



28 March 2006

Joan Kessner
WC-Hanford
3190 Washington Way
MSIN H9-03
Richland, WA 99354



Subject: Analytical Data Package

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0602L240
SDG #	K0219
SAF #	RC-048
Date Received	2/10/06
# Samples	1
Matrix	Water
Volatiles	
Semivolatiles	X
Pest/PCB	X
PAH	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

r:\group\pm\orlette\tnu-hanford\data\b_ltrs.doc

Lionville Laboratory, Inc.
 PEST/PCB ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD RCG-048 K0219



DATE RECEIVED: 02/10/06

LVL LOT # : 06LE0116

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J111V9	001	W	06LE0116	02/08/06	02/14/06	02/21/06
J111V9	001	A1 W		02/08/06	02/14/06	03/16/06
J111V9	001 MS	W	06LE0116	02/08/06	02/14/06	02/21/06
J111V9	001 MSD	W	06LE0116	02/08/06	02/14/06	02/21/06

LAB QC:

PBLKBS	MB1	W	06LE0116	N/A	02/14/06	02/20/06
PBLKBS	MB1 BS	W	06LE0116	N/A	02/14/06	02/20/06

RS/16/06



Case Narrative

Client: TNU-HANFORD RCG-048
LVL #: 0602L240
SDG/SAF # K0219/RCG-048

W.O. #: 11343-606-001-9999-00
Date Received: 02-10-2006

CHLORINATED PESTICIDES

One (1) water sample was collected on 02-08-2006.

The sample and its associated QC samples were extracted on 02-14-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 02-20,21-2006 and 03-16-2006. The extraction procedure was based on method 3520C and the extracts were analyzed based on method 8081A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from a sample that met LvLI's sample acceptance policy.
2. The sample was extracted and analyzed within required holding time.
3. The sample and its associated QC samples received a Copper-Sulfur cleanup according to Lionville Laboratory SOPs based on SW846 method 3660A.
4. The method blank was below the reporting limits for all target compounds.
5. One (1) of twelve (12) surrogate recoveries were within acceptance criteria. However, the surrogate recovery acceptance criteria were met (i.e. no more than one outlier per sample).
6. All blank spike recoveries were within acceptance criteria.
7. Matrix spike recoveries for heptachlor were unobtainable due to matrix interferences.
8. Sample 001 required a 100-fold instrument dilution due to matrix interferences.
9. The initial calibrations associated with this data set were within acceptance criteria.

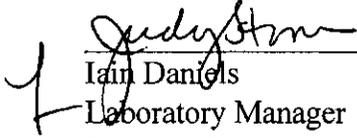
The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 9 pages.



10. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

11. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

12. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated
kin\vr\group\data\pest\tnu hanford\0602-240.pst

3/17/04
Date



GLOSSARY OF DATA

DATA QUALIFIERS

- U** = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J** = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I** = Interference.
- .I** = Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

ABBREVIATIONS

- BS** = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD** = Indicates blank spike duplicate.
- MS** = Indicates matrix spike.
- MSD** = Indicates matrix spike duplicate.
- DL** = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA** = Not Applicable.
- DF** = Dilution Factor.
- NR** = Not Required.
- NS** = Not Spiked.
- SP** = Indicates Spiked Compound.
- P** = This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- D** = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C** = This flag applies to a compound that has been confirmed by GC/MS.
- NPM** = No pattern match for multi-component target analytes.

000000005

	Cust ID:	J111V9	J111V9	J111V9	J111V9	PBLKBS	PBLKBS BS
Sample Information	RFW#:	001	001 RE	001 MS	001 MSD	06LE0116-MB1	06LE0116-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	100	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L

Surrogate:	Tetrachloro-m-xylene	59 %	D %	66 %	23 * %	57 %	57 %
	Decachlorobiphenyl	74 %	D %	80 %	68 %	77 %	79 %
		fl	fl	fl	fl	fl	fl
Alpha-BHC		0.050 U	5.0 U	88 %	84 %	0.050 U	91 %
gamma-BHC (Lindane)		0.050 U	5.0 U	88 %	86 %	0.050 U	92 %
Beta-BHC		0.050 U	5.0 U	77 %	76 %	0.050 U	79 %
Heptachlor		0.050 U	5.0 U	85 %	82 %	0.050 U	78 %
Delta-BHC		0.050 U	5.0 U	88 %	86 %	0.050 U	90 %
Aldrin		0.050 U	5.0 U	87 %	84 %	0.050 U	87 %
Heptachlor epoxide		I	5.0 U	I %	I %	0.050 U	91 %
gamma-Chlordane		I	5.0 U	87 %	85 %	0.050 U	89 %
Endosulfan I		I	5.0 U	90 %	88 %	0.050 U	92 %
alpha-Chlordane		I	5.0 U	88 %	86 %	0.050 U	89 %
4,4'-DDE		I	5.0 U	95 %	92 %	0.050 U	95 %
Dieldrin		0.050 U	5.0 U	96 %	95 %	0.050 U	96 %
Endrin		0.050 U	5.0 U	108 %	108 %	0.050 U	91 %
4,4'-DDD		0.050 U	5.0 U	102 %	98 %	0.050 U	96 %
Endosulfan II		0.050 U	5.0 U	98 %	95 %	0.050 U	93 %
4,4'-DDT		0.050 U	5.0 U	115 %	110 %	0.050 U	94 %
Endrin aldehyde		0.050 U	5.0 U	95 %	91 %	0.050 U	84 %
Endosulfan sulfate		0.050 U	5.0 U	95 %	92 %	0.050 U	94 %
Methoxychlor		0.050 U	5.0 U	92 %	90 %	0.050 U	85 %
Endrin ketone		0.050 U	5.0 U	95 %	92 %	0.050 U	100 %
Toxaphene		0.50 U	50 U	0.50 U	0.51 U	0.50 U	0.50 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
% = Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

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3/16/06

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-048-192		Page 1 of 2	
Collector J.P. FOX		Company Contact JOAN KESSNER		Telephone No. 375-4688		Project Coordinator KESSNER, JH		Price Code 7N Data Turnaround 45 Days	
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa		Sampling Location 199-FB-3		SAF No. RC-048		Air Quality <input type="checkbox"/>			
Ice Chest No. SML-363		Field Logbook No. EL-1592		COA BESRAS6520		Method of Shipment FED EX			
Shipped To EBERLINE SERVICES LIONVILLE		Offsite Property No. A060285		Bill of Lading/Air Bill No. SEE OSCP					

POSSIBLE SAMPLE HAZARDS/REMARKS POTENTIAL RADIOACTIVE < DOT LIMITS Special Handling and/or Storage Cool 40C	Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
	Type of Container	P	G/P	aG	aG	aG						
	No. of Container(s)	1	1	2	1	2	1	1	1	3	2	3
	Volume	125mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL

SAMPLE ANALYSIS	Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 - Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium-226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time									
J111V9	WATER	2-8-06	1001						X	X	X	X

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix *
Relinquished By/Removed From DORATEK 2-8-06	Date/Time 1045 FEB 08 2006	Received By/Stored In WCH	Date/Time 1145 FEB 08 2006	(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238} (2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV) Personnel not available to Relinquish samples from 3728 Ref # 2A on 2-19-06		S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquid T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From SIOALLEN	Date/Time 2806 1145	Received By/Stored In REF 2A	Date/Time 2806 1145			
Relinquished By/Removed From 3728/2A	Date/Time 2-9-06 1045	Received By/Stored In RZ Steffler R.Z. Steffler	Date/Time 2-9-06 1045			
Relinquished By/Removed From RZ Steffler R.Z. Steffler	Date/Time WCH 2-9-06	Received By/Stored In Fed Ex	Date/Time			
Relinquished By/Removed From Fed Ex	Date/Time 2-10-06 0930	Received By/Stored In RZ Steffler	Date/Time 2-10-06 0930			
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time			

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

Collector J.P. FCG	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 7N	Data Turnaround 45 Days
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location 199-F8-3	SAF No. RC-048	Air Quality <input type="checkbox"/>		
Ice Chest No. SML-363	Field Logbook No. EL-1592	COA BESRAS6520	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A060285	Bill of Lading/Air Bill No. SEE OSPC			

POSSIBLE SAMPLE HAZARDS/REMARKS POTENTIAL RADIOACTIVE < DOT LIMITS Special Handling and/or Storage Cool 4°C	Preservation	Cool 4C	H2SO4 to pH <2 Cool 4C								
	Type of Container	P	G/P								
	No. of Container(s)	1	1								
	Volume	500mL	500mL								

SAMPLE ANALYSIS		See item (1) in Special Instructions.	NO2/NO3 - 353.2								
-----------------	--	---------------------------------------	-----------------	--	--	--	--	--	--	--	--

Sample No.	Matrix *	Sample Date	Sample Time								
J111V9	WATER	2806	1001		X						

CHAIN OF POSSESSION Relinquished By/Removed From: J.P. FCG Date/Time: 105 FEB 08 2006 Relinquished By/Removed From: S. RAYMOND Date/Time: 2806 1145 Relinquished By/Removed From: 3728/2A Date/Time: 2-9-06 11045 Relinquished By/Removed From: R2 Steffler R2 Steffler Date/Time: 2-9-06 1500 Relinquished By/Removed From: Fed Ex Date/Time: 2-10-06 0930 Relinquished By/Removed From: _____ Date/Time: _____		Sign/Print Names Received By/Stored In: WCH Date/Time: 105 Received By/Stored In: S. RAYMOND Date/Time: FEB 08 2006 Received By/Stored In: RET 2A Date/Time: 2806 1145 Received By/Stored In: R2 Steffler R2 Steffler Date/Time: 2-9-06 1045 Received By/Stored In: Fed Ex Date/Time: _____ Received By/Stored In: _____ Date/Time: _____ Received By/Stored In: _____ Date/Time: _____		SPECIAL INSTRUCTIONS (1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate) Personnel not available to relinquish samples from 3728 Ref # 2A on 219106		Matrix * S=Soil SE=Soilment SO=Solid St=Sludge W=Water O=Oil A=Air DS=Drum Solid DL=Drum Liquid T=Tissue Wl=Wipe L=Liquid V=Vegetation X=Other
---	--	--	--	--	--	---

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

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: *TNU-HANFOR*

Date: *2-10-02*

Purchase Order / Project# /

SAF# / SOW# / Release #: *RC-048*

LvLI Batch #:

06022240

Sample Custodian:

[Signature]

NOTE; EXPLAIN ALL DISCREPANCIES

- | | | |
|---|---|--|
| 1. Samples Hand Delivered or Shipped | Carrier <i>FedEx</i> | Airbill# <i>79185685 0152</i> |
| 2. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals Comments |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received <u>cooled</u> or ambient?
<i>IR</i> | Temp <i>4.1</i> °C | Cooler # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 7. coc signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on coc received? All samples received on coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times? Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 13. VOA, TOC, TOX free of headspace? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 14. QC stickers placed on bottles designated by client? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> No Discrepancies |

SR-002-B





Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCG-048 K0219

DATE RECEIVED: 02/10/06

LVL LOT # :0602L240

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J111V9	001	W	06LE0116	02/08/06	02/14/06	02/19/06
J111V9	001 MS	W	06LE0116	02/08/06	02/14/06	02/19/06
J111V9	001 MSD	W	06LE0116	02/08/06	02/14/06	02/19/06

LAB QC:

PBLKBS	MB1	W	06LE0116	N/A	02/14/06	02/19/06
PBLKBS	MB1 BS	W	06LE0116	N/A	02/14/06	02/19/06

Handwritten signature



Case Narrative

Client: TNU-HANFORD RCG-048
LVL #: 0602L240
SDG/SAF # K0219/RCG-048

W.O. #: 11343-606-001-9999-00
Date Received: 02-10-2006

PCB

One (1) water sample was collected on 02-08-2006.

The sample and its associated QC samples were extracted on 02-14-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 02-19-2006. The extraction procedure was based on method 3520C and the extracts were analyzed based on method 8082.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from a sample that met LvLI's sample acceptance policy.
2. The sample was extracted and analyzed within required holding time.
3. The sample and its associated QC samples received Copper-Sulfur and Sulfuric Acid cleanups according to Lionville Laboratory SOPs based on SW846 methods 3660A and 3665A respectively.
4. The method blank was below the reporting limits for all target compounds.
5. All surrogate recoveries were within acceptance criteria.
6. The blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. The initial calibrations associated with this data set were within acceptance criteria.
9. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 9 pages.



10. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
11. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.


Jaim Daniels
Laboratory Manager
Lionville Laboratory Incorporated

3/19/6
Date

som\group\data\pest\tsu hanford0602-240.pcb



GLOSSARY OF DATA

DATA QUALIFIERS

- U** = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
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ABBREVIATIONS

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- P** = This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- D** = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C** = This flag applies to a compound that has been confirmed by GC/MS.
- NPM** = No pattern match for multi-component target analytes.

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 03/03/06 13:45

RFW Batch Number: 0602L240

Client: TNUHANFORD RCG-048 K0219 Work Order: 11343606001 Page: 1

Sample Information	Cust ID:	J111V9	J111V9	J111V9	PBLKBS	PBLKBS BS
	RFW#:	001	001 MS	001 MSD	06LE0116-MB1	06LE0116-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate:	Tetrachloro-m-xylene	78 %	89 %	77 %	71 %	71 %
	Decachlorobiphenyl	118 %	101 %	94 %	98 %	99 %
		-----fl-----	-----fl-----	-----fl-----	-----fl-----	-----fl-----
Aroclor-1016		0.40 U	108 %	98 %	0.40 U	109 %
Aroclor-1221		0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
Aroclor-1232		0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
Aroclor-1242		0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
Aroclor-1248		0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
Aroclor-1254		0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
Aroclor-1260		0.40 U	113 %	103 %	0.40 U	103 %

000000005

AS/3/6

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-048-192	Page 1 of 2
Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH		Price Code 7N	Data Turnaround 45 Days		
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa		Sampling Location 199-FB-3		SAF No. RC-048	Air Quality <input type="checkbox"/>		
Ice Chest No. SML-363	Field Logbook No. EL-1592	COA BESRAS6520		Method of Shipment FED EX			
Shipped To EBERLINE SERVICES LIONVILLE		Offsite Property No. A060285		Bill of Lading/Air Bill No. SEE OSCP			

POSSIBLE SAMPLE HAZARDS/REMARKS POTENTIAL RADIOACTIVE < DOT LIMITS Special Handling and/or Storage Cool 40C	Preservation	Name	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
	Type of Container	P	G/P	aG	aG	aG						
	No. of Container(s)	1	1	2	1	2	1	1	1	3	2	3
	Volume	125mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL

SAMPLE ANALYSIS				Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 - Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium - 226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8062	Pesticides - 8081
Sample No.	Matrix *	Sample Date	Sample Time										
J111V9	WATER	2-8-06	1001							X	X	X	X

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix *
Relinquished By/Removed From DUPATEK	Date/Time 105 FEB 08 2006	Received By/Stored In WCH	Date/Time 105 FEB 08 2006	(1) Gamma Spec - (Full List) (Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238) (2) ICP Metals - 6010 (Full List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc); Mercury - 7470 - (CV) Personnel not available to Relinquish samples from 3728 Ref # 2A on 2-19-06		S=Soil SE=Soil/sediment SO=Soil/sediment SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquid T=Tissue W=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From SLOALEN	Date/Time 2806 1145	Received By/Stored In REF 2A	Date/Time 2806 1145			
Relinquished By/Removed From 3728/2A	Date/Time 2-9-06 1045	Received By/Stored In RZ Steffler R.J. Steffler	Date/Time 1045 2-9-06			
Relinquished By/Removed From RZ Steffler R.J. Steffler	Date/Time WCH 1500 2-9-06	Received By/Stored In FED EX	Date/Time			
Relinquished By/Removed From WCH	Date/Time 2-10-06 0930	Received By/Stored In RZ Steffler R.J. Steffler	Date/Time 2-10-06 0930			
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time			

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

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			RC-048-192	Page 2 of 2
Collector RYL FOX	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH		Price Code 7N	Data Turnaround 45 Days
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa		Sampling Location 199-F8-3	SAF No. RC-048		Air Quality <input type="checkbox"/>	
Ice Chest No. SML-363	Field Logbook No. EL-1592	COA BESRAS6520	Method of Shipment FED EX			
Shipped To EBERLINE SERVICES (LIONVILLE)		Offsite Property No. A060285	Bill of Lading/Air Bill No. SEE OSPC			

POSSIBLE SAMPLE HAZARDS/REMARKS POTENTIAL RADIOACTIVE < DOT LIMITS Special Handling and/or Storage Cool 4°C	Preservation	Cool 4C	H2SO4 to pH <2 Cool 4C								
	Type of Container	P	G/P								
	No. of Container(s)	1	1								
	Volume	500mL	500mL								

SAMPLE ANALYSIS				See item (1) in Special Instructions.	NO2/NO3 - 353.2													
Sample No.	Matrix *	Sample Date	Sample Time															
J111V9	WATER	2806	1001		X													

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From <i>[Signature]</i>	Date/Time FEB 08 2006	Received By/Stored In <i>[Signature]</i>	Date/Time FEB 08 2006	(1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate) Personnel not available to relinquish samples from 3728 Ref # 2A on 219106				S=Soil SE=Sediment SO=Solid SW=Sludge W=Water O=Oil A=Air DS=Drum Spills DL=Drum Liquid T=Trace W=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From <i>[Signature]</i>	Date/Time 2806 1145	Received By/Stored In REF 2A 2806 1145	Date/Time					
Relinquished By/Removed From 3728/2A	Date/Time 2-9-06 11045	Received By/Stored In RZ Steffler R. J. Steffler	Date/Time 2-9-06					
Relinquished By/Removed From RZ Steffler R. J. Steffler	Date/Time 2-9-06 1500	Received By/Stored In Fed Ex	Date/Time					
Relinquished By/Removed From Fed Ex	Date/Time 2-10-06 0930	Received By/Stored In <i>[Signature]</i>	Date/Time 2-10-06 0930					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					

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

**Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)**

CLIENT: *TNU-HANFOR*

Date: *2-10-06*

Purchase Order / Project# /

SAF# / SOW# / Release #: *RC-048*

LvLI Batch #:

0602L240

Sample Custodian:

[Signature]

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|---|--|
| 1. Samples Hand Delivered <u>or Shipped</u> | Carrier <i>FedEx</i> | Airbill# <i>79185685 0152</i> |
| 2. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals Comments |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received <u>cooled</u> or ambient?
<i>IR</i> | Temp <i>4.1</i> °C | Cooler # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 7. coc signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on coc received? All samples received on coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times? Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 13. VOA, TOC, TOX free of headspace? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 14. QC stickers placed on bottles designated by client? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> No Discrepancies |

SR-002-B





Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCG-048 K0219

DATE RECEIVED: 02/10/06

LVL LOT # :0602L240

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J111V9						
SILVER, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
SILVER, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
SILVER, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
ALUMINUM, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/14/06
ALUMINUM, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/14/06
ALUMINUM, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/14/06
ARSENIC, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
ARSENIC, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
ARSENIC, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
BORON, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
BORON, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
BORON, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
BARIUM, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
BARIUM, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
BARIUM, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
BERYLLIUM, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/14/06
BERYLLIUM, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/14/06
BERYLLIUM, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/14/06
BISMUTH, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
BISMUTH, TOTAL REP	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
BISMUTH, TOTAL SPIKE	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
CALCIUM, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
CALCIUM, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
CALCIUM, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
CADMIUM, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
CADMIUM, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
CADMIUM, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
COBALT, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
COBALT, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
COBALT, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
CHROMIUM, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
CHROMIUM, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
CHROMIUM, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
COPPER, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
COPPER, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD RCG-048 K0219

DATE RECEIVED: 02/10/06

LVL LOT # :0602L240

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
IRON, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
IRON, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
IRON, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
MERCURY, TOTAL	001	W	06C0031	02/08/06	02/20/06	02/21/06
MERCURY, TOTAL	001 REP	W	06C0031	02/08/06	02/20/06	02/21/06
MERCURY, TOTAL	001 MS	W	06C0031	02/08/06	02/20/06	02/21/06
POTASSIUM, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/14/06
POTASSIUM, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/14/06
POTASSIUM, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/14/06
LITHIUM, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
LITHIUM, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
LITHIUM, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
MAGNESIUM, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
MAGNESIUM, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
MAGNESIUM, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
MANGANESE, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
MANGANESE, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
MANGANESE, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
MOLYBDENUM, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
MOLYBDENUM, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
MOLYBDENUM, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
SODIUM, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/14/06
SODIUM, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/14/06
SODIUM, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/14/06
NICKEL, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
NICKEL, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
NICKEL, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
PHOSPHORUS, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/14/06
PHOSPHORUS, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/14/06
PHOSPHORUS, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/14/06
LEAD, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
LEAD, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
LEAD, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
ANTIMONY, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
ANTIMONY, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
ANTIMONY, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
SELENIUM, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD RCG-048 K0219

DATE RECEIVED: 02/10/06

LVL LOT # :0602L240

CLIENT ID /ANALYSIS	LVL #	MIX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
SELENIUM, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
SILICON, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
SILICON, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
SILICON, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
TIN, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
TIN, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
TIN, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
STRONTIUM, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
STRONTIUM, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
STRONTIUM, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
THALLIUM, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
THALLIUM, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
THALLIUM, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
URANIUM, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
URANIUM, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
URANIUM, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
VANADIUM, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
VANADIUM, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
VANADIUM, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06
ZINC, TOTAL	001	W	06L0098	02/08/06	02/13/06	02/16/06
ZINC, TOTAL	001 REP	W	06L0098	02/08/06	02/13/06	02/16/06
ZINC, TOTAL	001 MS	W	06L0098	02/08/06	02/13/06	02/16/06

LAB QC:

SILVER LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
SILVER, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
ALUMINUM LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/14/06
ALUMINUM, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/14/06
ARSENIC LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
ARSENIC, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
BORON LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
BORON, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
BARIUM LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
BARIUM, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
BERYLLIUM LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/14/06
BERYLLIUM, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/14/06

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD RCG-048 K0219

DATE RECEIVED: 02/10/06

LVL LOT # :0602L240

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BISMUTH, LCS	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
BISMUTH, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
CALCIUM LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
CALCIUM, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
CADMIUM LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
CADMIUM, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
COBALT LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
COBALT, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
CHROMIUM LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
CHROMIUM, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
COPPER LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
COPPER, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
IRON LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
IRON, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
MERCURY LABORATORY	LC1 BS	W	06C0031	N/A	02/20/06	02/21/06
MERCURY, TOTAL	MB1	W	06C0031	N/A	02/20/06	02/21/06
POTASSIUM LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/14/06
POTASSIUM, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/14/06
LITHIUM LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
LITHIUM, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
MAGNESIUM LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
MAGNESIUM, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
MANGANESE LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
MANGANESE, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
MOLYBDENUM LABORATOR	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
MOLYBDENUM, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
SODIUM LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/14/06
SODIUM, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/14/06
NICKEL LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
NICKEL, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
PHOSPHORUS LCS	LC1 BS	W	06L0098	N/A	02/13/06	02/14/06
PHOSPHORUS, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/14/06
LEAD LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
LEAD, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
ANTIMONY LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
ANTIMONY, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
SELENIUM LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
SELENIUM, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCG-048 K0219

DATE RECEIVED: 02/10/06

LVL LOT # :0602L240

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILICON LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
SILICON, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
TIN LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
TIN, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
STRONTIUM LCS STANDA	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
STRONTIUM, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
THALLIUM LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
THALLIUM, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
URANIUM LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
URANIUM, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
VANADIUM LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
VANADIUM, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06
ZINC LABORATORY	LC1 BS	W	06L0098	N/A	02/13/06	02/16/06
ZINC, TOTAL	MB1	W	06L0098	N/A	02/13/06	02/16/06



Analytical Report

Client: TNU-HANFORD RCG-048
LVL#: 0602L240
SDG/SAF#: K0219/RCG-048

W.O.#: 11343-606-001-9999-00
Date Received: 02-10-06

METALS CASE NARRATIVE

1. This narrative covers the analysis of 1 water sample.
2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary. The sample was reported from a different instrument for Aluminum, Beryllium, Potassium, Sodium, and Phosphorous due to high concentrations and sample matrix.
3. All analyses were performed within the required holding times.
4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.
10. The matrix spike (MS) recoveries for 1 analyte was outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at meaningful concentration level for the following analytes:

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 18 pages.



<u>Sample ID</u>	<u>Element</u>	<u>PDS</u> <u>Concentration (ppb)</u>	<u>PDS</u> <u>% Recovery</u>
J111V9	Silica	10650	99.6

12. The duplicate analyses for 5 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
14. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
15. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

2/24/06
Date

jjw/m02-240

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this

Lot#: 0602L240

Leaching Procedure: 1310 1311 1312 Other: _____

CLP Metals Digestion and Analysis Methods: ILM03.0 ILM04.0

Metals Digestion Methods: 3005A 3010A 3015 3020A 3050B 3051 200.7 SS17
Other: _____

Metals Analysis Methods

	SW846	EPA	STD MTD	EPA OSWR	USATHAMA
Aluminum	X 6010B	200.7			99
Antimony	X 6010B 7041 ^s	200.7 204.2			99
Arsenic	X 6010B 7060A ^s	200.7 206.2	3113B		99
Barium	X 6010B	200.7			99
Beryllium	X 6010B	200.7			99
Bismuth	X 6010B ¹	200.7 ¹		1620	99
Boron	X 6010B	200.7			99
Cadmium	X 6010B 7131A ^s	200.7 213.2			99
Calcium	X 6010B	200.7			99
Chromium	X 6010B 7191 ^s	200.7 218.2			SS17
Cobalt	X 6010B	200.7			99
Copper	X 6010B 7211 ^s	200.7 220.2			99
Iron	X 6010B	200.7			99
Lead	X 6010B 7421 ^s	200.7 239.2	3113B		99
Lithium	X 6010B 7430 ^s	200.7		1620	99
Magnesium	X 6010B	200.7			99
Manganese	X 6010B	200.7			99
Mercury	X 7470A ^s 7471A ^s	245.1 ^s 245.5 ^s			99
Molybdenum	X 6010B	200.7			99
Nickel	X 6010B	200.7			99
Potassium	X 6010B 7610 ^s	200.7 258.1 ^s			99
Rare Earths	X 6010B ¹	200.7 ¹		1620	99
Selenium	X 6010B 7740 ^s	200.7 270.2	3113B		99
Silicon	X 6010B ¹	200.7		1620	99
Silica	6010B	200.7		1620	99
Silver	X 6010B 7761 ^s	200.7 272.2			99
Sodium	X 6010B 7770 ^s	200.7 273.1 ^s			99
Strontium	X 6010B	200.7			99
Thallium	X 6010B 7841 ^s	200.7 279.2 200.9			99
Tin	X 6010B	200.7			99
Titanium	6010B	200.7			99
Uranium	X 6010B ¹	200.7 ¹		1620	99
Vanadium	X 6010B	200.7			99
Zinc	X 6010B	200.7			99
Zirconium	6010B ¹	200.7 ¹		1620	99

Other: Phosphorus

Method: 6010B

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LCS = Laboratory Control Sample.
NC = Not calculated.

ANALYTICAL METAL METHODS

1. Not included in the method element list.
2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, approximately 0.3 grams of sample is taken to a final volume of 50 mL (including all reagents).
3. Flame AA.
4. Graphite Furnace AA.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/23/06

CLIENT: TNUHANFORD RCG-048 K0219

LVL LOT #: 0602L240

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J111V9	Silver, Total	1.4	u UG/L	1.4	1.0
		Aluminum, Total	30.5	u UG/L	30.5	1.0
		Arsenic, Total	3.4	u UG/L	3.4	1.0
		Boron, Total	176	UG/L	2.7	1.0
		Barium, Total	94.1	UG/L	0.20	1.0
		Beryllium, Total	0.20	u UG/L	0.20	1.0
		Bismuth, Total	6.1	u UG/L	6.1	1.0
		Calcium, Total	111000	UG/L	11.9	1.0
		Cadmium, Total	0.70	u UG/L	0.70	1.0
		Cobalt, Total	1.2	u UG/L	1.2	1.0
		Chromium, Total	30.1	UG/L	1.6	1.0
		Copper, Total	5.7	UG/L	1.2	1.0
		Iron, Total	32.1	u UG/L	32.1	1.0
		Mercury, Total	0.10	u UG/L	0.10	1.0
		Potassium, Total	7330	UG/L	540	1.0
		Lithium, Total	22.2	UG/L	0.30	1.0
		Magnesium, Total	29300	UG/L	13.5	1.0
		Manganese, Total	0.25	UG/L	0.20	1.0
		Molybdenum, Total	5.5	UG/L	1.3	1.0
		Sodium, Total	48800	UG/L	28.2	1.0
		Nickel, Total	2.7	UG/L	1.3	1.0
		Phosphorus, Total	26.9	UG/L	8.3	1.0
		Lead, Total	3.1	u UG/L	3.1	1.0
		Antimony, Total	4.0	u UG/L	4.0	1.0
		Selenium, Total	3.6	u UG/L	3.6	1.0
		Silicon, Total	19700	UG/L	8.2	1.0
		Tin, Total	6.0	UG/L	5.2	1.0
		Strontium, Total	924	UG/L	0.10	1.0
		Thallium, Total	6.4	u UG/L	6.4	1.0
		Uranium, Total	20.6	u UG/L	20.6	1.0
		Vanadium, Total	8.3	UG/L	0.90	1.0
		Zinc, Total	2.7	UG/L	0.50	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/23/06

CLIENT: TNUHANFORD RCG-048 K0219
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0602L240

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	06L0098-MB1	Silver, Total	1.4	u UG/L	1.4	1.0
		Aluminum, Total	30.5	u UG/L	30.5	1.0
		Arsenic, Total	3.4	u UG/L	3.4	1.0
		Boron, Total	2.7	u UG/L	2.7	1.0
		Barium, Total	0.49	UG/L	0.20	1.0
		Beryllium, Total	0.20	u UG/L	0.20	1.0
		Bismuth, Total	6.1	u UG/L	6.1	1.0
		Calcium, Total	14.3	UG/L	11.9	1.0
		Cadmium, Total	0.70	u UG/L	0.70	1.0
		Cobalt, Total	1.2	u UG/L	1.2	1.0
		Chromium, Total	1.6	u UG/L	1.6	1.0
		Copper, Total	1.2	u UG/L	1.2	1.0
		Iron, Total	32.1	u UG/L	32.1	1.0
		Potassium, Total	540	u UG/L	540	1.0
		Lithium, Total	0.30	u UG/L	0.30	1.0
		Magnesium, Total	13.5	u UG/L	13.5	1.0
		Manganese, Total	0.20	u UG/L	0.20	1.0
		Molybdenum, Total	1.3	u UG/L	1.3	1.0
		Sodium, Total	28.2	u UG/L	28.2	1.0
		Nickel, Total	1.3	u UG/L	1.3	1.0
		Phosphorus, Total	8.3	u UG/L	8.3	1.0
		Lead, Total	3.6	UG/L	3.1	1.0
		Antimony, Total	4.0	u UG/L	4.0	1.0
		Selenium, Total	3.6	u UG/L	3.6	1.0
		Silicon, Total	18.7	UG/L	8.2	1.0
		Tin, Total	13.4	UG/L	5.2	1.0
		Strontium, Total	0.14	UG/L	0.10	1.0
		Thallium, Total	6.4	u UG/L	6.4	1.0
		Uranium, Total	20.6	u UG/L	20.6	1.0
		Vanadium, Total	0.90	u UG/L	0.90	1.0
		Zinc, Total	0.76	UG/L	0.50	1.0
BLANK1	06C0031-MB1	Mercury, Total	0.10	u UG/L	0.10	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/23/06

CLIENT: TNUHANFORD RCG-048 K0219
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0602L240

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	J111V9	Silver, Total	49.3	1.4 u	50.0	98.6	1.0
		Aluminum, Total	2070	30.5 u	2000	103.6	1.0
		Arsenic, Total	1990	3.4 u	2000	99.7	1.0
		Boron, Total	1180	176	1000	100.9	1.0
		Barium, Total	2100	94.1	2000	100.2	1.0
		Beryllium, Total	51.1	0.20u	50.0	102.2	1.0
		Bismuth, Total	5290	6.1 u	5000	105.8	1.0
		Calcium, Total	138000	111000	25000	106.0*	1.0
		Cadmium, Total	48.9	0.70u	50.0	97.8	1.0
		Cobalt, Total	500	1.2 u	500	99.9	1.0
		Chromium, Total	231	30.1	200	100.4	1.0
		Copper, Total	260	5.7	250	101.8	1.0
		Iron, Total	1050	32.1 u	1000	104.7	1.0
		Mercury, Total	0.99	0.10u	1.0	99.3	1.0
		Potassium, Total	33500	7330	25000	104.6	1.0
		Lithium, Total	1220	22.2	1000	119.3	1.0
		Magnesium, Total	54800	29300	25000	101.9	1.0
		Manganese, Total	507	0.25	500	101.4	1.0
		Molybdenum, Total	998	5.5	1000	99.3	1.0
		Sodium, Total	75100	48800	25000	105.1	1.0
		Nickel, Total	498	2.7	500	99.1	1.0
		Phosphorus, Total	5070	26.9	5000	100.8	1.0
		Lead, Total	504	3.1 u	500	100.8	1.0
		Antimony, Total	506	4.0 u	500	101.1	1.0
		Selenium, Total	2040	3.6 u	2000	102.2	1.0
		Silicon, Total	21000	19700	1000	128.0*	1.0
		Tin, Total	1030	6.0	1000	102.9	1.0
		Strontium, Total	1920	924	1000	99.1	1.0
		Thallium, Total	2100	6.4 u	2000	105.2	1.0
		Uranium, Total	2390	20.6 u	2000 2000	107.8	1.0
		Vanadium, Total	514	8.3	500	101.1	1.0
		Zinc, Total	506	2.7	500	100.7	1.0

95% correct entry MW 02/23/06

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/23/06

CLIENT: TNUHANFORD RCG-048 K0219
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0602L240

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION
			RESULT	REPLICATE	RPD	FACTOR (REP)
-001REP	J111V9	Silver, Total	1.4 u	1.4 u	NC	1.0
		Aluminum, Total	30.5 u	30.5 u	NC	1.0
		Arsenic, Total	3.4 u	3.4 u	NC	1.0
		Boron, Total	176	179	2.0	1.0
		Barium, Total	94.1	94.9	0.85	1.0
		Beryllium, Total	0.20u	0.20u	NC	1.0
		Bismuth, Total	6.1 u	6.1 u	NC	1.0
		Calcium, Total	111000	112000	1.1	1.0
		Cadmium, Total	0.70u	0.70u	NC	1.0
		Cobalt, Total	1.2 u	1.2 u	NC	1.0
		Chromium, Total	30.1	30.6	1.6	1.0
		Copper, Total	5.7	4.4	25.7	1.0
		Iron, Total	32.1 u	32.1 u	NC	1.0
		Mercury, Total	0.10u	0.10u	NC	1.0
		Potassium, Total	7330	7590	3.4	1.0
		Lithium, Total	22.2	22.1	0.45	1.0
		Magnesium, Total	29300	29600	0.81	1.0
		Manganese, Total	0.25	0.20u		1.0
		Molybdenum, Total	5.5	5.8	5.3	1.0
		Sodium, Total	48800	49100	0.56	1.0
		Nickel, Total	2.7	1.7	45.5	1.0
		Phosphorus, Total	26.9	33.1	20.7	1.0
		Lead, Total	3.1 u	3.1 u	NC	1.0
		Antimony, Total	4.0 u	4.0 u	NC	1.0
		Selenium, Total	3.6 u	3.6 u	NC	1.0
		Silicon, Total	19700	19900	0.99	1.0
		Tin, Total	6.0	5.9	1.7	1.0
		Strontium, Total	924	934	1.0	1.0
		Thallium, Total	6.4 u	6.4 u	NC	1.0
		Uranium, Total	20.6 u	20.6 u	NC	1.0
		Vanadium, Total	8.3	8.7	4.7	1.0
		Zinc, Total	2.7	0.50u		1.0

Handwritten: * 200 MW 2/23/06

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Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 02/23/06

CLIENT: TNUHANFORD RCG-048 K0219

LVL LOT #: 0602L240

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED		UNITS	%RECOV
			SAMPLE	AMOUNT		
LCS1	06L0098-LC1	Silver, LCS	494	500	UG/L	98.8
		Aluminum, LCS	5050	5000	UG/L	101.0
		Arsenic, LCS	9730	10000	UG/L	97.3
		Boron, LCS	4950	5000	UG/L	99.0
		Barium, LCS	4900	5000	UG/L	98.0
		Beryllium, LCS	249	250	UG/L	99.6
		Bismuth, LCS	5140	5000	UG/L	102.7
		Calcium, LCS	24700	25000	UG/L	98.7
		Cadmium, LCS	242	250	UG/L	97.0
		Cobalt, LCS	2440	2500	UG/L	97.4
		Chromium, LCS	487	500	UG/L	97.4
		Copper, LCS	1240	1250	UG/L	99.2
		Iron, LCS	4910	5000	UG/L	98.1
		Potassium, LCS	25000	25000	UG/L	99.8
		Lithium, LCS	5290	5000	UG/L	105.7
		Magnesium, LCS	24900	25000	UG/L	99.6
		Manganese, LCS	754	750	UG/L	100.5
		Molybdenum, LCS	4980	5000	UG/L	99.5
		Sodium, LCS	24800	25000	UG/L	99.4
		Nickel, LCS	1940	2000	UG/L	97.2
		Phosphorus, LCS	4840	5000	UG/L	96.8
		Lead, LCS	2460	2500	UG/L	98.4
		Antimony, LCS	3040	3000	UG/L	101.4
		Selenium, LCS	9980	10000	UG/L	99.8
		Silicon, LCS	4860	5000	UG/L	97.3
		Tin, LCS	5010	5000	UG/L	100.2
		Strontium, LCS	4860	5000	UG/L	97.2
		Thallium, LCS	10100	10000	UG/L	100.6
		Uranium, LCS	2390	5000 ²⁵⁰⁰	UG/L	95.6
		Vanadium, LCS	2470	2500	UG/L	98.8
		Zinc, LCS	979	1000	UG/L	97.9
LCS1	06C0031-LC1	Mercury, LCS	5.6	5.0	UG/L	112.2

** corrected entry
PW 2/23/06*

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-048-192		Page 1 of 2	
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa		Company Contact JOAN KESSNER		Telephone No. 375-4688		Project Coordinator KESSNER, JH		Price Code 7N Data Turnaround 45 Days	
Ice Chest No. SML-363		Sampling Location 199-FB-3		SAF No. RC-048		Air Quality <input type="checkbox"/>			
Shipped To EBERLINE SERVICES/ LIONVILLE		Field Logbook No. EL-1592		COA BESRAS6520		Method of Shipment FED EX			
		Offsite Property No. A060285		Bill of Lading/Air Bill No. SEE OSCP					

POSSIBLE SAMPLE HAZARDS/REMARKS POTENTIAL RADIOACTIVE < DOT LIMITS Special Handling and/or Storage Cool 40C	Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
	Type of Container	P	G/P	aG	aG	aG						
	No. of Container(s)	1	1	2	1	2	1	1	3	2	3	
	Volume	125mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL	

SAMPLE ANALYSIS				Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226, Ra-228	See item (2) in Special Instructions.	Semi-VOA - 6270A (TCL)	PCBs - 8082	Pesticides - 8081
Sample No.	Matrix *	Sample Date	Sample Time										
J111V9	WATER	2-8-06	1001							X	X	X	X

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix *
Relinquished By/Removed From <i>JOAN KESSNER</i>	Date/Time FEB 08 2006	Received By/Stored In <i>WCH</i>	Date/Time FEB 08 2006	(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238} (2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)		S=Soil SE=Sediment SO=Solid SL=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue W=L Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From <i>JOAN KESSNER</i>	Date/Time 2806 1145	Received By/Stored In <i>REF 2A</i>	Date/Time 2806 1145			
Relinquished By/Removed From <i>3728/2A</i>	Date/Time 2-9-06 11045	Received By/Stored In <i>RZ Steffler R.Z. Steffler</i>	Date/Time 2-9-06			
Relinquished By/Removed From <i>RZ Steffler R.Z. Steffler</i>	Date/Time 2-9-06 1500	Received By/Stored In <i>Fed Ex</i>	Date/Time			
Relinquished By/Removed From <i>WCH</i>	Date/Time 2-10-06 0930	Received By/Stored In <i>WCH</i>	Date/Time 2-10-06 0930			

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

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-048-192	Page 2 of 2
Collection Point WATER	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 7N	Data Turnaround 45 Days		
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sample Location 199-F8-3	SAF No. RC-048	Air Quality <input type="checkbox"/>				
Ice Chest No. SML-363	Field Logbook No. EL-1592	COA BESRAS6520	Method of Shipment FED EX				
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A060285	Bill of Lading/Air Bill No. SEE OSFC					
POSSIBLE SAMPLE HAZARDS/REMARKS POTENTIAL RADIOACTIVE < DOT LIMITS		Preservation	Cool 4C	H2SO4 to pH <2 Cool 4C			
Special Handling and/or Storage Cool 4°C		Type of Container	P	G/P			
		No. of Container(s)	1	1			
		Volume	500mL	500mL			
SAMPLE ANALYSIS		See item (1) in Special Instructions.	NO2/NO3 - 353.2				
Sample No.	Matrix *	Sample Date	Sample Time				
J111V9	WATER	2-8-06	1001	X			
CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS			Matrix *
Relinquished By/Removed From R. P. ROK	Date/Time 10 5 FEB 08 2006	Received By/Stored In S. SPALER	Date/Time 10 5 FEB 08 2006	(1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)			S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue W=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From S. SPALER	Date/Time 2806 1145	Received By/Stored In REF-2A	Date/Time 2806 1145	Personnel not available to relinquish samples from 3728 Ref # 2A on 2-9-06			
Relinquished By/Removed From 3728/2A	Date/Time 2-9-06 1045	Received By/Stored In R2 Steffler R. J. Still	Date/Time 1045 2-9-06				
Relinquished By/Removed From R2 Steffler R. J. Still	Date/Time 1500 2-9-06	Received By/Stored In Fed Ex	Date/Time				
Relinquished By/Removed From Fed Ex	Date/Time 2-10-06 0930	Received By/Stored In Fed Ex	Date/Time 2-10-06 0930				
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time				
LABORATORY SECTION	Received By	Title		Date/Time			
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By		Date/Time			

000000017

**Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)**

CLIENT: *TNU-HANFOR*

Date: *2-10-06*

Purchase Order / Project# /

SAF# / SOW# / Release #: *RC-048*

LvLI Batch # :

06022240

Sample Custodian:

[Signature]

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|---|--|
| 1. Samples Hand Delivered or Shipped | Carrier <i>FedEx</i> | Airbill# <i>79185685 0152</i> |
| 2. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals Comments |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received <u>cooled</u> or ambient?
<i>IR</i> | Temp <i>4.1</i> °C | Cooler # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 7. coc signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on coc received? All samples received on coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times? Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 13. VOA, TOC, TOX free of headspace? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 14. QC stickers placed on bottles designated by client? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> No Discrepancies |

SR-002-B





Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCG-048 K0219

DATE RECEIVED: 02/10/06

LVL LOT # :0602L240

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J111V9						
NITRATE NITRITE	001	W	06LN3010	02/08/06	02/23/06	02/23/06
NITRATE NITRITE	001 REP	W	06LN3010	02/08/06	02/23/06	02/23/06
NITRATE NITRITE	001 MS	W	06LN3010	02/08/06	02/23/06	02/23/06

LAB QC:

NITRATE NITRITE	MB1	W	06LN3010	N/A	02/23/06	02/23/06
NITRATE NITRITE	MB1 BS	W	06LN3010	N/A	02/23/06	02/23/06



Analytical Report

Client: TNU-HANFORD RCG-048 K0219
LVL#: 0602L240

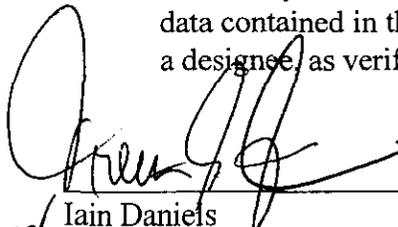
W.O.#: 11343-606-001-9999-00
Date Received: 02-10-06

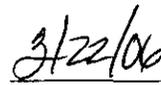
INORGANIC NARRATIVE

1. This narrative covers the analysis of 1 water sample.
2. The sample was prepared and analyzed in accordance with the method checked on the attached glossary.

LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

3. Sample holding time as required by the method and/or contract was met.
4. The results presented in this report are derived from a sample that met LvLI's sample acceptance policy.
5. The method blank was within the method criteria.
6. The Laboratory Control Sample (LCS) was within the laboratory control limits.
7. The matrix spike recovery for Nitrate Nitrite was within the 75-125% control limits.
8. The replicate analyses for Nitrate Nitrite was within the 20% Relative Percent Difference (RPD) control limit.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated


Date

njpl02-240

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	<u>EPA /600</u>	<u>SW846</u>	<u>OTHER</u>
Acidity	305.1		
___ Alkalinity ___ Bicarbonate ___ Carbonate	310.1		
BOD	405.1		5210B (b)
Ion Chromatography:			
___ Bromide ___ Chloride ___ Fluoride	300.0	9056	
___ Nitrate ___ Nitrite ___ Phosphate	300.0	9056	
___ Sulfate ___ Formate ___ Acetate ___ Oxalate	300.0	9056	
Chloride	325.2	9251	
Chlorine, Residual	330.5 (mod)		
Cyanide, Amenable to Chlorination	335.2	9010B	
Cyanide, Total	335.2	9010B	9014 ILMO4.0 (e)
Cyanide, Weak Acid Dissociable			412 (a) 4500CN-1 (f)
COD	410.4(mod)		5220C (b)
Color	110.2		
Corrosivity by Coupon		1110(mod)	
Chromium VI		7196A	3500Cr-D (b)
Fluoride	340.2		4500-FC
Hardness, Calcium	215.2		
Hardness, Total	130.2		
Iodide			ASTM D19P202 (1)
Surfactant	425.1		
√ Nitrate-Nitrite ___ Nitrate ___ Nitrite	√ 353.2		
Ammonia	350.3		
Total ___ Kjeldahl ___ Organic Nitrogen	351.3		
Total ___ Organic ___ Inorganic Carbon	415.1	9060	
Oil & Grease	413.1	9070	
___ pH ___ pH; paper	150.1	9040B	9041A
Petroleum Hydrocarbons, Total Recoverable	418.1		
Phenol	420.1	420.2	9065 9066
___ Ortho ___ Total Phosphate	365.2		4500-P B C 210A (a) 2520 (b)
Salinity			
Settleable Solids	160.5		
Sulfide	376.1		9030B/9034 (acid soluble)
Reactive ___ Cyanide ___ Sulfide		Section 7.3	(9014_9030B)
Silica	370.1		
Sulfite	377.1		
Sulfate	375.4	9038	
Specific Conductance	120.1	9050A	
Specific Gravity			D5057-90 213E (a)
Synthetic Precipitation Leach		1312	
Total ___ Dissolved ___ Suspended ___ Solids	160 ___ .1 ___ .2 ___ .3		
Total Organic Halides	450.1	9020B	
Turbidity	180.1		
Volatile Solids:			
___ Total ___ Dissolved ___ Suspended	160.4		
Other:		Method:	

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- * = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

- MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.
2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
 - a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
 - b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
 - c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
 - d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
 - e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
 - f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/14/06

CLIENT: TNUHANFORD RCG-048 K0219
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0602L240

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J111V9	Nitrate Nitrite	17.5	MG/L	0.50	25.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/14/06

CLIENT: TNUHANFORD RCG-048 K0219
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0602L240

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	06LN3010-MB1	Nitrate Nitrite	0.020u	MG/L	0.020	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 03/14/06

CLIENT: TNUHANFORD RCG-048 K0219
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0602L240

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	J111V9	Nitrate Nitrite	42.3	17.5	25.0	99.2	50.0
BLANK10	06LN3010-MB1	Nitrate Nitrite	0.48	0.02u	0.50	97.0	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 03/14/06

CLIENT: TNUHANFORD RCG-048 K0219
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0602L240

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-001REP	J111V9	Nitrate Nitrite	17.5	17.5	0.00	25.0

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-048-192	Page 1 of 2
Collector DURATEK JEFF FOX	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH		Price Code 7N	Data Turnaround 45 Days	
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa		Sample Location 199-FB-3	SAF No. RC-048		Air Quality <input type="checkbox"/>		
Ice Chest No. SML-363	Field Logbook No. EL-1592	COA BESRAS6520	Method of Shipment FED EX				
Shipped To EBERLINE SERVICES/LIONVILLE		Offsite Property No. A060285	Bill of Lading/Air Bill No. SEE OSPC				

POSSIBLE SAMPLE HAZARDS/REMARKS POTENTIAL RADIOACTIVE < DOT LIMITS Special Handling and/or Storage Cool 40C	Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
	Type of Container	P	G/P	aG	aG	aG						
	No. of Container(s)	1	1	2	1	2	1	1	1	3	2	3
	Volume	125mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL

SAMPLE ANALYSIS				Tridium - H3	See item (1) in Special Instructions	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium-226; Ra-228	See item (2) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Sample No.	Matrix *	Sample Date	Sample Time										
J111V9	WATER	2-8-06	1001							X	X	X	X

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix *
Relinquished By/Removed From DURATEK JEFF FOX	Date/Time 105 FEB 08 2006	Received By/Stored In JOAN KESSNER	Date/Time 105 FEB 08 2006	(1) Gamma Spec - (Full List) (Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238) (2) ICP Metals - 6010 (Full List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc); Mercury - 7470 - (CV) Personnel not available to Relinquish samples from 3728 Ref# 2A on 2-9-06		S=Soil SE=Sediment SCS=Sediment SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue Wt=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From SIOGLEN	Date/Time 2006 1145	Received By/Stored In REF 2A	Date/Time 2006 1145			
Relinquished By/Removed From 3728/2A	Date/Time 2-9-06 1045	Received By/Stored In RZ Stettler R.J. Stettler	Date/Time 1045 2-9-06			
Relinquished By/Removed From RZ Stettler R.J. Stettler	Date/Time 1500 2-9-06	Received By/Stored In FED EX	Date/Time			
Relinquished By/Removed From Ed Ed	Date/Time 2-9-06 0930	Received By/Stored In RZ Stettler	Date/Time 2-10-06 0930			
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time			

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

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			RC-048-192	Page 2 of 2
Collector <i>R. P. Fick</i>	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH		Price Code 7N	Data Turnaround 45 Days
Project Designation 100 Arca and 300 Arca Component of the RCBRA Water Sa		Sampline Location 199-F8-3	SAF No. RC-048		Air Quality <input type="checkbox"/>	
Ice Chest No. <i>SML-363</i>	Field Logbook No. EL-1592	COA BESRAS6520	Method of Shipment FED EX			
Shipped To EBERLINE SERVICES <u>LIONVILLE</u>		Offsite Property No. <i>A060285</i>	Bill of Lading/Air Bill No. SEE OSPC			

POSSIBLE SAMPLE HAZARDS/REMARKS POTENTIAL RADIOACTIVE < DOT LIMITS Special Handling and/or Storage <i>Cool 4°C</i>	Preservation	Cool 4C	H2SO4 to pH <2 Cool 4C									
	Type of Container	P	G/P									
	No. of Container(s)	1	1									
	Volume	500mL	500mL									

SAMPLE ANALYSIS				See item (1) in Special Instructions.	NO2/NO3 - 353.2								
Sample No.	Matrix *	Sample Date	Sample Time										
J111V9	WATER	<i>2806</i>	<i>1901</i>		<i>X</i>								

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix * S=Soil SE=Settlement 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
Relinquished By/Removed From <i>R. P. Fick</i>	Date/Time <i>105</i> FEB 08 2006	Received By/Stored In <i>Joan Kessner</i>	Date/Time <i>105</i> FEB 08 2006	(1) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} Personnel not available to relinquish samples from 3728 Ref # <i>2A</i> on <i>219106</i>		
Relinquished By/Removed From <i>S. R. Fick</i>	Date/Time <i>145</i> 2806 145	Received By/Stored In <i>R. F. 2A</i>	Date/Time <i>145</i> 2806 145			
Relinquished By/Removed From <i>3728/2A</i>	Date/Time <i>1045</i> 2-9-06 1045	Received By/Stored In <i>R. J. Steffler</i>	Date/Time <i>1045</i> 2-9-06			
Relinquished By/Removed From <i>R. J. Steffler</i>	Date/Time <i>1500</i> 2-9-06	Received By/Stored In <i>F. G. Ex</i>	Date/Time <i>1500</i> 2-9-06			
Relinquished By/Removed From <i>F. G. Ex</i>	Date/Time <i>0930</i> 2-10-06 0930	Received By/Stored In <i>F. G. Ex</i>	Date/Time <i>0930</i> 2-10-06 0930			
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time			

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

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: *TNU-HANFOR*

Date: *2-10-06*

Purchase Order / Project# /

SAF# / SOW# / Release #: *RC-048*

LvLI Batch # :

06022240

Sample Custodian:

[Signature]

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|---|--|
| 1. Samples Hand Delivered or Shipped | Carrier <i>FEDEX</i> | Airbill# <i>79185685 0152</i> |
| 2. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals Comments |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received <u>cooled</u> or ambient?
<i>IR</i> | Temp <i>4.1</i> °C | Cooler # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 7. coc signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on coc received? All samples received on coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times? Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 13. VOA, TOC, TOX free of headspace? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 14. QC stickers placed on bottles designated by client? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> No Discrepancies |

SR-002-B





28 March 2006



Joan Kessner
WC-Hanford
3190 Washington Way
MSIN H9-03
Richland, WA 99354

Subject: Analytical Data Package

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0602L232
SDG #	K0219
SAF #	RC-048
Date Received	2/9/06
# Samples	1
Matrix	Water
Volatiles	
Semivolatiles	
Pest/PCB	
PAH	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	
Inorganics	X

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

r:\group\pm\orlette\tnu-hanford\data\b_ltrs.doc

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD RCG-048 K0219

DATE RECEIVED: 02/09/06

LVL LOT # :0602L232

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J111V9						
BROMIDE BY IC	001	W	06LIC019	02/08/06	02/08/06	02/09/06
BROMIDE BY IC	001 REP	W	06LIC019	02/08/06	02/08/06	02/09/06
BROMIDE BY IC	001 MS	W	06LIC019	02/08/06	02/08/06	02/09/06
CHLORIDE BY IC	001	W	06LIC019	02/08/06	02/08/06	02/09/06
CHLORIDE BY IC	001 REP	W	06LIC019	02/08/06	02/08/06	02/09/06
CHLORIDE BY IC	001 MS	W	06LIC019	02/08/06	02/08/06	02/09/06
FLUORIDE BY IC	001	W	06LIC019	02/08/06	02/08/06	02/09/06
FLUORIDE BY IC	001 REP	W	06LIC019	02/08/06	02/08/06	02/09/06
FLUORIDE BY IC	001 MS	W	06LIC019	02/08/06	02/08/06	02/09/06
NITRITE BY IC	001	W	06LIC019	02/08/06	02/08/06	02/09/06
NITRITE BY IC	001 REP	W	06LIC019	02/08/06	02/08/06	02/09/06
NITRITE BY IC	001 MS	W	06LIC019	02/08/06	02/08/06	02/09/06
NITRATE BY IC	001	W	06LIC019	02/08/06	02/08/06	02/09/06
NITRATE BY IC	001 REP	W	06LIC019	02/08/06	02/08/06	02/09/06
NITRATE BY IC	001 MS	W	06LIC019	02/08/06	02/08/06	02/09/06
PHOSPHATE BY IC	001	W	06LIC019	02/08/06	02/08/06	02/09/06
PHOSPHATE BY IC	001 REP	W	06LIC019	02/08/06	02/08/06	02/09/06
PHOSPHATE BY IC	001 MS	W	06LIC019	02/08/06	02/08/06	02/09/06
SULFATE BY IC	001	W	06LIC019	02/08/06	02/08/06	02/09/06
SULFATE BY IC	001 REP	W	06LIC019	02/08/06	02/08/06	02/09/06
SULFATE BY IC	001 MS	W	06LIC019	02/08/06	02/08/06	02/09/06

1953
 2006
 2045
 2058
 2111
 2145

LAB QC:

BROMIDE BY IC	MB1	W	06LIC019	N/A	02/08/06	02/08/06
BROMIDE BY IC	MB1 BS	W	06LIC019	N/A	02/08/06	02/08/06
CHLORIDE BY IC	MB1	W	06LIC019	N/A	02/08/06	02/08/06
CHLORIDE BY IC	MB1 BS	W	06LIC019	N/A	02/08/06	02/08/06
FLUORIDE BY IC	MB1	W	06LIC019	N/A	02/08/06	02/08/06
FLUORIDE BY IC	MB1 BS	W	06LIC019	N/A	02/08/06	02/08/06
NITRITE BY IC	MB1	W	06LIC019	N/A	02/08/06	02/08/06
NITRITE BY IC	MB1 BS	W	06LIC019	N/A	02/08/06	02/08/06
NITRATE BY IC	MB1	W	06LIC019	N/A	02/08/06	02/08/06
NITRATE BY IC	MB1 BS	W	06LIC019	N/A	02/08/06	02/08/06
PHOSPHATE BY IC	MB1	W	06LIC019	N/A	02/08/06	02/08/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCG-048 K0219

DATE RECEIVED: 02/09/06

LVL LOT # :0602L232

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
PHOSPHATE BY IC	MB1 BS	W	06LIC019	N/A	02/08/06	02/08/06
SULFATE BY IC	MB1	W	06LIC019	N/A	02/08/06	02/08/06
SULFATE BY IC	MB1 BS	W	06LIC019	N/A	02/08/06	02/08/06



Analytical Report

Client: TNU-HANFORD RCG-048 K0219
LVL#: 0602L232

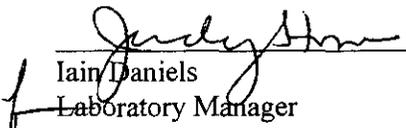
W.O.#: 11343-606-001-9999-00
Date Received: 02-09-06

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 water sample.
2. The sample was prepared and analyzed in accordance with the method checked on the attached glossary.

LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

3. Sample holding times as required by the method and/or contract were met (see the sample chronology summary for analyses times for short hold samples).
4. The results presented in this report are derived from a sample that met LvLI's sample acceptance policy.
5. The method blanks were within the method criteria.
6. The Laboratory Control Samples (LCS) were within the laboratory control limits.
7. The matrix spike recoveries for Bromide, Chloride, Fluoride, Nitrite, Nitrate, Phosphate and Sulfate were within the 75-125% control limits.
8. The replicate analyses for Bromide, Chloride, Fluoride, Nitrite, Nitrate, Phosphate and Sulfate were within the 20% Relative Percent Difference (RPD) control limit.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

3/16/06
Date

njp\02-232

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	<u>EPA /600</u>	<u>SW846</u>	<u>OTHER</u>
Acidity	305.1		
___Alkalinity ___Bicarbonate ___Carbonate	310.1		
BOD	405.1		5210B (b)
Ion Chromatography:			
✓Bromide ✓Chloride ✓Fluoride	300.0	9056	
✓Nitrate ✓Nitrite ✓Phosphate	300.0	9056	
✓Sulfate ___Formate ___Acetate ___Oxalate	300.0	9056	
Chloride	325.2	9251	
Chlorine, Residual	330.5 (mod)		
Cyanide, Amenable to Chlorination	335.2	9010B	
Cyanide, Total	335.2	9010B	9014 ILMO4.0 (e)
Cyanide, Weak Acid Dissociable			412 (a) 4500CN-I (I)
COD	410.4(mod)		5220C (b)
Color	110.2		
Corrosivity by Coupon		1110(mod)	
Chromium VI		7196A	3500Cr-D (b)
Fluoride	340.2		4500-FC
Hardness, Calcium	215.2		
Hardness, Total	130.2		
Iodide			ASTM D19P202 (I)
Surfactant	425.1		
___Nitrate-Nitrite ___Nitrate ___Nitrite	353.2		
Ammonia	350.3		
Total ___Kjeldahl ___Organic Nitrogen	351.3		
Total ___Organic ___Inorganic Carbon	415.1	9060	
Oil & Grease	413.1	9070	
___pH ___pH; paper	150.1	9040B	9041A
Petroleum Hydrocarbons, Total Recoverable	418.1		
Phenol	420.1	420.2	9065 9066
___Ortho ___Total Phosphate	365.2		4500-P B C
Salinity			210A (a) 2520 (b)
Settleable Solids	160.5		
Sulfide	376.1		9030B/9034 (acid soluble)
Reactive ___Cyanide ___Sulfide		Section 7.3	(9014 9030B)
Silica	370.1		
Sulfite	377.1		
Sulfate	375.4	9038	
Specific Conductance	120.1	9050A	
Specific Gravity			D5057-90 213E (a)
Synthetic Precipitation Leach		1312	
Total ___Dissolved ___Suspended ___Solids	160 ___1 ___2 ___3		
Total Organic Halides	450.1	9020B	
Turbidity	180.1		
Volatile Solids:			
___Total ___Dissolved ___Suspended	160.4		
Other:		Method:	

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- * = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

- MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.
2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
 - a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
 - b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
 - c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
 - d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
 - e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
 - f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/22/06

CLIENT: TNUHANFORD RCG-048 K0219
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0602L232

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J111V9	Bromide by IC	0.51	MG/L	0.25	1.0
		Chloride by IC	7.7	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	76.5	MG/L	2.50	10.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	29.2	MG/L	2.5	10.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/22/06

CLIENT: TNUHANFORD RCG-048 K0219
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0602L232

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	06LIC019-MB1	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/22/06

CLIENT: TNUHANFORD RCG-048 K0219
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0602L232

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	J111V9	Bromide by IC	9.2	0.51	10.0	86.7	2.0
		Chloride by IC	16.7	7.7	10.0	90.1	2.0
		Fluoride by IC	9.9	0.24	10.0	96.5	2.0
		Nitrite by IC	10.3	0.25u	10.0	103.3	2.0
		Nitrate by IC	193	76.5	100	116.4	20.0
		Phosphate by IC	9.2	0.25u	10.0	92.5	2.0
		Sulfate by IC	139	29.2	100	109.3	20.0
BLANK10	06LIC019-MB1	Bromide by IC	4.9	0.25u	5.0	97.4	1.0
		Chloride by IC	4.7	0.25u	5.0	94.6	1.0
		Fluoride by IC	4.9	0.25u	5.0	97.5	1.0
		Nitrite by IC	4.98	0.25u	5.00	99.6	1.0
		Nitrate by IC	4.76	0.25u	5.00	95.3	1.0
		Phosphate by IC	5.3	0.25u	5.0	105.5	1.0
		Sulfate by IC	4.9	0.25u	5.0	98.1	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/22/06

CLIENT: TNUHANFORD RCG-048 K0219
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0602L232

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE RPD		DILUTION FACTOR (REP)
-001REP	J111V9	Bromide by IC	0.51	0.48	6.9	1.0
		Chloride by IC	7.7	7.4	4.9 <i>not used</i>	1.0
		Fluoride by IC	0.25u	0.26	NC 7.7	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	76.5	80.4	5.0	10.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	29.2	31.0	5.9	10.0

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			RC-048-192	Page 2 of 2
Collector <i>R. R. FOX</i>	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH		Price Code 7N	Data Turnaround 45 Days
Project Destination 100 Area and 300 Area Component of the RCBRA Water Sa		Sampling Location <i>199-FB-3</i>		SAF No. RC-048	Air Quality <input type="checkbox"/>	

Ice Chest No. <i>AFS-04-051</i>	Field Logbook No. EL-1592	COA BESRAS6520	Method of Shipment FED EX			
Shipped To EBERLINE SERVICES / <u>LIONVILLE</u>		Offsite Property No. <i>A060284</i>		Bill of Lading/Air Bill No. SEE OSCP		

POSSIBLE SAMPLE HAZARDS/REMARKS POTENTIAL RADIOACTIVE < DOT LIMITS Special Handling and/or Storage <i>Cool 4°C</i>	Preservation	Cool 4C	H2SO4 to pH <2 Cool 4C								
	Type of Container	P	G/P								
	No. of Container(s)	1	1								
	Volume	500mL	500mL								

SAMPLE ANALYSIS		See item #2 in Special Instructions	NO2/NO3 - 353.2								
-----------------	--	-------------------------------------	-----------------	--	--	--	--	--	--	--	--

Sample No.	Matrix *	Sample Date	Sample Time								
J111V9	WATER	<i>2-8-06</i>	<i>1001</i>	X							

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix * S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solid DL=Drum Liquid T=Tissue WL=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From <i>R. R. FOX</i>	Date/Time <i>1105</i> FEB 08 2006	Received By/Stored In <i>WCH</i> <i>SKALE/AR</i>	Date/Time <i>1105</i> FEB 08 2006	3 <i>DL/1906</i> (1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)		
Relinquished By/Removed From <i>WCH</i>	Date/Time <i>2906</i> 2906 1145	Received By/Stored In <i>FED EX</i>	Date/Time			
Relinquished By/Removed From <i>WCH</i>	Date/Time <i>2906</i> 2-9-06/0925	Received By/Stored In <i>DL/Smith</i>	Date/Time <i>2906</i> 2-9-06/0925			
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time			
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time			

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

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hamford

Date: 2.9.06

Purchase Order / Project# /
 SAF# / SOW# / Release #: RC-048

LvLI Batch #: 06024232

Sample Custodian: D. Smith

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|---|--|
| 1. Samples Hand Delivered or <u>Shipped</u> | Carrier <u>Fed Ex</u> | Airbill# <u>7908 0745 5726</u> |
| 2. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals Comments |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received <u>cooled</u> or ambient?
<u>IR</u> | Temp <u>1.7</u> °C | Cooler # <u>AFS-04-051</u> |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 7. coc signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on coc received? All samples received on coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times? Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 13. VOA, TOC, TOX free of headspace? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 14. QC stickers placed on bottles designated by client? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> No Discrepancies |

SR-002-B





Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RCG-048 K0219

DATE RECEIVED: 02/10/06

LVL LOT # :0602L240

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J111V9	001	W	06LE0127	02/08/06	02/17/06	02/22/06
J111V9	001 MS	W	06LE0127	02/08/06	02/17/06	03/01/06
J111V9	001 MSD	W	06LE0127	02/08/06	02/17/06	02/24/06

LAB QC:

SBLKTY	MB1	W	06LE0127	N/A	02/17/06	02/22/06
SBLKTY	MB1 BS	W	06LE0127	N/A	02/17/06	02/22/06
SBLKTY	MB1 BSD	W	06LE0127	N/A	02/17/06	02/22/06

00000001



Case Narrative

Client: TNU-HANFORD RCG-048
LVL #: 0602L240
SDG/SAF # K0219/RCG-048

W.O. #: 11343-606-001-9999-00
Date Received: 02-10-2006

SEMIVOLATILE

One (1) water sample was collected on 02-08-2006.

The sample and its associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3520C on 02-17-2006 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 02-22,24-2006 and 03-01-2006.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from a sample that met LVL's sample acceptance policy.
2. The sample was extracted and analyzed within required holding time.
3. Non-target compounds were detected in the sample.
4. All surrogate recoveries were within acceptance criteria.
5. Five (5) of one hundred twenty-eight (128) matrix spike recoveries were outside acceptance criteria.

Three (3) of one hundred twenty-eight (128) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

6. The method blank contained the common laboratory contaminant Bis (2-Ethylhexyl) phthalate at a level less than the CRQL.
7. Internal standard area and retention time criteria were met.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 15 pages.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 06M5069

Initiator: Robert Caden
 Date: 3/3/16
 Client: TNU RCG019

Batch: 0602240
 Samples: 015, B5
 Method: SW846/MCA/WW/CLEP/

Parameter: 0625H
 Matrix: WATER
 Prep Batch: 06LEUM

1. Reason for SDR

a. COC Discrepancy Tech Profile Error Client Request Sampler Error on C-O-C
 Transcription Error Wrong Test Code Other _____

b. General Discrepancy

Missing Sample/Extract Container Broken Wrong Sample Pulled Label ID's Illegible
 Hold Time Exceeded Insufficient Sample Preservation Wrong Received Past Hold
 Improper Bottle Type Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

015 - 4 chromaniline spike recovery at lab q limits 15% (20-100%) Ok in MSD
 B5 - 2,4-dimethylphenol spike recovery at lab q limits 49% (50-100%) ok in MSD
Several spikes biased high

2. Known or Probable Causes(s)

Not an extraction problem all other spike/surrogate recoveries are very good. These compts are subject to erratic chromatographic behavior especially if the GC is contaminated with high boiling material. All within qsm limits

3. Discussion and Proposed Action

Other Description: Narrate

- Re-log
- Entire Batch
- Following Samples: _____
- Re-leach
- Re-extract
- Re-digest
- Revise EDD
- Change Test Code to _____
- Place On/Take Off Hold (circle)

4. Project Manager Instructions...signature/date:

- Concur with Proposed Action
- Disagree with Proposed Action; See Instruction
- Include in Case Narrative
- Client Contacted:
- Date/Person _____
- Add
- Cancel

5. Final Action...signature/date:

- Verified re-[log][leach][extract][digest][analysis] (circle)
- Included in Case Narrative
- Hard Copy COC Revised
- Electronic COC Revised
- EDD Corrections Completed

Other Explanation: _____

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route Distribution of Completed SDR
 Initiator
 Lab General Manager: M. Taylor
 Project Mgr. Stone/Johnson
 Data Management: Stilwell
 Sample Prep: Beegle/Kiger

Route Distribution of Completed SDR
 Metals: Beegle
 Inorganic: Perrone
 GC/LC: Kiger
 MS: Rychlak/Daley
 Log-in: Perry
 Admin: _____
 Other: _____

GLOSSARY

DATA QUALIFIERS

- U** = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J** = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D** = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I** = Interference.
- NQ** = Result qualitatively confirmed but not able to quantify.
- N** = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X** = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y** = Additional qualifiers used as required are explained in the case narrative.

GLOSSARY

ABBREVIATIONS

- BS** = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD** = Indicates blank spike duplicate.
- MS** = Indicates matrix spike.
- MSD** = Indicates matrix spike duplicate.
- DL** = Suffix added to sample number to indicate that results are from a diluted analysis.
- NA** = Not Applicable.
- DF** = Dilution Factor.
- NR** = Not Required.
- SP, Z** = Indicates Spiked Compound.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following 'flags' are used to indicate the technical reasons for quan modifications:

- MP - **Missed Peak:** Manually added peak not found by automatic quan program.
- PA - **Peak Assignment:** Quan report was changed to reflect correct peak assignment.
- RI - **Routine Integration:** Routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the Dichlorobenzene isomers on the VOA packed column and Benzo (b) fluoranthene /Benzo (k) fluoranthene which are poorly resolve on the BNA column.
- SP - **Split Peak:** The automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB - **Co-elution/ Background:** Peak was manually integrated to eliminate contribution from co-eluting compounds, background signal, or other interference.
- PI - **Proper Integration:** A peak with poor or inconsistent integration (i.e., excessive tail) was properly integrated manually.

LVL-21-21-015/A-08/93



00000007

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 03/02/06 12:42

RFW Batch Number: 0602L240

Client: TNOHANFORD RCG-048 K0219

Work Order: 11343606001

Page: 1a

	Cust ID:	J111V9	J111V9	J111V9	SBLKTY	SBLKTY BS	SBLKTY BSD
Sample Information	RFW#:	001	001 MS	001 MSD	06LE0127-MB1	06LE0127-MB1	06LE0127-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate	Nitrobenzene-d5	70 %	81 %	78 %	82 %	54 %	61 %
Recovery	2-Fluorobiphenyl	63 %	73 %	79 %	78 %	71 %	81 %
	Terphenyl-d14	86 %	72 %	89 %	105 %	73 %	84 %
	Phenol-d5	65 %	69 %	75 %	84 %	72 %	83 %
	2-Fluorophenol	56 %	83 %	64 %	88 %	80 %	91 %
	2,4,6-Tribromophenol	78 %	81 %	81 %	67 %	74 %	85 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====							
	Phenol	10 U	84 %	80 %	10 U	82 %	98 %
	bis(2-Chloroethyl) ether	10 U	91 %	83 %	10 U	81 %	96 %
	2-Chlorophenol	10 U	89 %	85 %	10 U	82 %	97 %
	1,3-Dichlorobenzene	10 U	69 %	76 %	10 U	64 %	80 %
	1,4-Dichlorobenzene	10 U	68 %	77 %	10 U	63 %	80 %
	1,2-Dichlorobenzene	10 U	72 %	83 %	10 U	67 %	84 %
	2-Methylphenol	10 U	83 %	77 %	10 U	75 %	88 %
	2,2'-oxybis(1-Chloropropane)	10 U	84 %	84 %	10 U	81 %	95 %
	4-Methylphenol	10 U	84 %	78 %	10 U	77 %	91 %
	N-Nitroso-di-n-propylamine	10 U	96 %	86 %	10 U	78 %	90 %
	Hexachloroethane	10 U	65 %	71 %	10 U	60 %	74 %
	Nitrobenzene	10 U	87 %	81 %	10 U	59 %	69 %
	Isophorone	10 U	98 %	89 %	10 U	67 %	77 %
	2-Nitrophenol	10 U	89 %	81 %	10 U	55 %	65 %
	2,4-Dimethylphenol	10 U	87 %	83 %	10 U	49 * %	55 %
	bis(2-Chloroethoxy) methane	10 U	54 %	80 %	10 U	63 %	74 %
	2,4-Dichlorophenol	10 U	94 %	76 %	10 U	60 %	70 %
	1,2,4-Trichlorobenzene	10 U	78 %	72 %	10 U	52 %	64 %
	Naphthalene	10 U	79 %	79 %	10 U	54 %	65 %
	4-Chloroaniline	10 U	15 * %	27 %	10 U	77 %	91 %
	Hexachlorobutadiene	10 U	82 %	71 %	10 U	53 %	66 %
	4-Chloro-3-methylphenol	10 U	94 %	78 %	10 U	59 %	71 %
	2-Methylnaphthalene	10 U	88 %	86 %	10 U	60 %	70 %
	Hexachlorocyclopentadiene	10 U	58 %	68 %	10 U	45 %	60 %
	2,4,6-Trichlorophenol	10 U	91 %	84 %	10 U	83 %	100 %
	2,4,5-Trichlorophenol	25 U	90 %	79 %	25 U	80 %	97 %

*= Outside of EPA CLP QC limits.

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	Cust ID:	J111V9	J111V9	J111V9	SBLKTY	SBLKTY BS	SBLKTY BSD
RFW#:	001	001 MS	001 MSD	06LE0127-MB1	06LE0127-MB1	06LE0127-MB1	
2-Chloronaphthalene	10 U	81 %	84 %	10 U	79 %	94 %	
2-Nitroaniline	25 U	91 %	91 %	25 U	79 %	98 %	
Dimethylphthalate	10 U	91 %	87 %	10 U	88 %	105 %	
Acenaphthylene	10 U	71 %	84 %	10 U	80 %	94 %	
2,6-Dinitrotoluene	10 U	90 %	84 %	10 U	85 %	103 %	
3-Nitroaniline	25 U	33 %	112 %	25 U	99 %	118 %	
Acenaphthene	10 U	84 %	89 %	10 U	80 %	97 %	
2,4-Dinitrophenol	25 U	125 * %	112 * %	25 U	58 %	64 %	
4-Nitrophenol	25 U	91 %	79 %	25 U	74 %	92 %	
Dibenzofuran	10 U	87 %	86 %	10 U	83 %	99 %	
2,4-Dinitrotoluene	10 U	97 %	93 %	10 U	88 %	109 %	
Diethylphthalate	10 U	94 %	88 %	10 U	89 %	109 %	
4-Chlorophenyl-phenylether	10 U	89 %	83 %	10 U	84 %	102 %	
Fluorene	10 U	86 %	96 %	10 U	81 %	98 %	
4-Nitroaniline	25 U	43 %	105 * %	25 U	91 %	112 * %	
4,6-Dinitro-2-methylphenol	25 U	99 %	102 %	25 U	74 %	92 %	
N-Nitrosodiphenylamine (1)	10 U	24 %	70 %	10 U	64 %	77 %	
4-Bromophenyl-phenylether	10 U	77 %	81 %	10 U	72 %	87 %	
Hexachlorobenzene	10 U	86 %	92 %	10 U	82 %	99 %	
Pentachlorophenol	25 U	121 * %	103 %	25 U	92 %	112 * %	
Phenanthrene	10 U	86 %	93 %	10 U	83 %	99 %	
Anthracene	10 U	84 %	93 %	10 U	82 %	100 %	
Carbazole	10 U	38 %	92 %	10 U	85 %	103 %	
Di-n-butylphthalate	0.9 J	90 %	92 %	10 U	87 %	104 %	
Fluoranthene	10 U	92 %	93 %	10 U	89 %	107 %	
Pyrene	10 U	77 %	91 %	10 U	74 %	89 %	
Butylbenzylphthalate	10 U	89 %	95 %	10 U	85 %	102 %	
3,3'-Dichlorobenzidine	10 U	0 %	9 %	10 U	69 %	85 %	
Benzo(a)anthracene	10 U	83 %	91 %	10 U	83 %	101 %	
Chrysene	10 U	83 %	91 %	10 U	83 %	100 %	
bis(2-Ethylhexyl)phthalate	4 JB	89 %	90 %	1 J	87 %	105 %	
Di-n-octyl phthalate	10 U	121 %	105 %	10 U	85 %	103 %	
Benzo(b)fluoranthene	10 U	108 %	115 %	10 U	85 %	99 %	
Benzo(k)fluoranthene	10 U	103 %	96 %	10 U	83 %	106 %	
Benzo(a)pyrene	10 U	90 %	102 %	10 U	81 %	99 %	
Indeno(1,2,3-cd)pyrene	10 U	112 %	123 %	10 U	85 %	101 %	
Dibenz(a,h)anthracene	10 U	113 %	121 %	10 U	85 %	94 %	
Benzo(g,h,i)perylene	10 U	106 %	115 %	10 U	82 %	99 %	

(1) - Cannot be separated from Diphenylamine. * = Outside of EPA CLP QC limits.

68989898

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J111V9

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD RCG-048 K0219

Matrix: (soil/water) WATER

Lab Sample ID: 0602L240-001

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: J022213

Level: (low/med) LOW

Date Received: 02/10/06

% Moisture: decanted: (Y/N)

Date Extracted: 02/17/06

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 02/22/06

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

CONCENTRATION UNITS:

Number TICs found: 5

(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110-82-7	CYCLOHEXANE	5.258	70	JN
2.	UNKNOWN	5.310	10	J
3.	UNKNOWN	5.434	20	J
4.	UNKNOWN	21.556	50	J
5. 314-40-9	BROMACIL	23.824	200	JN

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKTY

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD RCG-048 K0219

Matrix: (soil/water) WATER

Lab Sample ID: 06LE0127-MB1

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: D022203

Level: (low/med) LOW

Date Received: 02/17/06

% Moisture: decanted: (Y/N)

Date Extracted: 02/17/06

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 02/22/06

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

CONCENTRATION UNITS:

Number TICs found: 1

(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.529	20	J

Washington Closure Hanford			CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST							RC-048-192		Page 1 of 2					
Collector DETECT			Company Contact JOAN KESSNER		Telephone No. 375-4688		Project Coordinator KESSNER, JH		Price Code 7N		Data Turnaround 45 Days						
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa			Sampling Location 199-FB-3		SAF No. RC-048		Air Quality <input type="checkbox"/>										
Ice Chest No. SML-363			Field Logbook No. EL-1592		COA BESRAS6520		Method of Shipment FED EX										
Shipped To EBERLINE SERVICES LIONVILLE			Offsite Property No. A060285		Bill of Lading/Air Bill No. SEE OSPC												
POSSIBLE SAMPLE HAZARDS/REMARKS POTENTIAL RADIOACTIVE < DOT LIMITS Special Handling and/or Storage Cool 40C				Preservation		None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C		
				Type of Container		P	G/P	G/P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
				No. of Container(s)		1	1	2	1	2	1	1	1	1	3	2	3
				Volume		125mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS				Tritium - H3		See item (1) in Special Instructions.	Strontium-89,90 - Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium-226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081			
				Sample No.		Matrix *		Sample Date		Sample Time							
J111V9		WATER		2-8-06		1001						X		X			
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *					
Relinquished By/Removed From DETECT		Date/Time FEB 08 2006 1055		Received By/Stored In JOAN KESSNER		Date/Time FEB 08 2006 1145		(1) Gamma Spec - (Full List) (Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238) (2) ICP Metals - 6010 (Full List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc); Mercury - 7470 - (CV) Personnel not available to Relinquish samples from 3728 Ref # 2A on 2/9/06				S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solid DL=Drum Liquid T=Tissue W=Wipe L=Liquid V=Vegetation X=Other					
Relinquished By/Removed From SJGALEN		Date/Time 2-8-06 1145		Received By/Stored In REF 2A		Date/Time 2-8-06 1145											
Relinquished By/Removed From 3728/2A		Date/Time 2-9-06 1045		Received By/Stored In RZ Steffler R.J. Steffler		Date/Time 2-9-06											
Relinquished By/Removed From RZ Steffler R.J. Steffler		Date/Time 2-9-06 1500		Received By/Stored In FED EX		Date/Time 2-9-06											
Relinquished By/Removed From ED ED		Date/Time 2-10-06 0930		Received By/Stored In RJ Steffler		Date/Time 2-10-06 0930											
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time											
LABORATORY SECTION		Received By		Title				Date/Time									
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time									

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-048-192	Page 2 of 2
Collector JL FORK	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH		Price Code 7N	Data Turnaround 45 Days	
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa		Sampling Location 199-F8-3		SAF No. RC-048	Air Quality <input type="checkbox"/>		
Ice Chest No. SML-363	Field Logbook No. EL-1592	COA BESRAS6520		Method of Shipment FED EX			
Shipped To EBERLINE SERVICES (LIONVILLE)		Offsite Property No. A060285		Bill of Lading/Air Bill No. SEE OSPC			
POSSIBLE SAMPLE HAZARDS/REMARKS POTENTIAL RADIOACTIVE < DOT LIMITS				Preservation	Cool 4C	H2SO4 to pH <2 Cool 4C	
Special Handling and/or Storage Cool 4°C				Type of Container	P	G/P	
				No. of Container(s)	1	1	
				Volume	500mL	500mL	
SAMPLE ANALYSIS				See item (1) in Special Instructions.	NO2/NO3 - 353.2		
Sample No.	Matrix *	Sample Date	Sample Time				
J111V9	WATER	2-8-06	1001		X		
CHAIN OF POSSESSION				Sign/Print Names		SPECIAL INSTRUCTIONS	
Relinquished By/Removed From JL FORK	Date/Time 10 5 FEB 08 2006	Received By/Stored In SCALE MAL	Date/Time 105 FEB 08 2006	(1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)		Matrix *	
Relinquished By/Removed From SCALE MAL	Date/Time 2806 1145	Received By/Stored In REF 2A	Date/Time 2806 1145	Personnel not available to relinquish samples from 3728 Ref# 2A on 2-9-06		S=Soil SE=Sediment SO=Solid Sl=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue Wl=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From 3728/2A	Date/Time 2-9-06 11045	Received By/Stored In RZ Steffler R.Z. Steffler	Date/Time 1045 2-9-06				
Relinquished By/Removed From RZ Steffler R.Z. Steffler	Date/Time 1500 2-9-06	Received By/Stored In FED EX	Date/Time				
Relinquished By/Removed From FED EX	Date/Time 2-10-06 0930	Received By/Stored In	Date/Time 2-10-06 0930				
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time				
LABORATORY SECTION	Received By	Title		Date/Time			
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By		Date/Time			

BIBB00014

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: *TNU-HANFOR*

Date: *2-10-06*

Purchase Order / Project# /
 SAF# / SOW# / Release #: *RC-048*

LvLI Batch #: *06026240*

Sample Custodian: *[Signature]*

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|---|--|
| 1. Samples Hand Delivered <u>or Shipped</u> | Carrier <i>FedEx</i> | Airbill# <i>79185685 0152</i> |
| 2. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals Comments |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received <u>cooled</u> or ambient?
<i>IR</i> | Temp <i>4.1</i> °C | Cooler # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 7. coc signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on coc received? All samples received on coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times? Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 13. VOA, TOC, TOX free of headspace? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 14. QC stickers placed on bottles designated by client? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> No Discrepancies |



Well Name	Media	Sample Number	Filter	Sample Date	Analytical Method	Constituent Name	Analytical Result	Analytical Units	Lab Qualifier
199-H4-49	GW	B06CP6	N	6/4/92	CLP_METALS_ICP	Chromium	87.9	ug/L	
199-H4-49	GW	B06CP7	Y	6/4/92	CLP_METALS_ICP	Chromium	26.5	ug/L	
199-H4-49	GW	B072H4	N	8/3/92	CLP_METALS_ICP	Chromium	45.3	ug/L	
199-H4-49	GW	B072H7	Y	8/3/92	CLP_METALS_ICP	Chromium	7.8	ug/L	B
199-H4-49	GW	B07L80	N	10/30/92	CLP_METALS_ICP	Chromium	66.1	ug/L	
199-H4-49	GW	B07L83	Y	10/30/92	CLP_METALS_ICP	Chromium	46.2	ug/L	
199-H4-49	GW	B084Z1	N	3/5/93	CLP_METALS_ICP	Chromium	30.1	ug/L	
199-H4-49	GW	B084Z2	Y	3/5/93	CLP_METALS_ICP	Chromium	26.6	ug/L	
199-H4-49	GW	B091M9	N	8/26/93	CLP_METALS_ICP	Chromium	9	ug/L	B
199-H4-49	GW	B091N0	Y	8/26/93	CLP_METALS_ICP	Chromium	7.8	ug/L	U
199-H4-49	GW	B09WZ5	N	2/8/94	CLP_METALS_ICP	Chromium	26.6	ug/L	
199-H4-49	GW	B09WZ6	Y	2/8/94	CLP_METALS_ICP	Chromium	25.4	ug/L	
199-H4-49	GW	B0CJH7	N	7/27/94	CLP_METALS_ICP	Chromium	11.3	ug/L	U
199-H4-49	GW	B0CJH8	Y	7/27/94	CLP_METALS_ICP	Chromium	5.3	ug/L	U
199-H4-49	GW	B0DHM3	N	12/20/94	6010_METALS_ICP	Chromium	48	ug/L	
199-H4-49	GW	B0DHM4	Y	12/20/94	6010_METALS_ICP	Chromium	43.1	ug/L	
199-H4-49	GW	B0G063	N	7/13/95	6010_METALS_ICP	Chromium	57	ug/L	
199-H4-49	GW	B0G064	Y	7/13/95	6010_METALS_ICP	Chromium	49.7	ug/L	
199-H4-49	GW	B0GZ36	N	12/12/95	6010_METALS_ICP	Chromium	50.5	ug/L	
199-H4-49	GW	B0GZ37	Y	12/12/95	6010_METALS_ICP	Chromium	50.7	ug/L	
199-H4-49	GW	B0M890	N	11/10/97	6010_METALS_ICP	Chromium	37.4	ug/L	
199-H4-49	GW	B0M889	Y	11/10/97	6010_METALS_ICP	Chromium	35.6	ug/L	
199-H4-49	GW	B0WR97	N	11/3/99	6010_METALS_ICP	Chromium	7.1	ug/L	B
199-H4-49	GW	B0WR96	Y	11/3/99	6010_METALS_ICP	Chromium	7.1	ug/L	B
199-H4-49	GW	B10M88	Y	11/7/00	6010_METALS_ICP	Chromium	12.6	ug/L	
199-H4-49	GW	B139R8	Y	11/6/01	6010_METALS_ICP	Chromium	18.8	ug/L	
199-H4-49	GW	B139R9	N	11/6/01	6010_METALS_ICP	Chromium	16.4	ug/L	
199-H4-49	GW	B15TF7	Y	11/1/02	6010_METALS_ICP	Chromium	3.4	ug/L	U
199-H4-49	GW	B17YF4	Y	3/2/04	6010_METALS_ICP	Chromium	4.4	ug/L	U
199-H4-49	GW	B17YF5	N	3/2/04	6010_METALS_ICP	Chromium	6.2	ug/L	B
199-H4-49	GW	B1BN94	Y	11/12/04	6010_METALS_ICP	Chromium	4.2	ug/L	B
199-H4-49	GW	B1F9C6	N	12/27/05	6010_METALS_ICP	Chromium	8	ug/L	B
199-H4-49	GW	B1F9T0	Y	12/27/05	6010_METALS_ICP	Chromium	6.2	ug/L	B



EBERLINE
SERVICES



April 14, 2006

Ms. Joan Kessner
Washington Closure Hanford
3190 George Washington Way
MSIN H9-02
Richland, WA 99352

Reference: **P.O. #630**
Eberline Services R6-02-073-7383, SDG K0219

Dear Ms. Kessner:

Enclosed is the data report for one water sample designated under SAF No. RC-048. The sample was received at Eberline Services on February 10, 2006. The sample was analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

Analytical Services
2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K0219 was composed of one water sample designated under SAF No. RC-048 with a Project Designation of: 100 Area and 300 Area Component of the RCBRA Water Sa.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. All results were transmitted to WCH via e-mail on April 11, 2006.

2.0 ANALYSIS NOTES

2.1 Tritium Analysis

No problems were encountered during the course of the analyses.

2.2 Total Strontium Analysis

No problems were encountered during the course of the analyses.

2.3 Radium-226 Analysis

No problems were encountered during the course of the analyses.

2.4 Radium-228 Analysis

No problems were encountered during the course of the analyses.

2.5 Isotopic Thorium Analysis

No problems were encountered during the course of the analyses.

2.6 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

2.7 Gamma Spectroscopy

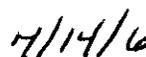
No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."



Melissa C. Mannion
Senior Program Manager



Date

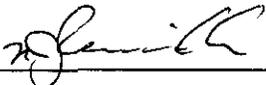
EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K0219

SDG 7383
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG K0219

S U M M A R Y D A T A S E C T I O N

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Prepared by


Reviewed by

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 04/11/06

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0219

SDG 7383
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0219

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRINE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/11/06

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0219

SDG 7383
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG K0219

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

REPORT GUIDES

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SUMMARY DATA SECTION

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Version Ver 1.0
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0219

SAMPLE SUMMARY

SDG 7383
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG K0219

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
J111V9	199-F8-3	WATER		R602073-01	RC-048	RC-048-192	02/08/06 10:01
Method Blank		WATER		R602073-03	RC-048		
Lab Control Sample		WATER		R602073-02	RC-048		
Duplicate (R602073-01)	199-F8-3	WATER		R602073-04	RC-048		02/08/06 10:01
Spike (R602073-01)	199-F8-3	WATER		R602073-05	RC-048		02/08/06 10:01

SAMPLE SUMMARY

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Form DVD-CS
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0219

SDG 7383
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG K0219

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7383	RC-048-192	J111V9	WATER		6.79 L		02/10/06	2	R602073-01	7383-001
		Method Blank	WATER						R602073-03	7383-003
		Lab Control Sample	WATER						R602073-02	7383-002
		Duplicate (R602073-01)	WATER		6.79 L		02/10/06	2	R602073-04	7383-004
		Spike (R602073-01)	WATER		6.79 L		02/10/06	2	R602073-05	7383-005

QC SUMMARY

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-QS
 Version 3.06
 Report date 04/11/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0219

SDG 7383
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG K0219

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI-	
			BATCH	2σ %	CLIENT	MORE	RE BLANK	LCS		DUP/ORIG	MS/ORIG	FIERS
Alpha Spectroscopy										
TH	WATER	Thorium, Isotopic in Water	7131-090	5.0	1		1	1	1/1	
U	WATER	Uranium, Isotopic in Water	7131-090	5.0	1		1	1	1/1	
Beta Counting										
AC	WATER	Radium 228 in Water	7131-090	5.0	1		1	1	1/1	
SR	WATER	Total Strontium in Water	7131-090	10.0	1		1	1	1/1	
Gamma Scan										
GAM	WATER	Gamma Emitters	7131-090	15.0	1		1	1	1/1	
Liquid Scintillation Counting										
H	WATER	Tritium in Water	7131-090	10.0	1		1	1	1/1	1/1 X
Radon Counting										
RA	WATER	Radium 226 in Water	7131-090	5.0	1		1	1	1/1	

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
 Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0219

SDG 7383
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG K0219

WORK SUMMARY

CLIENT SAMPLE ID	LAB SAMPLE ID									
LOCATION	MATRIX	COLLECTED		SUF-						
CUSTODY	SAF No	RECEIVED	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD	
J111V9		R602073-01	7383-001	AC		03/22/06	04/03/06	MWT	Radium 228 in Water	
199-F8-3		02/08/06	7383-001	GAM		03/16/06	03/22/06	CSS	Gamma Emitters	
RC-048-192	RC-048	02/10/06	7383-001	H		03/23/06	03/30/06	MWT	Tritium in Water	
			7383-001	RA		03/27/06	03/28/06	MWT	Radium 226 in Water	
			7383-001	SR		03/15/06	03/22/06	MWT	Total Strontium in Water	
			7383-001	TH		03/25/06	03/27/06	MWT	Thorium, Isotopic in Water	
			7383-001	U		03/21/06	03/22/06	MWT	Uranium, Isotopic in Water	
Method Blank		R602073-03	7383-003	AC		03/22/06	04/03/06	MWT	Radium 228 in Water	
			7383-003	GAM		03/16/06	03/22/06	CSS	Gamma Emitters	
	RC-048		7383-003	H		03/23/06	03/30/06	MWT	Tritium in Water	
			7383-003	RA		03/27/06	03/28/06	MWT	Radium 226 in Water	
			7383-003	SR		03/15/06	03/22/06	MWT	Total Strontium in Water	
			7383-003	TH		03/22/06	03/27/06	MWT	Thorium, Isotopic in Water	
			7383-003	U		03/21/06	03/22/06	MWT	Uranium, Isotopic in Water	
Lab Control Sample		R602073-02	7383-002	AC		03/22/06	04/03/06	MWT	Radium 228 in Water	
			7383-002	GAM		03/16/06	03/22/06	CSS	Gamma Emitters	
	RC-048		7383-002	H		03/23/06	03/30/06	MWT	Tritium in Water	
			7383-002	RA		03/27/06	03/28/06	MWT	Radium 226 in Water	
			7383-002	SR		03/15/06	03/22/06	MWT	Total Strontium in Water	
			7383-002	TH		03/22/06	03/27/06	MWT	Thorium, Isotopic in Water	
			7383-002	U		03/21/06	03/22/06	MWT	Uranium, Isotopic in Water	
Duplicate (R602073-01)		R602073-04	7383-004	AC		03/22/06	04/03/06	MWT	Radium 228 in Water	
199-F8-3		02/08/06	7383-004	GAM		03/20/06	03/22/06	CSS	Gamma Emitters	
RC-048		02/10/06	7383-004	H		03/23/06	03/30/06	MWT	Tritium in Water	
			7383-004	RA		03/27/06	03/28/06	MWT	Radium 226 in Water	
			7383-004	SR		03/15/06	03/22/06	MWT	Total Strontium in Water	
			7383-004	TH		03/23/06	03/27/06	MWT	Thorium, Isotopic in Water	
			7383-004	U		03/21/06	03/22/06	MWT	Uranium, Isotopic in Water	
Spike (R602073-01)		R602073-05	7383-005	H		03/23/06	03/30/06	MWT	Tritium in Water	
199-F8-3		02/08/06								
RC-048		02/10/06								

WORK SUMMARY

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0219

SDG 7383
 Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
 Contract No. 630
 Case no SDG K0219

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
AC	RC-048	Radium 228 in Water	RAISO_SEP_GPC	1			1	1	1		4
GAM	RC-048	Gamma Emitters	GAMMA_GS	1			1	1	1		4
H	RC-048	Tritium in Water	906.0_H3_LSC	1			1	1	1	1	5
RA	RC-048	Radium 226 in Water	903.1_RA226_LUC	1			1	1	1		4
SR	RC-048	Total Strontium in Water	SRTOT_SEP_PRECIP_GPC	1			1	1	1		4
TH	RC-048	Thorium, Isotopic in Water	THISO_IE_PLATE_AEA	1			1	1	1		4
U	RC-048	Uranium, Isotopic in Water	UIISO_PLATE_AEA	1			1	1	1		4
TOTALS				7			7	7	7	1	29

WORK SUMMARY

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K0219

R602073-03

Method Blank

METHOD BLANK

SDG <u>7383</u>	Client/Case no <u>Hanford</u>	<u>SDG K0219</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R602073-03</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7383-003</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>RC-048</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Tritium	10028-17-8	-1550	1400	2600	400	U	H
Total Strontium	SR-RAD	-0.083	0.32	0.68	2.0	U	SR
Radium 228	15262-20-1	-0.252	0.86	1.9	3.0	U	AC
Thorium 228	14274-82-9	0.058	0.17	0.32		U	TH
Thorium 230	14269-63-7	-0.087	0.12	0.28	1.0	U	TH
Thorium 232	TH-232	0	0.058	0.22	1.0	U	TH
Uranium 233/234	U-233/234	0	0.029	0.11	1.0	U	U
Uranium 235	15117-96-1	0	0.035	0.13	1.0	U	U
Uranium 238	U-238	-0.014	0.029	0.11	1.0	U	U
Radium-226	13982-63-3	0.102	0.38	0.69	2.0	U	RA
Potassium 40	13966-00-2	U		700		U	GAM
Cobalt 60	10198-40-0	U		25	25	U	GAM
Cesium 137	10045-97-3	U		23	15	U	GAM
Radium 226	13982-63-3	U		57		U	GAM
Radium 228	15262-20-1	U		120		U	GAM
Europium 152	14683-23-9	U		62	50	U	GAM
Europium 154	15585-10-1	U		74	50	U	GAM
Europium 155	14391-16-3	U		73	50	U	GAM
Thorium 228	14274-82-9	U		38		U	GAM
Thorium 232	TH-232	U		120		U	GAM
Uranium 235	15117-96-1	U		100		U	GAM
Uranium 238	U-238	U		2700		U	GAM
Americium 241	14596-10-2	U		200		U	GAM
Beryllium 7	13966-02-4	U		170		U	GAM
Ruthenium 106	13967-48-1	U		200		U	GAM
Antimony 125	14234-35-6	U		58		U	GAM
Cesium 134	13967-70-9	U		28		U	GAM

100&300Area Component RCBRA Water Sa

METHOD BLANKS

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Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>04/11/06</u>

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0219

R602073-03

Method Blank

BLANK, cont.

SDG <u>7383</u>	Client/Case no <u>Hanford</u>	SDG <u>K0219</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R602073-03</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7383-003</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>RC-048</u>	

QC-BLANK #56211

METHOD BLANKS

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0219

R602073-04

J111V9

DUPLICATE

SDG <u>7383</u>	Client/Case no <u>Hanford</u>	SDG <u>K0219</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R602073-04</u>	Lab sample id <u>R602073-01</u>	Client sample id <u>J111V9</u>
Dept sample id <u>7383-004</u>	Dept sample id <u>7383-001</u>	Location/Matrix <u>199-F8-3</u> <u>WATER</u>
	Received <u>02/10/06</u>	Collected/Volume <u>02/08/06 10:01</u> <u>6.79 L</u>
		Custody/SAP No <u>RC-048-192</u> <u>RC-048</u>

ANALYTE	DUPLICATE		MDA		RDL		QUALI- FIERS	TEST	ORIGINAL		MDA		QUALI- FIERS	RPD %	3σ TOT	DER σ
	pCi/L	2σ ERR (COUNT)	pCi/L	pCi/L	pCi/L	pCi/L			pCi/L	2σ ERR (COUNT)	pCi/L					
Tritium	12600	420	260	400			H		12700	330	170			1	22	0.1
Total Strontium	0.168	0.37	0.71	2.0	U	SR			0.018	0.31	0.63	U	-	-	-	0.6
Radium 228	0.088	0.60	1.7	3.0	U	AC			-0.136	0.64	1.8	U	-	-	-	0.5
Thorium 228	0.061	0.12	0.23		U	TH			0.081	0.16	0.31	U	-	-	-	0.2
Thorium 230	0.152	0.18	0.23	1.0	U	TH			-0.040	0.080	0.31	U	-	-	-	1.9
Thorium 232	0	0.061	0.23	1.0	U	TH			0	0.080	0.31	U	-	-	-	0
Uranium 233/234	3.14	0.42	0.093	1.0	U				2.77	0.42	0.11	U		13	32	1.2
Uranium 235	0.118	0.089	0.11	1.0	U				0.100	0.067	0.13	U		17	154	0.3
Uranium 238	2.83	0.40	0.093	1.0	U				2.18	0.38	0.11	U		26	35	2.2
Radium-226	0.177	0.39	0.68	2.0	U	RA			-0.247	0.29	0.66	U	-	-	-	1.7
Potassium 40	U		230		U	GAM			U		280	U	-	-	-	0.3
Cobalt 60	U		18	25	U	GAM			U		16	U	-	-	-	0.2
Cesium 137	U		16	15	U	GAM			U		14	U	-	-	-	0.2
Radium 226	U		33		U	GAM			U		27	U	-	-	-	0.3
Radium 228	U		84		U	GAM			U		61	U	-	-	-	0.4
Europium 152	U		45	50	U	GAM			U		33	U	-	-	-	0.4
Europium 154	U		41	50	U	GAM			U		43	U	-	-	-	0.1
Europium 155	U		42	50	U	GAM			U		42	U	-	-	-	0
Thorium 228	U		24		U	GAM			U		38	U	-	-	-	0.6
Thorium 232	U		84		U	GAM			U		61	U	-	-	-	0.4
Uranium 235	U		59		U	GAM			U		55	U	-	-	-	0.1
Uranium 238	U		2500		U	GAM			U		1700	U	-	-	-	0.5
Americium 241	U		53		U	GAM			U		100	U	-	-	-	0.8
Beryllium 7	U		160		U	GAM			U		140	U	-	-	-	0.2
Ruthenium 106	U		170		U	GAM			U		130	U	-	-	-	0.4
Antimony 125	U		37		U	GAM			U		33	U	-	-	-	0.2
Cesium 134	U		17		U	GAM			U		16	U	-	-	-	0.1

100&300Area Component RCBRA Water Sa

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>04/11/06</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0219

R602073-04

J111V9

DUPLICATE, cont.

SDG <u>7383</u>		Client/Case no <u>Hanford</u>	<u>SDG K0219</u>
Contact <u>Melissa C. Mannion</u>		Contract <u>No. 630</u>	
DUPLICATE	ORIGINAL		
Lab sample id <u>R602073-04</u>	Lab sample id <u>R602073-01</u>	Client sample id <u>J111V9</u>	
Dept sample id <u>7383-004</u>	Dept sample id <u>7383-001</u>	Location/Matrix <u>199-P8-3</u>	<u>WATER</u>
	Received <u>02/10/06</u>	Collected/Volume <u>02/08/06 10:01</u>	<u>6.79 L</u>
		Custody/SAF No <u>RC-048-192</u>	<u>RC-048</u>

QC-DUP#1 56212

DUPLICATES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0219

R602073-05

J111V9

MATRIX SPIKE

SDG <u>7383</u>	Client/Case no <u>Hanford</u>	SDG <u>K0219</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
MATRIX SPIKE	ORIGINAL	
Lab sample id <u>R602073-05</u>	Lab sample id <u>R602073-01</u>	Client sample id <u>J111V9</u>
Dept sample id <u>7383-005</u>	Dept sample id <u>7383-001</u>	Location/Matrix <u>199-F8-3</u> WATER
	Received <u>02/10/06</u>	Collected/Volume <u>02/08/06 10:01</u> 6.79 L
		Custody/SAF No <u>RC-048-192</u> RC-048

ANALYTE	SPIKE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS TEST	ADDED pCi/L	2σ ERR pCi/L	ORIGINAL pCi/L	2σ ERR (COUNT)	REC 3σ % (TOTAL)	LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	37000	700	260	400	X H	25500	1000	12700	330	95	76-124	60-140

100&300Area Component RCBRA Water Sa

QC-MS#1 56213

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Form <u>DVD-MS</u>
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Report date <u>04/11/06</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K0219

R602073-01

J111V9

DATA SHEET

SDG <u>7383</u>	Client/Case no <u>Hanford</u>	<u>SDG K0219</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R602073-01</u>	Client sample id <u>J111V9</u>	
Dept sample id <u>7383-001</u>	Location/Matrix <u>199-F8-3</u>	<u>WATER</u>
Received <u>02/10/06</u>	Collected/Volume <u>02/08/06 10:01</u>	<u>6.79 L</u>
	Custody/SAF No <u>RC-048-192</u>	<u>RC-048</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Tritium	10028-17-8	12700	330	170	400		H
Total Strontium	SR-RAD	0.018	0.31	0.63	2.0	U	SR
Radium 228	15262-20-1	-0.136	0.64	1.8	3.0	U	AC
Thorium 228	14274-82-9	0.081	0.16	0.31		U	TH
Thorium 230	14269-63-7	-0.040	0.080	0.31	1.0	U	TH
Thorium 232	TH-232	0	0.080	0.31	1.0	U	TH
Uranium 233/234	U-233/234	2.77	0.42	0.11	1.0		U
Uranium 235	15117-96-1	0.100	0.067	0.13	1.0	U	U
Uranium 238	U-238	2.18	0.38	0.11	1.0		U
Radium-226	13982-63-3	-0.247	0.29	0.66	2.0	U	RA
Potassium 40	13966-00-2	U		280		U	GAM
Cobalt 60	10198-40-0	U		16	25	U	GAM
Cesium 137	10045-97-3	U		14	15	U	GAM
Radium 226	13982-63-3	U		27		U	GAM
Radium 228	15262-20-1	U		61		U	GAM
Europium 152	14683-23-9	U		33	50	U	GAM
Europium 154	15585-10-1	U		43	50	U	GAM
Europium 155	14391-16-3	U		42	50	U	GAM
Thorium 228	14274-82-9	U		38		U	GAM
Thorium 232	TH-232	U		61		U	GAM
Uranium 235	15117-96-1	U		55		U	GAM
Uranium 238	U-238	U		1700		U	GAM
Americium 241	14596-10-2	U		100		U	GAM
Beryllium 7	13966-02-4	U		140		U	GAM
Ruthenium 106	13967-48-1	U		130		U	GAM
Antimony 125	14234-35-6	U		33		U	GAM
Cesium 134	13967-70-9	U		16		U	GAM

100&30 0Area Component RCBRA Water Sa

DATA SHEETS

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SUMMARY DATA SECTION

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>04/11/06</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0219

METHOD SUMMARY

THORIUM, ISOTOPIC IN WATER
ALPHA SPECTROSCOPY

Test TH Matrix WATER
SDG 7383
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG K0219

RESULTS

LAB	RAW	SUF-		
CLIENT SAMPLE ID	SAMPLE ID	TEST FIX	PLANCHET	Thorium 230

Preparation batch 7131-090

J111V9	R602073-01	7383-001	U
Method Blank	R602073-03	7383-003	U
Lab Control Sample	R602073-02	7383-002	ok
Duplicate (R602073-01)	R602073-04	7383-004	- U

Nominal values and limits from method RDLs (pCi/L) 1.0
100&300Area Component RCBRA Water Sa

METHOD PERFORMANCE

LAB	RAW	SUF-	MAX MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
CLIENT SAMPLE ID	SAMPLE ID	TEST FIX	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR

Preparation batch 7131-090 2σ prep error 5.0 % Reference Lab Notebook 7131 pg. 90

J111V9	R602073-01	0.31	0.500	41	165	45	03/21/06	03/25	SS-058
Method Blank	R602073-03	0.28	0.500	35	259	03/21/06	03/22	SS-042	
Lab Control Sample	R602073-02	0.16	0.500	72	258	03/21/06	03/22	SS-038	
Duplicate (R602073-01)	R602073-04	0.23	0.500	44	169	43	03/21/06	03/23	SS-037

Nominal values and limits from method 1.0 0.500 20-110 150 100 180

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	SPP-062	Sample Aliquoting, rev 0
	CP-900	Thorium in Water and Dissolved Solid Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD	MDA	<u>0.24</u> ± <u>0.13</u>
FOR 4 SAMPLES	YIELD	<u>48</u> ± <u>33</u>

Lab id	<u>EBRLNE</u>
Protocol	<u>Hanford</u>
Version	<u>Ver 1.0</u>
Form	<u>DVD-CMS</u>
Version	<u>3.06</u>
Report date	<u>04/11/06</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0219

Test U Matrix WATER

SDG 7383

Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, ISOTOPIC IN WATER

ALPHA SPECTROSCOPY

Client Hanford

Contract No. 630

Contract SDG K0219

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	1: Uranium	2: Uranium	3: Uranium	RESULT RATIOS (%)						
					233/234	235	238	1+3	2σ	2+3	2σ			
Preparation batch 7131-090														
J111V9	R602073-01			7383-001	2.77	U	2.18	127	29	5	3			
Method Blank	R602073-03			7383-003	U	U	U							
Lab Control Sample	R602073-02			7383-002	ok	ok	ok							
Duplicate (R602073-01)	R602073-04			7383-004	ok	ok	ok	111	22	4	3			
Nominal values and limits from method				RDLs (pCi/L)	1.0	1.0	1.0	100				4		
100&300Area Component RCBRA Water Sa								Averages 119				4		

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MAX MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR	
																	2σ prep error	5.0 %	Reference Lab Notebook	7131 pg. 90
J111V9	R602073-01			0.13	0.500			87	254			41	03/17/06	03/21	SS-063		
Method Blank	R602073-03			0.13	0.500			70	246				03/17/06	03/21	SS-028		
Lab Control Sample	R602073-02			0.58	0.500			99	254				03/17/06	03/21	SS-065		
Duplicate (R602073-01)	R602073-04			0.11	0.500			85	246			41	03/17/06	03/21	SS-027		
Nominal values and limits from method				1.0	0.500			30-105	100	100		180					

PROCEDURES	REFERENCE	UIISO_PLATE_AEA
SPP-062	Sample Aliquoting, rev 0	
CP-040	Environmental Water Dissolution, rev 9	
CP-921	Uranium in Water and Dissolved Samples by Extraction Chromatography, rev 1	
CP-008	Heavy Element Electroplating, rev 9	

AVERAGES ± 2 SD	MDA <u>0.24</u> ± <u>0.46</u>
FOR 4 SAMPLES	YIELD <u>85</u> ± <u>24</u>

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CMS
 Version 3.06
 Report date 04/11/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0219

METHOD SUMMARY

RADIUM 228 IN WATER
BETA COUNTING

Test AC Matrix WATER
SDG 7383
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG K0219

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Radium 228
Preparation batch 7131-090				
J111V9	R602073-01		7383-001	U
Method Blank	R602073-03		7383-003	U
Lab Control Sample	R602073-02		7383-002	<u>HIGH</u>
Duplicate (R602073-01)	R602073-04		7383-004	- U
Nominal values and limits from method		RDLs (pCi/L)	3.0	
100&300Area Component RCBRA Water Sa				

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- pCi/L	MDA L	ALIQ FAC	PREP TION	DILU- %	YIELD %	EFF COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7131-090 2σ prep error 5.0 % Reference Lab Notebook 7131 pg. 90															
J111V9	R602073-01		1.8	0.500				67	150		42	03/22/06	03/22	GRB-217	
Method Blank	R602073-03		1.9	0.500				66	150			03/22/06	03/22	GRB-219	
Lab Control Sample	R602073-02		1.8	0.500				62	150			03/22/06	03/22	GRB-218	
Duplicate (R602073-01)	R602073-04		1.7	0.500				69	150		42	03/22/06	03/22	GRB-220	
Nominal values and limits from method			3.0	0.500					100		180				

PROCEDURES	REFERENCE	RAISO_SEP_GPC
	SPP-062	Sample Aliquoting, rev 0
	CP-702	Radium-228 in Water, rev 9

AVERAGES ± 2 SD	MDA	<u>1.8</u>	±	<u>0.16</u>
FOR 4 SAMPLES	YIELD	<u>66</u>	±	<u>6</u>

Lab id	<u>EBRLNE</u>
Protocol	<u>Hanford</u>
Version	<u>Ver 1.0</u>
Form	<u>DVD-CMS</u>
Version	<u>3.06</u>
Report date	<u>04/11/06</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0219

Test SR Matrix WATER
 SDG 7383
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Contract SDG K0219

METHOD SUMMARY

TOTAL STRONTIUM IN WATER
 BETA COUNTING

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Total Strontium
Preparation batch 7131-090					
J111V9	R602073-01			7383-001	U
Method Blank	R602073-03			7383-003	U
Lab Control Sample	R602073-02			7383-002	ok
Duplicate (R602073-01)	R602073-04			7383-004	- U

Nominal values and limits from method RDLs (pCi/L) 2.0
 100&300Area Component RCBRA Water Sa

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7131-090 2σ prep error 10.0 % Reference Lab Notebook 7131 pg. 90															
J111V9	R602073-01			0.63	0.500			90		100			35	03/15/06	03/15 GRB-217
Method Blank	R602073-03			0.68	0.500			80		100				03/15/06	03/15 GRB-220
Lab Control Sample	R602073-02			0.53	0.500			66		100				03/15/06	03/15 GRB-217
Duplicate (R602073-01)	R602073-04			0.71	0.500			87		100			35	03/15/06	03/15 GRB-229

Nominal values and limits from method 2.0 0.500 35-105 100 180

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
SPP-062		Sample Aliquoting, rev 0
CP-380		Strontium in Water Samples, rev 2

AVERAGES ± 2 SD	MDA <u>0.64</u> ± <u>0.16</u>
FOR 4 SAMPLES	YIELD <u>81</u> ± <u>21</u>

Lab id EBRLINE
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 Form DVD-CMS
 Version 3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0219

METHOD SUMMARY

GAMMA EMITTERS

GAMMA SCAN

Test GAM Matrix WATER

SDG 7383

Contact Melissa C. Mannion

Client Hanford

Contract No. 630

Contract SDG K0219

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Cobalt 60	Cesium 137
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Preparation batch 7131-090

J111V9	R602073-01		7383-001	U	U
Method Blank	R602073-03		7383-003	U	U
Lab Control Sample	R602073-02		7383-002	ok	ok
Duplicate (R602073-01)	R602073-04		7383-004	- U	- U

Nominal values and limits from method RDLs (pCi/L) 25 15
100&300Area Component RCBRA Water Sa

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- pCi/L	MDA L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
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Preparation batch 7131-090 2σ prep error 15.0 % Reference Lab Notebook 7131 pg. 90

J111V9	R602073-01		<u>79</u>	0.500						308		36	03/08/06	03/16	MB,05,00	
Method Blank	R602073-03		<u>120</u>	0.500						305			03/08/06	03/16	01,02,00	
Lab Control Sample	R602073-02		<u>19</u>	0.500						308			03/08/06	03/16	MB,08,00	
Duplicate (R602073-01)	R602073-04		<u>79</u>	0.500						312		40	03/08/06	03/20	01,03,00	

Nominal values and limits from method 15 0.500 100 180

PROCEDURES REFERENCE GAMMA_GS
CP-100 Ge(Li) Preparation for Commercial Samples, rev 7

AVERAGES ± 2 SD MDA 74 ± 83
FOR 4 SAMPLES YIELD _____ ± _____

METHOD SUMMARIES

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SUMMARY DATA SECTION

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0219

Test H Matrix WATER
 SDG 7383
 Contact Melissa C. Mannion

METHOD SUMMARY
 TRITIUM IN WATER
 LIQUID SCINTILLATION COUNTING

Client Hanford
 Contract No. 630
 Contract SDG K0219

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Tritium
Preparation batch 7131-090					
J111V9	R602073-01			7383-001	12700
Method Blank	R602073-03			7383-003	U
Lab Control Sample	R602073-02			7383-002	ok
Duplicate (R602073-01)	R602073-04			7383-004	ok
Spike (R602073-01)	R602073-05			7383-005	ok X

Nominal values and limits from method RDLs (pCi/L) 400
 100&300Area Component RCBRA Water Sa

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7131-090 2σ prep error 10.0 % Reference Lab Notebook 7131 pg. 90																
J111V9	R602073-01			170	0.0100			100		150			43	03/22/06	03/23	LSC-006
Method Blank	R602073-03			<u>2600</u>	0.0100			10		75				03/22/06	03/23	LSC-006
Lab Control Sample	R602073-02			<u>1700</u>	0.0100			10		150				03/22/06	03/23	LSC-006
Duplicate (R602073-01)	R602073-04			260	0.0100			100		75			43	03/22/06	03/23	LSC-006
Spike (R602073-01)	R602073-05			260	0.0350			28		75			43	03/22/06	03/23	LSC-006

Nominal values and limits from method 400 0.0100 25 180

PROCEDURES REFERENCE 906.0_H3_LSC
 CP-210 Tritium in Water Samples by Distillation, rev 8

AVERAGES ± 2 SD MDA 1000 ± 2200
 FOR 5 SAMPLES YIELD 50 ± 93

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CMS
 Version 3.06
 Report date 04/11/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0219

Test RA Matrix WATER
 SDG 7383
 Contact Melissa C. Mannion

METHOD SUMMARY

RADIUM 226 IN WATER
 RADON COUNTING

Client Hanford
 Contract No. 630
 Contract SDG K0219

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Radium-226
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Preparation batch 7131-090

J111V9	R602073-01	7383-001	U
Method Blank	R602073-03	7383-003	U
Lab Control Sample	R602073-02	7383-002	ok
Duplicate (R602073-01)	R602073-04	7383-004	- U

Nominal values and limits from method RDLs (pCi/L) 2.0
 100&300Area Component RCBRA Water Sa

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- pCi/L	MDA L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
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Preparation batch 7131-090 2σ prep error 5.0 % Reference Lab Notebook 7131 pg. 90

J111V9	R602073-01	0.66	0.100	100	70	47	03/27/06	03/27	RN-011
Method Blank	R602073-03	0.69	0.100	100	70	03/27/06	03/27	RN-012	
Lab Control Sample	R602073-02	0.83	0.100	100	78	03/27/06	03/27	RN-009	
Duplicate (R602073-01)	R602073-04	0.68	0.100	100	70	47	03/27/06	03/27	RN-014

Nominal values and limits from method 2.0 0.100 20-105 70 180

PROCEDURES	REFERENCE	903.1_RA226_LUC
	SPP-062	Sample Aliquoting, rev 0
	CP-881	Radium-226 in Water and Dissolved Samples, rev 1

AVERAGES ± 2 SD	MDA	<u>0.72</u> ± <u>0.16</u>
FOR 4 SAMPLES	YIELD	<u>100</u> ± <u>0</u>

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Protocol	<u>Hanford</u>
Version	<u>Ver 1.0</u>
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0219

SDG 7383
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_K0219

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

- * All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLINE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/11/06

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0219

SDG 7383
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0219

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0219

SDG 7383
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG K0219

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0219

SDG 7383
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG K0219

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- * ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

- U The RESULT is less than the MDA (Minimum Detectable Activity).

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0219

SDG 7383
 Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
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DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
 - B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.
- Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.
- For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.
- L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
 - H Similar to 'L' except the recovery was high.
 - P The RESULT is 'preliminary'.
 - X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
 - 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

- * An MDA is underlined if it is bigger than its RDL.

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- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
 2. The error of ADDED.
 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTS are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

- * The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTS prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- * The second limit for the RPD is the larger of:
 1. A fixed percentage specified in the protocol.

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2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

- * The RPD is underlined if it is greater than either limit.
- * If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

- * The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

- * The first, computed limits for the recovery reflect:

1. The errors of the two RESULTS, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

2. The error of ADDED.

3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

- * The second limits are protocol defined upper and lower QC limits

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for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

- * The recovery is underlined (out of spec) if it is outside either of these ranges.

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METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

- * Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

- * The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

- * If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
 - * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.
- MDAs are underlined if greater than the printed RDL.
- * Aliquots are underlined if less than the nominal value specified for the method.
 - * Preparation factors are underlined if greater than the nominal value specified for the method.
 - * Dilution factors are underlined if greater than the nominal value specified for the method.
 - * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
 - * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
 - * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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- * Count times are underlined if less than the nominal value specified for the method.
- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1+3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

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results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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Washington Closure Hanford			CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						RC-048-192		Page 1 of 2			
Collection OUPATEK R. R. FOX			Company Contact JOAN KESSNER		Telephone No. 375-4688		Project Coordinator KESSNER, JH		Price Code 7N		Data Turnaround 45 Days			
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa			Sampling Location 199-FB-3 K0219 (7383)			SAF No. RC-048		Air Quality <input type="checkbox"/>						
Ice Chest No. AFS-04-052			Field Logbook No. EL-1592		COA BESRAS6520		Method of Shipment FED EX							
Shipped To EBERLINE SERVICES LIONVILLE			Offsite Property No. A060250			Bill of Lading/Air Bill No. SEE OSCP								
POSSIBLE SAMPLE HAZARDS/REMARKS POTENTIAL RADIOACTIVE < DOT LIMITS				Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
Special Handling and/or Storage None				Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
				No. of Container(s)	1	1	2	1	2	1	1	3	2	3
				Volume	125mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS				Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium-226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081	
Sample No.	Matrix *	Sample Date	Sample Time											
J111V9	WATER	2-8-06	1001	X	X	X	X	X	X					
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS						Matrix *
Relinquished By/Removed From OUPATEK R. R. FOX		Date/Time 1105		Received By/Stored In WCH		Date/Time 1105		(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Ruthenium-106, Thorium-234, Uranium-235, Uranium-238} (2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV) Personnel not available to relinquish samples from 3728 Ref # 2A on 2/9/06						S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WJ=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From SKALE		Date/Time FEB 08 2006		Received By/Stored In SKALE		Date/Time FEB 08 2006								
Relinquished By/Removed From SIOGUE		Date/Time 2806 1145		Received By/Stored In REF 2A		Date/Time 2806 1145								
Relinquished By/Removed From Ref 2A		Date/Time 2-9-06 1015		Received By/Stored In RZ Steffler		Date/Time 2-9-06 1015								
Relinquished By/Removed From RZ Steffler		Date/Time WCH 2-9-06 1500		Received By/Stored In Fed Ex		Date/Time 2-9-06								
Relinquished By/Removed From FED EX		Date/Time 2/10/06 10:00		Received By/Stored In Felix Kerec		Date/Time 2/10/06 10:00								
LABORATORY SECTION	Received By	Title	Date/Time											
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time											



RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client: WC HANFORD City RICHLAND State WA

Date/Time received 2/10/06 10:00 CoC No. RC-048-192

Container I.D. No. AFS-04-053 Requested TAT (Days) 45 P.O. Received Yes [] No []

INSPECTION

- 1. Custody seals on shipping container intact? Yes [] No [] N/A []
- 2. Custody seals on shipping container dated & signed? Yes [] No [] N/A []
- 3. Custody seals on sample containers intact? Yes [] No [] N/A []
- 4. Custody seals on sample containers dated & signed? Yes [] No [] N/A []
- 5. Packing material is: Wet [] Dry []
- 6. Number of samples in shipping container: 1 Sample Matrix WATER
- 7. Number of containers per sample: 8 (Or see CoC _____)
- 8. Samples are in correct container Yes [] No []
- 9. Paperwork agrees with samples? Yes [] No []
- 10. Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels []
- 11. Samples are: In good condition [] Leaking [] Broken Container [] Missing []
- 12. Samples are: Preserved [] Not preserved [] pH 2 Preservative HNO₃
- 13. Describe any anomalies:

- 14. Was P.M. notified of any anomalies? Yes [] No [] Date _____
- 15. Inspected by AK Date: 2/10/06 Time: 10:20

Customer Sample No.	cpm	mR/hr	Wipe	Customer Sample No.	cpm	mR/hr	wipe

Ion Chamber Ser. No. _____ Calibration date _____
 Alpha Meter Ser. No. _____ Calibration date _____
 Beta/Gamma Meter Ser. No. _____ Calibration date _____