Fluor Hanford, Inc.
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0062048

FLUOR

Memorandum

W1141-04-SLF-096

To:	S. J. Trent	Date:	January 22, 2004
From:	S. L. Fitzgerald, Manager WSCF Analytical Services	Telephone:	373-7495

cc:	W/Attachments		W/O Attachments	
	T. F. Dale	S3-28	D. Hart	S3-30
	S. L. Fitzgerald	S3-30	L. C. Swanson	E6-35
	H. K. Meznarich	S3-30	File/LB	
	J. E. Trechter	S3-30		
	M. Neely	S3-30		

Subject: FINAL RESULTS FOR 200-LW-1/LW-2 CHARACTERIZATION - SOIL - SAMPLE DELIVERY GROUP WSCF20031641 - SAF NUMBER F03-025

References: (1) Groundwater Protection Program-Letter of Instruction, FH-EIS-2003-MEM-001, October 31, 2002

(2) HNF-SD-CD-QAPP-017, Rev. 6, Waste Sampling and Characterization Facility Quality Assurance Plan

This letter contains a narrative (Attachment 1) for the sample delivery group (WSCF20031641), the analytical results (Attachment 2) and the sample receipt information (Attachment 3).

slf/ddw

Attachments 3

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W1141-04-SLF-096

ATTACHMENT 1

NARRATIVE

Consisting of 4 pages
Cover page not included

Sample Delivery Group	**WSCF20031641**
Sample Matrix	**Soil**
Sample Visual	**Brown**
SAF Number	**F03-025**
Data Deliverable	**Summary Report**

Introduction

One (1) soil sample (B17RW5) from GPP was received at the WSCF Laboratory on December 10, 2003. The sample was analyzed for those analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Groundwater Protection Program- Letter of Instruction*, referenced in the cover letter.

The narrative (Attachment 1) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 2) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information. Copies of the chain of custody and Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

- PCB's by EPA SW-846 Method 8082. Analytical work was performed with no deviations to the approved method.
- ICP-MS Metals by EPA Method 200.8 and ICP-AES Metals by EPA SW-846 Method 6010A. Analytical work was performed with no deviations to the approved method.
- Semi-VOA's by EPA SW-846 Method 8270B. Analytical work was performed with no deviations to the approved method.
- VOA's by EPA SW-846 Method 8260A. Analytical work was performed with no deviations to the approved method.
- Alcohols and Glycols by EPA SW-846 Method 8015. Analytical work was performed with no deviations to the approved method.
- WTPH-D by WDOE Method NWTPH-Dx. Analytical work was performed with no deviations to the approved method.
- WTPH-G by WDOE Method NWTPH-Gx. Analytical work was performed with no deviations to the approved method.

- IC Anions and Ammonium by EPA SW-846 Method 300.0 and 300.7. Analytical work was performed with no deviations to the approved methods.

- The pH by EPA Method 150.1. Analytical work was performed with no deviations to the approved method.

- Percent Solids by EPA Method 160.3. Analytical work was performed with no deviations to the approved method.

- Cyanide by EPA SW-846 Method 9010. Analytical work was performed with no deviations to the approved method.

- All RadChem analyses (AEA's, GEA) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Comments

PCB's – The hold time(s) for this analysis was met. A Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See page(s) 2-24 and 2-25 for QC details.

ICP-MS and ICP-AES Metals – The hold time(s) for this analysis was met. A Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See page(s) 2-39, 2-40, 2-41, 2-42 and 2-47 for QC details. Analytical Note: The preparation Blank for ICP-MS contains 0.7 ug/L Arsenic. This is negligible compared to the sample results. All LCS results are within manufacturer specifications so flags assigned. The ICP-AES Bismuth LCS recovery was low (61%), the MS/MSD was within limits, therefore no flags assigned.

VOA's – The hold time(s) for this analysis was met. A Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See page(s) 2-35, 2-36 and 2-37 for QC details.

Semi-VOA's – The hold time(s) for this analysis was met. A Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See page(s) 2-27 through 2-34 for QC details. Compounds listed on the tentatively identified peak report with an "N" qualifier have been identified with the program used to interpret the raw data.

Alcohols and Glycols – The hold time(s) for this analysis was met. A Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See page(s) 2-26 for QC details. Analytical Note: Spike RPD for surrogate 2-Bromoethanol high at 22.2%.

WTPH-D – The hold time(s) for this analysis was met. A Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See page(s) 2-19 and 2-20 for details. Analytical Note: Spike RPD for surrogate ortho-Terphenyl was high because the percent recovery was low in the MSD at 65.1%.

WTPH-G – The hold time(s) for this analysis was met. A Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See page(s) 2-38 for details.

IC Anions – The client requested hold time(s) for this analysis was met. The client was notified and requested WSCF to continue with this analysis. A Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See page(s) 2-21 and 2-22 for QC details. Analytical Note: Chloride, Sulfate and Nitrate-N detected, but at concentrations less than that of the lowest calibration level.

NH4 – The hold time(s) for this analysis was met. A Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See page(s) 2-23 for QC details.

Percent Solids – PCB's, VOA's, Semi-VOA's, Alcohols and Glycols, WTPH-G and WTPH-D analytical results were corrected for percent solids. All other analytical results were reported for the sample as received.

CN – The hold time(s) for this analysis was met. A Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See page(s) 2-17 for QC details.

RadChem – There are no hold times associated with these WDOE accredited methods. A Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See page(s) 2-18, 2-43, 2-44, 2-45 and 2-46 for QC details. Analytical Note: The Sample and Duplicate for Am-241 have poor RPD, but activity is below detection level. The Np LCS recovery is low at 50.8%. This is attributed to a slight excess of ascorbic acid which can occur in the LCS due to low iron levels and which causes retention of Np during separation. This effect did not occur with the samples as evidenced by the spike recoveries (A spike was added to the MS and MSD with recoveries of 83.3% and 84.2% respectively, limits for the spike are 75-125%.). All other QC was acceptable (the Np preparation Blank has a negative result and Duplicate RPD high, but sample activity is below detection level) therefore no flags will be issued for Np. See page(s) 3-3, 3-4 and 3-5 for detailed information on the Np issue.

Radiochemical Tracer Percent Recovery

Sample Number	Isotope	Blank	LCS	Sample	Duplicate
B17RW5	U	74.78%	72.79%	78.16%	96.20%
	Pu	78.17%	94.96%	80.14%	92.49%
	Am	53.41%	81.15%	70.34%	81.19%

This Summary Report is in compliance with the SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the WSCF Laboratory Analytical Manager and Client Services, as verified by the following signature.

Troy Dale
WSCF Production Control

Abbreviations

Hg – mercury
IC – ion chromatography
ICP – inductively coupled plasma
ICP/AES – ICP/atomic emission spectroscopy
ICP/MS – ICP/mass spectrometry
Total U – total uranium
AT/TB – total alpha/total beta
AEA – Alpha Energy Analysis
WTPH-G – Total Hydrocarbons-Gasoline
Am – americium
Cm - curium
Pu – plutonium
Np – neptunium
GEA – gamma energy analysis
H3 – Tritium
Sr – Strontium 89, 90
WTPH-D – Total Hydrocarbons-Diesel
TSS – Total Suspended Solids

W1141-04-SLF-096

ATTACHMENT 2

ANALYTICAL RESULTS

Consisting of 47 pages
Cover page not included

WSCF
ANALYTICAL RESULTS REPORT

for

Ground Water Protection Program

Richland, WA 99352

Attention: Steve Trent

Analytical: _____

Client Services: _____

All results are reported on an "as received" basis unless otherwise noted in the comment section.

Confidentiality Notice: The information contained in this report is privileged and confidential information intended only for the use of the addressee. If the reader of this report is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone at (509) 373-7020.

Contract#: FH-EIS-2003-MEM-001
Report#: WSCF20031641
Report Date: 12-jan-2004
Report WGPP/ver. 1
Ground Water Protection Program

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-025: F03-025

Group #: WSCF20031641

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Organic														
W030001140	B17RW5	TRENT	107-21-1	Ethylene glycol	SOIL	Organics	U	< 5.00e+03	ug/kg	1.00	5.0e+03	12/17/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	TPHGASOLINE	Total Pet. Hydrocarbons Gas	SOIL	NWTPH	U	< 250	ug/kg	1.00	2.5e+02	12/16/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	12674-11-2	Aroclor-1016	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	12/18/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	11104-28-2	Aroclor-1221	SOIL	LA-523-427	U	< 100	ug/kg	1.00	1.0e+02	12/18/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	11141-16-5	Aroclor-1232	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	12/18/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	53469-21-9	Aroclor-1242	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	12/18/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	12672-29-6	Aroclor-1248	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	12/18/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	11097-69-1	Aroclor-1254	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	12/18/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	11096-82-5	Aroclor-1260	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	12/18/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	37324-23-5	Aroclor-1262	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	12/18/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	11100-14-4	Aroclor-1268	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	12/18/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	100-02-7	4-Nitrophenol	SOIL	LA-523-456	U	< 660	ug/kg	1.00	6.6e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	106-46-7	1,4-Dichlorobenzene	SOIL	LA-523-456	U	< 320	ug/kg	1.00	3.2e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	108-95-2	Phenol	SOIL	LA-523-456	U	< 100	ug/kg	1.00	1.0e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	120-82-1	1,2,4-Trichlorobenzene	SOIL	LA-523-456	U	< 300	ug/kg	1.00	3.0e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	121-14-2	2,4-Dinitrotoluene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	129-00-0	Pyrene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	59-50-7	4-Chloro-3-methylphenol	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	621-64-7	N-Nitrosodi-n-dipropylamine	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	83-32-9	Acenaphthene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	87-86-5	Pentachlorophenol	SOIL	LA-523-456	U	< 310	ug/kg	1.00	3.1e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	95-57-8	2-Chlorophenol	SOIL	LA-523-456	U	< 150	ug/kg	1.00	1.5e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	100-01-6	4-Nitroaniline	SOIL	LA-523-456	U	< 250	ug/kg	1.00	2.5e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	101-55-3	4-Bromophenylphenyl ether	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	105-67-9	2,4-Dimethylphenol	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	106-47-8	4-Chloroaniline	SOIL	LA-523-456	U	< 95.0	ug/kg	1.00	95	12/30/03	12/10/03	12/10/03

MDL=Minimum Detection Limit B - The analyte < the RDL but > = the IDL/MDL (inorganic) U - Analyzed for but not detected above limiting criteria.
RQ=Result Qualifier

DF=Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

WSCF
ANALYTICAL RESULTS REPORT

2-3

Attention: Steve Trent
Project: F03-025: F03-025

Group #: WSCF20031641

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W030001140	B17RW5 TRENT	108-60-1	Bis(2-chloro-1-methylethyl)eth	SOIL	LA-523-456	U	< 260	ug/kg	1.00	2.6e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	111-44-4	Bis(2-chloroethyl) ether	SOIL	LA-523-456	U	< 250	ug/kg	1.00	2.5e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	111-91-1	Bis(2-Chloroethoxy)methane	SOIL	LA-523-456	U	< 120	ug/kg	1.00	1.2e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	117-81-7	Bis(2-ethylhexyl) phthalate	SOIL	LA-523-456	U	< 570	ug/kg	1.00	5.7e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	117-84-0	Di-n-octylphthalate	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	118-74-1	Hexachlorobenzene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	120-12-7	Anthracene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	120-83-2	2,4-Dichlorophenol	SOIL	LA-523-456	U	< 82.0	ug/kg	1.00	82	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	131-11-3	Dimethyl phthalate	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	132-64-9	Dibenzofuran	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	191-24-2	Benzo(ghi)perylene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	193-39-5	Indeno(1,2,3-cd)pyrene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	205-99-2	Benzo(b)fluoranthene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	206-44-0	Fluoranthene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	207-08-9	Benzo(k)fluoranthene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	208-96-8	Acenaphthylene	SOIL	LA-523-456	U	< 82.0	ug/kg	1.00	82	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	218-01-9	Chrysene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	50-32-8	Benzo(a)pyrene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	51-28-5	2,4-Dinitrophenol	SOIL	LA-523-456	U	< 680	ug/kg	1.00	6.8e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	53-70-3	Dibenz(a,h)anthracene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	534-52-1	4,6-Dinitro-2-methylphenol	SOIL	LA-523-456	U	< 680	ug/kg	1.00	6.8e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	541-73-1	1,3-Dichlorobenzene	SOIL	LA-523-456	U	< 330	ug/kg	1.00	3.3e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	56-55-3	Benzo(a)anthracene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	606-20-2	2,6-Dinitrotoluene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	7005-72-3	4-Chlorophenylphenyl ether	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	77-47-4	Hexachlorocyclopentadiene	SOIL	LA-523-456	U	< 320	ug/kg	1.00	3.2e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	78-59-1	Isophorone	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03

MDL=Minimum Detection Limit B - The analyte < the RDL but > = the IDL/MDL (inorganic) U - Analyzed for but not detected above limiting criteria.
RQ=Result Qualifier

DF=Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-025: F03-025

Group #: WSCF20031641

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W030001140	B17RW5 TRENT	84-66-2	Diethylphthalate	SOIL	LA-523-456	U	< 190	ug/kg	1.00	1.9e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	84-74-2	Di-n-butylphthalate	SOIL	LA-523-456	U	< 89.0	ug/kg	1.00	89	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	85-01-8	Phenanthrene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	85-68-7	Butylbenzylphthalate	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	86-30-6	N-Nitrosodiphenylamine	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	86-73-7	Fluorene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	86-74-8	Carbazole	SOIL	LA-523-456	U	< 82.0	ug/kg	1.00	82	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	87-68-3	Hexachlorobutadiene	SOIL	LA-523-456	U	< 370	ug/kg	1.00	3.7e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	88-74-4	2-Nitroaniline	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	88-75-5	2-Nitrophenol	SOIL	LA-523-456	U	< 180	ug/kg	1.00	1.8e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	91-20-3	Naphthalene	SOIL	LA-523-456	U	< 290	ug/kg	1.00	2.9e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	91-57-6	2-Methylnaphthalene	SOIL	LA-523-456	U	< 180	ug/kg	1.00	1.8e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	91-58-7	2-Chloronaphthalene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	91-94-1	3,3'-Dichlorobenzidine	SOIL	LA-523-456	U	< 82.0	ug/kg	1.00	82	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	95-48-7	2-Methylphenol (cresol, o-)	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	95-50-1	1,2-Dichlorobenzene	SOIL	LA-523-456	U	< 370	ug/kg	1.00	3.7e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	95-95-4	2,4,5-Trichlorophenol	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	98-95-3	Nitrobenzene	SOIL	LA-523-456	U	< 270	ug/kg	1.00	2.7e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	99-09-2	3-Nitroaniline	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	65794-96-9	3 & 4 Methylphenol Total	SOIL	LA-523-456	U	< 120	ug/kg	1.00	1.2e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	67-72-1	Hexachloroethane	SOIL	LA-523-456	U	< 480	ug/kg	1.00	4.8e+02	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	88-06-2	2,4,6-Trichlorophenol	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	126-73-8	Tributyl phosphate	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	75-35-4	1,1-Dichloroethene	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	79-01-6	Trichloroethene	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	71-43-2	Benzene	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	108-88-3	Toluene	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03

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RQ=Result Qualifier

DF=Dilution Factor

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-025: F03-025

Group #: WSCF20031641

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W030001140	B17RW5 TRENT	108-90-7	Chlorobenzene	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	75-34-3	1,1-Dichloroethane	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	100-41-4	Ethylbenzene	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	100-42-5	Styrene	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	10061-01-5	cis-1,3-Dichloropropene	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	10061-02-6	trans-1,3-Dichloropropene	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	107-06-2	1,2-Dichloroethane	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	108-10-1	4-Methyl-2-Pentanone	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	124-48-1	Dibromochloromethane	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	127-18-4	Tetrachloroethene	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	1330-20-7	Xylenes (total)	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	540-59-0	1,2-Dichloroethene(Total)	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	56-23-5	Carbon tetrachloride	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	591-78-6	2-Hexanone	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	67-64-1	Acetone	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	67-66-3	Chloroform	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	71-55-6	1,1,1-Trichloroethane	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	74-83-9	Bromomethane	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	74-87-3	Chloromethane	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	75-00-3	Chloroethane	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	75-01-4	Vinyl chloride	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	75-09-2	Methylenechloride	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	75-15-0	Carbon disulfide	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	75-25-2	Bromoform	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	75-27-4	Bromodichloromethane	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	78-87-5	1,2-Dichloropropane	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	78-93-3	2-Butanone	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-025: F03-025

Group #: WSCF20031641

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W030001140	B17RW5	TRENT	79-00-5	1,1,2-Trichloroethane	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	79-34-5	1,1,2,2-Tetrachloroethane	SOIL	LA-523-455	U	< 2.00	ug/kg	1.00	2.0	12/16/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	71-36-3	1-Butanol	SOIL	LA-523-455	U	< 40.0	ug/kg	1.00	40	12/16/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	TPHDIESEL	Total Pet. Hydrocarbons Diesel	SOIL	NWTPH	U	< 3.80e+03	ug/kg	1.00	3.8e+03	12/18/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	TPHKEROSENE	Kerosene	SOIL	NWTPH	U	< 3.80e+03	ug/kg	1.00	3.8e+03	12/18/03	12/10/03	12/10/03

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WSCF
ANALYTICAL RESULTS REPORT

2 - 7

Attention: Steve Trent
Project: F03-025: F03-025

Group #: WSCF20031641

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Inorganic														
W030001140	B17RW5	TRENT	57-12-5	Cyanide	SOIL	LA-695-402	U	< 0.200	mg/kg	1.00	0.20	12/17/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	NH4-N	Nitrogen in ammonium	SOIL	LA-503-401	U	< 0.196	mg/kg	49.00	0.20	12/17/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	TS	Total solids	SOIL	LA-519-412		97.6	%	1.00	0.0	12/18/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	PH	pH Measurement	SOIL	LA-212-411		8.92	pH	1.00	0.010	12/18/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	16984-48-8	Fluoride	SOIL	LA-533-410	U	< 1.13	mg/kg	49.00	1.1	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	16887-00-6	Chloride	SOIL	LA-533-410	B	5.38	mg/kg	49.00	2.5	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	NO2-N	Nitrogen in Nitrite	SOIL	LA-533-410	U	< 0.931	mg/kg	49.00	0.93	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	NO3-N	Nitrogen in Nitrate	SOIL	LA-533-410	B	2.03	mg/kg	49.00	0.64	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	14265-44-2	Phosphate	SOIL	LA-533-410	U	< 2.65	mg/kg	49.00	2.6	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	14808-79-8	Sulfate	SOIL	LA-533-410	B	27.0	mg/kg	49.00	4.9	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	7440-69-9	Bismuth	SOIL	LA-505-411	U	< 4.98	mg/kg	1.00	5.0	01/08/04	12/10/03	12/10/03
W030001140	B17RW5	TRENT	7440-36-0	Antimony	SOIL	LA-505-412	U	< 4.98	mg/kg	9.96	5.0	01/08/04	12/10/03	12/10/03
W030001140	B17RW5	TRENT	7440-38-2	Arsenic	SOIL	LA-505-412		11.2	mg/kg	9.96	3.0	01/08/04	12/10/03	12/10/03
W030001140	B17RW5	TRENT	7440-39-3	Barium	SOIL	LA-505-412		61.2	mg/kg	9.96	2.0	01/08/04	12/10/03	12/10/03
W030001140	B17RW5	TRENT	7440-41-7	Beryllium	SOIL	LA-505-412	U	< 2.99	mg/kg	9.96	3.0	01/08/04	12/10/03	12/10/03
W030001140	B17RW5	TRENT	7440-43-9	Cadmium	SOIL	LA-505-412	U	< 0.996	mg/kg	9.96	1.0	01/08/04	12/10/03	12/10/03
W030001140	B17RW5	TRENT	7440-47-3	Chromium	SOIL	LA-505-412		8.19	mg/kg	9.96	3.0	01/08/04	12/10/03	12/10/03
W030001140	B17RW5	TRENT	7440-50-8	Copper	SOIL	LA-505-412	U	< 4.98	mg/kg	9.96	5.0	01/08/04	12/10/03	12/10/03
W030001140	B17RW5	TRENT	7439-92-1	Lead	SOIL	LA-505-412	U	< 12.0	mg/kg	9.96	12	01/08/04	12/10/03	12/10/03
W030001140	B17RW5	TRENT	7440-02-0	Nickel	SOIL	LA-505-412		10.1	mg/kg	9.96	5.0	01/08/04	12/10/03	12/10/03
W030001140	B17RW5	TRENT	7782-49-2	Selenium	SOIL	LA-505-412		7.16	mg/kg	9.96	3.0	01/08/04	12/10/03	12/10/03
W030001140	B17RW5	TRENT	7440-22-4	Silver	SOIL	LA-505-412	U	< 1.99	mg/kg	9.96	2.0	01/08/04	12/10/03	12/10/03
W030001140	B17RW5	TRENT	7440-61-1	Uranium	SOIL	LA-505-412	U	< 0.996	mg/kg	9.96	1.0	01/08/04	12/10/03	12/10/03
W030001140	B17RW5	TRENT	7439-97-6	Mercury	SOIL	LA-505-412	U	< 0.996	mg/kg	9.96	1.0	01/08/04	12/10/03	12/10/03

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-025: F03-025

Group #: WSCF20031641

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Radiochemistry														
W030001140	B17RW5	TRENT	13994-20-2	Neptunium-237	SOIL	LA-508-471	U	-1.50e-03	pCi/g	1.00	0.016	01/09/04	12/10/03	12/10/03
W030001140	B17RW5	TRENT	E,T,C	Np-237 by AEA Total Ctng Error	SOIL	LA-508-471		+- 0.015	pCi/g	1.00	0.0	01/09/04	12/10/03	12/10/03
W030001140	B17RW5	TRENT	14596-10-2	Americium-241	SOIL	LA-508-471	U	0.0200	pCi/g	1.00	0.064	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	E,T,C	Am-241 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.036	pCi/g	1.00	0.0	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	14234-35-6	Antimony-125	SOIL	LA-508-462	U	-0.0108	pCi/g	1.00	0.090	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	E,T,C	Sb-125 Rel. Count Error (GEA)	SOIL	LA-508-462		+- 0.053	pCi/g	1.00	0.0	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	10198-40-0	Cobalt-60	SOIL	LA-508-462	U	0.0104	pCi/g	1.00	0.049	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	E,T,C	Co-60 Rel. Count Error (GEA)	SOIL	LA-508-462		+- 0.032	pCi/g	1.00	0.0	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	13967-70-9	Cesium-134	SOIL	LA-508-462	U	0.0460	pCi/g	1.00	0.054	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	E,T,C	Cs-134 Rel. Count Error (GEA)	SOIL	LA-508-462		+- 0.042	pCi/g	1.00	0.0	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	10045-97-3	Cesium-137	SOIL	LA-508-462	U	-0.0131	pCi/g	1.00	0.040	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	E,T,C	Cs-137 Rel. Count Error (GEA)	SOIL	LA-508-462		+- 0.024	pCi/g	1.00	0.0	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	14683-23-9	Europium-152	SOIL	LA-508-462	U	0.0232	pCi/g	1.00	0.086	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	E,T,C	Eu-152 Rel. Count Error (GEA)	SOIL	LA-508-462		+- 0.069	pCi/g	1.00	0.0	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	15585-10-1	Europium-154	SOIL	LA-508-462	U	-0.0538	pCi/g	1.00	0.15	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	E,T,C	Eu-154 Rel. Count Error (GEA)	SOIL	LA-508-462		+- 0.11	pCi/g	1.00	0.0	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	14391-16-3	Europium-155	SOIL	LA-508-462	U	0.105	pCi/g	1.00	0.11	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	E,T,C	Eu-155 Rel. Count Error (GEA)	SOIL	LA-508-462		+- 0.077	pCi/g	1.00	0.0	12/11/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	13981-16-3	Plutonium-238	SOIL	LA-508-471	U	0.0130	pCi/g	1.00	0.048	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	E,T,C	Pu-238 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.029	pCi/g	1.00	0.0	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	PU-239/240	Pu-239/240 by AEA	SOIL	LA-508-471	U	1.80e-03	pCi/g	1.00	0.017	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	E,T,C	Pu-239/240 AEA Total Cntg Err	SOIL	LA-508-471		+- 8.1e-03	pCi/g	1.00	0.0	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	U-233/234	Uranium-233/234	SOIL	LA-508-471		0.150	pCi/g	1.00	5.2e-03	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	E,T,C	U-233/234 AEA Total Cntg Error	SOIL	LA-508-471		+- 0.051	pCi/g	1.00	0.0	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	15117-96-1	Uranium-235	SOIL	LA-508-471		0.0140	pCi/g	1.00	5.6e-03	12/30/03	12/10/03	12/10/03
W030001140	B17RW5	TRENT	E,T,C	U-235 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.011	pCi/g	1.00	0.0	12/30/03	12/10/03	12/10/03

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WSCF
ANALYTICAL RESULTS REPORT

2-9

Attention: Steve Trent
Project: F03-025: F03-025

Group #: WSCF20031641

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W030001140	B17RW5 TRENT	U-238	Uranium-238	SOIL	LA-508-471		0.180	pCi/g	1.00	0.020	12/30/03	12/10/03	12/10/03
W030001140	B17RW5 TRENT	E,T,C	U-238 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.059	pCi/g	1.00	0.10	12/30/03	12/10/03	12/10/03

MDL=Minimum Detection Limit B - The analyte < the RDL but > = the IDL/MDL (inorganic) U - Analyzed for but not detected above limiting criteria.
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WSCF
ANALYTICAL COMMENT REPORT

2 - 10

Attention: Steve Trent
Project Number F03-025

Group #: WSCF20031641

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		Comments submitted to t.Dale. gar Am-241 RPD does not apply to low activity samples. ICP-AES: Bismuth LCS recovery was low (61%), the MS/MSD was within limits therefore no qualifiers given.

Lab Areas: VALGROUP - Group Validation
LOGSAMP - Login for Sample
VALTEST - Test Validation
LOGTEST - Login for Tests
TESTDATA - Test Data Entry

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WSCF
TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent
Project Number F03-025 :F03-025

Group #: WSCF20031641

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	U-235				0.11	pCi/g
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	TL-208				0.25	pCi/g
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	BI-214				0.57	pCi/g
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	RA-226				0.57	pCi/g
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	PB-214				0.70	pCi/g
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	PB-212				0.91	pCi/g
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	AC-228				0.93	pCi/g
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	RA-228				0.93	pCi/g
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	TH-234				1.5	pCi/g
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error				14	%
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error				15	%
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error				19	%
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	K-40				20	pCi/g
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error				24	%
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error				24	%
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error				24	%
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	AC-228 Count Error				25	%
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	RA-228 Count Error				25	%
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	TH-234 Count Error				38	%
W030001140	B17RW5 TRENT	Gamma Energy Analysis-grd H2O	U-235 Count Error				40	%

RQ=Result Qualifier

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WSCF
METHOD REFERENCES REPORT

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LA-212-411	Determination of Soil pH Measurement	
	EPA SW-846 9045C	SOIL AND WASTE pH
LA-503-401	LA-503-401: ANALYSIS OF CATIONS BY ION CHROMATOGRAPHY	
	EPA-600/4-86-024 300.7	Dissolved Sodium, Ammonium, Potassium, and Calcium in Wet Deposition by Chemical
LA-505-411	LA-505-411: ELEMENTAL ANALYSIS BY INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPE	
	EPA SW-846 6010B	INDUCTIVELY COUPLED PLASMA-ATOMIC EMISSION SPECTROMETRY
LA-505-412	LA-505-412: DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY	
	EPA-600/R-94-111 200.8	DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY COUPLED PLAS
LA-508-462	Gamma Energy Analysis -- the Genie System -- WSCF	
	None	No reference to any industry method.
LA-508-471	LA-508-471: ALPHA ENERGY ANALYZER DATA ACQUISITION AND SYSTEM CHECKOUT USING ALP	
	None	No reference to any industry method.
LA-519-412	LA-519-412: TOTAL RESIDUE/% SOLIDS DRIED AT 103 - 105 C	
	EPA-600/4-79-020 160.3	RESIDUE, TOTAL
	Standard Methods 2540B	Total Solids Dried at 103-105 C
LA-523-427	LA-523-427: POLYCHLORINATED BIPHENYLS (PCBs) BY GAS CHROMATOGRAPHY	
	EPA SW-846 3510C	SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION
	EPA SW-846 3545	PRESSURIZED FLUID EXTRACTION (PFE)

Note: A complete list of WSCF analytical procedures and referenced regulatory or industry methods is available online at \\ap006\aspdocs\WSCF\Sample Mgmt\ProcedureMethodCrossReference.pdf. This document includes on-line links to full-text versions of the procedures and methods, where available.

WSCF
METHOD REFERENCES REPORT

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	EPA SW-846 3665A	SULFURIC ACID/PERMANGANATE CLEANUP
	EPA SW-846 8000B	DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS
	EPA SW-846 8082	POLYCHLORINATED BIPHENYLS (PCBs) BY GAS CHROMATOGRAPHY
LA-523-455	LA-523-455: VOLATILE SAMPLE ANALYSIS BY SW-846	
	EPA SW-846 8000B	DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS
	EPA SW-846 8260B	VOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)
LA-523-456	LA-523-456: SEMIVOLATILE SAMPLE ANALYSIS BY SW-846, METHOD 8270C	
	EPA SW-846 8000B	DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS
	EPA SW-846 8270C	SEMIVOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)
LA-533-410	LA-533-410: ANION ANALYSIS BY ION CHROMATOGRAPHY	
	EPA-600/R-94-111 300	DETERMINATION OF INORGANIC ANIONS BY ION CHROMATOGRAPHY
LA-695-402	LA-695-402: DETERMINATION OF CYANIDE BY MIDIDISTILLATION AND SPECTROPHOTOMETRIC	
	EPA-600/4-79-020 335.2	Cyanide, Total
NWTPH	LA-523-443: GAS CHROMATOGRAPH ANALYSIS OF GASOLINE RANGE TOTAL PETROLEUM HYDROCA	
	WDOE NWTPH-Dx/Gx	Total Petroleum Hydrocarbons - Diesel/Gasoline
Organics	Organics - Alcohols, Glycols	
	EPA SW-846 8015B	Nonhalogenated Organics Using GC/FID

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wl3qlog v1 20-jan-2004 10:42:53

W13q Worklist/Batch/QC Report for Group# WSCF20031641

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
				SAMPLE	W030001140	Percent Solids
				SAMPLE	W030001140	pH Soil and Waste Measurement
			24352	BLANK		Cyanide by Midi/Spectrophotom
			24352	BLNK-PREP		Cyanide by Midi/Spectrophotom
			24352	DUP		Cyanide by Midi/Spectrophotom
			24352	LCS		Cyanide by Midi/Spectrophotom
			24352	LCS-2		Cyanide by Midi/Spectrophotom
			24352	SAMPLE	W030001140	Cyanide by Midi/Spectrophotom
			24352	MS	W030001150	Cyanide by Midi/Spectrophotom
			24352	MSD	W030001150	Cyanide by Midi/Spectrophotom
			24352	SPK-RPD	W030001150	Cyanide by Midi/Spectrophotom
20986	1	21362	24365	BLANK		Gamma Energy Analysis-grd H2O
20986	2	21362	24365	LCS		Gamma Energy Analysis-grd H2O
20986	3	21362	24365	DUP	W030001140	Gamma Energy Analysis-grd H2O
20986	4	21362	24365	SAMPLE	W030001140	Gamma Energy Analysis-grd H2O
			24369	BLANK		WTPH-D TPH Diesel Range (Wa)
			24369	LCS		WTPH-D TPH Diesel Range (Wa)
			24369	MS	W030001140	WTPH-D TPH Diesel Range (Wa)
			24369	MSD	W030001140	WTPH-D TPH Diesel Range (Wa)
			24369	SAMPLE	W030001140	WTPH-D TPH Diesel Range (Wa)
			24369	SURR	W030001140	WTPH-D TPH Diesel Range (Wa)
			24369	MS	W030001143	WTPH-D TPH Diesel Range (Wa)
			24369	MSD	W030001143	WTPH-D TPH Diesel Range (Wa)
			24369	MS	W030001157	WTPH-D TPH Diesel Range (Wa)
			24369	MSD	W030001157	WTPH-D TPH Diesel Range (Wa)
			24369	SPK-RPD	W030001157	WTPH-D TPH Diesel Range (Wa)
21057	2	21436	24422	BLANK		Anions by Ion Chromatography
21057	16	21436	24422	BLANK		Anions by Ion Chromatography
21057	3	21436	24422	LCS		Anions by Ion Chromatography
21057	5	21436	24422	DUP	W030001117	Anions by Ion Chromatography
21057	6	21436	24422	MS	W030001117	Anions by Ion Chromatography
21057	7	21436	24422	MSD	W030001117	Anions by Ion Chromatography
21057	15	21436	24422	SAMPLE	W030001140	Anions by Ion Chromatography
21095	1	21474	24442	BLANK		Ammonia (N) by IC
21095	17	21474	24442	BLANK		Ammonia (N) by IC
21095	3	21474	24442	LCS		Ammonia (N) by IC
21095	5	21474	24442	DUP	W030001117	Ammonia (N) by IC
21095	6	21474	24442	MS	W030001117	Ammonia (N) by IC
21095	7	21474	24442	MSD	W030001117	Ammonia (N) by IC
21095	15	21474	24442	SAMPLE	W030001140	Ammonia (N) by IC
			24447	BLANK		PCBs complete list
			24447	LCS		PCBs complete list
			24447	MS	W030001140	PCBs complete list
			24447	MSD	W030001140	PCBs complete list
			24447	SAMPLE	W030001140	PCBs complete list
			24447	SURR	W030001140	PCBs complete list
			24447	MS	W030001143	PCBs complete list
			24447	MSD	W030001143	PCBs complete list

			24447	SPK-RPD	W030001143	PCBs complete list
21147	1	21527	24492	BLANK		Alcohols, Glycols - 8015
21147	2	21527	24492	LCS		Alcohols, Glycols - 8015
21147	7	21527	24492	MS	W030001120	Alcohols, Glycols - 8015
21147	8	21527	24492	MSD	W030001120	Alcohols, Glycols - 8015
21147	8	21527	24492	SPK-RPD	W030001120	Alcohols, Glycols - 8015
21147	13	21527	24492	SAMPLE	W030001140	Alcohols, Glycols - 8015
			24494	BLANK		SW-846 8270B Semi-Vols
			24494	LCS		SW-846 8270B Semi-Vols
			24494	MS	W030001140	SW-846 8270B Semi-Vols
			24494	MSD	W030001140	SW-846 8270B Semi-Vols
			24494	SAMPLE	W030001140	SW-846 8270B Semi-Vols
			24494	SURR	W030001140	SW-846 8270B Semi-Vols
			24494	MS	W030001143	SW-846 8270B Semi-Vols
			24494	MSD	W030001143	SW-846 8270B Semi-Vols
			24494	MS	W030001150	SW-846 8270B Semi-Vols
			24494	MSD	W030001150	SW-846 8270B Semi-Vols
			24494	SPK-RPD	W030001150	SW-846 8270B Semi-Vols
			24504	BLANK		VOA Ground Water Protection
			24504	LCS		VOA Ground Water Protection
			24504	MS	W030001120	VOA Ground Water Protection
			24504	MSD	W030001120	VOA Ground Water Protection
			24504	SPK-RPD	W030001120	VOA Ground Water Protection
			24504	SAMPLE	W030001140	VOA Ground Water Protection
			24504	SURR	W030001140	VOA Ground Water Protection
21172	1	21545	24507	BLANK		NWTPH-GX TPH Gasoline Range
21172	2	21545	24507	LCS		NWTPH-GX TPH Gasoline Range
21172	4	21545	24507	DUP	W030001136	NWTPH-GX TPH Gasoline Range
21172	5	21545	24507	MS	W030001136	NWTPH-GX TPH Gasoline Range
21172	6	21545	24507	MSD	W030001136	NWTPH-GX TPH Gasoline Range
21172	6	21545	24507	SPK-RPD	W030001136	NWTPH-GX TPH Gasoline Range
21172	8	21545	24507	SAMPLE	W030001140	NWTPH-GX TPH Gasoline Range
21178	1	21551	24513	BLANK		ICP-2008 MS All possible metal
21178	20	21551	24513	BLANK		ICP-2008 MS All possible metal
21178	2	21551	24513	LCS		ICP-2008 MS All possible metal
21178	21	21551	24513	LCS		ICP-2008 MS All possible metal
21178	4	21551	24513	MS	W030001117	ICP-2008 MS All possible metal
21178	5	21551	24513	MSD	W030001117	ICP-2008 MS All possible metal
21178	13	21551	24513	SAMPLE	W030001140	ICP-2008 MS All possible metal
21178	23	21551	24513	MS	W030001142	ICP-2008 MS All possible metal
21178	24	21551	24513	MSD	W030001142	ICP-2008 MS All possible metal
21110	1	21490	24518	BLANK		Americium by AEA
21110	2	21490	24518	LCS		Americium by AEA
21110	3	21490	24518	DUP	W030001140	Americium by AEA
21110	4	21490	24518	SAMPLE	W030001140	Americium by AEA
21111	1	21489	24519	BLANK		Plutonium Isotopics by AEA
21111	2	21489	24519	LCS		Plutonium Isotopics by AEA
21111	3	21489	24519	DUP	W030001140	Plutonium Isotopics by AEA
21111	4	21489	24519	SAMPLE	W030001140	Plutonium Isotopics by AEA
21103	1	21482	24527	BLANK		Uranium Isotopics by AEA
21103	2	21482	24527	LCS		Uranium Isotopics by AEA
21103	3	21482	24527	DUP	W030001140	Uranium Isotopics by AEA

21103	4	21482	24527	SAMPLE	W030001140	Uranium Isotopics by AEA
21139	1	21518	24529	BLANK		& Neptunium by AEA
21139	2	21518	24529	LCS		& Neptunium by AEA
21139	3	21518	24529	DUP	W030001140	& Neptunium by AEA
21139	4		24529	SAMPLE	W030001140	& Neptunium by AEA
21140	12	21519	24555	SAMPLE	W030001140	ICP Metals Analysis, Grd H20 P

WSCF ANALYTICAL LABORATORY QC REPORT

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SDG Number: WSCF20031641
Matrix: SOLID
Test: Cyanide by Midi/Spectrophotom

SAF Number: F03-025
Sample Date: 12/11/03
Receive Date:12/11/03

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W030001150									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Cyanide by Midi/Spectrophotom	57-12-5	89.1	89.100	% Recov	12/17/03	75.000	125.000	
MSD	Cyanide by Midi/Spectrophotom	57-12-5	86.3	86.300	% Recov	12/17/03	75.000	125.000	
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	86.300	3.193	RPD	12/17/03	0.000	20.000	
BATCH QC									
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	<1	n/a	ug/L	12/17/03	-4.000	4.000	U
BLNK-PREP	Cyanide by Midi/Spectrophotom	57-12-5	n/a	n/a	ug/L	12/17/03	-4.000	4.000	
DUP	Cyanide by Midi/Spectrophotom	57-12-5	n/a	n/a	RPD	12/17/03	0.000	20.000	
LCS	Cyanide by Midi/Spectrophotom	57-12-5	93.1	93.100	% Recov	12/17/03	85.000	115.000	
LCS-2	Cyanide by Midi/Spectrophotom	57-12-5	n/a	n/a	% Recov	12/17/03	85.000	115.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: Gamma Energy Analysis-grd H2O

SAF Number: F03-025
Sample Date: 12/10/03
Receive Date:12/10/03

Lab ID: W030001140

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Cobalt-60	10198-40-0	U3.98e-4	n/a	RPD	12/12/03	0.000	20.000	
DUP	Cesium-134	13967-70-9	U3.65e-2	n/a	RPD	12/12/03	0.000	20.000	
DUP	Cesium-137	10045-97-3	U-3.0e-2	n/a	RPD	12/12/03	0.000	20.000	
DUP	Europium-152	14683-23-9	U-1.6e-2	n/a	RPD	12/12/03	0.000	20.000	
DUP	Europium-154	15585-10-1	U-9.1e-2	n/a	RPD	12/12/03	0.000	20.000	
DUP	Europium-155	14391-16-3	U8.00e-2	n/a	RPD	12/12/03	0.000	20.000	
DUP	Antimony-125	14234-35-6	U-2.6e-2	n/a	RPD	12/12/03	0.000	20.000	

BATCH QC

BLANK	Cobalt-60	10198-40-0	U-4.9e-3	n/a	pCi/g	12/15/03	-10000.000	1000.000	
BLANK	Cesium-134	13967-70-9	U1.37e-2	n/a	pCi/g	12/15/03	-10000.000	1000.000	
BLANK	Cesium-137	10045-97-3	U4.92e-3	n/a	pCi/g	12/15/03	-10000.000	1000.000	
BLANK	Europium-152	14683-23-9	U-2.3e-2	n/a	pCi/g	12/15/03	-10000.000	1000.000	
BLANK	Europium-154	15585-10-1	U4.41e-4	n/a	pCi/g	12/15/03	-10000.000	1000.000	
BLANK	Europium-155	14391-16-3	U1.63e-2	n/a	pCi/g	12/15/03	-10000.000	1000.000	
BLANK	Antimony-125	14234-35-6	U3.38e-3	n/a	pCi/g	12/15/03	-10000.000	1000.000	
LCS	Cobalt-60	10198-40-0	3.94e+03	94.033	% Recov	12/11/03	80.000	120.000	
LCS	Cesium-137	10045-97-3	3.59e+03	100.279	% Recov	12/11/03	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: WTPH-D TPH Diesel Range (Wa)

SAF Number: F03-025
Sample Date: 12/10/03
Receive Date: 12/10/03

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W030001140									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	ortho-Terphenyl Surr	84-15-1	24854	97.400	% Recov	12/18/03	70.000	130.000	
MS	Total Pet. Hydrocarbons Diesel	TPHDIESEL	125990	98.800	% Recov	12/18/03	75.000	125.000	
MSD	ortho-Terphenyl Surr	84-15-1	24717	96.800	% Recov	12/18/03	70.000	130.000	
MSD	Total Pet. Hydrocarbons Diesel	TPHDIESEL	125170	98.100	% Recov	12/18/03	75.000	125.000	
SURR	ortho-Terphenyl Surr	84-15-1	23500	92.000	% Recov	12/18/03	70.000	130.000	
Lab ID: W030001143									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	ortho-Terphenyl Surr	84-15-1	25433	94.000	% Recov	12/18/03	70.000	130.000	
MS	Total Pet. Hydrocarbons Diesel	TPHDIESEL	129200	95.500	% Recov	12/18/03	75.000	125.000	
MSD	ortho-Terphenyl Surr	84-15-1	24973	92.300	% Recov	12/18/03	70.000	130.000	
MSD	Total Pet. Hydrocarbons Diesel	TPHDIESEL	128210	94.700	% Recov	12/18/03	75.000	125.000	
Lab ID: W030001157									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	ortho-Terphenyl Surr	84-15-1	26122	100.000	% Recov	12/23/03	70.000	130.000	
MS	Total Pet. Hydrocarbons Diesel	TPHDIESEL	127600	98.000	% Recov	12/23/03	75.000	125.000	
MSD	ortho-Terphenyl Surr	84-15-1	16981	65.100	% Recov	12/23/03	70.000	130.000	
MSD	Total Pet. Hydrocarbons Diesel	TPHDIESEL	131990	101.000	% Recov	12/23/03	75.000	125.000	
SPK-RPD	ortho-Terphenyl Surr	84-15-1	65.100	42.277	RPD	12/23/03	0.000	20.000	
SPK-RPD	Total Pet. Hydrocarbons Diesel	TPHDIESEL	101.000	3.015	RPD	12/23/03	0.000	20.000	
BATCH QC									
BLANK	Kerosene	TPHKEROSENE	< 3800	n/a	ug/Kg	12/18/03			U
BLANK	ortho-Terphenyl Surr	84-15-1	17642	70.600	% Recov	12/18/03	70.000	130.000	
BLANK	Total Pet. Hydrocarbons Diesel	TPHDIESEL	< 3800	n/a	ug/Kg	12/18/03			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: WTPH-D TPH Diesel Range (Wa)

SAF Number: F03-025
Sample Date:
Receive Date:

QC Type	Analyte		CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	Kerosene		TPHKEROSENE	107100	85.700	%Recove	12/18/03	70.000	130.000	
LCS	ortho-Terphenyl	Surr	84-15-1	20666	82.700	% Recov	12/18/03	70.000	130.000	

WSCF ANALYTICAL LABORATORY QC REPORT

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SDG Number: WSCF20031641
Matrix: SOLID
Test: Anions by Ion Chromatography

SAF Number: F03-025
Sample Date: 12/06/03
Receive Date: 12/08/03

Lab ID: W030001117

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Chloride	16887-00-6	<2.60e0	n/a	RPD	12/11/03	0.000	20.000	U
DUP	Fluoride	16984-48-8	<1.15e0	n/a	RPD	12/11/03	0.000	20.000	U
DUP	Nitrogen in Nitrite	NO2-N	<9.50e-1	n/a	RPD	12/11/03	0.000	20.000	U
DUP	Nitrogen in Nitrate	NO3-N	1.29e+00	42.481	RPD	12/11/03	0.000	20.000	
DUP	Phosphate	14265-44-2	<2.70e0	n/a	RPD	12/11/03	0.000	20.000	U
DUP	Sulfate	14808-79-8	<5.00e0	n/a	RPD	12/11/03	0.000	20.000	U
MS	Chloride	16887-00-6	8.87e-01	89.596	% Recov	12/11/03	75.000	125.000	
MS	Fluoride	16984-48-8	4.31e-01	88.139	% Recov	12/11/03	75.000	125.000	
MS	Nitrogen in Nitrite	NO2-N	4.66e-01	92.460	% Recov	12/11/03	75.000	125.000	
MS	Nitrogen in Nitrate	NO3-N	4.30e-01	96.413	% Recov	12/11/03	75.000	125.000	
MS	Phosphate	14265-44-2	8.64e-01	90.094	% Recov	12/11/03	75.000	125.000	
MS	Sulfate	14808-79-8	2.03e+00	103.046	% Recov	12/11/03	75.000	125.000	
MSD	Chloride	16887-00-6	9.82e-01	99.192	% Recov	12/11/03	75.000	125.000	
MSD	Fluoride	16984-48-8	4.63e-01	94.683	% Recov	12/11/03	75.000	125.000	
MSD	Nitrogen in Nitrite	NO2-N	5.31e-01	105.357	% Recov	12/11/03	75.000	125.000	
MSD	Nitrogen in Nitrate	NO3-N	4.45e-01	99.776	% Recov	12/11/03	75.000	125.000	
MSD	Phosphate	14265-44-2	8.55e-01	89.155	% Recov	12/11/03	75.000	125.000	
MSD	Sulfate	14808-79-8	2.00e+00	101.523	% Recov	12/11/03	75.000	125.000	

BATCH QC

BLANK	Chloride	16887-00-6	<5.20e-2	n/a	mg/L	12/11/03	0.000	300.000	U
BLANK	Chloride	16887-00-6	<5.20e-2	n/a	mg/L	12/11/03	0.000	300.000	U
BLANK	Fluoride	16984-48-8	<2.30e-2	n/a	mg/L	12/11/03	0.000	300.000	U
BLANK	Fluoride	16984-48-8	<2.30e-2	n/a	mg/L	12/11/03	0.000	300.000	U
BLANK	Nitrogen in Nitrite	NO2-N	<1.90e-2	n/a	mg/L	12/11/03	0.000	300.000	U
BLANK	Nitrogen in Nitrite	NO2-N	<1.90e-2	n/a	mg/L	12/11/03	0.000	300.000	U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: Anions by Ion Chromatography

SAF Number: F03-025
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Nitrogen in Nitrate	NO3-N	<1.30e-2	n/a	mg/L	12/11/03	0.000	300.000	U
BLANK	Nitrogen in Nitrate	NO3-N	<1.30e-2	n/a	mg/L	12/11/03	0.000	300.000	U
BLANK	Phosphate	14265-44-2	<5.40e-2	n/a	mg/L	12/11/03	0.000	300.000	U
BLANK	Phosphate	14265-44-2	<5.40e-2	n/a	mg/L	12/11/03	0.000	300.000	U
BLANK	Sulfate	14808-79-8	<1.00e-1	n/a	mg/L	12/11/03	0.000	300.000	U
BLANK	Sulfate	14808-79-8	<1.00e-1	n/a	mg/L	12/11/03	0.000	300.000	U
LCS	Chloride	16887-00-6	2.08e+02	104.000	% Recov	12/11/03	80.000	120.000	
LCS	Fluoride	16984-48-8	8.91e+01	90.274	% Recov	12/11/03	80.000	120.000	
LCS	Nitrogen in Nitrite	NO2-N	1.06e+02	106.000	% Recov	12/11/03	80.000	120.000	
LCS	Nitrogen in Nitrate	NO3-N	8.78e+01	97.447	% Recov	12/11/03	80.000	120.000	
LCS	Phosphate	14265-44-2	1.81e+02	93.395	% Recov	12/11/03	80.000	120.000	
LCS	Sulfate	14808-79-8	3.96e+02	99.248	% Recov	12/11/03	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

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SDG Number: WSCF20031641
Matrix: SOLID
Test: Ammonia (N) by IC

SAF Number: F03-025
Sample Date: 12/06/03
Receive Date: 12/08/03

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W030001117									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Ammonia (N) by IC	7664-41-7	2.78e-01	22.846	RPD	12/17/03	0.000	20.000	
MS	Ammonia (N) by IC	7664-41-7	1.49e-01	90.854	% Recov	12/17/03	75.000	125.000	
MSD	Ammonia (N) by IC	7664-41-7	1.72e-01	104.878	% Recov	12/17/03	75.000	125.000	
BATCH QC									
BLANK	Ammonia (N) by IC	7664-41-7	<4.00e-3	n/a	mg/L	12/17/03	0.000	30.000	U
BLANK	Ammonia (N) by IC	7664-41-7	<4.00e-3	n/a	mg/L	12/17/03	0.000	30.000	U
LCS	Ammonia (N) by IC	7664-41-7	7.88e+01	95.631	% Recov	12/17/03	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: PCBs complete list

SAF Number: F03-025
Sample Date: 12/10/03
Receive Date:12/10/03

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W030001140									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Aroclor-1260	11096-82-5	121.72	122.000	% Recov	12/18/03	75.000	125.000	
MS	Decachlorobiphenyl	2051-24-3	757.02	75.800	% Recov	12/18/03	50.000	150.000	
MS	Tetrachloro-m-xylene	877-09-8	775.47	77.600	% Recov	12/18/03	50.000	150.000	
MSD	Aroclor-1260	11096-82-5	112.35	112.000	% Recov	12/18/03	75.000	125.000	
MSD	Decachlorobiphenyl	2051-24-3	703.04	70.100	% Recov	12/18/03	50.000	150.000	
MSD	Tetrachloro-m-xylene	877-09-8	724.31	72.200	% Recov	12/18/03	50.000	150.000	
SURR	Decachlorobiphenyl	2051-24-3	743.42	73.500	% Recov	12/18/03	50.000	150.000	
SURR	Tetrachloro-m-xylene	877-09-8	736.78	72.800	% Recov	12/18/03	50.000	150.000	
Lab ID: W030001143									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Aroclor-1260	11096-82-5	109.12	105.000	% Recov	12/18/03	75.000	125.000	
MS	Decachlorobiphenyl	2051-24-3	786.47	75.500	% Recov	12/18/03	50.000	150.000	
MS	Tetrachloro-m-xylene	877-09-8	861.55	82.800	% Recov	12/18/03	50.000	150.000	
MSD	Aroclor-1260	11096-82-5	114.63	110.000	% Recov	12/18/03	75.000	125.000	
MSD	Decachlorobiphenyl	2051-24-3	906.52	86.800	% Recov	12/18/03	50.000	150.000	
MSD	Tetrachloro-m-xylene	877-09-8	931.42	89.200	% Recov	12/18/03	50.000	150.000	
SPK-RPD	Aroclor-1260	11096-82-5	110.000	4.651	RPD	12/18/03	0.000	25.000	
SPK-RPD	Decachlorobiphenyl	2051-24-3	86.800	13.925	RPD	12/18/03	0.000	20.000	
SPK-RPD	Tetrachloro-m-xylene	877-09-8	89.200	7.442	RPD	12/18/03	0.000	20.000	
BATCH QC									
BLANK	Aroclor-1016	12674-11-2	< 50	n/a	UGKG	12/18/03			U
BLANK	Aroclor-1221	11104-28-2	< 100	n/a	ug/Kg	12/18/03			U
BLANK	Aroclor-1232	11141-16-5	< 50	n/a	ug/Kg	12/18/03			U
BLANK	Aroclor-1242	53469-21-9	< 50	n/a	ug/Kg	12/18/03			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: PCBs complete list

SAF Number: F03-025
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Aroclor-1248	12672-29-6	< 50	n/a	ug/Kg	12/18/03			U
BLANK	Aroclor-1254	11097-69-1	< 50	n/a	ug/Kg	12/18/03			U
BLANK	Aroclor-1260	11096-82-5	< 50	n/a	ug/Kg	12/18/03			U
BLANK	Aroclor-1262	37324-23-5	< 50	n/a	ug/Kg	12/18/03			U
BLANK	Aroclor-1268	11100-14-4	< 50	n/a	ug/Kg	12/18/03			U
BLANK	Decachlorobiphenyl	2051-24-3	756.08	75.600	% Recov	12/18/03	50.000	150.000	
BLANK	Tetrachloro-m-xylene	877-09-8	753.36	75.300	% Recov	12/18/03	50.000	150.000	
LCS	Aroclor-1260	11096-82-5	916.42	91.600	% Recov	12/18/03	70.000	130.000	
LCS	Decachlorobiphenyl	2051-24-3	1014.8	101.000	% Recov	12/18/03	50.000	150.000	
LCS	Tetrachloro-m-xylene	877-09-8	914.14	91.400	% Recov	12/18/03	50.000	150.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: Alcohols, Glycols - 8015

SAF Number: F03-025
Sample Date: 12/07/03
Receive Date: 12/08/03

Lab ID: W030001120

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	2-Bromoethanol	540-51-2	16000	80.000	%Recove	12/17/03	70.000	125.000	
MS	Ethylene glycol	107-21-1	12000	120.000	%Recove	12/17/03	75.000	125.000	
MSD	2-Bromoethanol	540-51-2	20000	100.000	%Recove	12/17/03	70.000	125.000	
MSD	Ethylene glycol	107-21-1	12000	120.000	%Recove	12/17/03	75.000	125.000	
SPK-RPD	2-Bromoethanol	540-51-2	100.000	22.222	RPD	12/17/03	0.000	20.000	*
SPK-RPD	Ethylene glycol	107-21-1	120.000	0.000	RPD	12/17/03	0.000	20.000	

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	2-Bromoethanol	540-51-2	18000	0.900	ug/Kg	12/17/03	0.000	10.000	
BLANK	Ethylene glycol	107-21-1	<5000	n/a	ug/Kg	12/17/03	0.000	5.000	U
LCS	2-Bromoethanol	540-51-2	17000	85.000	%Recove	12/17/03	70.000	130.000	
LCS	Ethylene glycol	107-21-1	17000	85.000	%Recove	12/17/03	70.000	130.000	

WSCF ANALYTICAL LABORATORY QC REPORT

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SDG Number: WSCF20031641
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-025
Sample Date: 12/10/03
Receive Date: 12/10/03

Lab ID: W030001140
BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	1,2,4-Trichlorobenzene	120-82-1	3015.7	90.600	% Recov	12/30/03	46.000	107.000	
MS	1,4-Dichlorobenzene	106-46-7	2912.7	87.500	% Recov	12/30/03	30.000	96.000	
MS	2,4-Dinitrotoluene	121-14-2	2502.1	75.200	% Recov	12/30/03	59.000	106.000	
MS	2-Fluorophenol	367-12-4	3007.5	90.400	%Recove	12/30/03	42.000	105.000	
MS	Acenaphthene	83-32-9	3272.1	98.300	% Recov	12/30/03	61.000	116.000	
MS	4-Chloro-3-methylphenol	59-50-7	4851.5	97.200	% Recov	12/30/03	61.000	106.000	
MS	2-Chlorophenol	95-57-8	4437.7	88.900	% Recov	12/30/03	66.000	106.000	
MS	N-Nitrosodi-n-dipropylamine	621-64-7	2757.5	82.800	% Recov	12/30/03	71.000	114.000	
MS	2-Fluorobiphenyl	321-60-8	3204.7	96.300	%Recove	12/30/03	56.000	122.000	
MS	Phenol	108-95-2	4469.6	89.500	% Recov	12/30/03	42.000	111.000	
MS	Nitrobenzene-d5	4165-60-0	3054.5	91.800	%Recove	12/30/03	64.000	111.000	
MS	4-Nitrophenol	100-02-7	3173.8	63.600	% Recov	12/30/03	32.000	118.000	
MS	Pentachlorophenol	87-86-5	4121.5	82.500	% Recov	12/30/03	62.000	114.000	
MS	Phenol-d5	4165-62-2	3035.5	91.200	%Recove	12/30/03	54.000	120.000	
MS	Pyrene	129-00-0	3103.0	93.200	% Recov	12/30/03	66.000	118.000	
MS	2,4,6-Tribromophenol	118-79-6	3380.1	102.000	%Recove	12/30/03	24.000	122.000	
MS	Terphenyl-d14 (7Cl)	98904-43-9	3314.4	99.600	%Recove	12/30/03	35.000	150.000	
MSD	1,2,4-Trichlorobenzene	120-82-1	3034.7	91.300	% Recov	12/30/03	46.000	107.000	
MSD	1,4-Dichlorobenzene	106-46-7	2998.2	90.200	% Recov	12/30/03	30.000	96.000	
MSD	2,4-Dinitrotoluene	121-14-2	2604.3	78.400	% Recov	12/30/03	59.000	106.000	
MSD	2-Fluorophenol	367-12-4	3098.0	93.200	%Recove	12/30/03	42.000	105.000	
MSD	Acenaphthene	83-32-9	3322.0	100.000	% Recov	12/30/03	61.000	116.000	
MSD	4-Chloro-3-methylphenol	59-50-7	4940.0	99.100	% Recov	12/30/03	61.000	106.000	
MSD	2-Chlorophenol	95-57-8	4521.8	90.700	% Recov	12/30/03	66.000	106.000	
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	2654.3	79.900	% Recov	12/30/03	71.000	114.000	
MSD	2-Fluorobiphenyl	321-60-8	3103.6	93.400	%Recove	12/30/03	56.000	122.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-025
Sample Date: 12/10/03
Receive Date:12/10/03

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MSD	Phenol	108-95-2	4461.3	89.500	% Recov	12/30/03	42.000	111.000	
MSD	Nitrobenzene-d5	4165-60-0	2909.1	87.500	%Recove	12/30/03	64.000	111.000	
MSD	4-Nitrophenol	100-02-7	3233.7	64.900	% Recov	12/30/03	32.000	118.000	
MSD	Pentachlorophenol	87-86-5	4826.5	96.800	% Recov	12/30/03	62.000	114.000	
MSD	Phenol-d5	4165-62-2	2973.7	89.500	%Recove	12/30/03	54.000	120.000	
MSD	Pyrene	129-00-0	3155.8	95.000	% Recov	12/30/03	66.000	118.000	
MSD	2,4,6-Tribromophenol	118-79-6	3410.7	103.000	%Recove	12/30/03	24.000	122.000	
MSD	Terphenyl-d14 (7Cl)	98904-43-9	3388.8	102.000	%Recove	12/30/03	35.000	150.000	
SURR	2-Fluorophenol	367-12-4	2722.8	81.900	%Recove	12/30/03	42.000	105.000	
SURR	2-Fluorobiphenyl	321-60-8	3648.7	110.000	%Recove	12/30/03	56.000	122.000	
SURR	Nitrobenzene-d5	4165-60-0	2676.6	80.500	%Recove	12/30/03	64.000	111.000	
SURR	Phenol-d5	4165-62-2	3486.1	105.000	%Recove	12/30/03	54.000	120.000	
SURR	2,4,6-Tribromophenol	118-79-6	2728.9	82.100	%Recove	12/30/03	24.000	122.000	
SURR	Terphenyl-d14 (7Cl)	98904-43-9	3355.7	101.000	%Recove	12/30/03	35.000	150.000	

Lab ID: W030001143
BATCH QC ASSOCIATED WITH SAMPLE

MS	1,2,4-Trichlorobenzene	120-82-1	3168.5	95.300	% Recov	12/30/03	46.000	107.000	
MS	1,4-Dichlorobenzene	106-46-7	3205.4	96.400	% Recov	12/30/03	30.000	96.000	
MS	2,4-Dinitrotoluene	121-14-2	3054.7	91.900	% Recov	12/30/03	59.000	106.000	
MS	2-Fluorophenol	367-12-4	3248.1	97.700	%Recove	12/30/03	42.000	105.000	
MS	Acenaphthene	83-32-9	3920.4	118.000	% Recov	12/30/03	61.000	116.000	
MS	4-Chloro-3-methylphenol	59-50-7	5247.1	105.000	% Recov	12/30/03	61.000	106.000	
MS	2-Chlorophenol	95-57-8	4892.5	98.100	% Recov	12/30/03	66.000	106.000	
MS	N-Nitrosodi-n-dipropylamine	621-64-7	3073.5	92.500	% Recov	12/30/03	71.000	114.000	
MS	2-Fluorobiphenyl	321-60-8	3671.5	110.000	%Recove	12/30/03	56.000	122.000	
MS	Phenol	108-95-2	4933.0	98.900	% Recov	12/30/03	42.000	111.000	
MS	Nitrobenzene-d5	4165-60-0	3018.4	90.800	%Recove	12/30/03	64.000	111.000	
MS	4-Nitrophenol	100-02-7	4004.9	80.300	% Recov	12/30/03	32.000	118.000	
MS	Pentachlorophenol	87-86-5	4830.9	96.900	% Recov	12/30/03	62.000	114.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-025
Sample Date: 12/09/03
Receive Date:12/10/03

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Phenol-d5	4165-62-2	3182.8	95.700	%Recove	12/30/03	54.000	120.000	
MS	Pyrene	129-00-0	3365.0	101.000	% Recov	12/30/03	66.000	118.000	
MS	2,4,6-Tribromophenol	118-79-6	4255.7	128.000	%Recove	12/30/03	24.000	122.000	
MS	Terphenyl-d14 (7Cl)	98904-43-9	3631.4	109.000	%Recove	12/30/03	35.000	150.000	
MSD	1,2,4-Trichlorobenzene	120-82-1	3220.0	97.300	% Recov	12/30/03	46.000	107.000	
MSD	1,4-Dichlorobenzene	106-46-7	3305.4	99.800	% Recov	12/30/03	30.000	96.000	
MSD	2,4-Dinitrotoluene	121-14-2	2942.3	88.900	% Recov	12/30/03	59.000	106.000	
MSD	2-Fluorophenol	367-12-4	3256.2	98.400	%Recove	12/30/03	42.000	105.000	
MSD	Acenaphthene	83-32-9	3721.0	112.000	% Recov	12/30/03	61.000	116.000	
MSD	4-Chloro-3-methylphenol	59-50-7	5069.1	102.000	% Recov	12/30/03	61.000	106.000	
MSD	2-Chlorophenol	95-57-8	4992.0	101.000	% Recov	12/30/03	66.000	106.000	
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	3142.8	94.900	% Recov	12/30/03	71.000	114.000	
MSD	2-Fluorobiphenyl	321-60-8	3498.0	106.000	%Recove	12/30/03	56.000	122.000	
MSD	Phenol	108-95-2	5014.6	101.000	% Recov	12/30/03	42.000	111.000	
MSD	Nitrobenzene-d5	4165-60-0	3078.5	93.000	%Recove	12/30/03	64.000	111.000	
MSD	4-Nitrophenol	100-02-7	3810.6	76.700	% Recov	12/30/03	32.000	118.000	
MSD	Pentachlorophenol	87-86-5	5027.8	101.000	% Recov	12/30/03	62.000	114.000	
MSD	Phenol-d5	4165-62-2	3345.4	101.000	%Recove	12/30/03	54.000	120.000	
MSD	Pyrene	129-00-0	3535.4	107.000	% Recov	12/30/03	66.000	118.000	
MSD	2,4,6-Tribromophenol	118-79-6	3783.9	114.000	%Recove	12/30/03	24.000	122.000	
MSD	Terphenyl-d14 (7Cl)	98904-43-9	3764.6	114.000	%Recove	12/30/03	35.000	150.000	

Lab ID: W030001150
BATCH QC ASSOCIATED WITH SAMPLE

MS	1,2,4-Trichlorobenzene	120-82-1	3019.4	90.700	% Recov	12/30/03	46.000	107.000	
MS	1,4-Dichlorobenzene	106-46-7	3054.3	91.800	% Recov	12/30/03	30.000	96.000	
MS	2,4-Dinitrotoluene	121-14-2	2789.2	83.800	% Recov	12/30/03	59.000	106.000	
MS	2-Fluorophenol	367-12-4	3009.8	90.400	%Recove	12/30/03	42.000	105.000	
MS	Acenaphthene	83-32-9	3730.2	112.000	% Recov	12/30/03	61.000	116.000	
MS	4-Chloro-3-methylphenol	59-50-7	4878.4	97.700	% Recov	12/30/03	61.000	106.000	

WSCF ANALYTICAL LABORATORY QC REPORT

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SDG Number: WSCF20031641
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-025
Sample Date: 12/11/03
Receive Date:12/11/03

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	2-Chlorophenol	95-57-8	4592.7	92.000	% Recov	12/30/03	66.000	106.000	
MS	N-Nitrosodi-n-dipropylamine	621-64-7	2781.4	83.600	% Recov	12/30/03	71.000	114.000	
MS	2-Fluorobiphenyl	321-60-8	3370.6	101.000	%Recove	12/30/03	56.000	122.000	
MS	Phenol	108-95-2	4769.2	95.500	% Recov	12/30/03	42.000	111.000	
MS	Nitrobenzene-d5	4165-60-0	2827.6	85.000	%Recove	12/30/03	64.000	111.000	
MS	4-Nitrophenol	100-02-7	2934.5	58.800	% Recov	12/30/03	32.000	118.000	
MS	Pentachlorophenol	87-86-5	4341.4	87.000	% Recov	12/30/03	62.000	114.000	
MS	Phenol-d5	4165-62-2	3122.4	93.800	%Recove	12/30/03	54.000	120.000	
MS	Pyrene	129-00-0	3385.9	102.000	% Recov	12/30/03	66.000	118.000	
MS	2,4,6-Tribromophenol	118-79-6	3587.8	108.000	%Recove	12/30/03	24.000	122.000	
MS	Terphenyl-d14 (7Cl)	98904-43-9	3628.0	109.000	%Recove	12/30/03	35.000	150.000	
MSD	1,2,4-Trichlorobenzene	120-82-1	3029.8	91.700	% Recov	12/30/03	46.000	107.000	
MSD	1,4-Dichlorobenzene	106-46-7	3115.7	94.300	% Recov	12/30/03	30.000	96.000	
MSD	2,4-Dinitrotoluene	121-14-2	3102.0	93.900	% Recov	12/30/03	59.000	106.000	
MSD	2-Fluorophenol	367-12-4	3101.5	93.900	%Recove	12/30/03	42.000	105.000	
MSD	Acenaphthene	83-32-9	3687.8	112.000	% Recov	12/30/03	61.000	116.000	
MSD	4-Chloro-3-methylphenol	59-50-7	4019.1	81.100	% Recov	12/30/03	61.000	106.000	
MSD	2-Chlorophenol	95-57-8	4683.4	94.500	% Recov	12/30/03	66.000	106.000	
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	2699.8	81.700	% Recov	12/30/03	71.000	114.000	
MSD	2-Fluorobiphenyl	321-60-8	3361.9	102.000	%Recove	12/30/03	56.000	122.000	
MSD	Phenol	108-95-2	4712.4	95.100	% Recov	12/30/03	42.000	111.000	
MSD	Nitrobenzene-d5	4165-60-0	2931.0	88.700	%Recove	12/30/03	64.000	111.000	
MSD	4-Nitrophenol	100-02-7	3458.7	69.800	% Recov	12/30/03	32.000	118.000	
MSD	Pentachlorophenol	87-86-5	3814.0	77.000	% Recov	12/30/03	62.000	114.000	
MSD	Phenol-d5	4165-62-2	3117.4	94.400	%Recove	12/30/03	54.000	120.000	
MSD	Pyrene	129-00-0	3308.2	100.000	% Recov	12/30/03	66.000	118.000	
MSD	2,4,6-Tribromophenol	118-79-6	3579.1	108.000	%Recove	12/30/03	24.000	122.000	
MSD	Terphenyl-d14 (7Cl)	98904-43-9	3497.7	106.000	%Recove	12/30/03	35.000	150.000	
SPK-RPD	1,2,4-Trichlorobenzene	120-82-1	91.700	1.096	RPD	12/30/03	0.000	20.000	
SPK-RPD	1,4-Dichlorobenzene	106-46-7	94.300	2.687	RPD	12/30/03	0.000	20.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-025
Sample Date: 12/11/03
Receive Date:12/11/03

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SPK-RPD	2,4-Dinitrotoluene	121-14-2	93.900	11.367	RPD	12/30/03	0.000	20.000	
SPK-RPD	2-Fluorophenol	367-12-4	93.900	3.798	RPD	12/30/03	0.000	20.000	
SPK-RPD	Acenaphthene	83-32-9	112.000	0.000	RPD	12/30/03	0.000	20.000	
SPK-RPD	4-Chloro-3-methylphenol	59-50-7	81.100	18.568	RPD	12/30/03	0.000	20.000	
SPK-RPD	2-Chlorophenol	95-57-8	94.500	2.681	RPD	12/30/03	0.000	20.000	
SPK-RPD	N-Nitrosodi-n-dipropylamine	621-64-7	81.700	2.299	RPD	12/30/03	0.000	20.000	
SPK-RPD	2-Fluorobiphenyl	321-60-8	102.000	0.985	RPD	12/30/03	0.000	20.000	
SPK-RPD	Phenol	108-95-2	95.100	0.420	RPD	12/30/03	0.000	20.000	
SPK-RPD	Nitrobenzene-d5	4165-60-0	88.700	4.260	RPD	12/30/03	0.000	20.000	
SPK-RPD	4-Nitrophenol	100-02-7	69.800	17.107	RPD	12/30/03	0.000	20.000	
SPK-RPD	Pentachlorophenol	87-86-5	77.000	12.195	RPD	12/30/03	0.000	20.000	
SPK-RPD	Phenol-d5	4165-62-2	94.400	0.638	RPD	12/30/03	0.000	20.000	
SPK-RPD	Pyrene	129-00-0	100.000	1.980	RPD	12/30/03	0.000	20.000	
SPK-RPD	2,4,6-Tribromophenol	118-79-6	108.000	0.000	RPD	12/30/03	0.000	20.000	
SPK-RPD	Terphenyl-d14 (7Cl)	98904-43-9	106.000	2.791	RPD	12/30/03	0.000	20.000	

BATCH QC

BLANK	1,2-Dichlorobenzene	95-50-1	< 360	n/a	ug/Kg	12/30/03			U
BLANK	1,2,4-Trichlorobenzene	120-82-1	< 290	n/a	ug/Kg	12/30/03			U
BLANK	1,3-Dichlorobenzene	541-73-1	< 320	n/a	ug/Kg	12/30/03			U
BLANK	1,4-Dichlorobenzene	106-46-7	< 310	n/a	ug/Kg	12/30/03			U
BLANK	2,4-Dichlorophenol	120-83-2	< 80	n/a	ug/Kg	12/30/03			U
BLANK	2,4-Dinitrotoluene	121-14-2	< 67	n/a	ug/Kg	12/30/03			U
BLANK	2,4,5-Trichlorophenol	95-95-4	< 73	n/a	ug/Kg	12/30/03			U
BLANK	2,4,6-Trichlorophenol	88-06-2	< 67	n/a	ug/Kg	12/30/03			U
BLANK	2,4-Dimethylphenol	105-67-9	< 67	n/a	ug/Kg	12/30/03			U
BLANK	2,6-Dinitrotoluene	606-20-2	< 67	n/a	ug/Kg	12/30/03			U
BLANK	2-Chloronaphthalene	91-58-7	< 67	n/a	ug/Kg	12/30/03			U
BLANK	2-Fluorophenol	367-12-4	2777.6	83.300	%Recove	12/30/03	42.000	105.000	
BLANK	2-Methylnaphthalene	91-57-6	< 180	n/a	ug/Kg	12/30/03			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-025
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	2-Methylphenol (cresol, o-)	95-48-7	< 67	n/a	ug/Kg	12/30/03			U
BLANK	2-Nitroaniline	88-74-4	< 67	n/a	ug/Kg	12/30/03			U
BLANK	2-Nitrophenol	88-75-5	< 170	n/a	ug/Kg	12/30/03			U
BLANK	3 & 4 Methylphenol Total	65794-96-9	< 110	n/a	ug/Kg	12/30/03	0.000	300.000	U
BLANK	3-Nitroaniline	99-09-2	< 67	n/a	ug/Kg	12/30/03			U
BLANK	4,6-Dinitro-2-methylphenol	534-52-1	< 670	n/a	ug/Kg	12/30/03			U
BLANK	4-Bromophenylphenyl ether	101-55-3	< 67	n/a	ug/Kg	12/30/03			U
BLANK	4-Chlorophenylphenyl ether	7005-72-3	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Acenaphthene	83-32-9	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Acenaphthylene	208-96-8	< 80	n/a	ug/Kg	12/30/03			U
BLANK	Anthracene	120-12-7	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Bis(2-chloroethyl) ether	111-44-4	< 250	n/a	ug/Kg	12/30/03			U
BLANK	Benzo(a)anthracene	56-55-3	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Benzo(b)fluoranthene	205-99-2	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Benzo(ghi)perylene	191-24-2	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Benzo(a)pyrene	50-32-8	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Bis(2-Chloroethoxy)methane	111-91-1	< 110	n/a	ug/Kg	12/30/03			U
BLANK	Bis(2-ethylhexyl) phthalate	117-81-7	< 560	n/a	ug/Kg	12/30/03			U
BLANK	Bis(2-chloro-1-methylethyl)eth	108-60-1	< 250	n/a	ug/Kg	12/30/03	0.000	10.000	U
BLANK	Benzo(k)fluoranthene	207-08-9	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Butylbenzylphthalate	85-68-7	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Carbazole	86-74-8	< 80	n/a	ug/Kg	12/30/03			U
BLANK	4-Chloroaniline	106-47-8	< 93	n/a	ug/Kg	12/30/03			U
BLANK	4-Chloro-3-methylphenol	59-50-7	< 67	n/a	ug/Kg	12/30/03			U
BLANK	2-Chlorophenol	95-57-8	< 150	n/a	ug/Kg	12/30/03			U
BLANK	Chrysene	218-01-9	< 67	n/a	ug/Kg	12/30/03			U
BLANK	3,3'-Dichlorobenzidine	91-94-1	< 80	n/a	ug/Kg	12/30/03			U
BLANK	Dibenz(a,h)anthracene	53-70-3	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Dibenzofuran	132-64-9	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Di-n-butylphthalate	84-74-2	< 87	n/a	ug/Kg	12/30/03			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-025
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Diethylphthalate	84-66-2	490	490.000	ug/Kg	12/30/03			
BLANK	Dimethyl phthalate	131-11-3	< 67	n/a	ug/Kg	12/30/03			U
BLANK	2,4-Dinitrophenol	51-28-5	< 670	n/a	ug/Kg	12/30/03			U
BLANK	Di-n-octylphthalate	117-84-0	< 67	n/a	ug/Kg	12/30/03			U
BLANK	N-Nitrosodi-n-dipropylamine	621-64-7	620	620.000	ug/Kg	12/30/03			
BLANK	2-Fluorobiphenyl	321-60-8	3768.5	113.000	%Recove	12/30/03	56.000	122.000	
BLANK	Fluorene	86-73-7	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Fluoranthene	206-44-0	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Hexachlorobenzene	118-74-1	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Hexachlorobutadiene	87-68-3	< 370	n/a	ug/Kg	12/30/03			U
BLANK	Hexachlorocyclopentadiene	77-47-4	< 310	n/a	ug/Kg	12/30/03			U
BLANK	Hexachloroethane	67-72-1	< 470	n/a	ug/Kg	12/30/03			U
BLANK	Indeno(1,2,3-cd)pyrene	193-39-5	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Isophorone	78-59-1	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Phenol	108-95-2	< 100	n/a	ug/Kg	12/30/03			U
BLANK	Naphthalene	91-20-3	< 290	n/a	ug/Kg	12/30/03			U
BLANK	Nitrobenzene-d5	4165-60-0	2792.5	83.800	%Recove	12/30/03	64.000	111.000	
BLANK	Nitrobenzene	98-95-3	< 260	n/a	ug/Kg	12/30/03			U
BLANK	4-Nitrophenol	100-02-7	< 650	n/a	ug/Kg	12/30/03			U
BLANK	4-Nitroaniline	100-01-6	< 250	n/a	ug/Kg	12/30/03			U
BLANK	N-Nitrosodiphenylamine	86-30-6	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Pentachlorophenol	87-86-5	< 300	n/a	ug/Kg	12/30/03			U
BLANK	Phenanthrene	85-01-8	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Phenol-d5	4165-62-2	1918.1	57.500	%Recove	12/30/03	54.000	120.000	
BLANK	Pyrene	129-00-0	< 67	n/a	ug/Kg	12/30/03			U
BLANK	Tributyl phosphate	126-73-8	< 67	n/a	ug/Kg	12/30/03			U
BLANK	2,4,6-Tribromophenol	118-79-6	1804.8	54.100	%Recove	12/30/03	24.000	122.000	
BLANK	Terphenyl-d14 (7Cl)	98904-43-9	3484.4	105.000	%Recove	12/30/03	35.000	150.000	
LCS	1,2,4-Trichlorobenzene	120-82-1	2951.9	88.600	% Recov	12/30/03	46.000	107.000	
LCS	1,4-Dichlorobenzene	106-46-7	2832.7	85.000	% Recov	12/30/03	42.000	111.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-025
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	2,4-Dinitrotoluene	121-14-2	2633.2	79.000	% Recov	12/30/03	59.000	106.000	
LCS	2-Fluorophenol	367-12-4	2961.6	88.800	% Recov	12/30/03	50.000	110.000	
LCS	Acenaphthene	83-32-9	3456.0	104.000	% Recov	12/30/03	61.000	116.000	
LCS	4-Chloro-3-methylphenol	59-50-7	4811.9	96.200	% Recov	12/30/03	61.000	106.000	
LCS	2-Chlorophenol	95-57-8	4304.2	86.100	% Recov	12/30/03	66.000	106.000	
LCS	N-Nitrosodi-n-dipropylamine	621-64-7	2686.2	80.600	% Recov	12/30/03	71.000	114.000	
LCS	2-Fluorobiphenyl	321-60-8	3236.0	97.100	% Recov	12/30/03	58.000	109.000	
LCS	Phenol	108-95-2	4218.0	84.400	% Recov	12/30/03	67.000	105.000	
LCS	Nitrobenzene-d5	4165-60-0	2970.9	89.100	% Recov	12/30/03	60.000	118.000	
LCS	4-Nitrophenol	100-02-7	3414.4	68.300	% Recov	12/30/03	32.000	118.000	
LCS	Pentachlorophenol	87-86-5	4754.0	95.100	% Recov	12/30/03	62.000	114.000	
LCS	Phenol-d5	4165-62-2	2860.4	85.800	% Recov	12/30/03	59.000	116.000	
LCS	Pyrene	129-00-0	2956.0	88.700	% Recov	12/30/03	66.000	118.000	
LCS	2,4,6-Tribromophenol	118-79-6	3444.8	103.000	% Recov	12/30/03	60.000	120.000	
LCS	Terphenyl-d14 (7Cl)	98904-43-9	3207.5	96.200	% Recov	12/30/03	60.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

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SDG Number: WSCF20031641
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F03-025
Sample Date: 12/07/03
Receive Date:12/08/03

Lab ID: W030001120
BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	1,1-Dichloroethene	75-35-4	45.000	90.000	% Recov	12/16/03	63.000	117.000	
MS	Benzene	71-43-2	53.000	106.000	% Recov	12/16/03	75.000	129.000	
MS	4-Bromofluorobenzene	460-00-4	98.000	98.000	% Recov	12/16/03	84.000	116.000	
MS	Chlorobenzene	108-90-7	53.000	106.000	% Recov	12/16/03	79.000	119.000	
MS	1,2-Dichloroethane-d4	17060-07-0	110.00	110.000	% Recov	12/16/03	82.000	136.000	
MS	Toluene-d8	2037-26-5	100.00	100.000	% Recov	12/16/03	89.000	119.000	
MS	Toluene	108-88-3	53.000	106.000	% Recov	12/16/03	76.000	120.000	
MS	Trichloroethene	79-01-6	51.000	102.000	% Recov	12/16/03	73.000	123.000	
MSD	1,1-Dichloroethene	75-35-4	47.000	94.000	% Recov	12/16/03	63.000	117.000	
MSD	Benzene	71-43-2	52.000	104.000	% Recov	12/16/03	75.000	129.000	
MSD	4-Bromofluorobenzene	460-00-4	96.000	96.000	% Recov	12/16/03	84.000	116.000	
MSD	Chlorobenzene	108-90-7	53.000	106.000	% Recov	12/16/03	79.000	119.000	
MSD	1,2-Dichloroethane-d4	17060-07-0	100.00	100.000	% Recov	12/16/03	82.000	136.000	
MSD	Toluene-d8	2037-26-5	100.00	100.000	% Recov	12/16/03	89.000	119.000	
MSD	Toluene	108-88-3	54.000	108.000	% Recov	12/16/03	76.000	120.000	
MSD	Trichloroethene	79-01-6	50.000	100.000	% Recov	12/16/03	73.000	123.000	
SPK-RPD	1,1-Dichloroethene	75-35-4	94.000	4.348	RPD	12/16/03	0.000	25.000	
SPK-RPD	Benzene	71-43-2	104.000	1.905	RPD	12/16/03	0.000	25.000	
SPK-RPD	4-Bromofluorobenzene	460-00-4	96.000	2.062	RPD	12/16/03	0.000	25.000	
SPK-RPD	Chlorobenzene	108-90-7	106.000	0.000	RPD	12/16/03	0.000	25.000	
SPK-RPD	1,2-Dichloroethane-d4	17060-07-0	100.000	9.524	RPD	12/16/03	0.000	25.000	
SPK-RPD	Toluene-d8	2037-26-5	100.000	0.000	RPD	12/16/03	0.000	25.000	
SPK-RPD	Toluene	108-88-3	108.000	1.869	RPD	12/16/03	0.000	25.000	
SPK-RPD	Trichloroethene	79-01-6	100.000	1.980	RPD	12/16/03	0.000	25.000	

Lab ID: W030001140

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F03-025
Sample Date: 12/10/03
Receive Date: 12/10/03

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BATCH QC ASSOCIATED WITH SAMPLE									
SURR	4-Bromofluorobenzene	460-00-4	95.000	95.000	% Recov	12/16/03	71.000	125.000	
SURR	1,2-Dichloroethane-d4	17060-07-0	110.00	110.000	% Recov	12/16/03	80.000	134.000	
SURR	Toluene-d8	2037-26-5	100.00	100.000	% Recov	12/16/03	80.000	126.000	
BATCH QC									
BLANK	1,1-Dichloroethane	75-34-3	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	1,1,1-Trichloroethane	71-55-6	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	1,1,2-Trichloroethane	79-00-5	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	1,1,2,2-Tetrachloroethane	79-34-5	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	1,1-Dichloroethene	75-35-4	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	1,2-Dichloroethane	107-06-2	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	1,2-Dichloroethene(Total)	540-59-0	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	1-Butanol	71-36-3	< 40	n/a	ug/Kg	12/16/03			U
BLANK	2-Hexanone	591-78-6	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	4-Methyl-2-Pentanone	108-10-1	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	Acetone	67-64-1	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	Bromodichloromethane	75-27-4	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	Benzene	71-43-2	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	4-Bromofluorobenzene	460-00-4	96.000	96.000	% Recov	12/16/03	71.000	125.000	
BLANK	Bromoform	75-25-2	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	Carbon disulfide	75-15-0	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	Carbon tetrachloride	56-23-5	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	Dibromochloromethane	124-48-1	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	Chloroform	67-66-3	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	Chlorobenzene	108-90-7	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	cis-1,3-Dichloropropene	10061-01-5	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	Chloroethane	75-00-3	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	1,2-Dichloroethane-d4	17060-07-0	100.00	100.000	% Recov	12/16/03	80.000	134.000	
BLANK	1,2-Dichloropropane	78-87-5	< 2.0	n/a	ug/Kg	12/16/03			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F03-025
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Ethylbenzene	100-41-4	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	Bromomethane	74-83-9	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	Chloromethane	74-87-3	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	2-Butanone	78-93-3	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	Methylenechloride	75-09-2	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	Tetrachloroethene	127-18-4	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	Styrene	100-42-5	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	Xylenes (total)	1330-20-7	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	Toluene-d8	2037-26-5	100.00	100.000	% Recov	12/16/03	80.000	126.000	
BLANK	Toluene	108-88-3	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	trans-1,3-Dichloropropene	10061-02-6	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	Trichloroethene	79-01-6	< 2.0	n/a	ug/Kg	12/16/03			U
BLANK	Vinyl chloride	75-01-4	< 2.0	n/a	ug/Kg	12/16/03			U
LCS	1,1-Dichloroethene	75-35-4	47.000	94.000	% Recov	12/16/03	70.000	130.000	
LCS	Benzene	71-43-2	54.000	108.000	% Recov	12/16/03	70.000	130.000	
LCS	4-Bromofluorobenzene	460-00-4	96.000	96.000	% Recov	12/16/03	71.000	125.000	
LCS	Chlorobenzene	108-90-7	53.000	106.000	% Recov	12/16/03	70.000	130.000	
LCS	1,2-Dichloroethane-d4	17060-07-0	110.00	110.000	% Recov	12/16/03	80.000	134.000	
LCS	Toluene-d8	2037-26-5	100.00	100.000	% Recov	12/16/03	80.000	126.000	
LCS	Toluene	108-88-3	54.000	108.000	% Recov	12/16/03	70.000	130.000	
LCS	Trichloroethene	79-01-6	51.000	102.000	% Recov	12/16/03	70.000	130.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: NWTPH-GX TPH Gasoline Range

SAF Number: F03-025
Sample Date: 12/07/03
Receive Date:12/09/03

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W030001136									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Total Pet. Hydrocarbons Gas	TPHGASOLINE	<250	n/a	RPD	12/16/03	0.000	20.000	U
MS	Total Pet. Hydrocarbons Gas	TPHGASOLINE	3400	98.551	% Recov	12/16/03	50.000	150.000	
MSD	Total Pet. Hydrocarbons Gas	TPHGASOLINE	3500	101.449	% Recov	12/16/03	50.000	150.000	
SPK-RPD	Total Pet. Hydrocarbons Gas	TPHGASOLINE	101.449	2.898	RPD	12/16/03	0.000	20.000	
BATCH QC									
BLANK	Total Pet. Hydrocarbons Gas	TPHGASOLINE	<250	n/a	mg/L	12/16/03	0.000	300.000	U
LCS	Total Pet. Hydrocarbons Gas	TPHGASOLINE	3600	104.348	% Recov	12/16/03	85.000	115.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: ICP-2008 MS All possible metal

SAF Number: F03-025
Sample Date: 12/06/03
Receive Date:12/08/03

Lab ID: W030001117
BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Silver	7440-22-4	158.9	79.450	% Recov	01/08/04	70.000	130.000	
MS	Arsenic	7440-38-2	197.19	98.595	% Recov	01/08/04	70.000	130.000	
MS	Barium	7440-39-3	188.99	94.495	% Recov	01/08/04	70.000	130.000	
MS	Beryllium	7440-41-7	190.3	95.150	% Recov	01/08/04	70.000	130.000	
MS	Cadmium	7440-43-9	196.5	98.250	% Recov	01/08/04	70.000	130.000	
MS	Chromium	7440-47-3	184.27	92.135	% Recov	01/08/04	70.000	130.000	
MS	Copper	7440-50-8	185.3	92.650	% Recov	01/08/04	70.000	130.000	
MS	Mercury	7439-97-6	11.41	114.100	% Recov	01/08/04	70.000	130.000	
MS	Nickel	7440-02-0	193.04	96.520	% Recov	01/08/04	70.000	130.000	
MS	Lead	7439-92-1	195.3	97.650	% Recov	01/08/04	70.000	130.000	
MS	Antimony	7440-36-0	195.3	97.650	% Recov	01/08/04	70.000	130.000	
MS	Selenium	7782-49-2	200.8	100.400	% Recov	01/08/04	70.000	130.000	
MS	Uranium	7440-61-1	191.3	95.650	% Recov	01/08/04	70.000	130.000	
MSD	Silver	7440-22-4	158.7	79.350	% Recov	01/08/04	70.000	130.000	
MSD	Arsenic	7440-38-2	204.49	102.245	% Recov	01/08/04	70.000	130.000	
MSD	Barium	7440-39-3	192.79	96.395	% Recov	01/08/04	70.000	130.000	
MSD	Beryllium	7440-41-7	198.4	99.200	% Recov	01/08/04	70.000	130.000	
MSD	Cadmium	7440-43-9	201	100.500	% Recov	01/08/04	70.000	130.000	
MSD	Chromium	7440-47-3	190.97	95.485	% Recov	01/08/04	70.000	130.000	
MSD	Copper	7440-50-8	192.1	96.050	% Recov	01/08/04	70.000	130.000	
MSD	Mercury	7439-97-6	11.7	117.000	% Recov	01/08/04	70.000	130.000	
MSD	Nickel	7440-02-0	195.44	97.720	% Recov	01/08/04	70.000	130.000	
MSD	Lead	7439-92-1	198.9	99.450	% Recov	01/08/04	70.000	130.000	
MSD	Antimony	7440-36-0	187.8	93.900	% Recov	01/08/04	70.000	130.000	
MSD	Selenium	7782-49-2	209.6	104.800	% Recov	01/08/04	70.000	130.000	
MSD	Uranium	7440-61-1	194.6	97.300	% Recov	01/08/04	70.000	130.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: ICP-2008 MS All possible metal

SAF Number: F03-025
Sample Date: 12/06/03
Receive Date:12/08/03

Lab ID: W030001142

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Silver	7440-22-4	176.1	88.050	% Recov	01/08/04	70.000	130.000	
MS	Arsenic	7440-38-2	190.99	95.495	% Recov	01/08/04	70.000	130.000	
MS	Barium	7440-39-3	172.67	86.335	% Recov	01/08/04	70.000	130.000	
MS	Beryllium	7440-41-7	203.7	101.850	% Recov	01/08/04	70.000	130.000	
MS	Cadmium	7440-43-9	200.7	100.350	% Recov	01/08/04	70.000	130.000	
MS	Chromium	7440-47-3	187.14	93.570	% Recov	01/08/04	70.000	130.000	
MS	Copper	7440-50-8	165.6	82.800	% Recov	01/08/04	70.000	130.000	
MS	Mercury	7439-97-6	11.32	113.200	% Recov	01/08/04	70.000	130.000	
MS	Nickel	7440-02-0	187.32	93.660	% Recov	01/08/04	70.000	130.000	
MS	Lead	7439-92-1	194	97.000	% Recov	01/08/04	70.000	130.000	
MS	Antimony	7440-36-0	188.4	94.200	% Recov	01/08/04	70.000	130.000	
MS	Selenium	7782-49-2	197.97	98.985	% Recov	01/08/04	70.000	130.000	
MSD	Silver	7440-22-4	185.7	92.850	% Recov	01/08/04	70.000	130.000	
MSD	Arsenic	7440-38-2	193.99	96.995	% Recov	01/08/04	70.000	130.000	
MSD	Barium	7440-39-3	172.77	86.385	% Recov	01/08/04	70.000	130.000	
MSD	Beryllium	7440-41-7	201.6	100.800	% Recov	01/08/04	70.000	130.000	
MSD	Cadmium	7440-43-9	198.1	99.050	% Recov	01/08/04	70.000	130.000	
MSD	Chromium	7440-47-3	182.64	91.320	% Recov	01/08/04	70.000	130.000	
MSD	Copper	7440-50-8	166.8	83.400	% Recov	01/08/04	70.000	130.000	
MSD	Mercury	7439-97-6	11.43	114.300	% Recov	01/08/04	70.000	130.000	
MSD	Nickel	7440-02-0	191.02	95.510	% Recov	01/08/04	70.000	130.000	
MSD	Lead	7439-92-1	197.1	98.550	% Recov	01/08/04	70.000	130.000	
MSD	Antimony	7440-36-0	183.1	91.550	% Recov	01/08/04	70.000	130.000	
MSD	Selenium	7782-49-2	207.77	103.885	% Recov	01/08/04	70.000	130.000	

BATCH QC

BLANK	Silver	7440-22-4	<0.2	n/a	ug/L	01/08/04	-0.440	0.440	U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: ICP-2008 MS All possible metal

SAF Number: F03-025
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit		RQ
BLANK	Silver	7440-22-4	<0.2	n/a	ug/L	01/08/04	-0.440	0.440		U
BLANK	Arsenic	7440-38-2	0.73	0.730	ug/L	01/08/04	-0.660	0.660	*	
BLANK	Arsenic	7440-38-2	0.62	0.620	ug/L	01/08/04	-0.660	0.660		
BLANK	Barium	7440-39-3	<0.2	n/a	ug/L	01/08/04	-0.440	0.440		U
BLANK	Barium	7440-39-3	<0.2	n/a	ug/L	01/08/04	-0.440	0.440		U
BLANK	Beryllium	7440-41-7	<0.3	n/a	ug/L	01/08/04	-0.660	0.660		U
BLANK	Beryllium	7440-41-7	<0.3	n/a	ug/L	01/08/04	-0.660	0.660		U
BLANK	Cadmium	7440-43-9	<0.1	n/a	ug/L	01/08/04	-0.220	0.220		U
BLANK	Cadmium	7440-43-9	<0.1	n/a	ug/L	01/08/04	-0.220	0.220		U
BLANK	Chromium	7440-47-3	<0.3	n/a	ug/L	01/08/04	-0.660	0.660		U
BLANK	Chromium	7440-47-3	<0.3	n/a	ug/L	01/08/04	-0.660	0.660		U
BLANK	Copper	7440-50-8	<0.5	n/a	ug/L	01/08/04	-1.100	1.100		U
BLANK	Copper	7440-50-8	<0.5	n/a	ug/L	01/08/04	-1.100	1.100		U
BLANK	Mercury	7439-97-6	0.15	0.150	ug/L	01/08/04	-0.220	0.220		
BLANK	Mercury	7439-97-6	<0.1	n/a	ug/L	01/08/04	-0.220	0.220		U
BLANK	Nickel	7440-02-0	<0.5	n/a	ug/L	01/08/04	-1.100	1.100		U
BLANK	Nickel	7440-02-0	<0.5	n/a	ug/L	01/08/04	-1.100	1.100		U
BLANK	Lead	7439-92-1	<1.2	n/a	ug/L	01/08/04	-2.640	2.640		U
BLANK	Lead	7439-92-1	<1.2	n/a	ug/L	01/08/04	-2.640	2.640		U
BLANK	Antimony	7440-36-0	0.58	0.580	ug/L	01/08/04	-1.100	1.100		
BLANK	Antimony	7440-36-0	<0.5	n/a	ug/L	01/08/04	-1.100	1.100		U
BLANK	Selenium	7782-49-2	0.62	0.620	ug/L	01/08/04	-0.660	0.660		
BLANK	Selenium	7782-49-2	<0.3	n/a	ug/L	01/08/04	-0.660	0.660		U
BLANK	Uranium	7440-61-1	<0.1	n/a	ug/L	01/08/04	-0.220	0.220		U
BLANK	Uranium	7440-61-1	<0.1	n/a	ug/L	01/08/04	-0.220	0.220		U
LCS	Silver	7440-22-4	159.1	133.697	% Recov	01/08/04	85.000	115.000	*	
LCS	Silver	7440-22-4	165.2	138.824	% Recov	01/08/04	85.000	115.000	*	
LCS	Arsenic	7440-38-2	233	119.487	% Recov	01/08/04	85.000	115.000	*	
LCS	Arsenic	7440-38-2	224.6	115.179	% Recov	01/08/04	85.000	115.000	*	
LCS	Barium	7440-39-3	369.4	94.235	% Recov	01/08/04	85.000	115.000		

WSCF ANALYTICAL LABORATORY QC REPORT

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SDG Number: WSCF20031641
Matrix: SOLID
Test: ICP-2008 MS All possible metal

SAF Number: F03-025
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	Barium	7440-39-3	362.6	92.500	% Recov	01/08/04	85.000	115.000	
LCS	Beryllium	7440-41-7	80.55	106.972	% Recov	01/08/04	85.000	115.000	
LCS	Beryllium	7440-41-7	75.99	100.916	% Recov	01/08/04	85.000	115.000	
LCS	Cadmium	7440-43-9	69.52	101.341	% Recov	01/08/04	85.000	115.000	
LCS	Cadmium	7440-43-9	71.04	103.557	% Recov	01/08/04	85.000	115.000	
LCS	Chromium	7440-47-3	71.53	82.694	% Recov	01/08/04	85.000	115.000	*
LCS	Chromium	7440-47-3	73.55	85.029	% Recov	01/08/04	85.000	115.000	
LCS	Copper	7440-50-8	75.77	59.661	% Recov	01/08/04	85.000	115.000	*
LCS	Copper	7440-50-8	99.38	78.252	% Recov	01/08/04	85.000	115.000	*
LCS	Mercury	7439-97-6	10.85	115.303	% Recov	01/08/04	85.000	115.000	*
LCS	Mercury	7439-97-6	11.68	124.123	% Recov	01/08/04	85.000	115.000	*
LCS	Nickel	7440-02-0	81.46	97.440	% Recov	01/08/04	85.000	115.000	
LCS	Nickel	7440-02-0	85.45	102.213	% Recov	01/08/04	85.000	115.000	
LCS	Lead	7439-92-1	96.33	101.937	% Recov	01/08/04	85.000	115.000	
LCS	Lead	7439-92-1	92.72	98.116	% Recov	01/08/04	85.000	115.000	
LCS	Antimony	7440-36-0	128.5	93.116	% Recov	01/08/04	85.000	115.000	
LCS	Antimony	7440-36-0	142.6	103.333	% Recov	01/08/04	85.000	115.000	
LCS	Selenium	7782-49-2	138.5	121.491	% Recov	01/08/04	85.000	115.000	*
LCS	Selenium	7782-49-2	138.1	121.140	% Recov	01/08/04	85.000	115.000	*
LCS	Uranium	7440-61-1	402	100.500	% Recov	01/08/04	85.000	115.000	
LCS	Uranium	7440-61-1	386.5	96.625	% Recov	01/08/04	85.000	115.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: Americium by AEA

SAF Number: F03-025
Sample Date: 12/10/03
Receive Date:12/10/03

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W030001140									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Americium-241	14596-10-2	-7.4e-03	434.921	RPD	12/30/03	0.000	20.000	+
BATCH QC									
BLANK	Americium-241	14596-10-2	2.3e-02	0.023	pCi/g	12/30/03	0.000	1000.000	
LCS	Americium-241	14596-10-2	13.34	101.445	% Recov	12/30/03	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: Plutonium Isotopics by AEA

SAF Number: F03-025
Sample Date: 12/10/03
Receive Date:12/10/03

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W030001140									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Pu-239/240 by AEA	PU-239/240	1.8e-03	0.000	RPD	12/30/03	0.000	20.000	
BATCH QC									
BLANK	Pu-239/240 by AEA	PU-239/240	5.9e-03	0.006	pCi/g	12/30/03	0.000	1000.000	
LCS	Pu-239/240 by AEA	PU-239/240	11.89	96.667	% Recov	12/30/03	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: Uranium Isotopics by AEA

SAF Number: F03-025
Sample Date: 12/10/03
Receive Date:12/10/03

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W030001140									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Uranium-238	U-238	2.1e-01	15.385	RPD	12/30/03	0.000	20.000	
BATCH QC									
BLANK	Uranium-238	24678-82-8	-3.8e-3	-0.004	pCi/g	12/30/03	0.000	1000.000	
LCS	Uranium-238	24678-82-8	37.14	97.969	% Recov	12/30/03	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: & Neptunium by AEA

SAF Number: F03-025
Sample Date: 12/10/03
Receive Date: 12/10/03

Lab ID: W030001140

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Neptunium-237	13994-20-2	4.5e-03	400.000	RPD	01/09/04	0.000	25.000	*

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Neptunium-237	13994-20-2	-1.7e-03	-0.002	pCi/g	01/09/04	0.000	1000.000	*
LCS	Neptunium-237	13994-20-2	3.2	50.794	%Recove	01/09/04	75.000	125.000	*

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20031641
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F03-025
Sample Date: 12/06/03
Receive Date:12/08/03

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W030001117									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Bismuth	7440-69-9	254	102.008	% Recov	01/08/04	75.000	125.000	
MSD	Bismuth	7440-69-9	244	101.245	% Recov	01/08/04	75.000	125.000	
SPK-RPD	Bismuth	7440-69-9	101.245	0.751	RPD	01/08/04	0.000	20.000	
BATCH QC									
BLANK	Bismuth	7440-69-9	<10	n/a	ug/g	01/08/04	-1.000	0.068	U
LCS	Bismuth	7440-69-9	152	61.290	% Recov	01/08/04	80.000	120.000	

W1141-04-SLF-096

ATTACHMENT 3

SAMPLE RECEIPT INFORMATION

Consisting of 5 pages
Cover page not included

Waste Sampling and Characterization Facility
P.O. BOX 1970 S3-30, Richland, WA 99352
PHONE: (509) 373-7004/FAX: (509) 373-7134

1/9/04

File 168

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Ground Water Protection Program

Richland, WA 99352
Attn: Steve Trent

Customer Code: GPP
PO#: 119143/ES20
Group#: 20031641
Project#: F03-025
Proj Mgr: Steve Trent AO-21
Phone: 373-5869

The following samples were received from you on 12/10/03. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using Waste Sampling and Characterization Facility.

Sample#	Sample Id	Matrix	Sample Date
W030001140	B17RW5	Solid, or handle as if solid	12/10/03

Tests Scheduled

@2008	@8015GPP	@AEA-30	@AEA-31	@AEA-32	
@AEA-33	@GEA-GPP	@GPP6010	@IC-30	@PCBGPP	@SVOCGPP
@TPHD-WA	@TPHG-WA	@VOA-GPP	CN-02	NH4-IC	PERSOLID
PH-30					

Test Acronym Description

Test Acronym	Description
@2008	ICP-2008 MS All possible metal
@8015GPP	Alcohols, Glycols - 8015
@AEA-30	Plutonium Isotopics by AEA
@AEA-31	Americium by AEA
@AEA-32	Uranium Isotopics by AEA
@AEA-33	& Neptunium by AEA
@GEA-GPP	Gamma Energy Analysis-grd H2O
@GPP6010	ICP Metals Analysis, Grd H2O P
@IC-30	Anions by Ion Chromatography
@PCBGPP	PCBs complete list
@SVOCGPP	SW-846 8270B Semi-Vols
@TPHD-WA	WTPH-D TPH Diesel Range (Wa)
@TPHG-WA	NWTPH-GX TPH Gasoline Range
@VOA-GPP	VOA Ground Water Protection
CN-02	Cyanide by Midi/Spectrophotom
NH4-IC	Ammonia (N) by IC
PERSOLID	Percent Solids
PH-30	pH Soil and Waste Measurement

1/9/04

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-025-032	Page 1 of 1
Collector Johansen	Company Contact TRENT, STEVE	Telephone No. 373-5689	Project Coordinator TRENT, SJ	Price Code 8N; Data Turnaround 45 Days; Air Quality ☐
Project Designation 200-LW-1/LW-2 Characterization - Soil	Sampling Location 216-B-58 (97.5 - 100 ft)		SAF No. F03-025	
Ice Chest No. N/A	Field Logbook No. HNF3561	COA 119143ES10	Method of Shipment GOVT VEHICLE	
Shipped To Waste Sampling & Characterization	Offsite Property No. N/A		Bill of Lading/Air Bill No. N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

20031641

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None				
Type of Container	Gs*	aG	aG	Gs*	P	~~P~~ G	G				
No. of Container(s)	3	1	1	3	1	1	1				
Volume	40mL	120mL	120mL	40mL	500mL	250mL	120mL				
SAMPLE ANALYSIS	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol}	See item (1) in Special Instructions.	PCBs - 8082	Alcohols, Glycols, & Ketones - 8015 {Ethylene glycol}	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.				

Sample No.	Matrix *	Sample Date	Sample Time										
B17RW5	SOIL	12-10-03	1245	X	X	X	X	X	X	X			
W03C001140													

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Johansen	Date/Time: 1420 12-10-03	Received By/Stored In: [signature]	Date/Time: 1420 12-10-03
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Semi-VOA - 8270A (TCL) {Phenol}; Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}; TPH-Gasoline Range - WTPH-G
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Isotopic Plutonium; Isotopic Uranium; Neptunium-237; Americium-241
(3) ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Copper, Nickel, Silver}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Mercury, Selenium, Uranium}; ICP Metals - 6010A (Add-on) {Bismuth}
(4) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Cyanide (Total) - 335.2; pH (Soil) - 9045

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

A-6003-618(03/03)

3-2

Dale, Troy F

From:	Iwatate, Kenneth
Sent:	Thursday, January 22, 2004 11:10 AM
To:	Dale, Troy F; Trechter, John E Jr.
Cc:	Rice, Andrew D; Fitzgerald, Scot L
Subject:	Low Neptunium Recovery for LCS
Importance:	High

Troy, John

The Groundwater Protection Project (GPP) sent to the WSCF laboratory several soil samples and requested neptunium analyses. All of this work had to be done in a short period of time. All samples were analyzed using the following batch criteria: Blank, LCS, "LCS+spike", Sample, Duplicate, Sample+spike, and Duplicate+spike, since we did not have any suitable neptunium tracer. It should be noted that the LCS and "LCS+spike" are made up by using 25 mLs of 2M nitric acid and, in the case of the LCS, spiked with 0.025 mL of a 252 dpm/mL Np-237 solution and, in the case of the "LCS+spike", 0.05 mL of the Np-237 solution. The spiked duplicate and samples were done with 0.025 mL of the same Np-237 solution.

After an initial batch of soils was processed and the data analyzed, the Np-237 recovery for the LCS and "LCS+spike" were found to be approximately 50-60%. Initially, it was thought that there was just a simple error since the same data showed that the spike recoveries of the duplicate and soil samples were in the acceptable range of 75 - 125% (QAPP-017).

Due to the time crunch all soils were processed for Np. The data was analyzed and the same problem was apparent; LCS and "LCS+spike" recoveries on the order of 50% whereas, the soil spikes were in the range of approximately 75-125%. The results of the spike recoveries for the soils alone showed that the method was working properly, yet there seemed to be an oddity with the LCS and "LCS+spike".

Before the last batch of soils was to be processed (report due to GPP on 1/29), a test of a hypothesis was conducted. It was the chemist's idea that the major difference between the soils and the LCS was the level of iron. It isn't so much that the iron helps in extraction *per se*, but that the addition of ascorbic acid to convert all iron(III) to iron(II) was excessive due to a poorly detected color change or lack thereof. If excess ascorbic acid is present, Np could change its oxidation state to one that has a lower Kd (distribution coefficient) on the TEVA resin at the conditions for efficient extraction. Conversely, if the iron(II) sulfamate reagent was at 0.6M, the excess ascorbic acid would not be present, due to an easily detectable color change. Could this mean that the iron(II) sulfamate solution was less than the required 0.6M?

Four test samples were run. These consisted of 25 mLs of 2M nitric acid spiked with Np-237. Two of the samples contained 1 mL of iron carrier (10 mg) and 2 mL of the iron(II) sulfamate. The other two samples just had 4 mLs of the iron(II) sulfamate added. Also in all cases, the technician took great pains by adding the ascorbic acid solution dropwise and letting the sample sit for a few seconds between additions. (SEE attached Excel™ spreadsheet for details).

NpTest.xls (19 KB)

As you can see in the spreadsheet data, the recoveries ran 88-107%. The extra iron, from either adding 10 mg of iron or doubling the iron(II) sulfamate, aided in the extraction of Np using TEVA resin. I believe that this is mostly attributable to the fact that ascorbic acid is kept to a minimum by detecting the color change. It may also be concluded that the iron(II) sulfamate concentration may not be 0.6M. To improve on this, one can either add a very small amount of iron to the samples, except for those containing lots of iron, or use a more sensitive indicator such as 1 drop of ammonium thiocyanate (1M).

If you have any questions, feel free to call.

Ken Iwatate
Radiochemistry
Analytical Services, WSCF
Voice: (509)373-7198 (Office)
FAX: (509) 372-0456
Fluor Hanford, S3-30, PO Box 1000, Richland, WA 99352

Neptunium Test Results - 1/22/04

Test ID	AEA ID	AEA Net Area	AEA Bkg	Count Time min	AEA Eff	^{237}Np Found dpm	^{237}Np Added dpm	% Recovery
LCS1	10	1271	7	1000	0.2039	6.20	6.3	98.4%
LCS2	11	2641	4	1000	0.2369	11.13	12.6	88.3%
LCS3	12	1437	1	1000	0.2120	6.77	6.3	107.5%
LCS4	13	2710	3	1000	0.2211	12.24	12.6	97.2%
Blank	9	9	5	1000	0.2211	0.02	<----- MDA	

LCS1 25mLs of 2M HNO_3 spiked with 0.025 mL ^{237}Np (252 dpm/mL). 1 mL of 10 mg/mL Fe carrier and 2 mL of iron(II) sulfamate

LCS2 same as LCS1 but spiked with 0.05 mL ^{237}Np

LCS3 25 mLs of 2M HNO_3, spiked with 0.025 mL ^{237}Np. 4 mLs of iron(II) sulfamate was used.

LCS4 same as LCS3 but spiked with 0.05 mL ^{237}Np.

Addition of the ascorbic acid was performed dropwise and the solution was allowed to sit for a few seconds between additions.