



Analytical Report

Client: TNU HANFORD B02-007
LVL#: 0110L235
SDG/SAF#: H1565/B02-007

W.O.#: 11343-606-001-9999-00
Date Received: 10-31-01

RECEIVED
APR 19 2002

GC SCAN

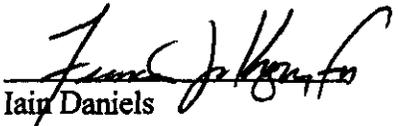
One (1) water sample was collected on 10-29-01.

EDMC

The sample and its associated QC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on Method 8015 for target compounds Ethanol and n-Propyl Alcohol on 11-14-01.

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

1. The cooler temperatures upon receipt have been recorded on the chain-of-custody.
2. The sample was packaged and stored as specified in the method protocol.
3. Surrogates are not currently employed in the methodology.
4. All initial calibrations were within acceptance criteria.
5. All continuing calibrations run prior to analysis were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.


Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

11/19/01
Date

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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 8 pages.

GLOSSARY OF VOA DATA

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.
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- 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 OF VOA DATA

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.

RFW Batch Number: 0110L235

Client: TNUHANFORD B02-007 H1565 Work Order: 11343606001 Page: 1

	Cust ID:	B13C82	B13C82	B13C82	BLK	BLK BS	BLK BSD
Sample	RFW#:	001	001 MS	001 MSD	01LJLB14-MB1	01LJLB14-MB1	01LJLB14-MB1
Information	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L

	fl	fl	fl	fl	fl	fl
n-Propyl Alcohol	5.0 U	92 ‡	96 ‡	5.0 U	95 ‡	97 ‡
Ethanol	5.0 U	96 ‡	98 ‡	5.0 U	92 ‡	97 ‡

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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01102202410314

Bechtel Hanford Inc. CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST B02-007-01 Page 1 of 1

Collector: Thomas, G/Watson, D
 Company Contact: Corlock, CS Telephone No. 372-9638
 Project Coordinator: TRENT, SJ Price Code 7N Data Turnaround 45 Days
 Project Designation: 200 Area Source Characterization 200-CS-1 OU - QC Samplin
 Sampling Location: 200 East & West SAF No. B02-007
 Air Quality

Ice Chest No. ERC-96-018
 Field Logbook No. EL-1551 COA XL2007CHGR
 Method of Shipment: Fed Ex

Shipped To: FMARECRA
 Offsite Property No. A020019
 Bill of Lading/Air Bill No. 42357954-8409

POSSIBLE SAMPLE MARKS
 Samples did not originate in radiological controlled area. No total activity associated with sample/samples.
 Special Handling and/or Storage: RT 10:30:01

Preservation	HCl or H2SO4 to pH < 2 Cool 4C	Cool 4C	HNOS to pH < 2	H2SO4 to pH < 2 Cool 4C	Cool 4C Cool 4C	ZnAs+NaOH to pH > 9 Cool	HNOS to pH < 2
Type of Container	A-C	DE	F	G	H	I	J
No. of Container(s)	3	2	1	1	1	1	2
Volume	40mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	VOL - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	Semi-VOA -- 8270A (Add-On) (Triethyl phosphate)	See item (1) in Special Instructions.	NO2/NO3 - 353.1; Ammonia - 350.3	See item (2) in Special Instructions.	Sulfides - 9030	Grav. Alkal. 9030
B13CB2	WATER	10/29/01	0800	X	X	X	X	X	X	X

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
D. SWATSON/T. SWAN	10/29/01 0815	REF. 2B. 3728 BLDG.	10/29/01 0815
REF. 2B. 3728	10:30:01	R. THORNTON	10:30:01
R. THORNTON	10:30:01	F. COOK	10:30:01
F. COOK	10:31:01 0925	V. KERNING	10-31-01 0925

SPECIAL INSTRUCTIONS

- ** Laboratory is to measure pH within 24 hours of sample receipt.
- ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using HPA method 300.0.
- ** The laboratory is to report Decane as a TIC if present in detectable quantities.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc);
 (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040

Samples stored in Ref. # 2B at the 3728 Shipping Facility on 10/29/01.
 Collector not available to relinquish samples on 10/30/01 for shipment.
RT 10:30:01

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

REF # 423579548409

Figure 1. Sample Check-in List

Date/Time Received: 10-31-01 0925

SDG#: 0110L235

Work Order Number: _____

SAF# B00-007

Shipping Container ID: ERC-96-018

Chain of Custody # B00-007-01

- 1. Custody Seals on shipping container intact? Yes No
- 2. Custody Seals dated and signed? Yes No
- 3. Chain-of-Custody record present? Yes No
- 4. Cooler temperature _____ 1-3
- 5. Vermiculite/packing materials is Wet Dry
- 6. Number of samples in shipping container: _____ 15
- 7. Sample holding times exceeded? Yes No 10-31-01

<p>8. Samples have:</p> <p>_____ tape</p> <p><input checked="" type="checkbox"/> custody seals</p>	<p>_____ hazard labels</p> <p>_____ appropriate sample labels</p>
<p>9. Samples are:</p> <p><input checked="" type="checkbox"/> in good condition</p> <p>_____ broken</p>	<p>_____ leaking</p> <p>_____ have air bubbles</p>

10. Were any anomalies identified in sample receipt? Yes No

11. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: Piedmont & Tennessee Laboratory, Knoxville Date: 10-31-01

Telephoned to: _____ On _____ By _____



Client: TNU-HANFORD B02-007
LVL #: 0110L235
SDG/SAF #: H1565/B02-007

W.O. #: 11343-606-001-9999-00
Date Received: 10-31-2001

GC/MS VOLATILE

One (1) water sample was collected on 10-29-2001.

The sample and its associated QC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8260A for TCL Volatile target compounds on 11-08-2001.

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

1. The cooler temperature upon receipt has been recorded on the chain-of-custody.
2. The sample was analyzed within required holding time.
3. Non-target compounds were not detected in the sample.
4. All surrogate recoveries were within EPA QC limits.
5. All matrix spike recoveries were within EPA QC limits.
6. All blank spike recoveries were within EPA QC limits.
7. The method blank contained the common laboratory contaminant Methylene Chloride at a level less than 2x the CRQL. The method blank also contained the target compound Trichloroethene at a level less than the CRQL.
8. Internal standard area and retention time criteria were met.
9. A spectral search was performed for Decane; however, it was not detected in the sample.
10. "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."

by 

J. Michael Taylor

President

Lionville Laboratory Incorporated

11-27-01

Date

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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.

02

GLOSSARY OF VOA DATA

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.

GLOSSARY OF VOA DATA

DATA QUALIFIERS

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- 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.
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- 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.

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 resolved 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** - **Coelution/Background:** peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.
- PI** - **Proper Integration:** a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

Cust ID: B13C82 B13C82 B13C82 VBLKJS VBLKJS BS

RFW#: 001 001 MS 001 MSD 01LVX487-MB1 01LVX487-MB1

Chlorobenzene	5 U	96 %	96 %	5 U	93 %
Ethylbenzene	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

01106200470314

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B02-007-01	Page 1 of 1
Collector Thomas, G/Watson, D	Company Contact Cearlock, CS	Telephone No. 372-9638	Project Coordinator TRENT, SJ		Price Code 7N	Data Turnaround 45 Days	
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin		Sampling Location 200 East & West	SAF No. B02-007		Air Quality <input type="checkbox"/>		
Ice Chest No. ERC-96-018	Field Logbook No. EL-1551	COA XL2002CHGR	Method of Shipment Fed Ex				
Shipped To EMARECRA	Offsite Property No. A020019	Bill of Lading/Air Bill No. 42357954-8409					

POSSIBLE SAMPLE HAZARD MARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special Handling and/or Storage RT 10:30:01	Preservation	HCl or H2SO4 to pH < 2 Cool	Cool 4C	HNO3 to pH < 2	H2SO4 to pH < 2 Cool 4C	Cool 4C Cool 4C	ZnAc+NaOH to pH > 9 Cool	HNO3 to pH < 2				
	Type of Container	aG A-C	aG DE	aG F	aG G	aG H	aG I	aG				
	No. of Container(s)	3	2	1	1	1	1	2				
	Volume	40mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL				
SAMPLE ANALYSIS		VQA - 8260A (TCL); VQA - 8260A (Add-On) (1-Propanol, Ethanol)	Semi-VQA - 8270A (Add-On) (Tributyl phosphate)	See item (1) in Special Instructions.	NO2/NO3 - 353.1; Ammonia - 350.3	See item (2) in Special Instructions.	Sulfides - 9030	Organic Alpha; Organic Beta				
Sample No.	Matrix *	Sample Date	Sample Time									
B13CB2	WATER	10/29/01	0800	X	X	X	X	X	X			

CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From D.S. WATSON/T.S. WATSON	Date/Time 10/29/01 0815	Received By/Stored In REF. 2B. 3728 BLDG.	Date/Time 10/29/01 0815	** Laboratory is to measure pH within 24 hours of sample receipt. ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0. ** The laboratory is to report Decane as a TIC if present in detectable quantities.				2=Soil 3B=Soilment 3C=Soil 3D=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Times W=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From Ref. 2B 3728	Date/Time 10:30:01	Received By/Stored In R. Thoren	Date/Time 10:30:01	(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040				
Relinquished By/Removed From R. Thoren	Date/Time 10:30:01	Received By/Stored In F. O. G. W.	Date/Time					
Relinquished By/Removed From F. O. G. W.	Date/Time 10/31/01 0925	Received By/Stored In Victor Hernandez	Date/Time 10-31-01 0925	Samples stored in Ref. # 2B at the 3728 Shipping Facility on 10/29/01. Collector not available to relinquish samples on 10/30/01 for shipment. RT 10:30:01				
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

F. O. G. W. 4235 7954 8409 13



Analytical Report

Client: TNU HANFORD B02-007
LVL#: 0110L235
SDG/SAF#: H1565/B02-007

W.O.#: 11343-606-001-9999-00
Date Received: 10-31-01

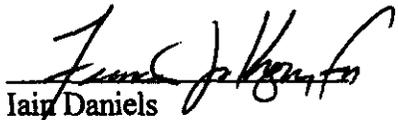
GC SCAN

One (1) water sample was collected on 10-29-01.

The sample and its associated QC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on Method 8015 for target compounds Ethanol and n-Propyl Alcohol on 11-14-01.

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

1. The cooler temperatures upon receipt have been recorded on the chain-of-custody.
2. The sample was packaged and stored as specified in the method protocol.
3. Surrogates are not currently employed in the methodology.
4. All initial calibrations were within acceptance criteria.
5. All continuing calibrations run prior to analysis were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.


Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

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11/19/01
Date

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RFW Batch Number: 0110L235

Client: TNUHANFORD B02-007 H1565 Work Order: 11343606001 Page: 1

	Cust ID:	B13C82	B13C82	B13C82	BLK	BLK BS	BLK BSD
Sample	RFW#:	001	001 MS	001 MSD	01LJLB14-MB1	01LJLB14-MB1	01LJLB14-MB1
Information	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L

	fl	fl	fl	fl	fl	fl
n-Propyl Alcohol	5.0 U	92 †	96 †	5.0 U	95 †	97 †
Ethanol	5.0 U	96 †	98 †	5.0 U	92 †	97 †

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

Pharmaceutical

011022040919

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B02-007-01	Page 1 of 1
Collector Thomas, G/Watson, D	Company Contact Cearlock, CS	Telephone No. 372-9638	Project Coordinator TRENT, SJ		Price Code 7N	Data Turnaround 45 Days
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin		Sampling Location 200 East & West		SAF No. B02-007	Air Quality <input type="checkbox"/>	

Ice Chest No. ERC-96-018	Field Logbook No. EL-155/	COA XL2002CHGR	Method of Shipment Fed Ex			
Shipped To TMA/RECRA		Offsite Property No. A020019	Bill of Lading/Air Bill No. 42357954-8409			

POSSIBLE SAMPLE HAZARD MARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special Handling and/or Storage RT 10:30:01	Preservation	HCl or H2SO4 to pH < 2 Cool	Cool 4C	HNO3 to pH < 2	H2SO4 to pH < 2 Cool 4C	Cool 4C Cool 4C	ZnAc+NaOH to pH > 9 Cool	HNO3 to pH < 2			
	Type of Container	AGs*	AG	AG	AG	AG	AG	AG			
	No. of Container(s)	3	2	1	1	1	1	2			
	Volume	40mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL			

SAMPLE ANALYSIS				VDA - 8261A (TCL); VDA - 8261A (Add-On) (1-Propanol, Ethanol)	Semi-VDA - 8271A (Add-On) (Diethyl phosphate)	See item (1) in Special Instructions.	NO2/NO3 - 353.1; Arsenic - 350.3	See item (2) in Special Instructions.	Sulfides - 9030	Grid Alpha; Grid Beta		
-----------------	--	--	--	---	---	---------------------------------------	----------------------------------	---------------------------------------	-----------------	-----------------------	--	--

Sample No.	Matrix *	Sample Date	Sample Time	VDA - 8261A (TCL)	Semi-VDA - 8271A	NO2/NO3 - 353.1	ICP Metals - 6010A	Sulfides - 9030	Grid Alpha	Grid Beta		
B13C82	WATER	10/29/01	0800	X	X	X	X	X				

CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From D. Watson / T. Watson	Date/Time 10/29/01 0815	Received By/Stored In REF. 28 - 3728 Bldg.	Date/Time 10/29/01 0815	** Laboratory is to measure pH within 24 hours of sample receipt. ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0. ** The laboratory is to report Decane as a TIC if present in detectable quantities.				P=Soil SB=Soilment SC=Soil SL=Sludge W=Water O=Oil A=Air DP=Dryum Solids DL=Dryum Liquids T=Trace WP=Wipe LI=Liquid V=Vegetation X=Other
Relinquished By/Removed From Ref. 28 3728	Date/Time 10:30:01	Received By/Stored In R. Thore	Date/Time 10:30:01	(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040 Samples stored in Ref. # 28 at the 3728 Shipping Facility on 10/29/01. Collector not available to relinquish samples on 10/30/01 for shipment. RT 10:30:01				
Relinquished By/Removed From R. Thore	Date/Time 10:30:01	Received By/Stored In F. O. A.	Date/Time					
Relinquished By/Removed From F. O. A.	Date/Time 10/31/01 0925	Received By/Stored In K. Hernandez	Date/Time 10/31/01 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

REC 423579548409

13

Figure 1. Sample Check-in List

Date/Time Received: 10-31-01 0925

SDG#: 01106235

Work Order Number: _____

SAF# B02-007

Shipping Container ID: ERC-96-018

Chain of Custody # B02-007-01

- 1. Custody Seals on shipping container intact? Yes No
- 2. Custody Seals dated and signed? Yes No
- 3. Chain-of-Custody record present? Yes No
- 4. Cooler temperature _____ 1-3
- 5. Vermiculite/packing materials is Wet Dry
- 6. Number of samples in shipping container: _____ 15
- 7. Sample holding times exceeded? Yes No 10-31-01

<p>8. Samples have:</p> <p><input type="checkbox"/> tape</p> <p><input checked="" type="checkbox"/> custody seals</p>	<p><input type="checkbox"/> hazard labels</p> <p><input type="checkbox"/> appropriate sample labels</p>
<p>9. Samples are:</p> <p><input checked="" type="checkbox"/> in good condition</p> <p><input type="checkbox"/> broken</p>	<p><input type="checkbox"/> leaking</p> <p><input type="checkbox"/> have air bubbles</p>

10. Were any anomalies identified in sample receipt? Yes No

11. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: Piedmont & Triville Laboratory (Maryland) Date: 10-31-01

Telephoned to: _____ On _____ By _____



Client: TNU-HANFORD B02-007
LVL #: 0110L235
SDG/SAF #: H1565/B02-007

W.O. #: 11343-606-001-9999-00
Date Received: 10-31-2001

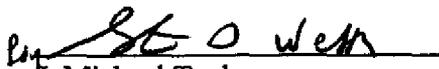
SEMIVOLATILE

One (1) water sample was collected on 10-29-2001.

The sample and its associated QC samples were extracted on 11-01-2001 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for client specified and Tributylphosphate Semivolatile target compounds on 11-19,20-2001.

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

1. The cooler temperature upon receipt has been recorded on the chain-of-custody.
2. The sample was extracted and analyzed within required holding time.
3. Non-target compounds were not detected in the sample.
4. All surrogate recoveries were within EPA QC limits.
5. All blank spike duplicate recoveries were within EPA QC limits. The blank spike 01LE1321-MB1 BS was inadvertently not spiked; consequently, all spike compounds have been flagged with 'NS' (not spiked). A copy of the Sample Discrepancy Report (SDR) has been enclosed.
6. All matrix spike recoveries were within EPA QC limits.
7. The method blank contained the common laboratory contaminant Bis (2-Ethylhexyl) phthalate at a level less than the CRQL.
8. Internal standard area and retention time criteria were met.
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 data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


J. Michael Taylor

President
Lionville Laboratory Incorporated

11-27-01
Date

som\group\data\bna\tnu-hanford-0110-235.doc

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 10 pages.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 01MS 331

Initiator: J. Layman Batch: 0110L 235 - Parameter: BNA
 Date: 11-22-01 Samples: 001 Matrix: water
 Client: 700 Hubbard Method: SW846/MCAVW/CLP/ Prep Batch: GILE 1321

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)

ⓐ 001 - unspiked analysis appears to have low level contamination of matrix spike compounds.
 ⓑ BS - not spiked

2. Known or Probable Causes(s)

ⓐ cross-contamination with MS/MSD
 ⓑ analyst error

3. Discussion and Proposed Action

Other Description: narrate - all spike compounds are "S" level hits
ⓐ MS, MSD and BS all met criteria

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: Mark Johnson 11/20/01

Concur with Proposed Action
 Disagree with Proposed Action; See Instruction
 Include in Case Narrative
 Client Contacted:
 Date/Person Jan Kessner 11/20/01
 Add
 Cancel

5. Final Action...signature/date: _____ Other Explanation: _____

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

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

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
<input checked="" type="checkbox"/>	Initiator	<input type="checkbox"/>	Metals: Beegle
<input checked="" type="checkbox"/>	Lab General Manager: M. Taylor	<input type="checkbox"/>	Inorganic: Perrone
<input checked="" type="checkbox"/>	Project Mgr: Stone/Johnson/Haslett	<input type="checkbox"/>	GC/LC: Kiger
<input checked="" type="checkbox"/>	Technical Mgr: Wesson/Daniels	<input type="checkbox"/>	MS: Rychlak/Layman
<input checked="" type="checkbox"/>	QA (file): Alberts	<input type="checkbox"/>	Log-in: Keppel
<input type="checkbox"/>	Data Management: Feldman	<input type="checkbox"/>	Admin: Soos
<input type="checkbox"/>	Sample Prep: Beegle/Kiger	<input type="checkbox"/>	Other: _____

GLOSSARY OF BNA DATA

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.
- A - Indicates that a TIC is a suspected aldol-condensation product.
- 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 OF BNA DATA

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 quantitation 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 quantitation modifications:

- MP** - **Missed Peak:** manually added peak not found by automatic quantitation program.
- PA** - **Peak Assignment:** quantitation 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 resolved 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** - **Coelution/Background:** peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.
- PI** - **Proper Integration:** a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

L-WI-035/a-mi-10/00



Lionville Laboratory, Inc.
Semivolatiles by GC/MS, Special List

Report Date: 11/26/01 08:57

RFW Batch Number: 0110L335

Client: TNUHANFORD B02-007 H1565

Work Order: 11343606001

Page: 1a

Sample Information	Cust ID:	B13C82	B13C82	B13C82	SBLKJF	SBLKJF BS	SBLKJF BSD
	RFW#:	001	001 MS	001 MSD	01LE1321-MB1	01LE1321-MB1	01LE1321-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	72 %	81 %	50 %	60 %	82 %	72 %
	2-Fluorobiphenyl	68 %	78 %	49 %	56 %	75 %	65 %
Recovery	p-Terphenyl-d14	87 %	109 %	73 %	86 %	113 %	100 %
	Phenol-d5	75 %	58 %	57 %	57 %	30 %	71 %
	2-Fluorophenol	74 %	77 %	51 %	57 %	78 %	72 %
	2,4,6-Tribromophenol	60 %	87 %	53 %	49 %	76 %	70 %
-----f1-----f1-----f1-----f1-----f1-----f1-----f1							
Phenol		1 J	75 %	55 %	10 U	NS	72 %
bis(2-Chloroethyl) ether		10 U	20 U	22 U	10 U	10 U	10 U
2-Chlorophenol		1 J	77 %	53 %	10 U	NS	69 %
1,3-Dichlorobenzene		10 U	20 U	22 U	10 U	10 U	10 U
1,4-Dichlorobenzene		0.5 J	47 %	39 %	10 U	NS	46 %
1,2-Dichlorobenzene		10 U	20 U	22 U	10 U	10 U	10 U
2-Methylphenol		10 U	20 U	22 U	10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)		10 U	20 U	22 U	10 U	10 U	10 U
4-Methylphenol		10 U	20 U	22 U	10 U	10 U	10 U
N-Nitroso-Di-n-propylamine		10 U	92 %	54 %	10 U	NS	68 %
Hexachloroethane		10 U	20 U	22 U	10 U	10 U	10 U
Nitrobenzene		10 U	20 U	22 U	10 U	10 U	10 U
Isophorone		10 U	20 U	22 U	10 U	10 U	10 U
2-Nitrophenol		10 U	20 U	22 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	20 U	22 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane		10 U	20 U	22 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	20 U	22 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		0.6 J	50 %	39 %	10 U	NS	48 %
Naphthalene		10 U	20 U	22 U	10 U	10 U	10 U
4-Chloroaniline		10 U	20 U	22 U	10 U	10 U	10 U
Hexachlorobutadiene		10 U	20 U	22 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		0.8 J	85 %	54 %	10 U	NS	73 %
2-Methylnaphthalene		10 U	20 U	22 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	20 U	22 U	10 U	10 U	10 U
2,4,6-Trichlorophenol		10 U	20 U	22 U	10 U	10 U	10 U
2,4,5-Trichlorophenol		26 U	50 U	54 U	25 U	25 U	25 U

*= Outside of EPA CLP QC limits.

Cust ID: B13C82 B13C82 B13C82 SBLKJF SBLKJF BS SBLKJF BSD

8

RFW#:	001	001 MS	001 MSD	01LE1321-MB1	01LE1321-MB1	01LE1321-MB1
2-Chloronaphthalene	10 U	20 U	22 U	10 U	10 U	10 U
2-Nitroaniline	26 U	50 U	54 U	25 U	25 U	25 U
Dimethylphthalate	10 U	20 U	22 U	10 U	10 U	10 U
Acenaphthylene	10 U	20 U	22 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	20 U	22 U	10 U	10 U	10 U
3-Nitroaniline	26 U	50 U	54 U	25 U	25 U	25 U
Acenaphthene	0.8 J	69 %	49 %	10 U	NS %	64 %
2,4-Dinitrophenol	26 U	50 U	54 U	25 U	25 U	25 U
4-Nitrophenol	26 U	68 %	45 %	25 U	NS %	50 %
Dibenzofuran	10 U	20 U	22 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	86 %	54 %	10 U	NS %	74 %
Diethylphthalate	10 U	20 U	22 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	20 U	22 U	10 U	10 U	10 U
Fluorene	10 U	20 U	22 U	10 U	10 U	10 U
4-Nitroaniline	26 U	50 U	54 U	25 U	25 U	25 U
4,6-Dinitro-2-methylphenol	26 U	50 U	54 U	25 U	25 U	25 U
N-Nitrosodiphenylamine (1)	10 U	20 U	22 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	20 U	22 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	20 U	22 U	10 U	10 U	10 U
Pentachlorophenol	26 U	82 %	24 %	25 U	NS %	40 %
Phenanthrene	10 U	20 U	22 U	10 U	10 U	10 U
Anthracene	10 U	20 U	22 U	10 U	10 U	10 U
Carbazole	10 U	20 U	22 U	10 U	10 U	10 U
Di-n-Butylphthalate	1 J	1 J	22 U	10 U	10 U	10 U
Fluoranthene	10 U	20 U	22 U	10 U	10 U	10 U
Pyrene	1 J	91 %	66 %	10 U	NS %	97 %
Butylbenzylphthalate	10 U	20 U	22 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	10 U	20 U	22 U	10 U	10 U	10 U
Benzo(a)anthracene	10 U	20 U	22 U	10 U	10 U	10 U
Chrysene	10 U	20 U	22 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10 U	20 U	22 U	1 J	0.6 JB	1 JB
Di-n-Octyl phthalate	10 U	20 U	22 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	20 U	22 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	20 U	22 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	20 U	22 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	20 U	22 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	20 U	22 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	20 U	22 U	10 U	10 U	10 U
Tributylphosphate	10 U	20 U	22 U	10 U	10 U	10 U

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

0110L23540314

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B02-007-01		Page 1 of 1		
Collector Thomas, G/Watson, D		Company Contact Cearlock, CS		Telephone No. 372-9638		Project Coordinator TRENT, SJ		Price Code 7N		Data Turnaround 45 Days	
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin		Sampling Location 200 East & West		SAF No. B02-007		Air Quality <input type="checkbox"/>					
Ice Chest No. ERC-96-018		Field Logbook No. EL-1551		COA XL2002CHGR		Method of Shipment Fed Ex					
Shipped To TMA/RECREA		Offsite Property No. A020019		Bill of Lading/Air Bill No. 42357954-8409							
POSSIBLE SAMPLE HAZARD MARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special Handling and/or Storage RT 10:30:01			Preservation	HCl or H2SO4 to pH < 2 Cool	Cool 4C	HNO3 to pH < 2	H2SO4 to pH < 2 Cool 4C	Cool 4C Cool 4C	ZnAc+NaOH to pH > 9 Cool	HNO3 to pH < 2	
			Type of Container	A-C	DE	F	G	H	I		
			No. of Container(s)	3	2	1	1	1	1	2	
			Volume	40mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	
SAMPLE ANALYSIS			VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	Semi-VOA - 8270A (Add-On) (Tributyl phosphate)	See item (1) in Special Instructions.	NO2/NO3 - 353.1; Ammonia - 350.3	See item (2) in Special Instructions.	Sulfides - 9030	Organic Alcohols - 9030		
Sample No.	Matrix *	Sample Date	Sample Time								
B13C82	WATER	10/29/01	0800	X	X	X	X	X	X		
CHAIN OF POSSESSION			Sign/Print Names			SPECIAL INSTRUCTIONS					Matrix *
Relinquished By/Removed From D Swanson / D Swanson		Date/Time 10/29/01 0815	Received By/Stored In REF. 2B - 3728 BLDG.		Date/Time 10/29/01 0815	** Laboratory is to measure pH within 24 hours of sample receipt. ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0. ** The laboratory is to report Decane as a TIC if present in detectable quantities. (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040 Samples stored in Ref. # 2B at the 3728 Shipping Facility on 10/29/01. Collector not available to relinquish samples on 10/30/01 for shipment. RT 10:30:01					S=Soil SS=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Dryness Solids DL=Dryness Liquids T=Trace W=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From Ref. 2B 3728		Date/Time 10:30:01	Received By/Stored In R Thore		Date/Time 10:30:01						
Relinquished By/Removed From R Thore		Date/Time 10:30:01	Received By/Stored In F E O A W		Date/Time						
Relinquished By/Removed From F E O C		Date/Time 10/31/01 0925	Received By/Stored In Kirk Hernandez		Date/Time 10/31/01 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						

F.O.E. 423579548409



Analytical Report

Client: TNU-HANFORD B02-007
LVL#: 0110L235
SDG/SAF#: H1565/B02-007

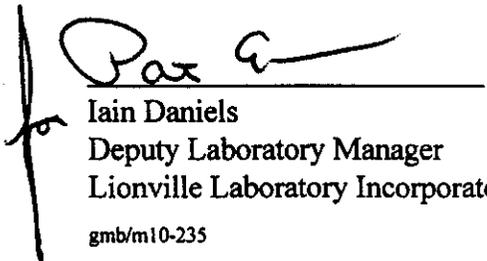
W.O.#: 11343-606-001-9999-00
Date Received: 10-31-01

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.
3. All analyses were performed within the required holding times.
4. The cooler temperature has been recorded on the Chain of Custody.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits.
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. The preparation/method blanks for 3 analytes were outside method criteria. {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
 - a). The MB results for Beryllium, Copper, and Zinc were greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and all samples read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were reported herein "uncorrected" for the levels found in the MB.
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. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

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 13 pages.

11. The duplicate analyses for 4 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
12. 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.
13. 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
Deputy Laboratory Manager
Lionville Laboratory Incorporated
gmb/m10-235

11-15-01
Date



METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this lot#: 0110L235

Leaching Procedure: 1310 1311 1312 Other: _____

MLP 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	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Antimony	<input type="checkbox"/> 6010B <u>7041^s</u>	<input type="checkbox"/> 200.7 <u>204.2</u>			<input type="checkbox"/> 99
Arsenic	<input checked="" type="checkbox"/> 6010B <u>7060A^s</u>	<input type="checkbox"/> 200.7 <u>206.2</u>	<input type="checkbox"/> 3113B		<input type="checkbox"/> 99
Barium	<input checked="" type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Beryllium	<input checked="" type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Bismuth	<input type="checkbox"/> 6010B ¹	<input type="checkbox"/> 200.7 ¹		<input type="checkbox"/> 1620	<input type="checkbox"/> 99
Boron	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Cadmium	<input checked="" type="checkbox"/> 6010B <u>7131A^s</u>	<input type="checkbox"/> 200.7 <u>213.2</u>			<input type="checkbox"/> 99
Calcium	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Chromium	<input checked="" type="checkbox"/> 6010B <u>7191^s</u>	<input type="checkbox"/> 200.7 <u>218.2</u>			<input type="checkbox"/> SS17
Cobalt	<input checked="" type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Copper	<input checked="" type="checkbox"/> 6010B <u>7211^s</u>	<input type="checkbox"/> 200.7 <u>220.2</u>			<input type="checkbox"/> 99
Iron	<input checked="" type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Lead	<input checked="" type="checkbox"/> 6010B <u>7421^s</u>	<input type="checkbox"/> 200.7 <u>239.2</u>	<input type="checkbox"/> 3113B		<input type="checkbox"/> 99
Lithium	<input type="checkbox"/> 6010B <u>7430^s</u>	<input type="checkbox"/> 200.7		<input type="checkbox"/> 1620	<input type="checkbox"/> 99
Magnesium	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Manganese	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Mercury	<input type="checkbox"/> 7470A ^s <u>7471A^s</u>	<input type="checkbox"/> 245.1 ^s <u>245.5^s</u>			<input type="checkbox"/> 99
Molybdenum	<input checked="" type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Nickel	<input checked="" type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Potassium	<input type="checkbox"/> 6010B <u>7610^s</u>	<input type="checkbox"/> 200.7 <u>258.1^s</u>			<input type="checkbox"/> 99
Rare Earths	<input type="checkbox"/> 6010B ¹	<input type="checkbox"/> 200.7 ¹		<input type="checkbox"/> 1620	<input type="checkbox"/> 99
Selenium	<input checked="" type="checkbox"/> 6010B <u>7740^s</u>	<input type="checkbox"/> 200.7 <u>270.2</u>	<input type="checkbox"/> 3113B		<input type="checkbox"/> 99
Silicon	<input type="checkbox"/> 6010B ¹	<input type="checkbox"/> 200.7		<input type="checkbox"/> 1620	<input type="checkbox"/> 99
Silica	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7		<input type="checkbox"/> 1620	<input type="checkbox"/> 99
Silver	<input checked="" type="checkbox"/> 6010B <u>7761^s</u>	<input type="checkbox"/> 200.7 <u>272.2</u>			<input type="checkbox"/> 99
Sodium	<input type="checkbox"/> 6010B <u>7770^s</u>	<input type="checkbox"/> 200.7 <u>273.1^s</u>			<input type="checkbox"/> 99
Strontium	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Thallium	<input type="checkbox"/> 6010B <u>7841^s</u>	<input type="checkbox"/> 200.7 <u>279.2</u> <u>200.9</u>			<input type="checkbox"/> 99
Tin	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Titanium	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Uranium	<input type="checkbox"/> 6010B ¹	<input type="checkbox"/> 200.7 ¹		<input type="checkbox"/> 1620	<input type="checkbox"/> 99
Vanadium	<input checked="" type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Zinc	<input checked="" type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Zirconium	<input type="checkbox"/> 6010B ¹	<input type="checkbox"/> 200.7 ¹		<input type="checkbox"/> 1620	<input type="checkbox"/> 99

Other: _____

Method: _____

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.
- B = Indicates that the parameter was between the Instrument Detection Limit (IDL) and the Contract Required Detection Limit (CRDL)

Q QUALIFIERS

- E = The reported value is estimated because of the presence of interference.
- M = Duplicate injection precision not met.
- N = Spiked sample recovery not within control limits.
- S = The reported value was determined by the Method of Standard Additions (MSA).
- W = Post Digestion spike for Furnace AA analysis is out of control limits (85 -115 %), while sample absorbance is less than 50% of spike absorbance.
- * = Duplicate analysis not within control limits.
- + = Correlation coefficient for the MSA is less than 0.995.

ABBREVIATIONS

- PB = Method or Preparation Blank.
- S = Matrix Spike.
- T = Matrix Spike Duplicate.
- R or D = Sample Replicate

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, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).
3. 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, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).
4. Flame AA.
5. Graphite Furnace AA.

RFW 21-21L-033/O-01/97

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 11/13/01

CLIENT: TNUHANFORD B02-007 H1565
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-001	B13C82	Silver, Total	0.60	u UG/L	0.60	1.0
		Arsenic, Total	3.2	u UG/L	3.2	1.0
		Barium, Total	0.75	UG/L	0.10	1.0
		Beryllium, Total	0.31	UG/L	0.10	1.0
		Cadmium, Total	0.30	u UG/L	0.30	1.0
		Chromium, Total	0.72	UG/L	0.60	1.0
		Copper, Total	3.9	UG/L	0.50	1.0
		Nickel, Total	1.0	u UG/L	1.0	1.0
		Lead, Total	1.9	u UG/L	1.9	1.0
		Selenium, Total	2.2	u UG/L	2.2	1.0
		Vanadium, Total	0.50	u UG/L	0.50	1.0
		Zinc, Total	9.3	UG/L	0.30	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/13/01

CLIENT: TNUHANFORD B02-007 H1565
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
*****	*****	*****	*****	*****	*****	*****
BLANK1	01L0725-MB1	Silver, Total	0.60	u UG/L	0.60	1.0
		Arsenic, Total	3.2	u UG/L	3.2	1.0
		Barium, Total	0.24	UG/L	0.10	1.0
		Beryllium, Total	0.31	UG/L	0.10	1.0
		Cadmium, Total	0.30	u UG/L	0.30	1.0
		Chromium, Total	0.60	u UG/L	0.60	1.0
		Copper, Total	1.6	UG/L	0.50	1.0
		Nickel, Total	1.0	u UG/L	1.0	1.0
		Lead, Total	1.9	u UG/L	1.9	1.0
		Selenium, Total	2.2	u UG/L	2.2	1.0
		Vanadium, Total	0.50	u UG/L	0.50	1.0
		Zinc, Total	2.3	UG/L	0.30	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 11/13/01

CLIENT: TNUHANFORD B02-007 H1565
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-----	-----	-----	-----	-----	-----	-----	-----
-001	B13C82	Silver, Total	49.4	0.60u	50.0	98.8	1.0
		Arsenic, Total	1980	3.2 u	2000	98.9	1.0
		Barium, Total	1940	0.75	2000	96.9	1.0
		Beryllium, Total	50.4	0.31	50.0	100.2	1.0
		Cadmium, Total	49.1	0.30u	50.0	98.2	1.0
		Chromium, Total	197	0.72	200	98.3	1.0
		Copper, Total	253	3.9	250	99.8	1.0
		Nickel, Total	502	1.0 u	500	100.4	1.0
		Lead, Total	498	1.9 u	500	99.6	1.0
		Selenium, Total	1980	2.2 u	2000	99.2	1.0
		Vanadium, Total	490	0.50u	500	98.0	1.0
		Zinc, Total	500	9.3	500	98.1	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 11/13/01

CLIENT: TNUHANFORD B02-007 H1565
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE RPD		
-001REP	B13C82	Silver, Total	0.60u	0.60u	NC	1.0
		Arsenic, Total	3.2 u	3.2 u	NC	1.0
		Barium, Total	0.75	0.52	36.2	1.0
		Beryllium, Total	0.31	0.36	14.9	1.0
		Cadmium, Total	0.30u	0.30u	NC	1.0
		Chromium, Total	0.72	0.60u	NC 200	1.0
		Copper, Total	3.9	1.4	94.3	1.0
		Nickel, Total	1.0 u	1.0 u	NC	1.0
		Lead, Total	1.9 u	1.9 u	NC	1.0
		Selenium, Total	2.2 u	2.2 u	NC	1.0
		Vanadium, Total	0.50u	0.50u	NC	1.0
		Zinc, Total	9.3	6.0	43.1	1.0

4/11/13/v

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/13/01

CLIENT: TNUHANFORD B02-007 H1565
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	SPIKED		UNITS	%RECOV
			SAMPLE	AMOUNT		
LCS1	01L0725-LC1	Silver, LCS	446	500	UG/L	89.2
		Arsenic, LCS	9700	10000	UG/L	97.0
		Barium, LCS	4790	5000	UG/L	95.7
		Beryllium, LCS	249	250	UG/L	99.6
		Cadmium, LCS	245	250	UG/L	97.8
		Chromium, LCS	487	500	UG/L	97.5
		Copper, LCS	1240	1250	UG/L	99.0
		Nickel, LCS	1980	2000	UG/L	99.1
		Lead, LCS	2460	2500	UG/L	98.3
		Selenium, LCS	9860	10000	UG/L	98.6
		Vanadium, LCS	2460	2500	UG/L	98.5
		Zinc, LCS	990	1000	UG/L	99.0

0110LD 0240 314

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B02-007-01	Page 1 of 1
Collector Thomas, G/Watson, D	Company Contact Cearlock, CS	Telephone No. 372-9638	Project Coordinator TRENT, SJ		Price Code 7N	Data Turnaround 45 Days
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin	Sampling Location 200 East & West	SAF No. B02-007	Air Quality <input type="checkbox"/>			
Ice Chest No. ERC-96-018	Field Logbook No. EL-1551	COA XL2002CHGR	Method of Shipment Fed Ex			
Shipped To TMA/RECRA	Offsite Property No. A020019	Bill of Lading/Air Bill No. 42357954-8409				

POSSIBLE SAMPLE HAZARD NOTES Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special Handling and/or Storage RT 1030.01	Preservation	HCl or H2SO4 to pH < 2 Cool	Cool 4C	HNO3 to pH < 2	H2SO4 to pH < 2 Cool 4C	Cool 4C Cool 4C	ZnAc+NaOH to pH > 9 Cool	HNO3 to pH < 2			
	Type of Container	A-C	D-E	F	G	H	I	J			
	No. of Container(s)	3	2	1	1	1	1	2			
	Volume	40mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL			

SAMPLE ANALYSIS	VOC - E260A (TCL); VOA - E260A (Add-On) (1- Propanol, Ethanol)	Semi-VOA - E270A (Add-On) (Tributyl phosphate)	See item (1) in Special Instructions.	NO2/NO3 - 353.1; Ammonia - 350.3	See item (2) in Special Instructions.	Sulfides - 9030	Organic Alcohols; Other				
-----------------	--	--	---------------------------------------	----------------------------------	---------------------------------------	-----------------	-------------------------	--	--	--	--

Sample No.	Matrix *	Sample Date	Sample Time								
B13C82	WATER	10/29/01	0800	X	X	X	X	X	X		

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
D.S. Watson / B. Smith	10/29/01 0815	REF-28 3728 Bldg.	10/29/01 0815
R. L. 23 3728	10:30:01	R. L. Thore	10:30:01
R. L. Thore	10:30:01	F. J. O'Neil	
F. J. O'Neil	10:31:01 0825	Vicki Hernandez	10-31-01 0825

SPECIAL INSTRUCTIONS

** Laboratory is to measure pH within 24 hours of sample receipt.
 ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0.
 ** The laboratory is to report Decane as a TIC if present in detectable quantities.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc)
 (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040

Samples stored in Ref. #28 at the 3728 Shipping Facility on 10/29/01. Collector not available to relinquish samples on 10/30/01 for shipment.
 RT 10:30:01

Matrix *

S=Soil
 SB=Soil/Bottom
 SO=Soil
 SP=Sludge
 W=Water
 O=Oil
 DS=Dry Solid
 DL=Dry Liquid
 T=Time
 W=Wipe
 L=Liquid
 V=Vegetation
 X=Other

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

REC 423579548409



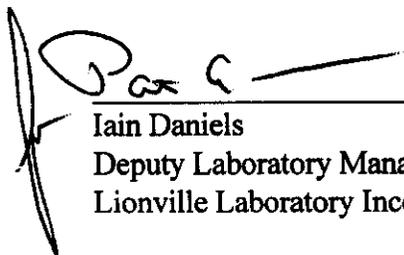
Analytical Report

Client: TNU-HANFORD B02-007 H1565
LVL#: 0110L235

W.O.#: 11343-606-001-9999-00
Date Received: 10-31-01

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 water sample.
2. The sample was prepared and analyzed in accordance with the methods checked on the attached glossary.
3. Sample holding times as required by the method and/or contract were met with the exception of pH, Nitrate, Nitrite and Phosphate that were received past hold.
4. The cooler temperature was recorded on the chain of custody.
5. The method blanks were within the method criteria.
6. The Laboratory Control Samples (LCS) were within the laboratory control limits. the duplicate LCS were within the 20% Relative Percent difference (RP) control limit.
7. The matrix spike recoveries were within the 75-125% control limits.
8. The replicate analyses were within the 20% 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
Deputy Laboratory Manager
Lionville Laboratory Incorporated

11-15-01
Date

njpv10-235

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 13 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)
<u>Ion Chromatography:</u>			
___ Bromide <input checked="" type="checkbox"/> Chloride <input checked="" type="checkbox"/> Fluoride	<input checked="" type="checkbox"/> 300.0	___ 9056	
<input checked="" type="checkbox"/> Nitrate <input checked="" type="checkbox"/> Nitrite <input checked="" type="checkbox"/> Phosphate	<input checked="" type="checkbox"/> 300.0	___ 9056	
<input checked="" type="checkbox"/> Sulfate ___ Formate ___ Acetate ___ Oxalate	<input checked="" type="checkbox"/> 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 (b)
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		
<input checked="" type="checkbox"/> Nitrate-Nitrite ___ Nitrate ___ Nitrite	<input checked="" type="checkbox"/> 353.2		
Ammonia	350.3		
Total ___ Kjeldahl ___ Organic Nitrogen	351.3		
Total ___ Organic ___ Inorganic Carbon	415.1	___ 9060	
Oil & Grease	413.1	___ 9070	
<input checked="" type="checkbox"/> pH ___ pH; paper	150.1	<input checked="" type="checkbox"/> 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		<input checked="" type="checkbox"/> 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		
<u>Volatile Solids:</u>			
___ 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 11/15/01

CLIENT: TNUHANFORD B02-007 H1565
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-001	B13C82	Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.50 u	MG/L	0.50	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
		Nitrate Nitrite	0.020u	MG/L	0.020	1.0
		Ammonia, as N	0.10 u	MG/L	0.10	1.0
		pH	5.3	PH UNIT	0.01	1.0
		Sulfide	1.0 u	MG/L	1.0	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/15/01

CLIENT: TNUHANFORD B02-007 H1565
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
*****	*****	*****	*****	*****	*****	*****
BLANK10	01LICB71-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	0.50 u	MG/L	0.50	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
BLANK10	01LN3058-MB1	Nitrate Nitrite	0.020u	MG/L	0.020	1.0
BLANK10	01LAMB49-MB1	Ammonia, as N	0.10 u	MG/L	0.10	1.0
BLANK10	01LSD060-MB1	Sulfide	1.0 u	MG/L	1.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 11/15/01

CLIENT: TNUHANFORD B02-007 H1565
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B13C82	Chloride by IC	5.3	0.22	5.0	100.5	1.0
		Fluoride by IC	10.6	0.00	10.0	106.4	1.0
		Nitrite by IC	5.06	0.25u	5.00	101.2	1.0
		Nitrate by IC	4.86	0.25u	5.00	97.1	1.0
		Phosphate by IC	4.8	0.25u	5.0	96.1	1.0
		Sulfate by IC	4.9	0.25u	5.0	97.6	1.0
		Nitrate Nitrite	0.48	0.02u	0.50	96.4	1.0
		Ammonia, as N	2.1	0.10u	2.0	104.0	1.0
		Sulfide	28.7	0.30	30.9	91.9	1.0
BLANK10	01LICB71-MB1	Bromide by IC	4.8	0.25u	5.0	95.1	1.0
		Chloride by IC	4.7	0.25u	5.0	94.9	1.0
		Fluoride by IC	10.6	0.50u	10.0	105.7	1.0
		Nitrite by IC	4.80	0.25u	5.00	96.1	1.0
		Nitrate by IC	4.96	0.25u	5.00	99.1	1.0
		Phosphate by IC	5.1	0.25u	5.0	102.3	1.0
		Sulfate by IC	4.8	0.25u	5.0	95.8	1.0
BLANK10	01LN3058-MB1	Nitrate Nitrite	0.52	0.02u	0.50	104.0	1.0
BLANK10	01LAMB49-MB1	Ammonia, as N	2.0	0.10u	2.0	101.0	1.0
		Ammonia, as N MSD	2.1	0.10u	2.0	103.0	1.0
BLANK10	01LSD060-MB1	Sulfide	7.9	1.0 u	7.7	102.6	1.0
		Sulfide MSD	7.7	1.0 u	7.7	100	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 11/15/01

CLIENT: TNUHANFORD B02-007 H1565
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	01LAMB49-MB1	Ammonia, as N	101.0	103.0	2.0
BLANK10	01LSD060-MB1	Sulfide	102.6	100	2.6

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 11/15/01

CLIENT: TNUHANFORD B02-007 H1565
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE RPD		DILUTION FACTOR (REP)
-----	-----	-----	-----	-----	-----	-----
-001REP	B13C02	Chloride by IC	0.25u	0.25u	NC	1.0
		Fluoride by IC	0.50u	0.50u	NC	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	0.25u	0.25u	NC	1.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	0.25u	0.25u	NC	1.0
		Nitrate Nitrite	0.02u	0.02u	NC	1.0
		Ammonia, as N	0.10u	0.10u	NC	1.0
		pH	5.3	5.3	0.6	1.0
		Sulfide	1.0 u	1.0 u	NC	1.0

U10Ld 00470314

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Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B02-007-01	Page 1 of 1
Collector Thomas, G/Watson, D	Company Contact Cearlock, CS	Telephone No. 372-9638	Project Coordinator TRENT, SJ		Price Code 7N	Data Turnaround 45 Days
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin		Sampling Location 200 East & West		SAF No. B02-007	Air Quality <input type="checkbox"/>	
Ice Chest No. ERC-46-018	Field Logbook No. EL-1551	COA XL2002CHGR		Method of Shipment Fed Ex		
Shipped To TMA/RECRA		Offsite Property No. A020019		Bill of Lading/Air Bill No. 42357954-8409		

POSSIBLE SAMPLE HAZARD MARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special Handling and/or Storage RT 10:30:01	Preservation	HCl or H2SO4 to pH < 2 Cool	Cool 4C	HNO3 to pH < 2	H2SO4 to pH < 2 Cool 4C	Cool 4C Cool 4C	ZnAc+NaOH to pH > 9 Cool	HNO3 to pH < 2			
	Type of Container	A-C	DE	F	G	H	I				
	No. of Container(s)	3	2	1	1	1	1	2			
	Volume	40mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL			

SAMPLE ANALYSIS				VDA - 8260A (TCL); VOA - 8260A (Add-On) (1- Propanol, Ethanol)	Semi-VDA -- 8270A (Add-On) (Tributyl phosphate)	See item (1) in Special Instructions.	NO2/NO3 - 353.1; Ammonia - 350.3	See item (2) in Special Instructions.	Sulfides - 9030	Chloride, Alkali, Nitrate, Nitrite
------------------------	--	--	--	--	---	---------------------------------------	----------------------------------	---------------------------------------	-----------------	------------------------------------

Sample No.	Matrix *	Sample Date	Sample Time								
B13C82	WATER	10/29/01	0800	X	X	X	X	X	X		

CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From D Swanson / D Swanson	Date/Time 10/29/01 0815	Received By/Stored In REF. 2B. 3728 Bldg.	Date/Time 10/29/01 0815	** Laboratory is to measure pH within 24 hours of sample receipt. ** The HRC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0. ** The laboratory is to report Decane as a TIC if present in detectable quantities. (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040 Samples stored in Ref. # 2B at the 3728 Shipping Facility on 10/29/01. Collector not available to relinquish samples on 10/30/01 for shipment. RT 10:30:01				S-Soil SD-Sediment SO-Solid 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 Ref. 2B 3728	Date/Time 10/30/01 0900	Received By/Stored In RT R Thorey	Date/Time 10/30/01 0900					
Relinquished By/Removed From RT R Thorey	Date/Time 10/30/01 10:30:01	Received By/Stored In FEOANS	Date/Time					
Relinquished By/Removed From FEOANS	Date/Time 10/31/01 0925	Received By/Stored In Vicki Hernandez	Date/Time 10-31-01 0925					
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

Fed Ex 423579548409

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Figure 1. Sample Check-in List

Date/Time Received: 10-31-01 0925

SDG#: 0110L235

Work Order Number: _____

SAF# Boa-007

Shipping Container ID: ERC-96-018

Chain of Custody # Boa-007-01

- 1. Custody Seals on shipping container intact? Yes No
- 2. Custody Seals dated and signed? Yes No
- 3. Chain-of-Custody record present? Yes No
- 4. Cooler temperature _____ 1-3
- 5. Vermiculite/packing materials is Wet Dry
- 6. Number of samples in shipping container: _____ 15
- 7. Sample holding times exceeded? Yes No 10-31-01

<p>8. Samples have:</p> <p>_____ tape</p> <p><input checked="" type="checkbox"/> custody seals</p>	<p>_____ hazard labels</p> <p>_____ appropriate sample labels</p>
<p>9. Samples are:</p> <p><input checked="" type="checkbox"/> in good condition</p> <p>_____ broken</p>	<p>_____ leaking</p> <p>_____ have air bubbles</p>

10. Were any anomalies identified in sample receipt? Yes No

11. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: Field #11228
Terrebonne Laboratory, Annapolis Date: 10-31-01

Telephoned to: _____ On _____ By _____

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1565 was composed of one water sample designated under SAF No. B02-007 with a Project Designation of: 200 Area Source Characterization 200-CS-1 OU – QC Sampling.

The sample was received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on November 15, 2001.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

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
Program Manager

Date

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1565

SAMPLE SUMMARY

SDG 7128
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Case no SDG H1565

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B13C82	200 East & West	WATER		R110172-01	B02-007	B02-007-01	10/29/01 08:00
Method Blank		WATER		R110172-03	B02-007		
Lab Control Sample		WATER		R110172-02	B02-007		
Duplicate (R110172-01)	200 East & West	WATER		R110172-04	B02-007		10/29/01 08:00

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CS
 Version 3.06
 Report date 11/15/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1565

SDG 7128
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H1565

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
7128	B02-007-01	B13C82	WATER		2.0 L		10/31/01	2	R110172-01	7128-001
		Method Blank	WATER						R110172-03	7128-003
		Lab Control Sample	WATER						R110172-02	7128-002
		Duplicate (R110172-01)	WATER		2.0 L		10/31/01	2	R110172-04	7128-004

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-QS
 Version 3.06
 Report date 11/15/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1565

SDG 7128
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H1565

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED			QUALI-	
			BATCH	2σ %	CLIENT	MORE	RE BLANK		LCS
Gas Proportional Counting									
93A	WATER	Gross Alpha in Water	7012-112	20.0	1		1	1	1/1
93B	WATER	Gross Beta in Water	7012-112	15.0	1		1	1	1/1

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

Lab id JMNC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-PBS
 Version 3.06
 Report date 11/15/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1565

SDG 7128
 Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H1565

CLIENT SAMPLE ID	LAB SAMPLE ID									
LOCATION	MATRIX	COLLECTED	PLANCHET	TEST	SUF-	ANALYZED	REVIEWED	BY	METHOD	
CUSTODY	SAF No	RECEIVED			FIX					
B13C82		R110172-01	7128-001	93A/93		11/09/01	11/15/01	MCM	Gross Alpha in Water	
200 East & West	WATER	10/29/01	7128-001	93B/93		11/09/01	11/15/01	MCM	Gross Beta in Water	
802-007-01	802-007	10/31/01								
Method Blank		R110172-03	7128-003	93A/93		11/09/01	11/15/01	MCM	Gross Alpha in Water	
	WATER		7128-003	93B/93		11/09/01	11/15/01	MCM	Gross Beta in Water	
	802-007									
Lab Control Sample		R110172-02	7128-002	93A/93		11/09/01	11/15/01	MCM	Gross Alpha in Water	
	WATER		7128-002	93B/93		11/09/01	11/15/01	MCM	Gross Beta in Water	
	802-007									
Duplicate (R110172-01)		R110172-04	7128-004	93A/93		11/15/01	11/15/01	MCM	Gross Alpha in Water	
200 East & West	WATER	10/29/01	7128-004	93B/93		11/15/01	11/15/01	MCM	Gross Beta in Water	
	802-007	10/31/01								

COUNTS OF TESTS BY SAMPLE TYPE											
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
93A/93	802-007	Gross Alpha in Water	900.0_ALPHABETA_GPC	1			1	1	1		4
93B/93	802-007	Gross Beta in Water	900.0_ALPHABETA_GPC	1			1	1	1		4
TOTALS				2			2	2	2		8

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CWS
 Version 3.06
 Report date 11/15/01

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1565

R110172-03

Method Blank

METHOD BLANK

SDG <u>7128</u>	Client/Case no <u>Hanford</u>	<u>SDG H1565</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R110172-03</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7128-003</u>	Material/Matrix _____	<u>WATER</u>
	SAF No <u>B02-007</u>	

ANALYTE	CAS NO	RESULT pCi/L	2 σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	0.244	0.66	1.2	3.0	U	93A
Gross Beta	12587-47-2	-1.26	1.7	3.0	4.0	U	93B

200 Area Source Chara. 200-CS-1 OU

QC-BLANK 40182

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>11/15/01</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1565

R110172-02

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7128</u> Contact <u>Melissa C. Mannion</u>	Client/Case no <u>Hanford</u> <u>SDG H1565</u> Case no <u>No. 630</u>
Lab sample id <u>R110172-02</u> Dept sample id <u>7128-002</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix <u>WATER</u> SAF No <u>B02-007</u>

ANALYTE	RESULT	2σ ERR	MDA	RDL	QUALI-	ADDED	2σ ERR	REC	3σ LMTS	PROTOCOL
	pCi/L	(COUNT)	pCi/L	pCi/L	FIERS	TEST	pCi/L	%	(TOTAL)	LIMITS
Gross Alpha	67.8	5.1	1.1	3.0		93A	71.7	2.9	95	69-131 70-130
Gross Beta	95.4	4.3	3.3	4.0		93B	80.0	3.2	119	71-129 70-130

200 Area Source Chara. 200-CS-1 OU

QC-LCS 40181

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LCS
 Version 3.06
 Report date 11/15/01

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1565

R110172-04

B13C82

DUPLICATE

SDG <u>7128</u>		Client/Case no <u>Hanford</u> SDG <u>H1565</u>
Contact <u>Melissa C. Mannion</u>		Case no <u>No. 630</u>
DUPLICATE	ORIGINAL	
Lab sample id <u>R110172-04</u>	Lab sample id <u>R110172-01</u>	Client sample id <u>B13C82</u>
Dept sample id <u>7128-004</u>	Dept sample id <u>7128-001</u>	Location/Matrix <u>200 East & West</u> <u>WATER</u>
	Received <u>10/31/01</u>	Collected/Volume <u>10/29/01 08:00</u> <u>2.0 L</u>
		Custody/SAF No <u>B02-007-01</u> <u>B02-007</u>

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI- FIERS	RPD %	3σ TOT	PROT LIMIT
Gross Alpha	-0.017	0.40	0.79	3.0	U	93A	0.323	0.51	0.77	U	-		
Gross Beta	-0.497	1.0	1.8	4.0	U	93B	-0.509	1.2	2.1	U	-		

200 Area Source Chara. 200-CS-1 OU

QC-DUP#1 40183

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1565

R110172-01

B13C82

DATA SHEET

SDG <u>7128</u>	Client/Case no <u>Hanford</u>	SDG <u>H1565</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R110172-01</u>	Client sample id <u>B13C82</u>	
Dept sample id <u>7128-001</u>	Location/Matrix <u>200 East & West</u>	<u>WATER</u>
Received <u>10/31/01</u>	Collected/Volume <u>10/29/01 08:00</u>	<u>2.0 L</u>
	Custody/SAF No <u>B02-007-01</u>	<u>B02-007</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	0.323	0.51	0.77	3.0	U	93A
Gross Beta	12587-47-2	-0.509	1.2	2.1	4.0	U	93B

200 Area Source Chara. 200-CS-1 OU

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>11/15/01</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1565

METHOD SUMMARY

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Test 93A Matrix WATER
SDG 7128
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H1565

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha
Preparation batch 7012-112					
B13C82	R110172-01	93		7128-001	U
BLK (QC ID=40182)	R110172-03	93		7128-003	U
LCS (QC ID=40181)	R110172-02	93		7128-002	ok
Duplicate (R110172-01)	R110172-04	93		7128-004	- U

Nominal values and limits from method RDLs (pCi/L) 3.0
200 Area Source Chara. 200-CS-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR	
Preparation batch 7012-112 2σ prep error 20.0 % Reference Lab Notebook 7012 pg. 112																
B13C82	R110172-01	93		0.77	0.300			<u>4</u>		100			11	11/09/01	11/09	GRB-102
BLK (QC ID=40182)	R110172-03	93		1.2	0.300			21		100				11/09/01	11/09	GRB-114
LCS (QC ID=40181)	R110172-02	93		1.1	0.300			21		100				11/09/01	11/09	GRB-106
Duplicate (R110172-01)	R110172-04	93		0.79	0.300			<u>4</u>		100			17	11/09/01	11/15	GRB-101
(QC ID=40183)																

Nominal values and limits from method 3.0 0.300 5-250 100 180

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
CP-060 Soil Preparation, rev 3
CP-070 Soil Dissolution, < 1.0g Aliquot, rev 4
CP-170 Soil Preparation for Direct Gross Alpha and Gross Beta Counting, rev 3

AVERAGES ± 2 SD MDA 0.96 ± 0.44
FOR 4 SAMPLES RESIDUE 12 ± 20

METHOD SUMMARIES

Page 1

SUMMARY DATA SECTION

Page 11

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 11/15/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1565

METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Test 93B Matrix WATER
SDG 7128
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H1565

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Gross Beta
Preparation batch 7012-112					
B13C82	R110172-01	93		7128-001	U
BLK (QC ID=40182)	R110172-03	93		7128-003	U
LCS (QC ID=40181)	R110172-02	93		7128-002	ok
Duplicate (R110172-01)	R110172-04	93		7128-004	- U

Nominal values and limits from method RDLs (pCi/L) 4.0
200 Area Source Chara. 200-CS-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
Preparation batch 7012-112 2σ prep error 15.0 % Reference Lab Notebook 7012 pg. 112																
B13C82	R110172-01	93		2.1	0.300			<u>4</u>	100				11	11/09/01	11/09	GRB-102
BLK (QC ID=40182)	R110172-03	93		3.0	0.300			21	100					11/09/01	11/09	GRB-114
LCS (QC ID=40181)	R110172-02	93		3.3	0.300			21	100					11/09/01	11/09	GRB-106
Duplicate (R110172-01)	R110172-04	93		1.8	0.300			<u>4</u>	100				17	11/09/01	11/15	GRB-101
	(QC ID=40183)															

Nominal values and limits from method 4.0 0.300 5-250 100 180

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
CP-060 Soil Preparation, rev 3
CP-070 Soil Dissolution, < 1.0g Aliquot, rev 4
CP-170 Soil Preparation for Direct Gross Alpha and Gross Beta Counting, rev 3

AVERAGES ± 2 SD MDA 2.6 ± 1.4
FOR 4 SAMPLES RESIDUE 12 ± 20

METHOD SUMMARIES

Page 2

SUMMARY DATA SECTION

Page 12

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 11/15/01

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B02-007-01	Page 1 of 1
Collector Thomas, G/Watson, D	Company Contact Cearlock, CS	Telephone No. 372-9638	Project Coordinator TRENT, SJ		Price Code 7N	Data Turnaround 45 Days
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin	Sampling Location 200 East & West	H1565 (7128)		SAF No. B02-007	Air Quality <input type="checkbox"/>	
Ice Chest No. ERC 99-049	Field Logbook No. EL-1551	COA XL2002CHGR	Method of Shipment Fed Ex			
Shipped To TMA/REGRA	Offsite Property No. A020006	Bill of Lading/Air Bill No. 4230754-8431				

POSSIBLE SAMPLE HAZARDS/REMARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special handling and/or storage RT 10.30.01	Preservation	HCl or H2SO4 to pH <1 Cool	Cool 4C	HNO3 to pH <2	H2SO4 to pH <2 Cool 4C	Cool 4C Cool 4C	ZnAc/NaOH to pH >9 Cool	HNO3 to pH <2		
	Type of Container	aGs*	aG	aG	aG	aG	aG	aG		
	No. of Container(s)	3	2	1	1	1	1	2		
	Volume	40mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL		

SAMPLE ANALYSIS		VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	Semi-VOA - 8270A (Add-On) (Tributyl phosphate)	See item (7) in Special Instructions.	NO2/NO3 - 353.1; Ammonia - 350.3	See item (7) in Special Instructions.	Sulfides - 9030	Gross Alpha; Gross Beta		
------------------------	--	---	--	---------------------------------------	----------------------------------	---------------------------------------	-----------------	-------------------------	--	--

Sample No.	Matrix *	Sample Date	Sample Time						
B13C82	WATER	10/29/01	0600					X	

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From G. Watson	Date/Time 10/29/01 0815	Received By/Stored In REF. 2B 3728 BRG	Date/Time 10/29/01 0815	** Laboratory is to measure pH within 24 hours of sample receipt. ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0. ** The laboratory is to report Decane as a TIC if present in detectable quantities.				P-0 SO-Sediment SO-Solid S-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 REF. 2B 3728	Date/Time 10/30/01 0900	Received By/Stored In R. Thore	Date/Time 10/30/01 0900	(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver) ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc)				
Relinquished By/Removed From ERC	Date/Time 10/30/01 0900	Received By/Stored In J. R. Potts	Date/Time 10/30/01 0915	(2) IG Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040				
Relinquished By/Removed From Fed Ex	Date/Time 10/31/01 9:45	Received By/Stored In J. R. Potts	Date/Time 10/31/01 9:45	Samples stored in Ref. 2B at the 3728 Shipping Facility on 10/29/01. Collector not available to relinquish samples on 10/30/01 for shipment.				
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	RT 10.30.01				

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

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Berkel Hanford Date/Time received 10-31-01 9:45

CoC No. BD2-007-01

Container I.D. No. ERC-99-045 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. Cooler Temperature: _____ Packing material is: Wet Dry
6. Number of samples in shipping container: 1
7. Number of containers per sample: 2 (Or see CoC _____)
8. Paperwork agrees with samples? Yes No
9. Samples have: Tape Hazard labels Rad labels Appropriate sample labels
10. Samples are: In good condition Leaking Broken Container Missing
11. Describe any anomalies: _____
13. Was P.M. notified of any anomalies? Yes No Date 10-31-01
14. Received by A.P. Corat Date: 10-31-01 Time: 9:45

Customer Sample No.	cpm	mr/hr	Customer Sample No.	Cpm	mr/hr
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Ion Chamber Ser. No. _____ Calibration date _____

Survey Meter Ser No. _____ Calibration date _____