W0310

Quanterra
Environmental Services

Quanterra Incorporated
2800 George Washington Way
Richland, Washington 99352

509 375-3131 Telephone
509 375-5590 Fax

0048247

CERTIFICATE OF ANALYSIS

Bechtel Hanford, Inc.
345 Hills
Richland, WA 99352

December 22, 1994

Attention: Joan Kessner

NOV 1997 RECEIVED EDMC

DEC 1994 RECEIVED Data Log In

SAF Number	:	B94-091
Date SDG Closed	:	November 11, 1994
Number of Samples	:	Seven (7)
Sample Type	:	Water
SDG Number	:	W0310
Data Deliverable	:	Summary

I. Introduction

On November 11, 1994, seven water samples were received by the Quanterra Environmental Services Richland Laboratory (QTESRL) for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific IDs:

QTESRL ID	BHI ID	Matrix	Date of Receipt
41127601	B0D8G2	Water	11/11/94
41127602	B0D8G3	Water	11/11/94
41127603	B0D8G4	Water	11/11/94
41127604	B0D8G5	Water	11/11/94
41127605	B0D8G6	Water	11/11/94
41127606	B0D8G7	Water	11/11/94
41127607	B0D8G8	Water	11/11/94

RECORD COPY

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: Activity Screen by method ITAS-RD-2802

III. Quality Control

Quality Control sample results are not reported for the gross activity screening analysis.

IV. Comments

Results from the initial radioactivity screening of these samples classified them as Category I.

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

Suzanne Gaines
Project Manager

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 2

Date Turnaround: [X] Priority [ ] Normal

Collector: J. D. Fancher
Company Contact: J. D. Fancher
Telephone No.: 376-2081
Project Designation: 200-ZP-2 VES knockout
Sampling Location: 200-ZP-2
SAF No.: B94-091
Ice Chest No.: GWS-141
Field Logbook No.: EFL-1133
Method of Shipment: DOE Vehicle
Shipped To: Quanterra
Offsite Property No.: W95-0-0073-22
Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks: Contains <1 ppm Carbon Tetrachloride

Special Handling and/or Storage

SAMPLE ANALYSIS: 41/276

Sample No.	Matrix*	Date Sampled	Time Sampled	Preservative: 4°C	Type of Container	No. of Container(s)	Volume
BOD8G2 01	W	11/10/94	1110	X			
BOD8G3 2	W	11/10/94	1020	X			
BOD8G4 3	W	11/10/94	1025	X			
BOD8G5 4	W	11/10/94	1045	X			
BOD8G6 5	W	11/10/94	1105	X			
BOD8G7 6	W	11/10/94	1125				

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	J.D. Fancher J.D. Fancher	11/10/94 1235	B Whitten B Whitten	1235 11-10-94
Relinquished By	B Whitten B Whitten	1030 11-11-94	Received By Quanterra B Brumfield	11-11-94 10:30
Relinquished By			Received By	
Relinquished By			Received By	

SPECIAL INSTRUCTIONS

1 Activity Screen

NOTE: DATA DELIVERABLE SUMMARY

SDG W0310

Matrix*
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

LABORATORY SECTION: Received By | Title | Date/Time

FINAL SAMPLE DISPOSITION: Disposal Method | Disposed By | Date/Time

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 2 of 2

Data Turnaround: [X] Priority [ ] Normal

Collector: J.D. Fancher	Company Contact: J.D. Fancher	Telephone No.: 376-2881
Project Designation: 200-ZP-2 VES Knuckle	Sampling Location: 200-ZP-2	SAF No.: B94-091
Ice Chest No.: CWS-141	Field Logbook No.: EFL-1133	Method of Shipment: DOE Vehicle
Shipped To: Quantera	Offsite Property No.: W95-0-0073-22	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks: Contains <1 ppm Carbon Tetrachloride

Special Handling and/or Storage:

SAMPLE ANALYSIS: 41127607

Sample No.	Matrix*	Date Sampled	Time Sampled															
Preservative																		
Type of Container																		
No. of Container(s)																		
Volume																		
				1														
BOD868	SW	11/10/94	1130	X														

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
J.D. Fancher J.D. Fancher	11/10/94, 1235	B Whitten B Whitten	1235 11-10-94
Relinquished By	Date/Time	Received By	Date/Time
B Whitten B Whitten	1030 11-11-94	Quantera B Brumfield	11-11-94 10:30
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

1 Alkalinity Scan

NOTE: DATA DELIVERABLE SUMMARY

SDG W0310

Matrix*

- 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

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

RC 6000 B28 (12/93)

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT)
BHI		W95-O-0073-22

PART I - TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
ER Eng Support	Field & Analytical Supp	ER Field Sampling

The following items are to be shipped from [X] Contractor [ ] Vendor

Routing [ ] Prepaid [ ] Collect

Shipped to
Company: Quanterra (IT)
Address: 2800 George Washington Way
City: Richland, WA 99352 State Zip Code
Country:

Off-site Custodian:

On-site Custodian: Payroll No.:

Qty.	Property No.	Description (Include Manufacture Name, Model, Serial No.)	Acquisition Cost
1 lbs		Sample #: B0D822 B0D823 B0D824 Cooler ID: ER-2A Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs		Sample #: B0D334 B0D335 B0D865 B0D866 B0D867 B0D868 B0D862 B0D863 B0D864 B0D865 B0D866 B0D867 Cooler ID: GWS-141 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A

[ ] Classified [X] Unclassified [ ] Shipped Under DOE Contract [ ] Shipped Under Contractor's Use Permit Contract

Necessity for the off-site use of this property

[X] Required for Project Work. List Project No. 100-FR-3 & 100-HR-3 PET, 200-UP-1 PILOT SCALE

[ ] Business Trip

Bill of lading # N/A

[ ] Off-site Assignment

[ ] Shipment to Subcontractor. List Subcontract No. N/A

[ ] Other (Please specify) Sampling supports RI/FS work in the 100 AREA 200 AREA

RECEIVED

NOV 1 1 1994

CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.

RM Clearance for Public Release	RM Survey No.	Date
S Sitz	PS-OFF-0210	11-11-94

Location of and Contact for Property (Name/Phone No./Bldg./Area)
P. H. Butcher/ (509) 376-4388

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
11-11-94	PE35A ITE 2072 PD3AA PT5BG	

Originated By	Date	Authorized By	Date
B.J. WHITTEN	11-11-94	[signature]	11-11-94
Property Representative Signature	**Date**	**Property Management Approval**	**Date**
		[signature]	11/11/94

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature	Date
0006	

DISTRIBUTION (AFTER FINAL SIGNATURES)

White - Property Management Yellow - Shipping Green - Accounts Payable Pink - Originator Goldenrod - Property Management

*U.S. GPO: 1994-582-170/00029 BBrumfield 11-11-94 10:30 54-3000-479 (01/94)

DESCRIPTION OF WORK: Survey of condensate water samples from the 200-ZP-2 vapor extraction system (VES) for offsite shipment.

Material History:
The water separation units ,sometimes referred to "water knockouts" are placed between the wellheads and the High Efficiency Particulate Air (HEPA) filters of the VES system to allow water vapor from the vadose zone to condense and separate from the airstream prior to entry to the HEPA's. This portion of the system is labeled potentially internally contaminated because many of the wells that are used for vapor extraction penetrate cribs which were used to dispose of plutonium contaminated liquids. There is a slight potential for the migration of contamination from beneath the cribs to the internals of the wells over time, and a corresponding risk for contamination between the well head and the HEPA filters. To date no contamination has been detected inside the system. A composite sample of condensate from the three extraction systems taken in July 1994 was analyzed and found to have 3.6 pCi/l gross alpha and 150 pCi/l gross beta (sample# B0C6P0) . Sampling of condensate from the Z-1A system in June 1991 indicated less than detectable on total activity. There has been no significant change to the system since July 1994 and no reason to suspect contaminants above the 50 pCi/g detection limit of a total activity analysis. There is no potential for the samples to produce a measurable doserate. These samples are being collected to verify the water is less than 30 pCi/l gross alpha and 1000 pCi/l gross beta prior to disposing of the condensate.

Release Limits:
The isotopes of concern for release purposes are plutonium 239 and 240. These isotopes are primarily alpha emitters.

The accessible areas of the sample containers should be verified to be less than 500 dpm/100cm^2 fixed+ removable, alpha and less than 20 /100cm^2 smearable alpha.

Instruments to be used:

- An Eberline or Bicron portable count rate meter with a alpha scintillation probe or equivalent alpha detection instrument should be used to survey for radioactive material emitting alpha radiation.

- Bench top survey instruments may be used to count smears.

Radiological procedures and supporting documents to be used for releasing material: Use of instruments will be in accordance with specifications of WHC-IP-718 section 3.1.1

Techniques to be used to perform surveys:

- Removable contamination determination:
  - Technical smears of 100 cm^2.

    One smear should be taken on the accessible surfaces of each sample bottle. This surface area may be less than 100cm^2, this

should be reflected on the survey report. Smears should be verified less than 20 dpm alpha.

- Fixed plus removable contamination determination:

  o Perform static measurements.

  Direct surveys of the accessible areas of the samples should consist of stationary counts with the alpha detection instrument lasting at least five seconds each taken on the largest surface of each sample bottle.

Documentation requirements:

- A survey must be filled out that must include a complete description of the material being released. The sample identification numbers must be listed on the survey form. These numbers can be obtained from the sampler.

Written By: _____ Date: 11/9/94
TMA Radiological Engineer

Concurred By: _____ Date: 11/10/94
TMA ~~Rad Eng or Manager~~
Radiological Control Manager

Approved By: _____ Date: 11/10/94
BHI H&S or Rad Con Manager

Approved By: _____ Date: 11-10-94
BHI 200 Areas Project Manager

TMA Hanford Radiological Survey Record

Survey & Counting Instruments		Location & purpose of survey	Survey No.		Page 1 of 1
List	Serial Number	200 W, VES SITES, water sample taken from knockout tanks.	PS-OFF-0268		
2/A	2892		Date	Time	RWP No.
2/A	2/A		11-10-94	1130	D-026 Rev 2

Contamination Survey Information

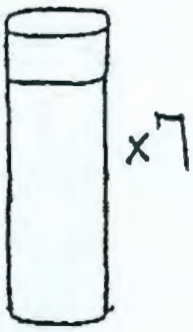
Description of item or location surveyed.	Smearable * Alpha	Smearable * Beta Gamma	Fixed Alpha	Fixed Beta Gamma	#	Description of item or location surveyed.	Smearable Alpha	Smearable Beta Gamma	Fixed Alpha	Fixed Beta Gamma
N/A						N/A				

High dpm/100cm2 values noted. * Circled values in smearable α-β column denote mrad/hr beta. Unless listed above, contamination readings are <1000 dpm Beta-gamma, <20 dpm Alpha (per 100cm2). Readings taken at 1/4 perp. dimension of object: CF (CF) = 3, CF (RO-2) = 4. Readings beyond that distance, CF = 1.

Contamination survey location ____ = Gamma, mR/hr □ = Beta, mrad/hr △ = Micro-R/hr ★ = Contact Rdg. ▽ = Neutron, mrem/hr [AS] = air sample

Contaminated area H-M-H-, High Contamination Area ----, Radiological Buffer Area RC-RC-, Radiologically Controlled Area RM-RM-, Radioactive Materials Storage area R-R-R-, Radiation Area HR-HR-, High Radiation Area

INFORMATION ONLY!



20ml water sample bottles

Sample Bottle #'s

B0D862
B0D863
B0D864
B0D865
B0D866
B0D867
B0D868

Took smears (fresh) & direct readings on all (7) bottles, as per survey plan written by M. Wesselman.

Surveyor (print) Steven J. Huddleston

Signature/Date Steven J. Huddleston 11-10-94

Witness (print) K.A. MATTHEWS

Signature/Date K Matthews 11/10/94

Remarks

0009

BHI-TM-R006

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 11-11-94 10:30 Client Name BHI

Project/Client # B94-022, B94-089, B94-091 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) GWS 141

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: 30
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 3 °C

11. The following paperwork should be accounted for (N/A if not applicable): N/A
    Chain of Custody #'(s) _____
    Request for analysis #(s) _____
    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 BBRUMFIELD B Brumfield Date/Time 11-11-94 1013d

FORM NO. LS-042, Rev.0, 2/94

111194F.WQ2

TENNELEC #2

SCREENING CALCULATION SPREADSHEET

all are Cat. I.
JRM 11 Nov 94

Customer Code	Recieved Date		Screening Prep Date		Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	11-11-94		11-11		11-1	10	16	223	240

	Customer ID WHC	Sample Matrix Solid/Liquid	Residue Wght mg	Vol. Anal. mg ml	Sample Size Gm L	SMPLE CNT DATA Hldr Num	Total Counts Alpha	Beta	Net Sample Counts/Minute Alpha	Beta	DPM / Aliquot Alpha	Beta	uCi per Sample Alpha	Beta	pCi / Gm or L Alpha	Beta	1-sigma error pCi/ Gm or L Alpha	Beta	Category 1 Yes/No	Aliquot to Cat 1 Gm or L Alpha	Beta
1	B0D8G2	LIQUID	9.8	10.0	0.0	11	2	47	0.13	3.77	3.37E-01	7.93E+00	3.0E-07	7.1E-06	1.5E+01	3.6E+02	45.49	65.47	Yes	6.6E+02	2.8E+02
2	B0D8G3	LIQUID	16.0	10.0	0.0	12	3	66	0.23	5.67	6.35E-01	1.19E+01	5.7E-07	1.1E-05	2.9E+01	5.4E+02	47.43	77.29	Yes	3.5E+02	1.9E+02
3	B0D8G4	LIQUID	1.1	10.0	0.0	13	2	12	0.13	0.27	5.06E-01	4.89E-01	4.6E-07	4.4E-07	2.3E+01	2.2E+01	46.61	33.59	Yes	4.4E+02	4.6E+03
4	B0D8G5	LIQUID	19.2	10.0	0.0	14	3	98	0.23	8.87	4.79E-01	1.87E+01	4.3E-07	1.7E-05	2.2E+01	8.4E+02	46.43	94.13	Yes	4.6E+02	1.2E+02
5	B0D8G6	LIQUID	0.5	10.0	0.0	15	0	9	-0.07	-0.03	-2.6E-01	-1.6E-02	0.0E+00	0.0E+00	-1.2E+01	-8.3E-01	41.34	30.22	Yes	-8.6E+02	-1.2E+05
6	B0D8G7	LIQUID	0.8	10.0	0.0	16	3	16	0.23	0.67	8.79E-01	1.27E+00	7.9E-07	1.1E-06	4.0E+01	5.7E+01	48.96	36.23	Yes	2.5E+02	1.7E+03
7	B0D8G8	LIQUID	1.3	10.0	0.0	17	0	16	-0.07	0.67	-2.9E-01	1.47E+00	0.0E+00	1.3E-06	-1.3E+01	6.6E+01	41.09	39.30	Yes	-7.6E+02	1.5E+03

4 11 8 46 + 5 Screens

SDG
W0310

BEST AVAILABLE COPY

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