

**Third Runway Project
Off-Site Borrow Source
Baseline Chemical Characterization
Marine View Pit
Fife, Washington**



**Prepared for
Port of Seattle**

**December 12, 2001
4978-06**

AR 026986

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**Third Runway Project
Off-Site Borrow Source
Baseline Chemical Characterization
Marine View Pit
Fife, Washington**

**Prepared for
Port of Seattle**

**December 12, 2001
4978-06**

Prepared by
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Anchorage

Boston

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Juneau

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NORTH CREEK ANALYTICAL, INC.

AR 026988

**THIRD RUNWAY PROJECT
OFF-SITE BORROW SOURCE BASELINE CHEMICAL CHARACTERIZATION
MARINE VIEW PIT, FIFE, WASHINGTON**

This data package presents information compiled by Hart Crowser following the collection and chemical analysis of soil samples at the Marine View Pit for the Third Runway Project. The Marine View Pit is operated by City Transfer Incorporated (CTI) and is a source of soil borrow fill material for the Third Runway embankment that is currently being constructed at the Sea-Tac International Airport. Soils at the Marine View Pit consist of native sand and gravel derived from glacial and related alluvial deposits. Work for the project was completed pursuant to our contract with HNTB dated May 1, 1998, as amended, and the sampling and analysis strategy described in the Hart Crowser proposal dated October 5, 2001. Hart Crowser collected samples on October 3 and 4, 2001, at the pit locations identified on Figure 1. All site sampling work was conducted following approval and site access authorization from CTI and Marine View Pit personnel.

The objective of the pit sampling and analysis was to perform a baseline chemical characterization of *in situ* soils from active portions of the Marine View Pit. The soils were analyzed for total metals (priority pollutant metals plus barium) and total petroleum hydrocarbons. Additionally, Synthetic Precipitation Leaching Procedure (SPLP) analyses were conducted for any metal with a total metals concentration that exceeded fill screening criteria listed in the Port of Seattle's (Port's) Section 401 Water Quality Certification (Order #1996-4-0325, Amended -1) dated September 21, 2001.

Twelve representative soil samples from the Marine View Pit were submitted for laboratory analysis at North Creek Analytical (NCA; Bothell, Washington).

This data package contains the following:

- **CHEMICAL ANALYSIS RESULTS AND CONCLUSIONS;**
- **SAMPLING METHODOLOGY AND SOILS DESCRIPTION;**
- **CHEMICAL DATA QUALITY REVIEW;** and
- **LIMITATIONS.**

Figure 1 is the Site Plan Schematic showing the stockpile that was sampled and the sample locations. Table 1 presents the total metals and SPLP metals chemical analysis results. Table 2 presents soil sample descriptions.

Laboratory analytical documentation from NCA is presented in Appendix A.

CHEMICAL ANALYSIS RESULTS AND CONCLUSIONS

Total metals results for the Marine View Pit soil samples (Type 1B and Type 2 Soils), presented in Table 1, were compared against the Section 401 fill criteria (Condition E.1.B). As shown in Table 1, the beryllium concentrations from samples MVP-Comp3 (1.01 mg/kg) and MVP-Comp5 (0.602 mg/kg) marginally exceeded the beryllium fill criteria of 0.6 mg/kg.

As a result of the beryllium exceedences, samples MVP-Comp3 and MVP-Comp5 were analyzed for beryllium via SPLP in accordance with Attachment E of the Section 401 Certification (Section 401 Certification SPLP Work Plan). Beryllium was not detected in either sample at a reporting limit of 0.05 milligrams per liter (mg/L) using the SPLP methodology.

Based on a comparison of the cadmium detection of 1.02 mg/kg in sample MVP-1B-Comp1 and a screening level of 1.0 mg/kg, sample MVP-1B-Comp1 was analyzed for cadmium via SPLP in accordance with Attachment E of the Section 401 Certification (Section 401 Certification SPLP Work Plan). However, based on the fill criteria from Condition E.1.b of Section 401 Certification, the SPLP analysis of cadmium was not required (see Table 1). Cadmium was not detected in sample MVP-1B-Comp1 at a reporting limit of 0.05 milligrams per liter (mg/L) using the SPLP methodology.

As discussed below in the **CHEMICAL DATA QUALITY REVIEW** section, Marine View Pit antimony sample analysis results from NCA laboratories were initially rejected based on failure of the laboratory quality control samples. Antimony analysis results for samples collected from five other off-site borrow sources (Kent Kangley Pit, CTI Pit No. 3, Lakeland Hills Pit, Black River Quarry, and the Lincoln and Summit Stockpile) were also initially rejected, indicating a systematic laboratory condition. Soil samples from the Lakeland Hills Pit (LH Comp 5), the Kent Kangley Pit (TP-2 Comp 1) and CTI Pit No. 3 (CTI Comp 6), were then resubmitted to Columbia Analytical Services, Inc. (CAS) laboratory for reanalysis of antimony. CAS analyzed each sample using the same extraction method (EPA Method 3050B) and similar analytical method (EPA 200.8 versus EPA 6020) that NCA used. In addition, the Kent Kangley sample (TP-2 Comp 1) was extracted using an optional extraction procedure designed to improve to solubility and recovery of antimony (EPA Method 3050B; Section 7.5).

As described in the **CHEMICAL DATA QUALITY REVIEW** section of the Lakeland Hills Pit, CTI Pit No. 3, and Kent Kangley Pit baseline chemical

characterization reports, the CAS antimony results were determined to be acceptable, based on the results of reanalysis. The analytical results from NCA and CAS are also well below the 401 Certification antimony fill criterion of 16 mg/kg. Because the CAS antimony results are acceptable, and are below the NCA Marine View Pit antimony reporting limits, the NCA Marine View Pit antimony results were also determined to be acceptable. Additionally, according to Shacklette and Boerngen's Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States (1984), the mean antimony concentration in the western U.S. is 0.47 mg/kg, and the observed range is less than 1 to 2.6 mg/kg.

In conclusion, the results presented in Table 1, along with the discussion in this section, show that the total metal concentrations in the soils from the Marine View Pit are less than those defined by the 401 fill criteria.

SAMPLING METHODOLOGY AND SOILS DESCRIPTION

The following sections describe the specific exploration and sample collection methods used. This description includes sample handling and transfer, and decontamination procedures.

Sample Collection and Soils Description

Hart Crowser collected 12 composite samples from the Marine View Pit on October 3 and 4, 2001. Six samples were collected from Type 1B material and six samples were collected from the Type 2 material (Figure 1). These materials are representative of soils shipped for embankment fill for the Third Runway Project.

Soil Samples

The soil samples (MVP-1B-Comp1 through MVP-1B-Comp6 and MVP-Comp1 through MVP-Comp6) represent three-point composite samples. The approximate locations of the individual sample aliquots for each composite sample are shown on Figure 1. Each sample aliquot was collected at a minimum of about 1-foot below the surface. The Type 1B and Type 2 soils generally consisted of gravelly Sand.

To form each composite sample, material at each sample aliquot location was collected by hand with a stainless steel spoon and mixed together in a stainless steel bowl. Each resulting composite sample was then transferred to pre-cleaned, labeled sample jars for laboratory analyses.

Sample Handling and Transfer

After compositing each sample, each sample jar was wiped clean and capped with a Teflon-lined lid, and then placed in an insulated ice chest with ice. Samples were shipped on October 4, 2001, to NCA under a chain of custody form for laboratory analyses. The samples were transported with blue ice and were received at the laboratory in good condition.

Decontamination

Sampling equipment was cleaned prior to and between each sample. The spoons, bowls, and other hand sampling equipment were brush-scrubbed using an Alconox detergent solution followed by successive rinses of tap and deionized water.

CHEMICAL DATA QUALITY REVIEW

This data quality review evaluates the data included in the NCA data groups B1J0132 and B1J0187. This data group includes data for soil samples collected at the Black River Quarry, Lincoln and Summit Stockpile, and the Marine View Pit (Type 1B and Type 2 Soils). In total, 24 soil samples were collected for this data group on October 3 and 4, 2001, including the twelve samples from the Marine View Pit. These samples were analyzed for the following:

- Total Metals (silver, arsenic, barium, beryllium, cadmium, chromium, copper, mercury, nickel, lead, antimony, selenium, thallium, and zinc via EPA 6000 and 7000 series methods).

Following the above analyses, a subset of the 24 samples were further analyzed by NCA for leachable beryllium, cadmium, chromium, copper, and/or nickel using the SPLP procedure via method EPA Method 1312 metals (beryllium via EPA Method 6010B and cadmium, chromium, copper, and nickel via EPA Method 6020).

The following criteria were evaluated in the standard data quality review process:

- Holding times;
- Method blanks;
- Surrogate recoveries;

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- Matrix spike/matrix spike duplicate (MS/MSD) recoveries; and
- Laboratory relative percent difference (RPD).

Total Metals. All required holding times were met. No method blank contamination was detected. Lab control sample/lab control sample duplicate (LCS/LCSD) and MS/MSD recoveries were within control limits with the following exceptions. The percent recovery for barium in the MS/MSD samples prepared on October 10, 2001, was less than the control limit (33.3/38.3 percent versus 70 to 130 percent). MVP-1B-Comp 2 was the only sample associated with the October 10, 2001, MS/MSD sample and the barium detection of 74.6 mg/kg was flagged as estimated ("J"). In addition, the percent recoveries for antimony in the MS/MSD samples (less than 5 percent) were significantly less than the control limit (70 to 130 percent). In addition, the MS/MSD RPD for antimony was greater than the control limit. A post-digestion spike on the same source sample that was used as the MS/MSD sample had an acceptable percent recovery for antimony. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (dated February 1998) requires that non-detected results be rejected when the MS/MSD percent recoveries are less than 30 percent. Although it is not unusual for antimony recoveries to be low in many types of soil, the antimony MS/MSD recoveries are significantly below 30 percent requiring that all the antimony (non-detect) results be rejected. It should be noted, however, that antimony was not detected in any of the Black River Quarry. The soil quality data, with the exception of antimony, are acceptable for use as qualified.

SPLP Metals. All required holding times were met. No method blank contamination was detected. LCS/LCSD and MS/MSD recoveries were within control limits. The data are acceptable for use without qualification.

LIMITATIONS

Work for this project was performed, and this report prepared, in accordance with generally accepted professional practices for the nature and conditions of the work completed in the same or similar localities, at the time the work was performed. It is intended for the exclusive use of the Port of Seattle for specific application to the referenced property. This report is not meant to represent a legal opinion. No other warranty, express or implied, is made.

Any questions regarding our work and this report, the presentation of the information, and the interpretation of the data are welcome. We trust that this report meets your needs.

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Table 1 - Marine View Pit Sampling, Total Metals Analytical Results

Sample Location/ Screening Level ^a	Total Metals Concentration in mg/kg													
	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
	16	20	NE	0.6	2	42/2000 ^b	36	220/250 ^b	2	100/110 ^b	5	5	2	85
Marine View Pit - Type 1B Soil														
MVP-1B-Comp1	0.4UJ	2.59	60.6	0.4	1.0	25.0	16.8	3.11	0.2U	29.1	0.4U	0.4U	0.4U	39.0
MVP-1B-Comp2	0.5UJ	2.94	74.6J	0.5U	0.5U	21.2	16.0	2.36	0.2U	24.6	0.5U	0.5U	0.5U	31.8
MVP-1B-Comp3	0.4UJ	2.88	55.1	0.4U	0.4U	28.9	12.5	2.19	0.2U	31.8	0.4U	0.4U	0.4U	33.7
MVP-1B-Comp4	0.4UJ	1.36	59.6	0.4U	0.7	25.1	13.4	2.20	0.2U	27.9	0.4U	0.4U	0.4U	34.9
MVP-1B-Comp5	0.4UJ	2.30	47.7	0.4U	0.8	26.0	13.2	2.04	0.2U	27.2	0.4U	0.4U	0.4U	33.7
MVP-1B-Comp6	0.3UJ	2.48	57.5	0.3	0.8	23.5	19.1	5.00	0.2U	27.5	0.3U	0.3U	0.3U	40.0
Marine View Pit - Type 2 Soil														
MVP-Comp1	0.5UJ	1.83	92.7	0.5U	0.5U	20.9	24.5	4.36	0.2U	12.0	0.5U	0.5U	0.5U	36.8
MVP-Comp2	0.4UJ	1.73	128	0.583	0.4U	21.7	25.2	5.52	0.2U	12.8	0.4U	0.4U	0.4U	38.8
MVP-Comp3	0.5UJ	1.40	163.0	1.01	0.5U	30.0	20.1	6.58	0.2U	17.7	0.5U	0.5U	0.5U	27.6
MVP-Comp4	0.5UJ	1.82	89.5	0.5U	0.5U	21.5	25.8	4.46	0.2U	13.0	0.5U	0.5U	0.5U	36.2
MVP-Comp5	0.4UJ	1.80	92.4	0.602	0.4U	19.3	27.3	5.10	0.2U	11.6	0.4U	0.4U	0.4U	38.3
MVP-Comp6	0.3UJ	1.87	96.8	0.572	0.3U	22.7	24.7	4.98	0.2U	12.2	0.3U	0.3U	0.3U	35.9

Notes:

Soil samples collected by Hart Crowser on October 3 and 4, 2001.
 Bolded and underlined value exceeds Section 401 fill criteria screening level.

Samples analyzed by NCA.

a Fill criteria from Condition E.1.b of Section 401 Certification.

b Criteria vary depending on where fill is placed in embankment (see Condition E.1.b of 401 Certification).

U Not detected above laboratory analytical reporting limit.

J Estimated

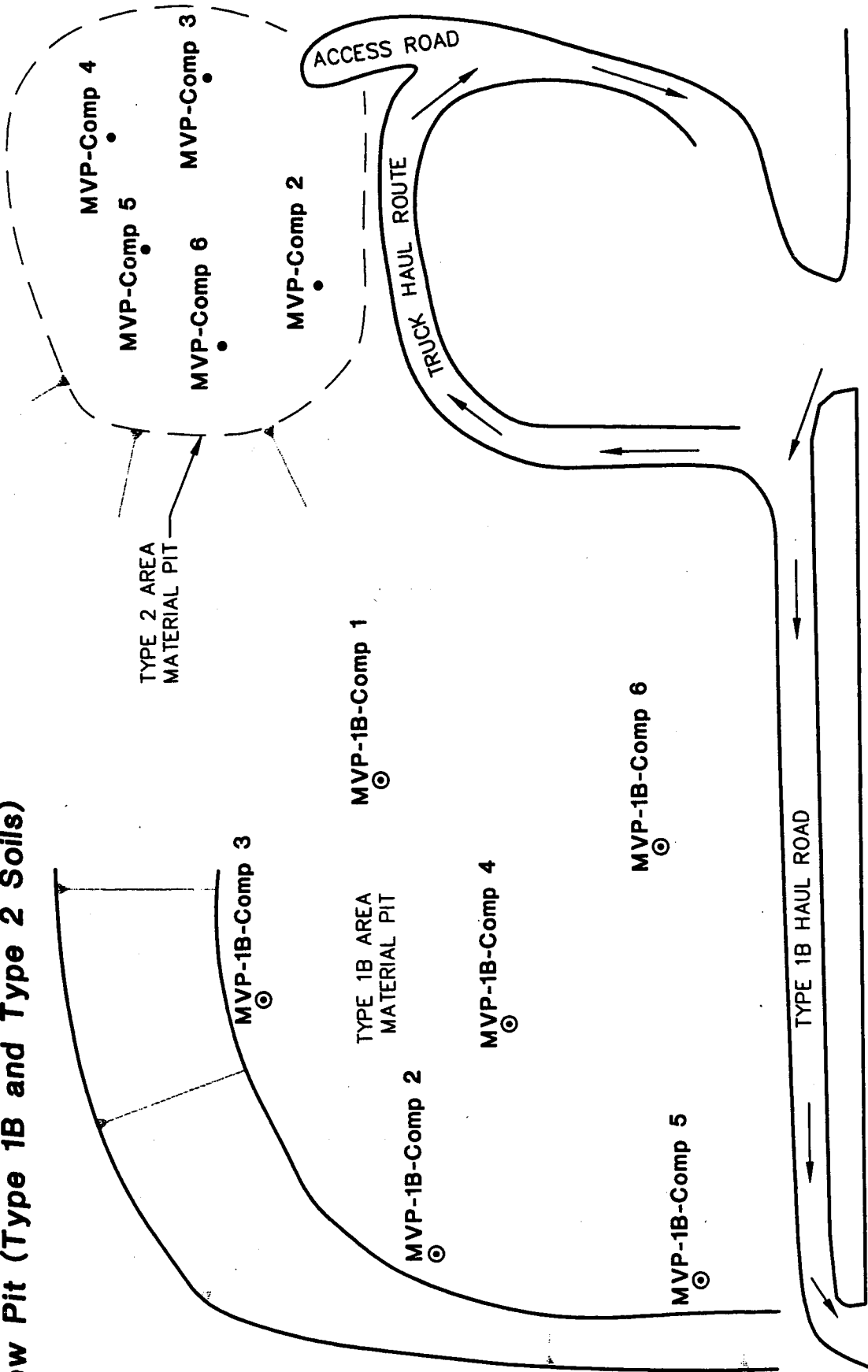
NE Not established.

Table 2 - Marine View Pit Sampling, Soil Sample Descriptions

Sample Location	Sample Description
Marine View Pit - Type 1B Soil	
MVP-1B-Comp1	Moist, red to brown, slightly gravelly to gravelly, SAND
MVP-1B-Comp2	Moist, brown, slightly gravelly to gravelly, SAND; and localized gray, slightly gravelly SAND
MVP-1B-Comp3	Damp, red to brown, slightly gravelly to gravelly, clean medium SAND
MVP-1B-Comp4	Damp, light gray, slightly gravelly, SAND
MVP-1B-Comp5	Moist, red to brown, slightly gravelly to gravelly, SAND
MVP-1B-Comp6	Wet, brown, gravelly, SAND with localized SILT and roots
Marine View Pit - Type 2 Soil	
MVP-Comp1	Moist to wet, gray to brown, very gravelly, SAND with localized SILT-CLAYSTONE
MVP-Comp2	Wet, brown to gray, gravelly, slightly silty, SAND with localized CLAY
MVP-Comp3	Wet, light brown, gravelly, silty, SAND
MVP-Comp4	Wet, brown, gravelly, SAND with localized SILT
MVP-Comp5	Wet, brown, gravelly SAND with localized light gray SAND
MVP-Comp6	Wet, brown, slightly silty, gravelly SAND with localized CLAY/SILT

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Site Plan Schematic and Sample Location Map Marine View Pit (Type 1B and Type 2 Soils)



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Not to Scale

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Figure 1

MVP-Comp 1 Type 2 Composite Sample Location and Number MVP-1B-Comp 1 Composite Sample Location and Number

Downhill Slope Direction

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**APPENDIX A
LABORATORY ANALYTICAL DOCUMENTATION
NORTH CREEK ANALYTICAL, INC.**

30 October 2001

Rick Moore
Hart Crowser, Inc. - WA
1910 Fairview Ave. E.
Seattle, WA 98102

RE: Third Runway/Pit Samples

Enclosed are **amended** results of analyses for samples received by the laboratory on 10/04/01 15:35. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "S. Woerman", followed by a long horizontal line extending to the right.

Scott A. Woerman
Project Manager

AR 027000

Hart Crowser, Inc. - WA
1910 Fairview Ave. E.
Seattle WA, 98102

Project: Third Runway/Pit Samples
Project Number: 4978-19
Project Manager: Rick Moore

Amended Report
Issued: 10/30/01 19:55

ANALYTICAL REPORT FOR SAMPLES - Amended

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MVP-1B- COMP 1	BIJ0187-01	Soil	10/04/01 09:25	10/04/01 15:35
MVP-1B- COMP 2	BIJ0187-02	Soil	10/04/01 09:35	10/04/01 15:35
MVP-1B- COMP 3	BIJ0187-03	Soil	10/04/01 09:50	10/04/01 15:35
MVP-1B- COMP 4	BIJ0187-04	Soil	10/04/01 10:00	10/04/01 15:35
MVP-1B- COMP 5	BIJ0187-05	Soil	10/04/01 10:05	10/04/01 15:35
MVP-1B- COMP 6	BIJ0187-06	Soil	10/04/01 10:15	10/04/01 15:35
BRQ-LS- COMP 1	BIJ0187-07	Soil	10/04/01 14:05	10/04/01 15:35
BRQ-LS- COMP 2	BIJ0187-08	Soil	10/04/01 14:10	10/04/01 15:35
BRQ-LS- COMP 3	BIJ0187-09	Soil	10/04/01 14:15	10/04/01 15:35
BRQ-LS- COMP 4	BIJ0187-10	Soil	10/04/01 14:25	10/04/01 15:35
BRQ-LS- COMP 5	BIJ0187-11	Soil	10/04/01 14:35	10/04/01 15:35
BRQ-LS- COMP 6	BIJ0187-12	Soil	10/04/01 14:45	10/04/01 15:35

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA
 1910 Fairview Ave. E.
 Seattle WA, 98102

Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

Amended Report
 Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Result	Limit							
MVP-1B- COMP 1 (B1J0187-01) Soil Sampled: 10/04/01 09:25 Received: 10/04/01 15:35									
Silver	ND	0.385	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	2.59	0.385	"	"	"	"	"	"	
Barium	60.6	3.85	"	"	"	"	"	"	
Beryllium	0.392	0.385	"	"	"	"	"	"	
Cadmium	1.03	0.385	"	"	"	"	"	"	
Chromium	25.0	0.385	"	"	"	"	"	"	
Copper	16.8	0.385	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	29.1	0.385	"	"	1J08034	10/08/01	10/10/01	EPA 6020	
Lead	3.11	0.385	"	"	"	"	"	"	
Antimony	ND ^J	0.385	"	"	"	"	"	"	
Selenium	ND	0.385	"	"	"	"	"	"	
Thallium	ND	0.385	"	"	"	"	"	"	
Zinc	39.0	3.85	"	"	"	"	"	"	

MVP-1B- COMP 2 (B1J0187-02) Soil Sampled: 10/04/01 09:35 Received: 10/04/01 15:35									
Silver	ND	0.455	mg/kg dry	1	1J09035	10/09/01	10/10/01	EPA 6020	
Arsenic	2.94	0.455	"	"	"	"	"	"	
Barium	74.6 ^J	4.55	"	"	"	"	"	"	
Beryllium	ND	0.455	"	"	"	"	10/11/01	"	
Cadmium	ND	0.455	"	"	"	"	10/10/01	"	
Chromium	21.2	0.455	"	"	"	"	10/11/01	"	
Copper	16.0	0.455	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	24.6	0.455	"	"	1J09035	10/09/01	10/11/01	EPA 6020	
Lead	2.36	0.455	"	"	"	"	10/10/01	"	
Selenium	ND	0.455	"	"	"	"	"	"	
Thallium	ND	0.455	"	"	"	"	"	"	
Zinc	31.8	4.55	"	"	"	"	"	"	

NFM
 12/11/01

North Creek Analytical - Bothell

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 Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA
 1910 Fairview Ave. E.
 Seattle WA, 98102

Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

Amended Report
 Issued: 10/30/01 19:55


Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Result	Limit							
MVP-1B- COMP 2 (B1J0187-02RE1) Soil Sampled: 10/04/01 09:35 Received: 10/04/01 15:35									
Antimony	ND ₅	0.500	mg/kg dry	1	1J11031	10/11/01	10/12/01	EPA 6020	
MVP-1B- COMP 3 (B1J0187-03) Soil Sampled: 10/04/01 09:50 Received: 10/04/01 15:35									
Silver	ND	0.379	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	2.88	0.379	"	"	"	"	"	"	
Barium	55.1	3.79	"	"	"	"	"	"	
Beryllium	ND	0.379	"	"	"	"	"	"	
Cadmium	ND	0.379	"	"	"	"	"	"	
Chromium	28.9	0.379	"	"	"	"	"	"	
Copper	12.5	0.379	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	31.8	0.379	"	"	1J08034	10/08/01	10/10/01	EPA 6020	
Lead	2.19	0.379	"	"	"	"	"	"	
Antimony	ND ₅	0.379	"	"	"	"	"	"	
Selenium	ND	0.379	"	"	"	"	"	"	
Thallium	ND	0.379	"	"	"	"	"	"	
Zinc	33.7	3.79	"	"	"	"	"	"	
MVP-1B- COMP 4 (B1J0187-04) Soil Sampled: 10/04/01 10:00 Received: 10/04/01 15:35									
Silver	ND	0.417	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	1.36	0.417	"	"	"	"	"	"	
Barium	59.6	4.17	"	"	"	"	"	"	
Beryllium	ND	0.417	"	"	"	"	"	"	
Cadmium	0.748	0.417	"	"	"	"	"	"	
Chromium	25.1	0.417	"	"	"	"	"	"	
Copper	13.4	0.417	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	27.9	0.417	"	"	1J08034	10/08/01	10/10/01	EPA 6020	
Lead	2.20	0.417	"	"	"	"	"	"	
Antimony	ND ₅	0.417	"	"	"	"	"	"	
Selenium	ND	0.417	"	"	"	"	"	"	
Thallium	ND	0.417	"	"	"	"	"	"	
Zinc	34.9	4.17	"	"	"	"	"	"	

NFA 12/11/01

North Creek Analytical - Bothell

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Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA
 1910 Fairview Ave. E.
 Seattle WA, 98102

Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

Amended Report
 Issued: 10/30/01 19:55

**Total Metals by EPA 6000/7000 Series Methods
 North Creek Analytical - Bothell**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
MVP-1B- COMP 5 (B1J0187-05) Soil Sampled: 10/04/01 10:05 Received: 10/04/01 15:35										
Silver	ND	0.407		mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	2.30	0.407		"	"	"	"	"	"	
Barium	47.7	4.07		"	"	"	"	"	"	
Beryllium	ND	0.407		"	"	"	"	"	"	
Cadmium	0.783	0.407		"	"	"	"	"	"	
Chromium	26.0	0.407		"	"	"	"	"	"	
Copper	13.2	0.407		"	"	"	"	"	"	
Mercury	ND	0.200		"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	27.2	0.407		"	"	1J08034	10/08/01	10/10/01	EPA 6020	
Lead	2.04	0.407		"	"	"	"	"	"	
Antimony	ND ⁵	0.407		"	"	"	"	"	"	
Selenium	ND	0.407		"	"	"	"	"	"	
Thallium	ND	0.407		"	"	"	"	"	"	
Zinc	33.7	4.07		"	"	"	"	"	"	

MVP-1B- COMP 6 (B1J0187-06) Soil Sampled: 10/04/01 10:15 Received: 10/04/01 15:35										
Silver	ND	0.309		mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	2.48	0.309		"	"	"	"	"	"	
Barium	57.5	3.09		"	"	"	"	"	"	
Beryllium	0.340	0.309		"	"	"	"	"	"	
Cadmium	0.818	0.309		"	"	"	"	"	"	
Chromium	23.5	0.309		"	"	"	"	"	"	
Copper	19.1	0.309		"	"	"	"	"	"	
Mercury	ND	0.200		"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	27.5	0.309		"	"	1J08034	10/08/01	10/10/01	EPA 6020	
Lead	5.00	0.309		"	"	"	"	"	"	
Antimony	ND ⁵	0.309		"	"	"	"	"	"	
Selenium	ND	0.309		"	"	"	"	"	"	
Thallium	ND	0.309		"	"	"	"	"	"	
Zinc	40.0	3.09		"	"	"	"	"	"	

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North Creek Analytical - Bothell

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 Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA
 1910 Fairview Ave. E.
 Seattle WA, 98102

Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

Amended Report
 Issued: 10/30/01 19:55

**Total Metals by EPA 6000/7000 Series Methods
 North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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BRQ-LS- COMP 1 (B1J0187-07) Soil Sampled: 10/04/01 14:05 Received: 10/04/01 15:35

Silver	ND	0.368	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	2.73	0.368	"	"	"	"	"	"	
Barium	74.5	3.68	"	"	"	"	"	"	
Beryllium	ND	0.368	"	"	"	"	10/11/01	"	
Cadmium	0.605	0.368	"	"	"	"	10/10/01	"	
Chromium	36.8	0.368	"	"	"	"	10/11/01	"	
Copper	26.4	0.368	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	41.8	0.368	"	"	1J08034	10/08/01	10/11/01	EPA 6020	
Lead	3.12	0.368	"	"	"	"	10/10/01	"	
Antimony	ND ₅	0.368	"	"	"	"	"	"	
Selenium	ND	0.368	"	"	"	"	"	"	
Thallium	ND	0.368	"	"	"	"	"	"	
Zinc	42.7	3.68	"	"	"	"	"	"	

BRQ-LS- COMP 2 (B1J0187-08) Soil Sampled: 10/04/01 14:10 Received: 10/04/01 15:35

Silver	ND	0.379	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	3.00	0.379	"	"	"	"	"	"	
Barium	76.9	3.79	"	"	"	"	"	"	
Beryllium	ND	0.379	"	"	"	"	10/11/01	"	
Cadmium	0.525	0.379	"	"	"	"	10/10/01	"	
Chromium	36.0	0.379	"	"	"	"	10/11/01	"	
Copper	26.7	0.379	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	41.9	0.379	"	"	1J08034	10/08/01	10/11/01	EPA 6020	
Lead	3.37	0.379	"	"	"	"	10/10/01	"	
Antimony	ND ₅	0.379	"	"	"	"	"	"	
Selenium	ND	0.379	"	"	"	"	"	"	
Thallium	ND	0.379	"	"	"	"	"	"	
Zinc	42.6	3.79	"	"	"	"	"	"	

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North Creek Analytical - Bothell

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 Project Manager: Rick Moore

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**Total Metals by EPA 6000/7000 Series Methods
 North Creek Analytical - Bothell**

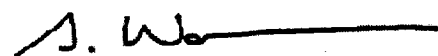
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRO-LS- COMP 3 (B1J0187-09) Soil Sampled: 10/04/01 14:15 Received: 10/04/01 15:35									
Silver	ND	0.424	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	3.22	0.424	"	"	"	"	"	"	
Barium	85.1	4.24	"	"	"	"	"	"	
Beryllium	ND	0.424	"	"	"	"	10/11/01	"	
Cadmium	0.629	0.424	"	"	"	"	10/10/01	"	
Chromium	40.3	0.424	"	"	"	"	10/11/01	"	
Copper	22.9	0.424	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	45.9	0.424	"	"	1J08034	10/08/01	10/11/01	EPA 6020	
Lead	4.12	0.424	"	"	"	01/18/01	10/10/01	"	
Antimony	ND ^J	0.424	"	"	"	10/08/01	"	"	
Selenium	ND	0.424	"	"	"	"	"	"	
Thallium	ND	0.424	"	"	"	"	"	"	
Zinc	44.6	4.24	"	"	"	"	"	"	

BRQ-LS- COMP 4 (B1J0187-10) Soil Sampled: 10/04/01 14:25 Received: 10/04/01 15:35									
Silver	ND	0.435	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	2.23	0.435	"	"	"	"	"	"	
Barium	63.5	4.35	"	"	"	"	"	"	
Beryllium	ND	0.435	"	"	"	"	10/11/01	"	
Cadmium	0.451	0.435	"	"	"	"	10/10/01	"	
Chromium	30.4	0.435	"	"	"	"	10/11/01	"	
Copper	17.3	0.435	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	38.7	0.435	"	"	1J08034	10/08/01	10/11/01	EPA 6020	
Lead	5.29	0.435	"	"	"	"	10/10/01	"	
Antimony	ND ^J	0.435	"	"	"	"	"	"	
Selenium	ND	0.435	"	"	"	"	"	"	
Thallium	ND	0.435	"	"	"	"	"	"	
Zinc	34.6	4.35	"	"	"	"	"	"	

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 Project Manager: Rick Moore

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Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-LS- COMP 5 (B1J0187-11) Soil Sampled: 10/04/01 14:35 Received: 10/04/01 15:35									
Silver	ND	0.347	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	2.45	0.347	"	"	"	"	"	"	
Barium	59.9	3.47	"	"	"	"	"	"	
Beryllium	ND	0.347	"	"	"	"	10/11/01	"	
Cadmium	0.433	0.347	"	"	"	"	10/10/01	"	
Chromium	31.7	0.347	"	"	"	"	10/11/01	"	
Copper	15.0	0.347	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	39.2	0.347	"	"	1J08034	10/08/01	10/11/01	EPA 6020	
Lead	3.55	0.347	"	"	"	"	10/10/01	"	
Antimony	ND ^J	0.347	"	"	"	"	"	"	
Selenium	ND	0.347	"	"	"	"	"	"	
Thallium	ND	0.347	"	"	"	"	"	"	
Zinc	33.6	3.47	"	"	"	"	"	"	

BRQ-LS- COMP 6 (B1J0187-12) Soil Sampled: 10/04/01 14:45 Received: 10/04/01 15:35									
Silver	ND	0.388	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	2.47	0.388	"	"	"	"	"	"	
Barium	64.5	3.88	"	"	"	"	"	"	
Beryllium	ND	0.388	"	"	"	"	10/11/01	"	
Cadmium	ND	0.388	"	"	"	"	10/10/01	"	
Chromium	32.4	0.388	"	"	"	"	10/11/01	"	
Copper	17.6	0.388	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	37.4	0.388	"	"	1J08034	10/08/01	10/11/01	EPA 6020	
Lead	4.16	0.388	"	"	"	"	10/10/01	"	
Antimony	ND ^J	0.388	"	"	"	"	"	"	
Selenium	ND	0.388	"	"	"	"	"	"	
Thallium	ND	0.388	"	"	"	"	"	"	
Zinc	37.5	3.88	"	"	"	"	"	"	

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North Creek Analytical - Bothell

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Project Number: 4978-19
Project Manager: Rick Moore

Amended Report
Issued: 10/30/01 15:55

SPLP Metals by EPA 1312/6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Result	Limit							
MVP-1B-COMP 1 (BIJ0187-01) Soil Sampled: 10/04/01 09:25 Received: 10/04/01 15:35									
Cadmium	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	

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Issued: 10/30/01 19:55

Physical Parameters by APHA/ASTM/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-1B- COMP 1 (B1J0187-01) Soil Sampled: 10/04/01 09:25 Received: 10/04/01 15:35									
Dry Weight	91.6	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
MVP-1B- COMP 2 (B1J0187-02) Soil Sampled: 10/04/01 09:35 Received: 10/04/01 15:35									
Dry Weight	90.4	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
MVP-1B- COMP 3 (B1J0187-03) Soil Sampled: 10/04/01 09:50 Received: 10/04/01 15:35									
Dry Weight	92.1	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
MVP-1B- COMP 4 (B1J0187-04) Soil Sampled: 10/04/01 10:00 Received: 10/04/01 15:35									
Dry Weight	92.3	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
MVP-1B- COMP 5 (B1J0187-05) Soil Sampled: 10/04/01 10:05 Received: 10/04/01 15:35									
Dry Weight	91.6	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
MVP-1B- COMP 6 (B1J0187-06) Soil Sampled: 10/04/01 10:15 Received: 10/04/01 15:35									
Dry Weight	88.7	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
BRO-LS- COMP 1 (B1J0187-07) Soil Sampled: 10/04/01 14:05 Received: 10/04/01 15:35									
Dry Weight	98.1	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
BRO-LS- COMP 2 (B1J0187-08) Soil Sampled: 10/04/01 14:10 Received: 10/04/01 15:35									
Dry Weight	97.6	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
BRO-LS- COMP 3 (B1J0187-09) Soil Sampled: 10/04/01 14:15 Received: 10/04/01 15:35									
Dry Weight	98.1	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	

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Project Manager: Rick Moore

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Physical Parameters by APHA/ASTM/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRO-LS- COMP 4 (B1J0187-10) Soil Sampled: 10/04/01 14:25 Received: 10/04/01 15:35									
Dry Weight	93.8	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
BRO-LS- COMP 5 (B1J0187-11) Soil Sampled: 10/04/01 14:35 Received: 10/04/01 15:35									
Dry Weight	97.4	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
BRO-LS- COMP 6 (B1J0187-12) Soil Sampled: 10/04/01 14:45 Received: 10/04/01 15:35									
Dry Weight	94.5	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	

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Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1J08034: Prepared 10/08/01 Using EPA 3050B

Blank (1J08034-BLK1)

Antimony	ND	0.500	mg/kg							
Arsenic	ND	0.500	"							
Barium	ND	5.00	"							
Beryllium	ND	0.500	"							
Cadmium	ND	0.500	"							
Chromium	ND	0.500	"							
Copper	ND	0.500	"							
Lead	ND	0.500	"							
Nickel	ND	0.500	"							
Selenium	ND	0.500	"							
Silver	ND	0.500	"							
Thallium	ND	0.500	"							
Zinc	ND	5.00	"							

LCS (1J08034-BS1)

Antimony	40.6	0.455	mg/kg	36.4		112	80-120			
Arsenic	37.4	0.455	"	36.4		103	70-130			
Barium	39.8	4.55	"	36.4		109	80-120			
Beryllium	38.9	0.455	"	36.4		107	80-120			
Cadmium	38.5	0.455	"	36.4		106	70-130			
Chromium	39.6	0.455	"	36.4		109	80-120			
Copper	39.9	0.455	"	36.4		110	80-120			
Lead	36.8	0.455	"	36.4		101	80-120			
Nickel	39.1	0.455	"	36.4		107	80-120			
Selenium	35.3	0.455	"	36.4		97.0	70-130			
Silver	38.9	0.455	"	36.4		107	40-130			
Thallium	36.9	0.455	"	36.4		101	80-120			
Zinc	38.5	4.55	"	36.4		106	70-130			

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Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1J08034: Prepared 10/08/01 Using EPA 3050B

LCS Dup (1J08034-BSD1)

Antimony	40.8	0.500	mg/kg	37.0		110	80-120	0.491	20	
Arsenic	37.9	0.500	"	37.0		102	70-130	1.33	20	
Barium	40.5	5.00	"	37.0		109	80-120	1.74	20	
Beryllium	40.3	0.500	"	37.0		109	80-120	3.54	20	
Cadmium	38.6	0.500	"	37.0		104	70-130	0.259	20	
Chromium	41.0	0.500	"	37.0		111	80-120	3.47	20	
Copper	40.7	0.500	"	37.0		110	80-120	1.99	20	
Lead	37.5	0.500	"	37.0		101	80-120	1.88	20	
Nickel	39.0	0.500	"	37.0		105	80-120	0.256	20	
Selenium	36.3	0.500	"	37.0		98.1	70-130	2.79	20	
Silver	39.5	0.500	"	37.0		107	40-130	1.53	20	
Thallium	37.4	0.500	"	37.0		101	80-120	1.35	20	
Zinc	39.3	5.00	"	37.0		106	70-130	2.06	20	

Matrix Spike (1J08034-MS1)

Source: B1J0187-01

Antimony	1.51	0.427	mg/kg dry	37.3	ND	4.05	70-130			Q-13
Arsenic	35.5	0.427	"	37.3	2.59	88.2	70-130			
Barium	88.9	4.27	"	37.3	60.6	75.9	70-130			
Beryllium	38.1	0.427	"	37.3	ND	101	70-130			
Cadmium	36.2	0.427	"	37.3	1.03	94.3	70-130			
Chromium	66.6	0.427	"	37.3	25.0	112	70-130			
Copper	48.1	0.427	"	37.3	16.8	83.9	70-130			
Lead	38.5	0.427	"	37.3	3.11	94.9	70-130			
Nickel	65.6	0.427	"	37.3	29.1	97.9	70-130			
Selenium	31.9	0.427	"	37.3	ND	84.9	70-130			
Silver	33.4	0.427	"	37.3	ND	89.5	40-130			
Thallium	36.4	0.427	"	37.3	ND	97.5	70-130			
Zinc	70.3	4.27	"	37.3	39.0	83.9	70-130			

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**Total Metals by EPA 6000/7000 Series Methods - Quality Control
 North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1J08034: Prepared 10/08/01 Using EPA 3050B

Matrix Spike Dup (1J08034-MSD1)

Source: B1J0187-01

Antimony	1.06	0.410	mg/kg dry	35.8	ND	2.96	70-130	35.0	20	Q-13
Arsenic	34.3	0.410	"	35.8	2.59	88.6	70-130	3.44	20	
Barium	87.1	4.10	"	35.8	60.6	74.0	70-130	2.05	20	
Beryllium	36.7	0.410	"	35.8	ND	101	70-130	3.74	20	
Cadmium	34.8	0.410	"	35.8	1.03	94.3	70-130	3.94	20	
Chromium	64.1	0.410	"	35.8	25.0	109	70-130	3.83	20	
Copper	49.4	0.410	"	35.8	16.8	91.1	70-130	2.67	20	
Lead	36.9	0.410	"	35.8	3.11	94.4	70-130	4.24	20	
Nickel	66.3	0.410	"	35.8	29.1	104	70-130	1.06	20	
Selenium	30.8	0.410	"	35.8	ND	85.4	70-130	3.51	20	
Silver	31.4	0.410	"	35.8	ND	87.7	40-130	6.17	50	
Thallium	34.7	0.410	"	35.8	ND	96.8	70-130	4.78	20	
Zinc	71.2	4.10	"	35.8	39.0	89.9	70-130	1.27	20	

Post Spike (1J08034-PS1)

Source: B1J0187-01

Antimony	212	1.92	mg/kg dry	210	ND	101	70-130			
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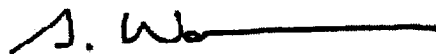
Batch 1J09035: Prepared 10/09/01 Using EPA 3050B

Blank (1J09035-BLK1)

Arsenic	ND	0.500	mg/kg							
Barium	ND	5.00	"							
Beryllium	ND	0.500	"							
Cadmium	ND	0.500	"							
Chromium	ND	0.500	"							
Copper	ND	0.500	"							
Lead	ND	0.500	"							
Nickel	ND	0.500	"							
Selenium	ND	0.500	"							
Silver	ND	0.500	"							
Thallium	ND	0.500	"							
Zinc	ND	5.00	"							

North Creek Analytical - Bothell

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Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA
 1910 Fairview Ave. E.
 Seattle WA, 98102

Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

Amended Report
 Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1J09035: Prepared 10/09/01 Using EPA 3050B

LCS (1J09035-BS1)

Arsenic	36.8	0.500	mg/kg	39.2		93.9	70-130			
Barium	40.8	5.00	"	39.2		104	80-120			
Beryllium	37.2	0.500	"	39.2		94.9	80-120			
Cadmium	37.8	0.500	"	39.2		96.4	70-130			
Chromium	39.8	0.500	"	39.2		102	80-120			
Copper	39.8	0.500	"	39.2		102	80-120			
Lead	38.5	0.500	"	39.2		98.2	80-120			
Nickel	38.6	0.500	"	39.2		98.5	80-120			
Selenium	34.8	0.500	"	39.2		88.8	70-130			
Silver	38.4	0.500	"	39.2		98.0	40-130			
Thallium	38.2	0.500	"	39.2		97.4	80-120			
Zinc	39.0	5.00	"	39.2		99.5	70-130			

LCS Dup (1J09035-BSD1)

Arsenic	37.6	0.500	mg/kg	39.6		94.9	70-130	2.15	20	
Barium	41.7	5.00	"	39.6		105	80-120	2.18	20	
Beryllium	39.2	0.500	"	39.6		99.0	80-120	5.24	20	
Cadmium	38.4	0.500	"	39.6		97.0	70-130	1.57	20	
Chromium	39.8	0.500	"	39.6		101	80-120	0.00	20	
Copper	40.1	0.500	"	39.6		101	80-120	0.751	20	
Lead	37.4	0.500	"	39.6		94.4	80-120	2.90	20	
Nickel	38.6	0.500	"	39.6		97.5	80-120	0.00	20	
Selenium	36.1	0.500	"	39.6		91.2	70-130	3.67	20	
Silver	39.5	0.500	"	39.6		99.7	40-130	2.82	20	
Thallium	36.8	0.500	"	39.6		92.9	80-120	3.73	20	
Zinc	39.5	5.00	"	39.6		99.7	70-130	1.27	20	

Matrix Spike (1J09035-MS1)

Source: B1J0187-02

Arsenic	39.7	0.500	mg/kg dry	41.4	2.94	88.8	70-130			
Barium	88.4	5.00	"	41.4	74.6	33.3	70-130			Q-15
Beryllium	38.2	0.500	"	41.4	ND	91.7	70-130			
Cadmium	38.5	0.500	"	41.4	ND	92.6	70-130			
Chromium	55.2	0.500	"	41.4	21.2	82.1	70-130			
Copper	54.2	0.500	"	41.4	16.0	92.3	70-130			
Lead	40.3	0.500	"	41.4	2.36	91.6	70-130			

North Creek Analytical - Bothell

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 Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA
 1910 Fairview Ave. E.
 Seattle WA, 98102

Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

Amended Report
 Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1J09035: Prepared 10/09/01 Using EPA 3050B

Matrix Spike (1J09035-MS1)

Source: B1J0187-02

Nickel	55.1	0.500	mg/kg dry	41.4	24.6	73.7	70-130			
Selenium	33.0	0.500	"	41.4	ND	79.7	70-130			
Silver	37.8	0.500	"	41.4	ND	91.3	40-130			
Thallium	36.7	0.500	"	41.4	ND	88.4	70-130			
Zinc	69.5	5.00	"	41.4	31.8	91.1	70-130			

Matrix Spike Dup (1J09035-MSD1)

Source: B1J0187-02

Arsenic	38.9	0.500	mg/kg dry	41.0	2.94	87.7	70-130	2.04	20	
Barium	90.3	5.00	"	41.0	74.6	38.3	70-130	2.13	20	Q-15
Beryllium	36.5	0.500	"	41.0	ND	88.5	70-130	4.55	20	
Cadmium	37.7	0.500	"	41.0	ND	91.5	70-130	2.10	20	
Chromium	59.5	0.500	"	41.0	21.2	93.4	70-130	7.50	20	
Copper	55.9	0.500	"	41.0	16.0	97.3	70-130	3.09	20	
Lead	39.4	0.500	"	41.0	2.36	90.3	70-130	2.26	20	
Nickel	59.8	0.500	"	41.0	24.6	85.9	70-130	8.18	20	
Selenium	31.8	0.500	"	41.0	ND	77.6	70-130	3.70	20	
Silver	35.7	0.500	"	41.0	ND	87.1	40-130	5.71	50	
Thallium	37.1	0.500	"	41.0	ND	90.3	70-130	1.08	20	
Zinc	70.8	5.00	"	41.0	31.8	95.1	70-130	1.85	20	

Batch 1J10040: Prepared 10/10/01 Using EPA 7471A

Blank (1J10040-BLK1)

Mercury	ND	0.200	mg/kg							
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LCS (1J10040-BS1)

Mercury	0.518	0.200	mg/kg	0.489		106	80-120			
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North Creek Analytical - Bothell

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 Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA
 1910 Fairview Ave. E.
 Seattle WA, 98102

Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

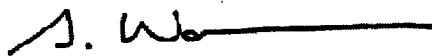
Amended Report
 Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J10040: Prepared 10/10/01 Using EPA 7471A										
LCS Dup (1J10040-BSD1)										
Mercury	0.554	0.200	mg/kg	0.495		112	80-120	6.72	20	
Source: B1J0187-01										
Matrix Spike (1J10040-MS1)										
Mercury	0.633	0.200	mg/kg dry	0.541	ND	112	70-130			
Source: B1J0187-01										
Matrix Spike Dup (1J10040-MSD1)										
Mercury	0.622	0.200	mg/kg dry	0.538	ND	110	70-130	1.75	30	
Batch 1J11031: Prepared 10/11/01 Using EPA 3050B										
Blank (1J11031-BLK1)										
Antimony	ND	0.500	mg/kg							
MS (1J11031-BS1)										
Antimony	40.3	0.500	mg/kg	39.2		103	80-120			
LCS Dup (1J11031-BSD1)										
Antimony	41.0	0.500	mg/kg	40.0		102	80-120	1.72	20	
Source: B1J0187-02RE1										
Matrix Spike (1J11031-MS1)										
Antimony	2.04	0.500	mg/kg dry	42.2	ND	4.83	70-130			Q-13
Source: B1J0187-02RE1										
Matrix Spike Dup (1J11031-MSD1)										
Antimony	1.54	0.500	mg/kg dry	41.4	ND	3.72	70-130	27.9	20	Q-13
Source: B1J0187-02RE1										
Post Spike (1J11031-PS1)										
Antimony	270	2.50	mg/kg dry	274	ND	98.5	70-130			

North Creek Analytical - Bothell

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Seattle WA, 98102

Project: Third Runway/Pit Samples
Project Number: 4978-19
Project Manager: Rick Moore

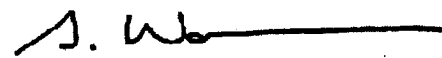
Amended Report
Issued: 10/30/01 19:55

SPLP Metals by EPA 1312/6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J22032: Prepared 10/22/01 Using EPA 3020A										
Blank (1J22032-BLK1)										
Cadmium	ND	0.0500	mg/l							
LCS (1J22032-BS1)										
Cadmium	3.60	0.0500	mg/l	4.00		90.0	80-120			
LCS Dup (1J22032-BSD1)										
Cadmium	3.51	0.0500	mg/l	4.00		87.8	80-120	2.53	20	
Matrix Spike (1J22032-MS1) Source: B1J0132-01										
Cadmium	3.49	0.0500	mg/l	4.00	ND	87.1	75-125			
Matrix Spike Dup (1J22032-MSD1) Source: B1J0132-01										
Cadmium	3.56	0.0500	mg/l	4.00	ND	88.8	75-125	1.99	20	

North Creek Analytical - Bothell

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Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA
1910 Fairview Ave. E.
Seattle WA, 98102

Project: Third Runway/Pit Samples
Project Number: 4978-19
Project Manager: Rick Moore

Amended Report
Issued: 10/30/01 19:55

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J10014: Prepared 10/10/01 Using Dry Weight										
Blank (1J10014-BLK1)										
Dry Weight	100	1.00	%							

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Seattle WA, 98102

Project: Third Runway/Pit Samples
Project Number: 4978-19
Project Manager: Rick Moore

Amended Report
Issued: 10/30/01 19:55

Notes and Definitions

- Q-13 Multiple analyses indicate the percent recovery is outside the control limits due to a matrix effect.
- Q-15 Analyses are not controlled on matrix spike RPD and/or percent recoveries when the sample concentration is significantly higher than the spike level.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

North Creek Analytical - Bothell

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Scott A. Woernman, Project Manager



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Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

12 November 2001

Rick Moore
Hart Crowser, Inc. - WA
1910 Fairview Ave. E.
Seattle, WA 98102

RE: Third Runway/Pit Samples

Enclosed are amended results of analyses for samples received by the laboratory on 10/04/01 07:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Scott A. Woerman
Project Manager

AR 027021



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Hart Crowser, Inc. - WA
 1910 Fairview Ave. E.
 Seattle WA, 98102

Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

Amended Report
 Issued: 11/12/01 21:16

ANALYTICAL REPORT FOR SAMPLES - Amended

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BRQ-SP-COMP1	B1J0132-01	Soil	10/03/01 12:35	10/04/01 07:30
BRQ-SP-COMP2	B1J0132-02	Soil	10/03/01 12:40	10/04/01 07:30
BRQ-SP-COMP3	B1J0132-03	Soil	10/03/01 12:50	10/04/01 07:30
BRQ-SP-COMP4	B1J0132-04	Soil	10/03/01 13:00	10/04/01 07:30
BRQ-SP-COMP5	B1J0132-05	Soil	10/03/01 13:05	10/04/01 07:30
BRQ-SP-COMP6	B1J0132-06	Soil	10/03/01 13:15	10/04/01 07:30
MVP-COMP1	B1J0132-07	Soil	10/03/01 15:10	10/04/01 07:30
MVP-COMP2	B1J0132-08	Soil	10/03/01 15:25	10/04/01 07:30
MVP-COMP3	B1J0132-09	Soil	10/03/01 15:35	10/04/01 07:30
MVP-COMP4	B1J0132-10	Soil	10/03/01 16:05	10/04/01 07:30
MVP-COMP5	B1J0132-11	Soil	10/03/01 16:15	10/04/01 07:30
MVP-COMP6	B1J0132-12	Soil	10/03/01 16:25	10/04/01 07:30

North Creek Analytical - Bothell

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Scott A. Woerman, Project Manager



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Hart Crowser, Inc. - WA
 1910 Fairview Ave. E.
 Seattle WA, 98102

Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

Amended Report
 Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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BRQ-SP-COMP1 (B1J0132-01) Soil **Sampled: 10/03/01 12:35** **Received: 10/04/01 07:30**

Silver	ND	0.431	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	1.47	0.431	"	"	"	"	"	"	
Barium	28.2	4.31	"	"	"	"	"	"	
Beryllium	ND	0.431	"	"	"	"	"	"	
Cadmium	ND	0.431	"	"	"	"	"	"	
Chromium	36.7	0.431	"	"	"	"	"	"	
Copper	97.5	0.431	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	41.8	0.431	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	2.35	0.431	"	"	"	"	"	"	
Antimony	ND	0.431	"	"	"	"	"	"	
Selenium	0.580	0.431	"	"	"	"	"	"	
Thallium	ND	0.431	"	"	"	"	"	"	
Zinc	58.8	4.31	"	"	"	"	"	"	

BRQ-SP-COMP2 (B1J0132-02) Soil **Sampled: 10/03/01 12:40** **Received: 10/04/01 07:30**

Silver	ND	0.420	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	1.17	0.420	"	"	"	"	"	"	
Barium	41.3	4.20	"	"	"	"	"	"	
Beryllium	ND	0.420	"	"	"	"	"	"	
Cadmium	ND	0.420	"	"	"	"	"	"	
Chromium	44.7	0.420	"	"	"	"	"	"	
Copper	115	0.420	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	49.3	0.420	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	2.21	0.420	"	"	"	"	"	"	
Antimony	ND	0.420	"	"	"	"	"	"	
Selenium	0.479	0.420	"	"	"	"	"	"	
Thallium	ND	0.420	"	"	"	"	"	"	
Zinc	64.5	4.20	"	"	"	"	"	"	

NFM
 12/11/01

North Creek Analytical - Bothell

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Scott A. Woerman, Project Manager

North Creek Analytical, Inc. Environmental Laboratory Network Page 2 of 18

AR 027023



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Hart Crowser, Inc. - WA
 1910 Fairview Ave. E.
 Seattle WA, 98102

Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

Amended Report
 Issued: 11/12/01 21:16

**Total Metals by EPA 6000/7000 Series Methods
 North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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BRQ-SP-COMP3 (B1J0132-03) Soil **Sampled: 10/03/01 12:50** **Received: 10/04/01 07:30**

Silver	ND	0.382	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	5.20	0.382	"	"	"	"	"	"	
Barium	25.2	3.82	"	"	"	"	"	"	
Beryllium	ND	0.382	"	"	"	"	"	"	
Cadmium	ND	0.382	"	"	"	"	"	"	
Chromium	32.7	0.382	"	"	"	"	"	"	
Copper	107	0.382	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	70.5	0.382	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	2.82	0.382	"	"	"	"	"	"	
Antimony	ND	0.382	"	"	"	"	"	"	
Selenium	0.487	0.382	"	"	"	"	"	"	
Thallium	0.610	0.382	"	"	"	"	"	"	
Zinc	66.9	3.82	"	"	"	"	"	"	

BRQ-SP-COMP4 (B1J0132-04) Soil **Sampled: 10/03/01 13:00** **Received: 10/04/01 07:30**

Silver	ND	0.500	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	0.866	0.500	"	"	"	"	"	"	
Barium	27.8	5.00	"	"	"	"	"	"	
Beryllium	ND	0.500	"	"	"	"	"	"	
Cadmium	ND	0.500	"	"	"	"	"	"	
Chromium	42.0	0.500	"	"	"	"	"	"	
Copper	131	0.500	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	42.5	0.500	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	1.84	0.500	"	"	"	"	"	"	
Antimony	ND	0.500	"	"	"	"	"	"	
Selenium	0.555	0.500	"	"	"	"	"	"	
Thallium	ND	0.500	"	"	"	"	"	"	
Zinc	67.3	5.00	"	"	"	"	"	"	

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North Creek Analytical - Bothell

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AR 027024



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Hart Crowser, Inc. - WA
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Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

Amended Report
 Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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BRQ-SP-COMP5 (B1J0132-05) Soil Sampled: 10/03/01 13:05 Received: 10/04/01 07:30									
Silver	ND	0.500	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	0.839	0.500	"	"	"	"	"	"	
Barium	29.1	5.00	"	"	"	"	"	"	
Beryllium	ND	0.500	"	"	"	"	"	"	
Cadmium	ND	0.500	"	"	"	"	"	"	
Chromium	48.8	0.500	"	"	"	"	"	"	
Copper	131	0.500	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	45.5	0.500	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	2.60	0.500	"	"	"	"	"	"	
Antimony	ND	0.500	"	"	"	"	"	"	
Selenium	0.554	0.500	"	"	"	"	"	"	
Thallium	ND	0.500	"	"	"	"	"	"	
Zinc	58.1	5.00	"	"	"	"	"	"	

BRQ-SP-COMP6 (B1J0132-06) Soil Sampled: 10/03/01 13:15 Received: 10/04/01 07:30									
Silver	ND	0.500	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	0.927	0.500	"	"	"	"	"	"	
Barium	27.2	5.00	"	"	"	"	"	"	
Beryllium	ND	0.500	"	"	"	"	"	"	
Cadmium	ND	0.500	"	"	"	"	"	"	
Chromium	46.3	0.500	"	"	"	"	"	"	
Copper	111	0.500	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	44.4	0.500	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	1.85	0.500	"	"	"	"	"	"	
Antimony	ND	0.500	"	"	"	"	"	"	
Selenium	0.639	0.500	"	"	"	"	"	"	
Thallium	ND	0.500	"	"	"	"	"	"	
Zinc	57.6	5.00	"	"	"	"	"	"	

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Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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MVP-COMP1 (B1J0132-07) Soil Sampled: 10/03/01 15:10 Received: 10/04/01 07:30

Silver	ND	0.500	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	1.83	0.500	"	"	"	"	"	"	
Barium	92.7	5.00	"	"	"	"	"	"	
Beryllium	ND	0.500	"	"	"	"	"	"	
Cadmium	ND	0.500	"	"	"	"	"	"	
Chromium	20.9	0.500	"	"	"	"	"	"	
Copper	24.5	0.500	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	12.0	0.500	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	4.36	0.500	"	"	"	"	"	"	
Antimony	ND	0.500	"	"	"	"	"	"	
Selenium	ND	0.500	"	"	"	"	"	"	
Thallium	ND	0.500	"	"	"	"	"	"	
Zinc	36.8	5.00	"	"	"	"	"	"	

MVP-COMP2 (B1J0132-08) Soil Sampled: 10/03/01 15:25 Received: 10/04/01 07:30

Silver	ND	0.400	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	1.73	0.400	"	"	"	"	"	"	
Barium	128	4.00	"	"	"	"	"	"	
Beryllium	0.583	0.400	"	"	"	"	"	"	
Cadmium	ND	0.400	"	"	"	"	"	"	
Chromium	21.7	0.400	"	"	"	"	"	"	
Copper	25.2	0.400	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	12.8	0.400	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	5.52	0.400	"	"	"	"	"	"	
Antimony	ND	0.400	"	"	"	"	"	"	
Selenium	ND	0.400	"	"	"	"	"	"	
Thallium	ND	0.400	"	"	"	"	"	"	
Zinc	38.8	4.00	"	"	"	"	"	"	

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Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

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Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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MVP-COMP3 (B1J0132-09) Soil Sampled: 10/03/01 15:35 Received: 10/04/01 07:30

Silver	ND	0.455	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	1.40	0.455	"	"	"	"	"	"	
Barium	163	4.55	"	"	"	"	"	"	
Beryllium	1.01	0.455	"	"	"	"	"	"	
Cadmium	ND	0.455	"	"	"	"	"	"	
Chromium	30.0	0.455	"	"	"	"	"	"	
Copper	20.1	0.455	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	17.7	0.455	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	6.58	0.455	"	"	"	"	"	"	
Antimony	ND \int	0.455	"	"	"	"	"	"	
Selenium	ND	0.455	"	"	"	"	"	"	
Thallium	ND	0.455	"	"	"	"	"	"	
Zinc	27.6	4.55	"	"	"	"	"	"	

MVP-COMP4 (B1J0132-10) Soil Sampled: 10/03/01 16:05 Received: 10/04/01 07:30

Silver	ND	0.500	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	1.82	0.500	"	"	"	"	"	"	
Barium	89.5	5.00	"	"	"	"	"	"	
Beryllium	ND	0.500	"	"	"	"	"	"	
Cadmium	ND	0.500	"	"	"	"	"	"	
Chromium	21.5	0.500	"	"	"	"	"	"	
Copper	25.8	0.500	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	13.0	0.500	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	4.46	0.500	"	"	"	"	"	"	
Antimony	ND \int	0.500	"	"	"	"	"	"	
Selenium	ND	0.500	"	"	"	"	"	"	
Thallium	ND	0.500	"	"	"	"	"	"	
Zinc	36.2	5.00	"	"	"	"	"	"	

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Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

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**Total Metals by EPA 6000/7000 Series Methods
 North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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MVP-COMP5 (B1J0132-11) Soil Sampled: 10/03/01 16:15 Received: 10/04/01 07:30

Silver	ND	0.431	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	1.80	0.431	"	"	"	"	"	"	
Barium	92.4	4.31	"	"	"	"	"	"	
Beryllium	0.602	0.431	"	"	"	"	"	"	
Cadmium	ND	0.431	"	"	"	"	"	"	
Chromium	19.3	0.431	"	"	"	"	"	"	
Copper	27.3	0.431	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	11.6	0.431	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	5.10	0.431	"	"	"	"	"	"	
Antimony	ND ^J	0.431	"	"	"	"	"	"	
Selenium	ND	0.431	"	"	"	"	"	"	
Thallium	ND	0.431	"	"	"	"	"	"	
Zinc	38.3	4.31	"	"	"	"	"	"	

VP-COMP6 (B1J0132-12) Soil Sampled: 10/03/01 16:25 Received: 10/04/01 07:30

Silver	ND	0.340	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	1.87	0.340	"	"	"	"	"	"	
Barium	96.8	3.40	"	"	"	"	"	"	
Beryllium	0.572	0.340	"	"	"	"	"	"	
Cadmium	ND	0.340	"	"	"	"	"	"	
Chromium	22.7	0.340	"	"	"	"	"	"	
Copper	24.7	0.340	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	12.2	0.340	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	4.98	0.340	"	"	"	"	"	"	
Antimony	ND ^J	0.340	"	"	"	"	"	"	
Selenium	ND	0.340	"	"	"	"	"	"	
Thallium	ND	0.340	"	"	"	"	"	"	
Zinc	35.9	3.40	"	"	"	"	"	"	

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 Project Number: 4978-19
 Project Manager: Rick Moore

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SPLP Metals by EPA 1312/6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-SP-COMP1 (B1J0132-01) Soil Sampled: 10/03/01 12:35 Received: 10/04/01 07:30									
Copper	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	
BRQ-SP-COMP2 (B1J0132-02) Soil Sampled: 10/03/01 12:40 Received: 10/04/01 07:30									
Chromium	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	
Copper	ND	0.0500	"	"	"	"	"	"	
Nickel	ND	0.0500	"	"	"	"	"	"	
BRQ-SP-COMP3 (B1J0132-03) Soil Sampled: 10/03/01 12:50 Received: 10/04/01 07:30									
Copper	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	
Nickel	ND	0.0500	"	"	"	"	"	"	
BRQ-SP-COMP4 (B1J0132-04) Soil Sampled: 10/03/01 13:00 Received: 10/04/01 07:30									
Copper	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	
BRQ-SP-COMP5 (B1J0132-05) Soil Sampled: 10/03/01 13:05 Received: 10/04/01 07:30									
Copper	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	
BRQ-SP-COMP6 (B1J0132-06) Soil Sampled: 10/03/01 13:15 Received: 10/04/01 07:30									
Chromium	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	
Copper	ND	0.0500	"	"	"	"	"	"	
MVP-COMP3 (B1J0132-09) Soil Sampled: 10/03/01 15:35 Received: 10/04/01 07:30									
Beryllium	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6010B	
MVP-COMP5 (B1J0132-11) Soil Sampled: 10/03/01 16:15 Received: 10/04/01 07:30									
Beryllium	ND	0.0500	mg/l	50	1J30011	10/30/01	11/01/01	EPA 6010B	

North Creek Analytical - Bothell

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Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

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Physical Parameters by APHA/ASTM/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
BRQ-SP-COMP1 (B1J0132-01) Soil Sampled: 10/03/01 12:35 Received: 10/04/01 07:30										
Dry Weight	91.0	1.00		%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
BRQ-SP-COMP2 (B1J0132-02) Soil Sampled: 10/03/01 12:40 Received: 10/04/01 07:30										
Dry Weight	89.4	1.00		%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
BRQ-SP-COMP3 (B1J0132-03) Soil Sampled: 10/03/01 12:50 Received: 10/04/01 07:30										
Dry Weight	91.1	1.00		%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
BRQ-SP-COMP4 (B1J0132-04) Soil Sampled: 10/03/01 13:00 Received: 10/04/01 07:30										
Dry Weight	90.1	1.00		%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
BRQ-SP-COMP5 (B1J0132-05) Soil Sampled: 10/03/01 13:05 Received: 10/04/01 07:30										
Dry Weight	92.3	1.00		%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
BRQ-SP-COMP6 (B1J0132-06) Soil Sampled: 10/03/01 13:15 Received: 10/04/01 07:30										
Dry Weight	90.5	1.00		%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
MVP-COMP1 (B1J0132-07) Soil Sampled: 10/03/01 15:10 Received: 10/04/01 07:30										
Dry Weight	85.6	1.00		%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
MVP-COMP2 (B1J0132-08) Soil Sampled: 10/03/01 15:25 Received: 10/04/01 07:30										
Dry Weight	81.4	1.00		%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
MVP-COMP3 (B1J0132-09) Soil Sampled: 10/03/01 15:35 Received: 10/04/01 07:30										
Dry Weight	76.3	1.00		%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	

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Project: Third Runway/Pit Samples
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Physical Parameters by APHA/ASTM/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-COMP4 (B1J0132-10) Soil Sampled: 10/03/01 16:05 Received: 10/04/01 07:30									
Dry Weight	85.5	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
MVP-COMP5 (B1J0132-11) Soil Sampled: 10/03/01 16:15 Received: 10/04/01 07:30									
Dry Weight	82.2	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
MVP-COMP6 (B1J0132-12) Soil Sampled: 10/03/01 16:25 Received: 10/04/01 07:30									
Dry Weight	79.2	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	

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Hart Crowser, Inc. - WA
 1910 Fairview Ave. E.
 Seattle WA, 98102

Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

Amended Report
 Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1J04056: Prepared 10/04/01 Using EPA 3050B

Blank (1J04056-BLK1)

Antimony	ND	0.500	mg/kg							
Arsenic	ND	0.500	"							
Barium	ND	5.00	"							
Beryllium	ND	0.500	"							
Cadmium	ND	0.500	"							
Chromium	ND	0.500	"							
Copper	ND	0.500	"							
Lead	ND	0.500	"							
Nickel	ND	0.500	"							
Selenium	ND	0.500	"							
Silver	ND	0.500	"							
Thallium	ND	0.500	"							
ic	ND	5.00	"							

LCS (1J04056-BS1)

Antimony	44.4	0.500	mg/kg	40.0		111	80-120			
Arsenic	41.8	0.500	"	40.0		104	70-130			
Barium	41.8	5.00	"	40.0		104	80-120			
Beryllium	43.4	0.500	"	40.0		108	80-120			
Cadmium	41.9	0.500	"	40.0		105	70-130			
Chromium	44.0	0.500	"	40.0		110	80-120			
Copper	41.7	0.500	"	40.0		104	80-120			
Lead	41.7	0.500	"	40.0		104	80-120			
Nickel	41.0	0.500	"	40.0		102	80-120			
Selenium	40.1	0.500	"	40.0		100	70-130			
Silver	41.7	0.500	"	40.0		104	40-130			
Thallium	41.7	0.500	"	40.0		104	80-120			
Zinc	41.5	5.00	"	40.0		104	70-130			

North Creek Analytical - Bothell

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North Creek Analytical, Inc. Page 11 of 18
 Environmental Laboratory Network

AR 027032



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Hart Crowser, Inc. - WA
 1910 Fairview Ave. E.
 Seattle WA, 98102

Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

Amended Report
 Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1J04056: Prepared 10/04/01 Using EPA 3050B

LCS Dup (1J04056-BSD1)

Antimony	43.1	0.500	mg/kg	38.5		112	80-120	2.97	20	
Arsenic	40.4	0.500	"	38.5		105	70-130	3.41	20	
Barium	41.1	5.00	"	38.5		107	80-120	1.69	20	
Beryllium	43.3	0.500	"	38.5		112	80-120	0.231	20	
Cadmium	40.5	0.500	"	38.5		105	70-130	3.40	20	
Chromium	42.7	0.500	"	38.5		111	80-120	3.00	20	
Copper	40.3	0.500	"	38.5		105	80-120	3.41	20	
Lead	40.2	0.500	"	38.5		104	80-120	3.66	20	
Nickel	39.7	0.500	"	38.5		103	80-120	3.22	20	
Selenium	39.4	0.500	"	38.5		102	70-130	1.76	20	
Silver	40.9	0.500	"	38.5		106	40-130	1.94	20	
Thallium	40.3	0.500	"	38.5		105	80-120	3.41	20	
Zinc	40.3	5.00	"	38.5		105	70-130	2.93	20	

Matrix Spike (1J04056-MS1)

Source: B1J0132-01

Antimony	1.65	0.500	mg/kg dry	41.5	ND	3.98	70-130			Q-13
Arsenic	40.7	0.500	"	41.5	1.47	94.5	70-130			
Barium	72.0	5.00	"	41.5	28.2	106	70-130			
Beryllium	42.4	0.500	"	41.5	ND	101	70-130			
Cadmium	41.0	0.500	"	41.5	ND	98.4	70-130			
Chromium	81.2	0.500	"	41.5	36.7	107	70-130			
Copper	140	0.500	"	41.5	97.5	102	70-130			
Lead	43.4	0.500	"	41.5	2.35	98.9	70-130			
Nickel	80.5	0.500	"	41.5	41.8	93.3	70-130			
Selenium	37.8	0.500	"	41.5	0.580	89.7	70-130			
Silver	37.7	0.500	"	41.5	ND	90.5	40-130			
Thallium	41.4	0.500	"	41.5	ND	99.5	70-130			
Zinc	98.6	5.00	"	41.5	58.8	95.9	70-130			

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Scott A. Woerman, Project Manager

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AR 027033



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Hart Crowser, Inc. - WA
 1910 Fairview Ave. E.
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Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

Amended Report
 Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J04056: Prepared 10/04/01 Using EPA 3050B										
Matrix Spike Dup (1J04056-MSD1)					Source: B1J0132-01					
Antimony	0.876	0.500	mg/kg dry	40.3	ND	2.17	70-130	61.3	20	Q-13
Arsenic	39.5	0.500	"	40.3	1.47	94.4	70-130	2.99	20	
Barium	75.3	5.00	"	40.3	28.2	117	70-130	4.48	20	
Beryllium	41.6	0.500	"	40.3	ND	102	70-130	1.90	20	
Cadmium	39.9	0.500	"	40.3	ND	98.6	70-130	2.72	20	
Chromium	82.9	0.500	"	40.3	36.7	115	70-130	2.07	20	
Copper	141	0.500	"	40.3	97.5	108	70-130	0.712	20	
Lead	42.1	0.500	"	40.3	2.35	98.6	70-130	3.04	20	
Nickel	81.6	0.500	"	40.3	41.8	98.8	70-130	1.36	20	
Selenium	36.5	0.500	"	40.3	0.580	89.1	70-130	3.50	20	
Silver	37.1	0.500	"	40.3	ND	91.7	40-130	1.60	50	
Thallium	40.0	0.500	"	40.3	ND	99.0	70-130	3.44	20	
Zinc	97.9	5.00	"	40.3	58.8	97.0	70-130	0.712	20	
Post Spike (1J04056-PS1)					Source: B1J0132-01					
Antimony	241	2.16	mg/kg dry	237	ND	102	70-130			
Batch 1J08024: Prepared 10/08/01 Using EPA 7471A										
Blank (1J08024-BLK1)										
Mercury	ND	0.200	mg/kg							
LCS (1J08024-BS1)										
Mercury	0.548	0.200	mg/kg	0.497		110	80-120			
LCS Dup (1J08024-BSD1)										
Mercury	0.518	0.200	mg/kg	0.500		104	80-120	5.63	20	

North Creek Analytical - Bothell

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Scott A. Woerman, Project Manager



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Hart Crowser, Inc. - WA
 1910 Fairview Ave. E.
 Seattle WA, 98102

Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

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 Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1J08024: Prepared 10/08/01 Using EPA 7471A

Matrix Spike (1J08024-MS1)

Source: B1J0082-01

Mercury	0.652	0.200	mg/kg dry	0.525	ND	115	70-130			
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Matrix Spike Dup (1J08024-MSD1)

Source: B1J0082-01

Mercury	0.655	0.200	mg/kg dry	0.527	ND	115	70-130	0.459	30	
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Scott A. Woerman, Project Manager

North Creek Analytical, Inc.
 Environmental Laboratory Network Page 14 of 18

AR 027035



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Project: Third Runway/Pit Samples
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 Project Manager: Rick Moore

Amended Report
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SPLP Metals by EPA 1312/6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1J22032: Prepared 10/22/01 Using EPA 3020A

Blank (1J22032-BLK1)

Beryllium	ND	0.0500	mg/l							
Chromium	ND	0.0500	"							
Copper	ND	0.0500	"							
Nickel	ND	0.0500	"							

LCS (1J22032-BS1)

Beryllium	3.74	0.0500	mg/l	4.00		93.5	80-120			
Chromium	3.90	0.0500	"	4.00		97.5	80-120			
Copper	3.78	0.0500	"	4.00		94.5	80-120			
Nickel	3.64	0.0500	"	4.00		91.0	80-120			

LCS Dup (1J22032-BSD1)

Beryllium	3.74	0.0500	mg/l	4.00		93.5	80-120	0.00	20	
Chromium	4.01	0.0500	"	4.00		100	80-120	2.78	20	
Copper	3.70	0.0500	"	4.00		92.5	80-120	2.14	20	
Nickel	3.58	0.0500	"	4.00		89.5	80-120	1.66	20	

Matrix Spike (1J22032-MS1)

Source: B1J0132-01

Beryllium	3.74	0.0500	mg/l	4.00	ND	93.3	75-125			
Chromium	3.98	0.0500	"	4.00	ND	99.2	64-128			
Copper	3.77	0.0500	"	4.00	ND	93.8	72-125			
Nickel	3.60	0.0500	"	4.00	ND	89.7	72-125			

Matrix Spike Dup (1J22032-MSD1)

Source: B1J0132-01

Beryllium	3.78	0.0500	mg/l	4.00	ND	94.3	75-125	1.06	20	
Chromium	4.06	0.0500	"	4.00	ND	101	64-128	1.99	20	
Copper	3.83	0.0500	"	4.00	ND	95.3	72-125	1.58	20	
Nickel	3.65	0.0500	"	4.00	ND	90.9	72-125	1.38	20	

North Creek Analytical - Bothell

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AR 027036



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Project: Third Runway/Pit Samples
 Project Number: 4978-19
 Project Manager: Rick Moore

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SPLP Metals by EPA 1312/6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J30011: Prepared 10/30/01 Using EPA 3020A										
Blank (1J30011-BLK1)										
Beryllium	ND	0.0500	mg/l							
LCS (1J30011-BS1)										
Beryllium	3.89	0.0500	mg/l	4.00		97.2	80-120			
LCS Dup (1J30011-BSD1)										
Beryllium	3.78	0.0500	mg/l	4.00		94.5	80-120	2.87	20	
Matrix Spike (1J30011-MS1) Source: B1J0132-11										
Beryllium	3.95	0.0500	mg/l	4.00	ND	98.6	75-125			
Matrix Spike Dup (1J30011-MSD1) Source: B1J0132-11										
Beryllium	3.99	0.0500	mg/l	4.00	ND	99.6	75-125	1.01	20	

North Creek Analytical - Bothell

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AR 027037



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 Project Manager: Rick Moore

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Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1J09004: Prepared 10/09/01 Using Dry Weight

Blank (1J09004-BLK1)

Dry Weight	100	1.00	%							
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North Creek Analytical - Bothell

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Notes and Definitions

- A-01 SPLP Extraction Blank
- Q-13 Multiple analyses indicate the percent recovery is outside the control limits due to a matrix effect.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

North Creek Analytical - Bothell

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North Creek Analytical, Inc. Page 18 of 18
 Environmental Laboratory Network

AR 027039

Sample Custody Record

Samples Shipped to: _____

JOB 4978-19 LAB NUMBER _____
 PROJECT NAME 300 RIVERSIDE / AT SAMPLES
 HART CROWSER CONTACT Neil Houston

SAMPLED BY: William Dymov

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX
	802-SF-comp 1	802-comp	10/31/01	12:35	SOIL
	802-SF-comp 2			12:40	
	802-SF-comp 3			12:50	
	802-SF-comp 4			13:00	
	802-SF-comp 5			13:05	
	802-SF-comp 6			13:15	
	MVP-comp 1			15:10	
	MVP-comp 2			15:25	
	MVP-comp 3			15:35	
	MVP-comp 4			16:05	
	MVP-comp 5			16:15	
	MVP-comp 6			16:25	

RELINQUISHED BY	DATE	RECEIVED BY	DATE
<u>William Dymov</u>	10/31/01	<u>Cathy Nichols</u>	10/31/01
SIGNATURE	TIME	SIGNATURE	TIME
<u>William Dymov</u>	0730	<u>Cathy Nichols</u>	7:30
PRINT NAME	COMPANY	PRINT NAME	COMPANY
<u>Hart Crowser</u>			
COMPANY			

REQUESTED ANALYSIS	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
	1	- 01
	1	- 02
	1	- 03
	1	- 04
	1	- 05
	1	- 06
	1	- 07
	1	- 08
	1	- 09
	1	- 10
	1	- 11
	1	- 12
	12	TOTAL NUMBER OF CONTAINERS

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:
 • Best Corex make for
 RUSH TEST, AT STAMPADES RST
 (Best Corex at Post of Seattles)

COOLER NO.: _____ STORAGE LOCATION: _____

TURNAROUND TIME:
 24 HOURS 1 WEEK
 48 HOURS STANDARD
 72 HOURS OTHER _____



01 JUL 02

AR 027040

White and Yellow Copies to Lab Pink to Project Manager Lab to Return White Copy to Hart Crowser Gold to Sample Custodian 5.8.02