



0060747

15 September 2003

Mr. Steve Trent
Fluor Hanford Inc.
825 Jadwin Ave.
Richland, WA 99352

RECEIVED
NOV 24 2003

**Subject: Contract No. 630
Analytical Data Package**

EDMC

Dear Mr. Trent:

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

LvLI Batch #	0308L031
SDG #	H2302
SAF #	F02-009
Date Received	8-01-03
# Samples	6
Matrix	Water
Volatiles	
Semivolatiles	
Pest/PCB	X
DRO/GRO/KRO	
Herbicides	X
GC Alcohol	
Metals	
Inorganics	



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
Orlette S. Johnson
Project Manager

Lionville Laboratory, Inc.
 PEST/PCB ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD F02-009 H2302

DATE RECEIVED: 08/01/03

LVL LOT # :0308L031

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B17B05	001	W	03LE0923	07/29/03	08/04/03	08/18/03
B17B06	002	W	03LE0923	07/29/03	08/04/03	08/18/03
B17B07	003	W	03LE0923	07/29/03	08/04/03	08/18/03
B17B08	004	W	03LE0923	07/29/03	08/04/03	08/18/03
B17B09	005	W	03LE0923	07/29/03	08/04/03	08/18/03
B17B10	006	W	03LE0923	07/29/03	08/04/03	08/18/03
B17B10	006 MS	W	03LE0923	07/29/03	08/04/03	08/18/03
B17B10	006 MSD	W	03LE0923	07/29/03	08/04/03	08/18/03

LAB QC:

PBLKBF	MB1	W	03LE0923	N/A	08/04/03	08/18/03
PBLKBF	MB1 BS	W	03LE0923	N/A	08/04/03	08/18/03





Analytical Report

Client: TNU-HANFORD F02-009
LVL #: 0308L031
SDG/SAF #: H2302/F02-009

W.O. #: 11343-606-001-9999-00

Date Received: 08-01-03

PESTICIDE

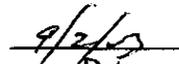
The set of samples consisted of six (6) water samples collected on 07-29-03.

The samples and their associated QC samples were extracted on 08-04-03 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 08-18-03. The extraction procedure was based on method 3520 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 samples that met LvLI's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The method blank was below the reporting limits for all target compounds.
4. All surrogate recoveries were within acceptance criteria.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
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.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated


Date

pefr:\group\data\pest\tnu hanford\08L-031 pes

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.



GLOSSARY OF PESTICIDE/PCB 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.

SP = Indicates Spiked Compound.



GLOSSARY OF PESTICIDE/PCB DATA

- 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.

Lionville Laboratory, Inc.
Pesticide/PCBs by GC, CLP List

Report Date: 08/20/03 12:54

RFW Batch Number: 0308L031

Client: TNUHANFORD F02-009 H2302 Work Order: 11343606001 Page: 1

10

Cust ID:	B17B05	B17B06	B17B07	B17B08	B17B09	B17B10
Sample Information	RFW#: 001	002	003	004	005	006
	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: Tetrachloro-m-xylene	90 %	40 %	45 %	50 %	40 %	45 %
Decachlorobiphenyl	85 %	50 %	40 %	35 %	30 %	35 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====						
Alpha-BHC	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Beta-BHC	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Delta-BHC	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
gamma-BHC (Lindane)	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Heptachlor	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Aldrin	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Heptachlor epoxide	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Endosulfan I	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Dieldrin	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDE	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan II	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan sulfate	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Methoxychlor	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Endrin ketone	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin aldehyde	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
gamma-Chlordane	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Toxaphene	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 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

Handwritten signature



FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

0308C031

AB CD

Client <u>TNU-MANFORD SAF # F02-009</u>	Refrigerator #	<u>3</u>	<u>3</u>				
Est. Final Proj. Sampling Date	#Type Container	Liquid	<u>2A42A9</u>				
Project # <u>11343-606-001-9999-00</u>		Solid					
Project Contact/Phone #	Volume	Liquid	<u>L L</u>				
Lionville Laboratory Project Manager <u>05</u>		Solid					
QC <u>SPEC</u> Del <u>5th</u> TAT <u>30 days</u>	Preservatives	<u>-</u>	<u>-</u>				
Date Rec'd <u>8-1-03</u> Date Due <u>8-31-03</u>	ANALYSES REQUESTED →	ORGANIC				INORG	
		VOA	BNA	Pest/	Herb	Metal	CN

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only	
			MS	MSD				0608H	0HD6X
			001	B17B05					
002	06					0825	2	2	
003	07					0900	2	2	
004	08					0940	2	2	
005	09					0940	2	2	
006	10					1045	2	2	

Special Instructions: SAF # F02-009
Run Matrix Qc

DATE/REVISIONS:

- _____
- _____
- _____
- _____
- _____
- _____

Lionville Laboratory Use Only

Samples were: Shipped or Hand Delivered

Airbill # Delivered

2) Ambient or Spilled

3) Received in Good Condition or N

4) Samples Properly Preserved or N

5) Received Within Holding Times or N

Tamper Resistant Seal was:
1) Present on Outer Package or N
2) Unbroken on Outer Package or N
3) Present on Sample or N
4) Unbroken on Sample or N
COC Record Present Upon Sample Rec't or N

Cooler Temp. 2.2 °C

Relinquished by	Received by	Date	Time
<u>FJDE</u>	<u>Killing</u>	<u>8/1/03</u>	<u>0925</u>

Relinquished by	Received by	Date	Time
<u>'COMPOSITE WASTE'</u>	<u>ORIGINAL REWRITTEN</u>		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:
79293964 5073 5100
5121

Exc-96-044
1.6
1-02-406.2.3

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F02-009-006	Page 1 of 2
Collector Johansen	Company Contact CS Wright	Telephone No. 373-3994	Project Coordinator TRENT, SJ		Price Code 7N	Data Turnaround 45 Days
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility		SAF No. F02-009	Air Quality <input type="checkbox"/>	
Ice Chest No. <i>ERC 96019</i>	Field Logbook No. HNF-N-3141	COA 117546ES10	Method of Shipment Federal Express			
Shipped To <i>MDT-31-03</i> BERLINE SERVICES (Formerly TWA) <i>TRCSA</i>		Offsite Property No. <i>A030336</i>		Bill of Lading/Air Bill No. <i>SEE OSLC</i>		

POSSIBLE SAMPLE HAZARDS/REMARKS **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment. Special Handling and/or Storage	Preservation	Cool 4C	HNO3 to pH 2							
	Type of Container	aG	P							
	No. of Container(s)	4								
	Volume	1000mL <i>A-D</i>	1000mL							
SAMPLE ANALYSIS		Pesticides - 8081; Herbicides - 8150A	Sequium - 89.90 - Total							

Sample No.	Matrix *	Sample Date	Sample Time							
B17B05	WATER	7-29-03	0945	X						
B17B06	WATER	7-29-03	0925	X						
B17B07	WATER	7-29-03	0900	X						
B17B08	WATER	7-29-03	0940	X						
B17B09	WATER	7-29-03	0940	X						

CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix * S=Soil SE=Soil/element SO=Solid SL=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	Date/Time	Received By/Stored In	Date/Time					
<i>Mohr</i>	<i>7/29/03 0900</i>	<i>Ref # 110-026</i>	<i>7/29/03 0900</i>					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
<i>Johansen</i>	<i>7/31/03 0920</i>	<i>Ref #</i>	<i>7/31/03 0925</i>					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
<i>ESR</i>	<i>8/1/03 0925</i>	<i>Ref #</i>	<i>8/1/03 0925</i>					
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

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F02-009-006 Page 1 of 1	
Collector Johansen		Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ	
Project Designation Modu Tank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility		SAF No. F02-009		Price Code 7N Data Turnaround 45 Days	
Ice Chest No. ERC 02406		Field Logbook No. HNF-N-3141		COA 117546ES10		Air Quality <input type="checkbox"/>	
Shipped To EDERLINE SERVICES (Formerly TMA) <i>Beera</i>		Offsite Property No. A030 336		Method of Shipment Federal Express			
Shipped To EDERLINE SERVICES (Formerly TMA) <i>Beera</i>		Offsite Property No. A030 336		Bill of Lading/Air Bill No. SEE OSLC			
POSSIBLE SAMPLE HAZARDS/REMARKS **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment. Special Handling and/or Storage				Preservation Cool 4C HNO3 to pH 2.2			
				Type of Container aG			
				No. of Container(s) 4			
				Volume 1000mL			
				Pesticides - 8081; Herbicides - 8150A		Selenium - 8081 - Total Sr	
SAMPLE ANALYSIS							
Sample No.	Matrix *	Sample Date	Sample Time				
B17B10	WATER	7-29-03	1045	X			
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS			
Relinquished By/Removed From <i>M. Johansen</i>		Date/Time 7-29-03 1000		Received By/Stored In <i>CS Wright</i>		Date/Time 7-29-03 1100	
Relinquished By/Removed From <i>M. Johansen</i>		Date/Time 7-31-03 0800		Received By/Stored In <i>M. Johansen</i>		Date/Time 7-31-03 0800	
Relinquished By/Removed From <i>M. Johansen</i>		Date/Time 7-31-03 0930		Received By/Stored In <i>F. D. T. X</i>		Date/Time	
Relinquished By/Removed From <i>F. D. T. X</i>		Date/Time 8/1/03 0925		Received By/Stored In <i>F. D. T. X</i>		Date/Time 8/1/03 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**

CLIENT: *TNU-HANFORD*

Purchase Order/Project:

DATE: *8-1-03*

SAF# / SOW# / Release #: *F02-009*

Laboratory SDG #: *03082031*

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1. Custody seals on coolers or shipping container intact, signed and dated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
2. Outside of coolers or shipping containers are free from damage?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
3. Airbill # recorded?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
5. Sample containers are intact?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
6. Custody seals on sample containers intact, signed and dated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
7. All samples on coc received?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
8. All sample label information matches coc?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
10. Shipment meets LVLJ Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
11. Where applicable, bar code labels are affixed to coc?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
12. coc signed and dated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
13. coc will be faxed or emailed to client?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
14. Project Manager/Client contacted concerning discrepancies? (name/date)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #

Cooler # / temp (°C) and Comments:

*20-96-044 2.2°
1 019 1.6°
02-406 2.3°*

Laboratory Sample Custodian: *[Signature]*

Laboratory Project Manager:

Lionville Laboratory, Inc.
 HEGX ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD F02-009 H2302

DATE RECEIVED: 08/01/03

LVL LOT # :0308L031

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B17B05	001	W	03LE0933	07/29/03	08/05/03	08/11/03
B17B06	002	W	03LE0933	07/29/03	08/05/03	08/11/03
B17B06	002 MS	W	03LE0933	07/29/03	08/05/03	08/19/03
B17B06	002 MSD	W	03LE0933	07/29/03	08/05/03	08/11/03
B17B07	003	W	03LE0933	07/29/03	08/05/03	08/11/03
B17B08	004	W	03LE0933	07/29/03	08/05/03	08/11/03
B17B09	005	W	03LE0933	07/29/03	08/05/03	08/11/03
B17B10	006	W	03LE0933	07/29/03	08/05/03	08/11/03

LAB QC:

PBLKBM	MB1	W	03LE0933	N/A	08/05/03	08/11/03
PBLKBM	MB1 BS	W	03LE0933	N/A	08/05/03	08/11/03





Analytical Report

Client: TNU HANFORD F02-009
LVL#: 0308L031
SDG/SAF#: H2302/F02-009

W.O.#: 11343-606-001-9999-00
Date Received: 08-01-03

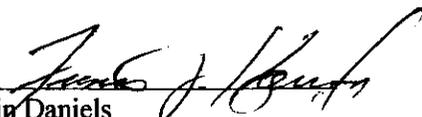
HERBICIDE

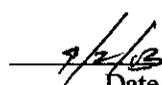
The set of samples consisted of six (6) water samples collected on 07-29-03.

The samples and their associated QC samples were extracted on 08-05-03 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 08-11-03. The extraction and analysis procedure was based on method 8151A.

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 samples that met LVL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The method blank was below the reporting limits for all target compounds.
4. All surrogate recoveries were within acceptance criteria.
5. One (1) of eight (8) blank spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
6. One (1) of sixteen (16) matrix spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. To the best of my knowledge, this data report is in compliance with the terms and conditions of the purchase order, both technically and for completeness, for other than the conditions detailed in the case narrative. Release of the data contained in this hard copy data package and in the electronic data submitted on diskette has been authorized by the cognizant laboratory manager or his/her designee to be accurate as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated


Date

pefr:\group\data\herb\tmu\08L-031.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 #: 0306296

Initiator: Boyer Santos
 Date: 8/19/03
 Client: TWU

Batch: 0308L031
 Samples: MS, 6S
 Method: SNB45MCAWWW/CLP1

Parameter: 0486X
 Matrix: Water
 Prep Batch: 03LE0933

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)

① Low Dioxeb recoveries in MS and 6S at 32 and 29%, respectively.
 (QCLimit = 50%). MSD recovery is good, all samples are clean.

2. Known or Probable Causes(s)

Compound is a poor performer

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)

[Signature] 8/19/03

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:

[Signature] 8/21/03 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

- X Initiator
- X Lab General Manager: M. Taylor
- X Project Mgr: Stone/Johnson/Haslett
- X Technical Mgr: Wesson/Daniels
- X QA (file)
- Data Management: Feldman
- Sample Prep: Beegle/Kiger

Route Distribution of Completed SDR

- Metals: Beegle
- Inorganic: Perrone
- GC/LC: Kiger
- MS: Rychlak/Layman
- Log-in: Melnic
- Admin: Soos
- Other: _____



GLOSSARY OF HERBICIDE 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.

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.
- SP** = Indicates Spiked Compound.



GLOSSARY OF HERBICIDE DATA

- P** = This flag is used for an Herbicide 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 HPLC.

Lionville Laboratory, Inc.

Herbicides, Special List

Report Date: 08/19/03 14:52

RFW Batch Number: 0308L031

Client: TNUHANFORD F02-009 H2302 Work Order: 11343606001 Page: 1

9

Sample Information	Cust ID:	B17B05	B17B06	B17B06	B17B06	B17B07	B17B08
	RFW#:	001	002	002 MS	002 MSD	003	004
	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:	DCAA	88 %	98 %	90 %	83 %	131 %	49 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====							
Dalapon		5.1 U	5.1 U	95 %	72 %	5.1 U	5.1 U
Dicamba		2.0 U	2.0 U	99 %	85 %	2.0 U	2.0 U
Dichloroprop		5.1 U	5.1 U	87 %	82 %	5.1 U	5.1 U
2,4-D		1.0 U	1.0 U	66 %	79 %	1.0 U	1.0 U
2,4,5-TP (Silvex)		0.51 U	0.51 U	79 %	68 %	0.51 U	0.51 U
2,4,5-T		0.51 U	0.51 U	70 %	71 %	0.51 U	0.51 U
2,4-DB		5.1 U	5.1 U	73 %	71 %	5.1 U	5.1 U
Dinoseb		0.51 U	0.51 U	32 * %	55 %	0.51 U	0.51 U

Sample Information	Cust ID:	B17B09	B17B10	PBLKBM	PBLKBM BS
	RFW#:	005	006	03LE0933-MB1	03LE0933-MB1
	Matrix:	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L
Surrogate:	DCAA	87 %	88 %	121 %	91 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====					
Dalapon		5.0 U	5.1 U	5.0 U	74 %
Dicamba		2.0 U	2.0 U	2.0 U	88 %
Dichloroprop		5.0 U	5.1 U	5.0 U	92 %
2,4-D		1.0 U	1.0 U	1.0 U	84 %
2,4,5-TP (Silvex)		0.50 U	0.51 U	0.50 U	87 %
2,4,5-T		0.50 U	0.51 U	0.50 U	84 %
2,4-DB		5.0 U	5.1 U	5.0 U	91 %
Dinoseb		0.50 U	0.51 U	0.50 U	29 * %

Handwritten signature/initials

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



03081031

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client <u>TNU-HANFORD SAF # F02-009</u>	Refrigerator #	<u>3</u>	<u>3</u>
Est. Final Proj. Sampling Date	#Type Container	Liquid	<u>2A+2AG</u>
Project # <u>11343-606-001-9999-00</u>		Solid	
Project Contact/Phone #	Volume	Liquid	<u>L L</u>
Lionville Laboratory Project Manager <u>05</u>		Solid	
QC <u>SPEC</u> Del <u>STD</u> TAT <u>30 day</u>	Preservatives		<u>- -</u>
Date Rec'd <u>8-1-03</u> Date Due <u>8-31-03</u>	ANALYSES REQUESTED	ORGANIC: VOA, BNA, Pes/MSD, Herb INORG: Metal, Z	

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only	
			MS	MSD				0608H	0HDGX
	<u>001</u>	<u>B17B05</u>			<u>W</u>	<u>7/29/03</u>	<u>0645</u>	<u>2</u>	<u>2</u>
	<u>002</u>	<u>06</u>			<u>I</u>	<u>I</u>	<u>0825</u>	<u>2</u>	<u>2</u>
	<u>003</u>	<u>07</u>			<u>I</u>	<u>I</u>	<u>0900</u>	<u>2</u>	<u>2</u>
	<u>004</u>	<u>08</u>			<u>I</u>	<u>I</u>	<u>0940</u>	<u>2</u>	<u>2</u>
	<u>005</u>	<u>09</u>			<u>I</u>	<u>I</u>	<u>0940</u>	<u>2</u>	<u>2</u>
	<u>006</u>	<u>10</u>			<u>I</u>	<u>I</u>	<u>1045</u>	<u>2</u>	<u>2</u>

Special Instructions: SAF # F02-009

Run Matrix QC

DATE/REVISIONS:

- _____
- _____
- _____
- _____
- _____
- _____

Lionville Laboratory Use Only

Samples were: 1) Shipped <input checked="" type="checkbox"/> or Hand Delivered _____ Airbill # <u>20081001</u> 2) Ambient or Spilled _____ 3) Received in Good Condition <input checked="" type="checkbox"/> or N 4) Samples Property Preserved <input checked="" type="checkbox"/> or N 5) Received Within Holding Times _____ or N	Tamper Resistant Seal was: 1) Present on Outer Package <input checked="" type="checkbox"/> or N 2) Unbroken on Outer Package <input checked="" type="checkbox"/> or N 3) Present on Sample <input checked="" type="checkbox"/> or N 4) Unbroken on Sample <input checked="" type="checkbox"/> or N COC Record Present Upon Sample Rec't <input checked="" type="checkbox"/> or N Cooler Temp. <u>2.2</u> °C
--	---

Relinquished by	Received by	Date	Time
<u>FWD</u>	<u>Kilham</u>	<u>8/1/03</u>	<u>0925</u>

Relinquished by	Received by	Date	Time
<u>"COMPOSITE WASTE"</u>	<u>ORIGINAL REWRITTEN</u>		

Discrepancies Between Samples Labels and COC Record? Y or N
 NOTES: 79293964 5073 5100
I L 5121
ERC-96-044
1.6
1-03-046.2.3

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F02-009-006	Page 1 of 2
Collector Johansen	Company Contact CS Wright	Telephone No. 373-3994	Project Coordinator TRENT, SJ		Price Code 7N	Data Turnaround 45 Days
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility		SAF No. F02-009	Air Quality <input type="checkbox"/>	
Ice Chest No. ERC 96019	Field Logbook No. HNF-N-3141	COA 117546ES10	Method of Shipment Federal Express			
Shipped To JMT731-03 BERLINE SERVICES (Formerly TMA) TCSA		Offsite Property No. A030336	Bill of Lading/Air Bill No. SEE OSPL			

POSSIBLE SAMPLE HAZARDS/REMARKS **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment. Special Handling and/or Storage	Preservation	Cool 4C	HNO3 to pH									
	Type of Container	aG	P									
	No. of Container(s)	4										
	Volume	1000mL A-D	1000mL									
SAMPLE ANALYSIS		Pesticides - 8081; Herbicides - 8150A	Selenium - 89,90 - Total									

Sample No.	Matrix *	Sample Date	Sample Time									
1 B17B05	WATER	7-29-03	0945	X								
2 B17B06	WATER	7-29-03	0945	X								
3 B17B07	WATER	7-29-03	0940	X								
4 B17B08	WATER	7-29-03	0940	X								
5 B17B09	WATER	7-29-03	0940	X								

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From <i>[Signature]</i>	Date/Time 7/29/03	Received By/Stored In <i>[Signature]</i>	Date/Time 7/29/03					S=Soil SE=Soil/Sediment SO=Solid SL=Sediment 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>[Signature]</i>	Date/Time 7/31/03	Received By/Stored In <i>[Signature]</i>	Date/Time 7/31/03					
Relinquished By/Removed From <i>[Signature]</i>	Date/Time 7/31/03	Received By/Stored In <i>[Signature]</i>	Date/Time					
Relinquished By/Removed From <i>[Signature]</i>	Date/Time 8/1/03 0925	Received By/Stored In <i>[Signature]</i>	Date/Time 8/1/03 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

- FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F02-009-006	Page 2 of 2
Collector Johansen	Company Contact CS Wright	Telephone No. 373-3994	Project Coordinator TRENT, SJ		Price Code 7N	Data Turnaround 45 Days
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility		SAF No. F02-009	Air Quality <input type="checkbox"/>	
Ice Chest No. ERC 02406	Field Logbook No. HNF-N-3141	COA 117546ES10	Method of Shipment Federal Express			
Shipped To JMS 7-31-03 EBERLINE SERVICES (Pomery TMA) <i>Perera</i>		Offsite Property No. A030336	Bill of Lading/Air Bill No. SEE OSPC			

POSSIBLE SAMPLE HAZARDS/REMARKS **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment. Special Handling and/or Storage	Preservation	Cool 4C	HNO3 to pH							
	Type of Container	aG	P							
	No. of Container(s)	4								
	Volume	1000mL	1000mL							

SAMPLE ANALYSIS				Pesticides - 8081; Herbicides - 8150A	Selenium - Total Sr														
------------------------	--	--	--	---------------------------------------	---------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Sample No.	Matrix *	Sample Date	Sample Time																
B17B10	WATER	7-29-03	1045	X															

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS										Matrix *
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time											S=Soil
<i>M. J. ...</i>	7/29/03 1000	<i>...</i>	7-29-03 1100											SE=Settlement
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time											SO=Solid
<i>...</i>	7-31-03 0800	<i>...</i>	7-31-03 0800											SI=Sludge
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time											W = Water
<i>...</i>	7-31-03 0930	<i>...</i>	7-31-03 0930											O=Oil
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time											A=Air
<i>...</i>	8/1/03 0925	<i>...</i>	8/1/03 0925											DS=Drum Solids
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time											DL=Drum Liquids
														T=Tissue
														WI=Wipe
														L=Liquid
														V=Vegetation
														X=Other

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

LIONVILLE LABORATORY INCORPORATED

SAMPLE RECEIPT CHECKLIST

CLIENT: *TNU - HANFORD*

Purchase Order/Project:

DATE: *8-1-03*

SAF# / SOW# / Release #: *F02-009*

Laboratory SDG #: *03082031*

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

- | | | | | |
|--|---|--|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LVLJ Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 13. coc will be faxed or emailed to client? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |

Cooler # / temp (°C) and Comments:

EC-96-044 2.2°
1 019 1.6°
02-406 2.3°

Laboratory Sample Custodian:

Keith Hernandez

Laboratory Project Manager:



EBERLINE SERVICES

September 15, 2003

Mr. Steve Trent
Fluor Hanford Inc.
825 Jadwin Avenue
Richland, WA 99352

Reference: **P.O. #630**
Eberline Services R3-08-008-7560, SDG H2302

Dear Mr. Trent:

Enclosed is the data report for six water samples designated under SAF No. F02-009 received at Eberline Services on August 1, 2003. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Program Manager

MCM

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

Fluor Hanford Inc. (FH) Sample Delivery Group H2302 was composed of six water samples designated under SAF No. F02-009 with a Project Designation of: CY 2003 RCRA/CERCLA GW Well Installation Waste Disposal.

The samples were received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

2.0 ANALYSIS NOTES

2.1 Total Strontium Analyses

The LCS percent recovery (82%) was below the 3σ limits (85 to 115%), but within the laboratory protocol limits (80 to 120%). No other 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
Melissa C. Mannion
Program Manager

9/15/3
Date

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2302

SDG 7560
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG_H2302

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

T A B L E O F C O N T E N T S	
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Sample Summaries	3
Prep Batch Summary	5
Work Summary	6
Method Blanks	8
Lab Control Samples	9
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Method Summaries	17
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End of Section	33

Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 09/15/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2302

SDG 7560
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2302

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

Page 1

SUMMARY DATA SECTION

Page 1

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/15/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2302

SDG 7560
Contact Melissa C. Mannion

GUIDE , c o n t .

Client Hanford
Contract No. 630
Case no SDG H2302

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

Page 2

SUMMARY DATA SECTION

Page 2

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/15/03

EBERLINE SERVICES/RICHMOND
 SAMPLE DELIVERY GROUP H2302

SDG 7560
 Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H2302

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R308008-01	B17B10	Purgewater Storage & Tre	WATER		F02-009	F02-009-006	07/29/03 10:45
R308008-02	B17B05	Purgewater Storage & Tre	WATER		F02-009	F02-009-006	07/29/03 06:45
R308008-03	B17B06	Purgewater Storage & Tre	WATER		F02-009	F02-009-006	07/29/03 08:25
R308008-04	B17B07	Purgewater Storage & Tre	WATER		F02-009	F02-009-006	07/29/03 09:00
R308008-05	B17B08	Purgewater Storage & Tre	WATER		F02-009	F02-009-006	07/29/03 09:40
R308008-06	B17B09	Purgewater Storage & Tre	WATER		F02-009	F02-009-006	07/29/03 09:40
R308008-07	Lab Control Sample		WATER		F02-009		
R308008-08	Method Blank		WATER		F02-009		
R308008-09	Duplicate (R308008-03)	Purgewater Storage & Tre	WATER		F02-009		07/29/03 08:25

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LS
 Version 3.06
 Report date 09/15/03

EBERLINE SERVICES/RICHMOND
 SAMPLE DELIVERY GROUP H2302

SDG 7560
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H2302

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	
7560	F02-009-006	B17B05	WATER		1.03 L		08/01/03	3	R308008-02	7560-002	
		B17B06	WATER		1.04 L		08/01/03	3	R308008-03	7560-003	
		B17B07	WATER		1.06 L		08/01/03	3	R308008-04	7560-004	
		B17B08	WATER		1.05 L		08/01/03	3	R308008-05	7560-005	
		B17B09	WATER		1.05 L		08/01/03	3	R308008-06	7560-006	
		B17B10	WATER		1.0 L		08/01/03	3	R308008-01	7560-001	
		Method Blank	WATER							R308008-08	7560-008
		Lab Control Sample	WATER							R308008-07	7560-007
		Duplicate (R308008-03)	WATER			1.04 L		08/01/03	3	R308008-09	7560-009

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-QS
 Version 3.06
 Report date 09/15/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2302

SDG 7560
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H2302

TEST	MATRIX	METHOD	PREPARATION ERROR			PLANCHETS ANALYZED			QUALI-
			BATCH	2σ %	CLIENT MORE	RE BLANK	LCS	DUP/ORIG	
Beta Counting									
SR	WATER	Total Strontium in Water	7071-197	10.0	6	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.

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-PBS
 Version 3.06
 Report date 09/15/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2302

LAB WORK SUMMARY

SDG 7560
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Case no SDG H2302

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	MATRIX SAF No	PLANCHET	TEST	SUF-FIX ANALYZED	REVIEWED	BY	METHOD
R308008-01 07/29/03 08/01/03	B17B10 Purgewater Storage & Tre WATER F02-009-006	F02-009	7560-001	SR	08/29/03	09/09/03	MWT	Total Strontium in Water
R308008-02 07/29/03 08/01/03	B17B05 Purgewater Storage & Tre WATER F02-009-006	F02-009	7560-002	SR	08/29/03	09/09/03	MWT	Total Strontium in Water
R308008-03 07/29/03 08/01/03	B17B06 Purgewater Storage & Tre WATER F02-009-006	F02-009	7560-003	SR	08/29/03	09/09/03	MWT	Total Strontium in Water
R308008-04 07/29/03 08/01/03	B17B07 Purgewater Storage & Tre WATER F02-009-006	F02-009	7560-004	SR	08/29/03	09/09/03	MWT	Total Strontium in Water
R308008-05 07/29/03 08/01/03	B17B08 Purgewater Storage & Tre WATER F02-009-006	F02-009	7560-005	SR	08/29/03	09/09/03	MWT	Total Strontium in Water
R308008-06 07/29/03 08/01/03	B17B09 Purgewater Storage & Tre WATER F02-009-006	F02-009	7560-006	SR	08/29/03	09/09/03	MWT	Total Strontium in Water
R308008-07	Lab Control Sample WATER F02-009		7560-007	SR	08/29/03	09/09/03	MWT	Total Strontium in Water
R308008-08	Method Blank WATER F02-009		7560-008	SR	08/29/03	09/09/03	MWT	Total Strontium in Water
R308008-09 07/29/03 08/01/03	Duplicate (R308008-03) Purgewater Storage & Tre WATER F02-009	F02-009	7560-009	SR	08/29/03	09/09/03	MWT	Total Strontium in Water

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LWS
 Version 3.06
 Report date 09/15/03

EBERLINE SERVICES/RICHMOND
 SAMPLE DELIVERY GROUP H2302

SDG 7560
 Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
 Contract No. 630
 Case no SDG H2302

COUNTS OF TESTS BY SAMPLE TYPE											
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
SR	F02-009	Total Strontium in Water	SRTOT_SEP_PRECIP_GPC	6			1	1	1		9
TOTALS				6			1	1	1		9

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LWS
 Version 3.06
 Report date 09/15/03

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2302

7560-008

Method Blank

METHOD BLANK

SDG <u>7560</u>	Client/Case no <u>Hanford</u>	SDG <u>H2302</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R308008-08</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7560-008</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>F02-009</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Total Strontium	SR-RAD	-0.041	0.20	0.42	2.0	U	SR

ModuTank-Annual Smpl. of Purge Water

QC-BLANK 45304

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>09/15/03</u>

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2302

7560-007

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7560</u> Contact <u>Melissa C. Mannion</u> Lab sample id <u>R308008-07</u> Dept sample id <u>7560-007</u>	Client/Case no <u>Hanford</u> <u>SDG H2302</u> Contract <u>No. 630</u> Client sample id <u>Lab Control Sample</u> Material/Matrix _____ <u>WATER</u> SAF No <u>F02-009</u>
---	--

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Total Strontium	36.1	1.4	0.42	2.0	SR	44.0	1.8	<u>82</u>	85-115	80-120

ModuTank-Annual Smpl. of Purge Water

QC-LCS 45303

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LCS
 Version 3.06
 Report date 09/15/03

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2302

7560-009

B17806

DUPLICATE

SDG <u>7560</u>	Client/Case no <u>Hanford</u>	SDG <u>H2302</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R308008-09</u>	Lab sample id <u>R308008-03</u>	Client sample id <u>B17806</u>
Dept sample id <u>7560-009</u>	Dept sample id <u>7560-003</u>	Location/Matrix <u>Purgewater Storage & Tre WATER</u>
	Received <u>08/01/03</u>	Collected/Volume <u>07/29/03 08:25 1.04 L</u>
		Custody/SAF No <u>F02-009-006 F02-009</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
Total Strontium	0.813	0.33	0.50	2.0		SR	0.753	0.41	0.68		8	103	

ModuTank-Annual Smpl. of Purge Water

QC-DUP#3 45305

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2302

7560-001

B17B10

DATA SHEET

SDG <u>7560</u>	Client/Case no <u>Hanford</u>	SDG <u>H2302</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R308008-01</u>	Client sample id <u>B17B10</u>	
Dept sample id <u>7560-001</u>	Location/Matrix <u>Purgewater Storage & Tre WATER</u>	
Received <u>08/01/03</u>	Collected/Volume <u>07/29/03 10:45</u> <u>1.0 L</u>	
	Custody/SAF No <u>F02-009-006</u> <u>F02-009</u>	

ANALYTE	CAS NO	RESULT pCi/L	2 σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Total Strontium	SR-RAD	0.481	0.30	0.50	2.0	U	SR

ModuTank-Annual Smpl. of Purge Water

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>09/15/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2302

7560-002

B17B05

DATA SHEET

SDG <u>7560</u>	Client/Case no <u>Hanford</u>	<u>SDG H2302</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R308008-02</u>	Client sample id <u>B17B05</u>	
Dept sample id <u>7560-002</u>	Location/Matrix <u>Purgewater Storage & Tre WATER</u>	
Received <u>08/01/03</u>	Collected/Volume <u>07/29/03 06:45</u> <u>1.03 L</u>	
	Custody/SAF No <u>F02-009-006</u> <u>F02-009</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Total Strontium	SR-RAD	0.016	0.19	0.38	2.0	U	SR

ModuTank-Annual Smpl. of Purge Water

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>09/15/03</u>

EBERLINE SERVICES / RICHMOND
 SAMPLE DELIVERY GROUP H2302

7560-003

B17B06

DATA SHEET

SDG <u>7560</u>	Client/Case no <u>Hanford</u>	<u>SDG H2302</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R308008-03</u>	Client sample id <u>B17B06</u>	
Dept sample id <u>7560-003</u>	Location/Matrix <u>Purgewater Storage & Tre WATER</u>	
Received <u>08/01/03</u>	Collected/Volume <u>07/29/03 08:25</u> <u>1.04 L</u>	
	Custody/SAF No <u>F02-009-006</u> <u>F02-009</u>	

ANALYTE	CAS NO	RESULT pCi/L	2 σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Total Strontium	SR-RAD	0.753	0.41	0.68	2.0		SR

ModuTank-Annual Smpl. of Purge Water

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>09/15/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2302

7560-004

B17B07

DATA SHEET

SDG <u>7560</u>	Client/Case no <u>Hanford</u>	<u>SDG H2302</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R308008-04</u>	Client sample id <u>B17B07</u>	
Dept sample id <u>7560-004</u>	Location/Matrix <u>Purgewater Storage & Tre WATER</u>	
Received <u>08/01/03</u>	Collected/Volume <u>07/29/03 09:00</u>	<u>1.06 L</u>
	Custody/SAF No <u>F02-009-006</u>	<u>F02-009</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Total Strontium	SR-RAD	0.374	0.37	0.67	2.0	U	SR

ModuTank-Annual Smpl. of Purge Water

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>09/15/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2302

7560-005

B17B08

D A T A S H E E T

SDG <u>7560</u>	Client/Case no <u>Hanford</u>	SDG <u>H2302</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R308008-05</u>	Client sample id <u>B17B08</u>	
Dept sample id <u>7560-005</u>	Location/Matrix <u>Purgewater Storage & Tre WATER</u>	
Received <u>08/01/03</u>	Collected/Volume <u>07/29/03 09:40</u> <u>1.05 L</u>	
	Custody/SAF No <u>F02-009-006</u> <u>F02-009</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Total Strontium	SR-RAD	0.356	0.35	0.64	2.0	U	SR

ModuTank-Annual Smpl. of Purge Water

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>09/15/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2302

7560-006

B17B09

DATA SHEET

SDG <u>7560</u>	Client/Case no <u>Hanford</u>	SDG <u>H2302</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R308008-06</u>	Client sample id <u>B17B09</u>	
Dept sample id <u>7560-006</u>	Location/Matrix <u>Purgewater Storage & Tre WATER</u>	
Received <u>08/01/03</u>	Collected/Volume <u>07/29/03 09:40 1.05 L</u>	
	Custody/SAF No <u>F02-009-006 F02-009</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Total Strontium	SR-RAD	0.270	0.32	0.59	2.0	U	SR

ModuTank-Annual Smpl. of Purge Water

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>09/15/03</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2302

Test SR Matrix WATER
SDG 7560
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN WATER

BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H2302

RESULTS

LAB	RAW	SUF-		Total
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Strontium
Preparation batch 7071-197				
R308008-01		7560-001	B17B10	U
R308008-02		7560-002	B17B05	U
R308008-03		7560-003	B17B06	0.753
R308008-04		7560-004	B17B07	U
R308008-05		7560-005	B17B08	U
R308008-06		7560-006	B17B09	U
R308008-07		7560-007	LCS (QC ID=45303)	LOW
R308008-08		7560-008	BLK (QC ID=45304)	U
R308008-09		7560-009	Duplicate (R308008-03)	ok
Nominal values and limits from method RDLs (pCi/L) 2.0				
ModuTank-Annual Smpl. of Purge Water				

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7071-197 2σ prep error 10.0 % Reference Lab Notebook 7071 pg. 197															
R308008-01		B17B10	0.50	0.500			73	100				31	08/29/03	08/29	GRB-217
R308008-02		B17B05	0.38	0.500			94	100				31	08/29/03	08/29	GRB-218
R308008-03		B17B06	0.68	0.500			57	100				31	08/29/03	08/29	GRB-217
R308008-04		B17B07	0.67	0.500			56	100				31	08/29/03	08/29	GRB-218
R308008-05		B17B08	0.64	0.500			56	100				31	08/29/03	08/29	GRB-220
R308008-06		B17B09	0.59	0.500			64	100				31	08/29/03	08/29	GRB-220
R308008-07		LCS (QC ID=45303)	0.42	0.500			90	100					08/29/03	08/29	GRB-218
R308008-08		BLK (QC ID=45304)	0.42	0.500			86	100					08/29/03	08/29	GRB-230
R308008-09		Duplicate (R308008-03)	0.50	0.500			68	100				31	08/29/03	08/29	GRB-218
(QC ID=45305)															
Nominal values and limits from method 2.0 0.500 35-105 100 180															

Lab id EBRLINE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2302

Test SR Matrix WATER
SDG 7560
Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.
TOTAL STRONTIUM IN WATER
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H2302

PROCEDURES REFERENCE SRTOT_SEP_PRECIP_GPC
CP-380 Strontium in Water Samples, rev 0

AVERAGES \pm 2 SD MDA 0.53 \pm 0.23
FOR 9 SAMPLES YIELD 72 \pm 30

Lab id EBRLNE
Protocol Hanford
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2302

SDG 7560
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2302

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.

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Version Ver 1.0
Form DVD-RG
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2302

SDG 7560
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2302

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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SAMPLE DELIVERY GROUP H2302

SDG 7560
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2302

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.

REPORT GUIDES

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SUMMARY DATA SECTION

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Protocol Hanford
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Form DVD-RG
Version 3.06
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2302

SDG 7560
 Contact Melissa C. Mannion

R E P O R T G U I D E

Client Hanford
 Contract No. 630
 Case no SDG H2302

D A T A S H E E T

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).

REPORT GUIDES

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SUMMARY DATA SECTION

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 Protocol Hanford
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2302

SDG 7560
 Contact Melissa C. Mannion

GUIDE , c o n t .

Client Hanford
 Contract No. 630
 Case no SDG H2302

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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SAMPLE DELIVERY GROUP H2302

SDG 7560
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2302

DATA SHEET

- * 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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Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/15/03

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2302

SDG 7560
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2302

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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DUPLICATE

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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MATRIX SPIKE

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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METHOD SUMMARY

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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METHOD SUMMARY

- * 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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METHOD SUMMARY

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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FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F02-009-006		Page 2 of 2	
Collector Johansen		Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code 7N Data Turnaround 45 Days	
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility		H2302 (7560) Pg 81		SAF No. F02-009		Air Quality <input type="checkbox"/>	
Ice Chest No. ERC 02 010		Field Logbook No. HNF-N-3141		COA 117546ES10		Method of Shipment Federal Express		Bill of Lading/Air Bill No. 508 05PL	
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. A030322							
POSSIBLE SAMPLE HAZARDS/REMARKS **Historical Data indicates that samples are less than 2000 pCVg total activity and therefore do not require a RCF rad screen for off-site shipment. Special Handling and/or Storage				Preservation Cool <input checked="" type="checkbox"/>		HNO3 to pH 2			
				Type of Container 2		P			
				No. of Container(s) 1					
				Volume 100mL		1000mL			
SAMPLE ANALYSIS				Herbicides - 4081; Herbicides - 1150A		Strontium-89,90 - Total Sr			
Sample No.		Matrix *	Sample Date	Sample Time					
B17B10		WATER	7-21-03	1045					X
CHAIN OF POSSESSION					SPECIAL INSTRUCTIONS				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		Matrix *	
M. J. Johnson		7-29-03		M. J. Johnson		7-29-03		S=Soil	
M. J. Johnson		7-29-03		M. J. Johnson		7-29-03		SE=Sediment	
M. J. Johnson		7-29-03		M. J. Johnson		7-29-03		SO=Solid	
M. J. Johnson		7-29-03		M. J. Johnson		7-29-03		SP=Sludge	
M. J. Johnson		7-29-03		M. J. Johnson		7-29-03		W=Water	
M. J. Johnson		7-29-03		M. J. Johnson		7-29-03		O=Oil	
M. J. Johnson		7-29-03		M. J. Johnson		7-29-03		A=Air	
M. J. Johnson		7-29-03		M. J. Johnson		7-29-03		DS=Drum Solids	
M. J. Johnson		7-29-03		M. J. Johnson		7-29-03		DL=Drum Liquids	
M. J. Johnson		7-29-03		M. J. Johnson		7-29-03		T=Trace	
M. J. Johnson		7-29-03		M. J. Johnson		7-29-03		WI=Wipe	
M. J. Johnson		7-29-03		M. J. Johnson		7-29-03		L=Liquid	
M. J. Johnson		7-29-03		M. J. Johnson		7-29-03		V=Vegetation	
M. J. Johnson		7-29-03		M. J. Johnson		7-29-03		X=Other	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Fed Ex		8-1-03 7:30		M. J. Johnson		8-1-03			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
LABORATORY SECTION		Received By			Title			Date/Time	
FINAL SAMPLE DISPOSITION		Disposal Method			Disposed By			Date/Time	

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F02-009-006		Page 1 of 2		
Collector Johansen H2302 (7560)		Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code 7N Data Turnaround 45 Days		
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility		H2302 (7560) 11/18-1		SAF No. F02-009		Air Quality <input type="checkbox"/>		
Ice Chest No. ERC 02 010		Field Logbook No. HNF-N-3141		COA 117546ES10		Method of Shipment Federal Express				
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. A030 322		Bill of Lading/Air Bill No. SEE O&P C						
POSSIBLE SAMPLE HAZARDS/REMARKS **Historical Data indicates that samples are less than 2000 pCVg total activity and therefore do not require a RCF rad screen for off-site shipment. Special Handling and/or Storage				Preservation Cool 4C HNO3 to pH < 2						
				Type of Container aG P						
				No. of Container(s) 4 1						
				Volume 1000mL 1000mL						
SAMPLE ANALYSIS				Pesticides 80% Herbicide 81.30%		Strontium-89,90 - Total Sr				
Sample No.		Matrix *	Sample Date	Sample Time						
✓ B17B05	WATER	7-29-03	0645		X					
✓ B17B06	WATER	7-29-03	0825		X					
✓ B17B07	WATER	7-29-03	0900		X					
✓ B17B08	WATER	7-29-03	0940		X					
✓ B17B09	WATER	7-29-03	0940		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 Solids DL=Drum Liquids T=Time Wt=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
<i>[Signature]</i>		7-29-03 10:00		<i>[Signature]</i>		7-29-03 10:00				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
<i>[Signature]</i>		7-29-03 08:00		<i>[Signature]</i>		7-29-03 10:00				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
<i>[Signature]</i>		7-31-03 09:30		<i>[Signature]</i>		7-31-03				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
<i>[Signature]</i>		8-1-03 9:30		<i>[Signature]</i>		8-1-03				
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			



RICHMOND, CA LABORATORY
SAMPLE RECEIPT CHECKLIST

Client: Hanford, FH-central Plant Date/Time received 8-1-02 9:30
 CoC No. F03-013-01, F03-D15-002, F02-009-006
 Container I.D. No. BAC-02-010 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: 9
7. Number of containers per sample: 1 (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 _____ Preservative _____
13. Describe any anomalies: _____

14. Was P.M. notified of any anomalies? Yes No Date _____
15. Received by AR Corado Date: 8-1-02 Time: 9:30

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 _____