W0260-QES

Quanterra Environmental Services

0045450

Quanterra Incorporated
2800 George Washington Way
Richland, Washington 99352

509 375-3131 Telephone
509 375-5590 Fax

December 5, 1994

DEC 1994 RECEIVED Data Log In

Joan Kessner
Buyer's Technical Representative
Bechtel Hanford. Inc.
345 Hills
Richland, WA 99352

Reference: Contract MPV-SVV-239000.

Dear Ms. Kessner:

Accompanying this letter are the Data Package Deliverables for the Chemical analyses on the following BHI samples:

SDG NUMBER	SAF NUMBER
W0250	B94-036
W0260	B94-036

The Chemical Diskette Deliverable will be provided later.

If you have any questions regarding this data package or require any additional information please contact me at 375-3131.

Sincerely,

Ann T. Wright for
Jodie Carnes
Document Control Officer

Receipt of this letter and the package are acknowledged by:

Sharon Kessner — Name
12/6/94 — Date
4:00p — Time

XC: Vicki Parr
Wade Price
Van Pettey
File

OCT 1996 RECEIVED EDMC

MS 6/17/96

Analytical Data Package Prepared For

Bechtel Hanford

Chemical Analysis By

Quanterra Environmental Services
St. Louis Laboratory

DEC 1994
RECEIVED

Sample Delivery Group Number: W0260

BHI IDENTIFICATION NUMBER	QUANTERRA ID NUMBER
BOD4N4	6500-001
BOD4N5	6500-002
BOD4J6	6519-001
BOD4J7	6519-002
BOD4H6	6550-001
BOD4K0	6550-002
BOD4K8	6550-003
BOD4H7	6550-004
BOD4K1	6550-005
BOD4K9	6550-006
BOD4K4	6560-001
BOD4L0	6560-002
BOD4N0	6560-003
BOD4L2	6560-004
BOD4L4	6560-005
BOD4K5	6560-006
BOD4L1	6560-007
BOD4N1	6560-008
BOD4L3	6560-009
BOD4L5	6560-010

RECORD COPY

Quanterra November 15, 1994 09:14 am
Account: 10722 Project: 550.23 Quanterra-Richland QAS No. 751 Rev. 0
Master Sample Login: 6500

Project Manager: W. Price

Draft: Final Entered and Reviewed by: PM Review:

Sample Header Template:

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
6500-001	B004N4	Water	14-OCT-94 09:32	17-OCT-94 10:45	21-NOV-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 41032401								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-1L	ICAP/CLP90/Q4	S	COLD	17-NOV-94	15-APR-95	R5H	(108904:100)
1		SE/CLP90/Q4	S	COLD	17-NOV-94	15-APR-95	R5H	(108904:100)
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	17-NOV-94	11-NOV-94	R5H	(108905:100)
1		FL/300.0/Q4	S	COLD	17-NOV-94	11-NOV-94	R5H	(108905:100)
1		NO2/300.0/Q4	S	COLD	17-NOV-94	16-OCT-94	R5H	(108905:100)
1		OPHOS/300.0/Q4	S	COLD	17-NOV-94	16-OCT-94	R5H	(108905:100)
1		SO4/300.0/Q4	S	COLD	17-NOV-94	11-NOV-94	R5H	(108905:100)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	17-NOV-94	28-OCT-94	R5H	(108908:100)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	17-NOV-94	28-OCT-94	R5H	(108906:100)
1		TDS/160.1/Q4	S	COLD	17-NOV-94	21-OCT-94	R5H	(108907:99)

6500-001DUP	B004N4	Water	14-OCT-94 09:32	17-OCT-94 10:45	21-NOV-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 41032401								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-1L	ICAP/CLP90/Q4	S	COLD	17-NOV-94	15-APR-95	R5H	(108904:100)
1		SE/CLP90/Q4	S	COLD	17-NOV-94	15-APR-95	R5H	(108904:100)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	17-NOV-94	28-OCT-94	R5H	(108908:100)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	17-NOV-94	28-OCT-94	R5H	(108906:100)
1		TDS/160.1/Q4	S	COLD	17-NOV-94	21-OCT-94	R5H	(108907:99)

6500-001MS	B004N4	Water	14-OCT-94 09:32	17-OCT-94 10:45	21-NOV-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 41032401								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-1L	ICAP/CLP90/Q4	S	COLD	17-NOV-94	15-APR-95	R5H	(108904:100)
1		SE/CLP90/Q4	S	COLD	17-NOV-94	15-APR-95	R5H	(108904:100)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	17-NOV-94	28-OCT-94	R5H	(108908:100)

6500-002	B004N5	Water	14-OCT-94 09:32	17-OCT-94 10:45	21-NOV-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 41032402								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-1L	ICAPD/CLP90/Q4	S	HNO3	17-NOV-94	15-APR-95	R5H	(108909:100)
1		SED/CLP90/Q4	S	HNO3	17-NOV-94	15-APR-95	R5H	(108909:100)

6500-002DUP	B004N5	Water	14-OCT-94 09:32	17-OCT-94 10:45	21-NOV-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 41032402								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-1L	ICAPD/CLP90/Q4	S	HNO3	17-NOV-94	15-APR-95	R5H	(108909:100)
1		SED/CLP90/Q4	S	HNO3	17-NOV-94	15-APR-95	R5H	(108909:100)

3*=Sample has not been rad screened.

00010

Quanterra November 15, 1994 09:14 am
Account: 10722 Project: 550.23 Quanterra-Richland QAS No. 751 Rev. 0
Master Sample Login: 6500

Project Manager: W. Price

Draft: Final: Entered and Reviewed by: PM Review:

Sample Header Template:

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
6500-002WS	8004W5	Water	14-OCT-94 09:32	17-OCT-94 10:45	21-NOV-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 41032402								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-1L	ICAPD/CLP90/Q4	S	HNO3	17-NOV-94	15-APR-95	R5H	(108909:100)
1		SED/CLP90/Q4	S	HNO3	17-NOV-94	15-APR-95	R5H	(108909:100)

Data:

3**Sample has not been rad screened.

)1794B.WQ2

TENNELEC #2

SCREENING CALCULATION SPREADSHEET

Correct. JRM
17 Oct 94

Cust Code	Recieved Date		Screening Prep Date		Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	10-17-94		10-17		10-1	10	16	246	240

Customer ID WHC	pH <2 Rcvd/Relq	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 / Aliqout Alpha	Beta	uCi per Sample Alpha	Beta	2 Sigma Error uCi per Sample Alpha	Beta	pCi/(Gm or L) Alpha	Beta	Category 1 Yes/No	Aliquot to Cat 1 Gm or L Alpha	Beta
BOD4Q7	LIQUID	2.0	10	1.0	96	7	22	0.63	1.18	2.21E+00	2.06E+00	1.0E-04	9.3E-05	9.0E-08	6.9E-08	1.0E+02	9.3E+01	Yes	1.0E+02	1.1E+03
BOD4G0	LIQUID	3.1	10	1.0	93	11	120	1.03	10.98	3.24E+00	2.24E+01	1.5E-04	1.0E-03	1.2E-07	2.3E-07	1.5E+02	1.0E+03	Yes	6.9E+01	9.9E+01
BOD4Q3	LIQUID	1.8	10	1.0	92	3	27	0.23	1.68	7.57E-01	3.37E+00	3.4E-05	1.5E-04	5.2E-08	3.5E-07	3.4E+01	1.5E+02	Yes	2.9E+02	6.6E+02
BOD4 N4	LIQUID	3.3	10	1.0	28	6	149	0.53	13.88	1.30E+00	2.88E+01	5.8E-05	1.3E-03	8.1E-08	5.0E-06	5.8E+01	1.3E+03	Yes	1.7E+02	7.7E+01
TOTAL uCi												3.4E-04	2.6E-03							

00012

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: A. J. Simpson	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: GWS-122	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-18	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks:

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

SAMPLE ANALYSIS: 410324

Sample No.	Matrix*	Date Sampled	Time Sampled	Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCL <2			HNO3<2				
				Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
				No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
				Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS					METALS (see S. I. #1) UNFILTERED	IC ANIONS-F,Cl, SO4,NO2 PO4	ALKALINITY	TDS	CLP-CYANIDE	GROSS ALPHA/BETA, (see S. I. #2)	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED				
					A	B	C	D	E	4103	2501	—	—		A				
BD D4N4 01	W	10/14/94	0932		X	X	X	X	X	X	X	X	X						
BD D4N5 2	W	10/14/94	0932												X				

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	K. A. Lee	10/14/94 1345	B. Whitten	1345 10-14-94
Relinquished By	B. Whitten	1055 10-17-94	Received By	1055 10-17-94
Relinquished By			Received By	
Relinquished By			Received By	

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0200

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-826 (12/92)

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 10/17/94 10:45 Client Name WHC

Project/Client # B94-036 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) GWS 122

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: 19
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 4°C

11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) N/A
    Request for analysis #(s) N/A
    Airbill # N/A Carrier N/A
12. Have any anomalies been identified above? Yes ☐ No ☒
13. Memos have been initiated for all anomalies identified above? Yes ☒

Printed Name/Signature Karen Attinelling Date/Time 10-17-94 10:55

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

SAMPLE STATUS REPORT FOR .N 3078. RAD SCREEN 299E3330 TIME: 10/17/94 8:32
DISPATCHED: 9/28/94 16:29 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/14/94 12:47

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	J12UP

END OF REPORT

B0D4N4
B0D4N5
BW
10-17-94

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT)
BHI		W95-0-0001-18

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 ☒ 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 #: BOD4G0 BOD4G1 Cooler ID: ER-8 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.		Sample #: BOD4N4 BOD4N5 Cooler ID: GWS-122 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A

☐ Classified ☒ Unclassified ☐ Shipped Under DOE Contract ☐ Shipped Under Contractor's Use Permit Contract

Necessity for the off-site use of this property

☐ Required for Project Work. List Project No. 200-BP-5

☐ Business Trip

☐ Off-site Assignment

Bill of lading # N/A

☐ Shipment to Subcontractor. List Subcontract No. N/A

☐ Other (Please specify) Sampling supports RI/FS work in the 200 AREA

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
[signature]	Off-0132	10.17.94

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
10-17-94	ITE2072/ PL531	

Originated By	Date	Authorized By	Date
B.T. WHITEN	10-17-94	[signature]	10-17-94
Property Representative Signature	**Date**	**Property Management Approval**	**Date**
		[signature]	10/17/94

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature	Date

DISTRIBUTION (AFTER FINAL SIGNATURES)

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

*U.S. GPO: 1994-592-170/00029 [signature] 10:35 54-3000-479 (01/94)

Quanterra
Environmental Services

C.U.R. and C.O.C.
COMPLETED: DK-WP
10/18/94
1000
Larry Phillips

Work Order No.: ~~6498~~ 6500

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: Quanterra Richland

Date: 10/18/94

Project No: 55023

Initiated by: Larry Phillips

Analysis Requested: Refer to RFA/COC

RFA/COC Numbers: B94-036

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: _____
2.	☐	Sample received broken/leaking.
3.	☐	Sample received without proper preservative.
	☐	Cooler temperature not within 4°C ± 2°C Record temperature: 5°
	☐	pH _____
	☐	other: _____
4.	☐	Sample received in improper container.
5.	☐	Sample received without proper paperwork. Explain: _____
6.	☐	Paperwork received without sample.
7.	☐	No sample ID on sample container.
8.	☐	Custody tape disturbed/broken/missing.
9.	NA	Sample splits performed by lab.
10.	NA	Volatile sample received with approximately _____ mm headspace.
11.	☐	Sample ID on container does not match sample ID on paperwork. Explain: _____
12.	☐	All coolers on airbill not received with shipment.
13.	☐	Other (explain below): Shipping containers not rad surveyed.

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) _____ Date: _____

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

INTERNATIONAL TECHNOLOGY CORPORATION

Temp. 5° Cur 2008

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 481988
Page 1 of 1

Project Name/No. 1 B94-036
Sample Team Members 2
Profit Center No. 3 4632
Project Manager 4 V Pelay
Purchase Order No. 6
Required Report Date 11

Samples Shipment Date 7 10/17/94
Lab Destination 8 St Louis
Lab Contact 9
Project Contact/Phone 12
Carrier/Waybill No. 13

Bill to: 5 Quanterra Richland
Report to: 10

ONE CONTAINER PER LINE

Sample Number 14	Sample Description/Type 15	Date/Time Collected 16	Container Type 17	Sample Volume 18	Preservative 19	Requested Testing Program 20	% Fill	Condition on Receipt 21	Disposal Record No. 22
41032401A	BODYN4 /H2O	10/14/94 0932 See WHC	Amber COLSAR	1 Liter	HNO3 4°C	Metals See WHC COLSAR	100%	FOR LAB USE ONLY	
B		10/14/94 0932	Amber	500mL	Cold	Anions	100%		
C		10/14/94 0932	Poly	250mL	Cold	Alkalinity	100%		
D		10/14/94 0932	Poly	250mL	Cold	TDS	100%		
E		10/14/94 0932	Poly	1 Liter	NaOH	Cyanide	100%	FOR LAB USE ONLY	
2A	BODYN5 /H2O	10/14/94 0932	Amber	1 Liter	HNO3	Metals	100%		
(35) 10/17/94									

Special Instructions: 23

Possible Hazard Identification: 24
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☑

Sample Disposal: 25
Return to Client ☑ Disposal by Lab ☐ Archive _____ (mos.)

Turnaround Time Required: 26
Normal ☑ Rush ☐

QC Level: 27
I. ☐ II. ☐ III. ☐ Project Specific (specify): SDG W0260

1. Relinquished by 28 (Signature/Affiliation) [signature]	Date: 10/17/94 Time: 1600	1. Received by 28 (Signature/Affiliation) Larry Phillips	Date: 10/18/94 Time: 0840
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: 29

White: To accompany samples
Yellow: Field copy
*See back of form for special instructions.

Quanterra October 19, 1994 11:23 am
Account: 10722 Project: 550.23 Quanterra-Richland QAS No. 751 Rev. 0
Master Sample Login: 6519

Project Manager: W. Price

Draft: Final: Entered and Reviewed by: M. Jackson PM Review: [illegible]

Sample Header Template:

Sample No. / #	Client ID / Container Type	C-Matrix / Analysis	Date: Collected / Class	Received / Preservative	Due / Anal. Due Date	Shipper / Hold Date	Site	Rad Category / (Container Numbers:% Filled)	Rad Sample No. / Screening not Required
6519-001	B0D4J6	Water	17-OCT-94 10:20	18-OCT-94 09:45	22-NOV-94	FED-EX		1	
QES, RICHLAND ID=41034601									
1	AN - Amber Glass-1L	ICAP/CLP90/Q4	S	HNO3	15-NOV-94	16-APR-95	R20A	(109451:100)	
1		SE/CLP90/Q4	S	HNO3	15-NOV-94	16-APR-95	R20A	(109451:100)	
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	15-NOV-94	14-NOV-94	R20A	(109452:100)	
1		FL/300.0/Q4	S	COLD	15-NOV-94	14-NOV-94	R20A	(109452:100)	
1		NO2/300.0/Q4	S	COLD	15-NOV-94	19-OCT-94	R20A	(109452:100)	
1		OPHOS/300.0/Q4	S	COLD	15-NOV-94	19-OCT-94	R20A	(109452:100)	
1		SO4/300.0/Q4	S	COLD	15-NOV-94	14-NOV-94	R20A	(109452:100)	
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	15-NOV-94	31-OCT-94	R20A	(109455:100)	
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	15-NOV-94	31-OCT-94	R20A	(109453:100)	
1		TDS/160.1/Q4	S	COLD	15-NOV-94	24-OCT-94	R20A	(109454:99)	
6519-002	B0D4J7	Water	17-OCT-94 10:20	18-OCT-94 09:45	22-NOV-94	FED-EX		3*	
QES, RICHLAND ID=41034602									
1	AN - Amber Glass-1L	ICAPD/CLP90/Q4	S	HNO3	15-NOV-94	16-APR-95	R20A	(109456:100)	
1		SED/CLP90/Q4	S	HNO3	15-NOV-94	16-APR-95	R20A	(109456:100)	

Data:

3*=Sample has not been rad screened.

00019

temp 4°c curr# 2089

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 481990
Page 1 of 1

Project Name/No. 1 B94-036
Sample Team Members 2
Profit Center No. 3 4632
Project Manager 4 V Pettey
Purchase Order No. 6
Required Report Date 11

Samples Shipment Date 7 10/18/94
Lab Destination 8 St Louis
Lab Contact 9
Project Contact/Phone 12
Carrier/Waybill No. 13

Bill to: 5 Quanterra Richland
Report to: 10

ONE CONTAINER PER LINE

Sample Number 14	Sample Description/Type 15	Date/Time Collected 16	Container Type 17	Sample Volume 18	Pre-servative 19	Requested Testing Program 20	Condition on Receipt 21 %F	PH	Disposal Record No. 22
41034601 A	BOD456 /H2O	10-17-94 1020 See WHC	AMB-Glass COC/SAR	1 Liter	HNO3 4°C	metals See WHC COC/SAR	9/100	1	
B			AMB-Glass	500 ml	4°C	Anions	100		
C			Polly	250 ml	4°C	Alk	100		
D			Polly	250 ml	4°C	TDS	100	-	
E			Polly	1 Liter	naoH	Cyn	100	12	
2A	BOD457 /H2O	↓	AMB Glass	1 Liter	HNO3	Metals	100		
10/18/94									

FOR LAB USE ONLY

FOR LAB USE ONLY

Special Instructions: 23

Possible Hazard Identification: 24
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☑

Sample Disposal: 25
Return to Client ☑ Disposal by Lab ☐ Archive _____ (mos.)

Turnaround Time Required: 26
Normal ☑ Rush ☐

QC Level: 27
I. ☐ II. ☐ III. ☐ Project Specific (specify): SDG W0260

1. Relinquished by 28 (Signature/Affiliation) [signature]	Date: 10/18/94 Time: 1600	1. Received by 28 (Signature/Affiliation) [signature]	Date: 10-19-94 Time: 8:40
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: 29

White: To accompany samples
Yellow: Field copy
*See back of form for special instructions.

101694A.WQ2

TENNELEC #1

SCREENING CALCULATION SPREADSHEET

All are Cat. I.
JRN 18 Oct. 94

Customer Code	Recieved Date		Screening Prep Date		Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	10-18-94		10-18		10-1	10	15	226	240

Customer ID WHC	pH <2 Rcvd/Req	Residue Wght mG	Vol. Anal. mG	mL	Sample Size Gm	L	SMPLE CNT DATA Hldr Num.	Total Alpha	Counts Beta	Net Sample Counts/Minute Alpha	Beta	DPM / Aliqout Alpha	Beta	uCi per Sample Alpha	Beta	2 Sigma Error uCi per Sample Alpha	Beta	pCi/(Gm or L) Alpha	Beta	Category 1 Yes/No	Aliquot to Cat 1 Gm or L Alpha	Beta
BOD4Q2	LIQUID	1.2	10		1.0		1	9	42	0.64	3.26	2.9E+00	6.5E+00	1.3E-04	2.9E-04	1.0E-07	1.2E-07	1.3E+02	2.9E+02	Yes	7.7E+01	3.4E+02
BOD4R0	LIQUID	0.0	10		1.0		2	3	20	0.24	1.06	8.0E-01	2.1E+00	3.6E-05	9.5E-05	5.2E-08	6.5E-08	3.6E+01	9.5E+01	Yes	2.6E+02	1.0E+03
BOD4J6	LIQUID	1.3	10		1.0		3	3	30	0.24	2.06	7.8E-01	4.3E+00	3.5E-05	1.9E-04	5.2E-08	4.8E-07	3.5E+01	1.9E+02	Yes	2.8E+02	5.2E+02
BOD4Q1	LIQUID	1.6	10		1.0		4	6	23	0.54	1.36	1.9E+00	2.6E+00	8.4E-05	1.2E-04	8.2E-08	1.0E-07	8.4E+01	1.2E+02	Yes	1.2E+02	8.5E+02
TOTAL uCi														2.8E-04	7.0E-04							

00021

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priority [X] Normal

Collector: A. J. Simpson	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: ER-8	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-20	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS	METALS (see S. I. #1) UNFILTERED A	IC ANIONS-F,Cl, SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S. I. #2) 410347	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED A				
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE															

Sample No.	Matrix*	Date Sampled	Time Sampled														
410346																	
BO D4J6 01	W	10/17/94	1020	X	X	X	X	X	X	X	X	X					
BO D4J7 2	W	10/17/94	1020											X			

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[signature] K.D. Lee	10/17/94 1340	[signature] K.D. Lee	10-17-94 1340
[signature] K.D. Lee	10-18-94 0950	[signature] R. Boyd Quanterra	10-18-94 0950
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Hg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Hg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 10/18/94 9:45 Client Name WHC

Project/Client # B94-036 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) CR-8

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: 19
8. Samples have: X tape ____ hazard labels
   X custody seals X appropriate sample labels
9. Samples are: X 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 B BRumFIELD B Brumfield Date/Time 10/18/94 9:45

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

SAMPLE STATUS REPORT FOR N 3090. RAD SCREEN 6994955B TIME: 10/18/94 7:55
DISPATCHED: 9/28/94 16:30 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/18/94 5:57

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	<50 pCi/ml			J12UP

END OF REPORT

BOD4J6
BOD4J7
BW
10-18-94

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT)
BHI		W9S-0-0001-20

PART I - TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
ER Eng Support	Field & Analytical Support	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 #: B0D4J6 B0D4J7 Cooler ID: ER-8 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.		Sample #: B0D4Q2 B0D4R0 B0D4Q1 Cooler ID; GWS-122 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

[ ] Required for Project Work. List Project No. 200-BP-5

[ ] Business Trip

[ ] Off-site Assignment Bill of lading # N/A

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

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

RECEIVED
OCT 18 1994
PROPERTY RECORDS

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
K Knudsen	OFF-0135	10.18.94

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
10-18-94	ITE2072/ PL531	

Originated By	Date	Authorized By	Date
B.J. WHITTEN	10-18-94	[signature]	10-18-94
Property Representative Signature	**Date**	**Property Management Approval**	**Date**
		[signature]	10/18/94

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature	Date

DISTRIBUTION (AFTER FINAL SIGNATURES)

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

*U.S. GPO: 1994-592-170/00029

R. Baird Quaitena 10-18-94 0950

00025 54-3000-479 (01/94)

Quanterra Environmental Services

C.U.R. and C.O.C.
COPIED TO: DK + WP
DATE: 10-19-94
TIME: 10:20
BY: 2M

Work Order No.: 6519

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: QES, Richland
Date: 10-19-94 0920
Project No: 550.23
Initiated by: [illegible]
Analysis Requested: Refer to RFA/COC
RFA/COC Numbers: 481990
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: _____
2. ☐ Sample received broken/leaking.
3. ☐ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C
     Record temperature: 4°C Temp read 6°C
   - ☐ pH _____
   - ☐ other: _____
4. ☐ Sample received in improper container.
5. ☐ Sample received without proper paperwork. Explain: _____
6. ☐ Paperwork received without sample.
7. ☐ No sample ID on sample container.
8. ☐ Custody tape disturbed/broken/missing.
9. NA Sample splits performed by lab.
10. NA Volatile sample received with approximately _____ mm headspace.
11. ☐ Sample ID on container does not match sample ID on paperwork. Explain: _____
12. ☐ All coolers on airbill not received with shipment.
13. ☐ Other (explain below): Shipping containers not rad surveyed.

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) _____ Date: _____

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

Quanterra October 21, 1994 10:59 am

Account: 10722 Project: 550.23 Quanterra-Richland QAS No. 751 Rev. 0

Master Sample Login: 6550

Project Manager: H. Price

Draft: Final: Entered and Reviewed by: PM Review:

Sample Header Template:

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
6550-001	B004H6	Water	18-OCT-94 12:37	19-OCT-94 09:55	23-NOV-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 41037701								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-1L	ICAP/CLP90/Q4	S	HNO3	16-NOV-94	17-APR-95	S14F	(110363:100)
1		SE/CLP90/Q4	S	HNO3	16-NOV-94	17-APR-95	S14F	(110363:100)
1	AN - Amber Glass-500ml	ANIONS/300.0/Q4	P	COLD	N/A	N/A	S14F	(110364:100)
1		CL/300.0/Q4	C	COLD	16-NOV-94	15-NOV-94	S14F	(110364:100)
1		FL/300.0/Q4	C	COLD	16-NOV-94	15-NOV-94	S14F	(110364:100)
1		NO2/300.0/Q4	C	COLD	16-NOV-94	20-OCT-94	S14F	(110364:100)
1		NO3/300.0/Q4	C	COLD	16-NOV-94	20-OCT-94	S14F	(110364:100)
1		OPHOS/300.0/Q4	C	COLD	16-NOV-94	20-OCT-94	S14F	(110364:100)
1		SO4/300.0/Q4	C	COLD	16-NOV-94	15-NOV-94	S14F	(110364:100)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	16-NOV-94	01-NOV-94	S14F	(110367:100)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	16-NOV-94	01-NOV-94	S14F	(110365:100)
1		TDS/160.1/Q4	S	COLD	16-NOV-94	25-OCT-94	S14F	(110366:99)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
6550-002	B004K0	Water	18-OCT-94 11:05	19-OCT-94 09:55	23-NOV-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 41037703								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-1L	ICAP/CLP90/Q4	S	HNO3	16-NOV-94	17-APR-95	S14F	(110368:100)
1		SE/CLP90/Q4	S	HNO3	16-NOV-94	17-APR-95	S14F	(110368:100)
1	AN - Amber Glass-500ml	ANIONS/300.0/Q4	P	COLD	N/A	N/A	S14F	(110369:100)
1		CL/300.0/Q4	C	COLD	16-NOV-94	15-NOV-94	S14F	(110369:100)
1		FL/300.0/Q4	C	COLD	16-NOV-94	15-NOV-94	S14F	(110369:100)
1		NO2/300.0/Q4	C	COLD	16-NOV-94	20-OCT-94	S14F	(110369:100)
1		NO3/300.0/Q4	C	COLD	16-NOV-94	20-OCT-94	S14F	(110369:100)
1		OPHOS/300.0/Q4	C	COLD	16-NOV-94	20-OCT-94	S14F	(110369:100)
1		SO4/300.0/Q4	C	COLD	16-NOV-94	15-NOV-94	S14F	(110369:100)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	16-NOV-94	01-NOV-94	S14F	(110372:100)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	16-NOV-94	01-NOV-94	S14F	(110370:100)
1		TDS/160.1/Q4	S	COLD	16-NOV-94	25-OCT-94	S14F	(110371:99)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
6550-003	B004K8	Water	18-OCT-94 11:20	19-OCT-94 09:55	23-NOV-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 41037705								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-1L	ICAP/CLP90/Q4	S	HNO3	16-NOV-94	17-APR-95	S14F	(110373:100)
1		SE/CLP90/Q4	S	HNO3	16-NOV-94	17-APR-95	S14F	(110373:100)
1	AN - Amber Glass-500ml	ANIONS/300.0/Q4	P	COLD	N/A	N/A	S14F	(110374:100)
1		CL/300.0/Q4	C	COLD	16-NOV-94	15-NOV-94	S14F	(110374:100)
1		FL/300.0/Q4	C	COLD	16-NOV-94	15-NOV-94	S14F	(110374:100)
1		NO2/300.0/Q4	C	COLD	16-NOV-94	20-OCT-94	S14F	(110374:100)
1		NO3/300.0/Q4	C	COLD	16-NOV-94	20-OCT-94	S14F	(110374:100)
1		OPHOS/300.0/Q4	C	COLD	16-NOV-94	20-OCT-94	S14F	(110374:100)

3*=Sample has not been rad screened.

Quanterra October 21, 1994 10:59 am
Account: 10722 Project: 550.23 Quanterra-Richland QAS No. 751 Rev. 0
Master Sample Login: 6550

Project Manager: W. Price

Draft: Final: Entered and Reviewed by: _____ PM Review: _____

Sample Header Template: _____

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
6550-004	B004H7	Water	18-OCT-94 12:37	19-OCT-94 09:55	23-NOV-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 41037702								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
Data:								
1		SO4/300.0/Q4	C	COLD	16-NOV-94	15-NOV-94	S14F	(110374:100)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	16-NOV-94	01-NOV-94	S14F	(110377:100)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	16-NOV-94	01-NOV-94	S14F	(110375:100)
1		TDS/160.1/Q4	S	COLD	16-NOV-94	25-OCT-94	S14F	(110376:99)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
6550-005	B004K1	Water	18-OCT-94 11:05	19-OCT-94 09:55	23-NOV-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 41037704								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-1L	ICAPD/CLP90/Q4	S	HNO3	16-NOV-94	17-APR-95	S14F	(110378:100)
1		SED/CLP90/Q4	S	HNO3	16-NOV-94	17-APR-95	S14F	(110378:100)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
6550-006	B004K9	Water	18-OCT-94 11:20	19-OCT-94 09:55	23-NOV-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 41037706								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-1L	ICAPD/CLP90/Q4	S	HNO3	16-NOV-94	17-APR-95	S14F	(110384:100)
1		SED/CLP90/Q4	S	HNO3	16-NOV-94	17-APR-95	S14F	(110384:100)

3**=Sample has not been rad screened.

Temp 5°-4° Cor 2145

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 481992
Page 1 of 2

Project Name/No. 1: B94-036
Sample Team Members 2:
Profit Center No. 3: 4632
Project Manager 4: V Pelley
Purchase Order No. 6:
Required Report Date 11:

Samples Shipment Date 7: 10/19/94
Lab Destination 8: St Louis
Lab Contact 9:
Project Contact/Phone 12:
Carrier/Waybill No. 13:

Bill to: 5 Quanterra Richland
Report to: 10

ONE CONTAINER PER LINE

Sample Number 14	Sample Description/Type 15	Date/Time Collected 16	Container Type 17	Sample Volume 18	Preservative 19	Requested Testing Program 20	% Fill	Condition on Receipt 21	Disposal Record No. 22
41037701A	BOD446 1H2O	10/18/94 1237 See WHC	Amber CoCSAR	1 Liter	4°C HNO3	Metals See WHC CoCSAR	100		1
B		10/18/94 1237	Amber	500 mL	Cold	Anions		FOR LAB USE ONLY	
C		10/18/94 1237	Poly	250 mL	Cold	Alkalinity			
D		10/18/94 1237	Poly	250 mL	Cold	TDS			
E		10/18/94 1237	Poly	1 Liter	NaOH	Cyanide			10
2A	BOD447	10/18/94 1237	Amber	1 Liter	HNO3	Metals		FOR LAB USE ONLY	
3A	BOD460	10/18/94 1105	Amber	1 Liter	HNO3	Metals			1
B		10/18/94 1105	Amber	500 mL	Cold	Anions			

Special Instructions: 23

Possible Hazard Identification: 24
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☑

Sample Disposal: 25
Return to Client ☑ Disposal by Lab ☐ Archive _____ (mos.)

Turnaround Time Required: 26
Normal ☑ Rush ☐

QC Level: 27
I. ☐ II. ☐ III. ☐ Project Specific (specify): SDG W0260

1. Relinquished by 28 (Signature/Affiliation) [signature] Date: 10/19/94 Time: 1600	1. Received by 28 (Signature/Affiliation) Larry Phillips Date: 10/20/94 Time: 08:55
2. Relinquished by (Signature/Affiliation) Date: Time:	2. Received by (Signature/Affiliation) Date: Time:
3. Relinquished by (Signature/Affiliation) Date: Time:	3. Received by (Signature/Affiliation) Date: Time:

Comments: 29

White: To accompany samples
Yellow: Field copy
*See back of form for special instructions.

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 481492
Page 2 of 2

Project Name W0260 Project No. B94-036 Samples Shipment Date 10/19/94

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	% Fill	Condition on[21] Receipt	pH	Disposal[22] Record No.
410377 03C	BOD4k0 /H2O	10/11/94 1105 See WHC	Poly Coc/SAR	250 mL	4°C Cold	Alkalinity See WHC coc/SAR	100			
D		10/11/94 1105	Poly	250 mL	Cold	TDS				
E		10/11/94 1105	Poly	1 Liter	NaOH	Cyanide			10	
4A	BOD4k1	10/11/94 1105	Amber	1 Liter	HNO3	Metals			1	
5A	BOD4k8	10/11/94 1120	Amber	1 Liter	HNO3	Metals			1	
B		10/11/94 1120	Amber	500 mL	Cold	Anions				
C		10/11/94 1120	Poly	250 mL	Cold	Alkalinity				
D		10/11/94 1120	Poly	250 mL	Cold	TDS				
E		10/11/94 1120	Poly	1 Liter	NaOH	Cyanide			10	
6A	BOD4k9	10/11/94 1120	Amber	1 Liter	HNO3	Metals			1	
10/19/94										

White: To accompany samples
Yellow: Field copy

*See back of form for special instructions.

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: A. J. SIMPSON	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: BONEHEAD II	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-21	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS 410377	METALS (see S. I. #1) UNFILTERED A	IC ANIONS-F,Cl, SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S. I. #2) 4103780	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED A				

Sample No.	Matrix*	Date Sampled	Time Sampled														
BO D4H6 01	W	10/18/94	1237	X	X	X	X	X	X	X	X	X					
BO D4H7 2	W	10/18/94	1237											X			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K.O. Lee D. Lee	10/18/94 1354	B. Whitten	1354 10-18-94
B. Whitten	0955 10-19-94	R. Boyd Quatone	2100 10-19-94 0955

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG-W0266

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: A. Rizzo	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: GWS-012	Field Logbook No.: EFL-1020	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-21	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS 410377	METALS (see S. I. #1) UNFILTERED A	IC ANIONS-F,Cl, SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S. I. #2) 410378 G2	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED A				

Sample No.	Matrix*	Date Sampled	Time Sampled													
B0D4K0 03	W	10-18-94	1105	X	X	X	X	X	X	X	X	X				
B0D4K1 4	W	10-18-94	1105									X				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
W.W. SETZER	10-18-94 1345	[signature]	10-18-94 1315
[signature]	10-19-94 0955	[signature]	10-19-94 0955

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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: ____

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priority [X] Normal

Collector: A Rizzo	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: GWS-025	Field Logbook No.: EFL-1020	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-ZZ	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCL <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS 410377	METALS (see S. I. #1) UNFILTERED A	IC ANIONS-F,Cl, SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S. I. #2) 41037803	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED A				

Sample No.	Matrix*	Date Sampled	Time Sampled	A	B	C	D	E	41037803					A				
BO 04K8 05	W	10-18-94	1120	X	X	X	X	X	X	X	X	X						
BO 04K9 6	W	10-18-94	1120											X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: W.V. Jeffrey	Date/Time: 10-18-94 1315	Received By: B.Whitter	Date/Time: 1315 10-18-9
Relinquished By: B.Whitter	Date/Time: 0955 10-19-94	Received By: A. Boyd Quintana	Date/Time: 10-19-94 0955
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG 40260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

101994A.WQ1

TENNELEC #1

SCREENING CALCULATION SPREADSHEET

Cat I
Matt Lordy
10-19-94

Customer Code	Recieved Date		Screening Prep Date		Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	10-19-94		10-19-9		10-1	10	15	235	240

Customer ID WHC	pH <2 Rcvd/Req	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	2 Sigma Error uCi per Sample Alpha	Beta	pCi/(Gm or L) Alpha	Beta	Category 1 Yes/No	Aliquot to Cat 1 Gm or L Alpha	Beta
BOD4R3	LIQUID	3.3	10		1.0		20	0	20	-0.06	1.02	-2.6E-01	2.2E+00	-1.2E-05	1.0E-04	-2.7E-06	6.4E-06	-1.2E+01	1.0E+02	Yes	-8.7E+02	1.0E+03
BOD4K8	LIQUID	1.9	10		2.5		21	48	114	4.74	10.42	1.7E+01	2.0E+01	1.9E-03	2.2E-03	7.2E-07	5.6E-07	7.5E+02	8.8E+02	Yes	1.3E+01	1.1E+02
BOD4K0	LIQUID	2.0	10		2.5		22	13	40	1.24	3.02	4.3E+00	5.6E+00	4.9E-04	6.5E-04	3.3E-07	3.7E-07	2.0E+02	2.6E+02	Yes	5.1E+01	3.9E+02
BOD4H6	LIQUID	1.7	10		2.5		23	4	14	0.34	0.42	1.2E+00	7.1E-01	1.3E-04	8.0E-05	1.6E-07	6.3E-08	5.4E+01	3.2E+01	Yes	1.9E+02	3.1E+03
TOTAL uCi														2.5E-03	3.0E-03							

00035

Quanterra Environmental

C.U.R. and C.O.C.
COPIED TO: DK-WP
DATE: 10/20/94
TIME: 1205
BY: Larry Phillips

Work Order No.: 6550

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: Quanterra Richland
Date: 10/20/94
Project No: 550.23
Initiated by: Larry Phillips
Analysis Requested: Refer to RFA/COC
RFA/COC Numbers: B94-036
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: _____
(2)	☐	Sample received broken/leaking.
(3)	☐	Sample received without proper preservative.
	☐	Cooler temperature not within 4°C ± 2°C. Record temperature: 5° water vial temp 5°; 4° water vial temp 5°
	☐	pH _____
	☐	other: _____
(4)	☐	Sample received in improper container.
(5)	☐	Sample received without proper paperwork. Explain: _____
(6)	☐	Paperwork received without sample.
(7)	☐	No sample ID on sample container.
(8)	☐	Custody tape disturbed/broken/missing.
9.	NA	Sample splits performed by lab.
10.	NA	Volatile sample received with approximately _____ mm headspace.
(11)	☐	Sample ID on container does not match sample ID on paperwork. Explain: _____
(12)	☐	All coolers on airbill not received with shipment.
13.	☐	Other (explain below): Shipping containers not rad surveyed.

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) _____ Date: _____

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 10/19/94 0955 Client Name BHI

Project/Client # B94-036 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) GWS-012

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: 19
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 2°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 R. Boyd R. Boyd Date/Time 10/19/94 0955

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

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 10/19/94 0955 Client Name BHI

Project/Client # B94-036 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) GWS 025

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: 19
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 R. Boyd R. Boyd Date/Time 10/19/94 0955

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

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 10/19/94 0955 Client Name BHI

Project/Client # B94-036 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) GR-24

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: 9
8. Samples have: ____ tape ____ hazard labels
   X custody seals X appropriate sample labels
9. Samples are: X in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☒ No ☐

Sample temperature 30c

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 R. Boyd R. Boyd Date/Time 10/19/94 0955

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

SAMPLE STATUS REPORT FOR N 3432. RAD SCREEN 299E28-7 TIME: 10/19/94 7:49
DISPATCHED: 10/17/94 12:47 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/19/94 5:29

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	<50 pCi/ml			XR5115

END OF REPORT

BOD4R3
BW
10-19-94

SAMPLE STATUS REPORT FOR N 3096. RAD SCREEN 6995257 TIME: 10/19/94 7:49
DISPATCHED: 9/28/94 16:30 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/19/94 5:29

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	<50 pCi/ml			J12UP

END OF REPORT

B0D4K8
B0D4K9
BW
10-19-94

SAMPLE STATUS REPORT FOR N 3092. RAD SCREEN 6994957B TIME: 10/19/94 7:49
DISPATCHED: 9/28/94 16:30 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/19/94 5:30

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	<50 pCi/ml			J12UP

END OF REPORT

B0D4K0
B0D4K1
BW
10-19-94

SAMPLE STATUS REPORT FOR N 3083. RAD SCREEN 299E3340 TIME: 10/19/94 7:49
DISPATCHED: 9/28/94 16:29 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/19/94 5:30

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	<50 pCi/ml			J12UP

END OF REPORT

B0D4H6
B0D4H7
BW
10-19-94

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT)
BHI		W95-0-0001-22

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
Address
City State Zip Code
Country

Quanterra (IT)
2800 George Washington Way
Richland, WA 99352

Off-site Custodian

On-site Custodian Payroll No.

Qty.	Property No.	Description (include Manufacture Name, Model, Serial No.)	Acquisition Cost
1 lbs.		Sample #: B0D4K8 B0D4K9 Cooler ID; GWS-025 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.		Sample #: B0D4R3 Cooler ID; ER-24 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

[ ] Required for Project Work. List Project No. 200-BP-5

[ ] Business Trip

[ ] Off-site Assignment Bill of lading # - N/A

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

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

RECEIVED
OCT 19 1994
PROPERTY RECORDS

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
N. Smart	PS-Off-0143	10-19-94

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
10-19-94	ITE2072/ PL531	

Originated By	Date	Authorized By	Date
B.T. WHITTEN	10-19-94	[signature]	10-19-94
Property Representative Signature	**Date**	**Property Management Approval**	**Date**
		[signature]	10/19/94

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature	Date

DISTRIBUTION (AFTER FINAL SIGNATURES)

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

*U.S. GPO: 1994-592-170/00029 54-3000-479 (01/94)

R. Boyd Quanterra 10/19/94 0955

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT)
BHI		W95-0-0001-21

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 ☒ 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 #: B0D4K0 B0D4K1 Cooler ID: GWS-012 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.		Sample #: B0D4H6 B0D4H7 Cooler ID; BOWEHEAD II Polycooler with groundwater samples packed in wet ice and vermiculite	N/A

☐ Classified ☒ Unclassified ☐ Shipped Under DOE Contract ☐ Shipped Under Contractor's Use Permit Contract

Necessity for the off-site use of this property

☐ Required for Project Work. List Project No. 200-BP-5

☐ Business Trip

☐ Off-site Assignment

Bill of lading # N/A

☐ Shipment to Subcontractor. List Subcontract No. N/A

☐ Other (Please specify) Sampling supports RI/FS work in the 200 AREA

RECEIVED
OCT 19 1994
PROPERTY RECORDS

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
N Smart	B-OFF-0143	10-19-94

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
10-19-94	ITE2072/ PL531	

Originated By	Date	Authorized By	Date
B.T. WHITTEN	10-19-94	Kim Whitten	10-19-94
Property Representative Signature	**Date**	**Property Management Approval**	**Date**
		JP Hankel	10/19/94

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature	Date

DISTRIBUTION (AFTER FINAL SIGNATURES)

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

*U.S. GPO: 1994-592-170/00029 54-3000-479 (01/94)

R. Boyd Quantera 10/19/94 0955

00045

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 10/19/94 0955 Client Name BHI

Project/Client # B94-036 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) ~~OK~~ RB 10-19-94 Bonehead II

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: 19
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 R. Boyd R. Boyd Date/Time 10/19/94 0955

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

Quanterra November 15, 1994 03:08 pm
Account: 10722 Project: 550.23 Quanterra-Richland QAS No. 751 Rev. 0
Master Sample Login: 6560

Project Manager: W. Price

Draft: Final: Entered and Reviewed by: PM Review:

Sample Header Template:

Sample No. / #	Client ID / Container Type	C-Matrix / Analysis	Date: Collected / Class	Received / Preservative	Due / Anal. Due Date	Shipper / Hold Date	Site	Rad Category / (Container Numbers:% Filled)	Rad Sample No.
6560-001	B004K4	Water	19-OCT-94 11:30	20-OCT-94 00:00	23-NOV-94	FED-EX	1	Screening not Required	
QES, RICHLAND ID=41043001									
1	AN - Amber Glass-1L	ICAP/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110596:100)	
1		SE/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110596:100)	
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	17-NOV-94	02-NOV-94	S4K	(110599:100)	
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	17-NOV-94	02-NOV-94	S4K	(110597:100)	
1		CL/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110597:100)	
1		FL/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110597:100)	
1		NO2/300.0/Q4	S	COLD	17-NOV-94	21-OCT-94	S4K	(110597:100)	
1		OPHOS/300.0/Q4	S	COLD	17-NOV-94	21-OCT-94	S4K	(110597:100)	
1		SO4/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110597:100)	
1		TDS/160.1/Q4	S	COLD	17-NOV-94	26-OCT-94	S4K	(110598:99)	
6560-001DUP	B004K4	Water	19-OCT-94 11:30	20-OCT-94 00:00	23-NOV-94	FED-EX	1	Screening not Required	
QES, RICHLAND ID=41043001									
1	PN - Plastic-250ml	CL/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110597:100)	
1		FL/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110597:100)	
1		NO2/300.0/Q4	S	COLD	17-NOV-94	21-OCT-94	S4K	(110597:100)	
1		OPHOS/300.0/Q4	S	COLD	17-NOV-94	21-OCT-94	S4K	(110597:100)	
1		SO4/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110597:100)	
6560-001MS	B004K4	Water	19-OCT-94 11:30	20-OCT-94 00:00	23-NOV-94	FED-EX	1	Screening not Required	
QES, RICHLAND ID=41043001									
1	PN - Plastic-250ml	CL/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110597:100)	
1		FL/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110597:100)	
1		NO2/300.0/Q4	S	COLD	17-NOV-94	21-OCT-94	S4K	(110597:100)	
1		OPHOS/300.0/Q4	S	COLD	17-NOV-94	21-OCT-94	S4K	(110597:100)	
1		SO4/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110597:100)	
6560-002	B004L0	Water	19-OCT-94 07:50	20-OCT-94 00:00	23-NOV-94	FED-EX	1	Screening not Required	
QES, RICHLAND ID=41043003									
1	AN - Amber Glass-1L	ICAP/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110600:100)	
1		SE/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110600:100)	
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110604:100)	
1		FL/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110604:100)	
1		NO2/300.0/Q4	S	COLD	17-NOV-94	21-OCT-94	S4K	(110604:100)	
1		OPHOS/300.0/Q4	S	COLD	17-NOV-94	21-OCT-94	S4K	(110604:100)	
1		SO4/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110604:100)	
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	17-NOV-94	02-NOV-94	S4K	(110603:100)	

3*=Sample has not been rad screened.

Quanterra November 15, 1994 03:08 pm
Account: 10722 Project: 550.23 Quanterra-Richland QAS No. 751 Rev. 0
Master Sample Login: 6560

Project Manager: W. Price

Draft: Final: Entered and Reviewed by:_____ PM Review:_____

Sample Header Template: _____

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
6560-003 QES, RICHLAND ID=41043005	B004N0	Water	19-OCT-94 08:47	20-OCT-94 00:00	23-NOV-94	FED-EX	1	Screening not Required
6560-004 QES, RICHLAND ID=41043007	B004L2	Water	19-OCT-94 10:25	20-OCT-94 00:00	23-NOV-94	FED-EX	1	Screening not Required
6560-005 QES, RICHLAND ID=41043009	B004L4	Water	19-OCT-94 08:45	20-OCT-94 00:00	23-NOV-94	FED-EX	1	Screening not Required

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
Data:								
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	17-NOV-94	02-NOV-94	S4K	(110601:100)
1		TDS/160.1/Q4	S	COLD	17-NOV-94	26-OCT-94	S4K	(110602:99)
1	AN - Amber Glass-1L	ICAP/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110605:100)
1		SE/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110605:100)
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110609:100)
1		FL/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110609:100)
1		NO2/300.0/Q4	S	COLD	17-NOV-94	21-OCT-94	S4K	(110609:100)
1		OPHOS/300.0/Q4	S	COLD	17-NOV-94	21-OCT-94	S4K	(110609:100)
1		SO4/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110609:100)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	17-NOV-94	02-NOV-94	S4K	(110608:100)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	17-NOV-94	02-NOV-94	S4K	(110606:100)
1		TDS/160.1/Q4	S	COLD	17-NOV-94	26-OCT-94	S4K	(110607:99)
1	AN - Amber Glass-1L	ICAP/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110610:100)
1		SE/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110610:100)
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110614:100)
1		FL/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110614:100)
1		NO2/300.0/Q4	S	COLD	17-NOV-94	21-OCT-94	S4K	(110614:100)
1		OPHOS/300.0/Q4	S	COLD	17-NOV-94	21-OCT-94	S4K	(110614:100)
1		SO4/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110614:100)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	17-NOV-94	02-NOV-94	S4K	(110613:100)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	17-NOV-94	02-NOV-94	S4K	(110611:100)
1		TDS/160.1/Q4	S	COLD	17-NOV-94	26-OCT-94	S4K	(110612:99)
1	AN - Amber Glass-1L	ICAP/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110615:100)
1		SE/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110615:100)
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110619:100)
1		FL/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110619:100)
1		NO2/300.0/Q4	S	COLD	17-NOV-94	21-OCT-94	S4K	(110619:100)
1		OPHOS/300.0/Q4	S	COLD	17-NOV-94	21-OCT-94	S4K	(110619:100)
1		SO4/300.0/Q4	S	COLD	17-NOV-94	16-NOV-94	S4K	(110619:100)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	17-NOV-94	02-NOV-94	S4K	(110618:100)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	17-NOV-94	02-NOV-94	S4K	(110616:100)
1		TDS/160.1/Q4	S	COLD	17-NOV-94	26-OCT-94	S4K	(110617:99)

3*=Sample has not been rad screened.

Quanterra November 15, 1994 03:08 pm
Account: 10722 Project: 550.23 Quanterra-Richland QAS No. 751 Rev. 0
Master Sample Login: 6560

Project Manager: W. Price

Draft: Final: Entered and Reviewed by: PM Review:

Sample Header Template:

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
6560-006	B004K5	Water	19-OCT-94 11:30	20-OCT-94 00:00	23-NOV-94	FED-EX	3*	Sample not Screened
QES, RICHLAND ID=41043002								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-1L	ICAPD/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110620:100)
1		SED/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110620:100)

6560-007	B004L1	Water	19-OCT-94 07:50	20-OCT-94 00:00	23-NOV-94	FED-EX	3*	Sample not Screened
QES, RICHLAND ID=41043004								

1	AN - Amber Glass-1L	ICAPD/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110621:100)
1		SED/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110621:100)

6560-008	B004N1	Water	19-OCT-94 08:47	20-OCT-94 00:00	23-NOV-94	FED-EX	3*	Sample not Screened
QES, RICHLAND ID=41043006								

1	AN - Amber Glass-1L	ICAPD/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110622:100)
1		SED/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110622:100)

6560-009	B004L3	Water	19-OCT-94 10:25	20-OCT-94 00:00	23-NOV-94	FED-EX	3*	Sample not Screened
QES, RICHLAND ID=41043008								

1	AN - Amber Glass-1L	ICAPD/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110623:100)
1		SED/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110623:100)

6560-010	B004L5	Water	19-OCT-94 08:45	20-OCT-94 00:00	23-NOV-94	FED-EX	3*	Sample not Screened
QES, RICHLAND ID=41043010								

1	AN - Amber Glass-1L	ICAPD/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110624:90)
1		SED/CLP90/Q4	S	HNO3	17-NOV-94	18-APR-95	S4K	(110624:90)

3*=Sample has not been rad screened.

Temp 4°C CUR # 2184

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 481995
Page 1 of 3

Project Name/No. 1 B94-036
Sample Team Members 2
Profit Center No. 3 4632
Project Manager 4 V Pettey
Purchase Order No. 6
Required Report Date 11 11/24/94

Samples Shipment Date 7 10/20/94
Lab Destination 8 St Louis
Lab Contact 9
Project Contact/Phone 12
Carrier/Waybill No. 13

Bill to: 5 Quanterra Richland
Report to: 10

ONE CONTAINER PER LINE

Sample Number 14	Sample Description/Type 15	Date/Time Collected 16	Container Type 17	Sample Volume 18	Pre-servative 19	Requested Testing Program 20		Condition on Receipt 21 %	pH	Disposal Record No. 22
4104300 1A	BOD4K4 /H2O	10-19-94 Sed13WHC	GLS AmB COC SAR	1 Liter	4°C HNO3	metals See WHC COC SAR		100	1	
Broken B		10-19-94 11:30	Gls Amb			Anions	~~A1K~~			
C			Poly	250 ml	4°	A1K	~~TDS~~	100		
D					4°	TDS				
E				1 Liter	NaOH	CYN			12	
2A	BOD4K5 /H2O		GLS AmB	1 Liter	HNO3		metals	100	1	
3A	BOD4L0 /H2O	10-19-94 0750	GLS AmB	1 Liter	HNO3		metals	100	1	
B				500 ml	4°		Anions	100	–	

FOR LAB USE ONLY

FOR LAB USE ONLY

Special Instructions: 23

Possible Hazard Identification: 24
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☑

Sample Disposal: 25
Return to Client ☑ Disposal by Lab ☐ Archive _____ (mos.)

Turnaround Time Required: 26
Normal ☑ Rush ☐

QC Level: 27
I. ☐ II. ☐ III. ☐ Project Specific (specify): SDG W0260 closed

1. Relinquished by 28 (Signature/Affiliation)	Date: 10/20/94 Time: 1600	1. Received by 28 (Signature/Affiliation)	Date: 10-21-94 Time: 0805
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: 29

MCA 3/15/91

White: To accompany samples
Yellow: Field copy
*See back of form for special instructions.

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 481995
Page 2 of 3

Project Name W0260 Project No. 894-036 Samples Shipment Date 10/20/94

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	% Condition on[21] Receipt	PH Disposal[22] Record No.
41043003C	BOD4L0 /H2O	10-19-94 0750 See WHC	POLLY 60C/SAR	250ml	4°C	See WHC 60C/SAR	100	—
D				↓	↓	TDS		—
E			↓	1Liter	noalt	CYN		12
4A	BOD4L1	↓	Gls AmB	1 Liter	HNO3	metals		1
5A	BOD4N0	10-19-94 0847	Gls AmB	1 Liter	↓	↓		1
B			↓	500 mls	4°	Anions		—
C			Polly	250 mls		AIK		—
D				↓	↓	TDS		—
E			↓	1 Liter	noalt	CYN	↓	12
6A	BOD4N1	↓	GLS AmB	↓	HNO3	metals	↓	1
7A	BOD4L2	10-19-94 1025		1 Liter	↓	metals		1
B			↓	500 mls	4°	Anions		—
C			Polly	250 mls		AIK		—
D				↓	↓	TDS		—
E			↓	1 Liter	noalt	CYN		12
8A	BOD4L3	↓	GLS AmB	↓	HNO3	metals		1
9A	BOD4L4	10-19-94 0845	↓	↓	↓	metals		1
B			500 mls	GLS AmB	4°	Anions		—
C			Polly	250 mls	4°	AIK		—
D		↓	↓	↓	4°	TDS		—

White: To accompany samples
Yellow: Field copy
*See back of form for special instructions.

MCA 3/15/91

00051

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 48/945
Page 3 of 3

Project Name W0260 Project No. B94-036 Samples Shipment Date 10/20/94

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	% Condition on[21] Receipt PH	Disposal[22] Record No.
41043009E	BOD4L4 1/H2O	10-19-94 See WHC	Poly COC SAR	1 liter	none	CYN COC SAR See WHC	100 12	
10A	BOD4L5 1	10-19-94 1848	9 oz AmB		HNO3	1 Metals	90	
10/20/94								

White: To accompany samples
Yellow: Field copy
*See back of form for special instructions.

00052

MCA 3/15/91

TENNELEC #1

SCREENING CALCULATION SPREADSHEET

All are Cat. I
JRN 20 Oct 94

Customer Code	Recieved Date		Screening Prep Date		Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	10-19-94		10-19-9		10-1	10	15	241	240

Customer ID	Sample Matrix	Residue Wght	Vol. Anal.	Sample Size	SMPLE CNT DATA Hldr	Total	Counts	Net Sample Counts/Minute		DPM / Aliquot		uCi per Sample		pCi / Gm or L		1-sigma error pCi/ Gm or L		Category 1	Aliquot to Cat 1 Gm or L	
WHC	Solid/Liquid	mg	mg ml	Gm L	Num.	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Yes/No	Alpha	Beta
BOD4L4	LIQUID	4.8	10.0	2.5	52	7	82	0.64	7.20	2.14E+00	1.51E+01	2.4E-04	1.7E-03	9.7E+01	6.8E+02	56.38	86.77	Yes	1.0E+02	1.5E+02
BOD4K4	LIQUID	3.1	10.0	2.5	23	0	14	-0.06	0.40	-2.4E-01	8.82E-01	0.0E+00	9.9E-05	-1.1E+01	4.0E+01	41.27	37.30	Yes	-9.4E+02	2.5E+03
BOD4L2	LIQUID	4.6	10.0	2.5	54	1	81	0.04	7.10	-6.7E-02	1.52E+01	0.0E+00	1.7E-03	-3.0E+00	6.9E+02	43.18	87.04	Yes	-3.3E+03	1.5E+02
BOCKG0	LIQUID	7.6	10.0	1.0	55	2	15	0.14	0.50	5.09E-01	9.92E-01	2.3E-05	4.5E-05	2.3E+01	4.5E+01	48.41	38.22	Yes	4.4E+02	2.2E+03
BOCKG1	LIQUID	7.1	10.0	1.0	56	1	8	0.04	-0.20	1.48E-01	-4.6E-01	6.7E-06	0.0E+00	6.7E+00	-2.1E+01	45.84	28.78	Yes	1.5E+03	-4.8E+03
BOCKG2	LIQUID	6.2	10.0	1.0	57	2	11	0.14	0.10	5.12E-01	1.28E-01	2.3E-05	5.8E-06	2.3E+01	5.8E+00	47.75	32.86	Yes	4.3E+02	1.7E+04
BOCKH1	LIQUID	5.8	10.0	1.0	58	4	27	0.34	1.70	1.21E+00	3.46E+00	5.4E-05	1.6E-04	5.4E+01	1.6E+02	51.75	50.17	Yes	1.8E+02	6.4E+02
BOD4N0	LIQUID	3.8	10.0	2.5	59	5	81	0.44	7.10	1.39E+00	1.50E+01	1.6E-04	1.7E-03	6.3E+01	6.7E+02	51.80	86.35	Yes	1.6E+02	1.5E+02
BOD4L0	LIQUID	2.2	10.0	2.5	60	0	13	-0.06	0.30	-2.3E-01	6.67E-01	0.0E+00	7.5E-05	-1.0E+01	3.0E+01	40.87	35.99	Yes	-9.6E+02	3.3E+03
BOD2Y9	LIQUID	3.3	10.0	1.0	61	1	18	0.04	0.80	1.13E-01	1.68E+00	5.1E-06	7.6E-05	5.1E+00	7.6E+01	43.76	41.68	Yes	2.0E+03	1.3E+03
BOD2Z0	LIQUID	2.2	10.0	1.0	62	1	13	0.04	0.30	1.26E-01	6.11E-01	5.7E-06	2.8E-05	5.7E+00	2.8E+01	43.31	35.65	Yes	1.8E+03	3.6E+03

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: A Rizzo	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: ER-1B	Field Logbook No.: EFL-1020	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-04	Bill of Lading/Air Bill No.:
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS 410436	METALS (see S.I. #1) UNFILTERED A	IC ANIONS-F,Cl, SO4,NO2 PO4 B	ALKALI-NITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S.I. #2) 410431	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S.I. #3) FILTERED A				

Sample No.	Matrix*	Date Sampled	Time Sampled													
BO D4K4 01	W	10-19-94	1130	X	X	X	X	X	X	X	X	X				
BO D4K5 2	W	10-19-94	1130									X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: A Rizzo	Date/Time: 1415 10-19-94	Received By: Butcher	Date/Time: 1415 10-19-94
Relinquished By: Butcher	Date/Time: 1010 10-20-94	Received By: Quanterra BGrunfield	Date/Time: 1010 10/20/94
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Hg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Hg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG-W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

00054

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: A.J. SIMPSON	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: ER-8	Field Logbook No.:	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-26	Bill of Lading/Air Bill No.:
Possible Sample Hazards/Remarks:		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS	METALS (see S. I. #1) UNFILTERED	IC ANIONS-F,Cl, SO4,NO2 PO4	ALKALINITY	TDS	CLP-CYANIDE	GROSS ALPHA/BETA, (see S. I. #2)	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED				
410430	A	B	C	D	E	410431	02	—			A				

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

Sample No.	Matrix*	Date Sampled	Time Sampled													
BO D4L0 3	W	10/19/94	0750	X	X	X	X	X	X	X	X	X				
BO D4L1 4	W	10/19/94	0750									X				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Kathy B. Lee (K.A. Lee)	10/19/94 1230	Kile Whitten (B Whitten)	10-19-94 1230
Kile Whitten (B Whitten)	10-20-94 1010	B Brumfield (Quanterra)	10/20/94 1010

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG-W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: K. A. Lee	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: 894-036
Ice Chest No.: GWS-011	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-25	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

SAMPLE ANALYSIS: 410430

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS	METALS (see S. I. #1) UNFILTERED	IC ANIONS-F,Cl, SO4,NO2 PO4	ALKALI-NITY	TDS	CLP-CYANIDE	GROSS ALPHA/BETA, (see S. I. #2)	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED				
	A	B	C	D	E	41043103					A				

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0 D4ND 5	W	10/19/94	0847	X	X	X	X	X	X	X	X	X					
B0 D4N1 6	W	10/19/94	0847										X				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K. A. Lee K. A. Lee	10/19/94 1230	B. Whitten B. Whitten	1230 10-19-94
B. Whitten B. Whitten	1010 10-20-94	B. Brumfield (Quanterra) B. Brumfield	1010 10/20/94

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG 40260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

00056

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priorty [X] Normal

Collector: A. J. Simpson	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: 894-036
Ice Chest No.: ER-26	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-24	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS 410430	METALS (see S. I. #1) UNFILTERED	IC ANIONS-F,Cl, SO4,NO2 PO4	ALKALI-NITY	TDS	CLP-CYANIDE	GROSS ALPHA/BETA, (see S. I. #2)	TRITIUM	Tc-99	ACTIVI-TY SCAN		METALS (see S. I. #3) FILTER-ED				
	A	B	C	D	E	41043104	—				A				

Sample No.	Matrix*	Date Sampled	Time Sampled														
BO D4L2 7	W	10/19/94	1025	X	X	X	X	X	X	X	X	X					
BO D4L3 8	W	10/19/94	1025										X				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Kacia Kacia	10/19/94 1230	B Whitten	10-19-94 1230
B Whitten	10-20-94 1010	Quantera B Brumfield	10/20/94 10:10

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

0005

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priority [X] Normal

Collector: K.D Lee	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: GWS-141	Field Logbook No.: FFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-25	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks:

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS	METALS (see S.I. #1) UNFILTERED	IC ANIONS-F,Cl, SO4,NO2 PO4	ALKALINITY	TDS	CLP-CYANIDE	GROSS ALPHA/BETA, (see S.I. #2)	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S.I. #3) FILTERED				
410430	A	B	C	D	E	410431	05	—			A				

Sample No.	Matrix*	Date Sampled	Time Sampled														
BO D4L4 9	W	10/19/94	0847	X	X	X	X	X	X	X	X	X					
BO D4L5 10	W	10/19/94	0847											X			

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By	K.D Lee	10/18/94 1230
Received By	B.Whitten	10-19-94 1230
Relinquished By	B.Whitten	10-20-94 1010
Received By	Quanterra B.Brumfield	10/20/94 1010
Relinquished By		
Received By		
Relinquished By		
Received By		

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG-W0266

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 10/20/94 Client Name WHC

Project/Client # B94-036 Batch or Case # 1

Cooler ID (if noted on the outside of cooler) CR-1B

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: 1
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) n/a
    Airbill # n/a Carrier n/a
12. Have any anomalies been identified above? Yes ☐ No ☒
13. Memos have been initiated for all anomalies identified above? Yes ☒

Printed Name/Signature Karen Ackterberg Date/Time 10-20-94 10:10

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

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 10/20/94 Client Name WHC

Project/Client # B94-036 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) ER-8

1. Condition of shipping container? O.K.
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: 19
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 4 °C

11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) N/A
    Request for analysis #(s) N/A
    Airbill # N/A Carrier N/A
12. Have any anomalies been identified above? Yes ☐ No ☒
13. Memos have been initiated for all anomalies identified above? Yes ☒

Printed Name/Signature Karen Achtenberg Date/Time ~~10/20/94~~ 10/20/94 10:10

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

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 10/20/94 10:10 Client Name WHC

Project/Client # B94-036 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) ER-26

1. Condition of shipping container? O.K.
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: 19
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 3 °C

11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) N/A
    Request for analysis #(s) N/A
    Airbill # N/A Carrier _____
12. Have any anomalies been identified above? Yes ☐ No ☒
13. Memos have been initiated for all anomalies identified above? Yes ☒

Printed Name/Signature Karen Ackterberg Date/Time 10/20/94 10:10

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

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 10/20/94 Client Name WHC

Project/Client # B94-036 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) 9 WS 141

1. Condition of shipping container? O.K.
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: 19
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 2 °C

11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) N/A
    Request for analysis #(s) N/A
    Airbill # N/A Carrier N/A
12. Have any anomalies been identified above? Yes ☐ No ☒
13. Memos have been initiated for all anomalies identified above? Yes ☒

Printed Name/Signature Karen Stettenberg Date/Time 10-20-94 10:10

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

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 10/20/94 Client Name WHC

Project/Client # B94-036 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) GWS011

1. Condition of shipping container? O.K.
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: 19
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 2 °C

11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) N/A
    Request for analysis #(s) N/A
    Airbill # N/A Carrier N/A
12. Have any anomalies been identified above? Yes ☐ No ☒
13. Memos have been initiated for all anomalies identified above? Yes ☒

Printed Name/Signature Karen Stettinburg Date/Time 102094 10:10

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

SAMPLE STATUS REPORT FOR N 3094. RAD SCREEN 6995053B TIME: 10/20/94 8:39
DISPATCHED: 9/28/94 16:30 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/20/94 5:13

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	J12UP

END OF REPORT

B0D4K4
B0D4K5
BU
10-20-94

SAMPLE STATUS REPORT FOR N 3097. RAD SCREEN 6995355A TIME: 10/20/94 8:25
DISPATCHED: 9/28/94 16:30 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/20/94 8:17

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	J12UP

END OF REPORT

B0D4L0

B0D4L1

BW
10-20-94

SAMPLE STATUS REPORT FOR N 3099. RAD SCREEN 6995355C TIME: 10/20/94 8:25
DISPATCHED: 9/28/94 16:31 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/20/94 8:17

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	J12UP

END OF REPORT

B0D4N0
B0D4N1
BW
10-20-94

SAMPLE STATUS REPORT FOR N 3099. RAD SCREEN 6995355C TIME: 10/20/94 8:25
DISPATCHED: 9/28/94 16:31 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/20/94 8:17

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	J12UP

END OF REPORT

B0D4L4
B0D4L5
BW
10-20-94

SAMPLE STATUS REPORT FOR N 3098. RAD SCREEN 6995355B TIME: 10/20/94 8:25
DISPATCHED: 9/28/94 16:31 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/20/94 8:17

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	J12UP

END OF REPORT

BOD4L2
BOD4L3
BW
10-20-94

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT)
BHI		W95-0-0001-25

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 #: B0D4N0 B0D4N1 Cooler ID: GWS-011 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs		Sample #: B0D4L4 B0D4L5 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

[ ] Required for Project Work. List Project No. 200-BP-5

[ ] Business Trip

[ ] Off-site Assignment

Bill of lading # N/A

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

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

RECEIVED
OCT 20 1994
PROPERTY RECORDS

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
N Smart	Off-0146	10-20-94

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
10-20-94	ITE2072 PL531	

Originated By	Date	Authorized By	Date
B.J. WHITTEN	10-20-94	[signature]	10-20-94
Property Representative Signature	**Date**	**Property Management Approval**	**Date**
		[signature]	10/20/94

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature	Date

DISTRIBUTION (AFTER FINAL SIGNATURES)

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

*U.S. GPO: 1994-582-170/00029 B Brumfield 10/20/94

54-3000-479 (01/94)

00069

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT)
BHI		W95-0-0001-24

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 #: B0D4K4 B0D4K5 Cooler ID; ER-13 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.		Sample #: B0D4L2 B0D4L3 Cooler ID; ER-26 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

[ ] Required for Project Work. List Project No. 200-BP-5

[ ] Business Trip

[ ] Off-site Assignment Bill of lading # N/A

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

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

RECEIVED
OCT 20 1994
PROPERTY RECORDS

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
N Smart	OFF-0146	10-20-94

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
10-20-94	ITE2072/ PL531	

Originated By	Date	Authorized By	Date
B.T. WHITTEN	10-20-94	Bill Whitten	10-20-94
Property Representative Signature	**Date**	**Property Management Approval**	**Date**
		J Hankel	10/20/94

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature	Date

DISTRIBUTION (AFTER FINAL SIGNATURES)

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

*U.S. GPO: 1994-592-170/00029 B Brumfield 10/20/94 00070 54-3000-479 (01/94)

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT)
BHI		W95-0-0001-206

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 ☒ 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 #: B0D4L0 B0D4L1 Cooler ID; ER-8 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.		Sample #: B0DAY9 B0DAZ0 Cooler ID; GWS-130 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A

☐ Classified ☒ Unclassified ☐ Shipped Under DOE Contract ☐ Shipped Under Contractor's Use Permit Contract

Necessity for the off-site use of this property

☐ Required for Project Work. List Project No. 200-BP-5 & 100-HR-3

☐ Business Trip

☐ Off-site Assignment

Bill of lading # - N/A

☐ Shipment to Subcontractor. List Subcontract No. N/A

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

RECEIVED
OCT 20 1994
PROPERTY RECORDS

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
N Smart	OFF-0146	10-20-94

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
10-20-94	ITE2072/ PL531 & PE3CA	

Originated By	Date	Authorized By	Date
B.J. WHITTEN	10-20-94	Kim Whitten	10-20-94
Property Representative Signature	**Date**	**Property Management Approval**	**Date**
		J. Henkel	10/20/9

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature	Date

DISTRIBUTION (AFTER FINAL SIGNATURES)

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

*U.S. GPO: 1994-502-170/00029

B Brumfield 10/20/94

00071

54-3000-479 (01/94)

Quanterra
Environmental Services

C.U.R. and C.O.C.
COPIED TO: DK + WP
DATE: 10-21-94
TIME: 1200
BY: 2m

Work Order No.: 6560

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: QES, Richland
Date: 10-21-94 09:05
Project No: 550.23
Initiated by: 2nd M Roberts
Analysis Requested: Refer to RFA/COC
RFA/COC Numbers: 481995
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: _____
2. ☑ Sample received broken/leaking.
3. ☐ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C
     Record temperature: 4°C Temp rad 5°C
   - ☐ pH _____
   - ☐ other: _____
4. ☐ Sample received in improper container.
5. ☐ Sample received without proper paperwork. Explain: _____
6. ☐ Paperwork received without sample.
7. ☐ No sample ID on sample container.
8. ☑ Custody tape disturbed/broken/missing.
9. NA Sample splits performed by lab.
10. NA Volatile sample received with approximately _____ mm headspace.
11. ☐ Sample ID on container does not match sample ID on paperwork. Explain: _____
12. ☐ All coolers on airbill not received with shipment.
13. ☐ Other (explain below): Shipping containers not rad surveyed.

Notes: BOD4KH (1B) 6IS AMBER - Anions Received Broken (H2O)
BOD4LS (10A) 6LS AMBER - metals Seal & Top Broken (90% Full)

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) _____ Date: _____

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

00072

Quanterra Environmental Services

Quanterra Incorporated
2800 George Washington Way
Richland, Washington 99352

509 375-3131 Telephone
509 375-5590 Fax

CERTIFICATE OF ANALYSIS

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

December 1, 1994

Attention: Joan Kessner

Project number	:	550.23
Date Received	:	October 17,18,19 and 20, 1994
Number of Samples	:	Twenty (20)
Sample Type	:	Water
SDG Number	:	W0260
Data Deliverable	:	Standalone

I. Introduction

Between October 17 and 20, 1994, twenty (20) water samples were received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analysis. Upon receipt, the samples were given the following laboratory ID numbers to correspond with their specific client ID's:

St Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
6500-001	B0D4N4	41032401	Water	10/17/94
6500-002	B0D4N5	41032402	Water	10/17/94
6519-001	B0D4J6	41034601	Water	10/18/94
6519-002	B0D4J7	41034601	Water	10/18/94
6550-001	B0D4H6	41037701	Water	10/19/94
6550-002	B0D4K0	41037703	Water	10/19/94
6550-003	B0D4K8	41037705	Water	10/19/94
6550-004	B0D4H7	41037702	Water	10/19/94
6550-005	B0D4K1	41037704	Water	10/19/94
6550-006	B0D4K9	41037706	Water	10/19/94
6560-001	B0D4K4	41043001	Water	10/20/94
6560-002	B0D4L0	41043003	Water	10/20/94
6560-003	B0D4N0	41043005	Water	10/20/94
6560-004	B0D4L2	41043007	Water	10/20/94

St Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
6560-005	B0D4L4	41043009	Water	10/20/94
6560-006	B0D4K5	41043002	Water	10/20/94
6560-007	B0D4L1	41043004	Water	10/20/94
6560-008	B0D4N1	41043006	Water	10/20/94
6560-009	B0D4L3	41043008	Water	10/20/94
6560-010	B0D4L5	41043010	Water	10/20/94

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: Total and dissolved TAL Metals using EPA CLP methodology. Cyanide and Selenium using EPA CLP methodology. Anions including Chloride, Fluoride, Nitrite, Nitrate, Phosphate, and Sulfate by EPA method 300.0. Total Dissolved Solids by EPA method 160.1. Alkalinity by EPA method 310.1

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 this SDG.

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

The Nitrate, Nitrite and Phosphate hold times were expired upon receipt of samples at laboratory.

The Relative Percent Difference could not be calculated because both values were less than the detection limits for the Phosphate and Nitrite analysis fon 6560-001.

The first CCV in the run (after ICV and ICB) was actually a blank. The samples are still bracketed by an ICV and CCV for every ten samples on the Cyanide analysis. See NCM# 730.

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:

Ann F. Wright for

Wade H. Price
Project Manager
e:\\sqtlmo01\price$\abbydave\hanford\hanw0260.nar

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4H6

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6550-001
Level (low/med): LOW__ Date Received: 10/19/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	25.1	B		P_
7440-70-2	Calcium__	31300			P_
7439-89-6	Iron____	116			P_
7439-95-4	Magnesium	8890			P_
7439-96-5	Manganese	41.8			P_
7440-09-7	Potassium	7020			P_
7782-49-2	Selenium_	1.7	U	WN	F_
7440-23-5	Sodium___	12900			P_
	Cyanide__	1.2	U		AS
7440-21-3	Silicon__	25400			P_
7440-69-9	Bismuth__	58.8	B		P_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_83300_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4H7

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6550-004
Level (low/med): LOW__ Date Received: 10/19/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	24.9	U		P
7440-70-2	Calcium__	29800			P
7439-89-6	Iron____	59.9	B		P
7439-95-4	Magnesium	8430			P
7439-96-5	Manganese	39.5			P
7440-09-7	Potassium	6930			P
7782-49-2	Selenium_	1.7	U	WN	F
7440-23-5	Sodium___	12100			P
	Cyanide__				NR
7440-21-3	Silicon__	24100			P
7440-69-9	Bismuth__	39.7	B		P

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_79000_UG/L

FORM I - IN

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U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4J6

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6519-001
Level (low/med): LOW__ Date Received: 10/18/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	24.9	U		P
7440-70-2	Calcium	30000			P
7439-89-6	Iron	253			P
7439-95-4	Magnesium	9820			P
7439-96-5	Manganese	4.4	B		P
7440-09-7	Potassium	6640			P
7782-49-2	Selenium	1.7	U	WN	F
7440-23-5	Sodium	10000			P
	Cyanide	1.2	U		AS
7440-21-3	Silicon	25900			P
7440-69-9	Bismuth	38.0	U		P

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_84900_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4J7

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6519-002
Level (low/med): LOW__ Date Received: 10/18/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	24.9	U		P
7440-70-2	Calcium__	29600			P
7439-89-6	Iron____	46.0	B		P
7439-95-4	Magnesium	9700			P
7439-96-5	Manganese	2.6	B		P
7440-09-7	Potassium	6120			P
7782-49-2	Selenium_	1.7	U	WN	F
7440-23-5	Sodium___	9950			P
	Cyanide__				NR
7440-21-3	Silicon__	25400			P
7440-69-9	Bismuth__	38.0	U		P

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_83300_UG/L

FORM I - IN

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U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4K0

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO___ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6550-002
Level (low/med): LOW__ Date Received: 10/19/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	24.9	U		P_
7440-70-2	Calcium__	34500			P_
7439-89-6	Iron____	96.2	B		P_
7439-95-4	Magnesium	8070			P_
7439-96-5	Manganese	8.1	B		P_
7440-09-7	Potassium	5570			P_
7782-49-2	Selenium_	1.7	U	WN	F_
7440-23-5	Sodium___	22600			P_
	Cyanide__	1.2	U		AS
7440-21-3	Silicon__	17900			P_
7440-69-9	Bismuth__	38.0	U		P_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_58700_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4K1

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6550-005
Level (low/med): LOW__ Date Received: 10/19/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	27.7	B		P
7440-70-2	Calcium__	34500			P
7439-89-6	Iron____	47.5	B		P
7439-95-4	Magnesium	8470			P
7439-96-5	Manganese	8.8	B		P
7440-09-7	Potassium	4270	B		P
7782-49-2	Selenium_	1.7	U	WN	F
7440-23-5	Sodium___	23600			P
	Cyanide__				NR
7440-21-3	Silicon__	18800			P
7440-69-9	Bismuth__	38.0	U		P

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_61600_UG/L

FORM I - IN

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U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4K4

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6560-001
Level (low/med): LOW__ Date Received: 10/20/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	24.9	U		P
7440-70-2	Calcium__	40600			P
7439-89-6	Iron____	346			P
7439-95-4	Magnesium	11400			P
7439-96-5	Manganese	7.8	B		P
7440-09-7	Potassium	7910			P
7782-49-2	Selenium_	1.7	U	WN	F
7440-23-5	Sodium___	12100			P
	Cyanide__	1.2	U		AS
7440-21-3	Silicon__	27700			P
7440-69-9	Bismuth__	38.0	U		P

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_90800_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4K5

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6560-006
Level (low/med): LOW__ Date Received: 10/20/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	24.9	U		P
7440-70-2	Calcium__	41100			P
7439-89-6	Iron____	72.6	B		P
7439-95-4	Magnesium	11600			P
7439-96-5	Manganese	6.2	B		P
7440-09-7	Potassium	8420			P
7782-49-2	Selenium_	8.5	U	N	F
7440-23-5	Sodium___	12400			P
	Cyanide__				NR
7440-21-3	Silicon__	28100			P
7440-69-9	Bismuth__	38.0	U		P

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_92100_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4K8

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6550-003
Level (low/med): LOW__ Date Received: 10/19/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	74.5	B		P_
7440-70-2	Calcium__	47100			P_
7439-89-6	Iron____	1780			P_
7439-95-4	Magnesium	10300			P_
7439-96-5	Manganese	1110			P_
7440-09-7	Potassium	8040			P_
7782-49-2	Selenium_	8.5	U	WN	F_
7440-23-5	Sodium___	51900			P_
	Cyanide__	1.2	U		AS
7440-21-3	Silicon__	9520			P_
7440-69-9	Bismuth__	58.7	B		P_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_31200_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4K9

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO___ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6550-006
Level (low/med): LOW__ Date Received: 10/19/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	35.0	B		P
7440-70-2	Calcium__	45400			P
7439-89-6	Iron____	396			P
7439-95-4	Magnesium	10600			P
7439-96-5	Manganese	1120			P
7440-09-7	Potassium	8210			P
7782-49-2	Selenium_	8.5	U	WN	F
7440-23-5	Sodium___	51200			P
	Cyanide__				NR
7440-21-3	Silicon__	9290			P
7440-69-9	Bismuth__	38.0	U		P

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_30500_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4L0

Lab Name: ITAS_ST._LOUIS Contract: 550.23
Lab Code: ITMO Case No.: SAS No.: SDG No.: W0260
Matrix (soil/water): WATER Lab Sample ID: 6560-002
Level (low/med): LOW Date Received: 10/20/94
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	37.8	B		P
7440-70-2	Calcium	36300			P
7439-89-6	Iron	606			P
7439-95-4	Magnesium	12100			P
7439-96-5	Manganese	26.9			P
7440-09-7	Potassium	9950			P
7782-49-2	Selenium	1.8	B	WN	F
7440-23-5	Sodium	24800			P
	Cyanide	1.2	U		AS
7440-21-3	Silicon	17300			P
7440-69-9	Bismuth	38.0	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
SILICATE = 56700 UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4L1

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6560-007
Level (low/med): LOW__ Date Received: 10/20/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	24.9	U		P
7440-70-2	Calcium__	37500			P
7439-89-6	Iron____	65.7	B		P
7439-95-4	Magnesium	12000			P
7439-96-5	Manganese	21.2			P
7440-09-7	Potassium	10700			P
7782-49-2	Selenium_	8.5	U	N	F
7440-23-5	Sodium___	25000			P
	Cyanide__				NR
7440-21-3	Silicon__	18600			P
7440-69-9	Bismuth__	41.1	B		P

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_61000_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4L2

Lab Name: ITAS_ST._LOUIS Contract: 550.23

Lab Code: ITMO Case No.: SAS No.: SDG No.: W0260

Matrix (soil/water): WATER Lab Sample ID: 6560-004

Level (low/med): LOW Date Received: 10/20/94

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	24.9	U		P
7440-70-2	Calcium	59100			P
7439-89-6	Iron	615			P
7439-95-4	Magnesium	18400			P
7439-96-5	Manganese	25.5			P
7440-09-7	Potassium	7750			P
7782-49-2	Selenium	8.5	U	N	F
7440-23-5	Sodium	27600			P
	Cyanide	42.1			AS
7440-21-3	Silicon	16400			P
7440-69-9	Bismuth	38.0	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

SILICATE = 53800 UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4L3

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO___ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6560-009
Level (low/med): LOW__ Date Received: 10/20/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	24.9	U		P
7440-70-2	Calcium__	62900			P
7439-89-6	Iron____	133			P
7439-95-4	Magnesium	19500			P
7439-96-5	Manganese	18.2			P
7440-09-7	Potassium	7540			P
7782-49-2	Selenium_	8.5	U	N	F
7440-23-5	Sodium___	29200			P
	Cyanide__				NR
7440-21-3	Silicon__	17500			P
7440-69-9	Bismuth__	39.4	B		P

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_57400_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4L4

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6560-005
Level (low/med): LOW__ Date Received: 10/20/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	132	B		P_
7440-70-2	Calcium__	66200			P_
7439-89-6	Iron____	92.9	B		P_
7439-95-4	Magnesium	18900			P_
7439-96-5	Manganese	3.6	B		P_
7440-09-7	Potassium	8130			P_
7782-49-2	Selenium_	8.5	U	N	F_
7440-23-5	Sodium___	27700			P_
	Cyanide__	51.0			AS
7440-21-3	Silicon__	19700			P_
7440-69-9	Bismuth__	38.7	B		P_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_64600_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4L5

Lab Name: ITAS_ST._LOUIS Contract: 550.23
Lab Code: ITMO Case No.: SAS No.: SDG No.: W0260
Matrix (soil/water): WATER Lab Sample ID: 6560-010
Level (low/med): LOW Date Received: 10/20/94
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	24.9	U		P
7440-70-2	Calcium	65600			P
7439-89-6	Iron	65.2	B		P
7439-95-4	Magnesium	18800			P
7439-96-5	Manganese	3.6	B		P
7440-09-7	Potassium	7760			P
7782-49-2	Selenium	8.5	U	N	F
7440-23-5	Sodium	27600			P
	Cyanide				NR
7440-21-3	Silicon	19500			P
7440-69-9	Bismuth	38.0	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
SILICATE = 63900 UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4N0

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6560-003
Level (low/med): LOW__ Date Received: 10/20/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	24.9	U		P
7440-70-2	Calcium__	65900			P
7439-89-6	Iron____	279			P
7439-95-4	Magnesium	18900			P
7439-96-5	Manganese	4.4	B		P
7440-09-7	Potassium	8970			P
7782-49-2	Selenium_	8.5	U	N	F
7440-23-5	Sodium___	27500			P
	Cyanide__	49.9			AS
7440-21-3	Silicon__	19800			P
7440-69-9	Bismuth__	61.3	B		P

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_64900_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4N1

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6560-008
Level (low/med): LOW__ Date Received: 10/20/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	24.9	U		P_
7440-70-2	Calcium__	64700			P_
7439-89-6	Iron____	57.5	B		P_
7439-95-4	Magnesium	18600			P_
7439-96-5	Manganese	3.6	B		P_
7440-09-7	Potassium	8980			P_
7782-49-2	Selenium_	8.5	U	N	F_
7440-23-5	Sodium___	27300			P_
	Cyanide__				NR
7440-21-3	Silicon__	19400			P_
7440-69-9	Bismuth__	39.5	B		P_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_63600_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4N4

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO___ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6500-001
Level (low/med): LOW__ Date Received: 10/17/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	63.7	B		P
7440-70-2	Calcium	31800			P
7439-89-6	Iron	196			P
7439-95-4	Magnesium	9650			P
7439-96-5	Manganese	3.2	B		P
7440-09-7	Potassium	8590			P
7782-49-2	Selenium	8.5	U	N	F
7440-23-5	Sodium	22600			P
	Cyanide	24.0			AS
7440-21-3	Silicon	27600			P
7440-69-9	Bismuth	38.0	U		P

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_90500_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4N5

Lab Name: ITAS_ST._LOUIS Contract: 550.23
Lab Code: ITMO Case No.: SAS No.: SDG No.: W0260
Matrix (soil/water): WATER Lab Sample ID: 6500-002
Level (low/med): LOW Date Received: 10/17/94
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	33.4	B		P
7440-70-2	Calcium	31700			P
7439-89-6	Iron	88.3	B		P
7439-95-4	Magnesium	9620			P
7439-96-5	Manganese	2.2	B		P
7440-09-7	Potassium	7580			P
7782-49-2	Selenium	1.7	U	SN	F
7440-23-5	Sodium	22300			P
	Cyanide				NR
7440-21-3	Silicon	27400			P
7440-69-9	Bismuth	38.0	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
SILICATE = 89800 UG/L

FORM I - IN

ILM03.0

INTERNATIONAL TECHNOLOGY CORPORATION

St. Louis Laboratory
ITAS Data Review Check List
GENERAL CHEMISTRY

Work Order Number(s):	5590.23
Lab Sample Numbers or SDG:	65760-001, -002, -003, -004, -005
Method/Test/Parameter:	ALK/310.1/Q4

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Initial Calibration 1. Does the standard curve consist of a Blank (when required) and the required minimum number of calibration standards?			✓	
2. Is the initial calibration correlation coefficient ≥ 0.995?			✓	
B. Continuing Calibration 1. Is the Continuing Calibration Verification (CCV) percent recovery within QC limits?			✓	
C. Sample Analysis 1. Were all sample holding times met?	✓			
D. QC Samples 1. Is the Method Blank concentration less than the reporting limit?	✓			
2. Is the Laboratory Control Sample (LCS) AND/OR the Matrix Spike (MS) % recovery within QC limits?	✓			
3. When MS/MSD analyzed, is RPD within QC limits?			✓	
4. When duplicate sample analysis performed, is RPD within QC limits (± 20 %)?	✓			
E. Other 1. Are all nonconformances included and noted?			✓	
2. Are all required forms filled out?	✓			
3. Was correct methodology used?	✓			
4. Transcriptions checked?	✓			
5. Were all calculations checked at minimum frequency?	✓			
6. Did the analyst sign and date the front page of the analytical run?	✓			
7. Units checked?	✓			

St. Louis Laboratory
ITAS Data Review Check List
GENERAL CHEMISTRY

Comments on any "No" response:

Analyst: Steven Page Date: 11-17-94

Second-Level Review: Date:

INTERNATIONAL TECHNOLOGY CORPORATION

St. Louis Laboratory
ITAS Data Review Check List
GENERAL CHEMISTRY

Work Order Number(s):	550.23
Lab Sample Numbers or SDG:	WD260 6500-001, 6519-001, 6550-001-003
Method/Test/Parameter:	ALK/310.1/Q4

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Initial Calibration 1. Does the standard curve consist of a Blank (when required) and the required minimum number of calibration standards?			✓	✓
2. Is the initial calibration correlation coefficient ≥ 0.995?			✓	✓
B. Continuing Calibration 1. Is the Continuing Calibration Verification (CCV) percent recovery within QC limits?			✓	✓
C. Sample Analysis 1. Were all sample holding times met?	✓			✓
D. QC Samples 1. Is the Method Blank concentration less than the reporting limit?	✓			✓
2. Is the Laboratory Control Sample (LCS) AND/OR the Matrix Spike (MS) % recovery within QC limits?	✓			✓
3. When MS/MSD analyzed, is RPD within QC limits?			✓	✓
4. When duplicate sample analysis performed, is RPD within QC limits (± 20 %)?	✓			✓
E. Other 1. Are all nonconformances included and noted?			✓	✓
2. Are all required forms filled out?	✓			✓
3. Was correct methodology used?	✓			✓
4. Transcriptions checked?	✓			✓
5. Were all calculations checked at minimum frequency?	✓			✓
6. Did the analyst sign and date the front page of the analytical run?	✓			✓
7. Units checked?	✓			✓

St. Louis Laboratory
ITAS Data Review Check List
GENERAL CHEMISTRY

Comments on any "No" response:

Analyst: Steven Pope Date: 11-14-94

Second-Level Review: R. Patterson Date: 11-16-94

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

Project: 550.23

Category: Alkalinity
Method: EPA 310.1
Matrix: LIQUID

Sample Date : 10/14/94
Receipt Date : 10/17/94
Report Date : 12/03/94

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0D4N4	6500-001	Alkalinity, Tot	T-005	QCBLK48965-1	10/21/94	10/21/94	96.0	MG/L		2.00	1
B0D4N4	6500-001DUP	Alkalinity, Tot	T-005	QCBLK48965-1	10/21/94	10/21/94	96.8	MG/L		2.00	1
B0D4J6	6519-001	Alkalinity, Tot	T-005	QCBLK48965-1	10/21/94	10/21/94	113	MG/L		2.00	1
B0D4H6	6550-001	Alkalinity, Tot	T-005	QCBLK48965-1	10/21/94	10/21/94	92.2	MG/L		2.00	1
B0D4K0	6550-002	Alkalinity, Tot	T-005	QCBLK48965-1	10/21/94	10/21/94	124	MG/L		2.00	1
B0D4K8	6550-003	Alkalinity, Tot	T-005	QCBLK48965-1	10/21/94	10/21/94	94.0	MG/L		2.00	1
B0D4K4	6560-001	Alkalinity, Tot	T-005	QCBLK50195-1	11/02/94	11/02/94	102	MG/L		10.0	1
B0D4L0	6560-002	Alkalinity, Tot	T-005	QCBLK50195-1	11/02/94	11/02/94	104	MG/L		10.0	1
B0D4N0	6560-003	Alkalinity, Tot	T-005	QCBLK50195-1	11/02/94	11/02/94	112	MG/L		10.0	1
B0D4L2	6560-004	Alkalinity, Tot	T-005	QCBLK50195-1	11/02/94	11/02/94	109	MG/L		10.0	1
B0D4L4	6560-005	Alkalinity, Tot	T-005	QCBLK50195-1	11/02/94	11/02/94	108	MG/L		10.0	1
NA	QCBLK48965-1	Alkalinity, Tot	T-005	QCBLK48965-1	10/21/94	10/21/94	1.00	MG/L	U	1.00	1
NA	QCBLK50195-1	Alkalinity, Tot	T-005	QCBLK50195-1	11/02/94	11/02/94	5.00	MG/L	U	5.00	1
NA	QCLCS48965-1	Alkalinity, Tot	T-005	QCBLK48965-1	10/21/94	10/21/94	92	%REC			1
NA	QCLCS50195-1	Alkalinity, Tot	T-005	QCBLK50195-1	11/02/94	11/02/94	94	%REC			1

INTERNATIONAL TECHNOLOGY CORPORATION

Batch# 51321

St. Louis Laboratory
ITAS Data Review Check List
GENERAL CHEMISTRY

Work Order Number(s): 550.23, 579.01; 530.30; 525.02	
W0260 W0289 WC014	
Lab Sample Numbers or SDG: 6498-001; 6500-001; 6656-001; 6752-001 → 003, ~~004~~; 6540-001 → 009; 6519-001	
Method/Test/Parameter: IC 300.0	

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Initial Calibration 1. Does the standard curve consist of a Blank (when required) and the required minimum number of calibration standards?	✓			✓
2. Is the initial calibration correlation coefficient ≥ 0.995?	✓			✓
B. Continuing Calibration 1. Is the Continuing Calibration Verification (CCV) percent recovery within QC limits?	✓			✓
C. Sample Analysis 1. Were all sample holding times met?		✓		✓
D. QC Samples 1. Is the Method Blank concentration less than the reporting limit?	✓			✓
2. Is the Laboratory Control Sample (LCS) AND/OR the Matrix Spike (MS) % recovery within QC limits?	✓			✓
3. When MS/MSD analyzed, is RPD within QC limits?			✓	✓
4. When duplicate sample analysis performed, is RPD within QC limits (± 20 %)?		✓		✓
E. Other 1. Are all nonconformances included and noted?			✓	✓
2. Are all required forms filled out?	✓			✓
3. Was correct methodology used?	✓			✓
4. Transcriptions checked?	✓			✓
5. Were all calculations checked at minimum frequency?	✓			✓
6. Did the analyst sign and date the front page of the analytical run?	✓			✓
7. Units checked?	✓			✓

00899

St. Louis Laboratory
ITAS Data Review Check List
GENERAL CHEMISTRY

Comments on any "No" response:

NO_3, NO_2, OPO_4 hold times expired at receipt

RPD - can't calculate because both values less than d.l. :
~~6500-001 OPO4, NO2~~ RP 11-15-94
6540-001 Fl, Br

Integration shows hit for Fl, but peak area less than low cal std - reported as less than d.l: 6540-001, oup, 005

Analyst: J. Flanders **Date:** 11-14-94

Second-Level Review: R. Patterson **Date:** 11-15-94

INTERNATIONAL TECHNOLOGY CORPORATION

Batch #51661

St. Louis Laboratory
ITAS Data Review Check List
GENERAL CHEMISTRY

Work Order Number(s):	340.05, 550.23, 550.10
	1163.0, W0260, W0267, W0265
Lab Sample Numbers or SDG:	6514-001→004; 6550-001→003; 6584-001→003; 6566-001→004; 6560-001→005
Method/Test/Parameter:	IC 300.0

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Initial Calibration 1. Does the standard curve consist of a Blank (when required) and the required minimum number of calibration standards?	✓			✓
2. Is the initial calibration correlation coefficient ≥ 0.995?	✓			✓
B. Continuing Calibration 1. Is the Continuing Calibration Verification (CCV) percent recovery within QC limits?	✓			✓
C. Sample Analysis 1. Were all sample holding times met?		✓		✓
D. QC Samples 1. Is the Method Blank concentration less than the reporting limit?	✓			✓
2. Is the Laboratory Control Sample (LCS) AND/OR the Matrix Spike (MS) % recovery within QC limits?	✓			✓
3. When MS/MSD analyzed, is RPD within QC limits?			✓	✓
4. When duplicate sample analysis performed, is RPD within QC limits (± 20 %)?		✓		✓
E. Other 1. Are all nonconformances included and noted?			✓	✓
2. Are all required forms filled out?	✓			✓
3. Was correct methodology used?	✓			✓
4. Transcriptions checked?	✓			✓
5. Were all calculations checked at minimum frequency?	✓			✓
6. Did the analyst sign and date the front page of the analytical run?	✓			✓
7. Units checked?	✓			✓

St. Louis Laboratory
ITAS Data Review Check List
GENERAL CHEMISTRY

Comments on any "No" response:

NO_2, NO_3, OPO_4 hold times expired at receipt

6584-002 FL integration shows hit but peak area less than low cal. std and reported as less than d.l.

RPD - can't calculate because both values less than d.l.:

6584-001 } OPO_4, NO_2
6566-001 } OPO_4, NO_3
6560-001 } OPO_4, NO_3

Analyst: J. Flandrean **Date:** 11-16-94

Second-Level Review: R. Patterson **Date:** 11-17-94

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

Project: 550.23

Category: Chloride
Method: EPA 300.0
Matrix: LIQUID

Sample Date : 10/14/94
Receipt Date : 10/17/94
Report Date : 12/03/94

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0D4N4	6500-001	Chloride	16887-00-6	QCBLK51321-1	11/11/94	11/11/94	7.68	MG/L		1.25	5
B0D4J6	6519-001	Chloride	16887-00-6	QCBLK51321-1	11/11/94	11/11/94	7.64	MG/L		1.25	5
B0D4H6	6550-001	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	3.30	MG/L		0.25	1
B0D4K0	6550-002	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	7.60	MG/L		1.25	5
B0D4K8	6550-003	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	16.0	MG/L		2.50	10
B0D4K4	6560-001	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	8.32	MG/L		2.50	10
B0D4K4	6560-001DUP	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	8.35	MG/L		2.50	10
B0D4K4	6560-001MS	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	94	%REC			10
B0D4L0	6560-002	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	15.9	MG/L		2.50	10
B0D4N0	6560-003	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	17.4	MG/L		2.50	10
B0D4L2	6560-004	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	18.0	MG/L		2.50	10
B0D4L4	6560-005	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	17.5	MG/L		2.50	10
NA	QCBLK51321-1	Chloride	16887-00-6	QCBLK51321-1	11/11/94	11/11/94	0.25	MG/L	U	0.25	1
NA	QCBLK51661-1	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	0.25	MG/L	U	0.25	1
NA	QCLCS51321-1	Chloride	16887-00-6	QCBLK51321-1	11/11/94	11/11/94	92	%REC			1
NA	QCLCS51661-1	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	92	%REC			1

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

Project: 550.23

Category: FLUORIDE
Method: EPA 300.0
Matrix: LIQUID

Sample Date : 10/14/94
Receipt Date : 10/17/94
Report Date : 12/03/94

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0D4N4	6500-001	Fluoride	16984-48-8	QCBLK51321-1	11/11/94	11/11/94	0.21	MG/L		0.10	1
B0D4J6	6519-001	Fluoride	16984-48-8	QCBLK51321-1	11/11/94	11/11/94	0.21	MG/L		0.10	1
B0D4H6	6550-001	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.25	MG/L		0.10	1
B0D4K0	6550-002	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.56	MG/L		0.10	1
B0D4K8	6550-003	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.68	MG/L		0.10	1
B0D4K4	6560-001	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.33	MG/L		0.10	1
B0D4K4	6560-001DUP	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.34	MG/L		0.10	1
B0D4K4	6560-001MS	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	93	%REC			1
B0D4L0	6560-002	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.44	MG/L		0.10	1
B0D4N0	6560-003	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.42	MG/L		0.10	1
B0D4L2	6560-004	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.41	MG/L		0.10	1
B0D4L4	6560-005	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.43	MG/L		0.10	1
NA	QCBLK51321-1	Fluoride	16984-48-8	QCBLK51321-1	11/11/94	11/11/94	0.10	MG/L	U	0.10	1
NA	QCBLK51661-1	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.10	MG/L	U	0.10	1
NA	QCLCS51321-1	Fluoride	16984-48-8	QCBLK51321-1	11/11/94	11/11/94	94	%REC			1
NA	QCLCS51661-1	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	88	%REC			1

00903A

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

Project: 550.23

Category: NITRATE
Method: EPA 300.0
Matrix: LIQUID

Sample Date : 10/18/94
Receipt Date : 10/19/94
Report Date : 12/03/94

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0D4H6	6550-001	Nitrate	14797-55-8	QCBLK51661-1	11/14/94	11/14/94	0.038	MG/L		0.020	1
B0D4K0	6550-002	Nitrate	14797-55-8	QCBLK51661-1	11/14/94	11/14/94	0.27	MG/L		0.020	1
B0D4K8	6550-003	Nitrate	14797-55-8	QCBLK51661-1	11/14/94	11/14/94	0.032	MG/L		0.020	1
NA	QCBLK51661-1	Nitrate	14797-55-8	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U	0.020	1
NA	QCLCS51661-1	Nitrate	14797-55-8	QCBLK51661-1	11/14/94	11/14/94	99	%REC			1

00903B

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

Project: 550.23

Category: Nitrite
Method: EPA 300.0
Matrix: LIQUID

Sample Date : 10/14/94
Receipt Date : 10/17/94
Report Date : 12/03/94

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0D4N4	6500-001	Nitrite	7632-00-0	QCBLK51321-1	11/11/94	11/11/94	0.020	MG/L	U	0.020	1
B0D4J6	6519-001	Nitrite	7632-00-0	QCBLK51321-1	11/11/94	11/11/94	0.020	MG/L	U	0.020	1
B0D4H6	6550-001	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U	0.020	1
B0D4K0	6550-002	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U	0.020	1
B0D4K8	6550-003	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.049	MG/L		0.020	1
B0D4K4	6560-001	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U	0.020	1
B0D4K4	6560-001DUP	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U	0.020	1
B0D4K4	6560-001MS	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	103	%REC			5
B0D4L0	6560-002	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U	0.020	1
B0D4N0	6560-003	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U	0.020	1
B0D4L2	6560-004	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U	0.020	1
B0D4L4	6560-005	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U	0.020	1
NA	QCBLK51321-1	Nitrite	7632-00-0	QCBLK51321-1	11/11/94	11/11/94	0.020	MG/L	U	0.020	1
NA	QCBLK51661-1	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U	0.020	1
NA	QCLCS51321-1	Nitrite	7632-00-0	QCBLK51321-1	11/11/94	11/11/94	98	%REC			1
NA	QCLCS51661-1	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	108	%REC			1

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

Project: 550.23

Category: Sulfate
Method: EPA 300.0
Matrix: LIQUID

Sample Date : 10/14/94
Receipt Date : 10/17/94
Report Date : 12/03/94

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0D4N4	6500-001	Sulfate	14808-79-8	QCBLK51321-1	11/11/94	11/11/94	17.2	MG/L		1.00	1
B0D4J6	6519-001	Sulfate	14808-79-8	QCBLK51321-1	11/11/94	11/11/94	14.0	MG/L		1.00	1
B0D4H6	6550-001	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	30.9	MG/L		5.00	5
B0D4K0	6550-002	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	12.7	MG/L		1.00	1
B0D4K8	6550-003	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	132	MG/L		10.0	10
B0D4K4	6560-001	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	48.8	MG/L		10.0	10
B0D4K4	6560-001DUP	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	49.0	MG/L		10.0	10
B0D4K4	6560-001MS	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	80	%REC			10
B0D4L0	6560-002	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	60.6	MG/L		10.0	10
B0D4N0	6560-003	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	110	MG/L		10.0	10
B0D4L2	6560-004	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	110	MG/L		10.0	10
B0D4L4	6560-005	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	108	MG/L		10.0	10
NA	QCBLK51321-1	Sulfate	14808-79-8	QCBLK51321-1	11/11/94	11/11/94	1.00	MG/L	U	1.00	1
NA	QCBLK51661-1	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U	1.00	1
NA	QCLCS51321-1	Sulfate	14808-79-8	QCBLK51321-1	11/11/94	11/11/94	93	%REC			1
NA	QCLCS51661-1	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	95	%REC			1

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

Project: 550.23

Category: ORTHOPHOSPHATE
Method: EPA 300.0
Matrix: LIQUID

Sample Date : 10/14/94
Receipt Date : 10/17/94
Report Date : 12/03/94

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0D4N4	6500-001	Ortho-Phosphate	7778-77-0	QCBLK51321-1	11/11/94	11/11/94	1.00	MG/L	U	1.00	1
B0D4J6	6519-001	Ortho-Phosphate	7778-77-0	QCBLK51321-1	11/11/94	11/11/94	1.00	MG/L	U	1.00	1
B0D4H6	6550-001	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U	1.00	1
B0D4K0	6550-002	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U	1.00	1
B0D4K8	6550-003	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U	1.00	1
B0D4K4	6560-001	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U	1.00	1
B0D4K4	6560-001DUP	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U	1.00	1
B0D4K4	6560-001MS	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	97	%REC			1
B0D4L0	6560-002	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U	1.00	1
B0D4N0	6560-003	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U	1.00	1
B0D4L2	6560-004	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U	1.00	1
B0D4L4	6560-005	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U	1.00	1
NA	QCBLK51321-1	Ortho-Phosphate	7778-77-0	QCBLK51321-1	11/11/94	11/11/94	1.00	MG/L	U	1.00	1
NA	QCBLK51661-1	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U	1.00	1
NA	QCLCS51321-1	Ortho-Phosphate	7778-77-0	QCBLK51321-1	11/11/94	11/11/94	98	%REC			1
NA	QCLCS51661-1	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	94	%REC			1

INTERNATIONAL TECHNOLOGY CORPORATION

St. Louis Laboratory
ITAS Data Review Check List
GENERAL CHEMISTRY

Work Order Number(s):	550.23
	W02260
Lab Sample Numbers or SDG:	6500-001
Method/Test/Parameter:	TDS/160.1/Q4

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Initial Calibration 1. Does the standard curve consist of a Blank (when required) and the required minimum number of calibration standards?			✓	✓
2. Is the initial calibration correlation coefficient ≥ 0.995?			✓	✓
B. Continuing Calibration 1. Is the Continuing Calibration Verification (CCV) percent recovery within QC limits?			✓	✓
C. Sample Analysis 1. Were all sample holding times met?	✓			✓
D. QC Samples 1. Is the Method Blank concentration less than the reporting limit?	✓			✓
2. Is the Laboratory Control Sample (LCS) AND/OR the Matrix Spike (MS) % recovery within QC limits?	✓			✓
3. When MS/MSD analyzed, is RPD within QC limits?			✓	✓
4. When duplicate sample analysis performed, is RPD within QC limits (± 20 %)?	✓			✓
E. Other 1. Are all nonconformances included and noted?			✓	✓
2. Are all required forms filled out?	✓			✓
3. Was correct methodology used?	✓			✓
4. Transcriptions checked?	✓			✓
5. Were all calculations checked at minimum frequency?	✓			✓
6. Did the analyst sign and date the front page of the analytical run?	✓			✓
7. Units checked?	✓			✓

01018

St. Louis Laboratory
ITAS Data Review Check List
GENERAL CHEMISTRY

Comments on any 'No' response:

Analyst: Steven Ryan Date: 11-07-94

Second-Level Review: R. Patterson Date: 11-07-94

01019

INTERNATIONAL TECHNOLOGY CORPORATION

St. Louis Laboratory
ITAS Data Review Check List
GENERAL CHEMISTRY

Work Order Number(s):	530.23
	W02260
Lab Sample Numbers or SDG:	6579-001
Method/Test/Parameter:	TDS/160.1/Q4

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Initial Calibration 1. Does the standard curve consist of a Blank (when required) and the required minimum number of calibration standards?			✓	✓
2. Is the initial calibration correlation coefficient ≥ 0.995?			✓	✓
B. Continuing Calibration 1. Is the Continuing Calibration Verification (CCV) percent recovery within QC limits?			✓	✓
C. Sample Analysis 1. Were all sample holding times met?	✓			✓
D. QC Samples 1. Is the Method Blank concentration less than the reporting limit?	✓			✓
2. Is the Laboratory Control Sample (LCS) AND/OR the Matrix Spike (MS) % recovery within QC limits?	✓			✓
3. When MS/MSD analyzed, is RPD within QC limits?			✓	✓
4. When duplicate sample analysis performed, is RPD within QC limits (± 20 %)?	✓			✓
E. Other 1. Are all nonconformances included and noted?			✓	✓
2. Are all required forms filled out?	✓			✓
3. Was correct methodology used?	✓			✓
4. Transcriptions checked?	✓			✓
5. Were all calculations checked at minimum frequency?	✓			✓
6. Did the analyst sign and date the front page of the analytical run?	✓			✓
7. Units checked?	✓			✓

01020

St. Louis Laboratory
ITAS Data Review Check List
GENERAL CHEMISTRY

Comments on any "No" response:

Analyst: Steven Pope **Date:** 11-10-94

Second-Level Review: R. Patterson **Date:** 11-13-94

INTERNATIONAL TECHNOLOGY CORPORATION

St. Louis Laboratory
ITAS Data Review Check List
GENERAL CHEMISTRY

Work Order Number(s):	530.23
	W0260 6560-001 — 005
Lab Sample Numbers or SDG:	W0260
Method/Test/Parameter:	TDS/160.1/24

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Initial Calibration 1. Does the standard curve consist of a Blank (when required) and the required minimum number of calibration standards?			✓	✓
2. Is the initial calibration correlation coefficient ≥ 0.995?			✓	✓
B. Continuing Calibration 1. Is the Continuing Calibration Verification (CCV) percent recovery within QC limits?			✓	✓
C. Sample Analysis 1. Were all sample holding times met?	✓			✓
D. QC Samples 1. Is the Method Blank concentration less than the reporting limit?	✓			✓
2. Is the Laboratory Control Sample (LCS) AND/OR the Matrix Spike (MS) % recovery within QC limits?	✓			✓
3. When MS/MSD analyzed, is RPD within QC limits?			✓	✓
4. When duplicate sample analysis performed, is RPD within QC limits (± 20 %)?	✓			✓
E. Other 1. Are all nonconformances included and noted?			✓	✓
2. Are all required forms filled out?	✓			✓
3. Was correct methodology used?	✓			✓
4. Transcriptions checked?	✓			✓
5. Were all calculations checked at minimum frequency?	✓			✓
6. Did the analyst sign and date the front page of the analytical run?	✓			✓
7. Units checked?	✓			✓

01022

St. Louis Laboratory
ITAS Data Review Check List
GENERAL CHEMISTRY

Comments on any "No" response:

Analyst: Steven Poppe **Date:** 11-16-94

Second-Level Review: R. Patterson **Date:** 11-16-94

INTERNATIONAL TECHNOLOGY CORPORATION

St. Louis Laboratory
LAS Data Review Check List
GENERAL CHEMISTRY

Work Order Number(s):	550 23
Lab Sample Numbers or SDG:	W0260 6550-001 – 003
Method/Test/Parameter:	TDS/160.1/Q4

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Initial Calibration 1. Does the standard curve consist of a Blank (when required) and the required minimum number of calibration standards?			✓	✓
2. Is the initial calibration correlation coefficient ≥ 0.995?			✓	✓
B. Continuing Calibration 1. Is the Continuing Calibration Verification (CCV) percent recovery within QC limits?			✓	✓
C. Sample Analysis 1. Were all sample holding times met?	✓			✓
D. QC Samples 1. Is the Method Blank concentration less than the reporting limit?	✓			✓
2. Is the Laboratory Control Sample (LCS) AND/OR the Matrix Spike (MS) % recovery within QC limits?	✓			✓
3. When MS/MSD analyzed, is RPD within QC limits?			✓	✓
4. When duplicate sample analysis performed, is RPD within QC limits (± 20 %)?	✓			✓
E. Other 1. Are all nonconformances included and noted?			✓	✓
2. Are all required forms filled out?	✓			✓
3. Was correct methodology used?	✓			✓
4. Transcriptions checked?	✓			✓
5. Were all calculations checked at minimum frequency?	✓			✓
6. Did the analyst sign and date the front page of the analytical run?	✓			✓
7. Units checked?	✓			✓

01024

St. Louis Laboratory
ITAS Data Review Check List
GENERAL CHEMISTRY

Comments on any "No" response:

Analyst: Steven Pope Date: 11-16-94

Second-Level Review: R. Pattison Date: 11-16-94

01025

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

Project: 550.23

Category: TDS
Method: EPA 160.1
Matrix: LIQUID

Sample Date : 10/14/94
Receipt Date : 10/17/94
Report Date : 12/03/94

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0D4N4	6500-001	Total Dissolved	10-33-3	QCBLK49071-1	10/19/94	10/19/94	234	MG/L		5.00	1
B0D4N4	6500-001DUP	Total Dissolved	10-33-3	QCBLK49071-1	10/19/94	10/19/94	255	MG/L		5.00	1
B0D4J6	6519-001	Total Dissolved	10-33-3	QCBLK49075-1	10/20/94	10/20/94	239	MG/L		5.00	1
B0D4H6	6550-001	Total Dissolved	10-33-3	QCBLK49368-1	10/25/94	10/25/94	323	MG/L		5.00	1
B0D4K0	6550-002	Total Dissolved	10-33-3	QCBLK49368-1	10/25/94	10/25/94	273	MG/L		5.00	1
B0D4K8	6550-003	Total Dissolved	10-33-3	QCBLK49368-1	10/25/94	10/25/94	96.0	MG/L		5.00	1
B0D4K4	6560-001	Total Dissolved	10-33-3	QCBLK49369-1	10/26/94	10/26/94	335	MG/L		5.00	1
B0D4L0	6560-002	Total Dissolved	10-33-3	QCBLK49369-1	10/26/94	10/26/94	323	MG/L		5.00	1
B0D4N0	6560-003	Total Dissolved	10-33-3	QCBLK49369-1	10/26/94	10/26/94	466	MG/L		5.00	1
B0D4L2	6560-004	Total Dissolved	10-33-3	QCBLK49369-1	10/26/94	10/26/94	437	MG/L		5.00	1
B0D4L4	6560-005	Total Dissolved	10-33-3	QCBLK49369-1	10/26/94	10/26/94	402	MG/L		5.00	1
NA	QCBLK49071-1	Total Dissolved	10-33-3	QCBLK49071-1	10/19/94	10/19/94	5.00	MG/L	U	5.00	1
NA	QCBLK49075-1	Total Dissolved	10-33-3	QCBLK49075-1	10/20/94	10/20/94	5.00	MG/L	U	5.00	1
NA	QCBLK49368-1	Total Dissolved	10-33-3	QCBLK49368-1	10/25/94	10/25/94	5.00	MG/L	U	5.00	1
NA	QCBLK49369-1	Total Dissolved	10-33-3	QCBLK49369-1	10/26/94	10/26/94	5.00	MG/L	U	5.00	1
NA	QCLCS49071-1	Total Dissolved	10-33-3	QCBLK49071-1	10/19/94	10/19/94	99	%REC			1
NA	QCLCS49075-1	Total Dissolved	10-33-3	QCBLK49075-1	10/20/94	10/20/94	100	%REC			1
NA	QCLCS49368-1	Total Dissolved	10-33-3	QCBLK49368-1	10/25/94	10/25/94	98	%REC			1
NA	QCLCS49369-1	Total Dissolved	10-33-3	QCBLK49369-1	10/26/94	10/26/94	99	%REC			1

Quanterra
Environmental Services

Quanterra Incorporated
2800 George Washington Way
Richland, Washington 99352

509 375-3131 Telephone
509 375-5590 Fax

December 5, 1994

DEC 1994
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Data
Log In

Joan Kessner
Buyer's Technical Representative
Bechtel Hanford. Inc.
345 Hills
Richland, WA 99352

Reference: Contract MPV-SVV-239000.

Dear Ms. Kessner:

Accompanying this letter are the Data Package Deliverables for the Radiochemical analyses on the following BHI samples:

SDG NUMBER	SAF NUMBER
W0260	B94-036
W0266	B94-022
W0319	B94-022

The Radiochemical Diskette Deliverable was sent via modem on the WHC BBS earlier today.

If you have any questions regarding this data package or require any additional information please contact me at 375-3131.

Sincerely,

Ann F. Wright for
Jodie Carnes
Document Control Officer

Receipt of this letter and the package are acknowledged by:

Joan Kessner — Name
12/6/94 — Date
4:00p — Time

XC: Vicki Parr
Wade Price
Van Pettey
File

MS 6/17/96

Quanterra Environmental Services

Quanterra Incorporated
2800 George Washington Way
Richland, Washington 99352

509 375-3131 Telephone
509 375-5590 Fax

Analytical Data Package Prepared For

Westinghouse/Bechtel Hanford

Radiochemical Analysis By

Quanterra Environmental Services
Richland Laboratory

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Sample Delivery Group Number: W0260

CLIENT ID NUMBER	QUANTERRA ID NUMBER
B0D4N4	41032501
B0D4J6	41034701
B0D4H6	41037801
B0D4K0	41037802
B0D4K8	41037803
B0D4R3	41037804
B0D4K4	41043101
B0D4L0	41043102
B0D4N0	41043103
B0D4L2	41043104
B0D4L4	41043105

RECORD COPY

Quanterra Environmental Services

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

December 5, 1994

Attention: Joan Kessner

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SAF Number	:	B94-036
Date SDG Closed	:	October 20, 1994
Number of Samples	:	Eleven (11)
Sample Type	:	Water
SDG Number	:	W0260
Data Deliverable	:	Stand Alone

RECORD COPY

I. Introduction

On October 17, 18, 19, and 20, a total of eleven 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
40132501	B0D4N4	Water	10/17/94
40134701	B0D4J6	Water	10/18/94
40137801	B0D4H6	Water	10/19/94
40137802	B0D4K0	Water	10/19/94
40137803	B0D4K8	Water	10/19/94
40137804	B0D4R3	Water	10/19/94
40143101	B0D4K4	Water	10/20/94
40143102	B0D4L0	Water	10/20/94
40143103	B0D4N0	Water	10/20/94
40143104	B0D4L2	Water	10/20/94

QTESRL ID	BHI ID	Matrix	Date of Receipt
40143105	B0D4L4	Water	10/20/94

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 analyses were:

Alpha Spectroscopy
Plutonium-238, -239/40 by method ITAS-RD-3209
Gamma Spectroscopy
Gamma Scan by method ITAS-RD-3219
Gas Proportional Counting
Gross Alpha by method ITAS-RD-3222
Gross Beta by method ITAS-RD-3222
Strontium-90 by method ITAS-RD-3204
Liquid Scintillation Counting
Technetium-99 by method ITAS-IT-RS-0001
Tritium by method ITAS-RD-3205
Total Uranium
Total Uranium by method ITAS-RD-4200

III. Quality Control

The analytical results for each analysis performed under SDG W0260 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

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

Alpha Spectroscopy

Plutonium-238, -239/40 by method ITAS-RD-3209
Sample B0D4K4 and the LCS were recounted. The initial count had been performed on Alp 49, and the initial calibration for that detector is presently not available. The recount results are accepted. The LCS, batch blank, sample and sample duplicate (duplicate of sample B0D4K4) results are within contractual limits.

Gamma Spectroscopy

Gamma Scan by method ITAS-RD-3219
The Eu-152 recovery in the LCS is biased high (131%). The LCS is accepted based upon acceptable recoveries for Co-60 and Cs-137. The Fe-59 RDL was exceeded by sample B0D4N4. The Fe-59 RDL is met by the batch blank, therefore, the sample results are accepted. The LCS, batch blank, sample and sample duplicate (duplicate of sample B0D4L4) results are within contractual limits, except as noted.

Gas Proportional Counting

Gross Alpha by method ITAS-RD-3222
The calculated MDA for sample B0D4K8 exceeded the RDL. The volume analyzed for the sample was reduced to approximately 50 mL due to high beta screening activity. Volumes were also reduced for samples B0D4N4, B0D4K0, B0D4N0, B0D4L2, B0D4L4, and the duplicate of sample B0D4N4 due to high screening activity, however, the MDA did not exceed the RDL for those samples. The LCS, batch blank, sample and sample duplicate results are within contractual limits, except as noted.

Gross Beta by method ITAS-RD-3222
The calculated MDA for sample B0D4K8 exceeded the RDL, therefore, the sample was recounted for 100 minutes. The volume analyzed for the sample had been reduced to approximately 50 mL due to high beta screening activity. The recount is within contractual requirements and reported, however, the initial screening result appears to have been inaccurate. The error in the screening result did not have an effect on the final gross beta result reported for this sample. Volumes were also reduced for samples B0D4N4, B0D4N0, B0D4L2, B0D4L4, and the duplicate of sample B0D4N4 due to high screening activity, however, the MDA did not exceed the RDL for those samples. The LCS, batch blank, sample and sample duplicate results are within contractual limits, except as noted.

Strontium-90 by method ITAS-RD-3204
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0D4L4) results are within contractual requirements.

Liquid Scintillation Counting

Technetium-99 by method ITAS-IT-RS-0001
The matrix spike recovery of sample B0D4N4 is outside of acceptable limits. The activity in the sample is more than 15 times greater than the spike that was added, and as a result, the error around the sample result is greater than the spike value. The matrix spike, LCS, batch blank, sample and sample duplicate (duplicate of sample B0D4J6) results are within contractual requirements, except as noted.

Tritium by method ITAS-RD-3205
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0D4N4) results are within contractual requirements.

Total Uranium

Total Uranium by method ITAS-RD-4200
Sample B0D4K8 was reanalyzed due to matrix interferences on the initial analysis, probably related to heavy sediments in the sample as the presence of sediments was noted by the analyst. The reanalysis results are within contractual requirements and reported. The matrix spike, LCS, batch blank, sample and sample duplicate (duplicate of sample B0D4H6) 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

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41032501	MATRIX:	WATER
CLIENT ID:	B0D4N4	DATE RECEIVED:	10/17/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	-2.43E-02	3.4E-02	3.5E-02	3.42E-01	pCi/L	68.90%	RD3209
PU239/40	-1.21E-02	2.4E-02	2.4E-02	2.90E-01	pCi/L	68.90%	RD3209
CO-58	1.90E+00	5.2E+00	5.2E+00	1.05E+01	pCi/L	N/A	RD3219
CO-60	2.19E+01	8.7E+00	8.9E+00	2.03E+01	pCi/L	N/A	RD3219
CS-137DA	-2.00E+00	5.1E+00	5.1E+00	8.62E+00	pCi/L	N/A	RD3219
EU-152	-3.48E-01	1.4E+01	1.4E+01	2.45E+01	pCi/L	N/A	RD3219
EU-154	-1.36E+01	1.5E+01	1.6E+01	2.31E+01	pCi/L	N/A	RD3219
EU-155	3.83E-01	1.2E+01	1.2E+01	1.89E+01	pCi/L	N/A	RD3219
FE-59	1.06E+01	1.8E+01	1.8E+01	3.58E+01	pCi/L	N/A	RD3219
RU-106DA	1.10E+00	4.5E+01	4.5E+01	8.25E+01	pCi/L	N/A	RD3219
ALPHA	4.27E+00	2.4E+00	2.5E+00	2.54E+00	pCi/L	100.00%	RD3214
BETA	4.71E+02	2.1E+01	3.9E+01	1.05E+01	pCi/L	100.00%	RD3214
STRONTIUM	1.93E-01	2.0E-01	2.1E-01	4.97E-01	pCi/L	97.90%	RD3204
TC-99	1.53E+03	7.2E+00	1.7E+02	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	3.33E+02	1.2E+02	2.4E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	2.77E+00	N/A	4.2E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41034701	MATRIX:	WATER
CLIENT ID:	B0D4J6	DATE RECEIVED:	10/18/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	-1.27E-02	1.3E-02	1.3E-02	3.03E-01	pCi/L	65.90%	RD3209
PU239/40	-6.33E-03	9.0E-03	9.0E-03	2.64E-01	pCi/L	65.90%	RD3209
CO-58	-3.18E-01	4.7E+00	4.7E+00	8.72E+00	pCi/L	N/A	RD3219
CO-60	1.20E+00	3.5E+00	3.5E+00	7.80E+00	pCi/L	N/A	RD3219
CS-137DA	-2.35E+00	4.0E+00	4.0E+00	6.68E+00	pCi/L	N/A	RD3219
EU-152	9.11E-01	8.3E+00	8.3E+00	1.52E+01	pCi/L	N/A	RD3219
EU-154	-1.49E+00	1.1E+01	1.1E+01	2.10E+01	pCi/L	N/A	RD3219
EU-155	4.02E-01	7.6E+00	7.6E+00	1.35E+01	pCi/L	N/A	RD3219
FE-59	5.89E+00	8.9E+00	8.9E+00	2.03E+01	pCi/L	N/A	RD3219
RU-106DA	-2.49E+00	3.7E+01	3.7E+01	6.79E+01	pCi/L	N/A	RD3219
ALPHA	2.69E+00	1.5E+00	1.5E+00	1.71E+00	pCi/L	100.00%	RD3214
BETA	6.84E+00	1.8E+00	1.9E+00	2.86E+00	pCi/L	100.00%	RD3214
STRONTIUM	2.37E-01	2.1E-01	2.1E-01	5.16E-01	pCi/L	100.00%	RD3204
TC-99	-2.56E+00	9.7E-01	4.5E+00	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	7.56E+02	1.3E+02	2.6E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	2.40E+00	N/A	3.6E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41037801	MATRIX:	WATER
CLIENT ID:	B0D4H6	DATE RECEIVED:	10/19/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	0.00E+00	0.0E+00	2.1E-01	1.87E-01	pCi/L	60.30%	RD3209
PU239/40	-6.91E-03	9.8E-03	9.8E-03	2.89E-01	pCi/L	60.30%	RD3209
CO-58	-1.00E+01	5.7E+00	5.7E+00	7.30E+00	pCi/L	N/A	RD3219
CO-60	-7.10E+00	5.4E+00	5.5E+00	7.65E+00	pCi/L	N/A	RD3219
CS-137DA	-1.33E+00	4.0E+00	4.1E+00	7.15E+00	pCi/L	N/A	RD3219
EU-152	-1.43E+01	1.1E+01	1.1E+01	1.56E+01	pCi/L	N/A	RD3219
EU-154	-8.10E+00	1.7E+01	1.7E+01	2.82E+01	pCi/L	N/A	RD3219
EU-155	-8.82E-01	1.0E+01	1.0E+01	1.60E+01	pCi/L	N/A	RD3219
FE-59	-1.77E+01	1.7E+01	1.7E+01	2.53E+01	pCi/L	N/A	RD3219
RU-106DA	-3.76E+01	5.0E+01	5.0E+01	7.97E+01	pCi/L	N/A	RD3219
ALPHA	4.38E+00	1.8E+00	1.9E+00	1.50E+00	pCi/L	100.00%	RD3214
BETA	1.20E+01	2.1E+00	2.2E+00	2.81E+00	pCi/L	100.00%	RD3214
STRONTIUM	1.66E-01	2.1E-01	2.2E-01	5.53E-01	pCi/L	98.70%	RD3204
TC-99	-1.53E+00	9.7E-01	4.6E+00	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	-3.27E+01	1.1E+02	2.2E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	4.53E+00	N/A	6.8E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41037802	MATRIX:	WATER
CLIENT ID:	B0D4K0	DATE RECEIVED:	10/19/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	-1.44E-02	1.4E-02	1.5E-02	3.44E-01	pCi/L	58.00%	RD3209
PU239/40	6.11E-02	1.4E-01	1.5E-01	3.24E-01	pCi/L	58.00%	RD3209
CO-58	6.86E-01	5.3E+00	5.3E+00	1.04E+01	pCi/L	N/A	RD3219
CO-60	1.29E+00	3.7E+00	3.7E+00	8.39E+00	pCi/L	N/A	RD3219
CS-137DA	1.58E+00	4.5E+00	4.5E+00	8.21E+00	pCi/L	N/A	RD3219
EU-152	-2.74E+00	1.0E+01	1.0E+01	1.74E+01	pCi/L	N/A	RD3219
EU-154	-2.12E+01	1.6E+01	1.6E+01	1.89E+01	pCi/L	N/A	RD3219
EU-155	1.64E+00	1.1E+01	1.1E+01	1.82E+01	pCi/L	N/A	RD3219
FE-59	-1.18E+01	1.4E+01	1.4E+01	2.33E+01	pCi/L	N/A	RD3219
RU-106DA	-8.77E+00	4.3E+01	4.3E+01	7.61E+01	pCi/L	N/A	RD3219
ALPHA	1.30E+00	1.2E+00	1.2E+00	1.81E+00	pCi/L	100.00%	RD3214
BETA	5.62E+00	1.6E+00	1.7E+00	2.69E+00	pCi/L	100.00%	RD3214
STRONTIUM	1.37E-01	2.0E-01	2.0E-01	5.15E-01	pCi/L	97.60%	RD3204
TC-99	-8.69E-01	9.9E-01	4.6E+00	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	-1.46E+02	1.0E+02	2.1E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	2.14E+00	N/A	3.2E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41037803	MATRIX:	WATER
CLIENT ID:	B0D4K8	DATE RECEIVED:	10/19/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	-3.18E-03	6.4E-03	6.4E-03	2.38E-01	pCi/L	65.60%	RD3209
PU239/40	-9.53E-03	1.1E-02	1.1E-02	2.87E-01	pCi/L	65.60%	RD3209
CO-58	-8.70E-01	5.1E+00	5.1E+00	9.37E+00	pCi/L	N/A	RD3219
CO-60	-8.03E-01	6.5E+00	6.5E+00	1.21E+01	pCi/L	N/A	RD3219
CS-137DA	-5.62E-01	5.6E+00	5.6E+00	9.64E+00	pCi/L	N/A	RD3219
EU-152	-9.40E+00	1.4E+01	1.4E+01	2.28E+01	pCi/L	N/A	RD3219
EU-154	-2.18E+00	1.8E+01	1.8E+01	3.18E+01	pCi/L	N/A	RD3219
EU-155	2.45E+00	1.1E+01	1.1E+01	1.89E+01	pCi/L	N/A	RD3219
FE-59	-1.78E+01	1.4E+01	1.4E+01	1.87E+01	pCi/L	N/A	RD3219
RU-106DA	-5.30E+01	4.5E+01	4.5E+01	6.79E+01	pCi/L	N/A	RD3219
ALPHA	-3.52E-01	1.3E+00	1.3E+00	5.03E+00	pCi/L	100.00%	RD3214
BETA	1.25E+01	6.3E+00	6.3E+00	1.19E+01	pCi/L	100.00%	RD3214
STRONTIUM	3.44E-01	2.4E-01	2.5E-01	5.80E-01	pCi/L	82.80%	RD3204
TC-99	7.98E-01	1.0E+00	4.7E+00	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	5.24E+02	1.3E+02	2.5E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	1.63E+00	N/A	2.4E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0260
LAB SAMPLE ID:	41037804	**MATRIX:**	WATER
CLIENT ID:	B0D4R3	**DATE RECEIVED:**	10/19/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	-6.71E-03	9.5E-03	9.6E-03	2.80E-01	pCi/L	62.20%	RD3209
PU239/40	-6.71E-03	9.5E-03	9.6E-03	2.80E-01	pCi/L	62.20%	RD3209
CO-58	8.95E-01	4.9E+00	4.9E+00	9.36E+00	pCi/L	N/A	RD3219
CO-60	-2.91E+00	5.4E+00	5.4E+00	8.88E+00	pCi/L	N/A	RD3219
CS-137DA	1.70E+01	7.1E+00	7.3E+00	N/A	pCi/L	N/A	RD3219
EU-152	8.98E-01	1.1E+01	1.1E+01	2.06E+01	pCi/L	N/A	RD3219
EU-154	-2.08E+00	1.4E+01	1.4E+01	2.37E+01	pCi/L	N/A	RD3219
EU-155	2.57E+00	9.4E+00	9.4E+00	1.59E+01	pCi/L	N/A	RD3219
FE-59	-6.52E+00	1.2E+01	1.2E+01	2.13E+01	pCi/L	N/A	RD3219
RU-106DA	3.63E+01	4.0E+01	4.0E+01	8.05E+01	pCi/L	N/A	RD3219
STRONTIUM	1.49E+02	2.3E+00	3.9E+01	5.22E-01	pCi/L	98.70%	RD3204

Number of Results: 11

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41043101	MATRIX:	WATER
CLIENT ID:	B0D4K4	DATE RECEIVED:	10/20/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	0.00E+00	1.3E-01	1.8E-01	4.28E-01	pCi/L	71.70%	RD3209
PU239/40	-3.49E-02	4.0E-02	4.1E-02	3.67E-01	pCi/L	71.70%	RD3209
CO-58	1.17E+00	4.3E+00	4.3E+00	8.30E+00	pCi/L	N/A	RD3219
CO-60	5.53E+00	3.5E+00	3.5E+00	9.63E+00	pCi/L	N/A	RD3219
CS-137DA	2.30E+00	3.7E+00	3.7E+00	7.56E+00	pCi/L	N/A	RD3219
EU-152	3.95E+00	9.5E+00	9.5E+00	1.78E+01	pCi/L	N/A	RD3219
EU-154	7.46E+00	6.7E+00	6.7E+00	1.96E+01	pCi/L	N/A	RD3219
EU-155	-2.08E+00	7.2E+00	7.2E+00	1.23E+01	pCi/L	N/A	RD3219
FE-59	-5.71E+00	1.4E+01	1.4E+01	2.37E+01	pCi/L	N/A	RD3219
RU-106DA	-3.47E+00	3.1E+01	3.1E+01	5.69E+01	pCi/L	N/A	RD3219
ALPHA	3.17E+00	1.6E+00	1.7E+00	1.46E+00	pCi/L	100.00%	RD3214
BETA	9.10E+00	1.9E+00	2.0E+00	2.86E+00	pCi/L	100.00%	RD3214
STRONTIUM	2.08E-01	2.1E-01	2.1E-01	5.17E-01	pCi/L	92.60%	RD3204
TC-99	-3.82E+00	9.4E-01	4.4E+00	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	7.70E+00	1.1E+02	2.2E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	1.95E+00	N/A	2.9E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41043102	MATRIX:	WATER
CLIENT ID:	B0D4L0	DATE RECEIVED:	10/20/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	0.00E+00	0.0E+00	2.0E-01	1.84E-01	pCi/L	61.50%	RD3209
PU239/40	-3.39E-03	6.8E-03	6.8E-03	2.54E-01	pCi/L	61.50%	RD3209
CO-58	8.39E+00	3.9E+00	3.9E+00	1.01E+01	pCi/L	N/A	RD3219
CO-60	8.56E-01	4.4E+00	4.4E+00	8.61E+00	pCi/L	N/A	RD3219
CS-137DA	5.85E-01	4.3E+00	4.3E+00	8.09E+00	pCi/L	N/A	RD3219
EU-152	2.00E-01	1.1E+01	1.1E+01	1.80E+01	pCi/L	N/A	RD3219
EU-154	3.70E+00	1.2E+01	1.2E+01	2.45E+01	pCi/L	N/A	RD3219
EU-155	3.67E-01	9.2E+00	9.2E+00	1.56E+01	pCi/L	N/A	RD3219
FE-59	-1.09E+01	1.3E+01	1.3E+01	2.08E+01	pCi/L	N/A	RD3219
RU-106DA	-9.69E+01	4.8E+01	4.9E+01	6.24E+01	pCi/L	N/A	RD3219
ALPHA	2.61E+00	1.7E+00	1.7E+00	2.23E+00	pCi/L	100.00%	RD3214
BETA	1.05E+01	2.0E+00	2.2E+00	2.89E+00	pCi/L	100.00%	RD3214
STRONTIUM	9.74E-03	1.8E-01	1.8E-01	5.07E-01	pCi/L	99.90%	RD3204
TC-99	-1.43E+00	9.8E-01	4.6E+00	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	9.15E+01	1.1E+02	2.2E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	2.13E+00	N/A	3.2E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41043103	MATRIX:	WATER
CLIENT ID:	B0D4N0	DATE RECEIVED:	10/20/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	-1.28E-02	1.3E-02	1.3E-02	3.06E-01	pCi/L	65.40%	RD3209
PU239/40	-9.57E-03	1.1E-02	1.1E-02	2.88E-01	pCi/L	65.40%	RD3209
CO-58	-1.96E+00	5.4E+00	5.4E+00	9.12E+00	pCi/L	N/A	RD3219
CO-60	1.68E+01	7.1E+00	7.3E+00	1.73E+01	pCi/L	N/A	RD3219
CS-137DA	1.96E+00	4.6E+00	4.6E+00	8.46E+00	pCi/L	N/A	RD3219
EU-152	-8.90E+00	1.1E+01	1.1E+01	1.70E+01	pCi/L	N/A	RD3219
EU-154	1.77E+01	1.1E+01	1.1E+01	2.91E+01	pCi/L	N/A	RD3219
EU-155	5.84E+00	9.1E+00	9.1E+00	1.68E+01	pCi/L	N/A	RD3219
FE-59	-1.38E+00	1.4E+01	1.4E+01	2.57E+01	pCi/L	N/A	RD3219
RU-106DA	-4.49E+01	5.3E+01	5.3E+01	8.51E+01	pCi/L	N/A	RD3219
ALPHA	2.68E+00	2.2E+00	2.2E+00	3.01E+00	pCi/L	100.00%	RD3214
BETA	2.33E+02	1.1E+01	2.0E+01	5.51E+00	pCi/L	100.00%	RD3214
STRONTIUM	5.74E-02	2.0E-01	2.0E-01	5.55E-01	pCi/L	97.60%	RD3204
TC-99	6.08E+02	4.6E+00	7.0E+01	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	4.78E+02	1.3E+02	2.4E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	4.65E+00	N/A	7.0E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41043104	MATRIX:	WATER
CLIENT ID:	B0D4L2	DATE RECEIVED:	10/20/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	6.69E-02	1.4E-01	1.4E-01	2.64E-01	pCi/L	59.20%	RD3209
PU239/40	-1.06E-02	1.2E-02	1.2E-02	3.17E-01	pCi/L	59.20%	RD3209
CO-58	-3.92E+00	4.3E+00	4.3E+00	6.69E+00	pCi/L	N/A	RD3219
CO-60	1.56E+01	6.9E+00	7.1E+00	1.67E+01	pCi/L	N/A	RD3219
CS-137DA	5.49E+00	4.4E+00	4.4E+00	9.06E+00	pCi/L	N/A	RD3219
EU-152	-8.21E+00	1.2E+01	1.2E+01	1.96E+01	pCi/L	N/A	RD3219
EU-154	6.43E+00	6.4E+00	6.5E+00	1.93E+01	pCi/L	N/A	RD3219
EU-155	-7.21E+00	9.2E+00	9.3E+00	1.47E+01	pCi/L	N/A	RD3219
FE-59	-1.38E+01	1.6E+01	1.6E+01	2.44E+01	pCi/L	N/A	RD3219
RU-106DA	2.13E+01	3.2E+01	3.2E+01	6.80E+01	pCi/L	N/A	RD3219
ALPHA	2.16E+00	2.0E+00	2.0E+00	3.01E+00	pCi/L	100.00%	RD3214
BETA	2.02E+02	1.0E+01	1.7E+01	6.11E+00	pCi/L	100.00%	RD3214
STRONTIUM	-7.19E-02	1.8E-01	1.8E-01	5.25E-01	pCi/L	97.90%	RD3204
TC-99	7.38E+02	5.0E+00	8.4E+01	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	5.97E+02	1.3E+02	2.5E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	4.14E+00	N/A	6.2E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0260
LAB SAMPLE ID:	41043105	**MATRIX:**	WATER
CLIENT ID:	B0D4L4	**DATE RECEIVED:**	10/20/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	-6.15E-03	8.7E-03	8.8E-03	2.57E-01	pCi/L	67.90%	RD3209
PU239/40	-6.14E-03	8.7E-03	8.8E-03	2.57E-01	pCi/L	67.90%	RD3209
CO-58	8.63E-02	5.9E+00	5.9E+00	1.07E+01	pCi/L	N/A	RD3219
CO-60	1.07E+01	9.0E+00	9.1E+00	1.78E+01	pCi/L	N/A	RD3219
CS-137DA	1.75E+00	5.6E+00	5.6E+00	1.01E+01	pCi/L	N/A	RD3219
EU-152	1.74E+00	1.3E+01	1.3E+01	2.29E+01	pCi/L	N/A	RD3219
EU-154	8.16E-01	1.6E+01	1.6E+01	2.85E+01	pCi/L	N/A	RD3219
EU-155	5.28E+00	1.1E+01	1.1E+01	1.93E+01	pCi/L	N/A	RD3219
FE-59	-1.06E+01	1.5E+01	1.5E+01	2.45E+01	pCi/L	N/A	RD3219
RU-106DA	-2.73E+01	4.6E+01	4.6E+01	7.68E+01	pCi/L	N/A	RD3219
ALPHA	1.89E+00	1.9E+00	1.9E+00	3.00E+00	pCi/L	100.00%	RD3214
BETA	2.19E+02	1.0E+01	1.9E+01	5.30E+00	pCi/L	100.00%	RD3214
STRONTIUM	1.14E-01	1.9E-01	1.9E-01	5.13E-01	pCi/L	98.30%	RD3204
TC-99	5.52E+02	4.4E+00	6.3E+01	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	6.54E+02	1.3E+02	2.5E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	4.31E+00	N/A	6.5E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

VALIDATION SUMMARY

DON'T SAY IT - - WRITE IT!

Date:

From: P. K. Reich H4-14, (509) 372-2785

Subject: Correction of Validation Date Received Stamp

The date stamped on this validation report is the date the final correction documents were received in the completion of the Validation Review Process.

The original front pages(s) are maintained as a documented record of the date the Validation Report was originally received from the Validators.

Thank You,

Pat Reich
Sample Management

RECORD COPY

MEMORANDUM

JAN 1995 RECEIVED Validation Log In

TO: 200-BP-5 Project QA Record. January 25, 1995

FR: Dennis K. Robinson, Golder Federal Services, Inc. DKR

RE: GENERAL CHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE: WO260-QES (943-1610.058)

INTRODUCTION

This memo presents the results of data validation on 10 water samples analyzed by Quanterra Laboratory. The sample validated along with the analyses reported and the methods of analyses is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
BOD4N4	10/14/94	Water	See Note 1
BOD4J6	10/17/94	Water	See Note 1
BOD4H6	10/18/94	Water	See Note 1
BOD4K0	10/18/94	Water	See Note 1
BOD4K8	10/18/94	Water	See Note 1
BOD4K4	10/19/94	Water	See Note 1
BOD4L0	10/19/94	Water	See Note 1
BOD4N0	10/19/94	Water	See Note 1
BOD4L2	10/19/94	Water	See Note 1
BOD4L4	10/19/94	Water	See Note 1

Note 1:Sample was analyzed for chloride, fluoride, nitrite, phosphate, and sulfate by EPA method 300.0, alkalinity by EPA Method 310.1, and total dissolved solids by EPA Method 160.1.

Data validation was conducted in accordance with the WHC statement of work (WHC 1994) and validation procedures (WHC 1993). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

RECORD COPY

FEB 1995

MEMORANDUM

TO: 200-BP-5 Project QA Record February 6, 1995

FR: Dennis K. Robinson, Golder Federal Services, Inc. for DKR

RE: GENERAL CHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE: WO260-QES (943-1610.058)

INTRODUCTION

This memo presents the results of data validation on 10 water samples analyzed by Quanterra Laboratory. The sample validated along with the analyses reported and the methods of analyses is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
BOD4N4	10/14/94	Water	See Note 1
BOD4J6	10/17/94	Water	See Note 1
BOD4H6	10/18/94	Water	See Note 1
BOD4K0	10/18/94	Water	See Note 1
BOD4K8	10/18/94	Water	See Note 1
BOD4K4	10/19/94	Water	See Note 1
BOD4L0	10/19/94	Water	See Note 1
BOD4N0	10/19/94	Water	See Note 1
BOD4L2	10/19/94	Water	See Note 1
BOD4L4	10/19/94	Water	See Note 1
Note 1:Sample was analyzed for chloride, fluoride, nitrite, nitrate, phosphate, and sulfate by EPA method 300.0, alkalinity by EPA Method 310.1, and total dissolved solids by EPA Method 160.1.			

Data validation was conducted in accordance with the WHC statement of work (WHC 1994) and validation procedures (WHC 1993). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met. Per Validation Services Request sample table notes, sample BOD4G0 is a field duplicate of sample BOD4N4. However, sample BOD4G0 was not included in this data package and the RPDs could not be evaluated.

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Accuracy. Goals for accuracy were met.

Detection Limits. Target goals for sample detection limit were met.

Completeness. A total of 10 samples were validated in this data package with a total of 73 determinations, 19 of which were deemed unusable. This results in a completeness of 73.9 percent which does not meet the objective of 90 percent.

MAJOR DEFICIENCIES

The following major deficiency was identified during data validation which required qualification of data as unusable.

Holding Times

- The 2 day holding time for nitrite and phosphate analysis by ion chromatography was grossly exceeded for all samples (25-28 days), requiring qualification of the data as unusable (UR) for all results except nitrite for sample BOD4K8. Attachments 2 and 5 provide a summary of the samples affected, data qualifications applied, and supporting documentation.

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data as estimated or undetected.

Holding Times

- The 2 day holding time for nitrite was exceeded for sample BOD4K8. Attachments 2 and 5 provide a summary of data qualifications applied and supporting documentation.

- The 2 day holding time for nitrate was exceeded for samples BOD4H6, BOD4K0 and BOD4K8. Attachments 2 and 5 provide a summary of data qualifications applied and supporting documentation.

REFERENCES

WHC 1993, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. Westinghouse Hanford Company, Richland, Washington.

WHC 1994, Environmental and Waste Characterization Analytical Data Validation, Purchase Order MSH-SWV-315905; Validation Statement of Work, Revision 1.0, September 7, 1994, Westinghouse Hanford Company, Richland, Washington.

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Attachment 1

Glossary of Data Reporting Qualifiers

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected. The concentration reported is less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample detection limit corrected for aliquot size, dilution, and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during the data validation the concentration reported may not accurately reflect the sample detection limit. The associated data have been qualified as estimated but should be considered usable for decision making purposes.

BJ - Indicates the constituent was analyzed for and detected at a concentration less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). Due to a minor quality control deficiency identified during data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. Due to a minor quality control deficiency identified during the data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.

UR - Indicates the constituent was analyzed for and not detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

Attachment 2

Summary of Data Qualifications

Data Qualification Summary

Project: 200-BP-5	Validator: D. Robinson	Date: 2/02/95	Page 1 of 1
Comments: General chemistry analysis			
Analyte	Qualifier	Samples Affected	Reason
Nitrate	J	BOD4H6 BOD4K0 BOD4K8	Sample holding time was exceeded.
Nitrite-N	J	BOD4K8	Sample holding time was exceeded.
Nitrite-N	UR	BOD4N4 BOD4J6 BOD4H6 BOD4K0 BOD4K4 BOD4L0 BOD4N0 BOD4L2 BOD4L4	Sample holding time was exceeded.
Phosphate	UR	BOD4N4 BOD4J6 BOD4H6 BOD4K0 BOD4K8 BOD4K4 BOD4L0 BOD4N0 BOD4L2 BOD4L4	Sample holding time was exceeded.

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Attachment 3

Qualified Data Summary and Annotated Laboratory Reports

Validated Data Summary, Data Package: W0260-QES

	Samp#	B0D4H6		B0D4J6		B0D4K0		B0D4K4		B0D4K8		B0D4L0	
	Date	10-18-94		10-17-94		10-18-94		10-19-94		10-18-94		10-19-94	
	Location	299-E33-40		699-49-55B		699-49-57B		699-50-53B		699-52-57		699-53-55A	
	Depth	---		---		---		---		---		---	
	Type	WATER		WATER		WATER		WATER		WATER		WATER	
	Comments												
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
NITRATE	MG/L	0.038	J	---		0.270	J	---		0.032	J	---	
CHLORIDE	MG/L	3.300		7.640		7.600		8.320		16.000		15.900	
FLUORIDE	MG/L	0.250		0.210		0.560		0.330		0.680		0.440	
NITRITE	MG/L	0.020	UR	0.020	UR	0.020	UR	0.020	UR	0.049	J	0.020	UR
ORTHO PHOSPHATE	MG/L	1.000	UR	1.000	UR	1.000	UR	1.000	UR	1.000	UR	1.000	UR
SULFATE	MG/L	30.900		14.000		12.700		48.800		132.000		60.600	
TOTAL DISSOLVED SOLIDS	MG/L	323.000		239.000		273.000		335.000		96.000		323.000	
ALKALINITY	MG/L	92.200		113.000		124.000		102.000		94.000		104.000	

The decimal places shown do not reflect the precision reported by the laboratory

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Validated Data Summary, Data Package: W0260-QES

	Samp#	BOD4L2		BOD4L4		BOD4N0		BOD4N4	
	Date	10-19-94		10-19-94		10-19-94		10-14-94	
	Location	699-53-55B		699-53-55C		699-53-55C		299-E33-12	
	Depth	---		---		---		---	
	Type	WATER		WATER		WATER		WATER	
	Comments					DUPLICATE		DUPLICATE	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q
NITRATE	MG/L	---		---		---		---	
CHLORIDE	MG/L	18.000		17.500		17.400		7.680	
FLUORIDE	MG/L	0.410		0.430		0.420		0.210	
NITRITE	MG/L	0.020	UR	0.020	UR	0.020	UR	0.020	UR
ORTHO PHOSPHATE	MG/L	1.000	UR	1.000	UR	1.000	UR	1.000	UR
SULFATE	MG/L	110.000		108.000		110.000		17.200	
TOTAL DISSOLVED SOLIDS	MG/L	437.000		402.000		466.000		234.000	
ALKALINITY	MG/L	109.000		108.000		112.000		96.000	

The decimal places shown do not reflect the precision reported by the laboratory

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

Project: 550.23

Category: Alkalinity
Method: EPA 310.1
Matrix: LIQUID

Sample Date : 10/14/94
Receipt Date : 10/17/94
Report Date : 11/26/94

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil
B0D4N4	6500-001	Alkalinity, Tot	T-005	QCBLK48965-1	10/21/94	10/21/94	96.0	MG/L		2.00	1
B0D4N4	6500-001DUP	Alkalinity, Tot	T-005	QCBLK48965-1	10/21/94	10/21/94	96.8	MG/L		2.00	1
B0D4J6	6519-001	Alkalinity, Tot	T-005	QCBLK48965-1	10/21/94	10/21/94	113	MG/L		2.00	1
B0D4H6	6550-001	Alkalinity, Tot	T-005	QCBLK48965-1	10/21/94	10/21/94	92.2	MG/L		2.00	1
B0D4K0	6550-002	Alkalinity, Tot	T-005	QCBLK48965-1	10/21/94	10/21/94	124	MG/L		2.00	1
B0D4K8	6550-003	Alkalinity, Tot	T-005	QCBLK48965-1	10/21/94	10/21/94	94.0	MG/L		2.00	1
B0D4K4	6560-001	Alkalinity, Tot	T-005	QCBLK50195-1	11/02/94	11/02/94	102	MG/L		10.0	1
B0D4L0	6560-002	Alkalinity, Tot	T-005	QCBLK50195-1	11/02/94	11/02/94	104	MG/L		10.0	1
B0D4N0	6560-003	Alkalinity, Tot	T-005	QCBLK50195-1	11/02/94	11/02/94	112	MG/L		10.0	1
B0D4L2	6560-004	Alkalinity, Tot	T-005	QCBLK50195-1	11/02/94	11/02/94	109	MG/L		10.0	1
B0D4L4	6560-005	Alkalinity, Tot	T-005	QCBLK50195-1	11/02/94	11/02/94	108	MG/L		10.0	1
NA	QCBLK48965-1	Alkalinity, Tot	T-005	QCBLK48965-1	10/21/94	10/21/94	1.00	MG/L	U	1.00	1
NA	QCBLK50195-1	Alkalinity, Tot	T-005	QCBLK50195-1	11/02/94	11/02/94	5.00	MG/L	U	5.00	1
NA	QCLCS48965-1	Alkalinity, Tot	T-005	QCBLK48965-1	10/21/94	10/21/94	92	%REC			1
NA	QCLCS50195-1	Alkalinity, Tot	T-005	QCBLK50195-1	11/02/94	11/02/94	94	%REC			1

DKK 11/26/95

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

Project: 550.23

Category: Chloride
Method: EPA 300.0
Matrix: LIQUID

Sample Date : 10/14/94
Receipt Date : 10/17/94
Report Date : 12/03/94

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOD4N4	6500-001	Chloride	16887-00-6	QCBLK51321-1	11/11/94	11/11/94	7.68	MG/L		1.25	5
BOD4J6	6519-001	Chloride	16887-00-6	QCBLK51321-1	11/11/94	11/11/94	7.64	MG/L		1.25	5
BOD4H6	6550-001	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	3.30	MG/L		0.25	1
BOD4K0	6550-002	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	7.60	MG/L		1.25	5
BOD4K8	6550-003	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	16.0	MG/L		2.50	10
BOD4K4	6560-001	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	8.32	MG/L		2.50	10
BOD4K4	6560-001DUP	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	8.35	MG/L		2.50	10
BOD4K4	6560-001MS	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	94	%REC			10
BOD4L0	6560-002	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	15.9	MG/L		2.50	10
BOD4N0	6560-003	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	17.4	MG/L		2.50	10
BOD4L2	6560-004	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	18.0	MG/L		2.50	10
BOD4L4	6560-005	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	17.5	MG/L		2.50	10
NA	QCBLK51321-1	Chloride	16887-00-6	QCBLK51321-1	11/11/94	11/11/94	0.25	MG/L	U	0.25	1
NA	QCBLK51661-1	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	0.25	MG/L	U	0.25	1
NA	QCLCS51321-1	Chloride	16887-00-6	QCBLK51321-1	11/11/94	11/11/94	92	%REC			1
NA	QCLCS51661-1	Chloride	16887-00-6	QCBLK51661-1	11/14/94	11/14/94	92	%REC			1

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1/20/95

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

Project: 550.23

Category: FLUORIDE
Method: EPA 300.0
Matrix: LIQUID

Sample Date : 10/14/94
Receipt Date : 10/17/94
Report Date : 12/03/94

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil
B0D4N4	6500-001	Fluoride	16984-48-8	QCBLK51321-1	11/11/94	11/11/94	0.21	MG/L		0.10	1
B0D4J6	6519-001	Fluoride	16984-48-8	QCBLK51321-1	11/11/94	11/11/94	0.21	MG/L		0.10	1
B0D4H6	6550-001	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.25	MG/L		0.10	1
B0D4K0	6550-002	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.56	MG/L		0.10	1
B0D4K8	6550-003	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.68	MG/L		0.10	1
B0D4K4	6560-001	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.33	MG/L		0.10	1
B0D4K4	6560-001DUP	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.34	MG/L		0.10	1
B0D4K4	6560-001MS	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	93	%REC			1
B0D4L0	6560-002	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.44	MG/L		0.10	1
B0D4N0	6560-003	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.42	MG/L		0.10	1
B0D4L2	6560-004	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.41	MG/L		0.10	1
B0D4L4	6560-005	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.43	MG/L		0.10	1
NA	QCBLK51321-1	Fluoride	16984-48-8	QCBLK51321-1	11/11/94	11/11/94	0.10	MG/L	U	0.10	1
NA	QCBLK51661-1	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	0.10	MG/L	U	0.10	1
NA	QCLCS51321-1	Fluoride	16984-48-8	QCBLK51321-1	11/11/94	11/11/94	94	%REC			1
NA	QCLCS51661-1	Fluoride	16984-48-8	QCBLK51661-1	11/14/94	11/14/94	88	%REC			1

DLK
1/20/95

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

Project: 550.23

Category: Nitrite
Method: EPA 300.0
Matrix: LIQUID

Sample Date : 10/14/94
Receipt Date : 10/17/94
Report Date : 12/03/94

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0D4N4	6500-001	Nitrite	7632-00-0	QCBLK51321-1	11/11/94	11/11/94	0.020	MG/L	U UK	0.020	1
B0D4J6	6519-001	Nitrite	7632-00-0	QCBLK51321-1	11/11/94	11/11/94	0.020	MG/L	U UK	0.020	1
B0D4H6	6550-001	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U UK	0.020	1
B0D4K0	6550-002	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U UK	0.020	1
B0D4K8	6550-003	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.049	MG/L	J	0.020	1
B0D4K4	6560-001	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U UK	0.020	1
B0D4K4	6560-001DUP	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U UK	0.020	1
B0D4K4	6560-001MS	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	103	%REC			5
B0D4L0	6560-002	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U UK	0.020	1
B0D4N0	6560-003	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U UK	0.020	1
B0D4L2	6560-004	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U UK	0.020	1
B0D4L4	6560-005	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U UK	0.020	1
NA	QCBLK51321-1	Nitrite	7632-00-0	QCBLK51321-1	11/11/94	11/11/94	0.020	MG/L	U UK	0.020	1
NA	QCBLK51661-1	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U	0.020	1
NA	QCLCS51321-1	Nitrite	7632-00-0	QCBLK51321-1	11/11/94	11/11/94	98	%REC			1
NA	QCLCS51661-1	Nitrite	7632-00-0	QCBLK51661-1	11/14/94	11/14/94	108	%REC			1

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12/15/95

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

Project: 550.23

Category: NITRATE
Method: EPA 300.0
Matrix: LIQUID

Sample Date : 10/18/94
Receipt Date : 10/19/94
Report Date : 12/03/94

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil
B0D4H6	6550-001	Nitrate	14797-55-8	QCBLK51661-1	11/14/94	11/14/94	0.038	MG/L	J	0.020	1
B0D4K0	6550-002	Nitrate	14797-55-8	QCBLK51661-1	11/14/94	11/14/94	0.27	MG/L	J	0.020	1
B0D4K8	6550-003	Nitrate	14797-55-8	QCBLK51661-1	11/14/94	11/14/94	0.032	MG/L	J	0.020	1
NA	QCBLK51661-1	Nitrate	14797-55-8	QCBLK51661-1	11/14/94	11/14/94	0.020	MG/L	U	0.020	1
NA	QCLCS51661-1	Nitrate	14797-55-8	QCBLK51661-1	11/14/94	11/14/94	99	%REC			1

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

Project: 550.23

Category: Sulfate
Method: EPA 300.0
Matrix: LIQUID

Sample Date : 10/14/94
Receipt Date : 10/17/94
Report Date : 12/03/94

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0D4N4	6500-001	Sulfate	14808-79-8	QCBLK51321-1	11/11/94	11/11/94	17.2	MG/L		1.00	1
B0D4J6	6519-001	Sulfate	14808-79-8	QCBLK51321-1	11/11/94	11/11/94	14.0	MG/L		1.00	1
B0D4H6	6550-001	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	30.9	MG/L		5.00	5
B0D4K0	6550-002	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	12.7	MG/L		1.00	1
B0D4K8	6550-003	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	132	MG/L		10.0	10
B0D4K4	6560-001	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	48.8	MG/L		10.0	10
B0D4K4	6560-001DUP	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	49.0	MG/L		10.0	10
B0D4K4	6560-001MS	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	80	%REC			10
B0D4L0	6560-002	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	60.6	MG/L		10.0	10
B0D4N0	6560-003	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	110	MG/L		10.0	10
B0D4L2	6560-004	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	110	MG/L		10.0	10
B0D4L4	6560-005	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	108	MG/L		10.0	10
NA	QCBLK51321-1	Sulfate	14808-79-8	QCBLK51321-1	11/11/94	11/11/94	1.00	MG/L	U	1.00	1
NA	QCBLK51661-1	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U	1.00	1
NA	QCLCS51321-1	Sulfate	14808-79-8	QCBLK51321-1	11/11/94	11/11/94	93	%REC			1
NA	QCLCS51661-1	Sulfate	14808-79-8	QCBLK51661-1	11/14/94	11/14/94	95	%REC			1

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12/06/95

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

Project: 550.23

Category: ORTHOPHOSPHATE
Method: EPA 300.0
Matrix: LIQUID

Sample Date : 10/14/94
Receipt Date : 10/17/94
Report Date : 12/03/94

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
B0D4N4	6500-001	Ortho-Phosphate	7778-77-0	QCBLK51321-1	11/11/94	11/11/94	1.00	MG/L	U UR	1.00	1
B0D4J6	6519-001	Ortho-Phosphate	7778-77-0	QCBLK51321-1	11/11/94	11/11/94	1.00	MG/L	U UR	1.00	1
B0D4H6	6550-001	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U UR	1.00	1
B0D4K0	6550-002	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U UR	1.00	1
B0D4K8	6550-003	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U UR	1.00	1
B0D4K4	6560-001	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U UR	1.00	1
B0D4K4	6560-001DUP	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U UR	1.00	1
B0D4K4	6560-001MS	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	97	%REC			1
B0D4L0	6560-002	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U UR	1.00	1
B0D4N0	6560-003	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U UR	1.00	1
B0D4L2	6560-004	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U UR	1.00	1
B0D4L4	6560-005	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U UR	1.00	1
NA	QCBLK51321-1	Ortho-Phosphate	7778-77-0	QCBLK51321-1	11/11/94	11/11/94	1.00	MG/L	U	1.00	1
NA	QCBLK51661-1	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	1.00	MG/L	U	1.00	1
NA	QCLCS51321-1	Ortho-Phosphate	7778-77-0	QCBLK51321-1	11/11/94	11/11/94	98	%REC			1
NA	QCLCS51661-1	Ortho-Phosphate	7778-77-0	QCBLK51661-1	11/14/94	11/14/94	94	%REC			1

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12/6/95

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

Project: 550.23

Category: TDS
Method: EPA 160.1
Matrix: LIQUID

Sample Date : 10/14/94
Receipt Date : 10/17/94
Report Date : 12/03/94

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Di
B0D4N4	6500-001	Total Dissolved	10-33-3	QCBLK49071-1	10/19/94	10/19/94	234	MG/L		5.00	
B0D4N4	6500-001DUP	Total Dissolved	10-33-3	QCBLK49071-1	10/19/94	10/19/94	255	MG/L		5.00	
B0D4J6	6519-001	Total Dissolved	10-33-3	QCBLK49075-1	10/20/94	10/20/94	239	MG/L		5.00	
B0D4H6	6550-001	Total Dissolved	10-33-3	QCBLK49368-1	10/25/94	10/25/94	323	MG/L		5.00	1
B0D4K0	6550-002	Total Dissolved	10-33-3	QCBLK49368-1	10/25/94	10/25/94	273	MG/L		5.00	
B0D4K8	6550-003	Total Dissolved	10-33-3	QCBLK49368-1	10/25/94	10/25/94	96.0	MG/L		5.00	1
B0D4K4	6560-001	Total Dissolved	10-33-3	QCBLK49369-1	10/26/94	10/26/94	335	MG/L		5.00	1
B0D4L0	6560-002	Total Dissolved	10-33-3	QCBLK49369-1	10/26/94	10/26/94	323	MG/L		5.00	1
B0D4N0	6560-003	Total Dissolved	10-33-3	QCBLK49369-1	10/26/94	10/26/94	466	MG/L		5.00	1
B0D4L2	6560-004	Total Dissolved	10-33-3	QCBLK49369-1	10/26/94	10/26/94	437	MG/L		5.00	1
B0D4L4	6560-005	Total Dissolved	10-33-3	QCBLK49369-1	10/26/94	10/26/94	402	MG/L		5.00	1
NA	QCBLK49071-1	Total Dissolved	10-33-3	QCBLK49071-1	10/19/94	10/19/94	5.00	MG/L	U	5.00	1
NA	QCBLK49075-1	Total Dissolved	10-33-3	QCBLK49075-1	10/20/94	10/20/94	5.00	MG/L	U	5.00	1
NA	QCBLK49368-1	Total Dissolved	10-33-3	QCBLK49368-1	10/25/94	10/25/94	5.00	MG/L	U	5.00	1
NA	QCBLK49369-1	Total Dissolved	10-33-3	QCBLK49369-1	10/26/94	10/26/94	5.00	MG/L	U	5.00	1
NA	QCLCS49071-1	Total Dissolved	10-33-3	QCBLK49071-1	10/19/94	10/19/94	99	%REC			1
NA	QCLCS49075-1	Total Dissolved	10-33-3	QCBLK49075-1	10/20/94	10/20/94	100	%REC			1
NA	QCLCS49368-1	Total Dissolved	10-33-3	QCBLK49368-1	10/25/94	10/25/94	98	%REC			1
NA	QCLCS49369-1	Total Dissolved	10-33-3	QCBLK49369-1	10/26/94	10/26/94	99	%REC			1

JCK
1/30/95

~~0063~~

Attachment 4

Laboratory Narrative and Chain-of-Custody Documentation

Quanterra Environmental Services

Quanterra Incorporated
2800 George Washington Way
Richland, Washington 99352

509 375-3131 Telephone
509 375-5590 Fax

CERTIFICATE OF ANALYSIS

DEC 1994
RECEIVED
Data
Log In

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

December 1, 1994

Attention: Joan Kessner

Project number	:	550.23
Date Received	:	October 17,18,19 and 20, 1994
Number of Samples	:	Twenty (20)
Sample Type	:	Water
SDG Number	:	W0260
Data Deliverable	:	Standalone

RECORD COPY

I. Introduction

Between October 17 and 20, 1994, twenty (20) water samples were received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analysis. Upon receipt, the samples were given the following laboratory ID numbers to correspond with their specific client ID's:

St Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
6500-001	B0D4N4	41032401	Water	10/17/94
6500-002	B0D4N5	41032402	Water	10/17/94
6519-001	B0D4J6	41034601	Water	10/18/94
6519-002	B0D4J7	41034601	Water	10/18/94
6550-001	B0D4H6	41037701	Water	10/19/94
6550-002	B0D4K0	41037703	Water	10/19/94
6550-003	B0D4K8	41037705	Water	10/19/94
6550-004	B0D4H7	41037702	Water	10/19/94
6550-005	B0D4K1	41037704	Water	10/19/94
6550-006	B0D4K9	41037706	Water	10/19/94
6560-001	B0D4K4	41043001	Water	10/20/94
6560-002	B0D4L0	41043003	Water	10/20/94
6560-003	B0D4N0	41043005	Water	10/20/94
6560-004	B0D4L2	41043007	Water	10/20/94

Bechtel Hanford Incorporated
December 1, 1994
Project Number: 550.23
SDG: W0260
Page 2

St Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
6560-005	B0D4L4	41043009	Water	10/20/94
6560-006	B0D4K5	41043002	Water	10/20/94
6560-007	B0D4L1	41043004	Water	10/20/94
6560-008	B0D4N1	41043006	Water	10/20/94
6560-009	B0D4L3	41043008	Water	10/20/94
6560-010	B0D4L5	41043010	Water	10/20/94

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: Total and dissolved TAL Metals using EPA CLP methodology. Cyanide and Selenium using EPA CLP methodology. Anions including Chloride, Fluoride, Nitrite, Nitrate, Phosphate, and Sulfate by EPA method 300.0. Total Dissolved Solids by EPA method 160.1. Alkalinity by EPA method 310.1

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 this SDG.

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

The Nitrate, Nitrite and Phosphate hold times were expired upon receipt of samples at laboratory.

The Relative Percent Difference could not be calculated because both values were less than the detection limits for the Phosphate and Nitrite analysis fon 6560-001.

The first CCV in the run (after ICV and ICB) was actually a blank. The samples are still bracketed by an ICV and CCV for every ten samples on the Cyanide analysis. See NCM# 730.

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:

Ann F. Wright for

Wade H. Price
Project Manager
e:\\sqlmo01\priceS\abbydave\hanford\hanw0260.nar

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priority [X] Normal

Collector: A. J. SIMPSON	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: GWS-122	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: 1W95-0-0001-18	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks:

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

SAMPLE ANALYSIS: 410324

Sample No.	Matrix*	Date Sampled	Time Sampled	METALS (see S.I. #1) UNFILTERED A	IC ANIONS-F,Cl,SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S.I. #2) 410325	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S.I. #3) FILTERED A				
Preservative				HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container				P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)				1	1	1	1	1	8	2	2	1		1				
Volume				1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
80 D4N4 01	W	10/14/94	0932	X	X	X	X	X	X	X	X	X						
80 D4N5 2	W	10/14/94	0932											X				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K.A.Lee / K.A.Lee	10/14/94 1345	B.Whitten / B.Whitten	1345 10-14-94
B.Whitten / B.Whitten	1055 10-17-94	[illegible] / [illegible]	10.55 10-17-94

SPECIAL INSTRUCTIONS
#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)
NOTE: DATA DELIVERABLE-STANDALONE

SDG W0200

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

DISTRIBUTION: White - Original - Sample Yellow - Sampler

BC-0000-828 (12/92)

00012

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: A. J. Simpson	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: ER-8	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-20	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G
No. of Container(s)	1	1	1	1	1	8	2	2	1		1
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml
SAMPLE ANALYSIS	METALS (see S. I. #1) UNFILTERED A	IC ANIONS-F,Cl, SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S. I. #2) 410347	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED A

410346

Sample No.	Matrix*	Date Sampled	Time Sampled														
BO D4J6 01	W	10/17/94	1020	X	X	X	X	X	X	X	X	X					
BO D4J7 2	W	10/17/94	1020											X			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
[signature]	10/17/94 1340	[signature] Butcher	10-17-94 1370
[signature] Butcher	10-18-94 0950	[signature]	10-18-94 0950

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Hg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Hg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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

DISTRIBUTION: Original - Sample Yellow - Sampler

DC-6000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priority [X] Normal

Collector: A. J. Simpson	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: BONEHEAD II	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-R1	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks:

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCL <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS 410377	METALS (see S. I. #1) UNFILTERED A	IC ANIONS-F,Cl, SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S. I. #2) 4103780	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED A				

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0D4H6 01	W	10/18/94	1237	X	X	X	X	X	X	X	X	X					
B0D4H7 2	W	10/18/94	1237										X				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K.O. Lee	10/18/94 1354	B Whitten	1354 10-18-94
B Whitten	0955 10-19-94	R. Boyd Quatone	2100 10-19-94 0955

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG-W0260

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

DISTRIBUTION: Original - Sample Yellow - Sampler

BC-6000-820 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: A Rizzo	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: 894-036
Ice Chest No.: GWS-012	Field Logbook No.: EFL-1020	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-21	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

Sample No.	Matrix*	Date Sampled	Time Sampled	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container				P/G	G	P/G	P	P	G/P		G8	G/P	G/P		P/G			
No. of Container(s)				1	1	1	1	1	8		2	2	1		1			
Volume				1000ml	500ml	250ml	250ml	1000ml	1000ml		1000ml	1000ml	40ml		1000ml			
SAMPLE ANALYSIS				METALS (see S.I. #1) UNFILTERED A	IC ANIONS-F,Cl, SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S.I. #2) 410378		TRITIUM 02	Tc-99	ACTIVITY SCAN		METALS (see S.I. #3) FILTERED A			
410377																		
B004K0 03	W	10-18-94	1105	X	X	X	X	X	X		X	X	X					
B004K1 4	W	10-18-94	1105												X			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
W.W. SETZER	10-18-94 1315	Bill Butcher	10-18-94 1315
Bill Butcher	10-19-94 0955	R. Boyd Quantrin	10-19-94 0955

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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: ____

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-8000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priority [X] Normal

Collector: A Rizzo	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: GWS-025	Field Logbook No.: EFL-1020	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-22	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	B	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS 410377	METALS (see S.I. #1) UNFILTERED A	IC ANIONS-F,Cl,SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S.I. #2) 410378	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S.I. #3) FILTERED A				

Sample No.	Matrix*	Date Sampled	Time Sampled																
BO D4K8 05	W	10-18-94	1120	Y	X	X	X	X	X	X	X	X							
BO D4K9 6	W	10-18-94	1120											X					

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: W.V. Jeffries	Date/Time: 10-18-94 1315	Received By: B.Whitten	Date/Time: 1315 10-18-9
Relinquished By: B.Whitten	Date/Time: 0955 10-19-94	Received By: A. Boyd Quintana	Date/Time: 10-19-94 0955
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG 40260

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

DISTRIBUTION: Original-Sample Yellow-Sampler

BC-0000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priority [X] Normal

Collector: A Rizzo	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: 894-036
Ice Chest No.: ER-1B	Field Logbook No.: EFL-1020	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-04	Bill of Lading/Air Bill No.:
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS 410436	METALS (see S.I. #1) UNFILTERED	IC ANIONS-F,Cl,SO4,NO2 PO4	ALKALINITY	TDS	CLP-CYANIDE	GROSS ALPHA/BETA, (see S.I. #2)	TRITIUM 410431	Tc-99	ACTIVITY SCAN		METALS (see S.I. #3) FILTERED				
	A	B	C	D	E						A				

Sample No.	Matrix*	Date Sampled	Time Sampled														
BO D4K4 01	W	10-19-94	1130	X	X	X	X	X	X	X	X	X					
BO D4K5 2	W	10-19-94	1130									X					

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
A Rizzo	10-19-94 1415	Butcher	10-19-94 1415
Butcher	10-20-94 1010	Quanterra	10-20-94 1010
		B Brownfield	10/20/94

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

A0054

020

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priority [X] Normal

Collector: A.J. Simpson	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: 894-036
Ice Chest No.: ER-8	Field Logbook No.	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-26	Bill of Lading/Air Bill No.
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G
No. of Container(s)	1	1	1	1	1	8	2	2	1		1
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml
SAMPLE ANALYSIS	METALS (see S.I. #1) UNFILTERED	IC ANIONS-F,Cl, SO4,NO2 PO4	ALKALINITY	TDS	CLP-CYANIDE	GROSS ALPHA/BETA, (see S.I. #2)	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S.I. #3) FILTERED
410430	A	B	C	D	E	410431	02	—			A

Sample No.	Matrix*	Date Sampled	Time Sampled	A	B	C	D	E	410431	02	—		A
BO D4L0 3	W	10/19/94	0750	X	X	X	X	X	X	X	X	X	
BO D4L1 4	W	10/19/94	0750										X

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	Kirby D. Lee	10/19/94 1230	Kirk Whitten B Whitten	1230 10-19-94
Relinquished By	Kirk Whitten B Whitten	1010 10-20-94	Received By Quanterra B Brumfield	1010 10/20/94
Relinquished By			Received By	
Relinquished By			Received By	

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priority [X] Normal

Collector: K.A Lee	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: GWS-011	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-25	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks:

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

SAMPLE ANALYSIS	METALS (see S.I. #1) UNFILTERED	IC ANIONS-F,Cl, SO4,NO2 PO4	ALKALINITY	TDS	CLP-CYANIDE	GROSS ALPHA/BETA, (see S.I. #2)	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S.I. #3) FILTERED
Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2
Type of Container	P/G	G	P/G	P	P	G/P	G	G/P	G/P		P/G
No. of Container(s)	1	1	1	1	1	8	2	2	1		1
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml
410430	A	B	C	D	E	4104310B					A

Sample No.	Matrix*	Date Sampled	Time Sampled	METALS (UNFILTERED)	IC ANIONS	ALKALINITY	TDS	CLP-CYANIDE	GROSS ALPHA/BETA	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (FILTERED)
BO D4ND 5	W	10/19/94	0847	X	X	X	X	X	X	X	X	X		
BO D4N1 6	W	10/19/94	0847											X

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By	K.A. Lee	10/19/94 1230
Received By	B. Whitten	10-19-94 1230
Relinquished By	B. Whitten	10-20-94 1010
Received By	B Brumfield (Quanterra)	10/20/94 1010
Relinquished By		
Received By		
Relinquished By		
Received By		

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

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Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priorty [X] Normal

Collector: M.J. Simpson	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: ER-26	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-24	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS 410430	METALS (see S.I. #1) UNFILTERED A	IC ANIONS-F,Cl,SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S.I. #2) 410431 04	TRITIUM —	Tc-99	ACTIVITY SCAN		METALS (see S.I. #3) FILTERED A				

Sample No.	Matrix*	Date Sampled	Time Sampled														
BO D4L2 7	W	10/19/94	1025	X	X	X	X	X	X	X	X	X					
BO D4L3 8	W	10/19/94	1025											X			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K.R.Lee			1230
Kelly R. Lee	10/19/94 1230	Bill Whitten B.Whitten	10-19-94
Relinquished By	Date/Time 1010	Received By Quanterra	Date/Time 10:10
Bill Whitten B.Whitten	10-20-94	B Brumfield	10/20/94
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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

DISTRIBUTION: Original - Sample Yellow - Sampler

BC-6000-628 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: K.D Lee	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: GWS-141	Field Logbook No.: FFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-25	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Sample No.	Matrix*	Date Sampled	Time Sampled	A	B	C	D	E										
Preservative				HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container				P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)				1	1	1	1	1	8	2	2	1		1				
Volume				1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS 410430				METALS (see S.I. #1) UNFILTERED	IC ANIONS-F,Cl, SO4,NO2 PO4	ALKALI-NITY	TDS	CLP-CYANIDE	GROSS ALPHA/BETA, (see S.I. #2)	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S.I. #3) FILTERED				
BO D4L4	9	W	10/19/94	0847	X	X	X	X	X	X	X	X	X					
BO D4L5	10	W	10/19/94	0847										X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: K.D Lee, Date/Time: 10/18/94 1230	Received By: B.Whitten, Date/Time: 10-19-94 1230		
Relinquished By: B.Whitten, Date/Time: 10-20-94 1010	Received By: Quanterra B.Brunfield, Date/Time: 10/20/94 1010		
Relinquished By, Date/Time	Received By, Date/Time		
Relinquished By, Date/Time	Received By, Date/Time		

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG-W0266

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

DISTRIBUTION: Original - Sample Yellow - Sampler

BC-6000-828 (12/92)

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Attachment 5

Data Validation Supporting Documentation

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 200 UP5 Round 2			DATA PACKAGE: 6K2600 - 6K3 ~~6K5~~		DKK 1/20/95
VALIDATOR: R. Robinson		LAB: Quanterra		DATE: 1/20/95	
CASE:			SDG: KC260		
ANALYSES PERFORMED					
☒ Anions/IC	☐ TOC	☐ TOX	☐ TPH-418.1	☐ Oil and Grease	☒ Alkalinity
☐ Ammonia	☐ BOD/COD	☐ Chloride	☐ Chromium-VI	☐ pH	☐ NO_3/NO_2
☐ Sulfate	☒ TDS	☐ TKN	☐ Phosphate	☐	☐
SAMPLES/MATRIX Water					
BOD4N4		BOD4K4			
BOD4J6		BOD4L0			
BOD4H6		BOD4N0			
BOD4K0		BOD4L2			
BOD4K8		BOD4L4			

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? ..... (Yes) No N/A

Is a case narrative present? ..... (Yes) No N/A

Comments: _____

2. HOLDING TIMES

Are sample holding times acceptable? ..... Yes (No) N/A

Comments: Holding times were grossly exceeded for the nitrite and phosphate analysis of all samples. Nitrite result for BOD4K8 is qualified as estimated, J. All other nitrite results and all phosphate results are qualified as unusable, UR. See attached holding time summaries. Nitrate holding time was also grossly exceeded. ~~for all~~ All three associated samples have been qualified as estimated: "J"; (samples BOD4H6, BOD4K0, BOD4K8).

aj 2/2/95

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

Was initial calibration performed for all applicable analyses? ..... Yes No N/A

Are initial calibration results acceptable? ..... Yes No N/A

Was a calibration check performed for all applicable analyses? ..... Yes No N/A

Are calibration check results acceptable? ..... Yes No N/A

Comments: _____

4. BLANKS

Were laboratory blanks analysed? ..... Yes No N/A

Are laboratory blank results acceptable? ..... Yes No N/A

Were field blanks analyzed? ..... Yes No N/A

Are field blank results acceptable? ..... Yes No N/A

Comments: _____

5. ACCURACY

Were spike samples analyzed at the required frequency? ..... Yes No N/A

Are spike sample recoveries acceptable? ..... Yes No N/A

Were laboratory control samples (LCS) analyzed at the required frequency? ..... Yes No N/A

Are LCS recoveries acceptable? ..... Yes No N/A

Comments: _____

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

6. PRECISION

Were laboratory duplicates analyzed at the required frequency? ..... (Yes) No N/A

Are laboratory duplicate samples RPD values acceptable? ..... (Yes) No N/A

Are field duplicate RPD values acceptable? ..... (Yes) No N/A

Are field split RPD values acceptable? ..... Yes No (N/A)

Comments: Samples BCD4L4 - BCD4N0 and BCD4N4 - BCD4Q0 are field duplicate samples. Sample BCD4Q0 was not submitted with the samples in this data package and these two field Dups could not be evaluated. RPDs for samples BCD4L4 - BCD4N0

cont. on next page.

7. ANALYTE QUANTITATION

Was analyte quantitation performed properly? ..... (Yes) No N/A

Comments:

8. REPORTED RESULTS AND DETECTION LIMITS

Are results reported for all requested analyses? ..... (Yes) No N/A

Are results supported in the raw data? ..... (Yes) No N/A

Are results calculated properly? ..... (Yes) No N/A

Do results meet the CRDLs? ..... (Yes) No N/A

Comments: Laboratory did report Nitrate results for samples BCD4H6, BCD4K0, and BCD4K8. However, Nitrate analysis was not requested on the chain-of-custody. Nitrate results have been validated. aj 2/2/95

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

Comments (attach additional sheets as necessary): (#6) were within specified criteria. Samples BCD4N4 and BCD4L4 were also split, however the split sample results were not available and evaluation could not be made.

HOLDING TIME SUMMARY

SDG: W0260 | VALIDATOR: D. Robinson | DATE: 1/19/95 | PAGE 1 OF 2

COMMENTS: Holding Times: Alkalinity (14 days) Fluoride, Chloride, + Sulfate (28 days) Nitrate/nitrite, ortho phosphate (2 days)

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
BOD4N4	Alkalinity	10/14/94	NA	10/21/94	NA	7	None
BOD4J6		10/17/94		10/21/94		4	
BOD4H6		10/18/94		10/21/94		3	
BOD4K0		10/18/94		10/21/94		3	
BOD4K8		10/18/94		10/21/94		3	
BOD4K4		10/19/94		11/02/94		14	
BOD4L0		10/19/94		11/02/94		14	
BOD4N0		10/19/94		11/02/94		14	
BOD4L2		10/19/94		11/02/94		14	
BOD4L4		10/19/94		11/02/94		14	
BOD4N4	Anions IC	10/14/94	NA	11/11/94	NA	28	UR - NO_2, PO_4
BOD4J6		10/17/94		11/11/94		25	UR - NO_2, PO_4
BOD4H6		10/18/94		11/14/94		27	UR - NO_2, PO_4; J - NO_3
BOD4K0		10/18/94		11/14/94		27	UR - NO_2, PO_4; J - NO_3
BOD4K8		10/18/94		11/14/94		27	J - NO_2, UR - PO_4; J - NO_3
BOD4K4		10/19/94		11/14/94		26	UR - NO_2, PO_4
BOD4L0		10/19/94		11/14/94		26	UR - NO_2, PO_4
BOD4N0		10/19/94		11/14/94		26	UR - NO_2, PO_4
BOD4L2		10/19/94		11/14/94		26	UR - NO_2, PO_4
BOD4N4		10/19/94		11/14/94		26	UR - NO_2, PO_4

aj 2/2/95

WHC-SD-EN--SPP-002, Rev. 2

HOLDING TIME SUMMARY

SDG: 4610260	VALIDATOR: D. Robinson	DATE: 1/26/95	PAGE 2 OF 2
COMMENTS: Holding Times - TDS (7 days)			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B0D4J4	TDS	10/19/94	N/A	10/19/94	N/A	5	None
B0D4J6		10/17/94		10/20/94		3	
B0D4H6		10/18/94		10/25/94		7	
B0D4K0		10/18/94		10/25/94		7	
B0D4R5		10/18/94		10/25/94		7	
B0D4K4		10/19/94		10/26/94		7	
B0D4L0		10/19/94		10/26/94		7	
B0D4W0		10/19/94		10/26/94		7	
B0D4L3		10/19/94		10/26/94		7	
B0D4L4		10/19/94		10/26/94		7	

RECORD COPY

MEMORANDUM

JAN 1995
RECEIVED
Validation
Log In

TO: 200-BP-5 Round 2 Groundwater, Project QA Record January 26, 1995

FR: Thomas Stapp, Golder Associates Inc.

RE: RADIOCHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE W0260-QES (943-1610.058, 260RAD.BP5)

INTRODUCTION

This memo presents the results of data validation on data package W0260-QES prepared by Quanterra Environmental Services. Sample information is provided in the following table.

SAMPLE ID	COMMENTS	ANALYSIS	MEDIA
B0D4N4	FIELD DUPLICATE	RADIOCHEMISTRY	WATER
B0D4J6			WATER
B0D4H6*		SEE ATTACHMENT 4	WATER
B0D4K0			WATER
B0D4K8			WATER
B0D4R3			WATER
B0D4K4			WATER
B0D4L0			WATER
B0D4N0	FIELD DUPLICATE		WATER
B0D4L2			WATER
B0D4L4*			WATER

* - Indicates sample results which were 100% recalculated.

Data validation was conducted to level D in accordance with the WHC statement of work (WHC 1994) and validation procedures (WHC 1993). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met for all sample results with the exception of gross beta for sample B0D4K8, and gross alpha for samples B0D4N4,

B0D4K8, B0D4N0, B0D4L2, and B0D4L4. No qualification is required in accordance with data validation procedures.

Completeness. The data package was complete for all requested analyses. A total of eleven samples were validated in this data package with a total of 171 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent, which meets the 90% objective of the work plan.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

There were no minor deficiencies identified during data validation which required qualification of data.

FIELD QC

- Samples B0D4N4 and B0D4N0 are identified as field duplicates of samples B0D4G0 and B0D4L4 respectively. Sample B0D4G0 is not included in this SDG and comparison for relative percent difference (RPD) will be made in the final data summary. The RPD were acceptable for all isotopes in the remaining duplicate pair and no qualification is required.

DATA REPORTING

- Sample results reported below the minimum detectable activity (MDA) are qualified as non-detect (U) in accordance with data validation procedures.

REFERENCES

WHC 1993, Data Validation Procedures for Radiochemical Analyses, WHC-SD-EN-SPP-001, Rev. 1, 1993. Westinghouse Hanford Company, Richland, Washington.

WHC 1994, Environmental and Waste Characterization Analytical Data Validation, Purchase Order MSH-SWV-315905; Validation Statement of Work, Revision 1.0, September 7, 1994; Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

ATTACHMENT 1

GLOSSARY OF RADIOCHEMISTRY DATA REPORTING QUALIFIERS

U - Indicates the constituent was analyzed for, but was not detected at a concentration above the minimum detectable activity (MDA). The concentration reported is the MDA corrected for sample aliquot size, dilution factors and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and was not detected at a concentration above the MDA. Due to a quality control deficiency identified during data validation, the concentration reported may not accurately reflect the sample MDA. The associated data should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. The concentration reported is qualified as estimated due to a quality control deficiency identified during data validation. The associated data should be considered usable for decision making purposes.

UR - Indicates the constituent was analyzed for and not detected. The concentration reported is qualified as unusable due to a quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. The concentration reported is qualified as unusable due to a quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: W0260-QES	REVIEWER: T. Stapp	DATE: 1-24-95	PAGE 1 OF 1
COMMENTS: RADIOCHEMISTRY			
COMPOUND/ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
NO QUALIFICATION REQUIRED			

ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0260-QES

	Samp#	B0D4H6		B0D4J6		B0D4K0		B0D4K4		B0D4K8		B0D4L0	
	Date	10-18-94		10-17-94		10-18-94		10-19-94		10-18-94		10-19-94	
	Location	299-E33-40		699-49-55B		699-49-57B		699-50-53B		699-52-57		699-53-55A	
	Depth	---		---		---		---		---		---	
	Type	WATER		WATER		WATER		WATER		WATER		WATER	
	Comments												
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
PLUTONIUM-238	pCi/L	0.000	U	-0.013	U	-0.014	U	0.000	U	-0.003	U	0.000	U
PLUTONIUM-239/240	pCi/L	-0.007	U	-0.006	U	0.061	U	-0.035	U	-0.010	U	-0.003	U
COBALT-58	pCi/L	-10.000	U	-0.318	U	0.686	U	1.170	U	-0.870	U	8.390	U
COBALT-60	pCi/L	-7.100	U	1.200	U	1.290	U	5.530	U	-0.803	U	0.856	U
CESIUM-137	pCi/L	-1.330	U	-2.350	U	1.580	U	2.300	U	-0.562	U	0.585	U
EUROPIUM-152	pCi/L	-14.300	U	0.911	U	-2.740	U	3.950	U	-9.400	U	0.200	U
EUROPIUM-154	pCi/L	-8.100	U	-1.490	U	-21.200	U	7.460	U	-2.180	U	3.700	U
EUROPIUM-155	pCi/L	-0.882	U	0.402	U	1.640	U	-2.080	U	2.450	U	0.367	U
IRON-59	pCi/L	-17.700	U	5.890	U	-11.800	U	-5.710	U	-17.800	U	-10.900	U
RUTHENIUM-106	pCi/L	-37.600	U	-2.490	U	-8.770	U	-3.470	U	-53.000	U	-96.900	U
GROSS ALPHA	pCi/L	4.380		2.690		1.300	U	3.170		-0.352	U	2.610	
GROSS BETA	pCi/L	12.000		6.840		5.620		9.100		12.500		10.500	
STRONTIUM	pCi/L	0.166	U	0.237	U	0.137	U	0.208	U	0.344	U	0.010	U
TECHNETIUM-99	pCi/L	-1.530	U	-2.560	U	-0.869	U	-3.820	U	0.798	U	-1.430	U
TRITIUM	pCi/L	-32.700	U	756.000		-146.000	U	7.700	U	524.000		91.500	U
TOTAL URANIUM	UG/L	4.530		2.400		2.140		1.950		1.630		2.130	

The decimal places shown do not reflect the precision reported by the laboratory

Verified 2-14-95

Revised 2-14-95

008

Validated Data Summary, Data Package: W0260-QES

	Samp#	B0D4L2		B0D4L4		B0D4N0		B0D4N4		B0D4R3	
	Date	10-19-94		10-19-94		10-19-94		10-14-94		10-18-94	
	Location	699-53-55B		699-53-55C		699-53-55C		299-E33-12		299-E28-7	
	Depth	---		---		---		---		---	
	Type	WATER		WATER		WATER		WATER		WATER	
	Comments					DUPLICATE		DUPLICATE			
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
PLUTONIUM-238	pCi/L	0.067	U	-0.006	U	-0.013	U	-0.024	U	-0.007	U
PLUTONIUM-239/240	pCi/L	-0.011	U	-0.006	U	-0.010	U	-0.012	U	-0.007	U
COBALT-58	pCi/L	-3.920	U	0.086	U	-1.960	U	1.900	U	0.895	U
COBALT-60	pCi/L	15.600	U	10.700	U	16.800	U	21.900		-2.910	U
CESIUM-137	pCi/L	5.490	U	1.750	U	1.960	U	-2.000	U	17.000	
EUROPIUM-152	pCi/L	-8.210	U	1.740	U	-8.900	U	-0.348	U	0.898	U
EUROPIUM-154	pCi/L	6.430	U	0.816	U	17.700	U	-13.600	U	-2.080	U
EUROPIUM-155	pCi/L	-7.210	U	5.280	U	5.840	U	0.383	U	2.570	U
IRON-59	pCi/L	-13.800	U	-10.600	U	-1.380	U	10.600	U	-6.520	U
RUTHENIUM-106	pCi/L	21.300	U	-27.300	U	-44.900	U	1.100	U	36.300	U
GROSS ALPHA	pCi/L	2.160	U	1.890	U	2.680	U	4.270		---	
GROSS BETA	pCi/L	202.000		219.000		233.000		471.000		---	
STRONTIUM	pCi/L	-0.072	U	0.114	U	0.057	U	0.193	U	149.000	
TECHNETIUM-99	pCi/L	738.000		552.000		608.000		1530.000		---	
TRITIUM	pCi/L	597.000		654.000		478.000		333.000		---	
TOTAL URANIUM	UG/L	4.140		4.310		4.650		2.770		---	

The decimal places shown do not reflect the precision reported by the laboratory

Verified [illegible] 2-14-95

Revised [illegible] 2-14-95

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Quanterra
Environmental Services

SAMPLE RESULTS

Field Duplicate of B0D4G0 / Well 299-E33-12

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41032501	MATRIX:	WATER
CLIENT ID:	B0D4N4	DATE RECEIVED:	10/17/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	-2.43E-02 U	3.4E-02	3.5E-02	3.42E-01	pCi/L	68.90%	RD3209
PU239/40	-1.21E-02 U	2.4E-02	2.4E-02	2.90E-01	pCi/L	68.90%	RD3209
CO-58	1.90E+00 U	5.2E+00	5.2E+00	1.05E+01	pCi/L	N/A	RD3219
CO-60	2.19E+01	8.7E+00	8.9E+00	2.03E+01	pCi/L	N/A	RD3219
CS-137DA	-2.00E+00 U	5.1E+00	5.1E+00	8.62E+00	pCi/L	N/A	RD3219
EU-152	-3.48E-01 U	1.4E+01	1.4E+01	2.45E+01	pCi/L	N/A	RD3219
EU-154	-1.36E+01 U	1.5E+01	1.6E+01	2.31E+01	pCi/L	N/A	RD3219
EU-155	3.83E-01 U	1.2E+01	1.2E+01	1.89E+01	pCi/L	N/A	RD3219
FE-59	1.06E+01 U	1.8E+01	1.8E+01	3.58E+01	pCi/L	N/A	RD3219
RU-106DA	1.10E+00 U	4.5E+01	4.5E+01	8.25E+01	pCi/L	N/A	RD3219
ALPHA	4.27E+00	2.4E+00	2.5E+00	2.54E+00	pCi/L	100.00%	RD3214
BETA	4.71E+02	2.1E+01	3.9E+01	1.05E+01	pCi/L	100.00%	RD3214
STRONTIUM	1.93E-01 U	2.0E-01	2.1E-01	4.97E-01	pCi/L	97.90%	RD3204
TC-99	1.53E+03	7.2E+00	1.7E+02	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	3.33E+02	1.2E+02	2.4E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	2.77E+00	N/A	4.2E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Verified 1-24-95

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41034701	MATRIX:	WATER
CLIENT ID:	B0D4J6	DATE RECEIVED:	10/18/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	-1.27E-02 U	1.3E-02	1.3E-02	3.03E-01	pCi/L	65.90%	RD3209
PU239/40	-6.33E-03 U	9.0E-03	9.0E-03	2.64E-01	pCi/L	65.90%	RD3209
CO-58	-3.18E-01 U	4.7E+00	4.7E+00	8.72E+00	pCi/L	N/A	RD3219
CO-60	1.20E+00 U	3.5E+00	3.5E+00	7.80E+00	pCi/L	N/A	RD3219
CS-137DA	-2.35E+00 U	4.0E+00	4.0E+00	6.68E+00	pCi/L	N/A	RD3219
EU-152	9.11E-01 U	8.3E+00	8.3E+00	1.52E+01	pCi/L	N/A	RD3219
EU-154	-1.49E+00 U	1.1E+01	1.1E+01	2.10E+01	pCi/L	N/A	RD3219
EU-155	4.02E-01 U	7.6E+00	7.6E+00	1.35E+01	pCi/L	N/A	RD3219
FE-59	5.89E+00 U	8.9E+00	8.9E+00	2.03E+01	pCi/L	N/A	RD3219
RU-106DA	-2.49E+00 U	3.7E+01	3.7E+01	6.79E+01	pCi/L	N/A	RD3219
ALPHA	2.69E+00	1.5E+00	1.5E+00	1.71E+00	pCi/L	100.00%	RD3214
BETA	6.84E+00	1.8E+00	1.9E+00	2.86E+00	pCi/L	100.00%	RD3214
STRONTIUM	2.37E-01 U	2.1E-01	2.1E-01	5.16E-01	pCi/L	100.00%	RD3204
TC-99	-2.56E+00 U	9.7E-01	4.5E+00	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	7.56E+02	1.3E+02	2.6E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	2.40E+00	N/A	3.6E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Verified 1-24-95

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Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41037801	MATRIX:	WATER
CLIENT ID:	B0D4H6	DATE RECEIVED:	10/19/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	0.00E+00 U	0.0E+00	2.1E-01	1.87E-01	pCi/L	60.30%	RD3209
PU239/40	-6.91E-03 U	9.8E-03	9.8E-03	2.89E-01	pCi/L	60.30%	RD3209
CO-58	-1.00E+01 U	5.7E+00	5.7E+00	7.30E+00	pCi/L	N/A	RD3219
CO-60	-7.10E+00 U	5.4E+00	5.5E+00	7.65E+00	pCi/L	N/A	RD3219
CS-137DA	-1.33E+00 U	4.0E+00	4.1E+00	7.15E+00	pCi/L	N/A	RD3219
EU-152	-1.43E+01 U	1.1E+01	1.1E+01	1.56E+01	pCi/L	N/A	RD3219
EU-154	-8.10E+00 U	1.7E+01	1.7E+01	2.82E+01	pCi/L	N/A	RD3219
EU-155	-8.82E-01 U	1.0E+01	1.0E+01	1.60E+01	pCi/L	N/A	RD3219
FE-59	-1.77E+01 U	1.7E+01	1.7E+01	2.53E+01	pCi/L	N/A	RD3219
RU-106DA	-3.76E+01 U	5.0E+01	5.0E+01	7.97E+01	pCi/L	N/A	RD3219
ALPHA	4.38E+00	1.8E+00	1.9E+00	1.50E+00	pCi/L	100.00%	RD3214
BETA	1.20E+01	2.1E+00	2.2E+00	2.81E+00	pCi/L	100.00%	RD3214
STRONTIUM	1.66E-01 U	2.1E-01	2.2E-01	5.53E-01	pCi/L	98.70%	RD3204
TC-99	-1.53E+00 U	9.7E-01	4.6E+00	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	-3.27E+01 U	1.1E+02	2.2E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	4.53E+00	N/A	6.8E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Verified 1-24-95

Quanterra Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41037802	MATRIX:	WATER
CLIENT ID:	B0D4K0	DATE RECEIVED:	10/19/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	-1.44E-02 U	1.4E-02	1.5E-02	3.44E-01	pCi/L	58.00%	RD3209
PU239/40	6.11E-02 U	1.4E-01	1.5E-01	3.24E-01	pCi/L	58.00%	RD3209
CO-58	6.86E-01 U	5.3E+00	5.3E+00	1.04E+01	pCi/L	N/A	RD3219
CO-60	1.29E+00 U	3.7E+00	3.7E+00	8.39E+00	pCi/L	N/A	RD3219
CS-137DA	1.58E+00 U	4.5E+00	4.5E+00	8.21E+00	pCi/L	N/A	RD3219
EU-152	-2.74E+00 U	1.0E+01	1.0E+01	1.74E+01	pCi/L	N/A	RD3219
EU-154	-2.12E+01 U	1.6E+01	1.6E+01	1.89E+01	pCi/L	N/A	RD3219
EU-155	1.64E+00 U	1.1E+01	1.1E+01	1.82E+01	pCi/L	N/A	RD3219
FE-59	-1.18E+01 U	1.4E+01	1.4E+01	2.33E+01	pCi/L	N/A	RD3219
RU-106DA	-8.77E+00 U	4.3E+01	4.3E+01	7.61E+01	pCi/L	N/A	RD3219
ALPHA	1.30E+00 U	1.2E+00	1.2E+00	1.81E+00	pCi/L	100.00%	RD3214
BETA	5.62E+00	1.6E+00	1.7E+00	2.69E+00	pCi/L	100.00%	RD3214
STRONTIUM	1.37E-01 U	2.0E-01	2.0E-01	5.15E-01	pCi/L	97.60%	RD3204
TC-99	-8.69E-01 U	9.9E-01	4.6E+00	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	-1.46E+02 U	1.0E+02	2.1E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	2.14E+00	N/A	3.2E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Verified 1-24-95

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Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41037803	MATRIX:	WATER
CLIENT ID:	B0D4K8	DATE RECEIVED:	10/19/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	-3.18E-03 U	6.4E-03	6.4E-03	2.38E-01	pCi/L	65.60%	RD3209
PU239/40	-9.53E-03 U	1.1E-02	1.1E-02	2.87E-01	pCi/L	65.60%	RD3209
CO-58	-8.70E-01 U	5.1E+00	5.1E+00	9.37E+00	pCi/L	N/A	RD3219
CO-60	-8.03E-01 U	6.5E+00	6.5E+00	1.21E+01	pCi/L	N/A	RD3219
CS-137DA	-5.62E-01 U	5.6E+00	5.6E+00	9.64E+00	pCi/L	N/A	RD3219
EU-152	-9.40E+00 U	1.4E+01	1.4E+01	2.28E+01	pCi/L	N/A	RD3219
EU-154	-2.18E+00 U	1.8E+01	1.8E+01	3.18E+01	pCi/L	N/A	RD3219
EU-155	2.45E+00 U	1.1E+01	1.1E+01	1.89E+01	pCi/L	N/A	RD3219
FE-59	-1.78E+01 U	1.4E+01	1.4E+01	1.87E+01	pCi/L	N/A	RD3219
RU-106DA	-5.30E+01 U	4.5E+01	4.5E+01	6.79E+01	pCi/L	N/A	RD3219
ALPHA	-3.52E-01 U	1.3E+00	1.3E+00	5.03E+00	pCi/L	100.00%	RD3214
BETA	1.25E+01	6.3E+00	6.3E+00	1.19E+01	pCi/L	100.00%	RD3214
STRONTIUM	3.44E-01 U	2.4E-01	2.5E-01	5.80E-01	pCi/L	82.80%	RD3204
TC-99	7.98E-01 U	1.0E+00	4.7E+00	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	5.24E+02	1.3E+02	2.5E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	1.63E+00	N/A	2.4E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Verified 1-24-95

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41037804	MATRIX:	WATER
CLIENT ID:	B0D4R3	DATE RECEIVED:	10/19/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	-6.71E-03 U	9.5E-03	9.6E-03	2.80E-01	pCi/L	62.20%	RD3209
PU239/40	-6.71E-03 U	9.5E-03	9.6E-03	2.80E-01	pCi/L	62.20%	RD3209
CO-58	8.95E-01 U	4.9E+00	4.9E+00	9.36E+00	pCi/L	N/A	RD3219
CO-60	-2.91E+00 U	5.4E+00	5.4E+00	8.88E+00	pCi/L	N/A	RD3219
CS-137DA	1.70E+01	7.1E+00	7.3E+00	N/A	pCi/L	N/A	RD3219
EU-152	8.98E-01 U	1.1E+01	1.1E+01	2.06E+01	pCi/L	N/A	RD3219
EU-154	-2.08E+00 U	1.4E+01	1.4E+01	2.37E+01	pCi/L	N/A	RD3219
EU-155	2.57E+00 U	9.4E+00	9.4E+00	1.59E+01	pCi/L	N/A	RD3219
FE-59	-6.52E+00 U	1.2E+01	1.2E+01	2.13E+01	pCi/L	N/A	RD3219
RU-106DA	3.63E+01 U	4.0E+01	4.0E+01	8.05E+01	pCi/L	N/A	RD3219
STRONTIUM	1.49E+02	2.3E+00	3.9E+01	5.22E-01	pCi/L	98.70%	RD3204

Number of Results: 11

Verified 1-24-95

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41043101	MATRIX:	WATER
CLIENT ID:	B0D4K4	DATE RECEIVED:	10/20/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	0.00E+00 U	1.3E-01	1.8E-01	4.28E-01	pCi/L	71.70%	RD3209
PU239/40	-3.49E-02 U	4.0E-02	4.1E-02	3.67E-01	pCi/L	71.70%	RD3209
CO-58	1.17E+00 U	4.3E+00	4.3E+00	8.30E+00	pCi/L	N/A	RD3219
CO-60	5.53E+00 U	3.5E+00	3.5E+00	9.63E+00	pCi/L	N/A	RD3219
CS-137DA	2.30E+00 U	3.7E+00	3.7E+00	7.56E+00	pCi/L	N/A	RD3219
EU-152	3.95E+00 U	9.5E+00	9.5E+00	1.78E+01	pCi/L	N/A	RD3219
EU-154	7.46E+00 U	6.7E+00	6.7E+00	1.96E+01	pCi/L	N/A	RD3219
EU-155	-2.08E+00 U	7.2E+00	7.2E+00	1.23E+01	pCi/L	N/A	RD3219
FE-59	-5.71E+00 U	1.4E+01	1.4E+01	2.37E+01	pCi/L	N/A	RD3219
RU-106DA	-3.47E+00 U	3.1E+01	3.1E+01	5.69E+01	pCi/L	N/A	RD3219
ALPHA	3.17E+00	1.6E+00	1.7E+00	1.46E+00	pCi/L	100.00%	RD3214
BETA	9.10E+00	1.9E+00	2.0E+00	2.86E+00	pCi/L	100.00%	RD3214
STRONTIUM	2.08E-01 U	2.1E-01	2.1E-01	5.17E-01	pCi/L	92.60%	RD3204
TC-99	-3.82E+00 U	9.4E-01	4.4E+00	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	7.70E+00 U	1.1E+02	2.2E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	1.95E+00	N/A	2.9E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Verified [illegible] 1-24-95

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41043102	MATRIX:	WATER
CLIENT ID:	B0D4L0	DATE RECEIVED:	10/20/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	0.00E+00 U	0.0E+00	2.0E-01	1.84E-01	pCi/L	61.50%	RD3209
PU239/40	-3.39E-03 U	6.8E-03	6.8E-03	2.54E-01	pCi/L	61.50%	RD3209
CO-58	8.39E+00 U	3.9E+00	3.9E+00	1.01E+01	pCi/L	N/A	RD3219
CO-60	8.56E-01 U	4.4E+00	4.4E+00	8.61E+00	pCi/L	N/A	RD3219
CS-137DA	5.85E-01 U	4.3E+00	4.3E+00	8.09E+00	pCi/L	N/A	RD3219
EU-152	2.00E-01 U	1.1E+01	1.1E+01	1.80E+01	pCi/L	N/A	RD3219
EU-154	3.70E+00 U	1.2E+01	1.2E+01	2.45E+01	pCi/L	N/A	RD3219
EU-155	3.67E-01 U	9.2E+00	9.2E+00	1.56E+01	pCi/L	N/A	RD3219
FE-59	-1.09E+01 U	1.3E+01	1.3E+01	2.08E+01	pCi/L	N/A	RD3219
RU-106DA	-9.69E+01 U	4.8E+01	4.9E+01	6.24E+01	pCi/L	N/A	RD3219
ALPHA	2.61E+00	1.7E+00	1.7E+00	2.23E+00	pCi/L	100.00%	RD3214
BETA	1.05E+01	2.0E+00	2.2E+00	2.89E+00	pCi/L	100.00%	RD3214
STRONTIUM	9.74E-03 U	1.8E-01	1.8E-01	5.07E-01	pCi/L	99.90%	RD3204
TC-99	-1.43E+00 U	9.8E-01	4.6E+00	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	9.15E+01 U	1.1E+02	2.2E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	2.13E+00	N/A	3.2E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Verified RS 1-24-95

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Quanterra
Environmental Services

SAMPLE RESULTS

Field Duplicate of B0D4L4 / Well # 699-53-55C

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41043103	MATRIX:	WATER
CLIENT ID:	B0D4N0	DATE RECEIVED:	10/20/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	-1.28E-02 U	1.3E-02	1.3E-02	3.06E-01	pCi/L	65.40%	RD3209
PU239/40	-9.57E-03 U	1.1E-02	1.1E-02	2.88E-01	pCi/L	65.40%	RD3209
CO-58	-1.96E+00 U	5.4E+00	5.4E+00	9.12E+00	pCi/L	N/A	RD3219
CO-60	1.68E+01 U	7.1E+00	7.3E+00	1.73E+01	pCi/L	N/A	RD3219
CS-137DA	1.96E+00 U	4.6E+00	4.6E+00	8.46E+00	pCi/L	N/A	RD3219
EU-152	-8.90E+00 U	1.1E+01	1.1E+01	1.70E+01	pCi/L	N/A	RD3219
EU-154	1.77E+01 U	1.1E+01	1.1E+01	2.91E+01	pCi/L	N/A	RD3219
EU-155	5.84E+00 U	9.1E+00	9.1E+00	1.68E+01	pCi/L	N/A	RD3219
FE-59	-1.38E+00 U	1.4E+01	1.4E+01	2.57E+01	pCi/L	N/A	RD3219
RU-106DA	-4.49E+01 U	5.3E+01	5.3E+01	8.51E+01	pCi/L	N/A	RD3219
ALPHA	2.68E+00 U	2.2E+00	2.2E+00	3.01E+00	pCi/L	100.00%	RD3214
BETA	2.33E+02	1.1E+01	2.0E+01	5.51E+00	pCi/L	100.00%	RD3214
STRONTIUM	5.74E-02 U	2.0E-01	2.0E-01	5.55E-01	pCi/L	97.60%	RD3204
TC-99	6.08E+02	4.6E+00	7.0E+01	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	4.78E+02	1.3E+02	2.4E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	4.65E+00	N/A	7.0E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Verified 1-24-95

~~0016~~

Quanterra Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41043104	MATRIX:	WATER
CLIENT ID:	B0D4L2	DATE RECEIVED:	10/20/94

ISOTOPE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	6.69E-02	U	1.4E-01	1.4E-01	2.64E-01	pCi/L	59.20%	RD3209
PU239/40	-1.06E-02	U	1.2E-02	1.2E-02	3.17E-01	pCi/L	59.20%	RD3209
CO-58	-3.92E+00	U	4.3E+00	4.3E+00	6.69E+00	pCi/L	N/A	RD3219
CO-60	1.56E+01	U	6.9E+00	7.1E+00	1.67E+01	pCi/L	N/A	RD3219
CS-137DA	5.49E+00	U	4.4E+00	4.4E+00	9.06E+00	pCi/L	N/A	RD3219
EU-152	-8.21E+00	U	1.2E+01	1.2E+01	1.96E+01	pCi/L	N/A	RD3219
EU-154	6.43E+00	U	6.4E+00	6.5E+00	1.93E+01	pCi/L	N/A	RD3219
EU-155	-7.21E+00	U	9.2E+00	9.3E+00	1.47E+01	pCi/L	N/A	RD3219
FE-59	-1.38E+01	U	1.6E+01	1.6E+01	2.44E+01	pCi/L	N/A	RD3219
RU-106DA	2.13E+01	U	3.2E+01	3.2E+01	6.80E+01	pCi/L	N/A	RD3219
ALPHA	2.16E+00	U	2.0E+00	2.0E+00	3.01E+00	pCi/L	100.00%	RD3214
BETA	2.02E+02		1.0E+01	1.7E+01	6.11E+00	pCi/L	100.00%	RD3214
STRONTIUM	-7.19E-02	U	1.8E-01	1.8E-01	5.25E-01	pCi/L	97.90%	RD3204
TC-99	7.38E+02		5.0E+00	8.4E+01	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	5.97E+02		1.3E+02	2.5E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	4.14E+00		N/A	6.2E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Verified [illegible] 1-24-95

~~0017~~

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0260
LAB SAMPLE ID:	41043105	MATRIX:	WATER
CLIENT ID:	B0D4L4	DATE RECEIVED:	10/20/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
PU-238	-6.15E-03 U	8.7E-03	8.8E-03	2.57E-01	pCi/L	67.90%	RD3209
PU239/40	-6.14E-03 U	8.7E-03	8.8E-03	2.57E-01	pCi/L	67.90%	RD3209
CO-58	8.63E-02 U	5.9E+00	5.9E+00	1.07E+01	pCi/L	N/A	RD3219
CO-60	1.07E+01 U	9.0E+00	9.1E+00	1.78E+01	pCi/L	N/A	RD3219
CS-137DA	1.75E+00 U	5.6E+00	5.6E+00	1.01E+01	pCi/L	N/A	RD3219
EU-152	1.74E+00 U	1.3E+01	1.3E+01	2.29E+01	pCi/L	N/A	RD3219
EU-154	8.16E-01 U	1.6E+01	1.6E+01	2.85E+01	pCi/L	N/A	RD3219
EU-155	5.28E+00 U	1.1E+01	1.1E+01	1.93E+01	pCi/L	N/A	RD3219
FE-59	-1.06E+01 U	1.5E+01	1.5E+01	2.45E+01	pCi/L	N/A	RD3219
RU-106DA	-2.73E+01 U	4.6E+01	4.6E+01	7.68E+01	pCi/L	N/A	RD3219
ALPHA	1.89E+00 U	1.9E+00	1.9E+00	3.00E+00	pCi/L	100.00%	RD3214
BETA	2.19E+02	1.0E+01	1.9E+01	5.30E+00	pCi/L	100.00%	RD3214
STRONTIUM	1.14E-01 U	1.9E-01	1.9E-01	5.13E-01	pCi/L	98.30%	RD3204
TC-99	5.52E+02	4.4E+00	6.3E+01	2.27E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	6.54E+02	1.3E+02	2.5E+02	2.58E+02	pCi/L	94.00%	RD3205
TOTAL-URANIUM	4.31E+00	N/A	6.5E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 16

Verified TR 1-24-95

ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

Quanterra Environmental Services

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

December 5, 1994

Attention: Joan Kessner

DEC 1994
RECEIVED
Data
Log In

SAF Number	:	B94-036
Date SDG Closed	:	October 20, 1994
Number of Samples	:	Eleven (11)
Sample Type	:	Water
SDG Number	:	W0260
Data Deliverable	:	Stand Alone

RECORD COPY

I. Introduction

On October 17, 18, 19, and 20, a total of eleven 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
40132501	B0D4N4	Water	10/17/94
40134701	B0D4J6	Water	10/18/94
40137801	B0D4H6	Water	10/19/94
40137802	B0D4K0	Water	10/19/94
40137803	B0D4K8	Water	10/19/94
40137804	B0D4R3	Water	10/19/94
40143101	B0D4K4	Water	10/20/94
40143102	B0D4L0	Water	10/20/94
40143103	B0D4N0	Water	10/20/94
40143104	B0D4L2	Water	10/20/94

QTESRL ID	BHI ID	Matrix	Date of Receipt
40143105	B0D4L4	Water	10/20/94

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 analyses were:

Alpha Spectroscopy
Plutonium-238, -239/40 by method ITAS-RD-3209
Gamma Spectroscopy
Gamma Scan by method ITAS-RD-3219
Gas Proportional Counting
Gross Alpha by method ITAS-RD-3222
Gross Beta by method ITAS-RD-3222
Strontium-90 by method ITAS-RD-3204
Liquid Scintillation Counting
Technetium-99 by method ITAS-IT-RS-0001
Tritium by method ITAS-RD-3205
Total Uranium
Total Uranium by method ITAS-RD-4200

III. Quality Control

The analytical results for each analysis performed under SDG W0260 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

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

Alpha Spectroscopy

Plutonium-238, -239/40 by method ITAS-RD-3209
Sample B0D4K4 and the LCS were recounted. The initial count had been performed on Alp 49, and the initial calibration for that detector is presently not available. The recount results are accepted. The LCS, batch blank, sample and sample duplicate (duplicate of sample B0D4K4) results are within contractual limits.

Gamma Spectroscopy

Gamma Scan by method ITAS-RD-3219
The Eu-152 recovery in the LCS is biased high (131%). The LCS is accepted based upon acceptable recoveries for Co-60 and Cs-137. The Fe-59 RDL was exceeded by sample B0D4N4. The Fe-59 RDL is met by the batch blank, therefore, the sample results are accepted. The LCS, batch blank, sample and sample duplicate (duplicate of sample B0D4L4) results are within contractual limits, except as noted.

Gas Proportional Counting

Gross Alpha by method ITAS-RD-3222
The calculated MDA for sample B0D4K8 exceeded the RDL. The volume analyzed for the sample was reduced to approximately 50 mL due to high beta screening activity. Volumes were also reduced for samples B0D4N4, B0D4K0, B0D4N0, B0D4L2, B0D4L4, and the duplicate of sample B0D4N4 due to high screening activity, however, the MDA did not exceed the RDL for those samples. The LCS, batch blank, sample and sample duplicate results are within contractual limits, except as noted.

Gross Beta by method ITAS-RD-3222
The calculated MDA for sample B0D4K8 exceeded the RDL, therefore, the sample was recounted for 100 minutes. The volume analyzed for the sample had been reduced to approximately 50 mL due to high beta screening activity. The recount is within contractual requirements and reported, however, the initial screening result appears to have been inaccurate. The error in the screening result did not have an effect on the final gross beta result reported for this sample. Volumes were also reduced for samples B0D4N4, B0D4N0, B0D4L2, B0D4L4, and the duplicate of sample B0D4N4 due to high screening activity, however, the MDA did not exceed the RDL for those samples. The LCS, batch blank, sample and sample duplicate results are within contractual limits, except as noted.

Strontium-90 by method ITAS-RD-3204
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0D4L4) results are within contractual requirements.

Liquid Scintillation Counting

Technetium-99 by method ITAS-IT-RS-0001
The matrix spike recovery of sample B0D4N4 is outside of acceptable limits. The activity in the sample is more than 15 times greater than the spike that was added, and as a result, the error around the sample result is greater than the spike value. The matrix spike, LCS, batch blank, sample and sample duplicate (duplicate of sample B0D4J6) results are within contractual requirements, except as noted.

Tritium by method ITAS-RD-3205
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0D4N4) results are within contractual requirements.

Total Uranium

Total Uranium by method ITAS-RD-4200
Sample B0D4K8 was reanalyzed due to matrix interferences on the initial analysis, probably related to heavy sediments in the sample as the presence of sediments was noted by the analyst. The reanalysis results are within contractual requirements and reported. The matrix spike, LCS, batch blank, sample and sample duplicate (duplicate of sample B0D4H6) results are within contractual requirements.

Quanterra
Environmental Services

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

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priorty [X] Normal

Collector: A Rizzo	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: ER-1B	Field Logbook No.: EFL-1020	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-04	Bill of Lading/Air Bill No.:
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS 410430	METALS (see S. I. #1) UNFILTERED A	IC ANIONS-F,Cl, SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S. I. #2) 410431	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED A				

Sample No.	Matrix*	Date Sampled	Time Sampled														
BO D4K4 01	W	10-19-94	1130	X	X	X	X	X	X	X	X	X					
BO D4K5 2	W	10-19-94	1130										X				

DRAFT

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
A Rizzo	10-19-94 1415	Butchtron	10-19-94 1415
Butchtron	10-20-94 1010	Quanterra BBrumfield	10/20/94 1011

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG m0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: A.J. SIMPSON	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: ER-8	Field Logbook No.	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W75-0-0001-26	Bill of Lading/Air Bill No.
Possible Sample Hazards/Remarks		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS	METALS (see S. I. #1) UNFILTERED	IC ANIONS-F,Cl, SO4,NO2 PO4	ALKALI-NITY	TDS	CLP-CYANIDE	GROSS ALPHA/BETA, (see S. I. #2)	TRITIUM	Tc-99	ACTIVI-TY SCAN		METALS (see S. I. #3) FILTER-ED				
4104310	A	B	C	D	E	4104310					A				

Sample No.	Matrix*	Date Sampled	Time Sampled														
BO D4L0 3	W	10/19/94	0750	X	X	X	X	X	X	X	X	X					
BO D4L1 4	W	10/19/94	0750										X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
Kirby B. Lee K.B. Lee	10/19/94 1230	Kile Whitten B Whitten	1230 10-19-94
Relinquished By	Date/Time	Received By	Date/Time
Kile Whitten B Whitten	1010 10-20-94	Quanterra B Brunfeldt	1010 10/20/94
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG-W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

028

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priorty [X] Normal

Collector: K. A. Lee	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: GWS-011	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-25	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2					
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G					
No. of Container(s)	1	1	1	1	1	8	2	2	1		1					
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml					
SAMPLE ANALYSIS 410430	METALS (see S. I. #1) UNFILTERED A	IC ANIONS-F,Cl, SO4,NO2 PO4 B	ALKALI-NITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S. I. #2) 41043103	TRITIUM	Tc-99	ACTIVI-TY SCAN		METALS (see S. I. #3) FILTER-ED A					

Sample No.	Matrix*	Date Sampled	Time Sampled														
BO D4ND 5	W	10/19/94	0847	X	X	X	X	X	X	X	X	X					
BO D4N1 6	W	10/19/94	0847										X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
K. A. Lee K. A. Lee	10/19/94 1230	B. Whitten B. Whitten	10-19-94 1230
Relinquished By	Date/Time	Received By	Date/Time
B. Whitten B. Whitten	10-20-94 1010	Quanterra B Brumfield	10/20/94 1010
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Hg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: M. J. Simpson	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: ER-26	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-24	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS 410430	METALS (see S. I. #1) UNFILTERED A	IC ANIONS-F,Cl, SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S. I. #2) 41043104	TRITIUM	Tc-99 —	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED A				

Sample No.	Matrix*	Date Sampled	Time Sampled														
BD D4L2 7	W	10/19/94	1025	X	X	X	X	X	X	X	X	X					
BD D4L3 8	W	10/19/94	1025										X				

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	K.W. Lee	10/19/94 1230	Received By: Quanterra	1230 10-19-94
Relinquished By	B Whitten	1010 10/20/94	Received By: Quanterra B Brumfield	10:10 10/20/94
Relinquished By			Received By	
Relinquished By			Received By	

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

030

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: K.D Lee	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: GWS-141	Field Logbook No.: FFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-25	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G
No. of Container(s)	1	1	1	1	1	8	2	2	1		1
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml
SAMPLE ANALYSIS 410430	METALS (see S. I. #1) UNFILTERED A	IC ANIONS-F,Cl, SO4,NO2 PO4 B	ALKALI-NITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S. I. #2) 41043105	TRITIUM —	Tc-99	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED A

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

Sample No.	Matrix*	Date Sampled	Time Sampled														
BO D4L4 9	W	10/19/94	0847	X	X	X	X	X	X	X	X	X					
BO D4L5 10	W	10/19/94	0847											X			

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By: K.D. Lee	Received By: B. Whitten	10/18/94 1230
Relinquished By: B. Whitten	Received By: Quanterra B. Brunfield	10-20-94 1010
Relinquished By:	Received By:	
Relinquished By:	Received By:	

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG-W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

031

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: A. J. Simpson	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: BONEHEAD II	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-21	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks:

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

SAMPLE ANALYSIS: 410377

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G
No. of Container(s)	1	1	1	1	1	8	2	2	1		1
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml
	METALS (see S. I. #1) UNFILTERED A	IC ANIONS-F,Cl, SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S. I. #2) 4103780	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED A

Sample No.	Matrix*	Date Sampled	Time Sampled															
BO D4H6 01	W	10/18/94	1237	X	X	X	X	X	X	X	X	X						
BO D4H7 2	W	10/18/94	1237											X				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K.D. Lee	10/18/94 1354	B. Whitten	1354 10-18-94
B. Whitten	0955 10-19-94	R. Boyd Quantera	2100 10-19-94 0955

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG-W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

032

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priorty [X] Normal

Collector: A. Rizzo	Company Contact: PK BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: GWS-012	Field Logbook No.: EFL-1020	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-21	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS 410377	METALS (see S. I. #1) UNFILTERED A	IC ANIONS-F,Cl, SO4,NO2 PO4 B	ALKALI-NITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S. I. #2) 410378	TRITIUM 02	Tc-99	ACTIVI-TY SCAN		METALS (see S. I. #3) FILTER-ED A				

Sample No.	Matrix*	Date Sampled	Time Sampled													
B004K0 03	W	10-18-94	1105	X	X	X	X	X	X	X	X	X				
B004K1 4	W	10-18-94	1105									X				

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	W.W. SETZER	10-18-94 1345		1315 10-18-94
Relinquished By		0955 10-19-94	Received By	Date/Time 10-19-94 0955
Relinquished By		Date/Time	Received By	Date/Time
Relinquished By		Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-B28 (12/92)

033

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priority [X] Normal

Collector: A Rizzo	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: GWS-025	Field Logbook No.: EFL-1020	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-ZZ	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCL <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS	METALS (see S. I. #1) UNFILTERED	IC ANIONS-F,Cl, SO4,NO2 PO4	ALKALINITY	TDS	CLP-CYANIDE	GROSS ALPHA/BETA, (see S. I. #2)	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED				
410377	4	B	C	D	E	4103	7803	—			A				
Sample No. / Matrix* / Date Sampled / Time Sampled															
BO D4K8 05 / W / 10-18-94 / 1120	Y	X	X	X	X	X	X	X	X						
BO D4K9 6 / W / 10-18-94 / 1120											X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: R.W. Jeffery	Date/Time: 10-18-94 1315	Received By: Bwhitten	Date/Time: 1315 10-18-9
Relinquished By: Bwhitten	Date/Time: 0955 10-19-94	Received By: 210 A. Boyd Quatena	Date/Time: 10-19-94 0955
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

034

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: A.J. SIMPSON	Company Contact: PH BUTCHER	Telephone No.: (509) 376-4388
Project Designation: 200-BP-5	Sampling Location: 200 AREAS	SAF No.: B94-036 200-BP-5 GROUNDWATER - ROUND 2
Ice Chest No.: ER-24	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-ZZ	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks:

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

SAMPLE ANALYSIS: 41037804

Preservative	HNO3<2	
Type of Container	G/P	G/P
No. of Container(s)	8	1
Volume	1000ml	40ml
	GAMMA SCAN: (Cs-137), Pu-239/240, Sr-90	ACTIVITY SCAN

Sample No.	Matrix*	Date Sampled	Time Sampled		
B0D4R3	W	10/18/94	1003	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
K.O. Lee	10/18/94 1354	B. Whitten	10-18-94 1354
B. Whitten	10-19-94 0955	R. Boyd Quantera	10-19-94 0955

SPECIAL INSTRUCTIONS

***NOTE: AS PER REQUEST FROM THE PROJECT COORDINATOR(DB ERB), THESE ARE THE ONLY CONSTITUENTS TO BE ANALIZED FOR!!

SDG W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

035

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: A. J. Simpson	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: ER-8	Field Logbook No.: FPL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-20	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

Sample No.	Matrix*	Date Sampled	Time Sampled	METALS (see S.I. #1) UNFILTERED A	IC ANIONS-F,Cl,SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S.I. #2)	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S.I. #3) FILTERED A				
Preservative				HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container				P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)				1	1	1	1	1	8	2	2	1		1				
Volume				1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS				410346					410347									
BD D4J6 01	W	10/17/94	1020	X	X	X	X	X	X	X	X	X						
BD D4J7 2	W	10/17/94	1020											X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[signature]	10/17/94 1340	[signature] Bulliten	1340 10-17-94
[signature] Bulliten	10-18-94 0950	[signature] Quantera	10-18-94 0950

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

039

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: A. J. Simpson	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: GWS-122	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: 1U95-0-0001-18	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

SAMPLE ANALYSIS: 410324

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
	METALS (see S. I. #1) UNFILTERED	IC ANIONS-F,Cl, SO4,NO2 PO4	ALKALINITY	TDS	CLP-CYANIDE	GROSS ALPHA/BETA, (see S. I. #2)	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED				
	A	B	C	D	E	410325	01	—	—		A				

Sample No.	Matrix*	Date Sampled	Time Sampled														
BO D4N4 01	W	10/14/94	0932	X	X	X	X	X	X	X	X	X					
BO D4N5 2	W	10/14/94	0932											X			

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: E.A. Lee, Date/Time: 10/14/94 1345	Received By: B. Butcher, Date/Time: 1345 10-14-94		
Relinquished By: B. Butcher, Date/Time: 1055 10-17-94	Received By: [illegible], Date/Time: 10-17-94		
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

037

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 200-BP-5 ROUND 2 GROUNDWATER	DATA PACKAGE: W0260-QES	
VALIDATOR: T. Stapp	LAB: QUANTERRA	DATE: 1-18-95
CASE:	SDG:	

ANALYSES PERFORMED

☐ Gross Alpha/Beta	☐ Strontium-90	☐ Technetium-99	☐ Alpha Spectroscopy	☐ Gamma Spectroscopy	
☐ Total Uranium	☐ Radium-22	☐ Tritium	☐		

SAMPLES/MATRIX B0D4N0, B0D4N4, B0D4L2, B0D4L4, B0D4L0, ~~B0D4~~ B0D4K4, B0D4K0, B0D4K8, B0D4J6, B0D4H6, B0D4R3 / WATER

1. Completeness . . . . . ☐ N/A

Technical verification forms present? . . . . . (Yes) No N/A

Comments:

2. Initial Calibration . . . . . ☐ N/A

Instruments/detectors calibrated within one year of sample analysis? . . . NOTE ① . . . . . Yes (No) N/A

Initial calibration acceptable? . . . . . (Yes) No N/A

Standards NIST traceable? . . . . . (Yes) No N/A

Standards Expired? . . . . . Yes (No) N/A

Comments: ① Initial Calib. not performed within one year of sample analysis for Pu238/239, Gamma, Gross α/β, Strontium detectors however continuing calibration data is acceptable and no qualification will be applied.

039

3. Continuing Calibration . . . . . ☐ N/A

Calibration checked within one week of sample analysis? . . . Yes No N/A
Calibration check acceptable? . . . . . Yes No N/A
Calibration check standards NIST traceable? . . . . . Yes No N/A
Calibration check standards expired? . . . . . Yes No N/A

Comments:_____

4. Blanks . . . . . ☐ N/A

Method blank analyzed? . . . . . Yes No N/A
Method blank results acceptable? . . . . . Yes No N/A
Analytes detected in method blank? . . . . . Yes No N/A
Field blank(s) analyzed? . . . . . Yes No N/A
Field blank results acceptable? . . . . . Yes No N/A
Analytes detected in field blank(s)? . . . . . Yes No N/A
Transcription/Calculation Errors? . . . . . Yes No N/A

Comments:_____

5. Matrix Spikes . . . . . ☐ N/A

Matrix spike analyzed? . . . . . Yes No N/A
Spike recoveries acceptable? . . . . . Yes No N/A
Spike source traceable? . . . . . Yes No N/A
Spike source expired? . . . . . Yes No N/A
Transcription/Calculation Errors? . . . . . Yes No N/A

Comments:_____

040

6. Laboratory Control Samples . . . . . ☐ N/A

LCS analyzed? . . . . . Yes No N/A
LCS recoveries acceptable? . . . . . Yes No N/A
LCS traceable? . . . . . Yes No N/A
Transcription/Calculation Errors? . . . . . Yes No N/A

Comments:

7. Chemical Recovery . . . . . ☐ N/A

Chemical carrier added? . . . . . Yes No N/A
Chemical recovery acceptable? . . . . . Yes No N/A
Chemical carrier traceable? . . . . . Yes No N/A
Chemical carrier expired? . . . . . Yes No N/A
Transcription/Calculation errors? . . . . . Yes No N/A

Comments:

8. Duplicates . . . . . ☐ N/A

Duplicates Analyzed? . . . . . Yes No N/A
RPD Values Acceptable? . . NOTE ① . . . . . Yes No N/A
Transcription/Calculation Errors? . . . . . Yes No N/A

Comments: ① The RPD and/or ±RDL criteria for all duplicate results were acceptable, with the exception of Ruthenium-106, however since an RDL is not required of the laboratory for this isotope the criteria and any qualification were not applicable.

041

9. Field QC Samples . . . . . ☐ N/A

Field duplicate sample(s) analyzed? . . NOTE ① . . . . . (Yes) No N/A
Field duplicate RPD values acceptable? . . . . . (Yes) No N/A
Field split sample(s) analyzed? . . . . . Yes (No) N/A
Field split RPD values acceptable? . . . . . Yes No (N/A)
Performance audit sample(s) analyzed? . . . . . Yes No (N/A)
Performance audit sample results acceptable? . . . . . Yes No (N/A)

Comments: ① Samples BOD4N4 and BOD4N0 were identified as field duplicates of BOD4G0 and BOD4L4 respectively.

10. Holding Times

Are sample holding times acceptable? . Note ① + ② . . (Yes) No N/A

Comments: ① See holding time Summary ~~pages~~ on pages following checklist. 1-24-95
② The tritium sample analyses were analyzed greater than 7 days after distillation. However based on review of lab EPA, DOE, and Quanterra's methodologies the 7day holding time is not applicable. Therefore no qualification will be applied. See following pages for supporting documentation.

11. Results and Detection Limits (Levels D & E) . . . . . ☐ N/A

Results reported for all required sample analyses? . . . . (Yes) No N/A
Results supported in raw data? . . . . . (Yes) No N/A
Results Acceptable? . . . . . (Yes) No N/A
Transcription/Calculation errors? . . . . . Yes (No) N/A
MDA's meet required detection limits? . Note ① + ② . . (Yes) No N/A
Transcription/calculation errors? . . . . . Yes (No) N/A

Comments: ① MDAs meet RDL's for all isotopes with the exception of gross alpha ~~result~~ MDA for sample BOD4K8, and gross beta MDAs for samples BOD4N4, BOD4K8, BOD4N0, BOD4L2, and BOD4L4. No qualifications are applied. 1-24-95
② RDL values for Fe-59 and Ru-106 have not been established for the 200 BP-5 project, therefore MDAs if given do not exceed detection limit requirements and no explanation will be presented in the report memorandum. Issues of RDL for these isotopes as stated in the lab narrative are not applicable.

042

RADIOCHEM ~~GC/MS ORGANIC~~ DATA VALIDATION CHECKLIST

Comments (attach additional sheets as necessary): HOLDING TIMES

		Collected	Analysis Date							
			Grs α	β	Tc-99	H3	GAMMA	Pu α/β	Sr	Total
501	BOD4N4	10-14-94	11/20	11/19	11/22	11/17	11/16	11/28	11/08	11/17
701	BOD4J6	10-17-94	↓	↓	↓	↓	↓	↓	↓	↓
801	BOD4H6	10-18-94	↓	↓	↓	↓	↓	↓	↓	↓
802	BOD4K0	10-18-94	↓	↓	↓	↓	↓	↓	↓	↓
803	BOD4K8	10-18-94	↓	11/28	↓	↓	↓	↓	↓	11/21
804	BOD4R3	10-18-94	N/A	N/A	N/A	N/A	11/17	↓	↓	NA
101	BOD4K4	10-19-94	11/20	11/19	11/22	11/17	11/16	12/5	↓	11/17
102	BOD4L0	10-19-94	↓	↓	↓	↓	↓	11/24	↓	↓
103	BOD4N0	10-19-94	↓	↓	↓	↓	↓	↓	↓	↓
104	BOD4L2	10-19-94	↓	↓	↓	↓	↓	↓	↓	↓
105	BOD4L4	10-19-94	↓	↓	↓	↓	↓	↓	↓	↓

DAYS: ≤180 →

- All dates are 1994
- N/A - Not analyzed.

A-~~4~~5 1-24-95

Tritium Holding/Distillation Supplement

Author: Richard L Weiss at ~WHC321
Date: 1/12/95 9:36 AM
Priority: Normal
TO: Kent Angelos at GAI_SEATTLE_WA
TO: Janice M Scott at ~WHC362
TO: Karl N Pool
CC: Jeffrey A Lerch
Subject: Tritium Distiooaltion, Reply

---------- Message Contents ----------

Janice,

What is the shelf-life of this type of sample preparation? Does the laboratory have an opinion or recommendation? Since if we follow the validation procedure (analyze 7 days after distillation) we will have to reject virtually all of the data. The 7 days is based on guidance in the EPA reference methodologies. If the laboratory has some supporting information and a reason not to reject, I think that is defensible.

Thanks

Kent

Kent

The following reference documents were consulted:

A.) EPA-600/4-80-032, "Prescribed Procedures for Measurement of Radioactivity in Drinking Water", August 1980.

B.) EPA 520/5-84-006, Eastern Environmental Radiation Facility, "Radiochemistry Procedures Manual", August 1984.

C.) PB-240 621, EPA-680/4-75-001, National Environmental Research Center, "Handbook of Radiochemical Analytical Methods", February 1975.

D.) PB92-168483, Environmental Measurements Laboratory, Department of Energy, "EML Procedures Manual", 27th Ed., Volume 1, February 1992 [HASL 300].

The following guidance/requirements regarding acceptable times from distillation to counting were found in the references:

Ref. A - Method 906.0 "Tritium in Drinking Water", pg. 77
"6.3.3 Solution G liquid scintillator solution: Dissolve 18g scintillation-grade PPO (2,5-diphenyloxozole) and 3.6g scintillation-grade BIS-MSB p-bis(o-methylstyryl)benzene in 2 liters of spectroquality p-xylene.... The organic solvent evaporates slowly through the wall of the polyethylene vials. For this reason counting samples should be completed within 3 days after preparation.

6.3.2 ... prepared with aromatic hydrocarbon solvents and should therefore, when used with plastic vials, be counted within 3 days for the reason stated above."

Ref. B - Method H-01 "Radiochemical Determination of Tritium in Milk, Soil, Urine, Vegetation and Other Biological Samples", pg. H-01-3
"Notes
2. ...Plastic vials should be resistant to the scintillation solution. The solvent, p-xylene, will migrate through the plastic vials, therefore the samples should be counted no longer than three days after preparation."

Method H-03 "Radiochemical Determination of Tritium in Water", pg. H-03-3
Identical Note 2 as for Method H-01.

Ref. C - Four tritium procedures, no discussion on preparation to count times.

Tritium Holding Time / Distillation Supplement page 2 of

'Ref. D - Three tritium procedures, no discussion on preparation to count times.

Unless I've missed something (always possible), the referenced procedures show that the basis for a preparation to count time requirement is derived from the use of aromatic solvent based scintillation cocktails. The primary concern is for migration of the solvent through the walls of plastic scintillation counting vials. It should also be noted that the procedures do not define these times from distillation of the sample but are based on the time of preparation (which I read as addition of scintillation cocktail) of the vial for counting. The source of a 7 day absolute maximum is unclear, but likely an external conversion from the 3 day "should" statements to a "must" statement.

Based on my interpretation, the current wording of the radiochemical analysis validation procedure regarding counting of tritium analyses within 7 days of distillation is not appropriate for evaluation of analysis performed by Quanterra Laboratories primarily because:

> Quanterra does not use an aromatic hydrocarbon solvent based scintillation cocktail. They are currently using Beckman Instruments "ULTRAPLEX" which is an aqueous based solution.

Even if the laboratory were using an aromatic based cocktail, their procedures require addition of the cocktail prior to initiation of the counting procedure (including appropriate time for dark adaptation). The critical time is the time that the cocktail is in contact with the vial, not the time from distillation (assuming that care is taken to ensure that no evaporation of the distilled sample occurs). Quanterra procedures ensure that the cocktail is in the vials less that 3 days before counting and that the vials are sealed during "storage".

The validation requirement would also be inappropriate for situations where counting was performed in glass vials.

I recommend that the current issue with Quanterra tritium analyses be addressed using a "not applicable" for the existing criteria in the procedure. Document this as part of the validation case narrative. Clarification of this part of the procedure to better define where and how this type of analytical hold time criteria should be applied should be included in the next revision. Karl Pool will be contacting you in regards to official closure of this issue.

Call if you need more inforamtion

Rich

Plutonium

HEIS No.:	B0D4H6	B0D4L4
Lab ID:	41037801	41043105
Aliquot:	2.00E-01	2.00E-01
Pu238 net cpm:	0	-0.0005
Pu238 bkg cpm:	0	0.0005
Spl count time:	200	200
Bkg count time:	4000	4000
Pu238 Eff d/c:	3.703	3.703
Decay:	1.001	1.001
Yield:	0.603	0.679
Pu238 calc:	0.00E+00	-6.15E-03
Pu238 rptd:	0.00E+00	-6.15E-03
Pu238 MDA calc:	1.88E-01	2.57E-01
Pu238 MDA rptd:	1.87E-01	2.57E-01
Pu239 net cpm:	-0.0005	-0.0005
Pu239 bkg cpm:	0.0005	0.0005
Pu239 d/c:	3.703	3.703
Pu239 decay:	1	1
Pu239 calc:	-6.92E-03	-6.14E-03
Pu239 rptd:	-6.91E-03	-6.14E-03
Pu239 MDA calc:	2.89E-01	2.57E-01
Pu239 MDA rptd:	2.89E-01	2.57E-01

Gross Alpha

HEIS No.:	B0D4H6	B0D4L4
Lab ID:	41037801	41043105
Aliquot:	2.06E-01	1.02E-01
Net counts:	0.49	0.108
Bkg counts:	0.03	0.032
Spl count time:	50	50
Bkg count time:	500	500
d/c:	4.082	3.95
Calc.:	4.38E+00	1.89E+00
Rptd:	4.38E+00	1.89E+00
MDA calc:	1.50E+00	3.00E+00
MDA rptd:	1.50E+00	3.00E+00

Gross Beta

HEIS No.:	B0D4H6	B0D4L4
Lab ID:	41037801	41043105
Aliquot:	2.04E-01	1.03E-01
Net counts:	2.116	19.58
Bkg counts:	1.024	0.92
Spl count time:	100	100
Bkg count time:	500	500
d/c:	2.563	2.553
Calc.:	1.20E+01	2.19E+02
Rptd:	1.19E+01	2.19E+02
MDA calc:	2.81E+00	5.30E+00
MDA rptd:	2.81E+00	5.30E+00

Strontium 90

HEIS No.:	B0D4H6	B0D4L4
Sample:	41037801	41043105
Sep date:	11/07/94	11/07/94
Sep time:	14:00	14:00
Count date:	11/08/94	11/08/94
Count time:	11:38	13:50
Hours:	21.633	23.833
Sample amt:	1.03E+00	1.01E+00
Net, cpm:	0.2	0.138
Count time:	100	100
Bkg, cpm:	1.2	0.992
Count time:	500	500
D/C 1:	2.317	2.313
D/C 2:	1.887	1.886
D/C 3:	2.018	2.019
Yield:	0.987	0.983
Calc:	1.66E-01	1.14E-01
Rptd:	1.66E-01	1.14E-01
MDA, Calc:	5.52E-01	5.12E-01
MDA, rptd:	5.52E-01	5.12E-01

Technetium-99

HEIS No.:	B0D4H6	B0D4L4
Sample:	41037801	41043105
Bkg cpm:	29.34	29.34
Spl, amt:	5.00E-01	5.00E-01
Spl cpm:	28.26	554.7
Count time:	125	125
Spl dpm:	30.55	614.42
d/c:	1.081	1.108
Yield:	0.951	0.951
Blk, dpm:	3.38E+01	3.38E+01
Blk, d/c:	1.055	1.055
Calc:	-1.54E+00	5.52E+02
Rptd:	-1.53E+00	5.52E+02
MDA, calc:	2.27E+00	2.27E+00
MDA, rptd:	2.27E+00	2.27E+00

Tritium

HEIS No.:	B0D4H6	B0D4L4
Sample:	41037801	41043105
Bkg cpm:	7.27	7.27
Spl, amt:	5.00E-03	5.00E-03
Spl cpm:	6.97	9.92
Count time:	125	125
Spl dpm:	16.59	23.72
d/c:	2.38	2.391
Yield:	0.94	0.94
Blk, dpm:	1.80E+01	1.80E+01
Calc:	-3.25E+01	6.51E+02
Rptd:	-3.27E+01	6.54E+02
MDA, calc:	2.56E+02	2.57E+02
MDA, rptd:	2.58E+02	2.58E+02

Total Uranium

HEIS No.:	B0D4H6	B0D4L4
Lab ID:	41037801	41043105
ng, raw:	4.53E+00	4.31E+00
L, sample:	1.00E-01	1.00E-01
Dil. vol:	100	100
Yield, corr:	1	1
Calc.:	4.53E+00	4.31E+00
Rptd:	4.53E+00	4.31E+00

RECORD COPY

MEMORANDUM

JAN 1995
RECEIVED
Validation
Log In

TO: 200-BP-5 Project QA Record January 26, 1995

FR: Dennis K. Robinson, Golder Federal Services, Inc.

RE: METALS DATA VALIDATION SUMMARY FOR DATA PACKAGE: W0260-QES (943-1610.058)

INTRODUCTION

This memo presents the results of data validation on 20 water samples analyzed by Quanterra Laboratory. The samples validated along with the analyses reported and the methods of analyses are provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
BOD4N4	10/14/94	Water	CLP Metals*/Cyanide
BOD4N5	10/14/94	Water (Filtered)	CLP Metals*
BOD4J6	10/17/94	Water	CLP Metals*/Cyanide
BOD4J7	10/17/94	Water (Filtered)	CLP Metals*
BOD4H6	10/18/94	Water	CLP Metals*/Cyanide
BOD4H7	10/18/94	Water (Filtered)	CLP Metals*
BOD4K0	10/18/94	Water	CLP Metals*/Cyanide
BOD4K1	10/18/94	Water (Filtered)	CLP Metals*
BOD4K8	10/18/94	Water	CLP Metals*/Cyanide
BOD4K9	10/18/94	Water (Filtered)	CLP Metals*
BOD4K4	10/19/94	Water	CLP Metals*/Cyanide
BOD4K5	10/19/94	Water (Filtered)	CLP Metals*
BOD4L0	10/19/94	Water	CLP Metals*/Cyanide
BOD4L1	10/19/94	Water (Filtered)	CLP Metals*
BOD4N0	10/19/94	Water	CLP Metals*/Cyanide
BOD4N1	10/19/94	Water (Filtered)	CLP Metals*
BOD4L2	10/19/94	Water	CLP Metals*/Cyanide
BOD4L3	10/19/94	Water (Filtered)	CLP Metals*
BOD4L4	10/19/94	Water	CLP Metals*/Cyanide
BOD4L5	10/19/94	Water (Filtered)	CLP Metals*
			*See Note 1

Note 1: Metals analyzed were calcium, magnesium, sodium, potassium, iron, manganese, silicon, aluminum, bismuth, and selenium.

Data validation was conducted in accordance with the WHC statement of work (WHC 1994) and validation procedures (WHC 1993). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met. Samples BOD4G0 and BOD4G1 are field duplicate samples of BOD4N4 and BOD4N5 respectively. Samples BOD4G0 and BOD4G1 were not part of this data package therefore, an evaluation of the RPD of these field duplicate samples could not be made. Samples BOD4L4 and BOD4L5 are field duplicate samples of BOD4N0 and BOD4N1 respectively. The RPDs of these field duplicates results met the goals for precision except for the iron results. Per the validation procedures, no qualification of the data was made based upon the results of the field duplicate RPD.

Accuracy. Goals for accuracy were met with the exception of the deficiencies identified below. Field split samples of BOD4N4/BOD4N5 and BOD4L4/BOD4L5 were collected and submitted to another laboratory as samples BOD4N2/BOD4N3 and BOD4N6/BOD4N7 respectively. The results of these split samples were not available for evaluation.

Detection Limits. Target goals for sample detection limits were met with the exception of selenium. Due to matrix interferences which resulted in analytical spike recoveries less than 40%, the samples were analyzed at a 5X dilution. Qualification of the data was not required.

Completeness. A total of 20 samples were validated in this data package with a total of 210 determinations reported, all of which were deemed usable. This results in a completeness of 100 percent which meets the objective of 90 percent.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data.

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data.

Metals

- **Positive Blanks.** Iron, manganese, and selenium were detected at positive concentrations in the associated calibration and/or preparation blanks. Attachments 2 and 5 provide a summary of the samples affected, data qualifications applied, and supporting documentation.

- **Matrix Spike Recovery.** .The percent recovery of the unfiltered and filtered spike sample was outside the control limits for selenium (54.5% and 42.2% respectively). Attachments 2 and 5 provide a summary of the samples affected, data qualifications applied, and supporting documentation.

- **Graphite Furnace Quality Control.** The percent recovery of the analytical spike was outside the control limits for the following samples for the selenium analysis: BOD4J6, BOD4J7, BOD4H6, BOD4H7, BOD4K0, BOD4K1, BOD4K8, BOD4K9, BOD4K4, and BOD4L0. Attachments 2 and 5 provide a summary of the data qualifications applied and supporting documentation.

REFERENCES

WHC 1993, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. Westinghouse Hanford Company, Richland, Washington.

WHC 1994, Environmental and Waste Characterization Analytical Data Validation, Purchase Order MSH-SWV-315905, Validation Statement of Work, Revision 1.0, September 7, 1994, Westinghouse Hanford Company, Richland, Washington.

Attachment 1

Glossary of Data Reporting Qualifiers

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected. The concentration reported is less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample detection limit corrected for aliquot size, dilution, and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during the data validation the concentration reported may not accurately reflect the sample detection limit. The associated data have been qualified as estimated but should be considered usable for decision making purposes.

BJ - Indicates the constituent was analyzed for and detected at a concentration less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). Due to a minor quality control deficiency identified during data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. Due to a minor quality control deficiency identified during the data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.

UR - Indicates the constituent was analyzed for and not detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

Attachment 2

Summary of Data Qualifications

Data Qualification Summary

Project: 200-BP-5	Validator: D. Robinson	Date: 1/20/95	Page 1 of 2
Comments: Metals analysis			
Analyte	Qualifier	Samples Affected	Reason
Iron	U	BOD4K1 BOD4H7	Present in associated preparation blank at a positive concentration
Iron	U	BOD4N5 BOD4J7 BOD4H6 BOD4H7 BOD4K0 BOD4K1 BOD4K5 BOD4L1 BOD4L3 BOD4L4 BOD4L5 BOD4N1	Present in associated CCB at a positive concentration
Manganese	U	BOD4K0 BOD4K1	Present in associated CCB at a positive concentration
Manganese	U	BOD4N4 BOD4N5 BOD4N0 BOD4N1 BOD4L4 BOD4L5	Present in Prep. Blank at a positive concentration
Selenium	U	BOD4L0	Present in associated CCB at a positive concentration
Selenium	UJ	BOD4N4 BOD4N5 BOD4J6 BOD4J7 BOD4H6 BOD4H7 BOD4K0 BOD4K1 BOD4K8 BOD4K9 BOD4K4 BOD4K5 BOD4L0 BOD4L1 BOD4N0 BOD4N1 BOD4L2 BOD4L3 BOD4L4 BOD4L5	Percent recovery of spike sample less than 75% but greater than 30%.

Data Qualification Summary

Project: 200-BP-5	Validator: D. Robinson	Date: 1/20/95	Page 2 of 2
Comments: Metals analysis			
Analyte	Qualifier	Samples Affected	Reason
Selenium	UJ	BOD4J6 BOD4J7 BOD4H6 BOD4H7 BOD4K0 BOD4K1 BOD4K8 BOD4K9 BOD4K4 BOD4L0	Percent recovery of analytical spike below the specified control limits of 85 to 115%.

Attachment 3

Qualified Data Summary and Annotated Laboratory Reports

Validated Data Summary, Data Package: W0260-QES

	Samp#	B0D4H6		B0D4H7		B0D4J6		B0D4J7		B0D4K0		B0D4K1	
	Date	10-18-94		10-18-94		10-17-94		10-17-94		10-18-94		10-18-94	
	Location	299-E33-40		299-E33-40		699-49-55B		699-49-55B		699-49-57B		699-49-57B	
	Depth	---		---		---		---		---		---	
	Type	WATER		WATER		WATER		WATER		WATER		WATER	
	Comments												
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
ALUMINUM	UG/L	25.100	B	24.900	U	24.900	U	24.900	U	24.900	U	27.700	B
CALCIUM	UG/L	31300.000		29800.000		30000.000		29600.000		34500.000		34500.000	
IRON	UG/L	116.000	U	59.900	U	253.000		46.000	U	96.200	U	47.500	U
MAGNESIUM	UG/L	8890.000		8430.000		9820.000		9700.000		8070.000		8470.000	
MANGANESE	UG/L	41.800		39.500		4.400	B	2.600	B	8.100	U	8.800	U
POTASSIUM	UG/L	7020.000		6930.000		6640.000		6120.000		5570.000		4270.000	B
SELENIUM	UG/L	1.700	UJ	1.700	UJ	1.700	UJ	1.700	UJ	1.700	UJ	1.700	UJ
SODIUM	UG/L	12900.000		12100.000		10000.000		9950.000		22600.000		23600.000	
CYANIDE	UG/L	1.200	U	---		1.200	U	---		1.200	U	---	
SILICON	UG/L	25400.000		24100.000		25900.000		25400.000		17900.000		18800.000	
BISMUTH	UG/L	58.800	B	39.700	B	38.000	U	38.000	U	38.000	U	38.000	U

The decimal places shown do not reflect the precision reported by the laboratory

010

verified aj
1/26/95

Validated Data Summary, Data Package: W0260-QES

	Samp#	B0D4K4		B0D4K5		B0D4K8		B0D4K9		B0D4L0		B0D4L1	
	Date	10-19-94		10-19-94		10-18-94		10-18-94		10-19-94		10-19-94	
	Location	699-50-53B		699-50-53B		699-52-57		699-52-57		699-53-55A		699-53-55A	
	Depth	---		---		---		---		---		---	
	Type	WATER		WATER		WATER		WATER		WATER		WATER	
	Comments												
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
ALUMINUM	UG/L	24.900	U	24.900	U	74.500	B	35.000	B	37.800	B	24.900	U
CALCIUM	UG/L	40600.000		41100.000		47100.000		45400.000		36300.000		37500.000	
IRON	UG/L	346.000		72.600	U	1780.000		396.000		606.000		65.700	U
MAGNESIUM	UG/L	11400.000		11600.000		10300.000		10600.000		12100.000		12000.000	
MANGANESE	UG/L	7.800	B	6.200	B	1110.000		1120.000		26.900		21.200	
POTASSIUM	UG/L	7910.000		8420.000		8040.000		8210.000		9950.000		10700.000	
SELENIUM	UG/L	1.700	UJ	8.500	UJ	8.500	UJ	8.500	UJ	1.800	UJ	8.500	UJ
SODIUM	UG/L	12100.000		12400.000		51900.000		51200.000		24800.000		25000.000	
CYANIDE	UG/L	1.200	U	---		1.200	U	---		1.200	U	---	
SILICON	UG/L	27700.000		28100.000		9520.000		9290.000		17300.000		18600.000	
BISMUTH	UG/L	38.000	U	38.000	U	58.700	B	38.000	U	38.000	U	41.100	B

The decimal places shown do not reflect the precision reported by the laboratory

verified aj
1/26/95

Validated Data Summary, Data Package: W0260-QES

	Samp#	B0D4L2		B0D4L3		B0D4L4		B0D4L5		B0D4N0		B0D4N1	
	Date	10-19-94		10-19-94		10-19-94		10-19-94		10-19-94		10-19-94	
	Location	699-53-55B		699-53-55B		699-53-55C		699-53-55C		699-53-55C		699-53-55C	
	Depth	---		---		---		---		---		---	
	Type	WATER		WATER		WATER		WATER		WATER		WATER	
	Comments									DUPLICATE		DUPLICATE	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
ALUMINUM	UG/L	24.900	U	24.900	U	132.000	B	24.900	U	24.900	U	24.900	U
CALCIUM	UG/L	59100.000		62900.000		66200.000		65600.000		65900.000		64700.000	
IRON	UG/L	615.000		133.000	U	92.900	U	65.200	U	279.000		57.500	U
MAGNESIUM	UG/L	18400.000		19500.000		18900.000		18800.000		18900.000		18600.000	
MANGANESE	UG/L	25.500		18.200		3.600	U	3.600	U	4.400	U	3.600	U
POTASSIUM	UG/L	7750.000		7540.000		8130.000		7760.000		8970.000		8980.000	
SELENIUM	UG/L	8.500	UJ	8.500	UJ	8.500	UJ	8.500	UJ	8.500	UJ	8.500	UJ
SODIUM	UG/L	27600.000		29200.000		27700.000		27600.000		27500.000		27300.000	
CYANIDE	UG/L	42.100		---		51.000		---		49.900		---	
SILICON	UG/L	16400.000		17500.000		19700.000		19500.000		19800.000		19400.000	
BISMUTH	UG/L	38.000	U	39.400	B	38.700	B	38.000	U	61.300	B	39.500	B

The decimal places shown do not reflect the precision reported by the laboratory

verified zj
1/26/95

Validated Data Summary, Data Package: W0260-QES

	Samp#	B0D4N4		B0D4N5	
	Date	10-14-94		10-14-94	
	Location	299-E33-12		299-E33-12	
	Depth	---		---	
	Type	WATER		WATER	
	Comments	DUPLICATE		DUPLICATE	
Parameter	Units	Result	Q	Result	Q
ALUMINUM	UG/L	63.700	B	33.400	B
CALCIUM	UG/L	31800.000		31700.000	
IRON	UG/L	196.000		88.300	U
MAGNESIUM	UG/L	9650.000		9620.000	
MANGANESE	UG/L	3.200	U	2.200	U
POTASSIUM	UG/L	8590.000		7580.000	
SELENIUM	UG/L	8.500	UJ	1.700	UJ
SODIUM	UG/L	22600.000		22300.000	
CYANIDE	UG/L	24.000		---	
SILICON	UG/L	27600.000		27400.000	
BISMUTH	UG/L	38.000	U	38.000	U

The decimal places shown do not reflect the precision reported by the laboratory

verified aj
1/26/95

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4N4

ıb Name: ITAS_ST._LOUIS_____ Contract: 550.23____

ıb Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____

ıtrix (soil/water): WATER Lab Sample ID: 6500-001

ɜvel (low/med): LOW__ Date Received: 10/17/94

Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	63.7	B		P
7440-70-2	Calcium__	31800			P
7439-89-6	Iron____	196			P
7439-95-4	Magnesium	9650			P
7439-96-5	Manganese	3.2	B		P
7440-09-7	Potassium	8590			P
7782-49-2	Selenium_	8.5	U	N	F
7440-23-5	Sodium___	22600			P
	Cyanide__	24.0			AS
7440-21-3	Silicon__	27600			P
7440-69-9	Bismuth__	38.0	U		P

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OKR 1/19/95

ɔlor Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

ɔlor After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

ɔmments:

SILICATE_=_90500_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4N5

ab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
ab Code: ITMO___ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
atrix (soil/water): WATER Lab Sample ID: 6500-002
evel (low/med): LOW__ Date Received: 10/17/94
Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	33.4	B		P
7440-70-2	Calcium	31700			P
7439-89-6	Iron	88.3	B		P
7439-95-4	Magnesium	9620			P
7439-96-5	Manganese	2.2	B		P
7440-09-7	Potassium	7580			P
7782-49-2	Selenium	1.7	U	SN	F
7440-23-5	Sodium	22300			P
	Cyanide				NR
7440-21-3	Silicon	27400			P
7440-69-9	Bismuth	38.0	U		P

olor Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
olor After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

omments:
SILICATE_=_89800_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4J6

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6519-001
Level (low/med): LOW__ Date Received: 10/18/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	24.9	U		P
7440-70-2	Calcium__	30000			P
7439-89-6	Iron____	253			P
7439-95-4	Magnesium	9820			P
7439-96-5	Manganese	4.4	B		P
7440-09-7	Potassium	6640			P
7782-49-2	Selenium_	1.7	U	~~WN~~	F
7440-23-5	Sodium___	10000			P
	Cyanide__	1.2	U		AS
7440-21-3	Silicon__	25900			P
7440-69-9	Bismuth__	38.0	U		P

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Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_84900_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4J7

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6519-002
Level (low/med): LOW__ Date Received: 10/18/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	24.9	U		P
7440-70-2	Calcium__	29600			P
7439-89-6	Iron____	46.0	B		P
7439-95-4	Magnesium	9700			P
7439-96-5	Manganese	2.6	B		P
7440-09-7	Potassium	6120			P
7782-49-2	Selenium_	1.7	U	WN	F
7440-23-5	Sodium___	9950			P
	Cyanide__				NR
7440-21-3	Silicon__	25400			P
7440-69-9	Bismuth__	38.0	U		P

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_83300_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4H6

Lab Name: ITAS_ST._LOUIS Contract: 550.23
Lab Code: ITMO Case No.: SAS No.: SDG No.: W0260
Matrix (soil/water): WATER Lab Sample ID: 6550-001
Level (low/med): LOW Date Received: 10/19/94
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	25.1	B		P
7440-70-2	Calcium	31300			P
7439-89-6	Iron	116			P
7439-95-4	Magnesium	8890			P
7439-96-5	Manganese	41.8			P
7440-09-7	Potassium	7020			P
7782-49-2	Selenium	1.7	U	WN	F
7440-23-5	Sodium	12900			P
	Cyanide	1.2	U		AS
7440-21-3	Silicon	25400			P
7440-69-9	Bismuth	58.8	B		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
SILICATE = 83300 UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOD4H7

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO___ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6550-004
Level (low/med): LOW__ Date Received: 10/19/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum_	24.9	U		P	
7440-70-2	Calcium__	29800			P	
7439-89-6	Iron_____	59.9	~~B~~		P	U
7439-95-4	Magnesium	8430			P	
7439-96-5	Manganese	39.5			P	
7440-09-7	Potassium	6930			P	
7782-49-2	Selenium_	1.7	U	WN	F	UJ
7440-23-5	Sodium___	12100			P	
	Cyanide__				NR	
7440-21-3	Silicon__	24100			P	
7440-69-9	Bismuth__	39.7	B		P	

DKR 11/9/95

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_79000_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4K0

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6550-002
Level (low/med): LOW__ Date Received: 10/19/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	24.9	U		P	
7440-70-2	Calcium	34500			P	
7439-89-6	Iron	96.2	B		P	
7439-95-4	Magnesium	8070			P	
7439-96-5	Manganese	8.1	B		P	
7440-09-7	Potassium	5570			P	
7782-49-2	Selenium	1.7	U	WN	F	
7440-23-5	Sodium	22600			P	
	Cyanide	1.2	U		AS	
7440-21-3	Silicon	17900			P	
7440-69-9	Bismuth	38.0	U		P	

1/19/95

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_58700_UG/L

FORM I - IN

ILM03.0

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U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4K1

ab Name: ITAS_ST._LOUIS Contract: 550.23

ab Code: ITMO Case No.: SAS No.: SDG No.: W0260

atrix (soil/water): WATER Lab Sample ID: 6550-005

evel (low/med): LOW Date Received: 10/19/94

Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	27.7	B		P
7440-70-2	Calcium	34500			P
7439-89-6	Iron	47.5	B		P
7439-95-4	Magnesium	8470			P
7439-96-5	Manganese	8.8	B		P
7440-09-7	Potassium	4270	B		P
7782-49-2	Selenium	1.7	U	WN	F
7440-23-5	Sodium	23600			P
	Cyanide				NR
7440-21-3	Silicon	18800			P
7440-69-9	Bismuth	38.0	U		P

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olor Before: COLORLESS Clarity Before: CLEAR Texture:

olor After: COLORLESS Clarity After: CLEAR Artifacts:

omments:

SILICATE = 61600 UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4K8

ab Name: ITAS_ST._LOUIS Contract: 550.23
ab Code: ITMO Case No.: SAS No.: SDG No.: W0260
atrix (soil/water): WATER Lab Sample ID: 6550-003
evel (low/med): LOW Date Received: 10/19/94
Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	74.5	B		P
7440-70-2	Calcium	47100			P
7439-89-6	Iron	1780			P
7439-95-4	Magnesium	10300			P
7439-96-5	Manganese	1110			P
7440-09-7	Potassium	8040			P
7782-49-2	Selenium	8.5	U	WN	F
7440-23-5	Sodium	51900			P
	Cyanide	1.2	U		AS
7440-21-3	Silicon	9520			P
7440-69-9	Bismuth	58.7	B		P

DKR 1/19/95

olor Before: COLORLESS Clarity Before: CLEAR Texture:
olor After: COLORLESS Clarity After: CLEAR Artifacts:

omments:
SILICATE = 31200 UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4K9

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6550-006
Level (low/med): LOW__ Date Received: 10/19/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	35.0	B		P
7440-70-2	Calcium__	45400			P
7439-89-6	Iron____	396			P
7439-95-4	Magnesium	10600			P
7439-96-5	Manganese	1120			P
7440-09-7	Potassium	8210			P
7782-49-2	Selenium_	8.5	U	WN	F
7440-23-5	Sodium___	51200			P
	Cyanide__				NR
7440-21-3	Silicon__	9290			P
7440-69-9	Bismuth__	38.0	U		P

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_30500_UG/L

FORM I - IN

ILM03.0

023

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U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4K4

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6560-001
Level (low/med): LOW__ Date Received: 10/20/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	24.9	U		P
7440-70-2	Calcium__	40600			P
7439-89-6	Iron____	346			P
7439-95-4	Magnesium	11400			P
7439-96-5	Manganese	7.8	B		P
7440-09-7	Potassium	7910			P
7782-49-2	Selenium_	1.7	U	WN	F
7440-23-5	Sodium___	12100			P
	Cyanide__	1.2	U		AS
7440-21-3	Silicon__	27700			P
7440-69-9	Bismuth__	38.0	U		P

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1/9/95

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_90800_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4K5

ab Name: ITAS_ST._LOUIS Contract: 550.23
ab Code: ITMO Case No.: SAS No.: SDG No.: W0260
atrix (soil/water): WATER Lab Sample ID: 6560-006
evel (low/med): LOW Date Received: 10/20/94
Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	24.9	U		P
7440-70-2	Calcium	41100			P
7439-89-6	Iron	72.6	B		P
7439-95-4	Magnesium	11600			P
7439-96-5	Manganese	6.2	B		P
7440-09-7	Potassium	8420			P
7782-49-2	Selenium	8.5	U	N	F
7440-23-5	Sodium	12400			P
	Cyanide				NR
7440-21-3	Silicon	28100			P
7440-69-9	Bismuth	38.0	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
SILICATE = 92100 UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4L0

ab Name: ITAS_ST._LOUIS Contract: 550.23
ab Code: ITMO Case No.: SAS No.: SDG No.: W0260
atrix (soil/water): WATER Lab Sample ID: 6560-002
evel (low/med): LOW Date Received: 10/20/94
Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	37.8	B		P
7440-70-2	Calcium	36300			P
7439-89-6	Iron	606			P
7439-95-4	Magnesium	12100			P
7439-96-5	Manganese	26.9			P
7440-09-7	Potassium	9950			P
7782-49-2	Selenium	1.8	B	WN	F
7440-23-5	Sodium	24800			P
	Cyanide	1.2	U		AS
7440-21-3	Silicon	17300			P
7440-69-9	Bismuth	38.0	U		P

1/19/95

olor Before: COLORLESS Clarity Before: CLEAR Texture:
olor After: COLORLESS Clarity After: CLEAR Artifacts:

omments:
SILICATE = 56700 UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOD4L1

b Name: ITAS_ST._LOUIS_____ Contract: 550.23____
b Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
trix (soil/water): WATER Lab Sample ID: 6560-007
vel (low/med): LOW__ Date Received: 10/20/94
Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	24.9	U		P	
7440-70-2	Calcium	37500			P	
7439-89-6	Iron	65.7	~~B~~		P	U
7439-95-4	Magnesium	12000			P	
7439-96-5	Manganese	21.2			P	
7440-09-7	Potassium	10700			P	
7782-49-2	Selenium	8.5	U	N	F	UJ
7440-23-5	Sodium	25000			P	
	Cyanide				NR	
7440-21-3	Silicon	18600			P	
7440-69-9	Bismuth	41.1	B		P	

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olor Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
olor After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

omments:
SILICATE_=_61000_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4L2

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____

Lab Code: ITMO___ Case No.:_____ SAS No.:_____ SDG No.: W0260_____

Matrix (soil/water): WATER Lab Sample ID: 6560-004

Level (low/med): LOW__ Date Received: 10/20/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum_	24.9	U		P	
7440-70-2	Calcium__	59100			P	
7439-89-6	Iron____	615			P	
7439-95-4	Magnesium	18400			P	
7439-96-5	Manganese	25.5			P	
7440-09-7	Potassium	7750			P	
7782-49-2	Selenium_	8.5	U	N	F	WJ
7440-23-5	Sodium___	27600			P	
	Cyanide__	42.1			AS	
7440-21-3	Silicon__	16400			P	
7440-69-9	Bismuth__	38.0	U		P	

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Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

SILICATE_=_53800_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4L3

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO___ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6560-009
Level (low/med): LOW__ Date Received: 10/20/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	24.9	U		P_
7440-70-2	Calcium__	62900			P_
7439-89-6	Iron_____	133			P_
7439-95-4	Magnesium	19500			P_
7439-96-5	Manganese	18.2			P_
7440-09-7	Potassium	7540			P_
7782-49-2	Selenium_	8.5	U	N	F_
7440-23-5	Sodium___	29200			P_
	Cyanide___				NR
7440-21-3	Silicon__	17500			P_
7440-69-9	Bismuth__	39.4	B		P_

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_57400_UG/L

FORM I - IN

ILM03.0

029

~~00097~~

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4L4

ab Name: ITAS_ST._LOUIS_____ Contract: 550.23____

ab Code: ITMO___ Case No.:_____ SAS No.:_____ SDG No.: W0260_____

atrix (soil/water): WATER Lab Sample ID: 6560-005

evel (low/med): LOW__ Date Received: 10/20/94

Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum_	132	B		P	
7440-70-2	Calcium__	66200			P	
7439-89-6	Iron____	92.9	~~B~~		P	UL
7439-95-4	Magnesium	18900			P	
7439-96-5	Manganese	3.6	~~B~~		P	UL
7440-09-7	Potassium	8130			P	
7782-49-2	Selenium_	8.5	U	~~N~~	F	UJ
7440-23-5	Sodium___	27700			P	
	Cyanide__	51.0			AS	
7440-21-3	Silicon__	19700			P	
7440-69-9	Bismuth__	38.7	B		P	

DEA 1/19/95

olor Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

olor After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

omments:

SILICATE_=_64600_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4L5

Lab Name: ITAS_ST._LOUIS Contract: 550.23
Lab Code: ITMO Case No.: SAS No.: SDG No.: W0260
Matrix (soil/water): WATER Lab Sample ID: 6560-010
Level (low/med): LOW Date Received: 10/20/94
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	24.9	U		P	
7440-70-2	Calcium	65600			P	
7439-89-6	Iron	65.2	~~B~~		P	
7439-95-4	Magnesium	18800			P	
7439-96-5	Manganese	3.6	~~B~~		P	
7440-09-7	Potassium	7760			P	
7782-49-2	Selenium	8.5	~~U~~	~~N~~	F	
7440-23-5	Sodium	27600			P	
	Cyanide				NR	
7440-21-3	Silicon	19500			P	
7440-69-9	Bismuth	38.0	U		P	

DKR 1/19/95

Color Before: COLORLESS Clarity Before: CLEAR Texture:
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
SILICATE = 63900 UG/L

FORM I - IN

ILM03.0

031

~~00099~~

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0D4N0

ab Name: ITAS_ST._LOUIS_____ Contract: 550.23____

ab Code: ITMO___ Case No.:_____ SAS No.:_____ SDG No.: W0260_____

atrix (soil/water): WATER Lab Sample ID: 6560-003

evel (low/med): LOW__ Date Received: 10/20/94

Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	24.9	U		P
7440-70-2	Calcium__	65900			P
7439-89-6	Iron____	279			P
7439-95-4	Magnesium	18900			P
7439-96-5	Manganese	4.4	B		P
7440-09-7	Potassium	8970			P
7782-49-2	Selenium_	8.5	U	N	F
7440-23-5	Sodium___	27500			P
	Cyanide__	49.9			AS
7440-21-3	Silicon__	19800			P
7440-69-9	Bismuth__	61.3	B		P

DKL 11/19/95

olor Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

olor After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

omments:

SILICATE_=_64900_UG/L

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOD4N1

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0260_____
Matrix (soil/water): WATER Lab Sample ID: 6560-008
Level (low/med): LOW__ Date Received: 10/20/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum_	24.9	U		P_	
7440-70-2	Calcium__	64700			P_	
7439-89-6	Iron_____	57.5	B		P_	
7439-95-4	Magnesium	18600			P_	
7439-96-5	Manganese	3.6	B		P_	
7440-09-7	Potassium	8980			P_	
7782-49-2	Selenium_	8.5	U	N	F_	
7440-23-5	Sodium___	27300			P_	
	Cyanide__				NR	
7440-21-3	Silicon__	19400			P_	
7440-69-9	Bismuth__	39.5	B		P_	

DKK 1/19/95

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
SILICATE_=_63600_UG/L

FORM I - IN

ILM03.0

Attachment 4

Laboratory Narrative and Chain-of-Custody Documentation

Quanterra Environmental Services

Quanterra Incorporated
2800 George Washington Way
Richland, Washington 99352

509 375-3131 Telephone
509 375-5590 Fax

CERTIFICATE OF ANALYSIS

DEC 1994
RECEIVED
Data
Log in

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

December 1, 1994

Attention: Joan Kessner

Project number	:	550.23
Date Received	:	October 17,18,19 and 20, 1994
Number of Samples	:	Twenty (20)
Sample Type	:	Water
SDG Number	:	W0260
Data Deliverable	:	Standalone

RECORD COPY

I. Introduction

Between October 17 and 20, 1994, twenty (20) water samples were received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analysis. Upon receipt, the samples were given the following laboratory ID numbers to correspond with their specific client ID's:

St Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
6500-001	B0D4N4	41032401	Water	10/17/94
6500-002	B0D4N5	41032402	Water	10/17/94
6519-001	B0D4J6	41034601	Water	10/18/94
6519-002	B0D4J7	41034601	Water	10/18/94
6550-001	B0D4H6	41037701	Water	10/19/94
6550-002	B0D4K0	41037703	Water	10/19/94
6550-003	B0D4K8	41037705	Water	10/19/94
6550-004	B0D4H7	41037702	Water	10/19/94
6550-005	B0D4K1	41037704	Water	10/19/94
6550-006	B0D4K9	41037706	Water	10/19/94
6560-001	B0D4K4	41043001	Water	10/20/94
6560-002	B0D4L0	41043003	Water	10/20/94
6560-003	B0D4N0	41043005	Water	10/20/94
6560-004	B0D4L2	41043007	Water	10/20/94

St Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
6560-005	B0D4L4	41043009	Water	10/20/94
6560-006	B0D4K5	41043002	Water	10/20/94
6560-007	B0D4L1	41043004	Water	10/20/94
6560-008	B0D4N1	41043006	Water	10/20/94
6560-009	B0D4L3	41043008	Water	10/20/94
6560-010	B0D4L5	41043010	Water	10/20/94

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: Total and dissolved TAL Metals using EPA CLP methodology. Cyanide and Selenium using EPA CLP methodology. Anions including Chloride, Fluoride, Nitrite, Nitrate, Phosphate, and Sulfate by EPA method 300.0. Total Dissolved Solids by EPA method 160.1. Alkalinity by EPA method 310.1

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 this SDG.

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

The Nitrate, Nitrite and Phosphate hold times were expired upon receipt of samples at laboratory.

The Relative Percent Difference could not be calculated because both values were less than the detection limits for the Phosphate and Nitrite analysis fon 6560-001.

The first CCV in the run (after ICV and ICB) was actually a blank. The samples are still bracketed by an ICV and CCV for every ten samples on the Cyanide analysis. See NCM# 730.

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:

Ann F. Wright for

Wade H. Price
Project Manager
e:\\sqlmo01\price$\abbydave\hanford\hanw0260.nar

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: A. J. Simpson	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: GWS-122	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-18	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks:		

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

SAMPLE ANALYSIS: 410324

Sample No.	Matrix*	Date Sampled	Time Sampled	METALS (see S.I. #1) UNFILTERED A	IC ANIONS-F,Cl,SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S.I. #2) 410325	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S.I. #3) FILTERED A				
Preservative				HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container				P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)				1	1	1	1	1	8	2	2	1		1				
Volume				1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
BD4N4 01	W	10/14/94	0932	X	X	X	X	X	X	X	X	X						
BD4N5 2	W	10/14/94	0932											X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: K.A.Lee	Date/Time: 10/14/94 1345	Received By: B.Whitten	Date/Time: 1345 10-14-94
Relinquished By: B.Whitten	Date/Time: 1055 10-17-94	Received By: [illegible]	Date/Time: 10-17-94
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

SPECIAL INSTRUCTIONS
#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)
NOTE: DATA DELIVERABLE-STANDALONE

SDG W0200

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: A. J. Simpson	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: ER-8	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-20	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS	METALS (see S. I. #1) UNFILTERED A	IC ANIONS-F,Cl, SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S. I. #2) 410347	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED A				
410346															

Sample No.	Matrix*	Date Sampled	Time Sampled														
BO D4J6 01	W	10/17/94	1020	X	X	X	X	X	X	X	X	X					
BO D4J7 2	W	10/17/94	1020											X			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
[signature]	10/17/94 1340	[signature] Butcher	10-17-94 1340
[signature] Butcher	10-18-94 0950	[signature]	10-18-94 0950

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

DC-6000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priority [X] Normal

Collector: A. J. Simpson	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: BOWEHEAD II	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-21	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G
No. of Container(s)	1	1	1	1	1	8	2	2	1		1
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml
SAMPLE ANALYSIS	METALS (see S. I. #1) UNFILTERED A	IC ANIONS-F,Cl, SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S. I. #2) 410378	TRITIUM	Tc-99 —	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED A

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

410377

Sample No.	Matrix*	Date Sampled	Time Sampled														
BO D4H6 01	W	10/18/94	1237	X	X	X	X	X	X	X	X	X					
BO D4H7 2	W	10/18/94	1237											X			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K. Lee	10/18/94 1354	B Whitten	1354 10-18-94
B Whitten	0955 10-19-94	R. Boyd Quaterra	2100 10-19-94 0955

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG-W0260

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: ____

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: A Rizzo	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: GWS-012	Field Logbook No.: EFL-1020	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-21	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS 410377	METALS (see S. I. #1) UNFILTERED A	IC ANIONS-F,Cl,SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S. I. #2) 410378G2	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED A				

Sample No.	Matrix*	Date Sampled	Time Sampled														
B004K0 03	W	10-18-94	1105	X	X	X	X	X	X	X	X	X					
B004K1 4	W	10-18-94	1105										X				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
W.J. Setzer (WJS)	10-18-94 1345	Kim Walker	10-18-94 1315
Kim Walker	10-19-94 0955	R. Boyd Quantina (KW)	10-19-94 0955

SPECIAL INSTRUCTIONS
#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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:

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-0000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: A Rizzo	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: GWS-025	Field Logbook No.: EFL-1020	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-22	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS 410377	METALS (see S.I. #1) UNFILTERED 4	IC ANIONS-F,Cl,SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S.I. #2) 4103780B	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S.I. #3) FILTERED A				

Sample No.	Matrix*	Date Sampled	Time Sampled															
BO D4K8 05	W	10-18-94	1120	Y	X	X	X	X	X	X	X	X						
BO D4K9 6	W	10-18-94	1120											X				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
W.V. Jeffrey	10-18-94 1315	B.Whitten	10-18-9 1315
B.Whitten	10-19-94 0955	A.Boyd Quintana	10-19-94 0955

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-0000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: A Rizzo	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: ER-1B	Field Logbook No.: EFL-1020	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-04	Bill of Lading/Air Bill No.:
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS 410436	METALS (see S.I. #1) UNFILTERED	IC ANIONS-F,Cl, SO4,NO2 PO4	ALKALINITY	TDS	CLP-CYANIDE	GROSS ALPHA/BETA, (see S.I. #2) 410431	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S.I. #3) FILTERED				
	A	B	C	D	E						A				

Sample No.	Matrix*	Date Sampled	Time Sampled	A	B	C	D	E										
BO D4K4 01	W	10-19-94	1130	X	X	X	X	X	X	X	X	X						
BO D4K5 2	W	10-19-94	1130											X				

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	A Rizzo	1415 10-19-94	Butcher	1415 10-19-94
Relinquished By	Butcher	1010 10-20-94	Received By Quanterra B Brownfield	1010 10/20/94
Relinquished By			Received By	
Relinquished By			Received By	

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG n0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

043

000054

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priority [X] Normal

Collector: A.J. SIMPSON	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: ER-8	Field Logbook No.:	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-2C	Bill of Lading/Air Bill No.:
Possible Sample Hazards/Remarks:		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS	METALS (see S.I. #1) UNFILTERED	IC ANIONS-F,Cl,SO4,NO2 PO4	ALKALINITY	TDS	CLP-CYANIDE	GROSS ALPHA/BETA, (see S.I. #2)	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S.I. #3) FILTERED				
410430	A	B	C	D	E	410431	OZ	—			A				

Sample No.	Matrix*	Date Sampled	Time Sampled													
BO D4L0 3	W	10/19/94	0750	X	X	X	X	X	X	X	X	X				
BO D4L1 4	W	10/19/94	0750									X				

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	Kirby M. Lee (KALee)	10/19/94 1230	Kirk Whitten (BWhitten)	10-19-94 1230
Relinquished By	Kirk Whitten (BWhitten)	10-20-94 1010	Received By Quanterra B. Brumfield	10/20/94 10:10
Relinquished By			Received By	
Relinquished By			Received By	

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG-W0260

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

DISTRIBUTION: Original - Sample Yellow - Sampler

BC-6000-828 (12/92)

00055

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: K.O Lee	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: GWS-011	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-25	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCL <2			HNO3<2
Type of Container	P/G	G	P/G	P	P	G/P	Ga	G/P	G/P		P/G
No. of Container(s)	1	1	1	1	1	8	2	2	1		1
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml
SAMPLE ANALYSIS 410430	METALS (see S. I. #1) UNFILTERED A	IC ANIONS-F,Cl,SO4,NO2 PO4 B	ALKALINITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S. I. #2) 41043103	TRITIUM	Tc-99	ACTIVITY SCAN		METALS (see S. I. #3) FILTERED A

Sample No.	Matrix*	Date Sampled	Time Sampled														
80 D4ND 5	W	10/19/94	0847	X	X	X	X	X	X	X	X	X					
80 D4NI 6	W	10/19/94	0847											X			

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
K.O. Lee	10/19/94 1230	B. Whitten	1230 10-19-94
Relinquished By	Date/Time	Received By	Date/Time
B. Whitten	1010 10-20-94	Quantera B Brumfield	1010 10/20/94
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG 40260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

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Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: M. J. SIMPSON	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: B94-036
Ice Chest No.: ER-26	Field Logbook No.: EFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-24	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

SAMPLE ANALYSIS: 410430

Sample No.	Matrix*	Date Sampled	Time Sampled	METALS (see S. I. #1) UNFILTERED A	IC ANIONS-F,Cl, SO4,NO2 PO4 B	ALKALI-NITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S. I. #2) 41043104	TRITIUM	Tc-99	ACTIVI-TY SCAN		METALS (see S. I. #3) FILTER-ED A				
Preservative				HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container				P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)				1	1	1	1	1	8	2	2	1		1				
Volume				1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
BO D4L2	7	W	10/19/94	1025	X	X	X	X	X	X	X	X	X					
BO D4L3	8	W	10/19/94	1025										X				

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By	K.D. Lee	
Received By	B Whitten	1230 10-19-94
Relinquished By	B Whitten	1010 10-20-94
Received By	Quanterra B Brownfield	10:10 10/20/94
Relinquished By		
Received By		
Relinquished By		
Received By		

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG W0260

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

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Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: K.D Lee	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 200-BP-5	Sampling Location: 200 Areas	SAF No.: 894-036
Ice Chest No.: GWS-141	Field Logbook No.: FFL-1125	Method of Shipment: HAND DELIVER
Shipped To: QUANTERRA	Offsite Property No.: W95-0-0001-25	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	COOL 4	COOL 4	NaOH>12	HNO3 <2		HCl <2			HNO3<2				
Type of Container	P/G	G	P/G	P	P	G/P	Gs	G/P	G/P		P/G				
No. of Container(s)	1	1	1	1	1	8	2	2	1		1				
Volume	1000ml	500ml	250ml	250ml	1000ml	1000ml	1000ml	1000ml	40ml		1000ml				
SAMPLE ANALYSIS 410430	METALS (see S.I. #1) UNFILTERED A	IC ANIONS-F,Cl, SO4,NO2 PO4 B	ALKALI-NITY C	TDS D	CLP-CYANIDE E	GROSS ALPHA/BETA, (see S.I. #2) 4104	TRITIUM 3105	Tc-99 —	ACTIVITY SCAN		METALS (see S.I. #3) FILTERED A				

Sample No.	Matrix*	Date Sampled	Time Sampled														
BO D4L4 9	W	10/19/94	0847	X	X	X	X	X	X	X	X	X					
BO D4L5 10	W	10/19/94	0847										X				

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By: K.D Lee	Received By: B.Whitten	10/18/94 1230
Relinquished By: B.Whitten	Received By: Quanterra B Brumfield	10-20-94 1010 / 10/20/94 1010
Relinquished By	Received By	
Relinquished By	Received By	

SPECIAL INSTRUCTIONS

#1: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(UNFILTERED)
#2: GROSS ALPHA/BETA;GAMMA SCAN-Cs-137,Co-60,Ru-106;Pu238/239/240, Sr-90,TOTAL URANIUM
#3: METALS-Ca,Mg,Na,K,Fe,Mn,Si,Al,Bi; AA METALS-Selenium(FILTERED)

NOTE: DATA DELIVERABLE-STANDALONE

SDG-W0266

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

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Attachment 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 200 BTS Round 2			DATA PACKAGE: W0260 - GES		
VALIDATOR:		LAB: Quanterra		DATE:	
CASE:			SDG: W0260		
ANALYSES PERFORMED					
☒ CLP/ICP	☒ CLP/GFAA	☐ CLP/Hg	☒ CLP/Cyanide	☐	☐
☐ SW-846/ICP	☐ SW-846/GFAA	☐ SW-846/Hg	☐ SW-846/ Cyanide	☐	☐
SAMPLES/MATRIX Water					
BCD4N1 - BCD4N5			BCD4K4 - BCD4K5		
BCD4I6 - BCD4J7			BCD4L0 BCD4L1		
BCD4H6 - BCD4H7			BCD4N0 - BCD4N1		
BCD4K2 - BCD4K1			BCD4L2 - BCD4L3		
BCD4K8 - BCD4K9			BCD4L4 - BCD4L5		

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? ..... (Yes) No N/A

Is a case narrative present? ..... (Yes) No N/A

Comments: _____

2. HOLDING TIMES

Are sample holding times acceptable? ..... (Yes) No N/A

Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

Were initial calibrations performed on all instruments? ..... Yes No N/A
Are initial calibrations acceptable? ..... Yes No N/A
Are ICP interference checks acceptable? ..... Yes No N/A
Were ICV and CCV checks performed on all instruments? ..... Yes No N/A
Were ICV and CCV checks acceptable? ..... Yes No N/A
Comments: _____

4. BLANKS

Were ICB and CCB checks performed for all applicable analyses? ..... Yes No N/A
Are ICB and CCB results acceptable? ..... Yes No N/A 5/2/95
Were preparation blanks analyzed? ..... Yes No N/A
Are preparation blank results acceptable? ..... Yes No N/A 5/2/95
Were field blanks analyzed? ..... Yes No N/A
Are field blank results acceptable? ..... Yes No N/A
Comments: Minor concentrations of some analytes were detected in ICB's CCB's and/or Preparation Blanks. See attached Blank and Sample Data Summary, and Form IBIs. Associated sample results qualified as indicated

5. ACCURACY

Were spike samples analyzed? ..... Yes No N/A
Are spike sample recoveries acceptable? ..... Yes No N/A
Were laboratory control samples (LCS) analyzed? ..... Yes No N/A
Are LCS recoveries acceptable? ..... Yes No N/A
Comments: Minimal recoveries of spike sample analysis for Selenium outside control limits of 75-125%. BOD4N4 (54.5%) and BOD4N5 (42.2%). All selenium results qualified as estimated J. Silicon Tak outside control limits for BOD4N5 (139%). However, no qualification of data was made as sample concentration greater than 4X spike concentration.

revised page 5/2/95

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

6. PRECISION

Were laboratory duplicates analyzed? ..... Yes No N/A

Are laboratory duplicate samples RPD values acceptable? ..... Yes No N/A

Was an ICP serial dilution sample analyzed? ..... Yes No N/A

Are the ICP serial dilution %D values acceptable? ..... Yes No N/A

Are field duplicate RPD values acceptable? ..... Yes No N/A

Are field split RPD values acceptable? ..... Yes No N/A

Comments: Samples BOD4L4/BOD4L5 and BOD4N0/BOD4N1 are field duplicates, BOD4N4/BOD4N5 and BOD4G0/BOD4G1 (not in this data package) are field duplicates. BOD4N6/BOD4N7 and BOD4N2/BOD4N3 (not in this package) are field splits. See comments on attached comments page. 5/2/95

7. FURNACE AA QUALITY CONTROL

Were duplicate injections performed as required? ..... Yes No N/A

Are duplicate injection %RSD values acceptable? ..... Yes No N/A

Were analytical spikes performed as required? ..... Yes No N/A

Are analytical spike recoveries acceptable? ..... Yes No N/A

Was MSA performed as required? ..... Yes No N/A

Are MSA results acceptable? ..... Yes No N/A

Comments: Analytical spike recoveries were outside the control limits for the following samples: BOD4J6, BOD4J7, BOD4H6, BOD4H7, BOD4K0, BOD4K1, BOD4K8, BOD4K9, BOD4K4, BOD4L0. Results for these samples are qualified as estimated J, for Selenium based on analytical spike recoveries. 5/2/95

8. REPORTED RESULTS AND DETECTION LIMITS

Are results reported for all requested analyses? ..... Yes No N/A

Are all results supported in the raw data? ..... Yes No N/A

Are results calculated properly? ..... Yes No N/A

Do results meet the CRDLs? ..... Yes No N/A

Comments: ~~Sin~~ DA Selenium results for the following samples do not meet the CRDL due to interferences requiring the dilution of the samples: BOD4N4, BOD4K8, BOD4K9, BOD4K5, BOD4L1, BOD4L2, BOD4L3, BOD4L4, BOD4L5, BOD4N0, and BOD4N1. No qualification of data is necessary.

revised page 5/2/95

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

Comments (attach additional sheets as necessary): (6) Unable to evaluate the id split samples results as these samples are not part of this release. Could only evaluate the first field duplicate set as the other set was split between other packages. Evaluation of BGD4L4/BGD4L5 and BGD4N1/BGD4N1 shows RPD and/or +CRL criteria met for all analytes except iron in the unfiltered fractions.

HOLDING TIME SUMMARY

SDG: W0766-003	VALIDATOR: D Robins	DATE: 11/18/94	PAGE 1 OF 3
COMMENTS: 11/16/94 was latest analysis date.			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
BOD4N4	TOP Block	10/14/94	NA	11/16/94	N.A	33	None
BOD4N5		10/14/94				33	
BOD4J6		10/17/94				30	
BOD4J7		10/17/94				30	
BOD4H6		10/18/94				29	
BOD4H7		10/18/94				29	
BOD4K0		10/18/94				29	
BOD4K1		10/18/94				29	
BOD4K8		10/18/94				29	
BOD4K9		10/18/94				29	
BOD4K4		10/19/94				28	
BOD4K5		10/19/94				28	
BOD4L0		10/19/94				28	
BOD4L1		10/19/94				28	
BOD4N0		10/19/94				28	
BOD4N1		10/19/94				28	
BOD4L2		10/19/94				28	
BOD4L3		10/19/94				28	
BOD4L4		10/19/94				28	
BOD4L5		10/19/94				28	

HOLDING TIME SUMMARY

SDG: [illegible]	VALIDATOR: D. [illegible]	DATE: [illegible]	PAGE 2 OF 3
COMMENTS: Samples analyzed for Selenium only			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
BOD4N4	GFAA Metals	10/14/94	N/A	11/3/94	N/A	29	none
BOD4N5		10/14/94		11/30/94		47	
BOD4J6		10/17/94		11/11/94		25	
BOD4J7		10/17/94		11/11/94		25	
BOD4H6		10/18/94		11/10/94		23	
BOD4H1		10/18/94		11/10/94		23	
BOD4K0		10/18/94		11/10/94		23	
BOD4K1		10/18/94		11/10/94		23	
BOD4K8		10/18/94		11/11/94		24	
BOD4K9		10/18/94		11/11/94		24	
BOD4K4		10/19/94		11/11/94		~~24~~ 23	✓
BOD4K5		10/19/94		11/12/94		24	
BOD4L0		10/19/94		11/11/94		~~25~~ 23	
BOD4L1		10/19/94		11/12/94		24	
BOD4N0		10/19/94		11/12/94		24	
BOD4N1		10/19/94		11/12/94		24	
BOD4L2		10/19/94		11/12/94		24	
BOD4L3		10/19/94		11/12/94		24	
BOD4L4		10/19/94		11/12/94		24	
BOD4L5	✓	10/19/94	✓	11/12/94	✓	24	✓

HOLDING TIME SUMMARY

SDG: W0240 - QES	VALIDATOR: D. Robinson	DATE: 11/1/95	PAGE 3 OF 3
COMMENTS: (N) analysis was calc. requested by laboratory.			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
BOD4N4	Cyanide	10/14/94	NA	10/24/94	NA	10	None
BOD4JG		10/17/94		10/26/94		9	
BOD4HG		10/18/94		11/1/94		14	
BOD4KC		10/18/94		11/1/94		14	
BOD4KE		10/18/94		11/1/94		14	
BOD4K4		10/18/94		11/1/94		13	
BOD4LC		10/18/94		11/2/94		14	
BOD4NC		10/18/94		11/2/94		14	
BOD4L2		10/18/94		11/2/94		14	
BOD4L4		10/18/94		11/2/94		14	

BLANK AND SAMPLE DATA SUMMARY

SDG: W026C	VALIDATOR: D. Robinson	DATE: 1/19/95	PAGE 1 OF ___

COMMENTS:

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
Prep Blank 50933	Iron	16.16	B	NA	ug/l	83.3	--	BCD4K1, BCD4H7	UL
CCB	Iron	28.9	B	NA	ug/l	44.5	—	BCD4N5, BCD4J7	
								BCD4N6, BCD4H7	
								BCD4K6, BCD4K1	
								BCD4K5, BCD4L1	
								BCD4L3, BCD4L4	
								BCD4L5, BCD4N1	
CCB	Manganese	4.3	B	NA	ug/l	21.5	—	BCD4K6, BCD4K1	
Prep Blank 51002	Manganese	0.93	B	NA	ug/l	4.65	—	BCD4N4, BCD4N5	
								BCD4N6, BCD4N1	
								BCD4L4, BCD4L5	
CCB	Selenium	1.79	B	NA	ug/l	8.95	—	BCD4L6	

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: W0260_____

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

(51340) — B: only
50933

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum	24.9	U	24.9	U	24.9	U	24.9	U	24.900	U	P
Calcium	20.6	U	20.6	U	29.2	B	20.6	U	135.710	B	P
Iron	11.4	U	17.3	B	20.9	B	28.9	B	16.660	B	P
Magnesium	44.9	U	44.9	U	220.0	B	428.6	B	125.700	B	P
Manganese	1.8	B	1.3	B	3.1	B	4.3	B	1.560	B	P
Potassium	1944.0	U	1944.0	U	1944.0	U	1944.0	U	1944.000	U	P
Selenium	1.7	U	1.7	U	1.7	U			1.700	U	F
Sodium	42.4	U	42.4	U	128.6	B	262.9	B	116.400	B	P
Cyanide	2.4	U	2.4	U	2.4	U	2.4	U	-1.308	B	AS
Silicon	13.9	U	13.9	U	13.9	U	13.9	U	13.900	U	P
Bismuth	38.0	U	38.0	U	38.0	U	38.0	U	38.000	U	P

FORM III - IN

ILM03.0

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: W0260_____

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	51002 Prepa-ration Blank	C	M
Aluminum	24.9	U	24.9	U	24.9	U	24.9	U	24.900	U	P
Calcium			45.5	B					132.410	B	P
Iron	11.4	U	11.4	U	11.4	U	11.4	U	11.400	U	P
Magnesium	44.9	U	44.9	U	-47.8	B	44.9	U	~~69.990~~	~~B~~	P
Manganese	0.7	U	0.7	U	0.7	U	0.7	U	0.930	B	P
Potassium	1944.0	U	1944.0	U	1944.0	U	1944.0	U	~~1944.000~~	~~U~~	P
Selenium			1.7	U	1.7	U			1.700	U	F
Sodium	42.4	U	42.4	U	42.4	U	42.4	U	59.220	B	P
Cyanide	2.4	U	2.4	U	2.4	U			1.200	U	AS
Silicon	49.0	B	16.3	B	13.9	U	13.9	U	13.900	U	P
Bismuth	38.0	U	38.0	U	38.0	U	38.0	U	38.000	U	P

FORM III - IN

ILM03.0

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.23____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: W0260_____

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	24.9	U	24.9	U	24.9	U	24.9	U			P
Calcium			20.6	U							P
Iron	11.4	U	11.4	U	11.4	U	11.4	U			P
Magnesium	44.9	U	44.9	U	44.9	U	44.9	U			P
Manganese	0.7	U	0.7	U	0.7	U	0.7	U			P
Potassium	1944.0	U	1944.0	U	1944.0	U	1944.0	U			P
Selenium			1.8	B	1.7	U	2.2	B			F
Sodium	42.4	U	42.4	U	42.4	U	42.4	U			P
Cyanide	2.4	U	2.4	U	-3.4	B					AS
Silicon	13.9	U	13.9	U	13.9	U	13.9	U			P
Bismuth			38.0	U	38.0	U	38.0	U			P

FORM III - IN

ILM03.0