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## **APPENDIX E**

# **HISTORIC DUMP SITE INVESTIGATION**

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June 30, 2003

55343

Ms. Royce L. Conlon, P.E.  
Senior Associate Civil/Environmental Engineer  
PDC INC. CONSULTING ENGINEERS  
1028 Aurora Drive  
Fairbanks, Alaska 99709

**Historic Dump Site Investigation Report  
Ekwok Airport Rehabilitation  
ADOT&PF State Project No. 55377**

Dear Royce:

PDC Consulting Engineers, Inc. (PDC), retained MACTEC to provide environmental support for the Natural/Biological Environment and Hazardous Materials portion of the Alaska Department of Transportation and Public Facilities (DOT&PF) Ekwok Airport Rehabilitation Project. The general scope of the proposed project is to expand the airport to meet current DOT&PF and Federal Aviation Administration (FAA) standards. MACTEC prepared this report to document soil sampling activities at the historic dump site, Ekwok, Alaska.

**BACKGROUND**

**Site Location and Conditions**

The survey area is in the City of Ekwok, Alaska, in the Bristol Bay area, approximately 43 miles northeast of Dillingham and 285 miles southwest of Anchorage (Figure 1). Site access is along a gravel road at the south end of the existing airport that leads to the Housing and Urban Development (Nakelutin) subdivision (Figure 2).

Sampling was conducted north of the gravel access road that turns west into the subdivision, between the gravel road and the tree line (Figures 2 and 3). The area was lightly vegetated and predominantly covered with gravel. Photographs of the area are included as an attachment.

**STATEMENT OF WORK**

- Provide an estimate of the lateral extents of the solid waste by digging up to eight test pits.
- Collect two soil samples in situ below the solid waste at two test pits.

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- Summarize laboratory results and complete a summary of field activities.
- Prepare a figure showing the location of the test pits with estimated extents of the historic landfill.

## **FIELD OPERATIONS**

MACTEC conducted site activities on May 29, 2003. Descriptions of project field procedures are below.

### **Soil Sampling**

A steel-track backhoe was used at the site to dig test pits to assist in identifying the lateral extent of the historic dump site. Luki Akelkok Sr., president of Ekwok Natives Limited, operated the backhoe and provided insight into the approximate boundaries of the dump site. A total of five test pits were dug to identify the extent of the dump site.

Soil samples for laboratory analysis were collected from the final excavation with the bucket of the backhoe. Soil near the middle of the bucket was sampled by field personnel using a new pair of nitrile gloves for each sample. Laboratory-supplied sample containers were completely filled except for samples for analysis of gasoline-range organics (GRO) and benzene, toluene, ethylbenzene, and total xylenes (BTEX) by State of Alaska Method AK101 and U.S. Environmental Protection Agency (EPA) Method 8021B. Sample containers for AK101/EPA 8021B were filled approximately one-quarter full, then a premeasured volume of methanol was added to completely submerge the sample.

## **RESULTS**

Table 1 presents analytical laboratory results for samples collected from the test pits where solid waste was found. A data quality assessment performed by MACTEC personnel is included in the laboratory data attachment. On the basis of MACTEC's review, all data are considered acceptable without further qualification.

### **Soil Test Pits**

Sample locations and results are included in Figure 3.

No waste was found in two 4- to 5-foot-deep test pits that were excavated approximately 50 feet north of the access road at the point where the road turns west into the subdivision (Figure 3).

Signs of waste (wood fragments, iron staining in the gravel) were found in the test pit excavated approximately 40 feet south of the first test pits, and a soil sample was taken (Sample Number 03EKW01SL) at 6 feet below ground surface (bgs), below the solid waste. Soil at 6 feet consisted of dry brown gravelly silt.

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A test pit was then excavated approximately 100 feet south of the access road into the subdivision. No signs of waste or previous soil disturbance were detected; excavation was stopped at 3 feet.

The fifth test pit was then excavated approximately 80 feet south of the access road into the subdivision. Waste was found at 3 feet. Waste identified included plastics, glass, cut wood, rubber belts, aluminum cans, and tin cans. A sample (03EKW02SL) and a duplicate (03EKW03SL) were taken at 7 feet bgs, below the solid waste. The soil at 7 feet consisted of dry brown silt with gravel.

Occurrences of waste in the test pits indicate that the north-south axis of the historic dump extends approximately from the where the gravel access road turns west into the subdivision to between 80 and 100 feet south of that point (Figure 3). Because waste was found in the fifth test pit, dug close to the access road (approximately 10 feet off the east edge of the road), presumably the road was placed over the west side of the dump. Therefore, the east-west axis was approximated by the line of alder/birch trees on either side of the access road into the subdivision.

No groundwater or saturated soil was found in any of the test pits.

### **Soil Samples**

Laboratory results for the final excavation confirmation samples were compared to cleanup levels under Title 18, Alaska Administrative Code, Chapter 75 (18 AAC 75), Methods 1 and 2. Table 2 is the completed Method 1 matrix for petroleum hydrocarbon soil cleanup levels in nonarctic zones. Where site-specific information was not available, the most conservative score was used to calculate the cleanup level. Cleanup levels for BTEX, metals, and other detected volatile organic compounds are from Method 2, Table B1, under 40-inch precipitation zone, most conservative pathway (18 AAC 75). The cleanup levels are summarized in Table 1.

Gasoline-range organics were not present at concentrations above practical quantitation limits (PQLs). Diesel-range organics (DRO) were detected in each of the three samples (two project, one duplicate quality control) at concentrations of 38.3, 36.0, and 44.2 milligrams per kilogram (mg/kg). These concentrations are above the PQL, but well below the 200-mg/kg cleanup level. Residual-range organics (RRO) were also detected in each of the three samples at concentrations of 198, 206, and 209 mg/kg. These concentrations are slightly above the PQL and well below the 2,000-mg/kg cleanup level.

Benzene, ethylbenzene, and total xylenes were not detected in any of the samples. Toluene was detected at low concentrations with EPA Method 8021B in each of the three samples (Table 1). These concentrations were well below the cleanup level.

The metals cadmium, mercury, selenium, and silver were not detected. Chromium was detected in each of the three samples at concentrations of 17.2, 16.3, and 17.9 mg/kg. Lead was detected in each of the three samples at concentrations of 4.88, 17.30, and 9.10 mg/kg. Concentrations for chromium and lead were both below the cleanup levels. Arsenic was detected in each of the three samples at concentrations

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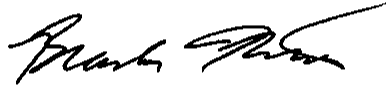
of 5.59, 5.49, and 6.64 mg/kg. These concentrations were above the cleanup level of 2.0 mg/kg. Because the metals concentrations are similar for all three samples, the results can likely be attributed to background levels.

In addition to being detected with EPA Method 8021B, toluene was detected with EPA Method 8260B for volatile organic compounds at low concentrations in two of the samples. Low concentrations of p-isopropyltoluene were detected in all three samples with EPA Method 8260B.

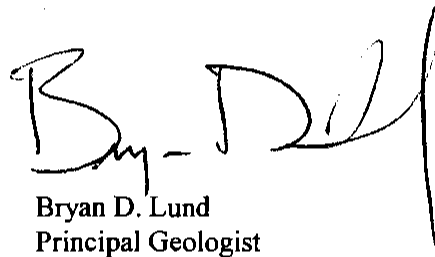
Thank you for the opportunity to provide service. Please call me at 907-563-8102 if you have questions.

Yours very truly,

**MACTEC Engineering and Consulting**



Brandon M. Miner  
Project Environmental Scientist



Bryan D. Lund  
Principal Geologist

*BTH cwc*  
QC/TE/cc/A0134R

Attachments: Tables  
Figures  
Photographs  
Laboratory Data Packages and Sample Record Log

## **TABLES**

**Table 1. Soil Analytical Results**

				Sample Number	03EKW01SL	03EKW02SL	03EKW03SL	03EKW04SL
				Date Collected	5/29/2003	5/29/2003	5/29/2003	5/29/2003
				Depth (feet bgs)	6.0	7.0	7.0	NA
				Sample Type	Project	Project	QC (duplicate of 03EKW02SL)	QC (trip blank)
				Cleanup				
Analyte	Analytical Method	Units	Criteria <sup>a</sup>					
<b>Gasoline-Range Organics</b>	AK101	mg/kg	100	ND(3.09)	ND(4.33)	ND(4.08)	ND(13.8)	
<b>Diesel-Range Organics</b>	AK102	mg/kg	200	38.3	36.0	44.2	--	
<b>Residual-Range Organics</b>	AK103	mg/kg	2,000	198	206	209	--	
<b>BTEX</b>								
Benzene	EPA 8021B	mg/kg	0.02	ND(0.0124)	ND(0.0173)	ND(0.0163)	ND(0.0550)	
Toluene	EPA 8021B	mg/kg	5.4	0.0464	0.0442	0.0694	ND(0.138)	
Ethylbenzene	EPA 8021B	mg/kg	5.5	ND(0.0309)	ND(0.0433)	ND(0.0408)	ND(0.138)	
Xylenes (total)	EPA 8021B	mg/kg	78	ND(0.0618)	ND(0.0866)	ND(0.0815)	ND(0.275)	
<b>Metals</b>								
Arsenic	EPA 6000/7000	mg/kg	2.0	5.59	5.49	6.64	--	
Cadmium	EPA 6000/7000	mg/kg	5.0	ND(0.500)	ND(0.500)	ND(0.500)	--	
Chromium	EPA 6000/7000	mg/kg	26	17.2	16.3	17.9	--	
Lead	EPA 6000/7000	mg/kg	400 <sup>b</sup>	4.88	17.30	9.10	--	
Mercury	EPA 6000/7000	mg/kg	1.4	ND(0.200)	ND(0.200)	ND(0.200)	--	
Selenium	EPA 6000/7000	mg/kg	3.5	ND(0.500)	ND(0.500)	ND(0.500)	--	
Silver	EPA 6000/7000	mg/kg	21	ND(0.500)	ND(0.500)	ND(0.500)	--	
<b>Volatile Organics</b>								
p-Isopropyltoluene	EPA 8260B	mg/kg	NA	0.0583	0.0780	0.405	ND(0.220)	
Toluene	EPA 8260B	mg/kg	5	0.0592	ND(0.0693)	0.0812	ND(0.220)	
bgs	Below ground surface							
BTEX	Benzene, toluene, ethylbenzene, and xylenes							
EPA	U.S. Environmental Protection Agency							
mg/kg	Milligrams per kilogram							
NA	Not applicable							
ND	Not detected at or above the concentration in parentheses							
QC	Quality control							
	Results highlighted with shading exceeded the cleanup criteria.							

a. Cleanup criteria are from Alaska Department of Environmental Conservation (ADEC) Title 18, Alaska Administrative Code, Chapter 75 (18 AAC 75), Method One, Category B, for GRO, DRO, RRO; and Method Two, Table B1, under 40-inch zone, most conservative pathway for all other parameters.

b. Residential land use cleanup level.

Note: Only analytes with detected concentrations are summarized. All other results are included in the attached laboratory data package

**Table 2. Method One – Petroleum Hydrocarbon Soil  
Cleanup Levels In Nonarctic Zones**

**Part A: Determine score for each item\***

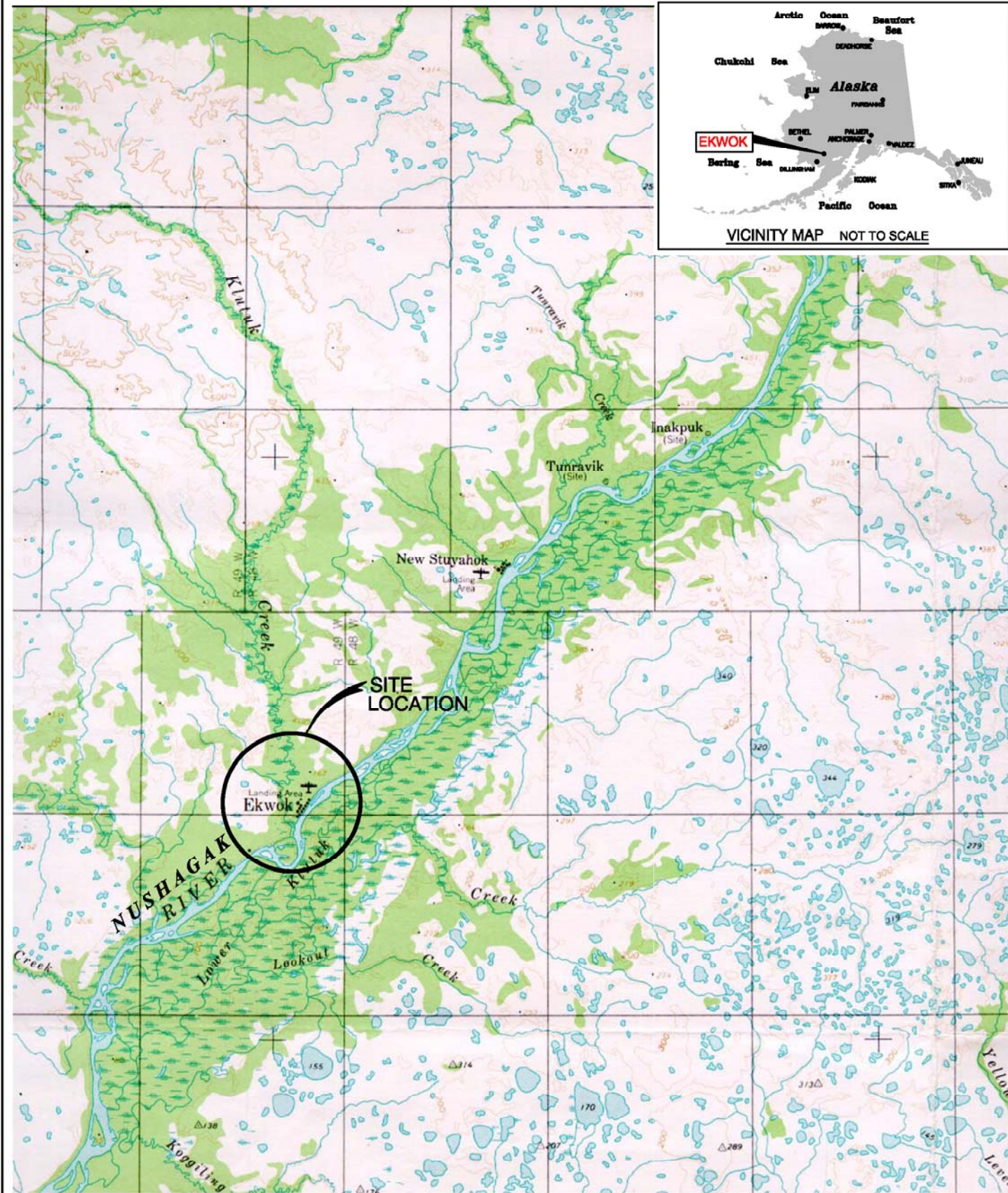
<b>1. Depth to Groundwater</b> Less than 5 feet 5 feet to 15 feet More than 15 feet to 25 feet More than 25 feet to 50 feet More than 50 feet	(10) (8) (6) (4) (1)	8
<b>2. Mean Annual Precipitation</b> More than 40 inches More than 25 inches to 40 inches 15 inches to 25 inches Less than 15 inches	(10) (5) (3) (1)	5
<b>3. Soil Type (Unified Soil Classification)</b> Clean, coarse-grained soils Coarse-grained soils with fines Fine-grained soils (low organic carbon) Fine-grained soils (high organic carbon)	(10) (8) (3) (1)	15
<b>4. Potential Receptors</b> <b>(Select the most applicable category)</b> a. Public water system within 1000 feet, or private water system within 500 feet b. Public/private water system within 1/2 mile c. Public/private water system within one mile d. No water system within one mile e. Nonpotable groundwater	(15) (12) (8) (4) (1)	8
<b>5. Volume of Contaminated Soil</b> More than 500 cubic yards More than 100 cubic yards to 500 cubic yards More than 25 cubic yards to 100 cubic yards 10 cubic yards to 25 cubic yards Less than 10 cubic yards	(10) (8) (5) (2) (0)	0

**Part B: Add scores from Part A to determine matrix score and cleanup level**

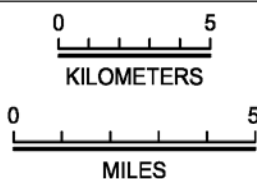
Total Score 36	Cleanup Level in mg/kg		
	Gasoline Range Organics	Diesel Range Organics	Residual Range Organics
Category A: More than 40	50	100	2000
Category B: More than 26 to 40	100	200	2000
Category C: 21 - 26	500	1000	2000
Category D: Less than 21	1000	2000	2000



## FIGURES



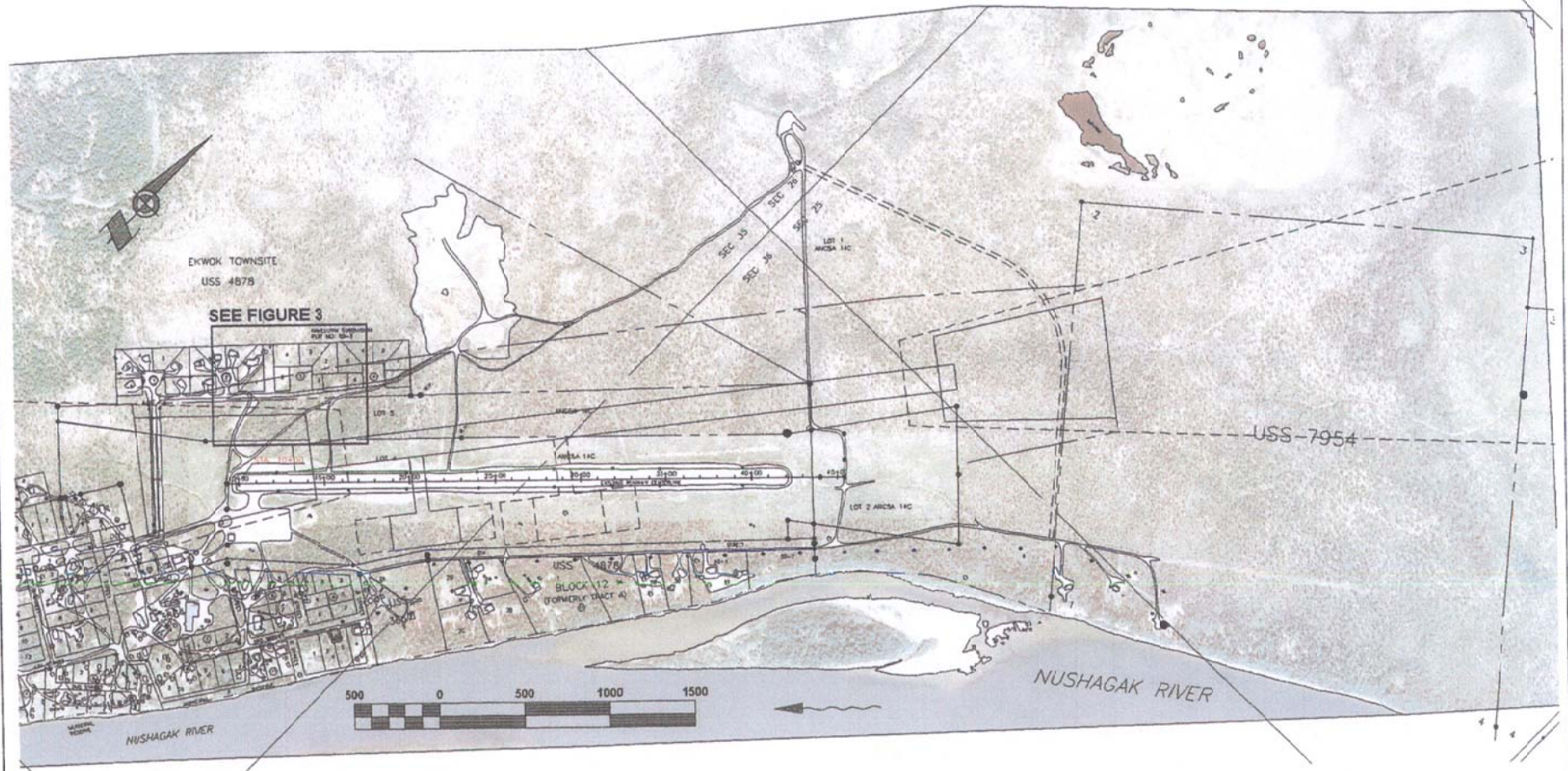
1:250 000  
U.S.G.S.  
DILLINGHAM AK, QUADRANGLE



Ekwok Airport  
Ekwok, Alaska  
**SITE LOCATION AND  
VICINITY MAP**

FIGURE 1

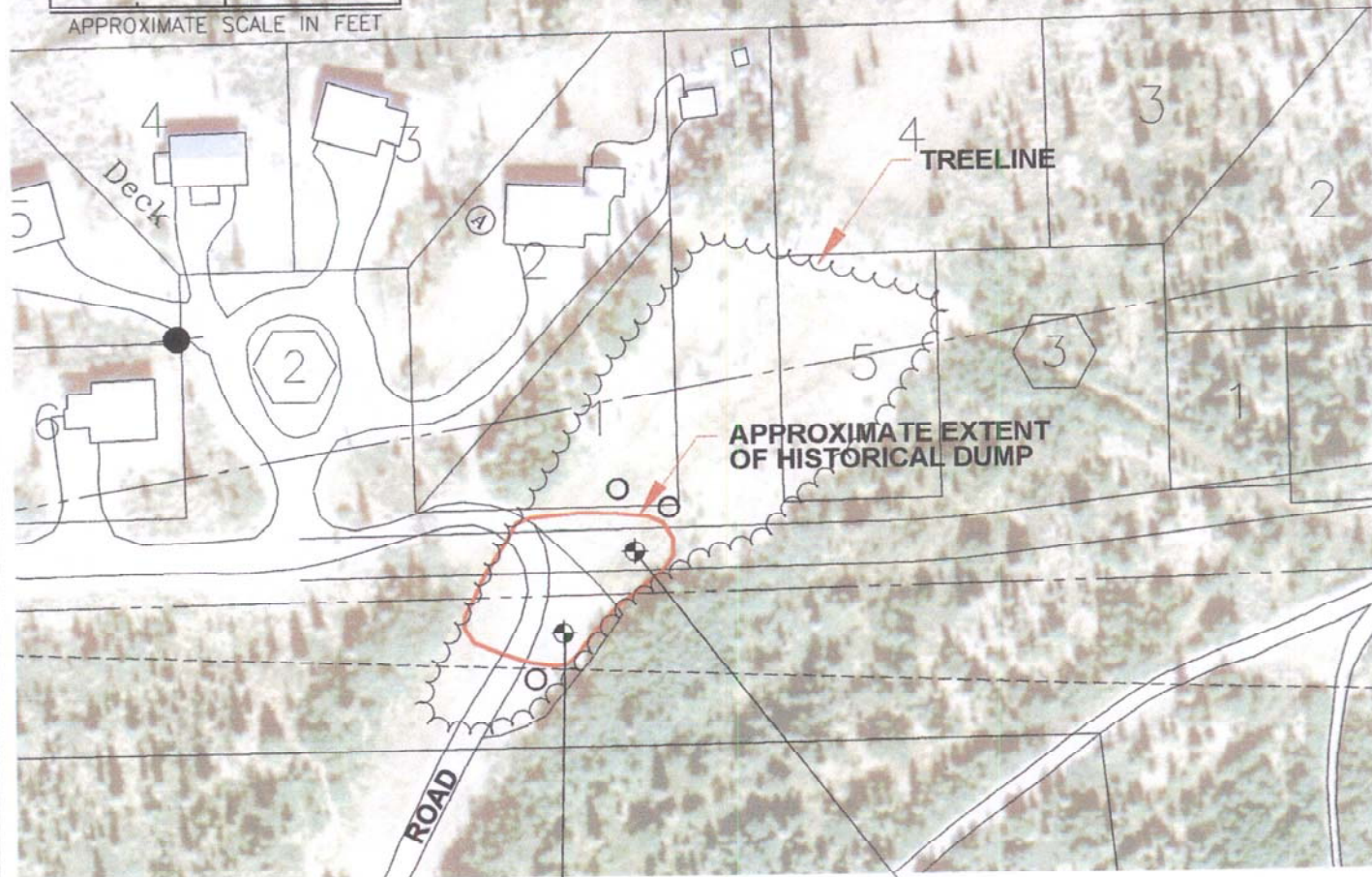
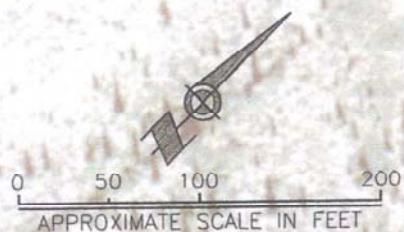




Ekwok Airport  
Ekwok, Alaska  
**SITE PLAN**  
**HISTORICAL DUMP SITE**  
FIGURE 2



NAKELUT  
PLAT NO



	03EKW02SL	03EKW03SL	
	7.0 feet bgs		
DRO	36.0	44.2	mg/kg
RRO	206	209	mg/kg
B	ND(0.0173)	ND(0.0163)	mg/kg
T	0.0442	0.0694	mg/kg
E	ND(0.0433)	ND(0.0408)	mg/kg
X	ND(0.0866)	ND(0.0815)	mg/kg

	03EKW01SL	
	6.0 feet bgs	
DRO	38.3	mg/kg
RRO	198.0	mg/kg
B	ND(0.0124)	mg/kg
T	0.0464	mg/kg
E	ND(0.0309)	mg/kg
X	ND(0.0618)	mg/kg

#### LEGEND

- TEST PIT
- ⊙ TEST PIT (LABORATORY SAMPLE COLLECTED)

Ekwok Airport  
Ekwok, Alaska

### SOIL SAMPLE LOCATIONS AND RESULTS

FIGURE 3

## **LABORATORY DATA PACKAGES AND SAMPLE RECORD LOG**

## DATA QUALITY ASSESSMENT (Note: Any "No" answer requires a comment)

Project: Ekwok Dump Investigation  
Laboratory Work Order No.: B3F0053

	Yes	No	Not Required
1. Were samples received in good condition?	<u>X</u>	<u>          </u>	<u>          </u>
2. Were samples analyzed for requested parameters?	<u>X</u>	<u>          </u>	<u>          </u>
3. Is the ADEC Data Deliverables package complete?	<u>          </u>	<u>          </u>	<u>X</u>
4. Were samples extracted/analyzed within holding time acceptance criteria?	<u>X</u>	<u>          </u>	<u>          </u>
5. For soils, were sample results reported on a "dry weight" basis?	<u>X</u>	<u>          </u>	<u>          </u>
6. For volatiles, were trip blank analytes all reported as ND?	<u>X</u>	<u>          </u>	<u>          </u>
7. Were calibration and CCV/LS criteria met?	<u>          </u>	<u>          </u>	<u>X</u>
8. Were instrument blanks reported as ND?	<u>          </u>	<u>          </u>	<u>X</u>
9. Were method blanks reported as ND?	<u>X</u>	<u>          </u>	<u>          </u>
10. Are the LCS/LCSDs within acceptance criteria?	<u>X</u>	<u>          </u>	<u>          </u>
11. Are the MS/MSDs within acceptance criteria?	<u>          </u>	<u>X</u>	<u>          </u>
12. Are the LCS/LCSD relative percent differences within acceptance criteria?	<u>X</u>	<u>          </u>	<u>          </u>
13. Are the MS/MSD relative percent differences within acceptance criteria?	<u>          </u>	<u>X</u>	<u>          </u>
14. Are the sample duplicate relative percent differences within acceptance criteria?	<u>          </u>	<u>          </u>	<u>X</u>
15. Are the surrogate percent recoveries within acceptance criteria?	<u>          </u>	<u>X</u>	<u>          </u>
16. Are the field duplicate relative percent differences less than 50 percent?	<u>          </u>	<u>X</u>	<u>          </u>

### Comments:

- Analytical data were reviewed according to the Chemical Quality Assurance for Hazardous, Toxic, and Radioactive Waste (HTRW) Projects, USACE EM-200-1-6, October 10, 1997.
- Results in the diesel organics range are primarily due to the overlap from a heavy oil range product.
- An anomaly associated with the Organochlorine Pesticides by EPA Method 8081A analysis caused the continuing calibration verification (CCV) to fail low for DDT and Methoxychlor for samples 03EKW01SL, 03EKW02SL, and 03EKW03SL. These samples were re-analyzed and the results verified. The results for these two compounds should be considered biased low in these samples.
- Sample 03EKW02SL was used for the Organochlorine Pesticides (EPA 8081A) MS/MSD analyses. The following MS and/or MSD %Recoveries were outside the QC limits because of sample matrix interference. Affected results for sample 03EKW02SL were qualified as indicated.

Analyte	MS/MSD %Recoveries	Control Limits	Qualifier
Dieldrin	NA / NA	30-150%	none *
Endrin Aldehyde	21.3 / 23.8	30-150%	none *
Methoxychlor	168 / 152	30-150%	none *

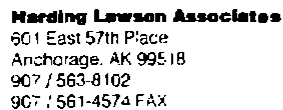
\* Because the analyte was not detected in the sample and not affected by the potential high bias of the surrogate, no qualifiers were required.

- The %Recoveries for Polychlorinated Biphenyls (PCBs) surrogate Decachlorobiphenyl were outside the 48-150% QC limits for samples 03EKW01SL (199%) and 03EKW02SL (152%). Review of associated QC indicates the recovery for this surrogate does not represent an out-of-control condition.

- The %Recoveries for SVOC surrogate p-Terphenyl-d14 was outside the 44-144% QC limits for samples 03EKW02SL (156%). Review of associated QC indicates the recovery for this surrogate does not represent an out-of-control condition.
- Field duplicates 03EKW02SL and 03EKW03SL had an RPD greater than 50% for lead (62.12%), and p-Isopropyltoluene (63.29%).

**Reviewer:** Scott Finnegan **Date:** June 25, 2003

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B3F0053

Lab: North Creek Analytical

Samplers: Byron Miner

Project Number: 55343.1.6

Name/Location: Eklok

Project Manager: Doris Robertson

**Recorder:**

**(Signature Required)**

[illegible]

LAB NUMBER			DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS	CHAIN OF CUSTODY RECORD								
Yr	Wk	Seq					RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME		RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME		
						- TEMP BLANK INCLUDED	[Signature]	[Signature]			5/8/1900				
						- Requested LAB to PREPARE FOR VDCs USING FRAM BOY CONTAINER.	[Signature]	[Signature]			6/2/1900				
						- ORIG VDC COLLECTED INFORMATION	[Signature]	[Signature]			6/30/1435				
							DISPATCHED BY: (Signature)	DATE/TIME	RECEIVED FOR LAB BY: (Signature)	DATE/TIME					
							METHOD OF SHIPMENT	Per Air - Air Cargo TO ANCHORAGE							

Laboratory Copy  
White

Project Office Copy  
Yellow

Field or Office Copy  
 \_\_\_\_\_  
 \_\_\_\_\_

HAND DELIVER MASTER PERS.

6533





**Seattle** 11720 North Creek Pkwy. N, Suite 400, Bothell, WA 98011-8244  
425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
509.924.9200 fax 509.924.9290  
**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  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
907.563.9200 fax 907.563.9210

16 June 2003

Donna Robertson  
MACTEC - Anchorage  
601 East 57th Place  
Anchorage, AK 99518  
RE: EKWOK

Enclosed are the results of analyses for samples received by the laboratory on 06/03/03 14:35. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr For Emanuel Hignutt  
PM



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
509.924.9200 fax 509.924.9290  
**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  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
907.563.9200 fax 907.563.9210

MACTEC - Anchorage  
601 East 57th Place  
Anchorage AK, 99518

Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
03EKWO1SL	B3F0053-01	Soil	05/29/03 10:20	06/03/03 14:35
03EKWO2SL	B3F0053-02	Soil	05/29/03 10:55	06/03/03 14:35
03EKWO3SL	B3F0053-03	Soil	05/29/03 11:05	06/03/03 14:35
03EKW04SL	B3F0053-04	Soil	05/29/03 11:15	06/03/03 14:35

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.*

Kortland Orr For Emanuel Hignutt, PM

North Creek Analytical, Inc.  
Environmental Laboratory Network



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**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  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

MACTEC - Anchorage  
 601 East 57th Place  
 Anchorage AK, 99518

Project: EKWOK  
 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
 06/16/03 16:20

**Gasoline Hydrocarbons (n-Hexane to <n-Decane) and BTEX by AK101/EPA 8021B**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>03EKWO1SL (B3F0053-01) Soil Sampled: 05/29/03 10:20 Received: 06/03/03 14:35</b>									
Gasoline Range Hydrocarbons	ND	3.09	mg/kg dry	1	3F05001	06/05/03	06/05/03	AK 101	
Benzene	ND	0.0124	"	"	"	"	"	"	
Toluene	0.0464	0.0309	"	"	"	"	"	"	
Ethylbenzene	ND	0.0309	"	"	"	"	"	"	
Xylenes (total)	ND	0.0618	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	91.6 %	60-120			"	"	"	"	
Surrogate: a,a,a-TFT (FID)	71.9 %	50-150			"	"	"	"	
Surrogate: 4-BFB (PID)	110 %	60-120			"	"	"	"	
Surrogate: a,a,a-TFT (PID)	77.3 %	50-150			"	"	"	"	
<b>03EKWO2SL (B3F0053-02) Soil Sampled: 05/29/03 10:55 Received: 06/03/03 14:35</b>									
Gasoline Range Hydrocarbons	ND	4.33	mg/kg dry	1	3F05001	06/05/03	06/05/03	AK 101	
Benzene	ND	0.0173	"	"	"	"	"	"	
Toluene	0.0442	0.0433	"	"	"	"	"	"	
Ethylbenzene	ND	0.0433	"	"	"	"	"	"	
Xylenes (total)	ND	0.0866	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	93.1 %	60-120			"	"	"	"	
Surrogate: a,a,a-TFT (FID)	87.3 %	50-150			"	"	"	"	
Surrogate: 4-BFB (PID)	112 %	60-120			"	"	"	"	
Surrogate: a,a,a-TFT (PID)	95.4 %	50-150			"	"	"	"	
<b>03EKWO3SL (B3F0053-03) Soil Sampled: 05/29/03 11:05 Received: 06/03/03 14:35</b>									
Gasoline Range Hydrocarbons	ND	4.08	mg/kg dry	1	3F05001	06/05/03	06/05/03	AK 101	
Benzene	ND	0.0163	"	"	"	"	"	"	
Toluene	0.0694	0.0408	"	"	"	"	"	"	
Ethylbenzene	ND	0.0408	"	"	"	"	"	"	
Xylenes (total)	ND	0.0815	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	94.0 %	60-120			"	"	"	"	
Surrogate: a,a,a-TFT (FID)	88.4 %	50-150			"	"	"	"	
Surrogate: 4-BFB (PID)	108 %	60-120			"	"	"	"	
Surrogate: a,a,a-TFT (PID)	92.8 %	50-150			"	"	"	"	

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Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**Gasoline Hydrocarbons (n-Hexane to <n-Decane) and BTEX by AK101/EPA 8021B**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
03EKW04SL (B3F0053-04) Soil    Sampled: 05/29/03 11:15    Received: 06/03/03 14:35									
Gasoline Range Hydrocarbons	ND	13.8	mg/kg wet	1	3F05001	06/05/03	06/05/03	AK 101	
Benzene	ND	0.0550	"	"	"	"	"	"	
Toluene	ND	0.138	"	"	"	"	"	"	
Ethylbenzene	ND	0.138	"	"	"	"	"	"	
Xylenes (total)	ND	0.275	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	89.4 %	60-120			"	"	"	"	
Surrogate: a,a,a-TFT (FID)	105 %	50-150			"	"	"	"	
Surrogate: 4-BFB (PID)	108 %	60-120			"	"	"	"	
Surrogate: a,a,a-TFT (PID)	112 %	50-150			"	"	"	"	

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Reported:  
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**Diesel Hydrocarbons (C10-C25) and Heavy Oil (C25-C36) by AK102 and AK103**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>03EKWO1SL (B3F0053-01) Soil Sampled: 05/29/03 10:20 Received: 06/03/03 14:35</b>									
<b>Diesel Range Hydrocarbons</b>	<b>38.3</b>	<b>4.00</b>	mg/kg dry	1	3F05031	06/05/03	06/06/03	AK102/103	D-09
<b>Residual Range Organics</b>	<b>198</b>	<b>25.0</b>	"	"	"	"	"	"	
Surrogate: 2-FBP	97.1 %	50-150			"	"	"	"	
Surrogate: Octacosane	93.1 %	50-150			"	"	"	"	
<b>03EKWO2SL (B3F0053-02) Soil Sampled: 05/29/03 10:55 Received: 06/03/03 14:35</b>									
<b>Diesel Range Hydrocarbons</b>	<b>36.0</b>	<b>4.00</b>	mg/kg dry	1	3F05031	06/05/03	06/06/03	AK102/103	D-09
<b>Residual Range Organics</b>	<b>206</b>	<b>50.0</b>	"	2	"	"	06/06/03	"	
Surrogate: 2-FBP	86.2 %	50-150			"	"	06/06/03	"	
Surrogate: Octacosane	87.3 %	50-150			"	"	06/06/03	"	
<b>03EKWO3SL (B3F0053-03) Soil Sampled: 05/29/03 11:05 Received: 06/03/03 14:35</b>									
<b>Diesel Range Hydrocarbons</b>	<b>44.2</b>	<b>4.00</b>	mg/kg dry	1	3F05031	06/05/03	06/06/03	AK102/103	D-09
<b>Residual Range Organics</b>	<b>209</b>	<b>25.0</b>	"	"	"	"	06/06/03	"	
Surrogate: 2-FBP	97.5 %	50-150			"	"	06/06/03	"	
Surrogate: Octacosane	106 %	50-150			"	"	06/06/03	"	

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 Project Manager: Donna Robertson

Reported:  
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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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**03EKWO1SL (B3F0053-01) Soil Sampled: 05/29/03 10:20 Received: 06/03/03 14:35**

Silver	ND	0.500	mg/kg dry	1	3F09032	06/09/03	06/11/03	EPA 6020	
Arsenic	5.59	0.500	"	"	"	"	"	"	
Barium	102	5.00	"	"	"	"	"	"	
Cadmium	ND	0.500	"	"	"	"	"	"	
Chromium	17.2	0.500	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	3F04025	06/04/03	06/04/03	EPA 7471A	
Lead	4.88	0.500	"	"	3F09032	06/09/03	06/11/03	EPA 6020	
Selenium	ND	0.500	"	"	"	"	"	"	

**03EKWO2SL (B3F0053-02) Soil Sampled: 05/29/03 10:55 Received: 06/03/03 14:35**

Silver	ND	0.500	mg/kg dry	1	3F09032	06/09/03	06/11/03	EPA 6020	
Arsenic	5.49	0.500	"	"	"	"	"	"	
Barium	99.0	5.00	"	"	"	"	"	"	
Cadmium	ND	0.500	"	"	"	"	"	"	
Chromium	16.3	0.500	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	3F04025	06/04/03	06/04/03	EPA 7471A	
Lead	17.3	0.500	"	"	3F09032	06/09/03	06/11/03	EPA 6020	
Selenium	ND	0.500	"	"	"	"	"	"	

**03EKWO3SL (B3F0053-03) Soil Sampled: 05/29/03 11:05 Received: 06/03/03 14:35**

Silver	ND	0.500	mg/kg dry	1	3F09032	06/09/03	06/11/03	EPA 6020	
Arsenic	6.64	0.500	"	"	"	"	"	"	
Barium	103	5.00	"	"	"	"	"	"	
Cadmium	ND	0.500	"	"	"	"	"	"	
Chromium	17.9	0.500	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	3F04025	06/04/03	06/04/03	EPA 7471A	
Lead	9.10	0.500	"	"	3F09032	06/09/03	06/11/03	EPA 6020	
Selenium	ND	0.500	"	"	"	"	"	"	

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Project: EKWOK  
 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
 06/16/03 16:20

### Organochlorine Pesticides by EPA Method 8081A North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
03EKWO1SL (B3F0053-01) Soil Sampled: 05/29/03 10:20 Received: 06/03/03 14:35 X									
Aldrin	ND	1.00	ug/kg dry	1	3F05033	06/05/03	06/10/03	EPA 8081A	
alpha-BHC	ND	1.00	"	"	"	"	"	"	
beta-BHC	ND	2.00	"	"	"	"	"	"	
delta-BHC	ND	1.00	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	1.00	"	"	"	"	"	"	
Chlordane (tech)	ND	10.0	"	"	"	"	"	"	
alpha-Chlordane	ND	1.00	"	"	"	"	"	"	
gamma-Chlordane	ND	1.00	"	"	"	"	"	"	
4,4'-DDD	ND	2.00	"	"	"	"	"	"	
4,4'-DDE	ND	2.00	"	"	"	"	"	"	
4,4'-DDT	ND	2.00	"	"	"	"	"	"	
Dieldrin	ND	2.00	"	"	"	"	"	"	
Endosulfan I	ND	1.00	"	"	"	"	"	"	
Endosulfan II	ND	2.00	"	"	"	"	"	"	
Endosulfan sulfate	ND	2.00	"	"	"	"	"	"	
Endrin	ND	2.00	"	"	"	"	"	"	
Endrin aldehyde	ND	2.00	"	"	"	"	"	"	
Endrin ketone	ND	2.00	"	"	"	"	"	"	
Heptachlor	ND	1.00	"	"	"	"	"	"	
Heptachlor epoxide	ND	1.00	"	"	"	"	"	"	
Methoxychlor	ND	10.0	"	"	"	"	"	"	
Toxaphene	ND	50.0	"	"	"	"	"	"	
Surrogate: TCX	80.8 %	28-128			"	"	"	"	
Surrogate: Decachlorobiphenyl	89.8 %	29-141			"	"	"	"	

North Creek Analytical - Bothell

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Project: EKWOK  
 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
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**Organochlorine Pesticides by EPA Method 8081A**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
03EKWO2SL (B3F0053-02) Soil Sampled: 05/29/03 10:55 Received: 06/03/03 14:35 X									
Aldrin	ND	1.00	ug/kg dry	1	3F05033	06/05/03	06/11/03	EPA 8081A	
alpha-BHC	ND	1.00	"	"	"	"	"	"	
beta-BHC	ND	2.00	"	"	"	"	"	"	
delta-BHC	ND	1.00	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	1.00	"	"	"	"	"	"	
Chlordane (tech)	ND	10.0	"	"	"	"	"	"	
alpha-Chlordane	ND	1.00	"	"	"	"	"	"	
gamma-Chlordane	ND	1.00	"	"	"	"	"	"	
4,4'-DDD	ND	2.00	"	"	"	"	"	"	
4,4'-DDE	ND	2.00	"	"	"	"	"	"	
4,4'-DDT	ND	2.00	"	"	"	"	"	"	
Dieldrin	ND	2.00	"	"	"	"	"	"	
Endosulfan I	ND	1.00	"	"	"	"	"	"	
Endosulfan II	ND	2.00	"	"	"	"	"	"	
Endosulfan sulfate	ND	2.00	"	"	"	"	"	"	
Endrin	ND	2.00	"	"	"	"	"	"	
Endrin aldehyde	ND	2.00	"	"	"	"	"	"	
Endrin ketone	ND	2.00	"	"	"	"	"	"	
Heptachlor	ND	1.00	"	"	"	"	"	"	
Heptachlor epoxide	ND	1.00	"	"	"	"	"	"	
Methoxychlor	ND	10.0	"	"	"	"	"	"	
Toxaphene	ND	50.0	"	"	"	"	"	"	
Surrogate: TCX	72.9 %	28-128			"	"	"	"	
Surrogate: Decachlorobiphenyl	84.9 %	29-141			"	"	"	"	

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 Project Manager: Donna Robertson

Reported:  
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### Organochlorine Pesticides by EPA Method 8081A North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
03EKWO3SL (B3F0053-03) Soil Sampled: 05/29/03 11:05 Received: 06/03/03 14:35 X									
Aldrin	ND	1.00	ug/kg dry	1	3F05033	06/05/03	06/11/03	EPA 8081A	
alpha-BHC	ND	1.00	"	"	"	"	"	"	
beta-BHC	ND	2.00	"	"	"	"	"	"	
delta-BHC	ND	1.00	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	1.00	"	"	"	"	"	"	
Chlordane (tech)	ND	10.0	"	"	"	"	"	"	
alpha-Chlordane	ND	1.00	"	"	"	"	"	"	
gamma-Chlordane	ND	1.00	"	"	"	"	"	"	
4,4'-DDD	ND	2.00	"	"	"	"	"	"	
4,4'-DDE	ND	2.00	"	"	"	"	"	"	
4,4'-DDT	ND	2.00	"	"	"	"	"	"	
Dieldrin	ND	2.00	"	"	"	"	"	"	
Endosulfan I	ND	1.00	"	"	"	"	"	"	
Endosulfan II	ND	2.00	"	"	"	"	"	"	
Endosulfan sulfate	ND	2.00	"	"	"	"	"	"	
Endrin	ND	2.00	"	"	"	"	"	"	
Endrin aldehyde	ND	2.00	"	"	"	"	"	"	
Endrin ketone	ND	2.00	"	"	"	"	"	"	
Heptachlor	ND	1.00	"	"	"	"	"	"	
Heptachlor epoxide	ND	1.00	"	"	"	"	"	"	
Methoxychlor	ND	10.0	"	"	"	"	"	"	
Toxaphene	ND	50.0	"	"	"	"	"	"	
Surrogate: TCX	74.7 %	28-128			"	"	"	"	
Surrogate: Decachlorobiphenyl	82.2 %	29-141			"	"	"	"	

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 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
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**Polychlorinated Biphenyls by EPA Method 8082**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>03EKWO1SL (B3F0053-01) Soil Sampled: 05/29/03 10:20 Received: 06/03/03 14:35</b>									
Aroclor 1016	ND	25.0	ug/kg dry	1	3F05033	06/05/03	06/10/03	EPA 8082	
Aroclor 1221	ND	50.0	"	"	"	"	"	"	
Aroclor 1232	ND	25.0	"	"	"	"	"	"	
Aroclor 1242	ND	25.0	"	"	"	"	"	"	
Aroclor 1248	ND	25.0	"	"	"	"	"	"	
Aroclor 1254	ND	25.0	"	"	"	"	"	"	
Aroclor 1260	ND	25.0	"	"	"	"	"	"	
Aroclor 1262	ND	25.0	"	"	"	"	"	"	
Aroclor 1268	ND	25.0	"	"	"	"	"	"	
Surrogate: TCX	83.9 %	49-124			"	"	"	"	
Surrogate: Decachlorobiphenyl	199 %	48-150			"	"	"	"	S-03
<b>03EKWO2SL (B3F0053-02) Soil Sampled: 05/29/03 10:55 Received: 06/03/03 14:35</b>									
Aroclor 1016	ND	25.0	ug/kg dry	1	3F05033	06/05/03	06/10/03	EPA 8082	
Aroclor 1221	ND	50.0	"	"	"	"	"	"	
Aroclor 1232	ND	25.0	"	"	"	"	"	"	
Aroclor 1242	ND	25.0	"	"	"	"	"	"	
Aroclor 1248	ND	25.0	"	"	"	"	"	"	
Aroclor 1254	ND	25.0	"	"	"	"	"	"	
Aroclor 1260	ND	25.0	"	"	"	"	"	"	
Aroclor 1262	ND	25.0	"	"	"	"	"	"	
Aroclor 1268	ND	25.0	"	"	"	"	"	"	
Surrogate: TCX	83.9 %	49-124			"	"	"	"	
Surrogate: Decachlorobiphenyl	152 %	48-150			"	"	"	"	S-03

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MACTEC - Anchorage  
601 East 57th Place  
Anchorage AK, 99518

Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**Polychlorinated Biphenyls by EPA Method 8082**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>03EKWO3SL (B3F0053-03) Soil Sampled: 05/29/03 11:05 Received: 06/03/03 14:35</b>									
Aroclor 1016	ND	25.0	ug/kg dry	1	3F05033	06/05/03	06/10/03	EPA 8082	
Aroclor 1221	ND	50.0	"	"	"	"	"	"	
Aroclor 1232	ND	25.0	"	"	"	"	"	"	
Aroclor 1242	ND	25.0	"	"	"	"	"	"	
Aroclor 1248	ND	25.0	"	"	"	"	"	"	
Aroclor 1254	ND	25.0	"	"	"	"	"	"	
Aroclor 1260	ND	25.0	"	"	"	"	"	"	
Aroclor 1262	ND	25.0	"	"	"	"	"	"	
Aroclor 1268	ND	25.0	"	"	"	"	"	"	
Surrogate: TCX	99.1 %	49-124			"	"	"	"	
Surrogate: Decachlorobiphenyl	48.4 %	48-150			"	"	"	"	

North Creek Analytical - Bothell

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 601 East 57th Place  
 Anchorage AK, 99518

Project: EKWOK  
 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
 06/16/03 16:20

**Volatile Organic Compounds by EPA Method 8260B**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>03EKWO1SL (B3F0053-01) Soil Sampled: 05/29/03 10:20 Received: 06/03/03 14:35</b>									
1,1,1,2-Tetrachloroethane	ND	0.0495	mg/kg dry	1	3F05019	06/04/03	06/05/03	EPA 8260B	
1,1,1-Trichloroethane	ND	0.0495	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.0495	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.0495	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.0495	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.0495	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.0495	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.0495	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.0495	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.0495	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0495	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.247	"	"	"	"	"	"	
1,2-Dibromoethane	ND	0.0495	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.0495	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.0495	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.0495	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0495	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.0495	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.0495	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.0495	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.0495	"	"	"	"	"	"	
2-Butanone	ND	0.495	"	"	"	"	"	"	
2-Chlorotoluene	ND	0.0495	"	"	"	"	"	"	
2-Hexanone	ND	0.495	"	"	"	"	"	"	
4-Chlorotoluene	ND	0.0495	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	0.495	"	"	"	"	"	"	
Acetone	ND	0.495	"	"	"	"	"	"	
Benzene	ND	0.0495	"	"	"	"	"	"	
Bromobenzene	ND	0.0495	"	"	"	"	"	"	
Bromochloromethane	ND	0.0495	"	"	"	"	"	"	
Bromodichloromethane	ND	0.0495	"	"	"	"	"	"	
Bromoform	ND	0.0495	"	"	"	"	"	"	
Bromomethane	ND	0.0495	"	"	"	"	"	"	
Carbon disulfide	ND	0.0495	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.0495	"	"	"	"	"	"	
Chlorobenzene	ND	0.0495	"	"	"	"	"	"	
Chloroethane	ND	0.0495	"	"	"	"	"	"	
Chloroform	ND	0.0495	"	"	"	"	"	"	

North Creek Analytical - Bothell

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MACTEC - Anchorage  
601 East 57th Place  
Anchorage AK, 99518

Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**Volatile Organic Compounds by EPA Method 8260B**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
03EKWO1SL (B3F0053-01) Soil Sampled: 05/29/03 10:20 Received: 06/03/03 14:35									
Chloromethane	ND	0.247	mg/kg dry	1	3F05019	06/04/03	06/05/03	EPA 8260B	
cis-1,2-Dichloroethene	ND	0.0495	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.0495	"	"	"	"	"	"	
Dibromochloromethane	ND	0.0495	"	"	"	"	"	"	
Dibromomethane	ND	0.0495	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	0.0495	"	"	"	"	"	"	
Ethylbenzene	ND	0.0495	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.0495	"	"	"	"	"	"	
Isopropylbenzene	ND	0.0495	"	"	"	"	"	"	
m,p-Xylene	ND	0.0989	"	"	"	"	"	"	
Methylene chloride	ND	0.495	"	"	"	"	"	"	
n-Butylbenzene	ND	0.0495	"	"	"	"	"	"	
n-Propylbenzene	ND	0.0495	"	"	"	"	"	"	
Naphthalene	ND	0.0495	"	"	"	"	"	"	
o-Xylene	ND	0.0495	"	"	"	"	"	"	
p-Isopropyltoluene	0.0583	0.0495	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.0495	"	"	"	"	"	"	
Styrene	ND	0.0495	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.0495	"	"	"	"	"	"	
Tetrachloroethene	ND	0.0495	"	"	"	"	"	"	
Toluene	0.0592	0.0495	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.0495	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.0495	"	"	"	"	"	"	
Trichloroethene	ND	0.0495	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.0495	"	"	"	"	"	"	
Vinyl chloride	ND	0.0495	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	99.3 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	108 %	70-130			"	"	"	"	
Surrogate: 4-BFB	87.4 %	70-130			"	"	"	"	

North Creek Analytical - Bothell

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601 East 57th Place  
Anchorage AK, 99518

Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**Volatile Organic Compounds by EPA Method 8260B**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
03EKWO2SL (B3F0053-02) Soil Sampled: 05/29/03 10:55 Received: 06/03/03 14:35									
1,1,1,2-Tetrachloroethane	ND	0.0693	mg/kg dry	1	3F05019	06/04/03	06/05/03	EPA 8260B	
1,1,1-Trichloroethane	ND	0.0693	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.0693	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.0693	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.0693	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.0693	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.0693	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.0693	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.0693	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.0693	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0693	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.347	"	"	"	"	"	"	
1,2-Dibromoethane	ND	0.0693	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.0693	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.0693	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.0693	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0693	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.0693	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.0693	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.0693	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.0693	"	"	"	"	"	"	
2-Butanone	ND	0.693	"	"	"	"	"	"	
2-Chlorotoluene	ND	0.0693	"	"	"	"	"	"	
2-Hexanone	ND	0.693	"	"	"	"	"	"	
4-Chlorotoluene	ND	0.0693	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	0.693	"	"	"	"	"	"	
Acetone	ND	0.693	"	"	"	"	"	"	
Benzene	ND	0.0693	"	"	"	"	"	"	
Bromobenzene	ND	0.0693	"	"	"	"	"	"	
Bromochloromethane	ND	0.0693	"	"	"	"	"	"	
Bromodichloromethane	ND	0.0693	"	"	"	"	"	"	
Bromoform	ND	0.0693	"	"	"	"	"	"	
Bromomethane	ND	0.0693	"	"	"	"	"	"	
Carbon disulfide	ND	0.0693	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.0693	"	"	"	"	"	"	
Chlorobenzene	ND	0.0693	"	"	"	"	"	"	
Chloroethane	ND	0.0693	"	"	"	"	"	"	
Chloroform	ND	0.0693	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**Volatile Organic Compounds by EPA Method 8260B**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
03EKWO2SL (B3F0053-02) Soil Sampled: 05/29/03 10:55 Received: 06/03/03 14:35									
Chloromethane	ND	0.347	mg/kg dry	1	3F05019	06/04/03	06/05/03	EPA 8260B	
cis-1,2-Dichloroethene	ND	0.0693	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.0693	"	"	"	"	"	"	
Dibromochloromethane	ND	0.0693	"	"	"	"	"	"	
Dibromomethane	ND	0.0693	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	0.0693	"	"	"	"	"	"	
Ethylbenzene	ND	0.0693	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.0693	"	"	"	"	"	"	
Isopropylbenzene	ND	0.0693	"	"	"	"	"	"	
m,p-Xylene	ND	0.139	"	"	"	"	"	"	
Methylene chloride	ND	0.693	"	"	"	"	"	"	
n-Butylbenzene	ND	0.0693	"	"	"	"	"	"	
n-Propylbenzene	ND	0.0693	"	"	"	"	"	"	
Naphthalene	ND	0.0693	"	"	"	"	"	"	
o-Xylene	ND	0.0693	"	"	"	"	"	"	
p-Isopropyltoluene	0.0780	0.0693	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.0693	"	"	"	"	"	"	
Styrene	ND	0.0693	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.0693	"	"	"	"	"	"	
Tetrachloroethene	ND	0.0693	"	"	"	"	"	"	
Toluene	ND	0.0693	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.0693	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.0693	"	"	"	"	"	"	
Trichloroethene	ND	0.0693	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.0693	"	"	"	"	"	"	
Vinyl chloride	ND	0.0693	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	98.8 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	106 %	70-130			"	"	"	"	
Surrogate: 4-BFB	91.3 %	70-130			"	"	"	"	

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Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**Volatile Organic Compounds by EPA Method 8260B**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
03EKWO3SL (B3F0053-03) Soil Sampled: 05/29/03 11:05 Received: 06/03/03 14:35									
1,1,1,2-Tetrachloroethane	ND	0.0652	mg/kg dry	1	3F05019	06/04/03	06/05/03	EPA 8260B	
1,1,1-Trichloroethane	ND	0.0652	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.0652	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.0652	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.0652	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.0652	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.0652	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.0652	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.0652	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.0652	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0652	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	0.326	"	"	"	"	"	"	
1,2-Dibromoethane	ND	0.0652	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.0652	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.0652	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.0652	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0652	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.0652	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.0652	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.0652	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.0652	"	"	"	"	"	"	
2-Butanone	ND	0.652	"	"	"	"	"	"	
2-Chlorotoluene	ND	0.0652	"	"	"	"	"	"	
2-Hexanone	ND	0.652	"	"	"	"	"	"	
4-Chlorotoluene	ND	0.0652	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	0.652	"	"	"	"	"	"	
Acetone	ND	0.652	"	"	"	"	"	"	
Benzene	ND	0.0652	"	"	"	"	"	"	
Bromobenzene	ND	0.0652	"	"	"	"	"	"	
Bromochloromethane	ND	0.0652	"	"	"	"	"	"	
Bromodichloromethane	ND	0.0652	"	"	"	"	"	"	
Bromoform	ND	0.0652	"	"	"	"	"	"	
Bromomethane	ND	0.0652	"	"	"	"	"	"	
Carbon disulfide	ND	0.0652	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.0652	"	"	"	"	"	"	
Chlorobenzene	ND	0.0652	"	"	"	"	"	"	
Chloroethane	ND	0.0652	"	"	"	"	"	"	
Chloroform	ND	0.0652	"	"	"	"	"	"	

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MACTEC - Anchorage  
601 East 57th Place  
Anchorage AK, 99518

Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**Volatile Organic Compounds by EPA Method 8260B**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
03EKWO3SL (B3F0053-03) Soil Sampled: 05/29/03 11:05 Received: 06/03/03 14:35									
Chloromethane	ND	0.326	mg/kg dry	1	3F05019	06/04/03	06/05/03	EPA 8260B	
cis-1,2-Dichloroethene	ND	0.0652	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.0652	"	"	"	"	"	"	
Dibromochloromethane	ND	0.0652	"	"	"	"	"	"	
Dibromomethane	ND	0.0652	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	0.0652	"	"	"	"	"	"	
Ethylbenzene	ND	0.0652	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.0652	"	"	"	"	"	"	
Isopropylbenzene	ND	0.0652	"	"	"	"	"	"	
m,p-Xylene	ND	0.130	"	"	"	"	"	"	
Methylene chloride	ND	0.652	"	"	"	"	"	"	
n-Butylbenzene	ND	0.0652	"	"	"	"	"	"	
n-Propylbenzene	ND	0.0652	"	"	"	"	"	"	
Naphthalene	ND	0.0652	"	"	"	"	"	"	
o-Xylene	ND	0.0652	"	"	"	"	"	"	
p-Isopropyltoluene	0.405	0.0652	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.0652	"	"	"	"	"	"	
Styrene	ND	0.0652	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.0652	"	"	"	"	"	"	
Tetrachloroethene	ND	0.0652	"	"	"	"	"	"	
Toluene	0.0812	0.0652	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.0652	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.0652	"	"	"	"	"	"	
Trichloroethene	ND	0.0652	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.0652	"	"	"	"	"	"	
Vinyl chloride	ND	0.0652	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	100 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	107 %	70-130			"	"	"	"	
Surrogate: 4-BFB	90.4 %	70-130			"	"	"	"	

North Creek Analytical - Bothell

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 601 East 57th Place  
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Project: EKWOK  
 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
 06/16/03 16:20

**Volatile Organic Compounds by EPA Method 8260B**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>03EKW04SL (B3F0053-04) Soil Sampled: 05/29/03 11:15 Received: 06/03/03 14:35</b>									
1,1,1,2-Tetrachloroethane	ND	0.220	mg/kg wet	1	3F05019	06/04/03	06/05/03	EPA 8260B	
1,1,1-Trichloroethane	ND	0.220	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.220	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.220	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.220	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.220	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.220	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.220	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.220	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.220	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.220	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	1.10	"	"	"	"	"	"	
1,2-Dibromoethane	ND	0.220	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.220	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.220	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.220	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.220	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.220	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.220	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.220	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.220	"	"	"	"	"	"	
2-Butanone	ND	2.20	"	"	"	"	"	"	
2-Chlorotoluene	ND	0.220	"	"	"	"	"	"	
2-Hexanone	ND	2.20	"	"	"	"	"	"	
4-Chlorotoluene	ND	0.220	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	2.20	"	"	"	"	"	"	
Acetone	ND	2.20	"	"	"	"	"	"	
Benzene	ND	0.220	"	"	"	"	"	"	
Bromobenzene	ND	0.220	"	"	"	"	"	"	
Bromochloromethane	ND	0.220	"	"	"	"	"	"	
Bromodichloromethane	ND	0.220	"	"	"	"	"	"	
Bromoform	ND	0.220	"	"	"	"	"	"	
Bromomethane	ND	0.220	"	"	"	"	"	"	
Carbon disulfide	ND	0.220	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.220	"	"	"	"	"	"	
Chlorobenzene	ND	0.220	"	"	"	"	"	"	
Chloroethane	ND	0.220	"	"	"	"	"	"	
Chloroform	ND	0.220	"	"	"	"	"	"	

North Creek Analytical - Bothell

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MACTEC - Anchorage  
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Anchorage AK, 99518

Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**Volatile Organic Compounds by EPA Method 8260B**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>03EKW04SL (B3F0053-04) Soil Sampled: 05/29/03 11:15 Received: 06/03/03 14:35</b>									
Chloromethane	ND	1.10	mg/kg wet	1	3F05019	06/04/03	06/05/03	EPA 8260B	
cis-1,2-Dichloroethene	ND	0.220	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.220	"	"	"	"	"	"	
Dibromochloromethane	ND	0.220	"	"	"	"	"	"	
Dibromomethane	ND	0.220	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	0.220	"	"	"	"	"	"	
Ethylbenzene	ND	0.220	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.220	"	"	"	"	"	"	
Isopropylbenzene	ND	0.220	"	"	"	"	"	"	
m,p-Xylene	ND	0.440	"	"	"	"	"	"	
Methylene chloride	ND	2.20	"	"	"	"	"	"	
n-Butylbenzene	ND	0.220	"	"	"	"	"	"	
n-Propylbenzene	ND	0.220	"	"	"	"	"	"	
Naphthalene	ND	0.220	"	"	"	"	"	"	
o-Xylene	ND	0.220	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.220	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.220	"	"	"	"	"	"	
Styrene	ND	0.220	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.220	"	"	"	"	"	"	
Tetrachloroethene	ND	0.220	"	"	"	"	"	"	
Toluene	ND	0.220	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.220	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.220	"	"	"	"	"	"	
Trichloroethene	ND	0.220	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.220	"	"	"	"	"	"	
Vinyl chloride	ND	0.220	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	99.5 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	107 %	70-130			"	"	"	"	
Surrogate: 4-BFB	91.1 %	70-130			"	"	"	"	

North Creek Analytical - Bothell

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Project: EKWOK  
 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
 06/16/03 16:20

**Semivolatile Organic Compounds by EPA Method 8270C**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>03EKWO1SL (B3F0053-01) Soil Sampled: 05/29/03 10:20 Received: 06/03/03 14:35</b>									
1,2,4-Trichlorobenzene	ND	0.330	mg/kg dry	1	3F04005	06/04/03	06/10/03	EPA 8270C	
1,2-Dichlorobenzene	ND	0.330	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.330	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.330	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.330	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.330	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	0.330	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	0.330	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	0.500	"	"	"	"	"	"	
2,4-Dinitrotoluene	ND	0.500	"	"	"	"	"	"	
2,6-Dinitrotoluene	ND	0.500	"	"	"	"	"	"	
2-Chloronaphthalene	ND	0.330	"	"	"	"	"	"	
2-Chlorophenol	ND	0.330	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.330	"	"	"	"	"	"	
2-Methylphenol	ND	0.330	"	"	"	"	"	"	
2-Nitroaniline	ND	0.500	"	"	"	"	"	"	
2-Nitrophenol	ND	0.330	"	"	"	"	"	"	
3 & 4-Methylphenol	ND	0.330	"	"	"	"	"	"	
3,3'-Dichlorobenzidine	ND	5.00	"	"	"	"	"	"	
3-Nitroaniline	ND	0.500	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	0.500	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.330	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.330	"	"	"	"	"	"	
4-Chloroaniline	ND	0.500	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.330	"	"	"	"	"	"	
4-Nitroaniline	ND	0.500	"	"	"	"	"	"	
4-Nitrophenol	ND	0.500	"	"	"	"	"	"	
Acenaphthene	ND	0.330	"	"	"	"	"	"	
Acenaphthylene	ND	0.330	"	"	"	"	"	"	
Aniline	ND	0.330	"	"	"	"	"	"	
Anthracene	ND	0.330	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.330	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.330	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.330	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.330	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.330	"	"	"	"	"	"	
Benzoic Acid	ND	1.00	"	"	"	"	"	"	
Benzyl alcohol	ND	0.330	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Project: EKWOK  
 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
 06/16/03 16:20

## Semivolatile Organic Compounds by EPA Method 8270C

### North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>03EKWO1SL (B3F0053-01) Soil Sampled: 05/29/03 10:20 Received: 06/03/03 14:35</b>									
Bis(2-chloroethoxy)methane	ND	0.330	mg/kg dry	1	3F04005	06/04/03	06/10/03	EPA 8270C	
Bis(2-chloroethyl)ether	ND	0.330	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.330	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.330	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	0.330	"	"	"	"	"	"	
Carbazole	ND	0.330	"	"	"	"	"	"	
Chrysene	ND	0.330	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	0.330	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	0.330	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.330	"	"	"	"	"	"	
Dibenzofuran	ND	0.330	"	"	"	"	"	"	
Diethyl phthalate	ND	0.330	"	"	"	"	"	"	
Dimerhyl phthalate	ND	0.330	"	"	"	"	"	"	
Fluoranthene	ND	0.330	"	"	"	"	"	"	
Fluorene	ND	0.330	"	"	"	"	"	"	
Hexachlorobenzene	ND	0.330	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.330	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.500	"	"	"	"	"	"	
Hexachloroethane	ND	0.330	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.330	"	"	"	"	"	"	
Isophorone	ND	0.330	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.330	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.330	"	"	"	"	"	"	
Naphthalene	ND	0.330	"	"	"	"	"	"	
Nitrobenzene	ND	0.330	"	"	"	"	"	"	
Pentachlorophenol	ND	0.500	"	"	"	"	"	"	
Phenanthrene	ND	0.330	"	"	"	"	"	"	
Phenol	ND	0.330	"	"	"	"	"	"	
Pyrene	ND	0.330	"	"	"	"	"	"	
Surrogate: 2-FP	97.8 %	26-137			"	"	"	"	
Surrogate: Phenol-d6	99.1 %	10-153			"	"	"	"	
Surrogate: 2,4,6-TBP	102 %	10-133			"	"	"	"	
Surrogate: Nitrobenzene-d5	93.9 %	48-127			"	"	"	"	
Surrogate: p-Terphenyl-d14	107 %	44-144			"	"	"	"	
Surrogate: 2-FBP	87.3 %	36-146			"	"	"	"	

North Creek Analytical - Bothell

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North Creek Analytical, Inc.  
 Environmental Laboratory Network



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 Project Manager: Donna Robertson

Reported:  
 06/16/03 16:20

## Semivolatile Organic Compounds by EPA Method 8270C

### North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>03EKWO2SL (B3F0053-02) Soil Sampled: 05/29/03 10:55 Received: 06/03/03 14:35</b>									
1,2,4-Trichlorobenzene	ND	0.330	mg/kg dry	1	3F04005	06/04/03	06/11/03	EPA 8270C	
1,2-Dichlorobenzene	ND	0.330	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.330	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.330	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.330	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.330	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	0.330	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	0.330	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	0.500	"	"	"	"	"	"	
2,4-Dinitrotoluene	ND	0.500	"	"	"	"	"	"	
2,6-Dinitrotoluene	ND	0.500	"	"	"	"	"	"	
2-Chloronaphthalene	ND	0.330	"	"	"	"	"	"	
2-Chlorophenol	ND	0.330	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.330	"	"	"	"	"	"	
2-Methylphenol	ND	0.330	"	"	"	"	"	"	
2-Nitroaniline	ND	0.500	"	"	"	"	"	"	
2-Nitrophenol	ND	0.330	"	"	"	"	"	"	
3 & 4-Methylphenol	ND	0.330	"	"	"	"	"	"	
3,3'-Dichlorobenzidine	ND	5.00	"	"	"	"	"	"	
3-Nitroaniline	ND	0.500	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	0.500	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.330	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.330	"	"	"	"	"	"	
4-Chloroaniline	ND	0.500	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.330	"	"	"	"	"	"	
4-Nitroaniline	ND	0.500	"	"	"	"	"	"	
4-Nitrophenol	ND	0.500	"	"	"	"	"	"	
Acenaphthene	ND	0.330	"	"	"	"	"	"	
Acenaphthylene	ND	0.330	"	"	"	"	"	"	
Aniline	ND	0.330	"	"	"	"	"	"	
Anthracene	ND	0.330	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.330	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.330	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.330	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.330	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.330	"	"	"	"	"	"	
Benzoic Acid	ND	1.00	"	"	"	"	"	"	
Benzyl alcohol	ND	0.330	"	"	"	"	"	"	

North Creek Analytical - Bothell

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MACTEC - Anchorage  
 601 East 57th Place  
 Anchorage AK, 99518

Project: EKWOK  
 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
 06/16/03 16:20

### Semivolatile Organic Compounds by EPA Method 8270C

#### North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>03EKWO2SL (B3F0053-02) Soil Sampled: 05/29/03 10:55 Received: 06/03/03 14:35</b>									
Bis(2-chloroethoxy)methane	ND	0.330	mg/kg dry	1	3F04005	06/04/03	06/11/03	EPA 8270C	
Bis(2-chloroethyl)ether	ND	0.330	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.330	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.330	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	0.330	"	"	"	"	"	"	
Carbazole	ND	0.330	"	"	"	"	"	"	
Chrysene	ND	0.330	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	0.330	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	0.330	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.330	"	"	"	"	"	"	
Dibenzofuran	ND	0.330	"	"	"	"	"	"	
Diethyl phthalate	ND	0.330	"	"	"	"	"	"	
Dimethyl phthalate	ND	0.330	"	"	"	"	"	"	
Fluoranthene	ND	0.330	"	"	"	"	"	"	
Fluorene	ND	0.330	"	"	"	"	"	"	
Hexachlorobenzene	ND	0.330	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.330	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.500	"	"	"	"	"	"	
Hexachloroethane	ND	0.330	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.330	"	"	"	"	"	"	
Isophorone	ND	0.330	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.330	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.330	"	"	"	"	"	"	
Naphthalene	ND	0.330	"	"	"	"	"	"	
Nitrobenzene	ND	0.330	"	"	"	"	"	"	
Pentachlorophenol	ND	0.500	"	"	"	"	"	"	
Phenanthrene	ND	0.330	"	"	"	"	"	"	
Phenol	ND	0.330	"	"	"	"	"	"	
Pyrene	ND	0.330	"	"	"	"	"	"	
Surrogate: 2-FP	98.0 %	26-137			"	"	"	"	
Surrogate: Phenol-d6	100 %	10-153			"	"	"	"	
Surrogate: 2,4,6-TBP	115 %	10-133			"	"	"	"	
Surrogate: Nitrobenzene-d5	91.2 %	48-127			"	"	"	"	
Surrogate: p-Terphenyl-d14	156 %	44-144			"	"	"	"	
Surrogate: 2-FBP	98.5 %	36-146			"	"	"	"	S-03

North Creek Analytical - Bothell

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MACTEC - Anchorage  
 601 East 57th Place  
 Anchorage AK, 99518

Project: EKWOK  
 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
 06/16/03 16:20

**Semivolatile Organic Compounds by EPA Method 8270C**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>03EKWO3SL (B3F0053-03) Soil Sampled: 05/29/03 11:05 Received: 06/03/03 14:35</b>									
1,2,4-Trichlorobenzene	ND	0.330	mg/kg dry	1	3F04005	06/04/03	06/10/03	EPA 8270C	
1,2-Dichlorobenzene	ND	0.330	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.330	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.330	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.330	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.330	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	0.330	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	0.330	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	0.500	"	"	"	"	"	"	
2,4-Dinitrotoluene	ND	0.500	"	"	"	"	"	"	
2,6-Dinitrotoluene	ND	0.500	"	"	"	"	"	"	
2-Chloronaphthalene	ND	0.330	"	"	"	"	"	"	
2-Chlorophenol	ND	0.330	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.330	"	"	"	"	"	"	
2-Methylphenol	ND	0.330	"	"	"	"	"	"	
2-Nitroaniline	ND	0.500	"	"	"	"	"	"	
2-Nitrophenol	ND	0.330	"	"	"	"	"	"	
3 & 4-Methylphenol	ND	0.330	"	"	"	"	"	"	
3,3'-Dichlorobenzidine	ND	5.00	"	"	"	"	"	"	
3-Nitroaniline	ND	0.500	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	0.500	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.330	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.330	"	"	"	"	"	"	
4-Chloroaniline	ND	0.500	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.330	"	"	"	"	"	"	
4-Nitroaniline	ND	0.500	"	"	"	"	"	"	
4-Nitrophenol	ND	0.500	"	"	"	"	"	"	
Acenaphthene	ND	0.330	"	"	"	"	"	"	
Acenaphthylene	ND	0.330	"	"	"	"	"	"	
Aniline	ND	0.330	"	"	"	"	"	"	
Anthracene	ND	0.330	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.330	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.330	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.330	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.330	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.330	"	"	"	"	"	"	
Benzoic Acid	ND	1.00	"	"	"	"	"	"	
Benzyl alcohol	ND	0.330	"	"	"	"	"	"	

North Creek Analytical - Bothell

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 601 East 57th Place  
 Anchorage AK, 99518

Project: EKWOK  
 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
 06/16/03 16:20

**Semivolatile Organic Compounds by EPA Method 8270C**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
03EKWO3SL (B3F0053-03) Soil Sampled: 05/29/03 11:05 Received: 06/03/03 14:35									
Bis(2-chloroethoxy)methane	ND	0.330	mg/kg dry	1	3F04005	06/04/03	06/10/03	EPA 8270C	
Bis(2-chloroethyl)ether	ND	0.330	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.330	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.330	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	0.330	"	"	"	"	"	"	
Carbazole	ND	0.330	"	"	"	"	"	"	
Chrysene	ND	0.330	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	0.330	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	0.330	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.330	"	"	"	"	"	"	
Dibenzofuran	ND	0.330	"	"	"	"	"	"	
Diethyl phthalate	ND	0.330	"	"	"	"	"	"	
Dimethyl phthalate	ND	0.330	"	"	"	"	"	"	
Fluoranthene	ND	0.330	"	"	"	"	"	"	
Fluorene	ND	0.330	"	"	"	"	"	"	
Hexachlorobenzene	ND	0.330	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.330	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.500	"	"	"	"	"	"	
Hexachloroethane	ND	0.330	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.330	"	"	"	"	"	"	
Isophorone	ND	0.330	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.330	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.330	"	"	"	"	"	"	
Naphthalene	ND	0.330	"	"	"	"	"	"	
Nitrobenzene	ND	0.330	"	"	"	"	"	"	
Pentachlorophenol	ND	0.500	"	"	"	"	"	"	
Phenanthrene	ND	0.330	"	"	"	"	"	"	
Phenol	ND	0.330	"	"	"	"	"	"	
Pyrene	ND	0.330	"	"	"	"	"	"	
Surrogate: 2-FP	103 %	26-137			"	"	"	"	
Surrogate: Phenol-d6	104 %	10-153			"	"	"	"	
Surrogate: 2,4,6-TBP	119 %	10-133			"	"	"	"	
Surrogate: Nitrobenzene-d5	98.6 %	48-127			"	"	"	"	
Surrogate: p-Terphenyl-d14	110 %	44-144			"	"	"	"	
Surrogate: 2-FBP	92.5 %	36-146			"	"	"	"	

North Creek Analytical - Bothell

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Anchorage AK, 99518

Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>03EKWO1SL (B3F0053-01) Soil Sampled: 05/29/03 10:20 Received: 06/03/03 14:35</b>									
Dry Weight	73.2	1.00	%	1	3F06021	06/06/03	06/08/03	BSOPSPL003R07	
<b>03EKWO2SL (B3F0053-02) Soil Sampled: 05/29/03 10:55 Received: 06/03/03 14:35</b>									
Dry Weight	80.3	1.00	%	1	3F06021	06/06/03	06/08/03	BSOPSPL003R07	
<b>03EKWO3SL (B3F0053-03) Soil Sampled: 05/29/03 11:05 Received: 06/03/03 14:35</b>									
Dry Weight	78.1	1.00	%	1	3F06021	06/06/03	06/08/03	BSOPSPL003R07	

North Creek Analytical - Bothell

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Project: EKWOK  
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 Project Manager: Donna Robertson

Reported:  
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**Gasoline Hydrocarbons (n-Hexane to <n-Decane) and BTEX by AK101/EPA 8021B - 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 3F05001: Prepared 06/05/03 Using EPA 5030B (P/T)**

**Blank (3F05001-BLK1)**

Gasoline Range Hydrocarbons	ND	5.00	mg/kg							
Benzene	ND	0.0200	"							
Toluene	ND	0.0500	"							
Ethylbenzene	ND	0.0500	"							
Xylenes (total)	ND	0.100	"							
Surrogate: 4-BFB (FID)	2.30		"	2.40		95.8	60-120			
Surrogate: a,a,a-TFT (FID)	2.63		"	2.40		110	50-150			
Surrogate: 4-BFB (PID)	2.57		"	2.40		107	60-120			
Surrogate: a,a,a-TFT (PID)	2.63		"	2.40		110	50-150			

**LCS (3F05001-BS1)**

Gasoline Range Hydrocarbons	21.8	5.00	mg/kg	25.0		87.2	60-120			
Benzene	0.346	0.0200	"	0.332		104	80-120			
Toluene	1.74	0.0500	"	1.85		94.1	80-120			
Ethylbenzene	0.461	0.0500	"	0.428		108	80-120			
Xylenes (total)	2.24	0.100	"	2.15		104	80-120			
Surrogate: 4-BFB (FID)	2.71		"	2.40		113	60-120			
Surrogate: a,a,a-TFT (FID)	2.60		"	2.40		108	50-150			
Surrogate: 4-BFB (PID)	2.74		"	2.40		114	60-120			
Surrogate: a,a,a-TFT (PID)	2.56		"	2.40		107	50-150			

**LCS Dup (3F05001-BSD1)**

Gasoline Range Hydrocarbons	22.1	5.00	mg/kg	25.0		88.4	60-120	1.37	20	
Benzene	0.356	0.0200	"	0.332		107	80-120	2.85	40	
Toluene	1.78	0.0500	"	1.85		96.2	80-120	2.27	40	
Ethylbenzene	0.474	0.0500	"	0.428		111	80-120	2.78	40	
Xylenes (total)	2.30	0.100	"	2.15		107	80-120	2.64	40	
Surrogate: 4-BFB (FID)	2.71		"	2.40		113	60-120			
Surrogate: a,a,a-TFT (FID)	2.57		"	2.40		107	50-150			
Surrogate: 4-BFB (PID)	2.73		"	2.40		114	60-120			
Surrogate: a,a,a-TFT (PID)	2.55		"	2.40		106	50-150			

North Creek Analytical - Bothell

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Project: EKWOK  
 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
 06/16/03 16:20

**Diesel Hydrocarbons (C10-C25) and Heavy Oil (C25-C36) by AK102 and AK103 - 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 3F05031: Prepared 06/05/03 Using EPA 3550B**

**Blank (3F05031-BLK1)**

Diesel Range Hydrocarbons	ND	4.00	mg/kg							
Residual Range Organics	ND	25.0	"							
Surrogate: 2-FBP	14.0		"	12.8		109	50-150			
Surrogate: Octacosane	6.28		"	6.40		98.1	50-150			

**LCS (3F05031-BS1)**

Diesel Range Hydrocarbons	74.3	4.00	mg/kg	80.0		92.9	75-125			
Surrogate: 2-FBP	15.0		"	12.8		117	50-150			

**LCS (3F05031-BS2)**

Residual Range Organics	49.5	25.0	mg/kg	60.0		82.5	60-120			
Surrogate: Octacosane	6.28		"	6.40		98.1	50-150			

**LCS Dup (3F05031-BSD1)**

Diesel Range Hydrocarbons	70.8	4.00	mg/kg	80.0		88.5	75-125	4.82	20	
Surrogate: 2-FBP	13.6		"	12.8		106	50-150			

**LCS Dup (3F05031-BSD2)**

Residual Range Organics	50.6	25.0	mg/kg	60.0		84.3	60-120	2.20	20	
Surrogate: Octacosane	6.55		"	6.40		102	50-150			

**Matrix Spike (3F05031-MS1)**

**Source: B3F0053-01**

Diesel Range Hydrocarbons	124	4.00	mg/kg dry	107	38.3	80.1	75-125			
Surrogate: 2-FBP	19.4		"	17.1		113	50-150			

**Matrix Spike Dup (3F05031-MSD1)**

**Source: B3F0053-01**

Diesel Range Hydrocarbons	135	4.00	mg/kg dry	108	38.3	89.5	75-125	8.49	20	
Surrogate: 2-FBP	20.2		"	17.3		117	50-150			

North Creek Analytical - Bothell

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MACTEC - Anchorage  
 601 East 57th Place  
 Anchorage AK, 99518

Project: EKWOK  
 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
 06/16/03 16:20

**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 3F04025: Prepared 06/04/03 Using EPA 7471A**

**Blank (3F04025-BLK1)**

Mercury	ND	0.200	mg/kg							
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**LCS (3F04025-BS1)**

Mercury	0.484	0.200	mg/kg	0.500		96.8	80-120			
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**LCS Dup (3F04025-BSD1)**

Mercury	0.524	0.200	mg/kg	0.500		105	80-120	7.94	20	
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**Matrix Spike (3F04025-MS1)**

**Source: B3F0053-01**

Mercury	0.783	0.200	mg/kg dry	0.683	0.0395	109	70-130			
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**Matrix Spike Dup (3F04025-MSD1)**

**Source: B3F0053-01**

Mercury	0.783	0.200	mg/kg dry	0.683	0.0395	109	70-130	0.00	30	
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**Batch 3F09032: Prepared 06/09/03 Using EPA 3050B**

**Blank (3F09032-BLK1)**

Arsenic	ND	0.500	mg/kg							
Barium	ND	5.00	"							
Cadmium	ND	0.500	"							
Chromium	ND	0.500	"							
Lead	ND	0.500	"							
Selenium	ND	0.500	"							
Silver	ND	0.500	"							

**LCS (3F09032-BS1)**

Arsenic	39.0	0.500	mg/kg	39.2		99.5	80-120			
Barium	39.5	5.00	"	39.2		101	80-120			
Cadmium	38.9	0.500	"	39.2		99.2	80-120			
Chromium	39.8	0.500	"	39.2		102	80-120			
Lead	38.0	0.500	"	39.2		96.9	80-120			
Selenium	39.3	0.500	"	39.2		100	80-120			
Silver	38.4	0.500	"	39.2		98.0	80-120			

North Creek Analytical - Bothell

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Project: EKWOK  
 Project Number: 55343.1.6  
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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 3F09032: Prepared 06/09/03 Using EPA 3050B**

**LCS Dup (3F09032-BSD1)**

Arsenic	37.4	0.500	mg/kg	39.2		95.4	80-120	4.19	20	
Barium	38.2	5.00	"	39.2		97.4	80-120	3.35	20	
Cadmium	36.8	0.500	"	39.2		93.9	80-120	5.55	20	
Chromium	38.1	0.500	"	39.2		97.2	80-120	4.36	20	
Lead	36.3	0.500	"	39.2		92.6	80-120	4.58	20	
Selenium	37.8	0.500	"	39.2		96.4	80-120	3.89	20	
Silver	37.0	0.500	"	39.2		94.4	80-120	3.71	20	

**Matrix Spike (3F09032-MS1)**

**Source: B3F0053-01**

Arsenic	61.1	0.500	mg/kg dry	60.0	5.59	92.5	72-130			
Barium	174	5.00	"	60.0	102	120	53-147			
Cadmium	57.8	0.500	"	60.0	0.141	96.1	70-130			
Chromium	76.6	0.500	"	60.0	17.2	99.0	53-147			
Lead	62.2	0.500	"	60.0	4.88	95.5	62-137			
Selenium	57.0	0.500	"	60.0	0.303	94.5	70-130			
Silver	55.0	0.500	"	60.0	ND	91.7	63-125			

**Matrix Spike Dup (3F09032-MSD1)**

**Source: B3F0053-01**

Arsenic	59.7	0.500	mg/kg dry	57.5	5.59	94.1	72-130	2.32	30	
Barium	169	5.00	"	57.5	102	117	53-147	2.92	30	
Cadmium	54.8	0.500	"	57.5	0.141	95.1	70-130	5.33	30	
Chromium	72.8	0.500	"	57.5	17.2	96.7	53-147	5.09	30	
Lead	58.3	0.500	"	57.5	4.88	92.9	62-137	6.47	30	
Selenium	53.9	0.500	"	57.5	0.303	93.2	70-130	5.59	30	
Silver	52.2	0.500	"	57.5	ND	90.8	63-125	5.22	50	

**Post Spike (3F09032-PS1)**

**Source: B3F0053-01**

Arsenic	74.3	0.500	mg/kg dry	70.4	5.59	97.6	75-125			
Barium	177	5.00	"	70.4	102	107	75-125			
Cadmium	68.5	0.500	"	70.4	0.141	97.1	75-125			
Chromium	87.8	0.500	"	70.4	17.2	100	75-125			
Lead	73.7	0.500	"	70.4	4.88	97.8	75-125			
Selenium	70.4	0.500	"	70.4	0.303	99.6	75-125			
Silver	68.7	0.500	"	70.4	ND	97.6	75-125			

North Creek Analytical - Bothell

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Project: EKWOK  
 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
 06/16/03 16:20

# **Organochlorine Pesticides by EPA Method 8081A - 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 3F05033: Prepared 06/05/03 Using EPA 3550B**

### **Blank (3F05033-BLK1)**

Aldrin	ND	1.00	ug/kg							
alpha-BHC	ND	1.00	"							
beta-BHC	ND	2.00	"							
delta-BHC	ND	1.00	"							
gamma-BHC (Lindane)	ND	1.00	"							
Chlordane (tech)	ND	10.0	"							
alpha-Chlordane	ND	1.00	"							
gamma-Chlordane	ND	1.00	"							
4,4'-DDD	ND	2.00	"							
4,4'-DDE	ND	2.00	"							
4,4'-DDT	ND	2.00	"							
Dieldrin	ND	2.00	"							
Endosulfan I	ND	1.00	"							
Endosulfan II	ND	2.00	"							
Endosulfan sulfate	ND	2.00	"							
Endrin	ND	2.00	"							
Endrin aldehyde	ND	2.00	"							
Endrin ketone	ND	2.00	"							
Heptachlor	ND	1.00	"							
Heptachlor epoxide	ND	1.00	"							
Methoxychlor	ND	10.0	"							
Toxaphene	ND	50.0	"							
Surrogate: TCX	6.43		"	6.67		96.4	28-128			
Surrogate: Decachlorobiphenyl	6.31		"	6.67		94.6	29-141			

### **LCS (3F05033-BS1)**

Aldrin	7.95	1.00	ug/kg	8.33		95.4	40-122			
alpha-BHC	8.26	1.00	"	8.33		99.2	40-160			
beta-BHC	8.80	2.00	"	8.33		106	40-160			
delta-BHC	8.07	1.00	"	8.33		96.9	40-160			
gamma-BHC (Lindane)	8.04	1.00	"	8.33		96.5	38-125			
alpha-Chlordane	7.69	1.00	"	8.33		92.3	40-160			
gamma-Chlordane	7.77	1.00	"	8.33		93.3	40-160			
4,4'-DDD	7.74	2.00	"	8.33		92.9	40-160			
4,4'-DDE	7.95	2.00	"	8.33		95.4	40-160			

North Creek Analytical - Bothell

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Project: EKWOK  
 Project Number: 55343.1.6  
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Reported:  
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### Organochlorine Pesticides by EPA Method 8081A - Quality Control North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 3F05033: Prepared 06/05/03 Using EPA 3550B

#### LCS (3F05033-BS1)

4,4'-DDT	9.68	2.00	ug/kg	8.33		116	40-160			
Dieldrin	7.53	2.00	"	8.33		90.4	40-160			
Endosulfan I	8.06	1.00	"	8.33		96.8	40-160			
Endosulfan II	7.69	2.00	"	8.33		92.3	40-160			
Endosulfan sulfate	8.27	2.00	"	8.33		99.3	40-160			
Endrin	8.65	2.00	"	8.33		104	40-160			
Endrin aldehyde	6.37	2.00	"	8.33		76.5	40-160			
Endrin ketone	7.92	2.00	"	8.33		95.1	40-160			
Heptachlor	6.32	1.00	"	8.33		75.9	47-132			
Heptachlor epoxide	8.11	1.00	"	8.33		97.4	40-160			
Methoxychlor	9.00	10.0	"	8.33		108	40-160			
Surrogate: TCX	6.64		"	6.67		99.6	28-128			
Surrogate: Decachlorobiphenyl	6.65		"	6.67		99.7	29-141			

#### LCS Dup (3F05033-BSD1)

Aldrin	8.10	1.00	ug/kg	8.33		97.2	40-122	1.87	30	
alpha-BHC	8.38	1.00	"	8.33		101	40-160	1.44	35	
beta-BHC	8.17	2.00	"	8.33		98.1	40-160	7.42	35	
delta-BHC	8.15	1.00	"	8.33		97.8	40-160	0.986	35	
gamma-BHC (Lindane)	7.97	1.00	"	8.33		95.7	38-125	0.874	30	
alpha-Chlordane	7.91	1.00	"	8.33		95.0	40-160	2.82	35	
gamma-Chlordane	7.87	1.00	"	8.33		94.5	40-160	1.28	35	
4,4'-DDD	7.96	2.00	"	8.33		95.6	40-160	2.80	35	
4,4'-DDE	8.17	2.00	"	8.33		98.1	40-160	2.73	35	
4,4'-DDT	9.82	2.00	"	8.33		118	40-160	1.44	35	
Dieldrin	7.65	2.00	"	8.33		91.8	40-160	1.58	35	
Endosulfan I	8.24	1.00	"	8.33		98.9	40-160	2.21	35	
Endosulfan II	7.88	2.00	"	8.33		94.6	40-160	2.44	35	
Endosulfan sulfate	8.42	2.00	"	8.33		101	40-160	1.80	35	
Endrin	8.87	2.00	"	8.33		106	40-160	2.51	35	
Endrin aldehyde	6.59	2.00	"	8.33		79.1	40-160	3.40	35	
Endrin ketone	7.97	2.00	"	8.33		95.7	40-160	0.629	35	
Heptachlor	6.46	1.00	"	8.33		77.6	47-132	2.19	30	
Heptachlor epoxide	8.14	1.00	"	8.33		97.7	40-160	0.369	35	
Methoxychlor	9.07	10.0	"	8.33		109	40-160	0.775	35	

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Project: EKWOK  
 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
 06/16/03 16:20

### Organochlorine Pesticides by EPA Method 8081A - 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 3F05033: Prepared 06/05/03 Using EPA 3550B**

#### LCS Dup (3F05033-BSD1)

Surrogate: TCX	6.73		ug/kg	6.67		101	28-128			
Surrogate: Decachlorobiphenyl	6.47		"	6.67		97.0	29-141			

#### Matrix Spike (3F05033-MS1)

Source: B3F0053-02

X

Aldrin	8.84	1.00	ug/kg dry	10.4	ND	85.0	32-130			
alpha-BHC	7.87	1.00	"	10.4	ND	75.7	30-150			
beta-BHC	6.15	2.00	"	10.4	ND	59.1	30-150			
delta-BHC	6.84	1.00	"	10.4	ND	65.8	30-150			
gamma-BHC (Lindane)	7.01	1.00	"	10.4	ND	67.4	31-120			
alpha-Chlordane	8.57	1.00	"	10.4	ND	82.4	30-150			
gamma-Chlordane	7.12	1.00	"	10.4	ND	68.5	30-150			
4,4'-DDD	7.25	2.00	"	10.4	ND	69.7	30-150			
4,4'-DDE	9.46	2.00	"	10.4	ND	91.0	30-150			
4,4'-DDT	15.0	2.00	"	10.4	ND	144	30-150			
Dieldrin	ND	2.00	"	10.4	ND		30-150	NA		Q-02
Endosulfan I	8.85	1.00	"	10.4	ND	85.1	30-150			
Endosulfan II	8.41	2.00	"	10.4	ND	80.9	30-150			
Endosulfan sulfate	6.29	2.00	"	10.4	ND	60.5	30-150			
Endrin	8.32	2.00	"	10.4	ND	80.0	30-150			
Endrin aldehyde	2.22	2.00	"	10.4	ND	21.3	30-150			Q-02
Endrin ketone	7.46	2.00	"	10.4	ND	71.7	30-150			
Heptachlor	9.72	1.00	"	10.4	ND	93.5	40-129			
Heptachlor epoxide	9.43	1.00	"	10.4	ND	90.7	30-150			
Methoxychlor	17.5	10.0	"	10.4	ND	168	30-150			Q-02

Surrogate: TCX	6.09		"	8.31		73.3	28-128			
Surrogate: Decachlorobiphenyl	7.45		"	8.31		89.7	29-141			

#### Matrix Spike Dup (3F05033-MSD1)

Source: B3F0053-02

X

Aldrin	8.23	1.00	ug/kg dry	10.3	ND	79.9	32-130	7.15	35	
alpha-BHC	7.24	1.00	"	10.3	ND	70.3	30-150	8.34	35	
beta-BHC	6.18	2.00	"	10.3	ND	60.0	30-150	0.487	35	
delta-BHC	6.15	1.00	"	10.3	ND	59.7	30-150	10.6	35	
gamma-BHC (Lindane)	6.84	1.00	"	10.3	ND	66.4	31-120	2.45	35	
alpha-Chlordane	7.99	1.00	"	10.3	ND	77.6	30-150	7.00	35	
gamma-Chlordane	7.04	1.00	"	10.3	ND	68.3	30-150	1.13	35	
4,4'-DDD	7.25	2.00	"	10.3	ND	70.4	30-150	0.00	35	

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 06/16/03 16:20

**Organochlorine Pesticides by EPA Method 8081A - 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 3F05033: Prepared 06/05/03 Using EPA 3550B**

**Matrix Spike Dup (3F05033-MSD1)**

**Source: B3F0053-02**

**X**

4,4'-DDE	12.9	2.00	ug/kg dry	10.3	ND	125	30-150	30.8	35	
4,4'-DDT	14.5	2.00	"	10.3	ND	141	30-150	3.39	35	
Dieldrin	ND	2.00	"	10.3	ND		30-150	NA	35	Q-02
Endosulfan I	8.24	1.00	"	10.3	ND	80.0	30-150	7.14	35	
Endosulfan II	7.62	2.00	"	10.3	ND	74.0	30-150	9.86	35	
Endosulfan sulfate	6.31	2.00	"	10.3	ND	61.3	30-150	0.317	35	
Endrin	8.09	2.00	"	10.3	ND	78.5	30-150	2.80	35	
Endrin aldehyde	2.45	2.00	"	10.3	ND	23.8	30-150	9.85	35	Q-02
Endrin ketone	7.69	2.00	"	10.3	ND	74.7	30-150	3.04	35	
Heptachlor	9.16	1.00	"	10.3	ND	88.9	40-129	5.93	35	
Heptachlor epoxide	9.11	1.00	"	10.3	ND	88.4	30-150	3.45	35	
Methoxychlor	15.7	10.0	"	10.3	ND	152	30-150	10.8	35	Q-02
Surrogate: TCX	5.93		"	8.22		72.1	28-128			
Surrogate: Decachlorobiphenyl	7.34		"	8.22		89.3	29-141			

North Creek Analytical - Bothell

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MACTEC - Anchorage  
601 East 57th Place  
Anchorage AK, 99518

Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**Polychlorinated Biphenyls by EPA Method 8082 - 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 3F05033: Prepared 06/05/03 Using EPA 3550B**

**Blank (3F05033-BLK1)**

Aroclor 1016	ND	25.0	ug/kg							
Aroclor 1221	ND	50.0	"							
Aroclor 1232	ND	25.0	"							
Aroclor 1242	ND	25.0	"							
Aroclor 1248	ND	25.0	"							
Aroclor 1254	ND	25.0	"							
Aroclor 1260	ND	25.0	"							
Aroclor 1262	ND	25.0	"							
Aroclor 1268	ND	25.0	"							
Surrogate: TCX	5.71		"	6.67		85.6	49-124			
Surrogate: Decachlorobiphenyl	5.38		"	6.67		80.7	48-150			

**LCS (3F05033-BS2)**

Aroclor 1016	70.2	25.0	ug/kg	83.3		84.3	69-123			
Aroclor 1260	74.1	25.0	"	83.3		89.0	66-140			
Surrogate: TCX	6.28		"	6.67		94.2	49-124			
Surrogate: Decachlorobiphenyl	5.52		"	6.67		82.8	48-150			

**LCS Dup (3F05033-BSD2)**

Aroclor 1016	76.5	25.0	ug/kg	83.3		91.8	69-123	8.59	30	
Aroclor 1260	79.2	25.0	"	83.3		95.1	66-140	6.65	30	
Surrogate: TCX	6.60		"	6.67		99.0	49-124			
Surrogate: Decachlorobiphenyl	5.80		"	6.67		87.0	48-150			

North Creek Analytical - Bothell

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MACTEC - Anchorage  
601 East 57th Place  
Anchorage AK, 99518

Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3F05019: Prepared 06/04/03 Using EPA 5030B [MeOH]**

**Blank (3F05019-BLK1)**

Methyl tert-butyl ether	ND	0.100	mg/kg						
1,1,1,2-Tetrachloroethane	ND	0.100	"						
1,1,1-Trichloroethane	ND	0.100	"						
1,1,2,2-Tetrachloroethane	ND	0.100	"						
1,1,2-Trichloroethane	ND	0.100	"						
1,1-Dichloroethane	ND	0.100	"						
1,1-Dichloroethene	ND	0.100	"						
1,1-Dichloropropene	ND	0.100	"						
1,2,3-Trichlorobenzene	ND	0.100	"						
1,2,3-Trichloropropane	ND	0.100	"						
1,2,4-Trichlorobenzene	ND	0.100	"						
1,2,4-Trimethylbenzene	ND	0.100	"						
1,2-Dibromo-3-chloropropane	ND	0.500	"						
1,2-Dibromoethane	ND	0.100	"						
1,2-Dichlorobenzene	ND	0.100	"						
1,2-Dichloroethane	ND	0.100	"						
1,2-Dichloropropane	ND	0.100	"						
1,3,5-Trimethylbenzene	ND	0.100	"						
1,3-Dichlorobenzene	ND	0.100	"						
1,3-Dichloropropane	ND	0.100	"						
1,4-Dichlorobenzene	ND	0.100	"						
2,2-Dichloropropane	ND	0.100	"						
2-Butanone	ND	1.00	"						
2-Chlorotoluene	ND	0.100	"						
2-Hexanone	ND	1.00	"						
4-Chlorotoluene	ND	0.100	"						
4-Methyl-2-pentanone	ND	1.00	"						
Acetone	ND	1.00	"						
Benzene	ND	0.100	"						
Bromobenzene	ND	0.100	"						
Bromochloromethane	ND	0.100	"						
Bromodichloromethane	ND	0.100	"						
Bromoform	ND	0.100	"						
Bromomethane	ND	0.100	"						
Carbon disulfide	ND	0.100	"						

North Creek Analytical - Bothell

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MACTEC - Anchorage  
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Anchorage AK, 99518

Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3F05019: Prepared 06/04/03 Using EPA 5030B [MeOH]**

**Blank (3F05019-BLK1)**

Carbon tetrachloride	ND	0.100	mg/kg						
Chlorobenzene	ND	0.100	"						
Chloroethane	ND	0.100	"						
Chloroform	ND	0.100	"						
Chloromethane	ND	0.500	"						
cis-1,2-Dichloroethene	ND	0.100	"						
cis-1,3-Dichloropropene	ND	0.100	"						
Dibromochloromethane	ND	0.100	"						
Dibromomethane	ND	0.100	"						
Dichlorodifluoromethane	ND	0.100	"						
Ethylbenzene	ND	0.100	"						
Hexachlorobutadiene	ND	0.100	"						
Isopropylbenzene	ND	0.100	"						
m,p-Xylene	ND	0.200	"						
Methylene chloride	ND	1.00	"						
n-Butylbenzene	ND	0.100	"						
n-Propylbenzene	ND	0.100	"						
Naphthalene	ND	0.100	"						
o-Xylene	ND	0.100	"						
p-Isopropyltoluene	ND	0.100	"						
sec-Butylbenzene	ND	0.100	"						
Styrene	ND	0.100	"						
tert-Butylbenzene	ND	0.100	"						
Tetrachloroethene	ND	0.100	"						
Toluene	ND	0.100	"						
trans-1,2-Dichloroethene	ND	0.100	"						
trans-1,3-Dichloropropene	ND	0.100	"						
Trichloroethene	ND	0.100	"						
Trichlorofluoromethane	ND	0.100	"						
Vinyl chloride	ND	0.100	"						
Surrogate: 1,2-DCA-d4	3.37		"	4.00		84.2	70-130		
Surrogate: Toluene-d8	3.38		"	4.00		84.5	70-130		
Surrogate: 4-BFB	3.00		"	4.00		75.0	70-130		

North Creek Analytical - Bothell

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MACTEC - Anchorage  
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 Anchorage AK, 99518

Project: EKWOK  
 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
 06/16/03 16:20

**Volatile Organic Compounds by EPA Method 8260B - 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 3F05019: Prepared 06/04/03 Using EPA 5030B [MeOH]**

**Blank (3F05019-BLK2)**

Methyl tert-butyl ether	ND	0.100	mg/kg
1,1,1,2-Tetrachloroethane	ND	0.100	"
1,1,1-Trichloroethane	ND	0.100	"
1,1,2,2-Tetrachloroethane	ND	0.100	"
1,1,2-Trichloroethane	ND	0.100	"
1,1-Dichloroethane	ND	0.100	"
1,1-Dichloroethene	ND	0.100	"
1,1-Dichloropropene	ND	0.100	"
1,2,3-Trichlorobenzene	ND	0.100	"
1,2,3-Trichloropropane	ND	0.100	"
1,2,4-Trichlorobenzene	ND	0.100	"
1,2,4-Trimethylbenzene	ND	0.100	"
1,2-Dibromo-3-chloropropane	ND	0.500	"
1,2-Dibromoethane	ND	0.100	"
1,2-Dichlorobenzene	ND	0.100	"
1,2-Dichloroethane	ND	0.100	"
1,2-Dichloropropane	ND	0.100	"
1,3,5-Trimethylbenzene	ND	0.100	"
1,3-Dichlorobenzene	ND	0.100	"
1,3-Dichloropropane	ND	0.100	"
1,4-Dichlorobenzene	ND	0.100	"
2,2-Dichloropropane	ND	0.100	"
2-Butanone	ND	1.00	"
2-Chlorotoluene	ND	0.100	"
2-Hexanone	ND	1.00	"
4-Chlorotoluene	ND	0.100	"
4-Methyl-2-pentanone	ND	1.00	"
Acetone	ND	1.00	"
Benzene	ND	0.100	"
Bromobenzene	ND	0.100	"
Bromochloromethane	ND	0.100	"
Bromodichloromethane	ND	0.100	"
Bromoform	ND	0.100	"
Bromomethane	ND	0.100	"
Carbon disulfide	ND	0.100	"

North Creek Analytical - Bothell

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601 East 57th Place  
Anchorage AK, 99518

Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3F05019: Prepared 06/04/03 Using EPA 5030B [MeOH]**

**Blank (3F05019-BLK2)**

Carbon tetrachloride	ND	0.100	mg/kg						
Chlorobenzene	ND	0.100	"						
Chloroethane	ND	0.100	"						
Chloroform	ND	0.100	"						
Chloromethane	ND	0.500	"						
cis-1,2-Dichloroethene	ND	0.100	"						
cis-1,3-Dichloropropene	ND	0.100	"						
Dibromochloromethane	ND	0.100	"						
Dibromomethane	ND	0.100	"						
Dichlorodifluoromethane	ND	0.100	"						
Ethylbenzene	ND	0.100	"						
Hexachlorobutadiene	ND	0.100	"						
Isopropylbenzene	ND	0.100	"						
m,p-Xylene	ND	0.200	"						
Methylene chloride	ND	1.00	"						
n-Butylbenzene	ND	0.100	"						
n-Propylbenzene	ND	0.100	"						
Naphthalene	ND	0.100	"						
o-Xylene	ND	0.100	"						
p-Isopropyltoluene	ND	0.100	"						
sec-Butylbenzene	ND	0.100	"						
Styrene	ND	0.100	"						
tert-Butylbenzene	ND	0.100	"						
Tetrachloroethene	ND	0.100	"						
Toluene	ND	0.100	"						
trans-1,2-Dichloroethene	ND	0.100	"						
trans-1,3-Dichloropropene	ND	0.100	"						
Trichloroethene	ND	0.100	"						
Trichlorofluoromethane	ND	0.100	"						
Vinyl chloride	ND	0.100	"						
Surrogate: 1,2-DCA-d4	3.77		"	4.00		94.2	70-130		
Surrogate: Toluene-d8	3.67		"	4.00		91.8	70-130		
Surrogate: 4-BFB	3.09		"	4.00		77.2	70-130		

North Creek Analytical - Bothell

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MACTEC - Anchorage  
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Anchorage AK, 99518

Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3F05019: Prepared 06/04/03 Using EPA 5030B [MeOH]**

**Blank (3F05019-BLK3)**

1,1,1,2-Tetrachloroethane	ND	0.100	mg/kg
1,1,1-Trichloroethane	ND	0.100	"
1,1,2,2-Tetrachloroethane	ND	0.100	"
1,1,2-Trichloroethane	ND	0.100	"
1,1-Dichloroethane	ND	0.100	"
1,1-Dichloroethene	ND	0.100	"
1,1-Dichloropropene	ND	0.100	"
1,2,3-Trichlorobenzene	ND	0.100	"
1,2,3-Trichloropropane	ND	0.100	"
1,2,4-Trichlorobenzene	ND	0.100	"
1,2,4-Trimethylbenzene	ND	0.100	"
1,2-Dibromo-3-chloropropane	ND	0.500	"
1,2-Dibromoethane	ND	0.100	"
1,2-Dichlorobenzene	ND	0.100	"
1,2-Dichloroethane	ND	0.100	"
1,2-Dichloropropane	ND	0.100	"
1,3,5-Trimethylbenzene	ND	0.100	"
1,3-Dichlorobenzene	ND	0.100	"
1,3-Dichloropropane	ND	0.100	"
1,4-Dichlorobenzene	ND	0.100	"
2,2-Dichloropropane	ND	0.100	"
2-Butanone	ND	1.00	"
2-Chlorotoluene	ND	0.100	"
2-Hexanone	ND	1.00	"
4-Chlorotoluene	ND	0.100	"
4-Methyl-2-pentanone	ND	1.00	"
Acetone	ND	1.00	"
Benzene	ND	0.100	"
Bromobenzene	ND	0.100	"
Bromochloromethane	ND	0.100	"
Bromodichloromethane	ND	0.100	"
Bromoform	ND	0.100	"
Bromomethane	ND	0.100	"
Carbon disulfide	ND	0.100	"
Carbon tetrachloride	ND	0.100	"

North Creek Analytical - Bothell

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MACTEC - Anchorage  
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Anchorage AK, 99518

Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 3F05019: Prepared 06/04/03 Using EPA 5030B [MeOH]</b>									
<b>Blank (3F05019-BLK3)</b>									
Chlorobenzene	ND	0.100	mg/kg						
Chloroethane	ND	0.100	"						
Chloroform	ND	0.100	"						
Chloromethane	ND	0.500	"						
cis-1,2-Dichloroethene	ND	0.100	"						
cis-1,3-Dichloropropene	ND	0.100	"						
Dibromochloromethane	ND	0.100	"						
Dibromomethane	ND	0.100	"						
Dichlorodifluoromethane	ND	0.100	"						
Ethylbenzene	ND	0.100	"						
Hexachlorobutadiene	ND	0.100	"						
Isopropylbenzene	ND	0.100	"						
m,p-Xylene	ND	0.200	"						
Methylene chloride	ND	1.00	"						
n-Butylbenzene	ND	0.100	"						
n-Propylbenzene	ND	0.100	"						
Naphthalene	ND	0.100	"						
o-Xylene	ND	0.100	"						
p-Isopropyltoluene	ND	0.100	"						
sec-Butylbenzene	ND	0.100	"						
Styrene	ND	0.100	"						
tert-Butylbenzene	ND	0.100	"						
Tetrachloroethene	ND	0.100	"						
Toluene	ND	0.100	"						
trans-1,2-Dichloroethene	ND	0.100	"						
trans-1,3-Dichloropropene	ND	0.100	"						
Trichloroethene	ND	0.100	"						
Trichlorofluoromethane	ND	0.100	"						
Vinyl chloride	ND	0.100	"						
Surrogate: 1,2-DCA-d4	3.65		"	4.00		91.2	70-130		
Surrogate: Toluene-d8	3.70		"	4.00		92.5	70-130		
Surrogate: 4-BFB	3.08		"	4.00		77.0	70-130		

North Creek Analytical - Bothell

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601 East 57th Place  
Anchorage AK, 99518

Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3F05019: Prepared 06/04/03 Using EPA 5030B [MeOH]**

**LCS (3F05019-BS1)**

1,1-Dichloroethene	1.22	0.100	mg/kg	1.00		122	70-130		
Benzene	1.09	0.100	"	1.00		109	78-121		
Chlorobenzene	1.12	0.100	"	1.00		112	74-128		
Toluene	1.23	0.100	"	1.00		123	70-130		
Trichloroethene	1.02	0.100	"	1.00		102	72-122		
Surrogate: 1,2-DCA-d4	3.79		"	4.00		94.8	70-130		
Surrogate: Toluene-d8	3.94		"	4.00		98.5	70-130		
Surrogate: 4-BFB	3.28		"	4.00		82.0	70-130		

**LCS Dup (3F05019-BS1)**

1,1-Dichloroethene	1.19	0.100	mg/kg	1.00		119	70-130	2.49	20
Benzene	1.06	0.100	"	1.00		106	78-121	2.79	20
Chlorobenzene	1.11	0.100	"	1.00		111	74-128	0.897	20
Toluene	1.21	0.100	"	1.00		121	70-130	1.64	20
Trichloroethene	0.991	0.100	"	1.00		99.1	72-122	2.88	20
Surrogate: 1,2-DCA-d4	3.80		"	4.00		95.0	70-130		
Surrogate: Toluene-d8	3.94		"	4.00		98.5	70-130		
Surrogate: 4-BFB	3.23		"	4.00		80.8	70-130		

**Matrix Spike (3F05019-MS1)**

Source: B3F0004-15

1,1-Dichloroethene	1.30	0.100	mg/kg dry	1.09	ND	119	42-127		
Benzene	1.14	0.100	"	1.09	ND	105	61-130		
Chlorobenzene	1.18	0.100	"	1.09	ND	108	62-129		
Toluene	1.22	0.100	"	1.09	0.246	89.4	62-125		
Trichloroethene	1.08	0.100	"	1.09	ND	99.1	55-130		
Surrogate: 1,2-DCA-d4	5.05		"	4.36		116	70-130		
Surrogate: Toluene-d8	5.17		"	4.36		119	70-130		
Surrogate: 4-BFB	4.29		"	4.36		98.4	70-130		

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MACTEC - Anchorage  
 601 East 57th Place  
 Anchorage AK, 99518

Project: EKWOK  
 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
 06/16/03 16:20

**Volatile Organic Compounds by EPA Method 8260B - 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 3F05019: Prepared 06/04/03 Using EPA 5030B [MeOH]**

**Matrix Spike Dup (3F05019-MSD1)**

**Source: B3F0004-15**

I,1-Dichloroethene	1.24	0.100	mg/kg dry	1.09	ND	114	42-127	4.72	25	
Benzene	1.10	0.100	"	1.09	ND	101	61-130	3.57	25	
Chlorobenzene	1.14	0.100	"	1.09	ND	105	62-129	3.45	25	
Toluene	1.18	0.100	"	1.09	0.246	85.7	62-125	3.33	25	
Trichloroethene	1.03	0.100	"	1.09	ND	94.5	55-130	4.74	25	
Surrogate: 1,2-DCA-d4	5.04		"	4.36		116	70-130			
Surrogate: Toluene-d8	5.06		"	4.36		116	70-130			
Surrogate: 4-BFB	4.12		"	4.36		94.5	70-130			

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Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**Semivolatile Organic Compounds by EPA Method 8270C - Quality Control**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3F04005: Prepared 06/04/03 Using EPA 3550B**

**Blank (3F04005-BLK1)**

1,2,4-Trichlorobenzene	ND	0.330	mg/kg
1,2-Dichlorobenzene	ND	0.330	"
1,3-Dichlorobenzene	ND	0.330	"
1,4-Dichlorobenzene	ND	0.330	"
2,4,5-Trichlorophenol	ND	0.330	"
2,4,6-Trichlorophenol	ND	0.330	"
2,4-Dichlorophenol	ND	0.330	"
2,4-Dimethylphenol	ND	0.330	"
2,4-Dinitrophenol	ND	0.500	"
2,4-Dinitrotoluene	ND	0.500	"
2,6-Dinitrotoluene	ND	0.500	"
2-Chloronaphthalene	ND	0.330	"
2-Chlorophenol	ND	0.330	"
2-Methylnaphthalene	ND	0.330	"
2-Methylphenol	ND	0.330	"
2-Nitroaniline	ND	0.500	"
2-Nitrophenol	ND	0.330	"
3 & 4-Methylphenol	ND	0.330	"
3,3'-Dichlorobenzidine	ND	5.00	"
3-Nitroaniline	ND	0.500	"
4,6-Dinitro-2-methylphenol	ND	0.500	"
4-Bromophenyl phenyl ether	ND	0.330	"
4-Chloro-3-methylphenol	ND	0.330	"
4-Chloroaniline	ND	0.500	"
4-Chlorophenyl phenyl ether	ND	0.330	"
4-Nitroaniline	ND	0.500	"
4-Nitrophenol	ND	0.500	"
Acenaphthene	ND	0.330	"
Acenaphthylene	ND	0.330	"
Aniline	ND	0.330	"
Anthracene	ND	0.330	"
Benzo (a) anthracene	ND	0.330	"
Benzo (a) pyrene	ND	0.330	"
Benzo (b) fluoranthene	ND	0.330	"
Benzo (ghi) perylene	ND	0.330	"

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MACTEC - Anchorage  
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Anchorage AK, 99518

Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**Semivolatile Organic Compounds by EPA Method 8270C - Quality Control**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3F04005: Prepared 06/04/03 Using EPA 3550B**

**Blank (3F04005-BLK1)**

Benzo (k) fluoranthene	ND	0.330	mg/kg						
Benzoic Acid	ND	1.00	"						
Benzyl alcohol	ND	0.330	"						
Bis(2-chloroethoxy)methane	ND	0.330	"						
Bis(2-chloroethyl)ether	ND	0.330	"						
Bis(2-chloroisopropyl)ether	ND	0.330	"						
Bis(2-ethylhexyl)phthalate	ND	0.330	"						
Butyl benzyl phthalate	ND	0.330	"						
Carbazole	ND	0.330	"						
Chrysene	ND	0.330	"						
Di-n-butyl phthalate	ND	0.330	"						
Di-n-octyl phthalate	ND	0.330	"						
Dibenz (a,h) anthracene	ND	0.330	"						
Dibenzofuran	ND	0.330	"						
Diethyl phthalate	ND	0.330	"						
Dimethyl phthalate	ND	0.330	"						
Fluoranthene	ND	0.330	"						
Fluorene	ND	0.330	"						
Hexachlorobenzene	ND	0.330	"						
Hexachlorobutadiene	ND	0.330	"						
Hexachlorocyclopentadiene	ND	0.500	"						
Hexachloroethane	ND	0.330	"						
Indeno (1,2,3-cd) pyrene	ND	0.330	"						
Isophorone	ND	0.330	"						
N-Nitrosodi-n-propylamine	ND	0.330	"						
N-Nitrosodiphenylamine	ND	0.330	"						
Naphthalene	ND	0.330	"						
Nitrobenzene	ND	0.330	"						
Pentachlorophenol	ND	0.500	"						
Phenanthrene	ND	0.330	"						
Phenol	ND	0.330	"						
Pyrene	ND	0.330	"						
Surrogate: 2-FP	1.64		"	1.67		98.2	26-137		
Surrogate: Phenol-d6	1.68		"	1.67		101	10-153		
Surrogate: 2,4,6-TBP	1.40		"	1.67		83.8	10-133		

North Creek Analytical - Bothell

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Project: EKWOK  
 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
 06/16/03 16:20

**Semivolatile Organic Compounds by EPA Method 8270C - 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 3F04005: Prepared 06/04/03 Using EPA 3550B**

**Blank (3F04005-BLK1)**

Surrogate: Nitrobenzene-d5	1.61		mg/kg	1.67		96.4	48-127			
Surrogate: p-Terphenyl-d14	1.82		"	1.67		109	44-144			
Surrogate: 2-FBP	1.74		"	1.67		104	36-146			

**LCS (3F04005-BS1)**

1,2,4-Trichlorobenzene	3.23	0.330	mg/kg	3.33		97.0	61-126			
1,4-Dichlorobenzene	3.19	0.330	"	3.33		95.8	47-138			
2,4-Dinitrotoluene	3.12	0.500	"	3.33		93.7	71-133			
2-Chlorophenol	3.32	0.330	"	3.33		99.7	54-144			
4-Chloro-3-methylphenol	3.24	0.330	"	3.33		97.3	71-129			
4-Nitrophenol	2.90	0.500	"	3.33		87.1	46-135			
Acenaphthene	3.34	0.330	"	3.33		100	69-124			
N-Nitrosodi-n-propylamine	2.89	0.330	"	3.33		86.8	48-140			
Pentachlorophenol	3.05	0.500	"	3.33		91.6	57-128			
Phenol	3.24	0.330	"	3.33		97.3	51-142			
Pyrene	3.86	0.330	"	3.33		116	75-135			

Surrogate: 2-FP	1.58		"	1.67		94.6	26-137			
Surrogate: Phenol-d6	1.63		"	1.67		97.6	10-153			
Surrogate: 2,4,6-TBP	1.58		"	1.67		94.6	10-133			
Surrogate: Nitrobenzene-d5	1.57		"	1.67		94.0	48-127			
Surrogate: p-Terphenyl-d14	1.72		"	1.67		103	44-144			
Surrogate: 2-FBP	1.67		"	1.67		100	36-146			

**LCS Dup (3F04005-BSD1)**

1,2,4-Trichlorobenzene	3.21	0.330	mg/kg	3.33		96.4	61-126	0.621	22	
1,4-Dichlorobenzene	3.28	0.330	"	3.33		98.5	47-138	2.78	26	
2,4-Dinitrotoluene	3.12	0.500	"	3.33		93.7	71-133	0.00	21	
2-Chlorophenol	3.58	0.330	"	3.33		108	54-144	7.54	22	
4-Chloro-3-methylphenol	3.38	0.330	"	3.33		102	71-129	4.23	19	
4-Nitrophenol	2.91	0.500	"	3.33		87.4	46-135	0.344	17	
Acenaphthene	3.31	0.330	"	3.33		99.4	69-124	0.902	24	
N-Nitrosodi-n-propylamine	3.15	0.330	"	3.33		94.6	48-140	8.61	23	
Pentachlorophenol	3.05	0.500	"	3.33		91.6	57-128	0.00	17	
Phenol	3.52	0.330	"	3.33		106	51-142	8.28	20	
Pyrene	3.82	0.330	"	3.33		115	75-135	1.04	17	

Surrogate: 2-FP	1.70		"	1.67		102	26-137			
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 Anchorage AK, 99518

Project: EKWOK  
 Project Number: 55343.1.6  
 Project Manager: Donna Robertson

Reported:  
 06/16/03 16:20

**Semivolatile Organic Compounds by EPA Method 8270C - 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 3F04005: Prepared 06/04/03 Using EPA 3550B**

**LCS Dup (3F04005-BSD1)**

Surrogate: Phenol-d6	1.77		mg/kg	1.67		106	10-153			
Surrogate: 2,4,6-TBP	1.61		"	1.67		96.4	10-133			
Surrogate: Nitrobenzene-d5	1.72		"	1.67		103	48-127			
Surrogate: p-Terphenyl-d14	1.73		"	1.67		104	44-144			
Surrogate: 2-FBP	1.66		"	1.67		99.4	36-146			

**Matrix Spike (3F04005-MS1)**

**Source: B3F0053-02**

1,2,4-Trichlorobenzene	3.80	0.330	mg/kg dry	4.11	ND	92.5	34-126			
1,4-Dichlorobenzene	3.49	0.330	"	4.11	ND	84.9	31-126			
2,4-Dinitrotoluene	3.91	0.500	"	4.11	ND	95.1	32-154			
2-Chlorophenol	4.28	0.330	"	4.11	ND	104	34-144			
4-Chloro-3-methylphenol	4.34	0.330	"	4.11	ND	106	32-156			
4-Nitrophenol	4.23	0.500	"	4.11	ND	103	10-171			
Acenaphthene	4.28	0.330	"	4.11	ND	104	33-139			
N-Nitrosodi-n-propylamine	3.55	0.330	"	4.11	ND	86.4	23-140			
Pentachlorophenol	4.29	0.500	"	4.11	ND	104	10-165			
Phenol	4.20	0.330	"	4.11	ND	102	32-144			
Pyrene	4.92	0.330	"	4.11	ND	120	28-156			

Surrogate: 2-FP	1.95		"	2.06		94.7	26-137			
Surrogate: Phenol-d6	2.08		"	2.06		101	10-153			
Surrogate: 2,4,6-TBP	2.09		"	2.06		101	10-133			
Surrogate: Nitrobenzene-d5	2.01		"	2.06		97.6	48-127			
Surrogate: p-Terphenyl-d14	2.15		"	2.06		104	44-144			
Surrogate: 2-FBP	1.98		"	2.06		96.1	36-146			

**Matrix Spike Dup (3F04005-MSD1)**

**Source: B3F0053-02**

1,2,4-Trichlorobenzene	3.73	0.330	mg/kg dry	4.14	ND	90.1	34-126	1.86	39	
1,4-Dichlorobenzene	3.64	0.330	"	4.14	ND	87.9	31-126	4.21	42	
2,4-Dinitrotoluene	3.65	0.500	"	4.14	ND	88.2	32-154	6.88	37	
2-Chlorophenol	4.23	0.330	"	4.14	ND	102	34-144	1.18	39	
4-Chloro-3-methylphenol	3.99	0.330	"	4.14	ND	96.4	32-156	8.40	36	
4-Nitrophenol	3.82	0.500	"	4.14	ND	92.3	10-171	10.2	36	
Acenaphthene	4.05	0.330	"	4.14	ND	97.8	33-139	5.52	35	
N-Nitrosodi-n-propylamine	3.60	0.330	"	4.14	ND	87.0	23-140	1.40	39	
Pentachlorophenol	4.42	0.500	"	4.14	ND	107	10-165	2.99	39	
Phenol	4.08	0.330	"	4.14	ND	98.6	32-144	2.90	40	

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Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**Semivolatile Organic Compounds by EPA Method 8270C - Quality Control**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3F04005: Prepared 06/04/03 Using EPA 3550B**

**Matrix Spike Dup (3F04005-MSD1)**

**Source: B3F0053-02**

Pyrene	4.66	0.330	mg/kg dry	4.14	ND	113	28-156	5.43	35
Surrogate: 2-FP	2.02		"	2.07		97.6	26-137		
Surrogate: Phenol-d6	2.02		"	2.07		97.6	10-153		
Surrogate: 2,4,6-TBP	1.99		"	2.07		96.1	10-133		
Surrogate: Nitrobenzene-d5	1.98		"	2.07		95.7	48-127		
Surrogate: p-Terphenyl-d14	2.04		"	2.07		98.6	44-144		
Surrogate: 2-FBP	1.90		"	2.07		91.8	36-146		

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Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

**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 3F06021: Prepared 06/06/03 Using Dry Weight**

**Blank (3F06021-BLK1)**

Dry Weight	99.8	1.00	%
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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.*

Kortland Orr For Emanuel Hignutt, PM

North Creek Analytical, Inc.  
Environmental Laboratory Network Page 48 of 49



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Anchorage AK, 99518

Project: EKWOK  
Project Number: 55343.1.6  
Project Manager: Donna Robertson

Reported:  
06/16/03 16:20

### Notes and Definitions

D-09 Results in the diesel organics range are primarily due to overlap from a heavy oil range product.

Q-02 The spike recovery for this QC sample is outside of NCA established control limits due to sample matrix interference.

S-03 The surrogate recovery for this sample is outside of established control limits. Review of associated QC indicates the recovery for this surrogate does not represent an out-of-control condition.

X See case narrative.

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

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## **PHOTOGRAPHS**



North view of the historic dump site before digging test pits. The access road into the subdivision is on the left.



South view of the historic dump site before digging test pits. The access road into the subdivision is on the right.



Final test pit with visible waste.



Final test pit with digging not yet complete.





North view of the historic dump site after digging the test pits. The access road into the subdivision is off the left side of the photograph.



South view of the historic dump site after digging the test pits. The access road to the subdivision is visible on the right side of the photograph.