

9613446.2954

0044376

W0706 272

START

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

Quanterra
Environmental
Services

314 298-8566 Telephone
314 298-8757 Fax

CERTIFICATE OF ANALYSIS

Bechtel Hanford Incorporated
P.O. Box 1970
Richland, Washington 99352

September 29, 1995

Attention: Joan Kessner



Project number	:	550.91
Date Received by Lab	:	September 11, 1995
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W0706
Data Deliverable	:	Summary

I. Introduction

One September 11, 1995, one (1) water sample was received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analysis. Upon receipt, the sample was given the following laboratory ID number to correspond with the specific client ID:

<u>St Louis ID</u>	<u>WHC ID</u>	<u>Richland ID</u>	<u>Matrix</u>	<u>Date of Receipt</u>
9311-001	BOGFS7	50914001	Water	09/11/95

II. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits.

Analyses requested: Calcium and Magnesium by EPA method 6010. Sulfate by EPA method 300.0.

000002

Bechtel Hanford Incorporated
September 29, 1995
Project Number: 550.91
SDG: W0706
Page 2

III. Quality Control

A Laboratory Control Sample and Method Blank were analyzed with each preparation batch. Matrix Spike and Matrix Spike Duplicate or Sample Duplicate analyses were performed per the protocol for each analyte.

IV. Definitions

The following codes are used to denote laboratory quality control samples and can be found in the data summary section of this report:

QCBLK- Quality Control Blank, Method Blank

QCLCS- Quality Control Laboratory Control Sample, Blank Spike

V. Comments

Since calcium and magnesium are not part of our normal SW846 spike list, a post digestion spike was performed in duplicate in lieu of a matrix spike. The post-digestion spike and spike duplicate recoveries for Magnesium and Calcium for sample 9311-001 are stated below.

	Spike	Spike Duplicate
Calcium	116.7%	86.8%
Magnesium	97.2%	91.4%

There are no comments or nonconformances associated with the Sulfate analysis.

Bechtel Hanford Incorporated
September 29, 1995
Project Number: 550.91
SDG: W0706
Page 3

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 contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:



Wade H. Price

Project Manager

e:\\price\$labbydave\hanw0706.nar

Project Manager: W. Price

Draft: (Final) Entered and Reviewed by: Sue Wilson PM Review: [Signature]

Sample Header Template:

Sample No.	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date Site	(Container Numbers: % Filled)	
9311-001	BOGFS7	Water	08-SEP-95 13:13	11-SEP-95 11:19	25-SEP-95	FED-EX	1	Screening not Required
	RICHLAND I.D. 50914001/ICAP METALS = CA, MG ONLY.							
1	AN - Amber Glass-500ml	SO4/300.0/Q4	S	COLD	21-SEP-95	06-OCT-95 R5C		(177596:100)
1	PN - Plastic-500ml	ICAP/6010/Q4	S	HNO3	21-SEP-95	06-MAR-96 R5C		(177595:100)
9311-001DUP	BOGFS7	Water	08-SEP-95 13:13	11-SEP-95 11:19	25-SEP-95	FED-EX	1	Screening not Required
	RICHLAND I.D. 50914001/ICAP METALS = CA, MG ONLY.							
1	AN - Amber Glass-500ml	SO4/300.0/Q4	S	COLD	21-SEP-95	06-OCT-95 R5C		(177596:100)
9311-001MS	BOGFS7	Water	08-SEP-95 13:13	11-SEP-95 11:19	25-SEP-95	FED-EX	1	Screening not Required
	RICHLAND I.D. 50914001/ICAP METALS = CA, MG ONLY.							
1	AN - Amber Glass-500ml	SO4/300.0/Q4	S	COLD	21-SEP-95	06-OCT-95 R5C		(177596:100)
1	PN - Plastic-500ml	ICAP/6010/Q4	S	HNO3	21-SEP-95	06-MAR-96 R5C		(177595:100)
9311-001MSD	BOGFS7	Water	08-SEP-95 13:13	11-SEP-95 11:19	25-SEP-95	FED-EX	1	Screening not Required
	RICHLAND I.D. 50914001/ICAP METALS = CA, MG ONLY.							
1	PN - Plastic-500ml	ICAP/6010/Q4	S	HNO3	21-SEP-95	06-MAR-96 R5C		(177595:100)

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0000005

3*-Sample has not been rad screened.

Bechtel Hanford, Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Date Turnaround
 Priority
 Normal

Collector <i>R. Lee</i>	Company Contact J.V. Borghese	Telephone (509) 372-9584
Project Designation 100-NR-2 Pre-Startup Performance Monitoring - Sept.	Sampling Location 100 N	SAF No. B95-080
Ica Chest No.	Field Logbook No. <i>EFL-1056</i>	Method of Shipment Hand Delivered
Shipped To Quanterra	Offsite Property No. NA <i>1</i>	Bill of Lading/Air Bill No. NA

Possible Sample Hazards/Remarks	Preservation	HNO ₃	Cool 4°C	HNO ₃	Cool 4°C				
	Type of Container	P/G	AG	P/G	P/G				
	No. of Container(s)	1	1	3	1				
Special Handling and/or Storage Maintain samples between 2°C and 8°C.	Volume	500mL	500mL	1L	20mL				

SAMPLE ANALYSIS <i>509140</i>	<i>SOIL</i> <i>WOTOL</i>	ICP Metals - Ca, Mg (Only)	Anions (IC) - SO ₄ (Only)	Sr-90 <i>509141</i>	Activity Scan				
----------------------------------	-----------------------------	----------------------------------	--	------------------------	---------------	--	--	--	--

Sample No.	Matrix*	Date Sampled	Time Sampled	HNO ₃	Cool 4°C	HNO ₃	Cool 4°C				
BOGFS7	<i>01</i>	<i>W</i>	<i>9/8/95</i>	<i>1313</i>	<i>X</i>	<i>X</i>					
					<i>1</i>	<i>1</i>					
					<i>100</i>	<i>100</i>					

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix*
Relinquished By <i>R. Lee</i> Date/Time <i>9/8/95 1505</i>	Received By <i>J. White</i> Date/Time <i>9-8-95</i>		<ul style="list-style-type: none"> S = Soil SE = Sediment 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 <i>J. White</i> Date/Time <i>9-11-95</i>	Received By <i>J. White</i> Date/Time <i>9/11/95 1119</i>		
Relinquished By	Received By		
Relinquished By	Received By		

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

0000007

9615446-2959

Client Sample Screening Results

11-Sep-95

P2 9/11/95

CLIENT CODE	ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B			
WHC	B0FK19		9/11/95 2:30:00 PM	QUAD24C	9/11/95 3:36:40 PM	B0FK19	30	4	0.05958333	47	0.5554167			
		LIQUID		Bkg:	9/11/95 1:34:12 AM	BKG	800	59	0.07375	809	1.01125			
Anal Date:	9/11/95	Tot Sa, Alq:	5.00E-01 ✓	1.00E+01	Alp; (Dpm/	1.61E-01	(uCV/	3.62E-06	(pCV/	7.23E+00	± 2.0E+01	CAT	3.5E+00	Lab
Ppt mg:	1.1 ✓	Units:	L	ml	Bet; Alq):	1.01E+00	Sa):	2.28E-05	Lq):	4.56E+01	± 2.0E+01	I ✓	1.1E+00	Alq Lq
WIIC	B0G954		9/11/95 12:45:00 PM	QUAD21A	9/11/95 2:20:53 PM	B0G954	30	29	0.92541667	119	2.8541667			
		LIQUID		Bkg:	9/11/95 1:34:16 AM	BKG	800	33	0.04125	890	1.1125			
Anal Date:	9/11/95	Tot Sa, Alq:	5.00E-01 ✓	1.00E+01	Alp; (Dpm/	2.78E+00	(uCV/	6.27E-05	(pCV/	1.25E+02	± 3.1E+01	CAT	2.0E-01	Lab
Ppt mg:	4 ✓	Units:	L	ml	Bet; Alq):	5.27E+00	Sa):	1.19E-04	Lq):	2.37E+02	± 3.2E+01	I ✓	2.1E-01	Alq Lq
WIIC	B0G955		9/11/95 12:45:00 PM	QUAD21B	9/11/95 2:20:53 PM	B0G955	30	19	0.58083333	116	2.9566667			
		LIQUID		Bkg:	9/11/95 1:34:16 AM	BKG	800	42	0.0525	728	0.91			
Anal Date:	9/11/95	Tot Sa, Alq:	5.00E-01 ✓	1.00E+01	Alp; (Dpm/	1.82E+00	(uCV/	4.10E-05	(pCV/	8.19E+01	± 2.7E+01	CAT	3.1E-01	Lab
Ppt mg:	4.4 ✓	Units:	L	ml	Bet; Alq):	5.42E+00	Sa):	1.22E-04	Lq):	2.44E+02	± 3.1E+01	I ✓	2.0E-01	Alq Lq
WIIC	B0GFS7		9/11/95 12:45:00 PM	QUAD21C	9/11/95 2:20:53 PM	B0GFS7	30	19	0.58083333	205	5.7083333			
		LIQUID		Bkg:	9/11/95 1:34:16 AM	BKG	800	42	0.0525	900	1.125			
Anal Date:	9/11/95	Tot Sa, Alq:	1.00E+00 ✓	1.00E+01	Alp; (Dpm/	1.56E+00	(uCV/	7.05E-05	(pCV/	7.05E+01	± 2.6E+01	CAT	3.5E-01	Lab
Ppt mg:	2 ✓	Units:	L	ml	Bet; Alq):	1.09E+01	Sa):	4.91E-04	Lq):	4.91E+02	± 4.2E+01	I ✓	1.0E-01	Alq Lq
WHC	TEDF091195001		9/11/95 12:45:00 PM	QUAD21D	9/11/95 2:20:53 PM	TEDF091195001	30	7	0.16958333	33	0.10875			
		LIQUID		Bkg:	9/11/95 1:34:16 AM	BKG	800	51	0.06375	793	0.99125			
Anal Date:	9/11/95	Tot Sa, Alq:	5.00E-01 ✓	1.00E+01	Alp; (Dpm/	5.52E-01	(uCV/	1.24E-05	(pCV/	2.49E+01	± 2.4E+01	CAT	1.0E+00	Lab
Ppt mg:	5.2 ✓	Units:	L	ml	Bet; Alq):	1.22E-01	Sa):	2.74E-06	Lq):	5.48E+00	± 1.7E+01	I ✓	9.1E+00	Alq Lq

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11-Sep-95

1

Environmental
Restoration
Contractor

ERC Team

Interoffice Memorandum

Job No. 22192
Written Response Required: NO
CCN: N/A
OU: 100-NR-2
TSD: N/A
ERAs: N/A
Subject Code: 5830

TO: W. S. Thompson N3-06 DATE: July 18, 1995

COPIES: R. L. Biggerstaff H4-91 FROM: S. K. De Mers
Radiological Controls
T7-05/373-1913

SUBJECT: 1995 sampling 100-NR-2

There is no need to perform total activities prior to offsite shipment to NRC licensed labs of samples taken from the list of wells in Attachment 1.

All of the wells listed in the first attachment were reviewed for radiological content based on the previous 4 years of sampling data. No well listed has a β activity in excess of 100,000 pCi/l (<.1 uCi/sample based on a 1 liter sample size) nor any α activity in excess of 10,000 pCi/l (<.01 uCi/l based on a 1 liter sample). All wells show activities < 2,000 pCi/gm (< 2 nCi/gm D.O.T. limit). The highest activity in recent samples is 3,260 pCi/l β and 5.2 pCi/l α .

The remaining wells are in locations that may have a credible path whereby they could become contaminated at the above listed levels and therefor will need to have total activities run on them prior to shipment. Radiological monitoring will be required for the wells and seeps listed in Attachment 2.

Radiological monitoring during sampling will only be required for the wells in Attachment 1, if the wells are located in radiological areas or if the wells themselves are labeled with radiological stickers. Monitoring requirements for down hole work such as pump removal will be determined based on the history of each well on a case by case basis.

skd

ATTACHMENT 1

WELLS THAT DO NOT REQUIRE TOTAL ACTIVITIES

Wells

- 199-N-14
- 199-N-75
- 199-N-29
- 199-N-2
- 199-N-3
- 199-N-31
- 199-N-46
- 199-N-67
- 199-N-76
- 199-N-16
- 199-N-17
- 199-N-18
- 199-N-19
- 199-N-20
- 199-N-21
- 199-N-25
- 199-N-26
- 199-N-32
- 199-N-50
- 199-N-51
- 199-N-54
- 199-N-64
- 199-N-66
- 199-N-67
- 199-N-70
- 199-N-71
- 199-N-73
- 199-N-74
- 199-N-75
- 199-N-77
- 199-N-80

Figure 1

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 9/11/95 1119 Client Name BHI
 Project/Client # B95-080 Batch or Case # _____
 Cooler ID (if noted on outside of cooler) ER-15

1. Condition of shipping container? OK
2. Custody Seals on cooler intact? Yes No
3. Custody Seals dated and signed? Yes No
4. Chain of Custody record is taped on inside of cooler lid? Yes No
5. Vermiculite/packing material is: Wet Dry
6. Each sample is in a plastic bag? Yes No
7. Number of sample containers in cooler: 12
8. Samples have: X tape _____ hazard labels
X custody seals _____ appropriate sample labels
9. Samples are: X in good condition _____ leaking
 _____ broken _____ have air bubbles
 _____ other
10. Coolant Present? Yes No Sample Temperature 5°C
11. The following paperwork should be accounted for (N/A if not applicable):
 Chain of Custody #(s) N/A
 Request for Analysis #(s) 1
 Airbill # _____ Carrier _____
12. Have any anomalies been identified above? Yes No
13. Memos have been initiated for all anomalies identified above? Yes

Printed Name/Signature Tom Gilman Date/Time 9/11/95 1119

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SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER: _____ DATE INITIATED: 9-11-95

INITIATED BY: Heideberg

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 9-11 @ 1119

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
<u>PIGFS7</u>	<u>na</u>	<u>SR 90</u>

Samples were received with the following deficiencies:

- 1. Not enough sample received for proper analysis.
- 2. Sample received without proper preservative.
- 3. No sample received in container.
- 4. Sample received without a RFA/COC form.
- 5. No sample ID on container.
- 6. Sample received broken or leaking.
- 7. Holding time exceeded at receipt.
- 8. Custody tape broken.
- 9. COC not relinquished by client.
- 10. Sample information on container does not match sample information on the paper work (Explain below).
- 11. All shipping containers (coolers) on waybill not received with shipment.
 - RFA/COC received
 - RFA/COC not received
- 12. Other (Explain below).

NOTES: SR90 bottles got delivered - not marked on COC.

SUPERVISOR REVIEW: Jani Heideberg

PROJECT MANAGER REVIEW: _____

TELEPHONED TO: _____ ON _____ BY _____

TELEFAXED TO: _____ ON _____ BY _____

SIGNED ORIGINAL MUST BE RETAINED IN WORK ORDER FILE

FORM NO. LS-023, 3/92, Rev. 0

0000012



COPIES TO: BW/UP
DATE: 9-12-95
TIME: 10:00
Bu B

Work Order No.: 9311

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: Rickland Date: 9-12-95 0745-
Project No: ~~57758~~ 550.78 21 Initiated by: George W. Byrd
Analysis Requested: Refer to RFA/COC 91 RFA/COC Numbers: # 04965
Client Sample Numbers Affected: Entire Login

Condition/Variance (Check all that apply): Circle Number to Denote that Item was Evaluated. "NA" = "Not Applicable".

1. NA	Not enough sample received for proper analysis. Received approximately: _____	8. <input checked="" type="checkbox"/>	Custody tape disturbed/broken/missing.
<input checked="" type="checkbox"/> 2	Sample received broken/leaking.	9. NA	Sample splits performed by lab.
<input checked="" type="checkbox"/> 3	Sample received without proper preservative. <input type="checkbox"/> Cooler temperature not within 4°C ± 2°C Record temperature: <u>5°C</u>	10. NA	Volatile sample received with approximately _____ mm headspace.
<input type="checkbox"/>	pH _____	<input checked="" type="checkbox"/> 11	Sample ID on container does not match sample ID on paperwork. Explain: _____
<input type="checkbox"/>	other: _____	<input type="checkbox"/> 12	All coolers on airbill not received with shipment.
<input checked="" type="checkbox"/> 4	Sample received in improper container.	<input type="checkbox"/> 13	Other (explain below): <u>Shipping containers not rad surveyed.</u> <u>238 2343 564</u>
<input checked="" type="checkbox"/> 5	Sample received without proper paperwork. Explain: _____		
<input checked="" type="checkbox"/> 6	Paperwork received without sample.		
<input checked="" type="checkbox"/> 7	No sample ID on sample container.		

Notes: _____

Corrective Action:
 Client's Name: _____ Informed verbally on: _____ By: _____
 Client's Name: _____ Informed in writing on: _____ By: _____
 Sample(s) processed "as is". Comments: _____
 Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: (or designate) George W. Byrd Date: 9-13-95
Project Management Review: John H. ... Date: 9/12/95

9613446.2966



Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.91

*Category: ICP Metals - Ca, Mg 6010
Method: EPA 6010
Matrix: LIQUID

Sample Date : 09/08/95
Receipt Date : 09/11/95
Report Date : 09/21/95

Client ID: 80GFS7

Quanterra ID : 9311-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result Unit	Qual.	Detection Limit	Dilution
Calcium	7440-70-2	QCBLK78019-1	09/14/95	09/15/95	38500 UG/L		5000	1
Magnesium	7439-95-4	QCBLK78019-1	09/14/95	09/15/95	8000 UG/L		5000	1

0000015

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Quanterra-Richland
P.O. Box 1970
Richland, WA 99352

Project: 550.91

Category: Anions IC - SO4
Method: EPA 300.0
Matrix: LIQUID

Sample Date : 09/08/95
Receipt Date : 09/11/95
Report Date : 09/21/95

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOGFS7	9311-001	Sulfate	14808-79-8	QCBLK78341-1	09/15/95	09/15/95	22.5	MG/L		1.00	2
BOGFS7	9311-001DUP	Sulfate	14808-79-8	QCBLK78341-1	09/15/95	09/15/95	22.5	MG/L		1.00	2
BOGFS7	9311-001MS	Sulfate	14808-79-8	QCBLK78341-1	09/15/95	09/15/95	100	%REC			5
NA	QCBLK78341-1	Sulfate	14808-79-8	QCBLK78341-1	09/15/95	09/15/95	0.50	MG/L	U	0.50	1
NA	QCCLS78341-1	Sulfate	14808-79-8	QCBLK78341-1	09/15/95	09/15/95	94	%REC			1

0060026

Quanterra Incorporated
 2800 George Washington Way
 Richland, Washington 99352

509 375-3131 Telephone
 509 375-5590 Fax

CERTIFICATE OF ANALYSIS

Bechtel Hanford, Inc.
 345 Hills
 Richland, WA 99352

October 2, 1995

Attention: Joan Kessner



SAF Number	:	B95-080
Date SDG Closed	:	September 11, 1995
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W0706
Data Deliverable	:	Summary

I. Introduction

On September 11, 1995, one water sample was received by the Quanterra Environmental Services Richland Laboratory (QTESRL) for radiochemical analysis. Upon receipt, the sample was assigned the following laboratory ID number to correspond with the Bechtel Hanford, Inc. (BHI) specific ID:

<u>QTESRL ID</u>	<u>BHI ID</u>	<u>Matrix</u>	<u>Date of Receipt</u>
50914101	B0GFS7	Water	9/11/95

II. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analysis was: **Gas Proportional Counting**
 Strontium-90 by method ITAS-RD-3204

Bechtel Hanford, Inc.
October 2, 1995
Page 2

III. Quality Control

The analytical results for each analysis performed under SDG W0706 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate. Any exceptions have been noted in the "Comments" section.

Quality control sample results are reported in the same units as sample results.

IV. Comments

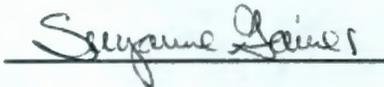
Gas Proportional Counting

Strontium-90 by method ITAS-RD-3204

The LCS, batch blank, sample and sample duplicate (B0GFS7) results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for 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.

Reviewed and approved:



Suzanne Gaines
Project Manager

9613446.2971

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND **SDG:** W0706
LAB SAMPLE ID: 50914101 **MATRIX:** WATER
CLIENT ID: B0GFS7 **DATE RECEIVED:** 9/11/95 11:19:00 AM

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
STRONTIUM	1.26E+02	3.0E+00	3.3E+01	7.64E-01	pCi/L	98.60%	RD3204

Number of Results:

9-26-95



Environmental Services

ITAS Data Review Checklist
RADIOCHEMISTRY

BHI - Water

Work Order No(s): 509141				
Lab Sample Numbers or SOG: Wφ 706				
Method/Test/Parameter: Total Sr				
Review Item	Yes (✓)	No (X)	N/A (✓)	2 nd Level review (S)
A. Calibration				
1. Is the calibration documentation included where applicable?	✓			✓
B. Sample Analysis				
1. Are the sample Yields within acceptance criteria?	✓			✓
2. Were all sample holding times met?	✓			✓
C. QC Samples				
1. Is the Blank Yield within acceptance criteria?	✓			✓
2. Is the Minimum Detectable Activity for the Blank result ≤ the Contract Detection Limit?	✓			✓
3. Is the Blank result ≤ the Contract Detection Limit?	✓			✓
4. Is the Blank result greater than the Contract Detection Limit but the Sample result less than the Contract Detection Limit?			✓	✓
5. Is the LCS result within acceptance criteria?	✓			✓
6. Is the LCS yield within acceptance criteria?	✓			✓
7. Is the LCS Minimum Detectable Activity less than or equal to the Contract Detection Limit?	✓			✓
8. MS/MSD results and yield meet acceptance criteria?			✓	✓
9. Duplicate sample results and yield meet acceptance criteria?	✓			✓
D. Other				
1. Are all nonconformances included and noted?			✓	✓
2. Are all required forms filled out?	✓			✓
3. Correct methodology used?	✓			✓
4. Transcription checked?	JM			WJRM
5. Were all calculations checked at a minimum frequency?	↓			↓
6. Units checked?	↓			↓

Comments on any "No" response: Report all data

Analyst: W. MacKellan

Date: 9/20/95

Second Level Review: Suey Jones

Date: 9/26/95

Form No: LS-038, 3/94 Rev 2

9613446.2973

**CHAIN OF
CUSTODY FORMS**

0009

Date Turnaround
 Priority
 Normal

Collector <i>R. Lee</i>	Company Contact J.V. Borghese	Telephone (509) 372-9584
Project Designation 100-NR-2 Pre-Startup Performance Monitoring - Sept.	Sampling Location 100 N	SAF No. B95-080
Ice Chest No.	Field Logbook No. <i>EFL-1056</i>	Method of Shipment Hand Delivered
Shipped To Quanterra	Offsite Property No. NA	Bill of Lading/Air Bill No. NA

Possible Sample Hazards/Remarks	Preservation	HNO ₃	Cool 4°C	HNO ₃	Cool 4°C
	Type of Container	P/G	G	P/G	P/G
	No. of Container(s)	1	1	3	1
Special Handling and/or Storage Maintain samples between 2°C and 6°C.	Volume	500mL	500mL	1L	20mL

SAMPLE ANALYSIS <i>509140</i>	<i>SOIL</i> <i>WOTOLC</i>	ICP Metals - Ca, Mg (Only)	Anions (IC) - SO ₄ (Only)	Sr-90 <i>509141</i>	Activity Scan

Sample No.	Matrix*	Date Sampled	Time Sampled							
BOGFS7	<i>01</i> W	<i>9/8/95</i>	<i>1313</i>	<i>X</i>	<i>X</i>					

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix*
Relinquished By <i>Lee</i> Date/Time <i>9/8/95 1515</i>	Received By <i>Eric</i> Date/Time <i>1515</i>		S - Soil SE - Sediment 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 <i>Eric</i> Date/Time <i>1119</i>	Received By <i>Eric</i> Date/Time <i>9-8-95</i>		
Relinquished By <i>Eric</i> Date/Time <i>9-11-95</i>	Received By <i>Eric</i> Date/Time <i>9/11/95 1119</i>		
Relinquished By _____ Date/Time _____	Received By _____ Date/Time _____		

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

0010

9613446.2974

Environmental
Restoration
Contractor **ERC Team**
Interoffice Memorandum

Job No. 22192
Written Response Required: N
CCR: N/A
OU: 100-NR-2
TR: N/A
BRA: N/A
Subject Code: 353

TO: W. S. Thompson N3-06 DATE: July 18, 1995
COPIES: R. L. Biggerstaff H4-91 FROM: S. K. De Mers
Radiological Controls
T7-05/373-1913
SUBJECT: 1995 sampling 100-NR-2

There is no need to perform total activities prior to offsite shipment to NRC licensed labs of samples taken from the list of wells in Attachment 1.

All of the wells listed in the first attachment were reviewed for radiological content based on the previous 4 years of sampling data. No well listed has a β activity in excess of 100,000 pCi/l (<.1 uCi/sample based on a 1 liter sample size) nor any α activity in excess of 10,000 pCi/l (<.01 uCi/l based on a 1 liter sample). All wells show activities < 2,000 pCi/gm (< 2 nCi/gm D.O.T. limit). The highest activity in recent samples is 3,260 pCi/l β and 5.2 pCi/l α .

The remaining wells are in locations that may have a credible path whereby they could become contaminated at the above listed levels and therefor will need to have total activities run on them prior to shipment. Radiological monitoring will be required for the wells and seeps listed in Attachment 2.

Radiological monitoring during sampling will only be required for the wells in Attachment 1, if the wells are located in radiological areas or if the wells themselves are labeled with radiological stickers. Monitoring requirements for down hole work such as pump removal will be determined based on the history of each well on a case by case basis.

skd

ATTACHMENT 1

WELLS THAT DO NOT REQUIRE TOTAL ACTIVITIES

Wells

199-N-14
199-N-75
199-N-29
199-N-2
199-N-3
199-N-31
199-N-46
199-N-67
199-N-76
199-N-16
199-N-17
199-N-18
199-N-19
199-N-20
199-N-21
199-N-25
199-N-26
199-N-32
199-N-50
199-N-51
199-N-54
199-N-64
199-N-66
199-N-67
199-N-70
199-N-71
199-N-73
199-N-74
199-N-75
199-N-77
199-N-80

9613446.2977

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER: _____ DATE INITIATED: 9-11-95

INITIATED BY: Hinderberg

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 9-11 @ 1119

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
B06F57	na	SR 90

Samples were received with the following deficiencies:

- 1. Not enough sample received for proper analysis.
- 2. Sample received without proper preservative.
- 3. No sample received in container.
- 4. Sample received without a RFA/COC form.
- 5. No sample ID on container.
- 6. Sample received broken or leaking.
- 7. Holding time exceeded at receipt.
- 8. Custody tape broken.
- 9. COC not relinquished by client.
- 10. Sample information on container does not match sample information on the paper work (Explain below).
- 11. All shipping containers (coolers) on waybill not received with shipment.
 - RFA/COC received
 - RFA/COC not received
- 12. Other (Explain below).

NOTES: SR90 bottles got delivered - not marked on COC.

SUPERVISOR REVIEW: Jani Hinderberg

PROJECT MANAGER REVIEW: _____

TELEPHONED TO: _____ ON _____ BY _____

TELEFAXED TO: _____ ON _____ BY _____

SIGNED ORIGINAL MUST BE RETAINED IN WORK ORDER FILE

FORM NO. LS-023, 3/92, Rev. 0

0013

509140 Chem
509141 Rad

SDG W0706

Ⓟ 9/11/95

Client Sample Screening Results

11-Sep-95

CLIENT CODE ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B		
WHC B0FK19		9/11/95 2:30:00 PM	QUAD24C	9/11/95 3:36:40 PM	B0FK19	30	4	0.05958333	47	0.5554167		
	LIQUID		Bkg:	9/11/95 1:34:12 AM	BKG	800	59	0.07375	809	1.01125		
Anal Date: 9/11/95	Tot Sa, Alq: 5.00E-01 ✓	1.00E+01	Alp; (Dpm/ 1.61E-01	(uCV/ 3.62E-06	(pCV 7.23E+00 ± 2.0E+01	CAT	3.5E+00	Lab				
Ppt mg: 1.1 ✓	Units: L	ml	Bet; Alq): 1.01E+00	Sa): 2.28E-05	Ljg): 4.56E+01 ± 2.0E+01	I /	1.1E+00	Alq				Lig
WHC B0G954		9/11/95 12:45:00 PM	QUAD21A	9/11/95 2:20:53 PM	B0G954	30	29	0.92541667	119	2.8541667		
	LIQUID		Bkg:	9/11/95 1:34:16 AM	BKG	800	33	0.04125	890	1.1125		
Anal Date: 9/11/95	Tot Sa, Alq: 5.00E-01 ✓	1.00E+01	Alp; (Dpm/ 2.78E+00	(uCV/ 6.27E-05	(pCV 1.25E+02 ± 3.1E+01	CAT	2.0E-01	Lab				
Ppt mg: 4 ✓	Units: L	ml	Bet; Alq): 5.27E+00	Sa): 1.19E-04	Ljg): 2.37E+02 ± 3.2E+01	I /	2.1E-01	Alq				Lig
WHC B0G955		9/11/95 12:45:00 PM	QUAD21B	9/11/95 2:20:53 PM	B0G955	30	19	0.58083333	116	2.9566667		
	LIQUID		Bkg:	9/11/95 1:34:16 AM	BKG	800	42	0.0525	728	0.91		
Anal Date: 9/11/95	Tot Sa, Alq: 5.00E-01 ✓	1.00E+01	Alp; (Dpm/ 1.82E+00	(uCV/ 4.10E-05	(pCV 8.19E+01 ± 2.7E+01	CAT	3.1E-01	Lab				
Ppt mg: 4.4 ✓	Units: L	ml	Bet; Alq): 5.42E+00	Sa): 1.22E-04	Ljg): 2.44E+02 ± 3.1E+01	I /	2.0E-01	Alq				Lig
WHC B0GFS7		9/11/95 12:45:00 PM	QUAD21C	9/11/95 2:20:53 PM	B0GFS7	30	19	0.58083333	205	5.7083333		
01	LIQUID		Bkg:	9/11/95 1:34:16 AM	BKG	800	42	0.0525	900	1.125		
Anal Date: 9/11/95	Tot Sa, Alq: 1.00E+00 ✓	1.00E+01	Alp; (Dpm/ 1.56E+00	(uCV/ 7.05E-05	(pCV 7.05E+01 ± 2.6E+01	CAT	3.5E-01	Lab				
Ppt mg: 2 ✓	Units: L	ml	Bet; Alq): 1.09E+01	Sa): 4.91E-04	Ljg): 4.91E+02 ± 4.2E+01	I /	1.0E-01	Alq				Lig
WHC TEDF091195001		9/11/95 12:45:00 PM	QUAD21D	9/11/95 2:20:53 PM	TEDF091195001	30	7	0.16958333	33	0.10875		
	LIQUID		Bkg:	9/11/95 1:34:16 AM	BKG	800	51	0.06375	793	0.99125		
Anal Date: 9/11/95	Tot Sa, Alq: 5.00E-01 ✓	1.00E+01	Alp; (Dpm/ 5.52E-01	(uCV/ 1.24E-05	(pCV 2.49E+01 ± 2.4E+01	CAT	1.0E+00	Lab				
Ppt mg: 5.2 ✓	Units: L	ml	Bet; Alq): 1.22E-01	Sa): 2.74E-06	Ljg): 5.48E+00 ± 1.7E+01	I /	9.1E+00	Alq				Lig

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0014

11-Sep-95

1

Figure 1

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 9/11/95 1119 Client Name BHI
 Project/Client # B95-080 Batch or Case # _____
 Cooler ID (if noted on outside of cooler) ER-15

1. Condition of shipping container? ok
2. Custody Seals on cooler intact? Yes No
3. Custody Seals dated and signed? Yes No
4. Chain of Custody record is taped on inside of cooler lid? Yes No
5. Vermiculite/packing material is: Wet Dry _____
6. Each sample is in a plastic bag? Yes No _____
7. Number of sample containers in cooler: 12
8. Samples have: tape _____ hazard labels
 custody seals _____ appropriate sample labels
9. Samples are: in good condition _____ leaking
 broken _____ have air bubbles
 other _____
10. Coolant Present? Yes No Sample Temperature 5°C
11. The following paperwork should be accounted for (N/A if not applicable):
 Chain of Custody #(s) N/A
 Request for Analysis #(s) 1
 Airbill # _____ Carrier _____
12. Have any anomalies been identified above? Yes No
13. Memos have been initiated for all anomalies identified above? Yes

Printed Name/Signature Tom Gilman Date/Time 9/11/95 1119

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

11-Sep-1995
Page 1

*File
9-26-95*

CUSTOMER: BHI

SAMPLE DELIVERY GROUP

W0706

MATRIX : WATER

BATCH NUMBER

09-141

ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
*)		M091411B	BHI	
*)		M091411S	BHI	
3)		50914101 60914101	BHI BOGFS7	EQL1312 = 30.667 ± 0.44891 DPM

ACTIONS (Initial & Date)

1) INITIATED

JA 9/11/95

5) COUNTING/MEASUREMENT LAB

OP 9/11/95

2) PREP LAB RECEIVED

RTM 9/12/95

6) DATA REVIEWED AND

ANALYTICAL PREP STORED

WFR 9/20/95

3) SAMPLE REMAINDER STORED

N/A

4) SEPARATION LAB RECEIVED

RTM 9/12/95

PRIORITY