

Effective 7/10/2009

### 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  $\geq$  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  $\leq 5$  times the Reporting Limit and the replicate control limit defaults to  $\pm 1$  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.
- 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  $\geq 40\%$  RPD with no obvious chromatographic interference

### 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



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

Sample ID: VBK-BS-CS-SW1  
SAMPLE

Lab Sample ID: RJ00A  
LIMS ID: 10-20068  
Matrix: Soil  
Data Release Authorized: *VTS*  
Reported: 08/20/10

QC Report No: RJ00-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/17/10  
Date Received: 08/17/10

Date Extracted: 08/19/10  
Date Analyzed: 08/19/10 16:10  
Instrument/Analyst: NT8/YZ  
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: 5.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	< 4.7 U
91-57-6	2-Methylnaphthalene	4.7	< 4.7 U
90-12-0	1-Methylnaphthalene	4.7	< 4.7 U
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	< 4.7 U
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	< 4.7 U
129-00-0	Pyrene	4.7	< 4.7 U
56-55-3	Benzo(a)anthracene	4.7	< 4.7 U
218-01-9	Chrysene	4.7	< 4.7 U
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
191-24-2	Benzo(g,h,i)perylene	4.7	< 4.7 U
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	< 4.7 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 78.0%  
d14-Dibenzo(a,h)anthracen 77.7%

**ORGANICS ANALYSIS DATA SHEET**  
**PNA's by SIM SW8270D-SIM GC/MS**  
 Page 1 of 1

**Sample ID: VBK-BS-CS-SW5**  
**SAMPLE**

Lab Sample ID: RJ00B  
 LIMS ID: 10-20069  
 Matrix: Soil  
 Data Release Authorized: **VB**  
 Reported: 08/20/10

QC Report No: RJ00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: 08/17/10  
 Date Received: 08/17/10

Date Extracted: 08/19/10  
 Date Analyzed: 08/19/10 16:31  
 Instrument/Analyst: NT8/YZ  
 GPC Cleanup: No  
 Silica Gel Cleanup: Yes  
 Alumina Cleanup: No

Sample Amount: 10.54 g-dry-wt  
 Final Extract Volume: 0.5 mL  
 Dilution Factor: 1.00  
 Percent Moisture: 5.2%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	< 4.7 U
91-57-6	2-Methylnaphthalene	4.7	< 4.7 U
90-12-0	1-Methylnaphthalene	4.7	< 4.7 U
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	< 4.7 U
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	< 4.7 U
129-00-0	Pyrene	4.7	< 4.7 U
56-55-3	Benzo(a)anthracene	4.7	< 4.7 U
218-01-9	Chrysene	4.7	< 4.7 U
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
191-24-2	Benzo(g,h,i)perylene	4.7	< 4.7 U
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	< 4.7 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 75.7%  
 d14-Dibenzo(a,h)anthracen 78.3%

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**PNA's by SIM SW8270D-SIM GC/MS**  
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**Sample ID: VBK-BS-CS-SW6**  
**SAMPLE**

Lab Sample ID: RJ00C  
 LIMS ID: 10-20070  
 Matrix: Soil  
 Data Release Authorized: *VIB*  
 Reported: 08/20/10

QC Report No: RJ00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: 08/17/10  
 Date Received: 08/17/10

Date Extracted: 08/19/10  
 Date Analyzed: 08/19/10 16:52  
 Instrument/Analyst: NT8/YZ  
 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: 5.3%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	< 4.7 U
91-57-6	2-Methylnaphthalene	4.7	< 4.7 U
90-12-0	1-Methylnaphthalene	4.7	< 4.7 U
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	< 4.7 U
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	< 4.7 U
129-00-0	Pyrene	4.7	< 4.7 U
56-55-3	Benzo(a)anthracene	4.7	< 4.7 U
218-01-9	Chrysene	4.7	< 4.7 U
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
191-24-2	Benzo(g,h,i)perylene	4.7	< 4.7 U
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	< 4.7 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 64.7%  
 d14-Dibenzo(a,h)anthracen 72.7%

**ORGANICS ANALYSIS DATA SHEET**  
**PNAs by SIM SW8270D-SIM GC/MS**  
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**Sample ID: VBK-BS-CS-SW7**  
**SAMPLE**

Lab Sample ID: RJ00D  
 LIMS ID: 10-20071  
 Matrix: Soil  
 Data Release Authorized: **VBS**  
 Reported: 08/20/10

QC Report No: RJ00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: 08/17/10  
 Date Received: 08/17/10

Date Extracted: 08/19/10  
 Date Analyzed: 08/19/10 17:13  
 Instrument/Analyst: NT8/YZ  
 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: 5.2%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	< 4.8 U
91-57-6	2-Methylnaphthalene	4.8	< 4.8 U
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	< 4.8 U
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	< 4.8 U
129-00-0	Pyrene	4.8	< 4.8 U
56-55-3	Benzo(a)anthracene	4.8	< 4.8 U
218-01-9	Chrysene	4.8	< 4.8 U
50-32-8	Benzo(a)pyrene	4.8	< 4.8 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	< 4.8 U
53-70-3	Dibenz(a,h)anthracene	4.8	< 4.8 U
191-24-2	Benzo(g,h,i)perylene	4.8	< 4.8 U
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	< 4.8 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 70.7%  
 d14-Dibenzo(a,h)anthracen 76.3%

**ORGANICS ANALYSIS DATA SHEET**  
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**Sample ID: VBK-BS-CS-B7**  
**SAMPLE**

Lab Sample ID: RJ00E  
 LIMS ID: 10-20072  
 Matrix: Soil  
 Data Release Authorized: **VIB**  
 Reported: 08/20/10

QC Report No: RJ00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: 08/17/10  
 Date Received: 08/17/10

Date Extracted: 08/19/10  
 Date Analyzed: 08/19/10 18:16  
 Instrument/Analyst: NT8/YZ  
 GPC Cleanup: No  
 Silica Gel Cleanup: Yes  
 Alumina Cleanup: No

Sample Amount: 11.09 g-dry-wt  
 Final Extract Volume: 0.5 mL  
 Dilution Factor: 1.00  
 Percent Moisture: 9.9%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.5	1,000 E
91-57-6	2-Methylnaphthalene	4.5	55
90-12-0	1-Methylnaphthalene	4.5	230
208-96-8	Acenaphthylene	4.5	< 4.5 U
83-32-9	Acenaphthene	4.5	50
86-73-7	Fluorene	4.5	< 4.5 U
85-01-8	Phenanthrene	4.5	< 4.5 U
120-12-7	Anthracene	4.5	< 4.5 U
206-44-0	Fluoranthene	4.5	< 4.5 U
129-00-0	Pyrene	4.5	< 4.5 U
56-55-3	Benzo(a)anthracene	4.5	< 4.5 U
218-01-9	Chrysene	4.5	< 4.5 U
50-32-8	Benzo(a)pyrene	4.5	< 4.5 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.5	< 4.5 U
53-70-3	Dibenz(a,h)anthracene	4.5	< 4.5 U
191-24-2	Benzo(g,h,i)perylene	4.5	< 4.5 U
132-64-9	Dibenzofuran	4.5	< 4.5 U
TOTBFA	Total Benzofluoranthenes	4.5	< 4.5 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 62.7%  
 d14-Dibenzo(a,h)anthracen 69.7%

**ORGANICS ANALYSIS DATA SHEET**  
**PNAs by SIM SW8270D-SIM GC/MS**  
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**Sample ID: VBK-BS-CS-B7**  
**DILUTION**

Lab Sample ID: RJ00E  
 LIMS ID: 10-20072  
 Matrix: Soil  
 Data Release Authorized: **VTS**  
 Reported: 08/20/10

QC Report No: RJ00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: 08/17/10  
 Date Received: 08/17/10

Date Extracted: 08/19/10  
 Date Analyzed: 08/20/10 10:57  
 Instrument/Analyst: NT8/YZ  
 GPC Cleanup: No  
 Silica Gel Cleanup: Yes  
 Alumina Cleanup: No

Sample Amount: 11.09 g-dry-wt  
 Final Extract Volume: 0.5 mL  
 Dilution Factor: 10.0  
 Percent Moisture: 9.9%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	45	930
91-57-6	2-Methylnaphthalene	45	50 Q
90-12-0	1-Methylnaphthalene	45	240 Q
208-96-8	Acenaphthylene	45	< 45 U
83-32-9	Acenaphthene	45	54
86-73-7	Fluorene	45	< 45 U
85-01-8	Phenanthrene	45	< 45 U
120-12-7	Anthracene	45	< 45 U
206-44-0	Fluoranthene	45	< 45 U
129-00-0	Pyrene	45	< 45 U
56-55-3	Benzo(a)anthracene	45	< 45 U
218-01-9	Chrysene	45	< 45 U
50-32-8	Benzo(a)pyrene	45	< 45 U
193-39-5	Indeno(1,2,3-cd)pyrene	45	< 45 U
53-70-3	Dibenz(a,h)anthracene	45	< 45 U
191-24-2	Benzo(g,h,i)perylene	45	< 45 U
132-64-9	Dibenzofuran	45	< 45 U
TOTBFA	Total Benzofluoranthenes	45	< 45 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 66.7%  
 d14-Dibenzo(a,h)anthracen 56.7%

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**PNA's by SIM SW8270D-SIM GC/MS**  
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**Sample ID: VBK-BS-CS-B8**  
**SAMPLE**

Lab Sample ID: RJ00F  
 LIMS ID: 10-20073  
 Matrix: Soil  
 Data Release Authorized: **VR**  
 Reported: 08/20/10

QC Report No: RJ00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: 08/17/10  
 Date Received: 08/17/10

Date Extracted: 08/19/10  
 Date Analyzed: 08/19/10 18:36  
 Instrument/Analyst: NT8/YZ  
 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: 8.9%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	590 E
91-57-6	2-Methylnaphthalene	4.8	78
90-12-0	1-Methylnaphthalene	4.8	110
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	41
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	< 4.8 U
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	< 4.8 U
129-00-0	Pyrene	4.8	< 4.8 U
56-55-3	Benzo(a)anthracene	4.8	< 4.8 U
218-01-9	Chrysene	4.8	< 4.8 U
50-32-8	Benzo(a)pyrene	4.8	< 4.8 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	< 4.8 U
53-70-3	Dibenz(a,h)anthracene	4.8	< 4.8 U
191-24-2	Benzo(g,h,i)perylene	4.8	< 4.8 U
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	< 4.8 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 65.7%  
 d14-Dibenzo(a,h)anthracen 72.0%

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**Sample ID: VBK-BS-CS-B8**  
**DILUTION**

Lab Sample ID: RJ00F  
 LIMS ID: 10-20073  
 Matrix: Soil  
 Data Release Authorized: **VTS**  
 Reported: 08/20/10

QC Report No: RJ00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: 08/17/10  
 Date Received: 08/17/10

Date Extracted: 08/19/10  
 Date Analyzed: 08/20/10 11:18  
 Instrument/Analyst: NT8/YZ  
 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: 8.9%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	14	590
91-57-6	2-Methylnaphthalene	14	86 Q
90-12-0	1-Methylnaphthalene	14	130 Q
208-96-8	Acenaphthylene	14	< 14 U
83-32-9	Acenaphthene	14	42
86-73-7	Fluorene	14	< 14 U
85-01-8	Phenanthrene	14	< 14 U
120-12-7	Anthracene	14	< 14 U
206-44-0	Fluoranthene	14	< 14 U
129-00-0	Pyrene	14	< 14 U
56-55-3	Benzo(a)anthracene	14	< 14 U
218-01-9	Chrysene	14	< 14 U
50-32-8	Benzo(a)pyrene	14	< 14 U
193-39-5	Indeno(1,2,3-cd)pyrene	14	< 14 U
53-70-3	Dibenz(a,h)anthracene	14	< 14 U
191-24-2	Benzo(g,h,i)perylene	14	< 14 U
132-64-9	Dibenzofuran	14	< 14 U
TOTBFA	Total Benzofluoranthenes	14	< 14 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 75.0%  
 d14-Dibenzo(a,h)anthracen 73.0%



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**Sample ID: VBK-BS-CS-B13**  
**SAMPLE**

Lab Sample ID: RJ00G  
 LIMS ID: 10-20074  
 Matrix: Soil  
 Data Release Authorized: **UTS**  
 Reported: 08/20/10

QC Report No: RJ00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: 08/17/10  
 Date Received: 08/17/10

Date Extracted: 08/19/10  
 Date Analyzed: 08/19/10 18:57  
 Instrument/Analyst: NT8/YZ  
 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: 10.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 62.3%  
 d14-Dibenzo(a,h)anthracen 62.7%

Sample ID: VBK-BS-CS-B14  
SAMPLE

Lab Sample ID: RJ00H  
LIMS ID: 10-20075  
Matrix: Soil  
Data Release Authorized: **VTS**  
Reported: 08/20/10

QC Report No: RJ00-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/17/10  
Date Received: 08/17/10

Date Extracted: 08/19/10  
Date Analyzed: 08/19/10 19:18  
Instrument/Analyst: NT8/YZ  
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: 12.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	< 4.7 U
91-57-6	2-Methylnaphthalene	4.7	< 4.7 U
90-12-0	1-Methylnaphthalene	4.7	< 4.7 U
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	< 4.7 U
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	< 4.7 U
129-00-0	Pyrene	4.7	< 4.7 U
56-55-3	Benzo(a)anthracene	4.7	< 4.7 U
218-01-9	Chrysene	4.7	< 4.7 U
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
191-24-2	Benzo(g,h,i)perylene	4.7	< 4.7 U
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	< 4.7 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 63.3%  
d14-Dibenzo(a,h)anthracen 66.3%

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Sample ID: VBK-BS-CS-B15  
SAMPLE

Lab Sample ID: RJ00I  
LIMS ID: 10-20076  
Matrix: Soil  
Data Release Authorized: *VIS*  
Reported: 08/20/10

QC Report No: RJ00-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/17/10  
Date Received: 08/17/10

Date Extracted: 08/19/10  
Date Analyzed: 08/19/10 19:39  
Instrument/Analyst: NT8/YZ  
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: 13.8%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	20
91-57-6	2-Methylnaphthalene	4.7	21
90-12-0	1-Methylnaphthalene	4.7	11
208-96-8	Acenaphthylene	4.7	< 4.7 U
83-32-9	Acenaphthene	4.7	< 4.7 U
86-73-7	Fluorene	4.7	5.7
85-01-8	Phenanthrene	4.7	31
120-12-7	Anthracene	4.7	6.6
206-44-0	Fluoranthene	4.7	42
129-00-0	Pyrene	4.7	71
56-55-3	Benzo (a) anthracene	4.7	20 Q
218-01-9	Chrysene	4.7	26
50-32-8	Benzo (a) pyrene	4.7	25
193-39-5	Indeno (1,2,3-cd) pyrene	4.7	14
53-70-3	Dibenz (a,h) anthracene	4.7	< 4.7 U
191-24-2	Benzo (g,h,i) perylene	4.7	20
132-64-9	Dibenzofuran	4.7	< 4.7 U
TOTBFA	Total Benzofluoranthenes	4.7	31

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 66.3%  
d14-Dibenzo (a,h) anthracen 68.3%

ORGANICS ANALYSIS DATA SHEET  
 PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BS-CS-B16  
 SAMPLE

Lab Sample ID: RJ00J  
 LIMS ID: 10-20077  
 Matrix: Soil  
 Data Release Authorized: **VTS**  
 Reported: 08/20/10

QC Report No: RJ00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: 08/17/10  
 Date Received: 08/17/10

Date Extracted: 08/19/10  
 Date Analyzed: 08/19/10 20:00  
 Instrument/Analyst: NT8/YZ  
 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: 10.6%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	< 4.6 U
91-57-6	2-Methylnaphthalene	4.6	< 4.6 U
90-12-0	1-Methylnaphthalene	4.6	< 4.6 U
208-96-8	Acenaphthylene	4.6	< 4.6 U
83-32-9	Acenaphthene	4.6	< 4.6 U
86-73-7	Fluorene	4.6	< 4.6 U
85-01-8	Phenanthrene	4.6	< 4.6 U
120-12-7	Anthracene	4.6	< 4.6 U
206-44-0	Fluoranthene	4.6	< 4.6 U
129-00-0	Pyrene	4.6	< 4.6 U
56-55-3	Benzo(a)anthracene	4.6	< 4.6 U
218-01-9	Chrysene	4.6	< 4.6 U
50-32-8	Benzo(a)pyrene	4.6	< 4.6 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	< 4.6 U
53-70-3	Dibenz(a,h)anthracene	4.6	< 4.6 U
191-24-2	Benzo(g,h,i)perylene	4.6	< 4.6 U
132-64-9	Dibenzofuran	4.6	< 4.6 U
TOTBFA	Total Benzofluoranthenes	4.6	< 4.6 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 66.0%  
 d14-Dibenzo(a,h)anthracen 64.7%

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PNAs by SIM SW8270D-SIM GC/MS  
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Sample ID: VBK-BS-CS-B17  
SAMPLE

Lab Sample ID: RJ00K  
LIMS ID: 10-20078  
Matrix: Soil  
Data Release Authorized: *VTS*  
Reported: 08/20/10

QC Report No: RJ00-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/17/10  
Date Received: 08/17/10

Date Extracted: 08/19/10  
Date Analyzed: 08/19/10 20:21  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.37 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 8.7%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	7.2
91-57-6	2-Methylnaphthalene	4.8	< 4.8 U
90-12-0	1-Methylnaphthalene	4.8	< 4.8 U
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	< 4.8 U
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	< 4.8 U
129-00-0	Pyrene	4.8	< 4.8 U
56-55-3	Benzo(a)anthracene	4.8	< 4.8 U
218-01-9	Chrysene	4.8	< 4.8 U
50-32-8	Benzo(a)pyrene	4.8	< 4.8 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	< 4.8 U
53-70-3	Dibenz(a,h)anthracene	4.8	< 4.8 U
191-24-2	Benzo(g,h,i)perylene	4.8	< 4.8 U
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	< 4.8 U

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 70.0%  
d14-Dibenzo(a,h)anthracen 77.7%

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

Sample ID: VBK-BS-CS-B18  
SAMPLE

Lab Sample ID: RJ00L  
LIMS ID: 10-20079  
Matrix: Soil  
Data Release Authorized: **VTS**  
Reported: 08/20/10

QC Report No: RJ00-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/17/10  
Date Received: 08/17/10

Date Extracted: 08/19/10  
Date Analyzed: 08/19/10 20:42  
Instrument/Analyst: NT8/YZ  
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: 13.2%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.7	< 4.7 U
91-57-6	2-Methylnaphthalene	4.7	36
90-12-0	1-Methylnaphthalene	4.7	150
208-96-8	Acenaphthylene	4.7	7.0
83-32-9	Acenaphthene	4.7	5.1
86-73-7	Fluorene	4.7	< 4.7 U
85-01-8	Phenanthrene	4.7	5.1
120-12-7	Anthracene	4.7	< 4.7 U
206-44-0	Fluoranthene	4.7	14
129-00-0	Pyrene	4.7	15
56-55-3	Benzo(a)anthracene	4.7	< 4.7 U
218-01-9	Chrysene	4.7	7.5
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
191-24-2	Benzo(g,h,i)perylene	4.7	< 4.7 U
132-64-9	Dibenzofuran	4.7	< 4.7 U
<b>TOTBFA</b>	<b>Total Benzofluoranthenes</b>	<b>4.7</b>	<b>7.0</b>

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 66.7%  
d14-Dibenzo(a,h)anthracen 80.0%

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



Sample ID: VBK-BS-CS-B19  
 SAMPLE

Lab Sample ID: RJ00M  
 LIMS ID: 10-20080  
 Matrix: Soil  
 Data Release Authorized: **VTS**  
 Reported: 08/20/10

QC Report No: RJ00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: 08/17/10  
 Date Received: 08/17/10

Date Extracted: 08/19/10  
 Date Analyzed: 08/19/10 21:03  
 Instrument/Analyst: NT8/YZ  
 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: 13.0%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	410
91-57-6	2-Methylnaphthalene	4.8	13
90-12-0	1-Methylnaphthalene	4.8	24
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	< 4.8 U
85-01-8	Phenanthrene	4.8	< 4.8 U
120-12-7	Anthracene	4.8	< 4.8 U
206-44-0	Fluoranthene	4.8	< 4.8 U
129-00-0	Pyrene	4.8	7.6
56-55-3	Benzo(a)anthracene	4.8	< 4.8 U
218-01-9	Chrysene	4.8	9.5
50-32-8	Benzo(a)pyrene	5.7	< 5.7 Y
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	< 4.8 U
53-70-3	Dibenz(a,h)anthracene	4.8	< 4.8 U
191-24-2	Benzo(g,h,i)perylene	4.8	5.7
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	6.7

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 71.3%  
 d14-Dibenzo(a,h)anthracen 71.3%

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

Sample ID: VBK-BS-CS-B20  
SAMPLE

Lab Sample ID: RJ00N  
LIMS ID: 10-20081  
Matrix: Soil  
Data Release Authorized: *VTS*  
Reported: 08/20/10

QC Report No: RJ00-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/17/10  
Date Received: 08/17/10

Date Extracted: 08/19/10  
Date Analyzed: 08/19/10 21:24  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

Sample Amount: 10.44 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 6.5%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.8	270
91-57-6	2-Methylnaphthalene	4.8	40
90-12-0	1-Methylnaphthalene	4.8	17
208-96-8	Acenaphthylene	4.8	< 4.8 U
83-32-9	Acenaphthene	4.8	< 4.8 U
86-73-7	Fluorene	4.8	11
85-01-8	Phenanthrene	4.8	52
120-12-7	Anthracene	4.8	12
206-44-0	Fluoranthene	4.8	67
129-00-0	Pyrene	4.8	87
56-55-3	Benzo (a) anthracene	4.8	36 Q
218-01-9	Chrysene	4.8	39
50-32-8	Benzo (a) pyrene	4.8	36
193-39-5	Indeno (1,2,3-cd) pyrene	4.8	15
53-70-3	Dibenz (a,h) anthracene	4.8	< 4.8 U
191-24-2	Benzo (g,h,i) perylene	4.8	24
132-64-9	Dibenzofuran	4.8	< 4.8 U
TOTBFA	Total Benzofluoranthenes	4.8	41

Reported in µg/kg (ppb)

**SIM Semivolatle Surrogate Recovery**

d10-2-Methylnaphthalene 81.7%  
d14-Dibenzo(a,h) anthracen 73.3%



**SIM SW8270 SURROGATE RECOVERY SUMMARY**

Matrix: Soil

QC Report No: RJ00-DOF  
Project: Verbeek  
PSE-004

<u>Client ID</u>	<u>MNP</u>	<u>DBA</u>	<u>TOT OUT</u>
VBK-BS-CS-SW1	78.0%	77.7%	0
VBK-BS-CS-SW5	75.7%	78.3%	0
VBK-BS-CS-SW6	64.7%	72.7%	0
MB-081910	78.7%	76.3%	0
LCS-081910	86.7%	85.0%	0
VBK-BS-CS-SW7	70.7%	76.3%	0
VBK-BS-CS-SW7 MS	76.7%	84.7%	0
VBK-BS-CS-SW7 MSD	70.3%	77.7%	0
VBK-BS-CS-B7	62.7%	69.7%	0
VBK-BS-CS-B7 DL	66.7%	56.7%	0
VBK-BS-CS-B8	65.7%	72.0%	0
VBK-BS-CS-B8 DL	75.0%	73.0%	0
VBK-BS-CS-B13	62.3%	62.7%	0
VBK-BS-CS-B14	63.3%	66.3%	0
VBK-BS-CS-B15	66.3%	68.3%	0
VBK-BS-CS-B16	66.0%	64.7%	0
VBK-BS-CS-B17	70.0%	77.7%	0
VBK-BS-CS-B18	66.7%	80.0%	0
VBK-BS-CS-B19	71.3%	71.3%	0
VBK-BS-CS-B20	81.7%	73.3%	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: 10-20068 to 10-20081

**FORM-II SIM SW8270**

**ORGANICS ANALYSIS DATA SHEET**

PNA's by SW8270D-SIM GC/MS

Page 1 of 1

Sample ID: VBK-BS-CS-SW7

MATRIX SPIKE

Lab Sample ID: RJ00D

QC Report No: RJ00-DOF

LIMS ID: 10-20071

Project: Verbeek

Matrix: Soil

Event: PSE-004

Data Release Authorized: VTS

Date Sampled: 08/17/10

Reported: 08/20/10

Date Received: 08/17/10

Date Extracted MS/MSD: 08/19/10

Sample Amount MS: 10.8 g-dry-wt

MSD: 10.8 g-dry-wt

Date Analyzed MS: 08/19/10 17:34

Final Extract Volume MS: 0.50 mL

MSD: 08/19/10 17:55

MSD: 0.50 mL

Instrument/Analyst MS: NT8/YZ

Dilution Factor MS: 1.00

MSD: NT8/YZ

MSD: 1.00

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Naphthalene	< 4.8 U	86.5	140	61.8%	86.0	139	61.9%	0.6%
2-Methylnaphthalene	< 4.8 U	102	140	72.9%	95.3	139	68.6%	6.8%
1-Methylnaphthalene	< 4.8 U	94.9	140	67.8%	96.2	139	69.2%	1.4%
Acenaphthylene	< 4.8 U	91.6	140	65.4%	97.1	139	69.9%	5.8%
Acenaphthene	< 4.8 U	86.5	140	61.8%	89.2	139	64.2%	3.1%
Fluorene	< 4.8 U	92.1	140	65.8%	97.1	139	69.9%	5.3%
Phenanthrene	< 4.8 U	102	140	72.9%	102	139	73.4%	0.0%
Anthracene	< 4.8 U	105	140	75.0%	106	139	76.3%	0.9%
Fluoranthene	< 4.8 U	119	140	85.0%	117	139	84.2%	1.7%
Pyrene	< 4.8 U	135	140	96.4%	130	139	93.5%	3.8%
Benzo(a)anthracene	< 4.8 U	132 Q	140	94.3%	129 Q	139	92.8%	2.3%
Chrysene	< 4.8 U	114	140	81.4%	108	139	77.7%	5.4%
Benzo(a)pyrene	< 4.8 U	127	140	90.7%	123	139	88.5%	3.2%
Indeno(1,2,3-cd)pyrene	< 4.8 U	108	140	77.1%	102	139	73.4%	5.7%
Dibenz(a,h)anthracene	< 4.8 U	108	140	77.1%	104	139	74.8%	3.8%
Benzo(g,h,i)perylene	< 4.8 U	107	140	76.4%	103	139	74.1%	3.8%
Dibenzofuran	< 4.8 U	82.3	140	58.8%	87.4	139	62.9%	6.0%
Total Benzofluoranthenes	< 4.8 U	242	279	86.7%	229	279	82.1%	5.5%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

**ORGANICS ANALYSIS DATA SHEET**  
**PNA's by SIM SW8270D-SIM GC/MS**  
 Page 1 of 1

**Sample ID: VBK-BS-CS-SW7**  
**MATRIX SPIKE**

Lab Sample ID: RJ00D  
 LIMS ID: 10-20071  
 Matrix: Soil  
 Data Release Authorized: *VTS*  
 Reported: 08/20/10

QC Report No: RJ00-DOF  
 Project: Verbeek  
 Event: PSE-004  
 Date Sampled: 08/17/10  
 Date Received: 08/17/10

Date Extracted: 08/19/10  
 Date Analyzed: 08/19/10 17:34  
 Instrument/Analyst: NT8/YZ  
 GPC Cleanup: No  
 Silica Gel Cleanup: Yes  
 Alumina Cleanup: No

Sample Amount: 10.75 g-dry-wt  
 Final Extract Volume: 0.5 mL  
 Dilution Factor: 1.00  
 Percent Moisture: 5.2%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	---
91-57-6	2-Methylnaphthalene	4.6	---
90-12-0	1-Methylnaphthalene	4.6	---
208-96-8	Acenaphthylene	4.6	---
83-32-9	Acenaphthene	4.6	---
86-73-7	Fluorene	4.6	---
85-01-8	Phenanthrene	4.6	---
120-12-7	Anthracene	4.6	---
206-44-0	Fluoranthene	4.6	---
129-00-0	Pyrene	4.6	---
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	Dibenzo(a,h)anthracene	4.6	---
191-24-2	Benzo(g,h,i)perylene	4.6	---
132-64-9	Dibenzofuran	4.6	---
TOTBFA	Total Benzofluoranthenes	4.6	---

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 76.7%  
 d14-Dibenzo(a,h)anthracen 84.7%



Sample ID: VBK-BS-CS-SW7  
MATRIX SPIKE DUPLICATE

Lab Sample ID: RJ00D  
LIMS ID: 10-20071  
Matrix: Soil  
Data Release Authorized: **VR**  
Reported: 08/20/10

QC Report No: RJ00-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: 08/17/10  
Date Received: 08/17/10

Sample Amount: 10.76 g-dry-wt  
Final Extract Volume: 0.5 mL  
Dilution Factor: 1.00  
Percent Moisture: 5.2%

Date Extracted: 08/19/10  
Date Analyzed: 08/19/10 17:55  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4.6	---
91-57-6	2-Methylnaphthalene	4.6	---
90-12-0	1-Methylnaphthalene	4.6	---
208-96-8	Acenaphthylene	4.6	---
83-32-9	Acenaphthene	4.6	---
86-73-7	Fluorene	4.6	---
85-01-8	Phenanthrene	4.6	---
120-12-7	Anthracene	4.6	---
206-44-0	Fluoranthene	4.6	---
129-00-0	Pyrene	4.6	---
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	---
191-24-2	Benzo(g,h,i)perylene	4.6	---
132-64-9	Dibenzofuran	4.6	---
TOTBFA	Total Benzofluoranthenes	4.6	---

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene 70.3%  
d14-Dibenzo(a,h)anthracen 77.7%

**ORGANICS ANALYSIS DATA SHEET**

PNAs by SW8270D-SIM GC/MS

Page 1 of 1

Sample ID: LCS-081910

LAB CONTROL SAMPLE

Lab Sample ID: LCS-081910

LIMS ID: 10-20071

Matrix: Soil

Data Release Authorized: *VTS*

Reported: 08/20/10

QC Report No: RJ00-DOF

Project: Verbeek

Event: PSE-004

Date Sampled: NA

Date Received: NA

Date Extracted: 08/19/10

Date Analyzed LCS: 08/19/10 15:49

Instrument/Analyst LCS: NT8/YZ

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
Naphthalene	103	150	68.7%
2-Methylnaphthalene	113	150	75.3%
1-Methylnaphthalene	112	150	74.7%
Acenaphthylene	116	150	77.3%
Acenaphthene	107	150	71.3%
Fluorene	115	150	76.7%
Phenanthrene	110	150	73.3%
Anthracene	116	150	77.3%
Fluoranthene	122	150	81.3%
Pyrene	145	150	96.7%
Benzo(a)anthracene	141 Q	150	94.0%
Chrysene	117	150	78.0%
Benzo(a)pyrene	128	150	85.3%
Indeno(1,2,3-cd)pyrene	111	150	74.0%
Dibenz(a,h)anthracene	114	150	76.0%
Benzo(g,h,i)perylene	108	150	72.0%
Dibenzofuran	102	150	68.0%
Total Benzofluoranthenes	242	300	80.7%

Reported in µg/kg (ppb)

**SIM Semivolatile Surrogate Recovery**

d10-2-Methylnaphthalene	86.7%
d14-Dibenzo(a,h)anthracen	85.0%

Sample ID: MB-081910  
METHOD BLANK

Lab Sample ID: MB-081910  
LIMS ID: 10-20071  
Matrix: Soil  
Data Release Authorized: **VIB**  
Reported: 08/20/10

QC Report No: RJ00-DOF  
Project: Verbeek  
Event: PSE-004  
Date Sampled: NA  
Date Received: NA

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

Date Extracted: 08/19/10  
Date Analyzed: 08/19/10 15:28  
Instrument/Analyst: NT8/YZ  
GPC Cleanup: No  
Silica Gel Cleanup: Yes  
Alumina Cleanup: No

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	5.0	< 5.0 U
90-12-0	1-Methylnaphthalene	5.0	< 5.0 U
208-96-8	Acenaphthylene	5.0	< 5.0 U
83-32-9	Acenaphthene	5.0	< 5.0 U
86-73-7	Fluorene	5.0	< 5.0 U
85-01-8	Phenanthrene	5.0	< 5.0 U
120-12-7	Anthracene	5.0	< 5.0 U
206-44-0	Fluoranthene	5.0	< 5.0 U
129-00-0	Pyrene	5.0	< 5.0 U
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	Dibenzo(a,h)anthracene	5.0	< 5.0 U
191-24-2	Benzo(g,h,i)perylene	5.0	< 5.0 U
132-64-9	Dibenzofuran	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 78.7%  
d14-Dibenzo(a,h)anthracen 76.3%



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

September 1, 2010

Matt Dalton  
Dalton, Olmsted, & Fuglevand  
10827 NE 68th, Suite B  
Kirkland, WA 98033

**RE: Client Project: Verbeek – PSE-004**  
**ARI Job No.: RJ89**

Dear Matt:

Please find enclosed the original Chain-of-Custody records (COC), sample receipt documentation, and the final analytical results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted twenty soil samples on August 23, 2010. For details regarding sample receipt, refer to the enclosed Cooler Receipt Form.

Due to capacity issues at ARI, the samples were subcontracted to Fremont Analytical in Seattle, WA. The Fremont report is enclosed here in its entirety.

An electronic copy of this report 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.

Susan Dunninghoo  
Director, Client Services  
sue@arilabs.com  
206-695-6207

Enclosures

cc: eFile RJ89

# 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: <b>R589</b>		Turn-around Requested: <b>2-DAT</b>			Page: <b>1</b> of <b>2</b>												
ARI Client Company: <b>DOF/RSE</b>		Phone: <b>206 660 3466</b>			Date: <b>8/22/10</b>	Ice Present?											
Client Contact: <b>DAVIS COOPER / MATT OLSON</b>		No. of Coolers:		Cooler Temps:													
Client Project Name: <b>VERASEEK</b>		Analysis Requested				Notes/Comments											
Client Project #: <b>RSE-004</b>		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:5%; text-align: center;">PAHS</td> <td style="width:5%; text-align: center;">B270-SIM</td> <td style="width:5%;"></td> <td style="width:5%;"></td> <td style="width:5%;"></td> <td style="width:5%;"></td> <td style="width:5%;"></td> <td style="width:5%;"></td> <td style="width:5%;"></td> <td style="width:5%;"></td> <td style="width:5%;"></td> <td style="width:5%;"></td> </tr> </table>					PAHS	B270-SIM									
PAHS	B270-SIM																
Client Project #: <b>RSE-004</b>		Samplers: <b>DG Cooper</b>															
Sample ID	Date	Time	Matrix	No. Containers													
VBK-BS-CS-R21	8/22/10	1500	SOIL	1	X												
- B22		1510			X												
- B23		1520			X												
- B24		1530			X												
- B25		1540			X												
- B26		1550			X												
- B27		1600			X												
- B28		1610			X												
VBK-BS-CS-SWB		1620			X												
- SW9		1630			X												
Comments/Special Instructions <b>PLEASE SUBCONTRACT TO FREMONT ANALYTICAL IF WANTING TO MEET 2-DAT TAT</b>	Relinquished by: (Signature) <i>[Signature]</i>			Received by: (Signature) <i>[Signature]</i>			Relinquished by: (Signature)			Received by: (Signature)							
	Printed Name: <b>DG Cooper</b>			Printed Name: <b>Mikku Tulumbar</b>			Printed Name:			Printed Name:							
	Company: <b>DOF</b>			Company: <b>ARI</b>			Company:			Company:							
	Date & Time: <b>8/22/10 0705</b>			Date & Time: <b>8/23/10 0705</b>			Date & Time:			Date & Time:							

R589:000002

**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, notwithstanding 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



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: <b>RJ89</b>	Turn-around Requested: <b>2-DAY</b>	Page: <b>2</b> of <b>2</b>
ARI Client Company: <b>DOF/PS&amp;E</b>	Phone: <b>206 460 3466</b>	Date: <b>8/22/10</b> Ice Present?
Client Contact: <b>DAVID COOPER / MDT OALDIN</b>	No. of Coolers:	Cooler Temps:

Client Project Name: <b>VENUE</b>	Analysis Requested	Notes/Comments
Client Project #: <b>PS&amp;E - 004</b>		
Samplers: <b>DC COOPER</b>		

Sample ID	Date	Time	Matrix	No. Containers	PARS	B270-SIM													
VAN-BS-GS-SW10	8/24/10	1640	SOIL	1	X														MAL < 0.1 mg/kg
-SW11		1650			X														
-SW12		1700			X														
-SW13		1710			X														
-SW14		1720			X														
-SW15		1730			X														

Comments/Special Instructions	Relinquished by: (Signature) <b>[Signature]</b>	Received by: (Signature) <b>[Signature]</b>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: <b>DC COOPER</b>	Printed Name: <b>Mikka Mulumba</b>	Printed Name:	Printed Name:
	Company: <b>DOF</b>	Company: <b>ARI</b>	Company:	Company:
	Date & Time: <b>7/23/10 0705</b>	Date & Time: <b>8/23/10 0705</b>	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, notwithstanding 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.

RJ89:00003

# 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: <b>R389</b>	Turn-around Requested: <b>2 DAY</b>	Page: <b>1</b> of <b>1</b>
ARI Client Company: <b>DOF / ACF</b>	Phone: <b>206 660 3466</b>	Date: <b>8/20/10</b> Ice Present? <input type="checkbox"/>
Client Contact: <b>DAVID COOPER / MATT BRIDEN</b>	No. of Coolers:	Cooler Temps:

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested							Notes/Comments	
					PAHS	BT-TO-SIM							
VBK-BN-PS-SW1 (R)	8/20/10	1030	SOIL	1	X								MOL < 0.1 mg/kg
VBK-BN-CS-SW2 (R)	↓	1045	↓	↓	X								↓
VBK-BN-CS-SW5 (R)	↓	1100	↓	↓	X								↓
VBK-LWSP-CS-B7 (R)	↓	1115	↓	↓	X								↓

Comments/Special Instructions <b>PLEASE SUBCONTRACT TO FREEMONT ANALYTICAL IF UNABLE TO MEET 2-DAY TAT</b>	Relinquished by: <b>[Signature]</b>	Received by: <b>[Signature]</b>	Relinquished by: <b>[Signature]</b>	Received by: <b>[Signature]</b>
	Printed Name: <b>D. Cooper</b>	Printed Name: <b>Mikha Mumbur</b>	Printed Name:	Printed Name:
	Company: <b>DOF</b>	Company: <b>ARI</b>	Company:	Company:
	Date & Time: <b>8/23/10 0705</b>	Date & Time: <b>8/23/10 0705</b>	Date & Time:	Date & Time:

R389:00004

**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, notwithstanding 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.



# Cooler Receipt Form

ARI Client: Dof

Project Name: Verbeek

COC No(s): \_\_\_\_\_ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: RJ89

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)..... 11

If cooler temperature is out of compliance fill out form 0007DF Temp Gun ID#: 9094619

Cooler Accepted by: MM Date: 8/23/10 Time: 0705

**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? ..... NA YES NO

Date VOC Trip Blank was made at ARI..... \_\_\_\_\_

Was Sample Split by ARI : NA YES Date/Time: \_\_\_\_\_ Equipment: \_\_\_\_\_ Split by: \_\_\_\_\_

Samples Logged by: MM Date: 8/23/10 Time: 830

**\*\* 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: \_\_\_\_\_

<p>Small Air Bubbles ~2mm</p>	<p>Peabubbles 2-4 mm</p>	<p>LARGE Air Bubbles &gt; 4 mm</p>	Small → "sm"
			Peabubbles → "pb"
			Large → "lg"
			Headspace → "hs"



# Fremont



2930 Westlake Ave N Suite 100  
Seattle, WA 98109  
T: (206) 352-3790  
F: (206) 352-7178  
info@fremontanalytical.com

**Analytical Resources, Inc.**  
**Attn: Sue Dunning**  
4611 South 134th Place, Suite 100  
Tukwila, WA 98168

**RE: Verbeek**  
**Fremont Project No: CHM100823-3**  
**ARI Project No: RJ89**

August 25<sup>th</sup>, 2010

**Sue:**

Enclosed are the analytical results for the *Verbeek* soil samples delivered to Fremont Analytical on Monday August 23<sup>rd</sup>, 2010.

**Sample Receipt:**

The samples were received in good condition - in the proper containers (20 – 8oz sample containers), properly sealed, labeled and within holding time. The samples were received in a cooler with wet ice, with a cooler temperature of 6.2°C, which is within the laboratory recommended cooler temperature range (<4°C - 10°C). The samples were stored in a refrigeration unit at the USEPA-recommended temperature of 4°C ± 2°C. There were no sample receipt issues to report.

**Sample Analysis:**

Examination of these samples was conducted for the presence of the following:

- ***Polyaromatic Hydrocarbons in Soil by EPA Method 8270 (SIM)***

This application was performed under Washington State Department of Ecology accreditation parameters. All appropriate Quality Assurance / Quality Control method parameters have been applied.



# Fremont

Analytical

2930 Westlake Ave N Suite 100  
Seattle, WA 98109  
T: (206) 352-3790  
F: (206) 352-7178  
info@fremontanalytical.com

**Analytical Resources, Inc.**  
**Attn: Sue Dunning**  
4611 South 134th Place, Suite 100  
Tukwila, WA 98168

**RE: Verbeek**  
**Fremont Project No: CHM100823-3**  
**ARI Project No: RJ89**

**Laboratory Notations (Surrogate Recoveries):**

- The surrogate recovery for the *Laboratory Control Sample (LCS)* and *Method Blanks* was within range.
- The *2-Fluorobiphenyl* surrogate recovery for samples *VBK-BS-CS-B21* and *VBK-BS-CS-B26* was outside of the laboratory recommended range. The second surrogate (*p-Terphenyl*) was within range for both samples.
- The *p-Terphenyl* surrogate recovery for samples *VBK-BS-CS-SW8*, *VBK-BS-CS-SW10*, *VBK-BS-CS-SW11* and *VBK-BS-CS-SW12* was outside of the laboratory recommended recovery range. The second surrogate (*2-Fluorobiphenyl*) was within range for the above samples.

Please contact the laboratory if you should have any questions about the results,

Thank you for using Fremont Analytical!

Sincerely,

Michael Dee  
Sr. Chemist / Principal  
mikedee@fremontanalytical.com



## Analysis of Polyaromatic Hydrocarbons in Soil by EPA Method 8270C

Project: Verbeek  
Client ARI (DOH)  
Client Project #: RJ89  
Lab Project #: CHM100823-3

EPA 8270C (SIM) (µg/kg)	MRL	Method Blank	Method Blank	LCS	VBK-BS-CS-B21	VBK-BS-CS-B22
Date Extracted		8/23/10	8/23/10	8/23/10	8/23/10	8/23/10
Date Analyzed		8/24/10	8/24/10	8/24/10	8/24/10	8/24/10
Matrix					Soil	Soil
Naphthalene	5.0	nd	nd		nd	121
1-Methylnaphthalene	5.0	nd	nd		nd	nd
2-Methylnaphthalene	5.0	nd	nd		nd	nd
Acenaphthene	5.0	nd	nd	74%	nd	nd
Acenaphthylene	5.0	nd	nd		nd	nd
Fluorene	5.0	nd	nd		nd	nd
Phenanthrene	5.0	nd	nd		nd	nd
Anthracene	5.0	nd	nd		nd	nd
Fluoranthene	5.0	nd	nd		nd	nd
Pyrene	5.0	nd	nd	87%	nd	nd
Benzo(a)anthracene	5.0	nd	nd		nd	nd
Chrysene	5.0	nd	nd		nd	nd
Benzo(b)fluoranthene	5.0	nd	nd		nd	nd
Benzo(k)fluoranthene	5.0	nd	nd		nd	nd
Benzo(a)pyrene	5.0	nd	nd		nd	nd
Indeno(1,2,3-cd)pyrene	5.0	nd	nd		nd	nd
Dibenzo(a,h)anthracene	5.0	nd	nd		nd	nd
Benzo(g,h,i)perylene	5.0	nd	nd		nd	nd
<i>Total PAH Carcinogens</i>					0.0	0.0

**Total PAH Carcinogens Defined as:**  
Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,  
Benzo(k)fluoranthene, Benzo(a)pyrene,  
Indeno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

### Surrogate Recovery

(Surr 1) 2-Fluorobiphenyl	73%	89%	114%	61%	85%
(Surr 2) p-Terphenyl	68%	73%	87%	98%	110%

"nd" Indicates not detected at listed reporting limits  
"int" Indicates that interference prevents determination  
"J" Indicates estimated value  
"MRL" Indicates Method Reporting Limit  
"LCS" Indicates Laboratory Control Sample  
"MS" Indicates Matrix Spike  
"MSD" Indicates Matrix Spike Duplicate  
"RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%

#### Acceptable Recovery Limits:

Surrogates = 65% to 135%  
LCS, LCSD, MS, MSD = 50% to 150%  
Surrogate Concentration = 200 µg/kg  
Spike Concentration = 200 µg/kg



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Seattle, WA 98103

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F: 206.352.7178  
email: info@fremontanalytical.com

## Analysis of Polyaromatic Hydrocarbons in Soil by EPA Method 8270C

Project: Verbeek  
Client ARI (DOH)  
Client Project #: RJ89  
Lab Project #: CHM100823-3

EPA 8270C (SIM) (µg/kg)	MRL	VBK-BS-CS-B23	VBK-BS-CS-B24	VBK-BS-CS-B25	VBK-BS-CS-B26
Date Extracted		8/23/10	8/23/10	8/23/10	8/23/10
Date Analyzed		8/24/10	8/24/10	8/24/10	8/24/10
Matrix		Soil	Soil	Soil	Soil
Naphthalene	5.0	nd	45.6	nd	nd
1-Methylnaphthalene	5.0	nd	7.79	nd	nd
2-Methylnaphthalene	5.0	nd	14.5	nd	nd
Acenaphthene	5.0	nd	4.45 J	nd	nd
Acenaphthylene	5.0	nd	25.6	nd	nd
Fluorene	5.0	nd	20.0	nd	nd
Phenanthrene	5.0	nd	287	nd	nd
Anthracene	5.0	nd	52.3	nd	nd
Fluoranthene	5.0	nd	388	nd	nd
Pyrene	5.0	nd	493	nd	nd
Benzo(a)anthracene	5.0	nd	89.0	nd	nd
Chrysene	5.0	nd	176	nd	nd
Benzo(b)fluoranthene	5.0	nd	128	nd	nd
Benzo(k)fluoranthene	5.0	nd	45.6	nd	nd
Benzo(a)pyrene	5.0	nd	145	nd	nd
Indeno(1,2,3-cd)pyrene	5.0	nd	100	nd	nd
Dibenzo(a,h)anthracene	5.0	nd	110	nd	nd
Benzo(g,h,i)perylene	5.0	nd	155	nd	nd
<i>Total PAH Carcinogens</i>		0.0	793	0.0	0.0

Total PAH Carcinogens Defined as:  
Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,  
Benzo(k)fluoranthene, Benzo(a)pyrene,  
Indeno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

### Surrogate Recovery

(Surr 1) 2-Fluorobiphenyl	103%	82%	97%	62%
(Surr 2) p-Terphenyl	114%	88%	87%	65%

"nd" Indicates not detected at listed reporting limits  
"int" Indicates that interference prevents determination  
"J" Indicates estimated value  
"MRL" Indicates Method Reporting Limit  
"LCS" Indicates Laboratory Control Sample  
"MS" Indicates Matrix Spike  
"MSD" Indicates Matrix Spike Duplicate  
"RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%

#### Acceptable Recovery Limits:

Surrogates = 65% to 135%  
LCS, LCSD, MS, MSD = 50% to 150%  
Surrogate Concentration = 200 µg/kg  
Spike Concentration = 200 µg/kg



## Analysis of Polyaromatic Hydrocarbons in Soil by EPA Method 8270C

Project: Verbeek  
Client ARI (DOH)  
Client Project #: RJ89  
Lab Project #: CHM100823-3

EPA 8270C (SIM) (µg/kg)	MRL	Duplicate			RPD %
		VBK-BS-CS-B27	VBK-BS-CS-B28	VBK-BS-CS-B28	
Date Extracted		8/23/10	8/23/10	8/23/10	
Date Analyzed		8/24/10	8/24/10	8/24/10	
Matrix		Soil	Soil	Soil	
Naphthalene	5.0	nd	53.0	46.3	14%
1-Methylnaphthalene	5.0	nd	nd	nd	
2-Methylnaphthalene	5.0	nd	nd	nd	
Acenaphthene	5.0	nd	nd	nd	
Acenaphthylene	5.0	nd	nd	nd	
Fluorene	5.0	nd	nd	nd	
Phenanthrene	5.0	nd	nd	nd	
Anthracene	5.0	nd	nd	nd	
Fluoranthene	5.0	nd	nd	nd	
Pyrene	5.0	nd	nd	nd	
Benzo(a)anthracene	5.0	nd	nd	nd	
Chrysene	5.0	nd	nd	nd	
Benzo(b)fluoranthene	5.0	nd	nd	nd	
Benzo(k)fluoranthene	5.0	nd	nd	nd	
Benzo(a)pyrene	5.0	nd	nd	nd	
Indeno(1,2,3-cd)pyrene	5.0	nd	nd	nd	
Dibenzo(a,h)anthracene	5.0	nd	nd	nd	
Benzo(g,h,i)perylene	5.0	nd	nd	nd	
<i>Total PAH Carcinogens</i>		0.0	0.0	0.0	

**Total PAH Carcinogens Defined as:**  
Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,  
Benzo(k)fluoranthene, Benzo(a)pyrene,  
Indeno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

### Surrogate Recovery

(Surr 1) 2-Fluorobiphenyl	65%	105%	109%
(Surr 2) p-Terphenyl	69%	85%	78%

"nd" Indicates not detected at listed reporting limits  
 "int" Indicates that interference prevents determination  
 "J" Indicates estimated value  
 "MRL" Indicates Method Reporting Limit  
 "LCS" Indicates Laboratory Control Sample  
 "MS" Indicates Matrix Spike  
 "MSD" Indicates Matrix Spike Duplicate  
 "RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%

#### Acceptable Recovery Limits:

Surrogates = 65% to 135%  
 LCS, LCSD, MS, MSD = 50% to 150%  
 Surrogate Concentration = 200 µg/kg  
 Spike Concentration = 200 µg/kg





## Analysis of Polyaromatic Hydrocarbons in Soil by EPA Method 8270C

Project: Verbeek  
Client ARI (DOH)  
Client Project #: RJ89  
Lab Project #: CHM100823-3

EPA 8270C (SIM) (µg/kg)	MRL	VBK-BS-CS-SW8 %	VBK-BS-CS-SW9	VBK-BS-CS-SW10
Date Extracted		8/23/10	8/23/10	8/23/10
Date Analyzed		8/24/10	8/24/10	8/24/10
Matrix		Soil	Soil	Soil
Naphthalene	5.0	nd	nd	nd
1-Methylnaphthalene	5.0	nd	nd	nd
2-Methylnaphthalene	5.0	nd	nd	nd
Acenaphthene	5.0	nd	nd	nd
Acenaphthylene	5.0	nd	nd	nd
Fluorene	5.0	nd	nd	nd
Phenanthrene	5.0	nd	nd	6.75
Anthracene	5.0	nd	nd	nd
Fluoranthene	5.0	nd	nd	9.00
Pyrene	5.0	nd	nd	14.6
Benzo(a)anthracene	5.0	nd	nd	5.63
Chrysene	5.0	nd	nd	5.63
Benzo(b)fluoranthene	5.0	nd	nd	5.63
Benzo(k)fluoranthene	5.0	nd	nd	nd
Benzo(a)pyrene	5.0	nd	nd	5.63
Indeno(1,2,3-cd)pyrene	5.0	nd	nd	nd
Dibenzo(a,h)anthracene	5.0	nd	nd	nd
Benzo(g,h,i)perylene	5.0	nd	nd	7.88
<i>Total PAH Carcinogens</i>		0.0	0.0	22.5

**Total PAH Carcinogens Defined as:**

Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,  
Benzo(k)fluoranthene, Benzo(a)pyrene,  
Indeno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

**Surrogate Recovery**

(Surr 1) 2-Fluorobiphenyl	66%	92%	87%
(Surr 2) p-Terphenyl	62%	65%	62%

"nd" Indicates not detected at listed reporting limits  
 "int" Indicates that interference prevents determination  
 "J" Indicates estimated value  
 "MRL" Indicates Method Reporting Limit  
 "LCS" Indicates Laboratory Control Sample  
 "MS" Indicates Matrix Spike  
 "MSD" Indicates Matrix Spike Duplicate  
 "RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%

**Acceptable Recovery Limits:**

Surrogates = 65% to 135%  
 LCS, LCSD, MS, MSD = 50% to 150%  
 Surrogate Concentration = 200 µg/kg  
 Spike Concentration = 200 µg/kg



## Analysis of Polyaromatic Hydrocarbons in Soil by EPA Method 8270C

Project: Verbeek  
Client ARI (DOH)  
Client Project #: RJ89  
Lab Project #: CHM100823-3

EPA 8270C (SIM) (µg/kg)	MRL	VBK-BS-CS-SW11 %	VBK-BS-CS-SW12	VBK-BS-CS-SW13
Date Extracted		8/23/10	8/23/10	8/23/10
Date Analyzed		8/24/10	8/24/10	8/24/10
Matrix		Soil	Soil	Soil
Naphthalene	5.0	51.8	nd	nd
1-Methylnaphthalene	5.0	9.00	nd	nd
2-Methylnaphthalene	5.0	14.6	nd	nd
Acenaphthene	5.0	6.75	nd	nd
Acenaphthylene	5.0	30.4	nd	nd
Fluorene	5.0	9.00	nd	nd
Phenanthrene	5.0	81.0	nd	nd
Anthracene	5.0	18.0	nd	nd
Fluoranthene	5.0	282	nd	nd
Pyrene	5.0	425	nd	nd
Benzo(a)anthracene	5.0	104	nd	nd
Chrysene	5.0	183	nd	nd
Benzo(b)fluoranthene	5.0	201	nd	nd
Benzo(k)fluoranthene	5.0	66.4	nd	nd
Benzo(a)pyrene	5.0	250	nd	nd
Indeno(1,2,3-cd)pyrene	5.0	187	nd	nd
Dibenzo(a,h)anthracene	5.0	94.5	nd	nd
Benzo(g,h,i)perylene	5.0	327	nd	nd
<i>Total PAH Carcinogens</i>		1086	0.0	0.0

**Total PAH Carcinogens Defined as:**

Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,  
Benzo(k)fluoranthene, Benzo(a)pyrene,  
Indeno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

**Surrogate Recovery**

(Surr 1) 2-Fluorobiphenyl	96%	90%	77%
(Surr 2) p-Terphenyl	62%	63%	76%

"nd" Indicates not detected at listed reporting limits  
 "int" Indicates that interference prevents determination  
 "J" Indicates estimated value  
 "MRL" Indicates Method Reporting Limit  
 "LCS" Indicates Laboratory Control Sample  
 "MS" Indicates Matrix Spike  
 "MSD" Indicates Matrix Spike Duplicate  
 "RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%

**Acceptable Recovery Limits:**

Surrogates = 65% to 135%  
 LCS, LCSD, MS, MSD = 50% to 150%  
 Surrogate Concentration = 200 µg/kg  
 Spike Concentration = 200 µg/kg



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email: info@fremontanalytical.com

## Analysis of Polyaromatic Hydrocarbons in Soil by EPA Method 8270C

Project: Verbeek  
Client ARI (DOH)  
Client Project #: RJ89  
Lab Project #: CHM100823-3

EPA 8270C (SIM) (µg/kg)	MRL	VBK-BS-CS-SW14	VBK-BS-CS-SW15	VBK-BN-PS-SW1
Date Extracted		8/23/10	8/23/10	8/23/10
Date Analyzed		8/24/10	8/24/10	8/24/10
Matrix		Soil	Soil	Soil
Naphthalene	5.0	nd	nd	nd
1-Methylnaphthalene	5.0	nd	nd	nd
2-Methylnaphthalene	5.0	nd	nd	nd
Acenaphthene	5.0	nd	nd	nd
Acenaphthylene	5.0	nd	nd	nd
Fluorene	5.0	nd	nd	nd
Phenanthrene	5.0	nd	nd	nd
Anthracene	5.0	nd	nd	nd
Fluoranthene	5.0	nd	nd	nd
Pyrene	5.0	nd	nd	nd
Benzo(a)anthracene	5.0	nd	nd	nd
Chrysene	5.0	nd	nd	nd
Benzo(b)fluoranthene	5.0	nd	nd	nd
Benzo(k)fluoranthene	5.0	nd	nd	nd
Benzo(a)pyrene	5.0	nd	nd	nd
Indeno(1,2,3-cd)pyrene	5.0	nd	nd	nd
Dibenzo(a,h)anthracene	5.0	nd	nd	nd
Benzo(g,h,i)perylene	5.0	nd	nd	nd
<i>Total PAH Carcinogens</i>		0.0	0.0	0.0

**Total PAH Carcinogens Defined as:**  
Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,  
Benzo(k)fluoranthene, Benzo(a)pyrene,  
Indeno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

### Surrogate Recovery

(Surr 1) 2-Fluorobiphenyl	72%	90%	84%
(Surr 2) p-Terphenyl	82%	90%	89%

"nd" Indicates not detected at listed reporting limits  
"int" Indicates that interference prevents determination  
"J" Indicates estimated value  
"MRL" Indicates Method Reporting Limit  
"LCS" Indicates Laboratory Control Sample  
"MS" Indicates Matrix Spike  
"MSD" Indicates Matrix Spike Duplicate  
"RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%  
Acceptable Recovery Limits:

Surrogates = 65% to 135%  
LCS, LCSD, MS, MSD = 50% to 150%  
Surrogate Concentration = 200 µg/kg  
Spike Concentration = 200 µg/kg



## Analysis of Polyaromatic Hydrocarbons in Soil by EPA Method 8270C

Project: Verbeek  
Client ARI (DOH)  
Client Project #: RJ89  
Lab Project #: CHM100823-3

EPA 8270C (SIM) (µg/kg)	MRL	VBK-BN-CS-SW2	VBK-BN-CS-SW5	VBK-GWPSP-CS-B7
Date Extracted		8/23/10	8/23/10	8/23/10
Date Analyzed		8/24/10	8/24/10	8/24/10
Matrix		Soil	Soil	Soil
Naphthalene	5.0	nd	nd	6.23
1-Methylnaphthalene	5.0	nd	nd	nd
2-Methylnaphthalene	5.0	nd	nd	nd
Acenaphthene	5.0	nd	nd	nd
Acenaphthylene	5.0	nd	nd	nd
Fluorene	5.0	nd	nd	nd
Phenanthrene	5.0	nd	nd	4.16 J
Anthracene	5.0	nd	nd	nd
Fluoranthene	5.0	5.18	nd	11.4
Pyrene	5.0	8.30	nd	18.7
Benzo(a)anthracene	5.0	nd	nd	5.20
Chrysene	5.0	4.15 J	nd	7.27
Benzo(b)fluoranthene	5.0	nd	nd	9.35
Benzo(k)fluoranthene	5.0	nd	nd	4.16 J
Benzo(a)pyrene	5.0	4.15 J	nd	10.4
Indeno(1,2,3-cd)pyrene	5.0	nd	nd	8.31
Dibenzo(a,h)anthracene	5.0	nd	nd	nd
Benzo(g,h,i)perylene	5.0	5.18	nd	15.6
<i>Total PAH Carcinogens</i>		8.30	0.0	44.7

**Total PAH Carcinogens Defined as:**  
Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,  
Benzo(k)fluoranthene, Benzo(a)pyrene,  
Indeno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

### Surrogate Recovery

(Surr 1) 2-Fluorobiphenyl	67%	83%	94%
(Surr 2) p-Terphenyl	68%	69%	79%

"nd" Indicates not detected at listed reporting limits  
 "int" Indicates that interference prevents determination  
 "J" Indicates estimated value  
 "MRL" Indicates Method Reporting Limit  
 "LCS" Indicates Laboratory Control Sample  
 "MS" Indicates Matrix Spike  
 "MSD" Indicates Matrix Spike Duplicate  
 "RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%

#### Acceptable Recovery Limits:

Surrogates = 65% to 135%  
 LCS, LCSD, MS, MSD = 50% to 150%  
 Surrogate Concentration = 200 µg/kg  
 Spike Concentration = 200 µg/kg



## Analysis of Polyaromatic Hydrocarbons in Soil by EPA Method 8270C

Project: Verbeek  
Client ARI (DOH)  
Client Project #: RJ89  
Lab Project #: CHM100823-3

EPA 8270C (SIM) (µg/kg)	MRL	MS	MSD	RPD %
		VBK-BS-CS-B28	VBK-BS-CS-B28	
Date Extracted		8/23/10	8/23/10	
Date Analyzed		8/24/10	8/24/10	
Matrix		Soil	Soil	

Naphthalene	5.0			
1-Methylnaphthalene	5.0			
2-Methylnaphthalene	5.0			
Acenaphthene	5.0	67%	67%	0.03%
Acenaphthylene	5.0			
Fluorene	5.0			
Phenanthrene	5.0			
Anthracene	5.0			
Fluoranthene	5.0			
Pyrene	5.0	68%	70%	2%
Benzo(a)anthracene	5.0			
Chrysene	5.0			
Benzo(b)fluoranthene	5.0			
Benzo(k)fluoranthene	5.0			
Benzo(a)pyrene	5.0			
Indeno(1,2,3-cd)pyrene	5.0			
Dibenzo(a,h)anthracene	5.0			
Benzo(g,h,i)perylene	5.0			

### Total PAH Carcinogens

**Total PAH Carcinogens Defined as:**  
Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,  
Benzo(k)fluoranthene, Benzo(a)pyrene,  
Indeno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

### Surrogate Recovery

(Surr 1) 2-Fluorobiphenyl	124%	122%
(Surr 2) p-Terphenyl	76%	68%

"nd" Indicates not detected at listed reporting limits  
 "int" Indicates that interference prevents determination  
 "J" Indicates estimated value  
 "MRL" Indicates Method Reporting Limit  
 "LCS" Indicates Laboratory Control Sample  
 "MS" Indicates Matrix Spike  
 "MSD" Indicates Matrix Spike Duplicate  
 "RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%  
Acceptable Recovery Limits:

Surrogates = 65% to 135%  
LCS, LCSd, MS, MSD = 50% to 150%  
Surrogate Concentration = 200 µg/kg  
Spike Concentration = 200 µg/kg

**SUBCONTRACTOR ANALYSIS REQUEST**  
**CUSTODY TRANSFER 08/23/10**



ARI Project: RJ89

Laboratory: Fremont Analytical  
 Lab Contact: Sample Receiving  
 Lab Address: 2930 Westlake Ave N.  
 Seattle, WA 98103  
 Phone: 206-352-3790  
 Fax:

ARI Client: DOF  
 Project ID: Verbeek  
 ARI PM: Susan Dunnihoo  
 Phone: 206-695-6207  
 Fax: 206-695-6201

Analytical Protocol: In-house  
 Special Instructions:

Requested Turn Around: 08/25/10  
 Email Results (Y/N): Yes

**Limits of Liability.** Subcontractor is expected to perform all requested services in accordance with appropriate methodology following Standard Operating Procedures that meet 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 negotiated amount for said services. The agreement by the Subcontractor to perform services requested by ARI releases 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 Subcontractor.

ARI ID	Client ID/ Add'l ID	Sampled	Matrix	Bottles	Analyses
10-21066-RJ89A	VBK-BS-CS-B21	08/22/10 15:00	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					
10-21067-RJ89B	VBK-BS-CS-B22	08/22/10 15:10	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					
10-21068-RJ89C	VBK-BS-CS-B23	08/22/10 15:20	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					
10-21069-RJ89D	VBK-BS-CS-B24	08/22/10 15:30	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					
10-21070-RJ89E	VBK-BS-CS-B25	08/22/10 15:40	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					
10-21071-RJ89F	VBK-BS-CS-B26	08/22/10 15:50	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					
10-21072-RJ89G	VBK-BS-CS-B27	08/22/10 16:00	Soil	1	Semivolatiles (Sub)
Special Instructions: SIMN PAH 8270					
10-21073-RJ89H	VBK-BS-CS-B28	08/22/10 16:10	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					

Carrier		Airbill		Date	
Relinquished by	Company	Date	Time		
	ARI	8/23/10	1045		
Received by	Company	Date	Time		
	FA	8/23/10	1045		

UAM100823-3

**SUBCONTRACTOR ANALYSIS REQUEST**  
CUSTODY TRANSFER 08/23/10



ARI Project: RJ89

Laboratory: Fremont Analytical  
Lab Contact: Sample Receiving

ARI Client: DOF  
Project ID: PSE-004

ARI Sample ID	Client Sample ID/ Add'l Sample ID	Sampled	Matrix	Bottles	Analyses
10-21074-RJ89I	VBK-BS-CS-SW8	08/22/10 16:20	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					
10-21075-RJ89J	VBK-BS-CS-SW9	08/22/10 16:30	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					
10-21076-RJ89K	VBK-BS-CS-SW10	08/22/10 16:40	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					
10-21077-RJ89L	VBK-BS-CS-SW11	08/22/10 16:50	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					
10-21078-RJ89M	VBK-BS-CS-SW12	08/22/10 17:00	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					
10-21079-RJ89N	VBK-BS-CS-SW13	08/22/10 17:10	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					
10-21080-RJ89O	VBK-BS-CS-SW14	08/22/10 17:20	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					
10-21081-RJ89P	VBK-BS-CS-SW15	08/22/10 17:30	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					
10-21082-RJ89Q	VBK-BN-PS-SW1(R)	08/20/10 10:30	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					
10-21083-RJ89R	VBK-BN-CS-SW2(R)	08/20/10 10:45	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					
10-21084-RJ89S	VBK-BN-CS-SW5(R)	08/20/10 11:00	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					
10-21085-RJ89T	VBK-GWPSP-CS-B7(R)	08/20/10 11:15	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAH 8270					

Carrier		Airbill		Date	
Relinquished by	Company	Date	Time		
<i>[Signature]</i>	ARI	8/23/10	1045		
Received by	Company	Date	Time		
<i>[Signature]</i>	FA	8/23/10	1045		

RJ89:00017



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

September 20, 2010

Matt Dalton  
Dalton, Olmsted, & Fuglevand  
10827 NE 68th, Suite B  
Kirkland, WA 98033

**RE: Client Project: Verbeek – PSE-004**  
**ARI Job No.: RK23**

Dear Matt:

Please find enclosed the original Chain-of-Custody records (COC), sample receipt documentation, and the final analytical results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted nine soil samples on August 25, 2010. For details regarding sample receipt, refer to the enclosed Cooler Receipt Form.

Due to capacity issues at ARI, the samples were subcontracted to Fremont Analytical in Seattle, WA. The Fremont report is enclosed here in its entirety.

An electronic copy of this report 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.

A handwritten signature in black ink, appearing to read "Susan D. Dunning".

Susan D. Dunning  
Director, Client Services  
sue@arilabs.com  
206-695-6207

Enclosures

cc: eFile RK23



# Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested:	Page:	1	of	1
ARI Client Company:	Phone:	Date:	8/24/10	Ice Present?	
Client Contact:	ARI Project Name:	No. of Coolers:		Cooler Temps:	
Client Project #:	Samplers:	Analysis Requested			
Sample ID	Date	Time	Matrix	No. Containers	Notes/Comments

ARI Client Company:	Phone:	Date:	Ice Present?		
Client Contact:	ARI Project Name:	No. of Coolers:	Cooler Temps:		
Client Project #:	Samplers:	Analysis Requested			
Sample ID	Date	Time	Matrix	No. Containers	Notes/Comments
VOK-BS-15-SW16	8/24/10	0700	SOIL	1	PATHS 8270-SIM
-SW17		0710		1	X
-B29		0720		1	X
-SW18A		1100		1	X
-SW18B		1105		1	X
-SW18C		1110		1	X
-SW19A		1300		1	X
-SW19B		1310		1	X
-SW19C		1320		1	X
Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:	
	(Signature)	(Signature)	(Signature)	(Signature)	
	Printed Name:	Printed Name:	Printed Name:	Printed Name:	
	Company:	Company:	Company:	Company:	
	Date & Time:	Date & Time:	Date & Time:	Date & Time:	



Analytical Resources, Incorporated  
 Analytical Chemists and Consultants  
 4611 South 134th Place, Suite 100  
 Tukwila, WA 98168  
 206-695-6200 206-695-6201 (fax)

**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.

9-23-10

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	Headspace -> "hs"
Small -> "sm"	Peabubbles -> "pb"	Large -> "lg"	

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: \_\_\_\_\_

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)  YES  NO

Were all VOC vials free of air bubbles?  YES  NO

Was sufficient amount of sample sent in each bottle?  YES  NO

Date VOC Trip Blank was made at ARI:  NA  YES  NO

Was Sample Split by ARI:  NA  YES  NO

Equipment: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Samples Logged by: MM Date: 8/25/10 Time: 10:10

\*\* Notify Project Manager of discrepancies or concerns \*\*

Complete custody forms and attach all shipping documents

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): AMR(s) 1.5 1.7 4.9 4.1

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90941619

Cooler Accepted by: CD (AV) Date: 8/25/10 Time: 940

Preliminary Examination Phase:

ARI Client: PDF

Assigned ARI Job No: RK23

COC No(s): NA

Delivered by: Fed-Ex UPS Courier  Hand Delivered  Other: \_\_\_\_\_

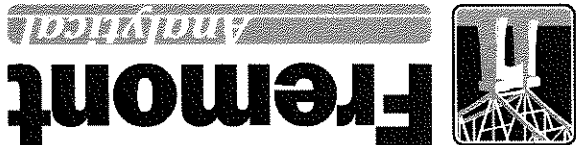
Tracking No: NA

Project Name: VERBETL

Cooler Receipt Form



2930 Westlake Ave N Suite 100  
Seattle, WA 98109  
T: (206) 352-3790  
F: (206) 352-7178  
info@fremontanalytical.com



Analytical Resources, Inc.  
Attn: Sue Dunning  
4611 South 134th Place, Suite 100  
Tukwila, WA 98168

RE: Verbeek  
Fremont Project No: CHM100825-5  
ARI Project No: RK23

August 31<sup>st</sup>, 2010

Sue:

Enclosed are the analytical results for the *Verbeek* soil samples delivered to Fremont Analytical on Wednesday August 25<sup>th</sup>, 2010.

**Sample Receipt:**

The samples were received in good condition - in the proper containers (9 – 8oz sample containers), properly sealed, labeled and within holding time. The samples were received in a cooler with wet ice, with a cooler temperature of 3.0°C, which is within the laboratory recommended cooler temperature range (<4°C - 10°C). The samples were stored in a refrigeration unit at the USEPA-recommended temperature of 4°C ± 2°C. There were no sample receipt issues to report.

**Sample Analysis:**

Examination of these samples was conducted for the presence of the following:

- *Polyaromatic Hydrocarbons in Soil by EPA Method 8270 (SIM)*

This application was performed under Washington State Department of Ecology accreditation parameters. All appropriate Quality Assurance / Quality Control method parameters have been applied. There were no sample analysis issues to report.

Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical!

Sincerely,

Michael Dee  
Sr. Chemist / Principal

mikedee@fremontanalytical.com

www.fremontanalytical.com

RK23 : 00004



## Analysis of Polycyclic Aromatic Hydrocarbons in Soil by EPA Method 8270C

Project: Verbeek

Client ARI (DOH)

Client Project #: RK23

Lab Project #: CHM100825-5

EPA 8270C (SIM)	MRL Method	LCS	VBK-BS-CS-SW-16	VBK-BS-CS-SW-16	RPD	(µg/kg)	
						Blank	Duplicate
Date Extracted	8/26/10	8/26/10	8/26/10	8/26/10	8/26/10	Date Analyzed	Matrix
Naphthalene	5.0	nd	nd	nd	nd	8/26/10	Soil
1-Methylnaphthalene	5.0	nd	nd	nd	nd	8/26/10	Soil
2-Methylnaphthalene	5.0	nd	nd	nd	nd	8/26/10	Soil
Acenaphthene	5.0	82%	nd	nd	nd	8/26/10	Soil
Acenaphthylene	5.0	nd	nd	nd	nd	8/26/10	Soil
Fluorene	5.0	nd	nd	nd	nd	8/26/10	Soil
Phenanthrene	5.0	nd	nd	nd	nd	8/26/10	Soil
Anthracene	5.0	nd	nd	nd	nd	8/26/10	Soil
Fluoranthene	5.0	nd	nd	nd	nd	8/26/10	Soil
Pyrene	5.0	77%	13.6	8.34	0.05%	8/26/10	Soil
Benzo(a)anthracene	5.0	nd	5.21	5.21	0.05%	8/26/10	Soil
Chrysene	5.0	nd	5.21	4.17 J	22%	8/26/10	Soil
Benzo(b)fluoranthene	5.0	nd	nd	nd	nd	8/26/10	Soil
Benzo(k)fluoranthene	5.0	nd	nd	nd	nd	8/26/10	Soil
Benzo(a)pyrene	5.0	nd	5.21	6.25	18%	8/26/10	Soil
Indeno(1,2,3-cd)pyrene	5.0	nd	nd	nd	nd	8/26/10	Soil
Dibenzo(a,h)anthracene	5.0	nd	8.34	10.4	22%	8/26/10	Soil
Benzo(g,h,i)perylene	5.0	nd	15.6	11.5	nd	8/26/10	Soil

Total PAH Carcinogens Defined as:  
 Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,  
 Benzo(k)fluoranthene, Benzo(a)pyrene,  
 Indeno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

Surrogate Recovery	
(Surr 1) 2-Fluorobiphenyl	75%
(Surr 2) p-Terphenyl	84%

"nd" indicates not detected at listed reporting limits  
 "int" indicates that interference prevents determination  
 "J" indicates estimated value  
 "MRL" indicates Method Reporting Limit  
 "RL" indicates Adjusted Reporting Limit  
 "LCS" indicates Laboratory Control Sample  
 "MS" indicates Matrix Spike  
 "MSD" indicates Matrix Spike Duplicate  
 "RPD" indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%  
 Acceptable Recovery Limits:  
 Surrogates = 65% to 135%  
 LCS, LCSD, MS, MSD = 50% to 150%  
 Surrogate Concentration = 200 µg/kg  
 Spike Concentration = 200 µg/kg

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## Analysis of Polyaromatic Hydrocarbons in Soil by EPA Method 8270C

Project: Verbeek  
Client ARI (DOH)  
Client Project #: RK23  
Lab Project #: CHM100825-5

EPA 8270C (SIM) (µg/kg)	MRL	VBK-BS-CS-SW-17	VBK-BS-CS-B29	VBK-BS-CS-SW-18A
Date Extracted		8/26/10	8/26/10	8/26/10
Date Analyzed		8/26/10	8/26/10	8/26/10
Matrix		Soil	Soil	Soil
Naphthalene	5.0	nd	nd	6.74
1-Methylnaphthalene	5.0	nd	nd	nd
2-Methylnaphthalene	5.0	nd	nd	nd
Acenaphthene	5.0	nd	nd	nd
Acenaphthylene	5.0	nd	nd	nd
Fluorene	5.0	nd	nd	nd
Phenanthrene	5.0	nd	8.37	10.1
Anthracene	5.0	nd	nd	nd
Fluoranthene	5.0	9.43	16.7	34.8
Pyrene	5.0	12.6	23.0	57.3
Benzo(a)anthracene	5.0	5.24	10.5	18.0
Chrysene	5.0	5.24	11.5	18.0
Benzo(b)fluoranthene	5.0	nd	10.5	22.5
Benzo(k)fluoranthene	5.0	nd	nd	7.86
Benzo(a)pyrene	5.0	5.24	10.5	32.6
Indeno(1,2,3-cd)pyrene	5.0	nd	7.33	23.6
Dibenzo(a,h)anthracene	5.0	nd	nd	11.2
Benzo(g,h,i)perylene	5.0	9.43	18.8	47.2
<i>Total PAH Carcinogens</i>		15.7	50.2	134

**Total PAH Carcinogens Defined as:**  
Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,  
Benzo(k)fluoranthene, Benzo(a)pyrene,  
Indeno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

### Surrogate Recovery

(Surr 1) 2-Fluorobiphenyl	81%	91%	78%
(Surr 2) p-Terphenyl	93%	112%	96%

"nd" Indicates not detected at listed reporting limits  
"int" Indicates that interference prevents determination  
"J" Indicates estimated value  
"MRL" Indicates Method Reporting Limit  
"RL" Indicates Adjusted Reporting Limit  
"LCS" Indicates Laboratory Control Sample  
"MS" Indicates Matrix Spike  
"MSD" Indicates Matrix Spike Duplicate  
"RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%  
**Acceptable Recovery Limits:**  
Surrogates = 65% to 135%  
LCS, LCSD, MS, MSD = 50% to 150%  
Surrogate Concentration = 200 µg/kg  
Spike Concentration = 200 µg/kg



2930 Westlake Ave. N., Suite 100  
Seattle, WA 98103

T: 206.352.3790  
F: 206.352.7178  
email: info@fremontanalytical.com

## Analysis of Polyaromatic Hydrocarbons in Soil by EPA Method 8270C

**Project:** Verbeek  
**Client:** ARI (DOH)  
**Client Project #:** RK23  
**Lab Project #:** CHM100825-5

<b>EPA 8270C (SIM)</b> <b>(µg/kg)</b>	<b>MRL</b>	<b>RL</b> 1:100	<b>VBK-BS-CS-SW-18B</b>
Date Extracted			8/26/10
Date Analyzed			8/26/10
Matrix			Soil
Naphthalene	5.0	500	<b>11,000</b>
1-Methylnaphthalene	5.0	500	<b>4040</b>
2-Methylnaphthalene	5.0	500	<b>1670</b>
Acenaphthene	5.0	500	<b>1250</b>
Acenaphthylene	5.0	500	<b>10,300</b>
Fluorene	5.0	500	<b>7660</b>
Phenanthrene	5.0	500	<b>119,000</b>
Anthracene	5.0	500	<b>15,300</b>
Fluoranthene	5.0	500	<b>157,000</b>
Pyrene	5.0	500	<b>202,000</b>
Benzo(a)anthracene	5.0	500	<b>43,900</b>
Chrysene	5.0	500	<b>30,800</b>
Benzo(b)fluoranthene	5.0	500	<b>23,000</b>
Benzo(k)fluoranthene	5.0	500	<b>9750</b>
Benzo(a)pyrene	5.0	500	<b>36,800</b>
Indeno(1,2,3-cd)pyrene	5.0	500	<b>25,300</b>
Dibenzo(a,h)anthracene	5.0	500	<b>18,700</b>
Benzo(g,h,i)perylene	5.0	500	<b>51,100</b>
<i>Total PAH Carcinogens</i>			<b>188,250</b>

**Total PAH Carcinogens Defined as:**

Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,  
Benzo(k)fluoranthene, Benzo(a)pyrene,  
Indeno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

**Surrogate Recovery**

(Surr 1) 2-Fluorobiphenyl	95%
(Surr 2) p-Terphenyl	83%

"nd" Indicates not detected at listed reporting limits  
"int" Indicates that interference prevents determination  
"J" Indicates estimated value  
"MRL" Indicates Method Reporting Limit  
"RL" Indicates Adjusted Reporting Limit  
"LCS" Indicates Laboratory Control Sample  
"MS" Indicates Matrix Spike  
"MSD" Indicates Matrix Spike Duplicate  
"RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%

Acceptable Recovery Limits:

Surrogates = 65% to 135%  
LCS, LCSD, MS, MSD = 50% to 150%  
Surrogate Concentration = 200 µg/kg  
Spike Concentration = 200 µg/kg



## Analysis of Polyaromatic Hydrocarbons in Soil by EPA Method 8270C

**Project:** Verbeek  
**Client:** ARI (DOH)  
**Client Project #:** RK23  
**Lab Project #:** CHM100825-5

<b>EPA 8270C (SIM)</b> <b>(µg/kg)</b>	<b>MRL</b>	<b>VBK-BS-CS-SW-18C</b>	<b>VBK-BS-CS-SW-19A</b>	<b>VBK-BS-CS-SW-19B</b>
Date Extracted		8/26/10	8/26/10	8/26/10
Date Analyzed		8/26/10	8/26/10	8/26/10
Matrix		Soil	Soil	Soil
Naphthalene	5.0	<b>516</b>	<b>15.3</b>	<b>182</b>
1-Methylnaphthalene	5.0	<b>682</b>	<b>14.1</b>	<b>57.2</b>
2-Methylnaphthalene	5.0	<b>16.2</b>	nd	<b>14.0</b>
Acenaphthene	5.0	<b>387</b>	<b>23.5</b>	<b>19.8</b>
Acenaphthylene	5.0	nd	nd	nd
Fluorene	5.0	nd	nd	nd
Phenanthrene	5.0	nd	nd	nd
Anthracene	5.0	nd	nd	nd
Fluoranthene	5.0	nd	nd	nd
Pyrene	5.0	nd	nd	<b>7.00</b>
Benzo(a)anthracene	5.0	nd	nd	nd
Chrysene	5.0	nd	nd	nd
Benzo(b)fluoranthene	5.0	nd	nd	nd
Benzo(k)fluoranthene	5.0	nd	nd	nd
Benzo(a)pyrene	5.0	nd	nd	nd
Indeno(1,2,3-cd)pyrene	5.0	nd	nd	nd
Dibenzo(a,h)anthracene	5.0	nd	nd	nd
Benzo(g,h,i)perylene	5.0	nd	nd	<b>7.00</b>
<i>Total PAH Carcinogens</i>		0.0	0.0	0.0

**Total PAH Carcinogens Defined as:**  
Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,  
Benzo(k)fluoranthene, Benzo(a)pyrene,  
Indeno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

### **Surrogate Recovery**

(Surr 1) 2-Fluorobiphenyl	78%	71%	81%
(Surr 2) p-Terphenyl	77%	75%	76%

"nd" Indicates not detected at listed reporting limits  
"int" Indicates that interference prevents determination  
"J" Indicates estimated value  
"MRL" Indicates Method Reporting Limit  
"RL" Indicates Adjusted Reporting Limit  
"LCS" Indicates Laboratory Control Sample  
"MS" Indicates Matrix Spike  
"MSD" Indicates Matrix Spike Duplicate  
"RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%  
Acceptable Recovery Limits:

Surrogates = 65% to 135%  
LCS, LCSD, MS, MSD = 50% to 150%  
Surrogate Concentration = 200 µg/kg  
Spike Concentration = 200 µg/kg



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## Analysis of Polyaromatic Hydrocarbons in Soil by EPA Method 8270C

Project: Verbeek  
Client ARI (DOH)  
Client Project #: RK23  
Lab Project #: CHM100825-5

EPA 8270C (SIM) (µg/kg)	MRL	RL	VBK-BS-CS-SW-19C
		1:100	
Date Extracted			8/26/10
Date Analyzed			8/26/10
Matrix			Soil

Naphthalene	5.0	500	10,100
1-Methylnaphthalene	5.0	500	2990
2-Methylnaphthalene	5.0	500	1950
Acenaphthene	5.0	500	4810
Acenaphthylene	5.0	500	2990
Fluorene	5.0	500	4550
Phenanthrene	5.0	500	42,300
Anthracene	5.0	500	7540
Fluoranthene	5.0	500	51,100
Pyrene	5.0	500	65,200
Benzo(a)anthracene	5.0	500	16,100
Chrysene	5.0	500	16,100
Benzo(b)fluoranthene	5.0	500	15,000
Benzo(k)fluoranthene	5.0	500	4290
Benzo(a)pyrene	5.0	500	19,000
Indeno(1,2,3-cd)pyrene	5.0	500	12,200
Dibenzo(a,h)anthracene	5.0	500	10,500
Benzo(g,h,i)perylene	5.0	500	20,200

Total PAH Carcinogens 93,190

### Total PAH Carcinogens Defined as:

Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,  
Benzo(k)fluoranthene, Benzo(a)pyrene,  
Indeno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

### Surrogate Recovery

(Surr 1) 2-Fluorobiphenyl	102%
(Surr 2) p-Terphenyl	108%

"nd" Indicates not detected at listed reporting limits

"int" Indicates that interference prevents determination

"J" Indicates estimated value

"MRL" Indicates Method Reporting Limit

"RL" Indicates Adjusted Reporting Limit

"LCS" Indicates Laboratory Control Sample

"MS" Indicates Matrix Spike

"MSD" Indicates Matrix Spike Duplicate

"RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%

### Acceptable Recovery Limits:

Surrogates = 65% to 135%

LCS, LCSD, MS, MSD = 50% to 150%

Surrogate Concentration = 200 µg/kg

Spike Concentration = 200 µg/kg

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RK23 : 00005





## Analysis of Polyaromatic Hydrocarbons in Soil by EPA Method 8270C

Project: Verbeek  
Client ARI (DOH)  
Client Project #: RK23  
Lab Project #: CHM100825-5

EPA 8270C (SIM) (µg/kg)	MRL	MS	MSD	RPD %
		VBK-BS-CS-SW-16	VBK-BS-CS-SW-16	
Date Extracted		8/26/10	8/26/10	
Date Analyzed		8/26/10	8/26/10	
Matrix		Soil	Soil	
Naphthalene	5.0			
1-Methylnaphthalene	5.0			
2-Methylnaphthalene	5.0			
Acenaphthene	5.0	76%	67%	13%
Acenaphthylene	5.0			
Fluorene	5.0			
Phenanthrene	5.0			
Anthracene	5.0			
Fluoranthene	5.0			
Pyrene	5.0	83%	76%	9%
Benzo(a)anthracene	5.0			
Chrysene	5.0			
Benzo(b)fluoranthene	5.0			
Benzo(k)fluoranthene	5.0			
Benzo(a)pyrene	5.0			
Indeno(1,2,3-cd)pyrene	5.0			
Dibenzo(a,h)anthracene	5.0			
Benzo(g,h,i)perylene	5.0			

### Total PAH Carcinogens

#### Total PAH Carcinogens Defined as:

Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,  
Benzo(k)fluoranthene, Benzo(a)pyrene,  
Indeno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

#### Surrogate Recovery

(Surr 1) 2-Fluorobiphenyl	93%	96%
(Surr 2) p-Terphenyl	101%	114%

"nd" Indicates not detected at listed reporting limits

"int" Indicates that interference prevents determination

"J" Indicates estimated value

"MRL" Indicates Method Reporting Limit

"RL" Indicates Adjusted Reporting Limit

"LCS" Indicates Laboratory Control Sample

"MS" Indicates Matrix Spike

"MSD" Indicates Matrix Spike Duplicate

"RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%

#### Acceptable Recovery Limits:

Surrogates = 65% to 135%

LCS, LCSD, MS, MSD = 50% to 150%

Surrogate Concentration = 200 µg/kg

Spike Concentration = 200 µg/kg

**SUBCONTRACTOR ANALYSIS REQUEST**  
 CUSTODY TRANSFER 08/25/10



ARI Project: RK23

CHM100825-5

Laboratory: Fremont Analytical  
 Lab Contact: Sample Receiving  
 Lab Address: 2930 Westlake Ave N.  
 Seattle, WA 98103  
 Phone: 206-352-3790  
 Fax:

ARI Client: DOF  
 Project ID: Verbeek  
 ARI PM: Susan Dunningco  
 Phone: 206-695-6207  
 Fax: 206-695-6201

Analytical Protocol: In-house  
 Special Instructions:

Requested Turn Around: 09/01/10  
 Email Results (Y/N): Yes

**Limits of Liability.** Subcontractor is expected to perform all requested services in accordance with appropriate methodology following Standard Operating Procedures that meet 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 negotiated amount for said services. The agreement by the Subcontractor to perform services requested by ARI releases 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 Subcontractor.

ARI ID	Client ID/ Add'l ID	Sampled	Matrix	Bottles	Analyses
10-21262-RK23A	VBK-BS-CS-SW16	08/24/10 07:00	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAHs 8270					
10-21263-RK23B	VBK-BS-CS-SW17	08/24/10 07:10	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAHs 8270					
10-21264-RK23C	VBK-BS-CS-B29	08/24/10 07:20	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAHs 8270					
10-21265-RK23D	VBK-BS-CS-SW18A	08/24/10 11:00	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAHs 8270					
10-21266-RK23E	VBK-BS-CS-SW18B	08/24/10 11:05	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAHs 8270					
10-21267-RK23F	VBK-BS-CS-SW18C	08/24/10 11:10	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAHs 8270					
10-21268-RK23G	VBK-BS-CS-SW19A	08/24/10 13:00	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAHs 8270					
10-21269-RK23H	VBK-BS-CS-SW19B	08/24/10 13:10	Soil	1	Semivolatiles (Sub)
Special Instructions: SIM PAHs 8270					

Carrier	Airbill		Date	
Relinquished by	Company	Date	Time	
<i>[Signature]</i>	ARI	8/25/10	16:50	
Received by	Company	Date	Time	
<i>[Signature]</i>	F.A.	8/25/10	16:51	

SUBCONTRACTOR ANALYSIS REQUEST  
 CUSTODY TRANSFER 08/25/10



ARI Project: RK23

Laboratory: Fremont Analytical  
 Lab Contact: Sample Receiving

ARI Client: DOE  
 Project ID: PSE-004

ART Sample ID	Client Sample ID/ Add'l Sample ID	Sampled	Matrix	Bottles	Analyses
10-21270-RK231	VBK-BS-CS-SW19C	08/24/10 13:20	Soil	1	Semivolatiles (Sub:
Special Instructions: SIM PAHs 8270					

Carrier	Airbill	Date
Relinquished by <i>[Signature]</i>	Company <i>ARI</i>	Date <i>8/25/10</i> Time <i>1650</i>
Received by	Company	Date Time



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

September 20, 2010

Matt Dalton  
Dalton, Olmsted, & Fuglevand  
10827 NE 68th, Suite B  
Kirkland, WA 98033

**RE: Client Project: Verbeek – PSE-004**  
**ARI Job No.: RK56**

Dear Matt:

Please find enclosed the original Chain-of-Custody records (COC), sample receipt documentation, and the final analytical results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted four soil samples on August 26, 2010. For details regarding sample receipt, refer to the enclosed Cooler Receipt Form.

Due to capacity issues at ARI, the samples were subcontracted to Fremont Analytical in Seattle, WA. The Fremont report is enclosed here in its entirety.

An electronic copy of this report 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.

A handwritten signature in cursive script, appearing to read "Susan D. Dunning".

Susan D. Dunning  
Director, Client Services  
sue@arilabs.com  
206-695-6207

Enclosures

cc: eFile RK56





# Cooler Receipt Form

ARI Client: DOFI PSE

Project Name: Verbeek

COC No(s): \_\_\_\_\_ (NA)

Delivered by: Fed-Ex UPS Courier ~~Hand Delivered~~ Other: \_\_\_\_\_

Assigned ARI Job No: RK56

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)..... 2.6

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90941619

Cooler Accepted by: JW Date: 8/26/10 Time: 1320

**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: JW Date: 8/26/10 Time: 1335

**\*\* 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: \_\_\_\_\_

<p>Small Air Bubbles ~2mm</p>	<p>Peabubbles 2-4 mm</p>	<p>LARGE Air Bubbles &gt; 4 mm</p>	<p>Small → "sm"</p> <p>Peabubbles → "pb"</p> <p>Large → "lg"</p> <p>Headspace → "hs"</p>
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# Fremont

Analytical

2930 Westlake Ave N Suite 100  
Seattle, WA 98109  
T: (206) 352-3790  
F: (206) 352-7178  
info@fremontanalytical.com

**Analytical Resources, Inc.**  
**Attn: Sue Dunning**  
4611 South 134th Place, Suite 100  
Tukwila, WA 98168

**RE: Verbeek**  
**Fremont Project No: CHM100826-9**  
**ARI Project No: RK56**

August 31<sup>st</sup>, 2010

**Sue:**

Enclosed are the analytical results for the **Verbeek** soil samples delivered to Fremont Analytical on Thursday August 26<sup>th</sup>, 2010.

**Sample Receipt:**

The samples were received in good condition - in the proper containers (4 – 8oz sample containers), properly sealed, labeled and within holding time. The samples were received in a cooler with wet ice, with a cooler temperature of 2.8°C, which is within the laboratory recommended cooler temperature range (<4°C - 10°C). The samples were stored in a refrigeration unit at the USEPA-recommended temperature of 4°C ± 2°C. There were no sample receipt issues to report.

**Sample Analysis:**

Examination of these samples was conducted for the presence of the following:

- ***Polyaromatic Hydrocarbons in Soil by EPA Method 8270 (SIM)***

This application was performed under Washington State Department of Ecology accreditation parameters. All appropriate Quality Assurance / Quality Control method parameters have been applied. There were no sample analysis issues to report.

Please contact the laboratory if you should have any questions about the results,

Thank you for using Fremont Analytical!

Sincerely,

Michael Dee  
Sr. Chemist / Principal

mikedee@fremontanalytical.com

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**RK56 : 00004**



**Analysis of Polyaromatic Hydrocarbons in Soil by EPA Method 8270C**

Project: Verbeek  
Client ARI (DOH)  
Client Project #: RK56  
Lab Project #: CHM100826-9

EPA 8270C (SIM) (µg/kg)	MRL	Method Blank	LCS	VBK-BS-CS-B-24 <sup>(R)</sup>	VBK-BS-CS-SW-11 <sup>(R)</sup>
Date Extracted		8/26/10	8/26/10	8/26/10	8/26/10
Date Analyzed		8/26/10	8/26/10	8/26/10	8/26/10
Matrix				Soil	Soil
Naphthalene	5.0	nd		nd	nd
1-Methylnaphthalene	5.0	nd		nd	nd
2-Methylnaphthalene	5.0	nd		nd	nd
Acenaphthene	5.0	nd	82%	nd	nd
Acenaphthylene	5.0	nd		nd	nd
Fluorene	5.0	nd		nd	nd
Phenanthrene	5.0	nd		nd	nd
Anthracene	5.0	nd		nd	nd
Fluoranthene	5.0	nd		nd	nd
Pyrene	5.0	nd	77%	nd	nd
Benzo(a)anthracene	5.0	nd		nd	nd
Chrysene	5.0	nd		nd	nd
Benzo(b)fluoranthene	5.0	nd		nd	nd
Benzo(k)fluoranthene	5.0	nd		nd	nd
Benzo(a)pyrene	5.0	nd		nd	nd
Indeno(1,2,3-cd)pyrene	5.0	nd		nd	nd
Dibenzo(a,h)anthracene	5.0	nd		nd	nd
Benzo(g,h,i)perylene	5.0	nd		nd	nd
<i>Total PAH Carcinogens</i>				0.0	0.0

**Total PAH Carcinogens Defined as:**

Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,  
Benzo(k)fluoranthene, Benzo(a)pyrene,  
Indeno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

**Surrogate Recovery**

(Surr 1) 2-Fluorobiphenyl	75%	106%	80%	75%
(Surr 2) p-Terphenyl	71%	97%	76%	75%

"nd" Indicates not detected at listed reporting limits  
"int" Indicates that interference prevents determination  
"J" Indicates estimated value  
"MRL" Indicates Method Reporting Limit  
"RL" Indicates Adjusted Reporting Limit  
"LCS" Indicates Laboratory Control Sample  
"MS" Indicates Matrix Spike  
"MSD" Indicates Matrix Spike Duplicate  
"RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%

**Acceptable Recovery Limits:**

Surrogates = 65% to 135%  
LCS, LCSD, MS, MSD = 50% to 150%  
Surrogate Concentration = 200 µg/kg  
Spike Concentration = 200 µg/kg





2930 Westlake Ave. N., Suite 100  
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email: info@fremontanalytical.com

## Analysis of Polyaromatic Hydrocarbons in Soil by EPA Method 8270C

Project: Verbeek  
Client ARI (DOH)  
Client Project #: RK56  
Lab Project #: CHM100826-9

<b>EPA 8270C (SIM)</b> <b>(µg/kg)</b>	<b>MRL</b>	<b>VBK-BS-CS-SW-20</b>	<b>VBK-BS-CS-SW-21</b>
Date Extracted		8/26/10	8/26/10
Date Analyzed		8/26/10	8/26/10
Matrix		Soil	Soil
Naphthalene	5.0	nd	nd
1-Methylnaphthalene	5.0	nd	nd
2-Methylnaphthalene	5.0	nd	nd
Acenaphthene	5.0	nd	nd
Acenaphthylene	5.0	nd	nd
Fluorene	5.0	nd	nd
Phenanthrene	5.0	nd	nd
Anthracene	5.0	nd	nd
Fluoranthene	5.0	nd	nd
Pyrene	5.0	nd	nd
Benzo(a)anthracene	5.0	nd	nd
Chrysene	5.0	nd	nd
Benzo(b)fluoranthene	5.0	nd	nd
Benzo(k)fluoranthene	5.0	nd	nd
Benzo(a)pyrene	5.0	nd	nd
Indeno(1,2,3-cd)pyrene	5.0	nd	nd
Dibenzo(a,h)anthracene	5.0	nd	nd
Benzo(g,h,i)perylene	5.0	nd	nd
<i>Total PAH Carcinogens</i>		0.0	0.0

**Total PAH Carcinogens Defined as:**

Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,  
Benzo(k)fluoranthene, Benzo(a)pyrene,  
Indeno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

**Surrogate Recovery**

(Surr 1) 2-Fluorobiphenyl	90%	84%
(Surr 2) p-Terphenyl	85%	68%

"nd" Indicates not detected at listed reporting limits

"int" Indicates that interference prevents determination

"J" Indicates estimated value

"MRL" Indicates Method Reporting Limit

"RL" Indicates Adjusted Reporting Limit

"LCS" Indicates Laboratory Control Sample

"MS" Indicates Matrix Spike

"MSD" Indicates Matrix Spike Duplicate

"RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%

Acceptable Recovery Limits:

Surrogates = 65% to 135%

LCS, LCSD, MS, MSD = 50% to 150%

Surrogate Concentration = 200 µg/kg

Spike Concentration = 200 µg/kg

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RK56 : 00006



## Analysis of Polyaromatic Hydrocarbons in Soil by EPA Method 8270C

Project: Verbeek  
Client ARI (DOH)  
Client Project #: RK56  
Lab Project #: CHM100826-9

EPA 8270C (SIM) (µg/kg)	MRL	QA Sample	QA Duplicate	RPD %	MS	MSD	RPD %
		Batch	Batch		Batch	Batch	
		100825-5-1	100825-5-1		100825-5-1	100825-5-1	
Date Extracted		8/26/10	8/26/10		8/26/10	8/26/10	
Date Analyzed		8/26/10	8/26/10		8/26/10	8/26/10	
Matrix		Soil	Soil		Soil	Soil	
Naphthalene	5.0	nd	nd				
1-Methylnaphthalene	5.0	nd	nd				
2-Methylnaphthalene	5.0	nd	nd				
Acenaphthene	5.0	nd	nd		76%	67%	13%
Acenaphthylene	5.0	nd	nd				
Fluorene	5.0	nd	nd				
Phenanthrene	5.0	nd	nd				
Anthracene	5.0	nd	nd				
Fluoranthene	5.0	<b>8.34</b>	<b>8.34</b>	0.05%			
Pyrene	5.0	<b>13.6</b>	<b>12.5</b>	8%	83%	76%	9%
Benzo(a)anthracene	5.0	<b>5.21</b>	<b>5.21</b>	0.05%			
Chrysene	5.0	<b>5.21</b>	<b>4.17 J</b>	22%			
Benzo(b)fluoranthene	5.0	nd	nd				
Benzo(k)fluoranthene	5.0	nd	nd				
Benzo(a)pyrene	5.0	<b>5.21</b>	<b>6.25</b>	18%			
Indeno(1,2,3-cd)pyrene	5.0	nd	nd				
Dibenzo(a,h)anthracene	5.0	nd	nd				
Benzo(g,h,i)perylene	5.0	<b>8.34</b>	<b>10.4</b>	22%			
<i>Total PAH Carcinogens</i>		<b>15.6</b>	<b>11.5</b>				

**Total PAH Carcinogens Defined as:**  
Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene,  
Benzo(k)fluoranthene, Benzo(a)pyrene,  
Indeno(1,2,3-cd)pyrene & Dibenzo(a,h)anthracene

### Surrogate Recovery

(Surr 1) 2-Fluorobiphenyl	81%	84%	93%	96%
(Surr 2) p-Terphenyl	88%	102%	101%	114%

"nd" Indicates not detected at listed reporting limits  
"int" Indicates that interference prevents determination  
"J" Indicates estimated value  
"MRL" Indicates Method Reporting Limit  
"RL" Indicates Adjusted Reporting Limit  
"LCS" Indicates Laboratory Control Sample  
"MS" Indicates Matrix Spike  
"MSD" Indicates Matrix Spike Duplicate  
"RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%

#### Acceptable Recovery Limits:

Surrogates = 65% to 135%  
LCS, LCSD, MS, MSD = 50% to 150%  
Surrogate Concentration = 200 µg/kg  
Spike Concentration = 200 µg/kg

CHM100826-9

**SUBCONTRACTOR ANALYSIS REQUEST**  
CUSTODY TRANSFER 08/26/10



ARI Project: RK56

Laboratory: Fremont Analytical  
Lab Contact: Sample Receiving  
Lab Address: 2930 Westlake Ave N.  
Seattle, WA 98103  
Phone: 206-352-3790  
Fax:

ARI Client: DOF  
Project ID: Verbeek  
ARI PM: Susan Durnihoo  
Phone: 206-695-6207  
Fax: 206-695-6201

Analytical Protocol: In-house  
Special Instructions:

Requested Turn Around: 09/02/10  
Email Results (Y/N): Yes

**Limits of Liability.** Subcontractor is expected to perform all requested services in accordance with appropriate methodology following Standard Operating Procedures that meet 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 negotiated amount for said services. The agreement by the Subcontractor to perform services requested by ARI releases 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 Subcontractor.

ART ID	Client ID/ Add'l ID	Sampled	Matrix	Bottles	Analyses
10-21404-RK56A	VBX-RS-CS-B24(R)	08/24/10 14:00	Soil	1	8270-Sim PAHs
Special Instructions: 8270-Sim PAHs					
10-21405-RK56B	VBK-BS-CS-SW11(R)	08/24/10 14:15	Soil	1	8270-Sim PAHs
Special Instructions: 8270-Sim PAHs					
10-21406-RK56C	VBK-BS-CS-SW20	08/25/10 12:00	Soil	1	8270-Sim PAHs
Special Instructions: 8270-Sim PAHs					
10-21407-RK56D	VBK-BS-CS-SW21	08/25/10 13:00	Soil	1	8270-Sim PAHs
Special Instructions: 8270-Sim PAHs					

Carrier	Airbill	Date
Relinquished by	Company ARI	Date 8/26/10
Received by	Company Fremont	Date 8/26
		Time 1545
		Time 1548