9613476.1797

START

W0105-ITC-113

Quanterra Environmental Services

0045263

338

AUG 1994 RECEIVED SDLA

Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Dear Mr. Lerch:

Thank you for purchasing analytical testing services from Quanterra, Inc. It is our intention to supply our clients with data packages which not only meet the industry's highest standards for quality, but are also easy to use. Features which we point out are:

1. A Data Summary Packet which allows you to review your data without searching through the complete data package.

   Your Data Summary Packet contains the following items:

   - Case Narrative: listing of sample identifications, analyses performed, explanation of any problem associated with samples, corrective action taken.
   - Quality control sample identifications and analyses performed.
   - Data summary.

2. A data package which meets the specific requirements you requested and is easy to use as well. The package is organized in accordance with the Table of Contents which you will find at the beginning of each section. Sections are separated by color-coded tabs, making it easy to find individual analytical parameters which may be of particular interest to you. The data package is custody-sealed at the laboratory - your assurance that parts of the package are not missing.

We are constantly searching for ways to improve our service to you. This current product has many of the features which you have told us are important to you. Your suggestions regarding additional improvements will be appreciated.

Please contact me with any questions or suggestions.

Sincerely,

Wade H. Price
Project Manager

SEP 1996 RECEIVED EDMC

RECORD COPY

9613476.1790

Quanterra
Environmental Services

CERTIFICATE OF ANALYSIS

Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

August 2, 1994

Attention: J. A. Lerch

Project number	:	519.58
Date Received by Lab	:	June 23, 24, 27 and 28, and July 1, 1994
Number of Samples	:	Nineteen (19)
Sample Type	:	Water
SDG Number	:	W0105
Data Deliverable	:	Standalone

I. Introduction

On June 23, 24, 27 and 28, and July 1, 1994, a total of nineteen (19) water samples were received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analyses. 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
5416-001	BOC1K3	40651801	Water	06/23/94
5416-002	BOC1K4	40651802	Water	06/23/94
5416-003	BOC1K5	40651803	Water	06/23/94
5416-004	BOC1N0	40651804	Water	06/23/94
5430-001	BOC1N3	40655501	Water	06/24/94
5430-002	BOC1N4	40655502	Water	06/24/94
5449-001	BOC1L6	40658601	Water	06/27/94
5449-002	BOC1L7	40658602	Water	06/27/94
5456-001	BOC1N9	40661301	Water	06/28/94
5456-002	BOC1M8	40661303	Water	06/28/94
5456-003	BOC1M9	40666104	Water	06/28/94
5456-004	BOC1P0	40661302	Water	06/28/94
5485-001	BOC1M2	40701001	Water	07/01/94
5485-002	BOC1M6	40701003	Water	07/01/94

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Quanterra
Environmental Services

St Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
5485-003	BOC2Y9	40701005	Water	07/01/94
5485-006	BOC1M3	40701002	Water	07/01/94
5485-007	BOC1M7	40701004	Water	07/01/94
5485-008	BOC2Z0	40701006	Water	07/01/94
5485-009	BOC2Y8	40701007	Water	07/01/94

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: Chloride, Fluoride, Nitrate, Nitrite, Phosphate and Sulfate by EPA method 300.0. Nitrate by EPA method 353.1. VOA, Pesticide/PCB's, and Metals by using CLP/90 methodology.

III. Quality Control

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

Quanterra
Environmental Services

V. Comments

Samples 5416-001 through -004, 5430-001, 5449-001, 5456-001, 5456-002 and 5485-001 and -002 for Nitrate, Nitrite and Phosphate by method 300.0, were received after holding times had expired.

The Matrix Spike for sample 5416-001, Nitrate by method 300.0, was outside of the suggested limit of 75-125% due to sample results being greater than 4 times the value of the spike amount.

The laboratory was unable to calculate a Relative Percent Difference (RPD) for sample 5416-001 for Nitrite and Phosphate by method 300.0, due to sample values below the detection limit.

Selenium Matrix Spike recovery was out of the specified control limits (36%).

The Decachlorobiphenyl (DCB) surrogate recoveries for the Pesticide/PCB analysis were out of specified limits in Blank, Matrix Spike and Matrix Spike Duplicate analyses. All Tetrachloro-m-xylene recoveries were within specifications.

I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Wade H. Price
Project Manager
z:\annelars\hanw0105.nar

ITAS - St. Louis June 27, 1994 04:03 pm
Account: 10722 Project: 519.58 ITAS - Richland, QAS No. 606 Rev. 0
Master Sample Login: 5416

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.
5416-001	BOC1K3	Water	21-JUN-94 10:24	23-JUN-94 12:00	28-JUL-94	FED-EX	1	Screening not Required	
I.T.RICHLAND I.D. # IS 40651801									
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	21-JUL-94	19-JUL-94	S7H	(83545:100)	
1		FL/300.0/Q4	S	COLD	21-JUL-94	19-JUL-94	S7H	(83545:100)	
1		NO2/300.0/Q4	S	COLD	21-JUL-94	23-JUN-94	S7H	(83545:100)	
1		NO3/300.0/Q4	S	COLD	21-JUL-94	23-JUN-94	S7H	(83545:100)	
1		OPHOS/300.0/Q4	S	COLD	21-JUL-94	23-JUN-94	S7H	(83545:100)	
1		SO4/300.0/Q4	S	COLD	21-JUL-94	19-JUL-94	S7H	(83545:100)	
1	PN - Plastic-500ml	NO3/353.1/Q4	S	H2SO4	21-JUL-94	19-JUL-94	S7H	(83546:100)	
5416-001DUP	BOC1K3	Water	21-JUN-94 10:24	23-JUN-94 12:00	28-JUL-94	FED-EX	1	Screening not Required	
I.T.RICHLAND I.D. # IS 40651801									
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	21-JUL-94	19-JUL-94	S7H	(83545:100)	
1		FL/300.0/Q4	S	COLD	21-JUL-94	19-JUL-94	S7H	(83545:100)	
1		NO2/300.0/Q4	S	COLD	21-JUL-94	23-JUN-94	S7H	(83545:100)	
1		NO3/300.0/Q4	S	COLD	21-JUL-94	23-JUN-94	S7H	(83545:100)	
1		OPHOS/300.0/Q4	S	COLD	21-JUL-94	23-JUN-94	S7H	(83545:100)	
1		SO4/300.0/Q4	S	COLD	21-JUL-94	19-JUL-94	S7H	(83545:100)	
1	PN - Plastic-500ml	NO3/353.1/Q4	S	H2SO4	21-JUL-94	19-JUL-94	S7H	(83546:100)	
5416-001MS	BOC1K3	Water	21-JUN-94 10:24	23-JUN-94 12:00	28-JUL-94	FED-EX	1	Screening not Required	
I.T.RICHLAND I.D. # IS 40651801									
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	21-JUL-94	19-JUL-94	S7H	(83545:100)	
1		FL/300.0/Q4	S	COLD	21-JUL-94	19-JUL-94	S7H	(83545:100)	
1		NO2/300.0/Q4	S	COLD	21-JUL-94	23-JUN-94	S7H	(83545:100)	
1		NO3/300.0/Q4	S	COLD	21-JUL-94	23-JUN-94	S7H	(83545:100)	
1		OPHOS/300.0/Q4	S	COLD	21-JUL-94	23-JUN-94	S7H	(83545:100)	
1		SO4/300.0/Q4	S	COLD	21-JUL-94	19-JUL-94	S7H	(83545:100)	
1	PN - Plastic-500ml	NO3/353.1/Q4	S	H2SO4	21-JUL-94	19-JUL-94	S7H	(83546:100)	
5416-002	BOC1K4	Water	20-JUN-94 11:04	23-JUN-94 12:00	28-JUL-94	FED-EX	1	Screening not Required	
I.T.RICHLAND I.D. # IS 40651802									
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	21-JUL-94	18-JUL-94	S7H	(83547:100)	
1		FL/300.0/Q4	S	COLD	21-JUL-94	18-JUL-94	S7H	(83547:100)	
1		NO2/300.0/Q4	S	COLD	21-JUL-94	22-JUN-94	S7H	(83547:100)	
1		NO3/300.0/Q4	S	COLD	21-JUL-94	22-JUN-94	S7H	(83547:100)	
1		OPHOS/300.0/Q4	S	COLD	21-JUL-94	22-JUN-94	S7H	(83547:100)	
1		SO4/300.0/Q4	S	COLD	21-JUL-94	18-JUL-94	S7H	(83547:100)	
1	PN - Plastic-500ml	NO3/353.1/Q4	S	H2SO4	21-JUL-94	18-JUL-94	S7H	(83548:100)	

Data:

3*=Sample has not been rad screened.

0000012

ITAS - St. Louis June 27, 1994 04:03 pm
Account: 10722 Project: 519.58 ITAS - Richland QAS No. 606 Rev. 0
Master Sample Login: 5416

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.
5416-003	BOC1K5	Water	21-JUN-94 08:55	23-JUN-94 12:00	28-JUL-94	FED-EX	1	Screening not Required
I.T.RICHLAND I.D. # IS 40651803								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	21-JUL-94	19-JUL-94	S7H	(83549:100)
1		FL/300.0/Q4	S	COLD	21-JUL-94	19-JUL-94	S7H	(83549:100)
1		NO2/300.0/Q4	S	COLD	21-JUL-94	23-JUN-94	S7H	(83549:100)
1		NO3/300.0/Q4	S	COLD	21-JUL-94	23-JUN-94	S7H	(83549:100)
1		OPHOS/300.0/Q4	S	COLD	21-JUL-94	23-JUN-94	S7H	(83549:100)
1		SO4/300.0/Q4	S	COLD	21-JUL-94	19-JUL-94	S7H	(83549:100)
1	PN - Plastic-500ml	NO3/353.1/Q4	S	H2SO4	21-JUL-94	19-JUL-94	S7H	(83550:100)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
5416-004	BOCINO	Water	21-JUN-94 11:15	23-JUN-94 12:00	28-JUL-94	FED-EX	1	Screening not Required
I.T.RICHLAND I.D. # IS 40651804								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	21-JUL-94	19-JUL-94	S7H	(83551:100)
1		FL/300.0/Q4	S	COLD	21-JUL-94	19-JUL-94	S7H	(83551:100)
1		NO2/300.0/Q4	S	COLD	21-JUL-94	23-JUN-94	S7H	(83551:100)
1		NO3/300.0/Q4	S	COLD	21-JUL-94	23-JUN-94	S7H	(83551:100)
1		OPHOS/300.0/Q4	S	COLD	21-JUL-94	23-JUN-94	S7H	(83551:100)
1		SO4/300.0/Q4	S	COLD	21-JUL-94	19-JUL-94	S7H	(83551:100)
1	PN - Plastic-500ml	NO3/353.1/Q4	S	H2SO4	21-JUL-94	19-JUL-94	S7H	(83552:100)

3*=Sample has not been rad screened.

0000013

5416 Change to 1 per WADE per

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 453515
Page 1 of 2

Project Name/No.[1] 94-256
Sample Team Members[2]
Profit Center No.[3] 4632
Project Manager[4] VAN PETTY
Purchase Order No.[6]
Required Report Date[11]

Samples Shipment Date[7] 6-23-94
Lab Destination[8]
Lab Contact[9]
Project Contact/Phone[12]
Carrier/Waybill No.[13]

Bill to:[5] I.T.A.S Richland
Report to:[10] I.T.A.S Richland

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]	Condition on Receipt[21]	Disposal Record No.[22]
40651801A	BOC1K3/H_2O	062194 1024 SEE	Amber WHC	500 ml COC	SAR	4°C SEE WHC/COC	FOR LAB USE ONLY	100%
40651801B	BOC1K3/H_2O	62194 1024	Poly	500 ml	H_2SO_4			pH-1
~~40651901~~ KH 6-23-94								
40651802A	BOC1K4/H_2O	6-20-94 1104	Amber	500	cold	note: labels on containers are wrong on bottles - Amber = Alison Poly = W02 = W03		100%
40651802B	BOC1K4/H_2O	062094 1104	Poly	500	H_2SO_4			100% pH-1
40651803A	BOC1K5/H_2O	062194 0855	Amber	500			FOR LAB USE ONLY	100
40651803B	BOC1K5/H_2O	062194 0855	Poly	500	H_2SO_4			100 pH-1
~~KH~~ 6-23-94								

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): SOG W0105

1. Relinquished by[28] (Signature/Affiliation) Karen Ashtenberg ITAS	Date: 6-23-94 Time: 16:00	1. Received by[28] (Signature/Affiliation) Bob Cawver	Date: 06 24 94 Time: 1000
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]

0000014

MCA 3/15/91

See back of form for special instructions.

INTERNATIONAL TECHNOLOGY CORPORATION

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

Reference Document No.[30] 453515

Project Name 94-256

Project No. WHC

Samples Shipment Date

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]	Condition on Receipt [21]	Disposal Record No. [22]
40651804A	BOCINO	062194 SEE WHC	Amber COC/SAR	500	4°C	SEE WHC COC/SAR		100
↓ B	↓	062194	Poly	500	H2SO4			100 PH-1
~~40651~~ 6-23-94								
	0000015							

BM 6-23-94

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

9613476.1805

INTERNATIONAL TECHNOLOGY CORPORATION

C.U.R. and C.O.C.

COPIED TO: [illegible]
DATE: 062494
TIME: 1250
BY: B Cowan

Work Order No.: _____

Condition Upon Receipt Variance Report
ITAS - St. Louis Laboratory

Client: _____ Date: 06 24 94 1000

Project No: _____ Initiated by: Bob Cowan

Analysis Requested: Refer to RFA/COC RFA/COC Numbers: 453515

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 + 0°C See COC
- ☐ 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: Sample B0C1K4 had labels on wrong containers. Amber label was on Poly (Sound) and 40z was on Amber. It should have been other way around.

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: _____

0000016

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priorty [X] Normal

Collector: B.T. WHITTEN	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-9	SAF No.: 94-256
Ice Chest No.: GWS104	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W94-0-0554-46	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		

Preservative	COOL 4	H2SO4<2	HNO3 <2	HCl<2													
Type of Container	G	P	P	G/P													
No. of Container(s)	1	1	1	1													
Volume	500ml	500ml	2L	1L													
SAMPLE ANALYSIS 406518	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 01A	NO2/NO3 B	TOTAL URANIUM 4065(90)	Tc-99													
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE																	

Sample No.	Matrix*	Date Sampled	Time Sampled															
B0C1K3	W	06/21/94	1074	X	X	X	X											

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Kathy Oher	06/21/94 1230	T.S. Thompson	6/21/94 1230
T.S. Thompson	06/21/94 1248	C.J. Sumpter WHC	6/21/94 1248
C.J. Sumpter WHC	6/23/94 1200	ITAS	6/23/94 1200

SPECIAL INSTRUCTIONS

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

0000017

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

SAMPLE STATUS REPORT FOR N 585. RAD SCREEN 299W199 TIME: 6/22/94 10:33
DISPATCHED: 6/ 8/94 13:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 6/21/94 14: 9

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

END OF REPORT

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-11	SAF No.: 94-256
Ice Chest No.: GWS104	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W24-0-0554-46	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	COOL 4	H2SO4<2	HNO3 <2	HCl<2													
Type of Container	G	P	P	G/P													
No. of Container(s)	1	1	1	1													
Volume	500ml	500ml	2L	1L													
SAMPLE ANALYSIS 406518	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 02A	NO2/NO3 B	TOTAL URANIUM 4065/902	Tc-99													

Sample No.	Matrix*	Date Sampled	Time Sampled															
80C1K4	W	6/20/94	1104	X	X	X	X											

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[signature]	06/20/94 1324	AJ Simpson	6/20/94 1324
Relinquished By	Date/Time	Received By	Date/Time
AJ Simpson	6/23/94 1200	[signature] ITAS	6/23/94 1200
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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

.0000019

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613476.1809

MPLE STATUS REPORT FOR N 586. RAD SCREEN 299W1911 TIME: 6/22/94 10:33
SPATCHED: 6/ 8/94 13:10 SAMPLE HAS NOT BEEN SLURPED
CEIVED: 6/21/94 14:10

T.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
**	********	**********	***	***	******
71	TOT-ACT	<5.00000E 01 pCi/Ml			J12UP

END OF REPORT

BOCIK4
LCS
6/22/94

0000020

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: B.T. WHITTEN	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-16	SAF No.: 94-256
Ice Chest No.: GWS104	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W94-0-0554-46	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		

Preservative	COOL 4	H2SO4<2	HNO3 <2	HCl<2
Type of Container	G	P	P	G/P
No. of Container(s)	1	1	1	1
Volume	500ml	500ml	2L	1L
SAMPLE ANALYSIS	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4	NO2/NO3	TOTAL URANIUM	Tc-99
40651803	A	B	4065	1903

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

Sample No.	Matrix*	Date Sampled	Time Sampled				
B0C1K5	W	06/21/94	0855	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[signature]	6/21/94 1230	[signature]	6/21/94 1230
Relinquished By	Date/Time	Received By	Date/Time
[signature]	6/21/94 1243	[signature]	6/21/94 1245
Relinquished By	Date/Time	Received By	Date/Time
[signature]	6/23/94 1200	[signature] ITAS	6/23/94 1200
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

Matrix*
- S = Soil
- SE = Sediment
- SO = Solid
- SL = Sludge
- W = Water
- O = Oil
- A = Air
- DS = Drum Solid
- DL = Drum Liqu
- T = Tissue
- WI = Wipe
- L = Liquid
- V = Vegetatio
- X = Other

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

0000021

BC-6000-828 (12/

9613476.1911

SAMPLE STATUS REPORT FOR N 589. RAD SCREEN 299W1916 TIME: 6/22/94 10:33
DISPATCHED: 6/ 8/94 13:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 6/21/94 14: 9

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

END OF REPORT

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: B.T. WHITTEN	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-13	SAF No.: 94-256
Ice Chest No.: GWS104	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W94-0-0594-46	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	COOL 4	H2SO4<2	HNO3 <2	HCl<2
Type of Container	G	P	P	G/P
No. of Container(s)	1	1	1	1
Volume	500ml	500ml	2L	1L
SAMPLE ANALYSIS 406518	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 04A	NO2/NO3 B	TOTAL URANIUM 4065/F04	Tc-99

Sample No.	Matrix*	Date Sampled	Time Sampled				
B0C1N0	W	06/21/94	1115	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[signature]	06/21/94 1230	[signature]	6/21/94 1230
Relinquished By	Date/Time	Received By	Date/Time
[signature]	6/21/94 1245	[signature]	6/21/94 1245
Relinquished By	Date/Time	Received By	Date/Time
[signature]	6/23/94 1200	[signature] ITAS	6/23/94 1200
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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

0000023

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

IPLE STATUS REPORT FOR N 588. RAD SCREEN 299W1913 TIME: 6/22/94 10:33
SPATCHED: 6/ 8/94 13:10 SAMPLE HAS NOT BEEN SLURPED
CEIVED: 6/21/94 14: 9

T.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
**	********	**********	***	***	******
71	TOT-ACT	<5.00000E 01 pCi/Ml			J12UP

END OF REPORT

0000024

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: B.T. WHITTEN	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-23	SAF No.: 94-256
Ice Chest No.: CWS 104	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W74-0-0554-46	Bill of Lading/Air Bill No.: NONE

Possible Sample Hazards/Remarks

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

SAMPLE ANALYSIS: 40651905

Preservative	HCl<2
Type of Container	G/P
No. of Container(s)	1
Volume	1L
Tc-99	

Sample No.	Matrix*	Date Sampled	Time Sampled	Tc-99
B0C1K7	W	06/20/94	0934	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
[signature]	06/20/94 1324	CA Simpson	6/20/94 1324
CA Simpson WHC	6/23/94 1200	[signature] ITAS	6/23/94 1200

SPECIAL INSTRUCTIONS

Matrix*
- S = Soil
- SE = Sediment
- SO = Solid
- SL = Sludge
- W = Water
- O = Oil
- A = Air
- DS = Drum Sol
- DL = Drum Liq
- T = Tissue
- WI = Wipe
- L = Liquid
- V = Vegetatk
- X = Other

LABORATORY SECTION: Received By 0000025 Title Date/Time

FINAL SAMPLE DISPOSITION: Disposal Method Disposed By Date/Time

BC-6000-828 (12

9613476.1815

SAMPLE STATUS REPORT FOR N 594. RAD SCREEN 299W1923 TIME: 6/22/94 10:33
DISPATCHED: 6/ 8/94 13:11 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 6/21/94 14:10

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

B0C1K7
LG
6/22/94

0000026

9613476.1816

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
WHC		iN94-0-0594-46

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 ☒ Contractor ☐ Vendor

Shipped to
IT Analytical Services
2800 George Washington Way
Richland, WA 99352

Off-site Custodian

Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 lbs	Sample #: B0C1K7, B0C1K3, B0C1N0, B0C1K5, B0C1K4 Cooler ID: GWS104 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs	Sample #: NA Cooler ID: 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

Sampling supports RI/FS work in the 200 AREA

RECEIVED
JUN 23 1994
PROPERTY RECORDS

Bill of lading # NONE

0000028

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]	178821	6/23/94

Location of Property (Area & Bldg.)	Contact	Phone
200-UP-1	P. H. Butcher	(509) 376-4388

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
6/23/94	PT1FA 8B410	NA

Originated By	Date	Authorized By	Date
PH Butcher	6/23/94	[signature]	6/23/94
Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		[signature]	6/23/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
[signature] ITAS Date 6/23/94 1200				

DISTRIBUTION

By Originator	Shipping Operation – Sign all Copies and Forward to:
White, Green, Yellow, Pink – Property Management Goldenrod – Retain	White – Property Management Yellow – Retain Green – Property Control Custodian (Issuing Office) Pink – Originator

ITAS - St. Louis June 27, 1994 03:57 pm
Account: 10722 Project: 519.58 ITAS - Richland QAS No. 606 Rev. 0
Master Sample Login: 5430

Project Manager: W. Price

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

Sample Header Template:

Sample No.	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
Comments								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
Date:								
5430-001	**BOC1N3**	**Water**	**22-JUN-94 13:24**	**24-JUN-94 11:05**	**29-JUL-94**	**FED-EX**	**1**	**Screening not Required**
I.T. RICHLAND I.D. # IS 40655501								
3	VI - Vial-40ml	VOA/CLP90/Q4	S	COLD	22-JUL-94	04-JUL-94	109H	(83764:100 83765:100 83766:100)
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	22-JUL-94	20-JUL-94	S8F	(83763:100)
1		FL/300.0/Q4	S	COLD	22-JUL-94	20-JUL-94	S8F	(83763:100)
1		NO2/300.0/Q4	S	COLD	22-JUL-94	24-JUN-94	S8F	(83763:100)
1		NO3/300.0/Q4	S	COLD	22-JUL-94	24-JUN-94	S8F	(83763:100)
1		NO3/353.1/Q4	S	H2SO4	22-JUL-94	20-JUL-94	S8F	(83762:100)
1		OPHOS/300.0/Q4	S	COLD	22-JUL-94	24-JUN-94	S8F	(83763:100)
1		SO4/300.0/Q4	S	COLD	22-JUL-94	20-JUL-94	S8F	(83763:100)
5430-001MS	**BOC1N3**	**Water**	**22-JUN-94 13:24**	**24-JUN-94 11:05**	**29-JUL-94**	**FED-EX**	**1**	**Screening not Required**
I.T. RICHLAND I.D. # IS 40655501								
3	VI - Vial-40ml	VOA/CLP90/Q4	S	COLD	22-JUL-94	04-JUL-94	109H	(83764:100 83765:100 83766:100)
5430-001MSD	**BOC1N3**	**Water**	**22-JUN-94 13:24**	**24-JUN-94 11:05**	**29-JUL-94**	**FED-EX**	**1**	**Screening not Required**
I.T. RICHLAND I.D. # IS 40655501								
3	VI - Vial-40ml	VOA/CLP90/Q4	S	COLD	22-JUL-94	04-JUL-94	109H	(83764:100 83765:100 83766:100)
5430-002	**BOC1N4**	**Water**	**22-JUN-94 13:24**	**24-JUN-94 11:05**	**29-JUL-94**	**FED-EX**	**1**	**Screening not Required**
I.T. RICHLAND I.D. # IS 40655502								
3	VI - Vial-40ml	VOA/CLP90/Q4	S	COLD	22-JUL-94	04-JUL-94	109H	(83769:100 83770:100 83771:100)

3*=Sample has not been rad screened.

0000029

9513476.0817

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

~~5429~~ 5430

Reference Document No. 453523

Page 1 of ___

Temp 3°C

Project Name/No. 1 SAF 94-256

Samples Shipment Date 7 6-24-94

Bill to: 5 IT CHR 565 Richland

Sample Team Members 2

Lab Destination 8 ST Louis

Profit Center No. 3 4632

Lab Contact 9

Project Manager 4 V. Pettey

Project Contact/Phone 12

Report to: 10 IT Richland

Purchase Order No. 6

Carrier/Waybill No. 13

Required Report Date 11

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	Disposal Record No. 22
40655501A	BOCIN3 H2O	See WHC COC	See WHC COC	40mL	Cool 4°	See WHC COC	100	
B		6/22/94 13:24	AG	40mL				
C				40mL				
D				500mL				
E				500mL	~~HNO3~~ H_2SO_4		pH-1	
40655502A	BOCIN4 H2O			40mL				
B				40mL				
C				40mL				

FOR LAB USE ONLY

FOR LAB USE ONLY

Special Instructions: 23 As per WHC Contract

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): SDW W0105

1. Relinquished by 28 (Signature/Affiliation)	Date: Time:	1. Received by 28 (Signature/Affiliation) Jeffrey J. Danielson	Date: 25 June 1994 Time: 09:30
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

0000030

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

9613476.1849 519.58

INTERNATIONAL TECHNOLOGY CORPORATION

C.U.R. and C.O.C.

COPIED TO: V. Price
DATE: 25 June 1994
TIME: 13:00
BY: J Daniels

Work Order No.: ~~5429~~ 5430

Condition Upon Receipt Variance Report
ITAS - St. Louis Laboratory

Client: Westinghouse Hanford

Date: 25 June 1994

Project No:

Initiated by: Jeff Daniels

Analysis Requested: Refer to RFA/COC

RFA/COC Numbers: 453923

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: 3°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: COC not signed off by IT-Richland

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) Jeffrey J. Daniels Date: 25 June 1994

Project Management Review: _____ Date: _____

0000031

N6E4

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: [illegible]	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 699-38-70	SAF No.: 94-256
Ice Chest No.: EL-19	Field Logbook No.: EFL-1124	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W914-0-0746-1	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks: None		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCl<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	HNO3<2	HCL<2			HCl<2					
Type of Container	Gs	G	G	P	P	P	G/P			Gs					
No. of Container(s)	3	1	1	1	1	1	1			3					
Volume	40ml	500ml	500ml	2L	2L	1L	1L			40ml					
SAMPLE ANALYSIS 4C6555	CLP-VOA VOA CL290 Q4 ABC	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 D	NO2/NO3 E	TOTAL URANIUM 4C6555201	Sr-90	Sr-90	Tc-99			CLP-VOA ABC					

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0C1N3 01	W	6/22/94	[illegible]	X	X	X	X	X	X	X							
B0C1N4 02	W	6/22/94	[illegible]										X				

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	[illegible]		[illegible]	6-22-94 1525
Relinquished By	[illegible]	6/22/94 1530	[illegible]	6/22 1530
Relinquished By	[illegible]	6/24/94 1105	[illegible] ITAS	6/24/94 1105
Relinquished By			Received By	

SPECIAL INSTRUCTIONS: SDG-100105

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

0000032

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9413476.1820

9613476.1821

SAMPLE STATUS REPORT FOR N 604. RAD SCREEN 6993870 TIME: 6/23/94 8:29
DISPATCHED: 6/ 8/94 13:12 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 6/23/94 2:12

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

END OF REPORT

BO CIN4
BO CIN3

AJS
6/24/94

0000033

9613476.1822

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
WHC		W94-0-0746-1

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 ☒ Contractor ☐ Vendor

Shipped to
IT Analytical Services
2800 George Washington Way
Richland, WA 99352

Off-site Custodian

Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 lbs	Sample #: BOCIN3 BOCIN4 Cooler ID: ER-19 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs	Sample #: Cooler ID: 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

Sampling supports RI/FS work in the 200 areas.

RECEIVED
JUN 24 1994
PROPERTY RECORDS

Bill of lading # NA

0000034

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]	178834	6/24/94

Location of Property (Area & Bldg.)	Contact	Phone
200 UP-1	P. H. Butcher	(509) 376-4388

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
6/24/94	PTIFA / 8B410	

Originated By	Date	Authorized By	Date
AJ SIMPSON		AJ Simpson	6/24/94

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		[signature]	6/24/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
[signature] ITAS				
Date 6/24/94 1105				

DISTRIBUTION

By Originator	Shipping Operation – Sign all Copies and Forward to:
White, Green, Yellow, Pink – Property Management Goldenrod – Retain	White – Property Management Green – Property Control Custodian (Issuing Office) Yellow – Retain Pink – Originator

54-3000-479 (09/89)

9613476.1823

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY
6/24/94

WORK ORDER NUMBER: 406564 55 DATE INITIATED: 6-24-94

INITIATED BY: Karen Schtenberg

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 6-24-94 11:05

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
BOCIN3		voa, Anions, noc/no3
BOCIN4		voa,

Samples were received with the following deficiencies:

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

0000035

NOTES: No Screw Bottles for Samples.

SUPERVISOR REVIEW: Tami Heidelberg

PROJECT MANAGER REVIEW:

TELEPHONED TO: ON BY

TELEFAXED TO: ON BY

SIGNED ORIGINAL MUST BE RETAINED IN WORK ORDER FILE

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

TENNELEC #1

SCREENING CALCULATION SPREADSHEET

Correct JRM 24 June 94

Customer Code	Recieved Date		Screening Prep Date		Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	6-24-94		6-24		6-24	10	9	98	120

Customer ID WHC/LIQ	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
B0BZK4		1.4	5		1.0		16	4	28	0.33	1.98	1.22E+00	4.02E+00	1.1E-04	3.6E-04	1.4E-07	1.8E-07	1.1E+02	3.6E+02	Yes	9.1E+01	2.8E+02
B0BZM2		2.1	5		1.0		18	9	20	0.83	1.18	3.26E+00	1.98E+00	2.9E-04	1.8E-04	2.3E-07	1.4E-07	2.9E+02	1.8E+02	Yes	3.4E+01	5.6E+02
B0BZK6		1.5	5		1.0		19	9	17	0.83	0.88	3.23E+00	1.34E+00	2.9E-04	1.2E-04	2.3E-07	5.3E-08	2.9E+02	1.2E+02	Yes	3.4E+01	8.3E+02
B0BZL6		1.6	5		1.0		20	5	16	0.43	0.78	1.66E+00	1.39E+00	1.5E-04	1.3E-04	1.6E-07	9.6E-08	1.5E+02	1.3E+02	Yes	6.7E+01	8.0E+02
B0BZJ8		1.2	5		1.0		22	6	12	0.53	0.38	2.05E+00	4.71E-01	1.8E-04	4.2E-05	1.8E-07	1.9E-08	1.8E+02	4.2E+01	Yes	5.4E+01	2.4E+03
B0BZM0		1.6	5		1.0		23	4	26	0.33	1.78	1.23E+00	3.59E+00	1.1E-04	3.2E-04	1.4E-07	4.9E-07	1.1E+02	3.2E+02	Yes	9.0E+01	3.1E+02
B0C2C1		1.1	5		1.0		24	3	8	0.23	-0.02	8.84E-01	-1.8E-01	8.0E-05	-1.7E-05	1.1E-07	-5.4E-09	8.0E+01	-1.7E+01	Yes	1.3E+02	-6.0E+03
B0C2D1		1.1	5		1.0		25	0	17	-0.08	0.88	-3.2E-01	1.93E+00	-2.9E-05	1.7E-04	-6.4E-08	6.9E-07	-2.9E+01	1.7E+02	Yes	-3.4E+02	5.7E+02
B0C371		1.3	5		1.0		26	0	6	-0.08	-0.22	-2.9E-01	-4.1E-01	-2.6E-05	-3.7E-05	-6.4E-08	-8.3E-08	-2.6E+01	-3.7E+01	Yes	-3.8E+02	-2.7E+03
B0C1N3		5.6	5		1.0		27	5	174	0.43	16.58	1.25E+00	3.54E+01	1.1E-04	3.2E-03	1.7E-07	1.4E-05	1.1E+02	3.2E+03	Yes	8.9E+01	3.1E+01
TOTAL uCi														1.3E-03	4.5E-03							

0000036

ITAS - St. Louis June 30, 1994 11:56 am
Account: 10722 Project: 519.58 Quanterra-Richland QAS No. 606 Rev. 0
Master Sample Login: 5449

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.
5449-001	BOC1L6	Water	24-JUN-94 11:50	27-JUN-94 11:15	01-AUG-94	FED-EX	1	Screening not Required
I.T. RICHLAND I.D. # IS 40658601								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	30-JUL-94	22-JUL-94	T5C	(84254:100)
1		FL/300.0/Q4	S	COLD	30-JUL-94	22-JUL-94	T5C	(84254:100)
1		NO2/300.0/Q4	S	COLD	30-JUL-94	26-JUN-94	T5C	(84254:100)
1		NO3/300.0/Q4	S	COLD	30-JUL-94	26-JUN-94	T5C	(84254:100)
1		OPHOS/300.0/Q4	S	COLD	30-JUL-94	26-JUN-94	T5C	(84254:100)
1		SO4/300.0/Q4	S	COLD	30-JUL-94	22-JUL-94	T5C	(84254:100)
1	PN - Plastic-1L	AS/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84211:100)
1		HG/CLP90/Q4	C	COLD	30-JUL-94	22-JUL-94	T5C	(84211:100)
1		ICAP/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84211:100)
1		METAL/CLP90/Q4	P	COLD	N/A	N/A	T5C	(84211:100)
1		PB/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84211:100)
1		SE/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84211:100)
1		TL/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84211:100)
1	PN - Plastic-500ml	NO3/353.1/Q4	S	COLD	30-JUL-94	22-JUL-94	T5C	(84212:100)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
5449-001DUP	BOC1L6	Water	24-JUN-94 11:50	27-JUN-94 11:15	01-AUG-94	FED-EX	1	Screening not Required
I.T. RICHLAND I.D. # IS 40658601								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	PN - Plastic-1L	AS/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84211:100)
1		HG/CLP90/Q4	C	COLD	30-JUL-94	22-JUL-94	T5C	(84211:100)
1		ICAP/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84211:100)
1		METAL/CLP90/Q4	P	COLD	N/A	N/A	T5C	(84211:100)
1		PB/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84211:100)
1		SE/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84211:100)
1		TL/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84211:100)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
5449-001MS	BOC1L6	Water	24-JUN-94 11:50	27-JUN-94 11:15	01-AUG-94	FED-EX	1	Screening not Required
I.T. RICHLAND I.D. # IS 40658601								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	PN - Plastic-1L	AS/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84211:100)
1		HG/CLP90/Q4	C	COLD	30-JUL-94	22-JUL-94	T5C	(84211:100)
1		ICAP/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84211:100)
1		METAL/CLP90/Q4	P	COLD	N/A	N/A	T5C	(84211:100)
1		PB/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84211:100)
1		SE/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84211:100)
1		TL/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84211:100)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
5449-002	BOC1L7	Water	24-JUN-94 11:50	27-JUN-94 11:15	01-AUG-94	FED-EX	1	Screening not Required
I.T. RICHLAND I.D. # IS 40658602								

3*=Sample has not been rad screened.

0000037

ITAS - St. Louis June 30, 1994 11:56 am
Account: 10722 Project: 519.58 Quanterra-Richland QAS No. 606 Rev. 0
Master Sample Login: 5449

Project Manager: W. Price

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

Sample Header Template:

Sample No. Client ID C-Matrix Date: Collected Received Due Shipper Rad Category Rad Sample No.
Comments

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
Data:								
1	PN - Plastic-1L	AS/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84252:100)
1		HG/CLP90/Q4	C	COLD	30-JUL-94	22-JUL-94	T5C	(84252:100)
1		ICAP/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84252:100)
1		METAL/CLP90/Q4	P	COLD	N/A	N/A	T5C	(84252:100)
1		PB/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84252:100)
1		SE/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84252:100)
1		TL/CLP90/Q4	C	COLD	30-JUL-94	21-DEC-94	T5C	(84252:100)

96154746.1826

3*=Sample has not been rad screened.

0000038

INTERNATIONAL TECHNOLOGY CORPORATION

5449

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 453545
Page 1 of 1

Project Name/No. 1 94-256
Sample Team Members 2
Profit Center No. 3 4637
Project Manager 4 Van Petley
Purchase Order No. 6
Required Report Date 11

Samples Shipment Date 7 6/27/94
Lab Destination 8 St. Louis
Lab Contact 9
Project Contact/Phone 12
Carrier/Waybill No. 13

Bill to: 5 ITAS Richland
Report to: 10 ITAS Richland

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	Condition on Receipt 21 PH / Cont. Type / Vol.	Disposal Record No. 22
40658601A	BOC1L6 /H2O	6-24-94 See WHC	11:50 COC/SAR		4°C	See WHC COC/SAR	1 1/2 P 100	
* B		~~6-24-94~~ Done	~~11:50~~				missing sample	
C		6-24-94	11:50				1 500 ml/P 100	
40658602A	BOC1L7/H2O	6-24-94	11:50				1 1/2 P 100	
6/27/94								
*	Rec'd at 1715 06-28-94							

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# W0105

1. Relinquished by 28 (Signature/Affiliation) ITAS	Date: 6/27/94 Time: 1600	1. Received by 29 (Signature/Affiliation) George W Byrd	Date: 6-28-94 Time: 0900
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

0000039

White: To accompany samples. Yellow: Field copy

*See back of form for special instructions.

9413476 1828

INTERNATIONAL TECHNOLOGY CORPORATION

519.58

C.U.R. and C.O.C.
COPIED TO: WP
DATE: 6-28-94
TIME: 0915
BY: DWB

Work Order No.: _____

Condition Upon Receipt Variance Report
ITAS - St. Louis Laboratory

Client: IT Richland
Date: 6-28-94
Project No: _____
Initiated by: George W Byrd
Analysis Requested: Refer to RFA/COC
RFA/COC Numbers: 453545
Client Sample Numbers Affected: Entire Login

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

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

Notes: ~~The~~ (TWO Trip Blank Also unlabel) - Sample 40658601B was missing. It was rec'd later at 1705 on 06-28-94 and subsequently logged in for Arion parameters.

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: _____

0000040

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: R.St. John / W. Seltzer	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-12	SAF No.: 94-256
Ice Chest No.: ER-26	Field Logbook No.: EFL-1124	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: WHC-U-0746-6	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks: none noted		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	HNO3<2	HCl<2			HNO3<2					
Type of Container	P	G	G	P	P	P	G/P			G/P					
No. of Container(s)	1	1	1	1	1	1	1			1					
Volume	1L	500ml	500ml	2L	2L	1L	1L			1L					
SAMPLE ANALYSIS 406586	CLP-ICP METALS, Hg (UNFIL-TERED) A	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 B	NO2/NO3 C	TOTAL URANIUM 406587-01	GAMMA SPEC (see#1)	GAMMA SPEC (see#2)	Tc-99			CLP-ICP METALS, Hg (FIL-TERED)					

Sample No.	Matrix*	Date Sampled	Time Sampled															
BOC1L6 01	W	6/24/94	1150	X	X	X	X	X	X	X								
BOC1L7 2	W	6/24/94	1150										X[A]					

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
W.C. Seltzer	6-24-94 / 1540	C. Simpson WHC	6/24/94 1540
C. Simpson WHC	1115 6/27/94	ITAS	6/27/94 1115

SPECIAL INSTRUCTIONS

#1=includes:Co-58/60,Cs-137,Eu-152/154/155,Fe-59] #2=includes:Co-58/60,Cs-137,Eu152/154/155,Fe-59

SDG W0105

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: 0000041 | Disposed By: | Date/Time:

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9413179.1829

TENNELEC #1

SCREENING CALCULATION SPREADSHEET

Correct. JRM 27 June 94

Customer Code	Recieved Date		Screening Prep Date		Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	6-27-94		6-27		6-27	10	8	130	120

Customer ID WHC/LIQ	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
B0C1L6		2.9	10	2.0	11	6	26	0.53	1.52	2.11E+00	2.89E+00	1.9E-04	2.6E-04	1.9E-07	1.6E-07	9.5E+01	1.3E+02	Yes	1.1E+02	7.7E+02
B0BZK0		3.6	10	1.0	10	3	14	0.23	0.32	9.46E-01	5.21E-01	4.3E-05	2.3E-05	6.0E-08	3.6E-08	4.3E+01	2.3E+01	Yes	2.3E+02	4.3E+03
B0BZK2		5.5	10	1.0	6	6	16	0.53	0.52	2.24E+00	7.46E-01	1.0E-04	3.4E-05	9.7E-08	1.6E-08	1.0E+02	3.4E+01	Yes	9.9E+01	3.0E+03
B0BZJ6		3.9	10	1.0	3	5	23	0.43	1.22	1.75E+00	2.32E+00	7.9E-05	1.0E-04	8.4E-08	9.4E-08	7.9E+01	1.0E+02	Yes	1.3E+02	9.6E+02
B0BZJ2		5.8	10	1.0	1	10	20	0.93	0.92	3.94E+00	1.33E+00	1.8E-04	6.0E-05	1.3E-07	2.2E-08	1.8E+02	6.0E+01	Yes	5.6E+01	1.7E+03
TOTAL uCi												5.9E-04	4.8E-04							

9615476.1830

9613476.1831

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER: 406586, 406587 DATE INITIATED: 6/27/94

INITIATED BY: TGilmore

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 6/27/94 1115

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
B0C1L6		
B0BZJ6		
B0BZJ2		
B0BZK0		
B0BZK2		

Samples were received with the following deficiencies:

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

000043

NOTES: No Screen aliquot supplied.

SUPERVISOR REVIEW: _____

PROJECT MANAGER REVIEW: _____

TELEPHONED TO: _____ ON _____ BY _____

TELEFAXED TO: _____ ON _____ BY _____

SIGNED ORIGINAL MUST BE RETAINED IN WORK ORDER FILE

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

9613476.1832

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
WHC		W94-0-0746-6

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 ☒ Contractor ☐ Vendor

Shipped to
IT Analytical Services
2800 George Washington Way
Richland, WA 99352

Off-site Custodian

Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 lbs	Sample #: BOCIL6 BOCIL7 BOBZJ2 BOBZJ3 BOBZN4 BOBZ BOBZJ6 BOBZJ7 BOBZK2 BOBZK3 BOBZK0 BOBZK1 Cooler ID: ER-26 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs	~~Sample #:~~ AJS 6/27/94 Cooler ID: 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

Sampling supports RI/FS work in the 100 200 300 areas.

RECEIVED
JUN 27 1994
PROPERTY RECORDS

Bill of lading # NA

0000045

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
mbFoss	178844	06-27-94

Location of Property (Area & Bldg.)	Contact	Phone
300 FF-5	P. H. Butcher	(509) 376-4388

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
6/27/94	P2SCA / 8B410	NA

Originated By	Date	Authorized By	Date
AJ Simpson		AJ Simpson	6/27/94

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		JP Hankel	6/27/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No	Date Issued	Purchase Order No.	Date Issued
Date 6/27/94 TAS 1115				

DISTRIBUTION

By Originator	Shipping Operation – Sign all Copies and Forward to:
White, Green, Yellow, Pink – Property Management Goldenrod – Retain	White – Property Management Yellow – Retain Green – Property Control Custodian (Issuing Office) Pink – Originator

54-3000-479 (09/89)

9613476 1833

SAMPLE STATUS REPORT FOR N 587. RAD SCREEN 299W1912 TIME: 6/27/94 8: 6
DISPATCHED: 6/ 8/94 13:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 6/27/94 7:55

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

B0C1L6
B0C1L7

9600046

ITAS - St. Louis June 30, 1994 10:25 am
Account: 10722 Project: 519.58 ITAS - Richland QAS No. 606 Rev. 0
Master Sample Login: 5456

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.
Data:								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
5456-001	**BOC1N9**	**Water**	**27-JUN-94 09:15**	**28-JUN-94 12:35**	**02-AUG-94**	**FED-EX**	**1**	**Screening not Required**
I.T. RICHLAND I.D. # IS 40661301	ANIION HT'S WAIVED BY WHC.							
3	VI - Vial-40ml	VOA/CLP90/Q4	S	COLD	26-JUL-94	11-JUL-94	109N	(84298:100 84299:100 84300:100)
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	26-JUL-94	25-JUL-94	S16C	(84301:100)
1		FL/300.0/Q4	S	COLD	26-JUL-94	25-JUL-94	S16C	(84301:100)
1		NO2/300.0/Q4	S	COLD	26-JUL-94	29-JUN-94	S16C	(84301:100)
1		NO3/300.0/Q4	S	COLD	26-JUL-94	29-JUN-94	S16C	(84301:100)
1		OPHOS/300.0/Q4	S	COLD	26-JUL-94	29-JUN-94	S16C	(84301:100)
1		SO4/300.0/Q4	S	COLD	26-JUL-94	25-JUL-94	S16C	(84301:100)
1	PN - Plastic-500ml	NO3/353.1/Q4	S	H2SO4	26-JUL-94	25-JUL-94	S16C	(84302:100)
5456-002	**BOC1M8**	**Water**	**23-JUN-94 11:45**	**28-JUN-94 12:35**	**02-AUG-94**	**FED-EX**	**1**	**Screening not Required**
I.T. RICHLAND I.D. # IS 40661303	ANION HT'S WAIVED BY WHC.							
3	VI - Vial-40ml	VOA/CLP90/Q4	S	COLD	26-JUL-94	07-JUL-94	109N	(84303:100 84304:100 84305:100)
2	AN - Amber Glass-1L	PEST/CLP90/Q4	S	COLD	26-JUL-94	03-JUL-94	S16C	(84308:100 84309:100)
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	26-JUL-94	21-JUL-94	S16C	(84306:100)
1		FL/300.0/Q4	S	COLD	26-JUL-94	21-JUL-94	S16C	(84306:100)
1		NO2/300.0/Q4	S	COLD	26-JUL-94	25-JUN-94	S16C	(84306:100)
1		NO3/300.0/Q4	S	COLD	26-JUL-94	25-JUN-94	S16C	(84306:100)
1		OPHOS/300.0/Q4	S	COLD	26-JUL-94	25-JUN-94	S16C	(84306:100)
1		SO4/300.0/Q4	S	COLD	26-JUL-94	21-JUL-94	S16C	(84306:100)
1	PN - Plastic-500ml	NO3/353.1/Q4	S	H2SO4	26-JUL-94	21-JUL-94	S16C	(84307:100)
5456-002MS	**BOC1M8**	**Water**	**23-JUN-94 11:45**	**28-JUN-94 12:35**	**02-AUG-94**	**FED-EX**	**1**	**Screening not Required**
I.T. RICHLAND I.D. # IS 40661303								
2	AN - Amber Glass-1L	PEST/CLP90/Q4	S	COLD	26-JUL-94	03-JUL-94	S16C	(84315:100 84316:100)
5456-002MSD	**BOC1M8**	**Water**	**23-JUN-94 11:45**	**28-JUN-94 12:35**	**02-AUG-94**	**FED-EX**	**1**	**Screening not Required**
I.T. RICHLAND I.D. # IS 40661303								
2	AN - Amber Glass-1L	PEST/CLP90/Q4	S	COLD	26-JUL-94	03-JUL-94	S16C	(84308:100 84309:100)
5456-003	**BOC1N9**	**Water**	**23-JUN-94 11:45**	**28-JUN-94 12:35**	**02-AUG-94**	**FED-EX**	**1**	**Screening not Required**
I.T. RICHLAND I.D. # IS 40661304								
3	VI - Vial-40ml	VOA/CLP90/Q4	S	COLD	26-JUL-94	07-JUL-94	109N	(84324:100 84325:100 84326:100)
5456-004	**BOC1P0**	**Water**	**27-JUN-94 08:30**	**28-JUN-94 12:35**	**02-AUG-94**	**FED-EX**	**1**	**Screening not Required**
I.T. RICHLAND I.D. # IS 40661302-ONE VOA VIAL WAS RECVD. BROKEN!!!!								

3*=Sample has not been rad screened.

0000047

ITAS - St. Louis June 30, 1994 10:25 am
Account: 10722 Project: 519.58 ITAS - Richland QAS No. 606 Rev. 0
Master Sample Login: 5456

Project Manager: W. Price

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

Sample Header Template:

Sample No.	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
Comments								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
Data:								
2	VI - Vial-40ml	VOA/CLP90/Q4	S	COLD	26-JUL-94	11-JUL-94	109N	(84331:100 84332:100)

3*=Sample has not been rad screened.

9613476.1835

516C 109N

Hmp5 CUK 581

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 453549
Page 1 of 2

Project Name/No. 1: 94-256
Sample Team Members 2:
Profit Center No. 3: 4632
Project Manager 4: Van Pettey
Purchase Order No. 6:
Required Report Date 11:

Samples Shipment Date 7: 6/28/94
Lab Destination 8: St. Louis
Lab Contact 9:
Project Contact/Phone 12:
Carrier/Waybill No. 13:

Bill to: 5 ITAS Richland
Report to: 10 ITAS Richland

White: To accompany samples ALL Yellow: Field copy

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	Condition on Receipt 21	Disposal Record No. 22
40061301A	BOC1N9/H_2O	See WHC 062794 0915	COC/SAR vial	40mL	4°C	See WHC COC/SAR VOA	100%	
B		062794 0915	vial	40mL	HCL	VOA	100%	
C		062794 0915	vial	40mL	HCL	VOA	100%	
D		062794 0915	Amber Glass	500		Anions	100%	
E		062794 0915	Poly	500 mL	H_2SO_4	NO2-NO3	100%	
40061302A	BOC1P0/H_2O	062794 0830	vial	40mL	HCL	VOA	100	
B		Container Broken upon Rec'd						
C		062794 0830	vial	40mL	HCL	VOA	100	

FOR LAB USE ONLY

FOR LAB USE ONLY

Special Instructions: 23 Note: Recieved 2 VOA vial not listed on COC, no labels

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 WO105

1. Relinquished by 28 (Signature/Affiliation) [signature] ITAS	Date: 6/28/94 Time: 1600	1. Received by 28 (Signature/Affiliation) Bob Carson	Date: 06 27 93 Time: 0900
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

0000049

*See back of form for special instructions.

Temps – CUR 587

INTERNATIONAL TECHNOLOGY CORPORATION

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

Reference Document No.[30] 453549

Project Name SAF # 94-256

Project No. SDG W0105

Samples Shipment Date 6/28/94

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	Disposal[22] Record No.
40661303A	BOC1M8/H_2O	062394 1145 See WHC	COC/SAR	40 mL	40 HCL	See WHC COC/SAR	100%	
B		062394 1145	Vial	40 mL	HCL		100%	
C		062394 1145	Vial	40 mL	HCL		100%	
D		062394 1145	Amber Glass	500 mL	—	Anions	100%	
E		062394 1145	Amber Glass	1L		PCB Pest	100%	
F		062394 1145	Amber Glass	1L		PCB/Pest	100%	
G		062394 1145	Poly	500 mL	H_2SO_4	202-205	100% PH1	
40661304A	BOC1M9/H_2O	062394 1145	Vial	40 mL	HCL	VOC	100%	
B		062394 1145	Vial	40 mL	HCL	VOC	100%	
C		062394 1145	Vial	40 mL	HCL	VOC	100%	
6/28/94								
	0000050							

FOR LAB USE ONLY

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

INTERNATIONAL TECHNOLOGY CORPORATION

C.U.R. and C.O.C.

COPIED TO: K Price
DATE: 06 29 94
TIME: 11:00
BY: B Cauvert

519.58
QC on Pest/PCB

Work Order No.: _____

Condition Upon Receipt Variance Report
ITAS - St. Louis Laboratory

Client: _____ Date: 06 29 94 0900

Project No: _____ Initiated by: Bob Cauvert

Analysis Requested: Refer to RFA/COC RFA/COC Numbers: 453549

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. See Below
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: One Voa Vial for Doc PO was rec'd Broken
Also rec'd 2 voa vial not on CoC, no labels either

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: _____

0000051

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priority [X] Normal

Collector: B T WHITTEN	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-35	SAF No.: 94-256
Ice Chest No.: GR-1D	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W94-0-0746-8	Bill of Lading/Air Bill No.: ~~140713~~ AJS 6/28/94 NA
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCl<2	COOL 4	H2SO4<2	HNO3<2	HCl<2			HCl<2								
Type of Container	Gs	G	G	P	G/P			Gs								
No. of Container(s)	3	1	1	1	1			3								
Volume	40ml	500ml	500ml	2L	1L			40ml								
SAMPLE ANALYSIS 406613	CLP-VOA 01ABC	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 D	NO2/NO3 E	TOTAL URANIUM 406	Tc-99 6/401			CLP-VOA 02ABC								

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0C1N9 01	W	06/27/94		X	X	X	X	X									
B0C1P0 02	W	06/27/94									X						

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K Rebop-bee	6/27/94 1106	K. Jones / K. Tapp WHC	6/27/94 1106
K. Jones / K. Tapp		K. Jones / K. Tapp	
AJ Simpson WHC	6/28/94 1230	IT/AS	6/28/94 1235

SPECIAL INSTRUCTIONS

SDG W0105

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

0000052

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

N 590

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: D. St. John / W. Selzer	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-18	SAF No.: 94-256
Ice Chest No.: GL-1D	Field Logbook No.: EFL 1124	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: WG4-0-0746-8	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks: none noted		

Sample No.	Matrix*	Date Sampled	Time Sampled	CLP-VOA	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4	PCB/PEST	NO2/NO3	GROSS ALPHA/BETA	TOTAL URANIUM	U-234/235/238	Sr-90	Sr-90	Tc-99			CLP-VOA		
Preservative				HCl<2	COOL 4	pH=5-9	H2SO4<2	HNO3<2	HNO3<2	HNO3<2	HNO3<2	HNO3<2	HCl<2			HCl<2		
Type of Container				Gs	G	aG	P	P	P	P	P	P	G/P			Gs		
No. of Container(s)				3	1	2	1	1	1	1	1	1	1			3		
Volume				40ml	500ml	1L	500ml	2L	2L	2L	2L	1L	1L			40ml		
SAMPLE ANALYSIS				03ABC	D	EF	G	4066	61402							04ABC		
B0C1M8 03	W	6/23/94	1114	X	X	X	X											
B0C1M9 04	W	6/23/94	1145													X		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
D St John WHC	6/23/94 1410	C.J. Simpson WHC	6/23/94 1410
Relinquished By	Date/Time	Received By	Date/Time
C.J. Simpson	6/28/94 1230	[illegible] ITAS	6/28/94 1235
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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

0000053

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

TENNELEC #1

SCREENING CALCULATION SPREADSHEET

Ok. JKM
28 June 94

Customer Code	Recieved Date		Screening Prep Date		Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	6-28-94		6-28		6-28	10	15	223	240

Customer ID WHC/LIQ	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
B0C1M8		4.2	10	2.0	57	8	88	0.74	7.87	2.80E+00	1.64E+01	2.5E-04	1.5E-03	2.3E-07	3.8E-07	1.3E+02	7.4E+02	Yes	7.9E+01	1.4E+02
B0C1N9		6.9	10	1.0	58	22	55	2.14	4.57	9.10E+00	8.37E+00	4.1E-04	3.8E-04	2.2E-07	1.4E-07	4.1E+02	3.8E+02	Yes	2.4E+01	2.7E+02
TOTAL uCi												6.6E-04	1.9E-03							

9613476.1842

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER: 406613, 406614 DATE INITIATED: 6/28/94

INITIATED BY: TGilmore

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 6/28/94 1235

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
BOC1M8		chem, Rad
BOC1M9		chem

Samples were received with the following deficiencies:

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

0000055

NOTES: Analysis is not marked on COC. Bottles show Analysis – BOC1M8 – Voa Anions NO2/3 α, β, U, Uiso, Tc Se

Logged in for Analysis on Bottles. BOC1M9 – Voa

SUPERVISOR REVIEW: _____

PROJECT MANAGER REVIEW: _____

TELEPHONED TO: _____ ON _____ BY _____

TELEFAXED TO: _____ ON _____ BY _____

SIGNED ORIGINAL MUST BE RETAINED IN WORK ORDER FILE

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

9613476.1843

SAMPLE STATUS REPORT FOR N 601. RAD SCREEN 299W1935 TIME: 6/28/94 8:1:
DISPATCHED: 6/ 8/94 13:12 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 6/28/94 7:48

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

BO CIN9 AJS
BO CIPO

0000056

9615476.1844

SAMPLE STATUS REPORT FOR N 590. RAD SCREEN 299W1918 TIME: 6/28/94 8:12
DISPATCHED: 6/ 8/94 13:11
RECEIVED: 6/23/94 14:48
SAMPLE HAS NOT BEEN SLURPED

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

BO CIM8

BO CIM9

BEST COPY AVAILABLE

0000057

9613476.1845

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
WHC		W94-0-0746-8

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 ☒ Contractor ☐ Vendor

Shipped to
IT Analytical Services
2800 George Washington Way
Richland, WA 99352

Off-site Custodian

Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 93 lbs	Sample #: B0CIN9 B0CIP0 B0CIM8 B0CIM9 Cooler ID: EI-1D Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs	~~Sample #:~~ Cooler ID: AJS 6/28/94 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

Sampling supports RI/FS work in the 200 area.

RECEIVED
JUN 28 1994
PROPERTY RECORDS

Bill of lading # N/A

0000059

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
	178847	6-28-94

Location of Property (Area & Bldg.)	Contact	Phone
200-UP-1	P. H. Butcher	(509) 376-4388

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
6/28/94	PTIFA 8B410	NA

Originated By	Date	Authorized By	Date
AJSIMPSON		AJ Simpson	6/28/94

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		JP Hankel	6/28/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
ITAS Date 6/28/94 1235				

DISTRIBUTION

By Originator	Shipping Operation – Sign all Copies and Forward to:
White, Green, Yellow, Pink – Property Management Goldenrod – Retain	White – Property Management Yellow – Retain Green – Property Control Custodian (Issuing Office) Pink – Originator

54-3000-479 (09/89)

ITAS - St. Louis July 05, 1994 09:17 am
Account: 10722 Project: 519.58 Quanterra-Richland QAS No. 606 Rev. 0
Master Sample Login: 5485

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.
5485-001	B0C1M2	Water	29-JUN-94 14:20	01-JUL-94 11:45	05-AUG-94	FED-EX		1 Screening not Required	
QUANTERRA RICHLAND I.D. 40701001									
3	VI - Vial-40ml	VOA/CLP90/Q4	S	HCL	29-JUL-94	13-JUL-94	109P	(84883:100 84884:99 84885:98)	
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	29-JUL-94	27-JUL-94	S4F	(84886:100)	
1		FL/300.0/Q4	S	COLD	29-JUL-94	27-JUL-94	S4F	(84886:100)	
1		NO2/300.0/Q4	S	COLD	29-JUL-94	01-JUL-94	S4F	(84886:100)	
1		NO3/300.0/Q4	S	COLD	29-JUL-94	01-JUL-94	S4F	(84886:100)	
1		OPHOS/300.0/Q4	S	COLD	29-JUL-94	01-JUL-94	S4F	(84886:100)	
1		SO4/300.0/Q4	S	COLD	29-JUL-94	27-JUL-94	S4F	(84886:100)	
1	PN - Plastic-500ml	NO3/353.1/Q4	S	H2SO4	29-JUL-94	27-JUL-94	S4F	(84887:100)	
5485-002	B0C1M6	Water	29-JUN-94 14:20	01-JUL-94 11:45	05-AUG-94	FED-EX		1 Screening not Required	
QUANTERRA RICHLAND I.D. 40701003									
3	VI - Vial-40ml	VOA/CLP90/Q4	S	HCL	29-JUL-94	13-JUL-94	109P	(84888:100 84889:99 84890:98)	
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	29-JUL-94	27-JUL-94	S4F	(84891:100)	
1		FL/300.0/Q4	S	COLD	29-JUL-94	27-JUL-94	S4F	(84891:100)	
1		NO2/300.0/Q4	S	COLD	29-JUL-94	01-JUL-94	S4F	(84891:100)	
1		NO3/300.0/Q4	S	COLD	29-JUL-94	01-JUL-94	S4F	(84891:100)	
1		OPHOS/300.0/Q4	S	COLD	29-JUL-94	01-JUL-94	S4F	(84891:100)	
1		SO4/300.0/Q4	S	COLD	29-JUL-94	27-JUL-94	S4F	(84891:100)	
1	PN - Plastic-500ml	NO3/353.1/Q4	S	H2SO4	29-JUL-94	27-JUL-94	S4F	(84892:100)	
5485-003	B0C2Y9	Water	29-JUN-94 17:00	01-JUL-94 11:45	05-AUG-94	FED-EX		1 Screening not Required	
QUANTERRA RICHLAND I.D. 40701005									
3	VI - Vial-40ml	VOA/CLP90/Q4	S	HCL	29-JUL-94	13-JUL-94	109P	(84893:100 84894:99 84895:98)	
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	29-JUL-94	27-JUL-94	S4F	(84896:100)	
1		FL/300.0/Q4	S	COLD	29-JUL-94	27-JUL-94	S4F	(84896:100)	
1		NO2/300.0/Q4	S	COLD	29-JUL-94	01-JUL-94	S4F	(84896:100)	
1		NO3/300.0/Q4	S	COLD	29-JUL-94	01-JUL-94	S4F	(84896:100)	
1		OPHOS/300.0/Q4	S	COLD	29-JUL-94	01-JUL-94	S4F	(84896:100)	
1		SO4/300.0/Q4	S	COLD	29-JUL-94	27-JUL-94	S4F	(84896:100)	
1	PN - Plastic-500ml	NO3/353.1/Q4	S	H2SO4	29-JUL-94	27-JUL-94	S4F	(84897:100)	
5485-004	B0C1K9	Water	30-JUN-94 11:00	01-JUL-94 11:45	05-AUG-94	FED-EX		1 Screening not Required	
QUANTERRA RICHLAND I.D. 40701202									
3	VI - Vial-40ml	VOA/CLP90/Q4	S	HCL	29-JUL-94	14-JUL-94	109P	(84898:100 84899:99 84900:98)	
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	29-JUL-94	28-JUL-94	S4F	(84901:100)	
1		FL/300.0/Q4	S	COLD	29-JUL-94	28-JUL-94	S4F	(84901:100)	
1		NO2/300.0/Q4	S	COLD	29-JUL-94	02-JUL-94	S4F	(84901:100)	

3*=Sample has not been rad screened.

0000060

9413476.1846

ITAS - St. Louis July 05, 1994 09:17 am
Account: 10722 Project: 519.58 Quanterra-Richland QAS No. 606 Rev. 0
Master Sample Login: 5485

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.
5485-004DUP	B0C1K9	Water	30-JUN-94 11:00	01-JUL-94 11:45	05-AUG-94	FED-EX		1	Screening not Required
QUANTERRA RICHLAND I.D. 40701202									
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	29-JUL-94	28-JUL-94	S4F	(84901:100)	
1		FL/300.0/Q4	S	COLD	29-JUL-94	28-JUL-94	S4F	(84901:100)	
1		NO2/300.0/Q4	S	COLD	29-JUL-94	02-JUL-94	S4F	(84901:100)	
1		NO3/300.0/Q4	S	COLD	29-JUL-94	02-JUL-94	S4F	(84901:100)	
1		OPHOS/300.0/Q4	S	COLD	29-JUL-94	02-JUL-94	S4F	(84901:100)	
1		SO4/300.0/Q4	S	COLD	29-JUL-94	28-JUL-94	S4F	(84901:100)	
1	PN - Plastic-500ml	NO3/353.1/Q4	S	H2SO4	29-JUL-94	28-JUL-94	S4F	(84902:100)	
5485-004MS	B0C1K9	Water	30-JUN-94 11:00	01-JUL-94 11:45	05-AUG-94	FED-EX		1	Screening not Required
QUANTERRA RICHLAND I.D. 40701202									
3	VI - Vial-40ml	VOA/CLP90/Q4	S	HCL	29-JUL-94	14-JUL-94	109P	(84898:100 84899:99 84900:98)	
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	29-AUG-94	28-JUL-94	S4F	(84901:100)	
1		FL/300.0/Q4	S	COLD	29-AUG-94	28-JUL-94	S4F	(84901:100)	
1		NO2/300.0/Q4	S	COLD	29-AUG-94	02-JUL-94	S4F	(84901:100)	
1		NO3/300.0/Q4	S	COLD	29-AUG-94	02-JUL-94	S4F	(84901:100)	
1		OPHOS/300.0/Q4	S	COLD	29-AUG-94	02-JUL-94	S4F	(84901:100)	
1		SO4/300.0/Q4	S	COLD	29-AUG-94	28-JUL-94	S4F	(84901:100)	
1	PN - Plastic-500ml	NO3/353.1/Q4	S	H2SO4	29-AUG-94	28-JUL-94	S4F	(84902:100)	
5485-004MSD	B0C1K9	Water	30-JUN-94 11:00	01-JUL-94 11:45	05-AUG-94	FED-EX		1	Screening not Required
QUANTERRA RICHLAND I.D. 40701202									
3	VI - Vial-40ml	VOA/CLP90/Q4	S	HCL	29-JUL-94	14-JUL-94	109P	(84898:100 84899:99 84900:98)	
5485-005	B0C1L1	Water	30-JUN-94 13:00	01-JUL-94 11:45	05-AUG-94	FED-EX		1	Screening not Required
QUANTERRA RICHLAND I.D. 40701201									
1	AN - Amber Glass-500ml	CL/300.0/Q4	S	COLD	29-JUL-94	28-JUL-94	S4F	(84906:100)	
1		FL/300.0/Q4	S	COLD	29-JUL-94	28-JUL-94	S4F	(84906:100)	
1		NO2/300.0/Q4	S	COLD	29-JUL-94	02-JUL-94	S4F	(84906:100)	
1		NO3/300.0/Q4	S	COLD	29-JUL-94	02-JUL-94	S4F	(84906:100)	
1		OPHOS/300.0/Q4	S	COLD	29-JUL-94	02-JUL-94	S4F	(84906:100)	
1		SO4/300.0/Q4	S	COLD	29-JUL-94	28-JUL-94	S4F	(84906:100)	
1	PN - Plastic-500ml	NO3/353.1/Q4	S	H2SO4	29-JUL-94	28-JUL-94	S4F	(84907:100)	

3*=Sample has not been rad screened.

0000061

ITAS - St. Louis July 05, 1994 09:17 am
Account: 10722 Project: 519.58 Quanterra-Richland QAS No. 606 Rev. 0
Master Sample Login: 5485

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.
5485-006	80C1M3	Water	29-JUN-94 14:20	01-JUL-94 11:45	05-AUG-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40701002								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
3	VI - Vial-40ml	VOA/CLP90/Q4	S	HCL	29-JUL-94	13-JUL-94	109P	(84908:100 84909:99 84910:98)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
5485-007	80C1M7	Water	29-JUN-94 14:20	01-JUL-94 11:45	05-AUG-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40701007								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
3	VI - Vial-40ml	VOA/CLP90/Q4	S	HCL	29-JUL-94	13-JUL-94	109P	(84911:100 84912:99 84913:98)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
5485-008	80C2Z0	Water	29-JUN-94 17:00	01-JUL-94 11:45	05-AUG-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40701006								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
3	VI - Vial-40ml	VOA/CLP90/Q4	S	HCL	29-JUL-94	13-JUL-94	109P	(84914:100 84915:99 84916:98)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
5485-009	80C2Y8	Water	29-JUN-94 17:00	01-JUL-94 11:45	05-AUG-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40701007								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
3	VI - Vial-40ml	VOA/CLP90/Q4	S	HCL	29-JUL-94	13-JUL-94	109P	(84917:100 84918:99 84919:98)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
5485-010	80C1L0	Water	30-JUN-94 11:00	01-JUL-94 11:45	05-AUG-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40701203								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
3	VI - Vial-40ml	VOA/CLP90/Q4	S	HCL	29-JUL-94	14-JUL-94	109P	(84920:100 84921:99 84922:98)

3*=Sample has not been rad screened.

Temp 5°C CLR C/E

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 453568
Page 1 of 2

Project Name/No. [1] 94-256
Sample Team Members [2]
Profit Center No. [3] 4632
Project Manager [4] Van Petkey
Purchase Order No. [6]
Required Report Date [11]

Samples Shipment Date [7] 7/1/94
Lab Destination [8] St. Louis
Lab Contact [9]
Project Contact/Phone [12]
Carrier/Waybill No. [13]

Bill to: [5] Quanterra Richland
Report to: [10] Quanterra Richland

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]	Condition on Receipt [21]	Disposal Record No. [22]
1 40701001A	BOC1M2/H2O	062994 1420 See WHC	Amber COC/SAR	40 mL	4°C HCL	See WHC COC/SAR VOA	100	
B		"	"	"	"		100	
C		"	"	"	"		100	
D		"	Amber	500 mL	—	anions	100	
E		"	Poly	500 mL	H2SO4	NO2 NO3	100	
6 40701002A	BOC1M3	062994 1420	Amber	40 mL	HCL	VOA	100	
B	"	"	"	"	"		100	
C		"	"	"	"		100	

FOR LAB USE ONLY

FOR LAB USE ONLY

Special Instructions: [23] Note: Rec'd 2 VOA Cont not listed on COC or labeled

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 W0105

1. Relinquished by [28] (Signature/Affiliation) [signature] Quanterra	Date: 7/1/94 Time: 1600
1. Received by [28] (Signature/Affiliation) Bill Cowart	Date: 07-02-94 Time: 1000
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]

0000063

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

CLP C16 Emps

INTERNATIONAL TECHNOLOGY CORPORATION

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

Reference Document No. 30453568

Page 2 of 2

Project Name SDG W0105 Project No. 94-256 Samples Shipment Date 7/1/94

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	Disposal 22 Record No.
2	40701003A	BOC1M6 / H_2O	062994 1420 See WHC	Amber COC/SAR	40 mL	4°C Hcl	See WHC COC/SAR VOA	10070	
	B		"	"	"	"	"	10070	
	C		"	"	"	"	"	10070	
	D		"	Amber	500 mL	-	Anions	10070	
	E		"	Poly	500 mL	H_2SO_4	NO2-NO3	10090	pH1
14	40701004A	BOC1M7	062994 1420	Amber	40mL	HCL	VOA	10070	
	B		"	"	"	"	"	100	
	C		"	"	"	"	"	100	
3	40701005A	BOC2Y9	062994 1700	Amber	40mL	HCL	VOA	10090	
	B		"	"	"	"	"	100	
	C		"	"	"	"	"	100	
	D		"	Amber	500 mL	-	Anions	10070	
	E		"	Poly	500 mL	H_2SO_4	NO2-NO3	10070	pH1
8	40701006A	BOC2Z0	062994 1700	Amber	40 mL	HCL	VOA	100	
	B		"	"	"	"	"	100	
	C		"	"	"	"	"	100	
9	40701007A	BOC2Y8	062994 1700	"	"	"	"	100	
	B		"	"	"	"	"	100	
	C		"	"	"	"	"	100	
	7/1/94	0000064							

White: To accompany samples. Yellow: Field copy

*See back of form for special instructions.

FOR LAB USE ONLY

MCA 3/15/91

Samp 5 CUR 614

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 453569
Page 1 of 2

Project Name/No. 1 94-256
Sample Team Members 2
Profit Center No. 3 4632
Project Manager 4 VanPelt Hay
Purchase Order No. 6
Required Report Date 11

Samples Shipment Date 7 7/1/94
Lab Destination 8 St Louis
Lab Contact 9
Project Contact/Phone 12
Carrier/Waybill No. 13

Bill to: 5 Quanterra Richland
Report to: 10 Quanterra Richland

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	Disposal Record No. 22
5	40701201A	BOC1L1 / H_2O	063094 1900 See WHC	Amber COC/SAR	500 mL	4°C	See WHC COC/SAR Aniones	10070	
	B		" "	Poly	500 mL	H_2SO_4	NO2-NO3	10070	
4	40701202A	BOC1K9	1100 063094	Amber	40 mL	HCL	VOA	10070	
	B		"	"	"	"	"	10070	
	C		"	"	"	"	"	10070	
	D		"	Amber	500 mL	—	Aniones	10070	
	E		"	Poly	500 mL	H_2SO_4	NO2-NO3	10070	
10	40701203A	BOC1L0	"	Amber	40 mL	HCL	VOA	10070	

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 W0120

1. Relinquished by 28 (Signature/Affiliation) [signature] Quanterra — Date: 7/1/94 Time: 1600	1. Received by 28 (Signature/Affiliation) [signature] — Date: 07-02-94 Time: 1000
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

0000065

White: To accompany samples. Yellow: Field copy

*See back of form for special instructions.

CVR 614 Jump S

INTERNATIONAL TECHNOLOGY CORPORATION

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

Reference Document No.[30] 453569

Page 2 of 2

Project Name SDG W0120

Project No. 94-256

Samples Shipment Date 7/1/94

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	Disposal[22] Record No.
40701203 B	BOC1LO / H_2O	06/30/94 11:00 See WHC	Amber COC/SAR	40 mL	4°C HCl	See WHC COC/SAR Vol	10070	
1 C	1 1	"	"	"	1 "	"	"	
7/1/94								
	0000066							

FOR LAB USE ONLY

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

INTERNATIONAL TECHNOLOGY CORPORATION

C.U.R. and C.O.C.

COPIED TO: WP

DATE: 07-02-94

TIME: 1230

BY: Bob Cowan

Work Order No.: 5485

Condition Upon Receipt Variance Report
ITAS - St. Louis Laboratory

Client: Quanterra Richland

Date: 07-02-94 1000

Project No: 519.58

Initiated by: Bob Cowan

Analysis Requested: Refer to RFA/COC

RFA/COC Numbers: 453568

Client Sample Numbers Affected: Entire Login

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

1	NA	Not enough sample received for proper analysis. Received approximately: _____	8	☐	Custody tape disturbed/broken/missing.
			9.	NA	Sample splits performed by lab.
2	☐	Sample received broken/leaking.	10	NA	Volatile sample received with approximately _____ mm headspace.
3	☐	Sample received without proper preservative.			
	☐	Cooler temperature not within 4°C ± 2°C 1135 Record temperature: 5	11	☐	Sample ID on container does not match sample ID on paperwork. Explain:
	☐	pH _____			
	☐	other: _____			
4.	☐	Sample received in improper container.	12	☐	All coolers on airbill not received with shipment.
5.	☑	Sample received without proper paperwork. Explain: 2 Voa Vials See Below	13	☐	Other (explain below): Shipping containers ~~not~~ rad surveyed.
6	☐	Paperwork received without sample.			
7	☐	No sample ID on sample container.			

Notes: Rec'd 2 voa vials not on COC or labeled

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

0000067

616

9413476 1854

INTERNATIONAL TECHNOLOGY CORPORATION

C.U.R. and C.O.C.
COPIED TO: W Prine
DATE: 07-02-94
TIME: 12:30
BY: B Cowart

Work Order No.: _____

Condition Upon Receipt Variance Report
ITAS - St. Louis Laboratory

Client: Quanterra Richland
Date: 07-02-94 1000
Project No: 519.58
Initiated by: Bob Cowart
Analysis Requested: Refer to RFA/COC
RFA/COC Numbers: 753569
Client Sample Numbers Affected: Entire Login

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

1.	NA	Not enough sample received for proper analysis. Received approximately: _____	8.	☐	Custody tape disturbed/broken/missing.
			9.	NA	Sample splits performed by lab.
2.	☐	Sample received broken/leaking.	10.	NA	Volatile sample received with approximately _____ mm headspace.
3.	☐	Sample received without proper preservative.			
	☐	Cooler temperature not within 4°C ± 2°C T135 Record temperature: 5	11.	☐	Sample ID on container does not match sample ID on paperwork. Explain:
	☐	pH _____			
	☐	other: _____			
4.	☐	Sample received in improper container.	12.	☐	All coolers on airbill not received with shipment.
5.	☐	Sample received without proper paperwork. Explain: _____	13.	☐	Other (explain below): Shipping containers ~~not~~ rad surveyed.
6.	☐	Paperwork received without sample.			
7.	☐	No sample ID on sample container.			

Notes:

Corrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____

☐ Client's Name: _____ Informed in writing on: _____ By: _____

☐ Sample(s) processed "as is". Comments: _____

☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: (or designate) _____ Date: _____

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

000068

614

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: K. Trapp / GG Hamilton	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 200W	SAF No.: 94-256
Ice Chest No.: GW5026	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: WG4-0-0746-15	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks		

Preservative	HCl<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	COOL 4	HCl<2			HCl<2					
Type of Container	Gs	G	G	P	P	P	G/P			Gs					
No. of Container(s)	3	1	1	1	1	1	1			3					
Volume	40ml	500ml	500ml	2L	2L	2L	1L			40ml					
SAMPLE ANALYSIS 407010	CLP-VOA ABC	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 D	NO2/NO3 E	GROSS ALPHA/BETA 4070101	TOTAL URANIUM	I-129	Tc-99			CLP-VOA ABC					

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0C1M2 01	W	6/29/94	1420	X	X	X	X	X	X	X							
B0C1M3 02	W	↓	↓										↓				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
GG Hamilton GG Hamilton	6/30/94 0900	WHC CM Simpson	6/30/94 0903
CM Simpson WHC	7/1/94 1145	[signature]	7/1/94 1145

SPECIAL INSTRUCTIONS

SDG W0105

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: ____

0000071

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. Trapp / GG Hamilton	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 200W	SAF No.: 94-256
Ice Chest No.: GWS026	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W04-0-0746-15	Bill of Lading/Air Bill No.: NA

Possible Sample Hazards/Remarks																
	Preservative	HCl<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	COOL 4	HCl<2			HCl<2					
	Type of Container	Gs	G	G	P	P	P	G/P			Gs					
	No. of Container(s)	3	1	1	1	1	1	1			3					
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE	Volume	40ml	500ml	500ml	2L	2L	2L	1L			40ml					
SAMPLE ANALYSIS: 407010		CLP-VOA ABC	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 D	NO2/NO3 E	GROSS ALPHA/BETA 40701102	TOTAL URANIUM	I-129	Tc-99			CLP-VOA ABC					

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0C1M6 03	W	6/29/94	1420	X	X	X	X	X	X	X							
B0C1M7 04	W	↓	↓										X				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
GG Hamilton	6/30/94 0800	WHC A.J. Simpson	6/30/94 0800
A. Simpson	7/1/94 1145 WHC	[signature]	7/1/94 1145

SPECIAL INSTRUCTIONS: SDG W0105

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

0000072

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. Trapp/GG Hamilton	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 200 W	SAF No.: 94-256
Ice Chest No.: BETA 4	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.	Bill of Lading/Air Bill No.
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCl<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	COOL 4	HCl<2			HCl<2					
Type of Container	Gs	G	G	P	P	P	G/P			Gs					
No. of Container(s)	3	1	1	1	1	1	1			3					
Volume	40ml	500ml	500ml	2L	2L	2L	1L			40ml					
SAMPLE ANALYSIS 407010	CLP-VOA ABC	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 D	NO2/NO3 E	GROSS ALPHA/BETA 407	TOTAL URANIUM 01103	I-129	Tc-99			CLP-VOA					

Sample No.	Matrix*	Date Sampled	Time Sampled															
BOC2Y9 05	W	6/29/94	1700	X	X	X	X	X	X	X								
BOC2Z0 6	W	↓	↓										X					
BOC2Y8 7		6/29/94	1700	X														

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
GG Hamilton	6/30/94 0803	CJ Simpson	6/30/94 0803
CJ Simpson WHC	7/1/94 1145	[signature]	7/1/94 1145

SPECIAL INSTRUCTIONS

SDG W0105

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:

0000073

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613476.1869

070194C.WO2

TENNELEC #2

SCREENING CALCULATION SPREADSHEET

All are Cat. I.
JRM 1 July 94

Cust Code	Recieved Date	Screening Prep Date	Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	7-1-94	7-1	7-1	10	14	263	240

Customer ID	pH <2	Residue Wght	Vol. Anal.	Sample Size	SMPLE CNT DATA Hldr	Total	Counts	Net Sample Counts/Minute		DPM / Aliqout		uCi per Sample		2 Sigma Error uCi per Sample		pCi/(Gm or L)		Category 1	Aliquot to Cat 1 Gm or L	
WHC LIQ	Rcvd/Relq	mG	mG mL	Gm L	Num.	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Yes/No	Alpha	Beta
B0C6P0		6.0	10	1.0	53	1	27	0.04	1.60	8.04E-02	3.36E+00	3.6E-06	1.5E-04	2.2E-08	8.0E-08	3.6E+00	1.5E+02	Yes	2.6E+03	6.6E+02
B0C1M6		4.8	10	2.0	54	3	22	0.24	1.10	8.41E-01	2.17E+00	7.6E-05	2.0E-04	1.1E-07	1.3E-07	3.8E+01	9.8E+01	Yes	2.6E+02	1.0E+03
B0C1L1		10.1	10	2.0	52	6	29	0.54	1.80	2.03E+00	3.48E+00	1.8E-04	3.1E-04	1.8E-07	2.9E-07	9.1E+01	1.6E+02	Yes	1.1E+02	6.4E+02
B0C1M2		5.9	10	2.0	49	4	19	0.34	0.60	1.24E+00	1.48E+00	1.1E-04	1.3E-04	1.3E-07	1.3E-07	5.6E+01	6.7E+01	Yes	1.8E+02	1.5E+03
TOTAL UCi												3.7E-04	7.9E-04							

9615976.1859

0000074

070194A.WQ1

TENNELEC #1

SCREENING CALCULATION SPREADSHEET

Customer Code	Recieved Date		Screening Prep Date		Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	7-1-94		7-1		7-1	10	11	207	240

All are Cat. I.
JRM / July 94

Customer ID WHC/LIQ	pH <2 Rcvd/Relq	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
BOC2Y9		1.0	10	2.0	55	0	16	-0.05	0.74	-2.0E-01	1.60E+00	-1.8E-05	1.4E-04	-5.0E-08	1.1E-07	-9.1E+00	7.2E+01	Yes	-1.1E+03	1.4E+03
BOC1K8		21.7	10	1.0	93	52	869	5.15	86.04	2.43E+01	1.87E+02	1.1E-03	8.4E-03	4.5E-07	8.1E-07	1.1E+03	8.4E+03	Yes	9.1E+00	1.2E+01
BOC1K6		11.4	10	1.0	6	53	1097	5.25	108.84	2.06E+01	2.33E+02	9.3E-04	1.0E-02	3.9E-07	7.6E-06	9.3E+02	1.0E+04	Yes	1.1E+01	9.5E+00
BOC1K9		10.0	10	2.0	3	9	38	0.85	2.94	3.78E+00	5.77E+00	3.4E-04	5.2E-04	2.7E-07	3.4E-07	1.7E+02	2.6E+02	Yes	5.9E+01	3.9E+02
TOTAL uCi												2.3E-03	2.0E-02							

9613746.1459

9613476.1860

SAMPLE STATUS REPORT FOR N 584. RAD SCREEN 299W194 TIME: 6/30/94 8:39
DISPATCHED: 6/ 8/94 13:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 6/30/94 7:52

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

30 CIM6
BO CIM7
BO CIM2
BO CIM3

0000076

9613476.1861

Contractor WHC	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT) W94-0-0746-15

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: ☒ Contractor ☐ Vendor

Shipped to:
IT Analytical Services
2800 George Washington Way
Richland, WA 99352

Off-site Custodian:

Full Title:

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 lbs	Sample #: B0C1M6 B0C1M7 B0C1M2 B0C1M3 Cooler ID: GNS026 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs	Sample #: Cooler ID: 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:
Sampling supports RI/FS work in the

RECEIVED
JUL 1 1994
PROPERTY RECORDS

Bill of lading # NA

0000077

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

RM Clearance for Public Release: Michael B. Jones	RM Survey No: 178881	Date: 7-1-94
Location of Property (Area & Bldg.): 200UP-1	Contact: P. H. Butcher	Phone: (509) 376-4388
Date Ready for Shipment: 7/1/94	Cost Code to be Charged: 8B410 / PTIFA	Approximate Date This Property will be Returned: NA
Originated By: AJSIMPSON	Date	Authorized By: AJ Simpson — Date: 7/1/94
Signature and Name of Property Control	Custodian Date	Property Management Approval: JP Hankel — Date: 7/1/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
R. Boyd Quintana Date 7-1-94 1155				

DISTRIBUTION

By Originator	Shipping Operation – Sign all Copies and Forward to:
White, Green, Yellow, Pink – Property Management Goldenrod – Retain	White – Property Management Yellow – Retain Green – Property Control Custodian (Issuing Office) Pink – Originator

54-3000-479 (09/89)

SAMPLE STATUS REPORT FOR N 584. RAD SCREEN 299W194 TIME: 6/30/94 8:39
SAMPLE HAS NOT BEEN SLURPED

DISPATCHED: 6/ 8/94 13:10
RECEIVED: 6/30/94 7:52

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

30CIM6
BOCIM7
BOCIM2
BOCIM3

0000078

9613476.1863

SAMPLE STATUS REPORT FOR N 897. RAD SCREEN EQBLANK TIME: 7/ 1/94 0:31
DISPATCHED: 6/30/94 10:46 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/ 1/94 0:26

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

BOC2Y1
BOC220
BOC2Y8

0000079

9613476.1864

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
WHC		N94-0-0746-10

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 ☒ Contractor ☐ Vendor

Shipped to
IT Analytical Services
2800 George Washington Way
Richland, WA 99352

Off-site Custodian

Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 lbs	Sample #: BOC6P0 BOC2Y9 BOC2Z0 BOC2Y8 ~~BOC1K9~~ ~~BOC1L0~~ AJS 7/1/94 Cooler ID: BETA 4 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs	Sample #: BOB4B1 BOC1L1 BOC1L6 BO C1K8 BO BOC1K9 Cooler ID: ER-1D BOC1L0 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

Sampling supports RI/FS work in the 200 area.

RECEIVED
JUL 1 1994
PROPERTY RECORDS

Bill of lading # NA

0000080

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
michael B. Jones	178881	7-1-94

Location of Property (Area & Bldg.)	Contact	Phone
200-UP-1	P. H. Butcher	(509) 376-4388

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
7/1/94	8B410 / PTIFA	NA

Originated By	Date	Authorized By	Date
AJ SIMPSON		AJ Simpson	7/1/94

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		J P Hanket	7/1/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
R. Boyd Anderson				
Date 7-1-94 1155				

DISTRIBUTION

By Originator	Shipping Operation – Sign all Copies and Forward to:
White, Green, Yellow, Pink – Property Management Goldenrod – Retain	White – Property Management Yellow – Retain Green – Property Control Custodian (Issuing Office) Pink – Originator

54-3000-479 (09/89)

9613476.1865

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER: _____ DATE INITIATED: 7/1/94

INITIATED BY: T Gilmore

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 7/1/94 1145

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
B0CZY9, B0CZZ0, B0CZY8		
B0C6P0		

Samples were received with the following deficiencies:

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

NOTES: No screen aliquot supplied
cooler at 1°C

SUPERVISOR REVIEW: _____

PROJECT MANAGER REVIEW: _____

TELEPHONED TO: _____ ON _____ BY _____

TELEFAXED TO: _____ ON _____ BY _____

SIGNED ORIGINAL MUST BE RETAINED IN WORK ORDER FILE

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

1800081

9613476.1866

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER: _____ DATE INITIATED: 7/1/94

INITIATED BY: T Gilmore

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 7/1/94 1145

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
BOC1M2, BOC1M3		
BOC1M6, BOC1M7		

Samples were received with the following deficiencies:

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

NOTES: No Screen aliquot supplied

SUPERVISOR REVIEW: _____

PROJECT MANAGER REVIEW: _____

TELEPHONED TO: _____ ON _____ BY _____

TELEFAXED TO: _____ ON _____ BY _____

SIGNED ORIGINAL MUST BE RETAINED IN WORK ORDER FILE

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

0000082

070194C.WQ2

TENNELEC #2

SCREENING CALCULATION SPREADSHEET

Cust Code	Recieved Date		Screening Prep Date		Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	7-1-94		7-1		7-1	10	14	263	240

All are Cat. I.
JRM 1 July 94

Customer ID WHC LIQ	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
B0C6P0		6.0	10	1.0	53	1	27	0.04	1.60	8.04E-02	3.36E+00	3.6E-06	1.5E-04	2.2E-08	8.0E-08	3.6E+00	1.5E+02	Yes	2.8E+03	6.6E+02
B0C1M6		4.8	10	2.0	54	3	22	0.24	1.10	8.41E-01	2.17E+00	7.6E-05	2.0E-04	1.1E-07	1.3E-07	3.8E+01	9.8E+01	Yes	2.6E+02	1.0E+03
B0C1L1		10.1	10	2.0	52	6	29	0.54	1.80	2.03E+00	3.48E+00	1.8E-04	3.1E-04	1.8E-07	2.9E-07	9.1E+01	1.6E+02	Yes	1.1E+02	6.4E+02
B0C1M2		5.9	10	2.0	49	4	19	0.34	0.80	1.24E+00	1.48E+00	1.1E-04	1.3E-04	1.3E-07	1.3E-07	5.6E+01	6.7E+01	Yes	1.8E+02	1.5E+03
TOTAL UCi												3.7E-04	7.9E-04							

96134764 1967

0000088

070194A.WQ1

TENNELEC #1

SCREENING CALCULATION SPREADSHEET

Customer Code	Recieved Date		Screening Prep Date		Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	7-1-94		7-1		7-1	10	11	207	240

All are Cat. I.
JRM 1 July 94

Customer ID WHC/LIQ	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
BOC2Y9		1.0	10	2.0	55	0	16	-0.05	0.74	-2.0E-01	1.60E+00	-1.8E-05	1.4E-04	-5.0E-08	1.1E-07	-9.1E+00	7.2E+01	Yes	-1.1E+03	1.4E+03
BOC1K8		21.7	10	1.0	93	52	869	5.15	86.04	2.43E+01	1.87E+02	1.1E-03	8.4E-03	4.5E-07	8.1E-07	1.1E+03	8.4E+03	Yes	9.1E+00	1.2E+01
BOC1K6		11.4	10	1.0	6	53	1097	5.25	108.84	2.06E+01	2.33E+02	9.3E-04	1.0E-02	3.9E-07	7.6E-06	9.3E+02	1.0E+04	Yes	1.1E+01	9.5E+00
BOC1K9		10.0	10	2.0	3	9	38	0.85	2.94	3.78E+00	5.77E+00	3.4E-04	5.2E-04	2.7E-07	3.4E-07	1.7E+02	2.6E+02	Yes	5.9E+01	3.9E+02
TOTAL uCi												2.3E-03	2.0E-02							

9413476.1868

9613476.1869

SAMPLE STATUS REPORT FOR N 583. RAD SCREEN 299W192 TIME: 7/ 1/94 0:31
DISPATCHED: 6/ 8/94 13:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/ 1/94 0:26

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

BO C1 K9

BO C1L0

0600000

9613476.1870

SAMPLE STATUS REPORT FOR N 591. RAD SCREEN 299W1919 TIME: 6/30/94 8:39
DISPATCHED: 6/ 8/94 13:11 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 6/30/94 8:36

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

BOC1K6

0000091

9613476.1871

SAMPLE STATUS REPORT FOR N 592. RAD SCREEN 299W1920 TIME: 6/30/94 8:39
DISPATCHED: 6/ 8/94 13:11 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 6/30/94 8:36

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

BOC1K8

0000092

9613476.1872

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER: 407012, 407013 DATE INITIATED: 7/1/94 7/1/94

INITIATED BY: TGilmore

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 7/1/94 1145

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
Boc1k9, Boc1L0		
Boc1k6, Boc1k8		
Boc1L1		

Samples were received with the following deficiencies:

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

NOTES: No Screen vial supplied

SUPERVISOR REVIEW: _____

PROJECT MANAGER REVIEW: _____

TELEPHONED TO: _____ ON _____ BY _____

TELEFAXED TO: _____ ON _____ BY _____

SIGNED ORIGINAL MUST BE RETAINED IN WORK ORDER FILE

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

9600094

9613476.1875

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C1M2

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8902

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/08/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 2.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	20	U
74-83-9	Bromomethane	20	U
75-01-4	Vinyl Chloride	20	U
75-00-3	Chloroethane	20	U
75-09-2	Methylene Chloride	10	BJ
67-64-1	Acetone	42	B
75-15-0	Carbon Disulfide	20	U
75-35-4	1,1-Dichloroethene	20	U
75-34-3	1,1-Dichloroethane	20	U
540-59-0	1,2-Dichloroethene (total)	20	U
67-66-3	Chloroform	4	J
107-06-2	1,2-Dichloroethane	20	U
78-93-3	2-Butanone	9	J
71-55-6	1,1,1-Trichloroethane	20	U
56-23-5	Carbon Tetrachloride	240	
75-27-4	Bromodichloromethane	20	U
78-87-5	1,2-Dichloropropane	20	U
10061-01-5	cis-1,3-Dichloropropene	20	U
79-01-6	Trichloroethene	3	J
124-48-1	Dibromochloromethane	20	U
79-00-5	1,1,2-Trichloroethane	20	U
71-43-2	Benzene	20	U
10061-02-6	trans-1,3-Dichloropropene	20	U
75-25-2	Bromoform	20	U
108-10-1	4-Methyl-2-Pentanone	20	U
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	20	U
79-34-5	1,1,2,2-Tetrachloroethane	20	U
108-88-3	Toluene	20	U
108-90-7	Chlorobenzene	20	U
100-41-4	Ethylbenzene	20	U
100-42-5	Styrene	20	U
1330-20-7	Xylene (total)	20	U

0000130

9613476.1874

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0C1M2

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8902

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/08/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 2.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

0000131

9613476.1875

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C1M3

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-006

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8895

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/07/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	11	B
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

000014

9613476.1876

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0C1M3

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-006

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8895

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/07/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

0000142

9613476.1877

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C1M6

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-002

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E9682

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/12/94

GC Column: DB-624 ID: 0.530 (mm) Dilution Factor: 2.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	20	U
74-83-9	Bromomethane	20	U
75-01-4	Vinyl Chloride	20	U
75-00-3	Chloroethane	20	U
75-09-2	Methylene Chloride	30	
67-64-1	Acetone	66	B
75-15-0	Carbon Disulfide	20	U
75-35-4	1,1-Dichloroethene	20	U
75-34-3	1,1-Dichloroethane	20	U
540-59-0	1,2-Dichloroethene (total)	20	U
67-66-3	Chloroform	3	J
107-06-2	1,2-Dichloroethane	20	U
78-93-3	2-Butanone	20	U
71-55-6	1,1,1-Trichloroethane	20	U
56-23-5	Carbon Tetrachloride	230	
75-27-4	Bromodichloromethane	20	U
78-87-5	1,2-Dichloropropane	20	U
10061-01-5	cis-1,3-Dichloropropene	20	U
79-01-6	Trichloroethene	20	U
124-48-1	Dibromochloromethane	20	U
79-00-5	1,1,2-Trichloroethane	20	U
71-43-2	Benzene	20	U
10061-02-6	trans-1,3-Dichloropropene	20	U
75-25-2	Bromoform	20	U
108-10-1	4-Methyl-2-Pentanone	20	U
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	20	U
79-34-5	1,1,2,2-Tetrachloroethane	20	U
108-88-3	Toluene	20	U
108-90-7	Chlorobenzene	20	U
100-41-4	Ethylbenzene	20	U
100-42-5	Styrene	20	U
1330-20-7	Xylene (total)	20	U

0000148

9613476.1878

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0C1M6

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-002

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E9682

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/12/94

GC Column: DB-624 ID: 0.530 (mm) Dilution Factor: 2.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.07	14	J

0000149

9613476.1879

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C1M7

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-007

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8874

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

0000161

9613476.1880

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0C1M7

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-007

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8874

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.81	6	J
2.	UNKNOWN	18.00	12	J
3.	UNKNOWN	20.75	6	J

0000162

9613476.1881

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC1M8

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5456-002

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8847

Level: (low/med) LOW Date Received: 06/28/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	29	
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	170	
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	1	J
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

0000172

9613476.1882

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC1M8

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5456-002

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8847

Level: (low/med) LOW Date Received: 06/28/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

0000173

9613476.1883

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC1M9

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5456-003

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8848

Level: (low/med) LOW Date Received: 06/28/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	3	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	180	
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

0000180

9613476.1884

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC1M9

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5456-003

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8848

Level: (low/med) LOW Date Received: 06/28/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.13	9	J
2.	UNKNOWN	3.55	5	J
3.	UNKNOWN	3.63	6	J
4.	UNKNOWN	22.08	150	J

00001181

9613476.1885

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC1N3

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5430-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8838

Level: (low/med) LOW Date Received: 06/24/94

% Moisture: not dec. Date Analyzed: 07/05/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	7	BJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	4	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	41	
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	5	J
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

0000197

9613476.1886

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC1N3

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5430-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8838

Level: (low/med) LOW Date Received: 06/24/94

% Moisture: not dec. Date Analyzed: 07/05/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

0000198

9613476.1887

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC1N4

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5430-002

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8841

Level: (low/med) LOW Date Received: 06/24/94

% Moisture: not dec. Date Analyzed: 07/05/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	4	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	42	
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	5	J
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

0000206

9613476.1888

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC1N4

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5430-002

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8841

Level: (low/med) LOW Date Received: 06/24/94

% Moisture: not dec. Date Analyzed: 07/05/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	18.00	26	J
2.	UNKNOWN	20.73	14	J

0000207

9613476.1889

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC1N9

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5456-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8846

Level: (low/med) LOW Date Received: 06/28/94

% Moisture: not dec. Date Analyzed: 07/05/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	6	BJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	3	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	83	
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

0000219

9613476.1890

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC1N9

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5456-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8846

Level: (low/med) LOW Date Received: 06/28/94

% Moisture: not dec. Date Analyzed: 07/05/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

0000220

9613476.1891

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC1P0

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5456-004

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8849

Level: (low/med) LOW Date Received: 06/28/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	7	BJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	2	J
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

0000228

9613476.1092

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC1P0

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5456-004

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8849

Level: (low/med) LOW Date Received: 06/28/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

0000229

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C2Y8

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-009

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E9646

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/07/94

GC Column: DB-624 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	3	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

0000235

9613476.1894

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0C2Y8

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-009

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E9646

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/07/94

GC Column: DB-624 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 0	UNKNOWN	19.35	64	BJ
2. 0	UNKNOWN	22.13	110	BJ
3. 0	UNKNOWN	24.84	22	BJ

0000236

9613476.1895

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C2Y9

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-003

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8872

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	6	BJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	26	
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

00000248

9613476.1896

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0C2Y9

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-003

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8872

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

0000249

9613476.1897

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C2Z0

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-008

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8875

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	7	BJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

0000254

9613476.1898

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0C2Z0

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-008

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8875

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

00002255

9613476.1899

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC1M8

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: P45602 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5456-002

Sample wt/vol: 1000 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 06/28/94

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 06/30/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 07/13/94

Injection Volume: 2.50 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

00005036

9613476.1900

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOC1L6

Lab Name: ITAS_ST._LOUIS_____ Contract: 519.58____

Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0105_____

Matrix (soil/water): WATER Lab Sample ID: 5449-001

Level (low/med): LOW__ Date Received: 06/27/94

% 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_	38.7	B		P
7440-36-0	Antimony_	26.9	B		P
7440-38-2	Arsenic__	3.2	B		F
7440-39-3	Barium___	36.4	B		P
7440-41-7	Beryllium	0.51	B		P
7440-43-9	Cadmium__	2.0	B		P
7440-70-2	Calcium__	29800			P
7440-47-3	Chromium_	13.4			P
7440-48-4	Cobalt___	29.0	U		P
7440-50-8	Copper___	7.2	B		P
7439-89-6	Iron____	347			P
7439-92-1	Lead____	1.3	U		F
7439-95-4	Magnesium	13400			P
7439-96-5	Manganese	17.2			P
7439-97-6	Mercury__	0.10	U		CV
7440-02-0	Nickel___	4.9	U		P
7440-09-7	Potassium	4840	B		P
7782-49-2	Selenium_	3.5	U	N	F
7440-22-4	Silver___	4.2	U		P
7440-23-5	Sodium___	21500			P
7440-28-0	Thallium_	1.0	U	W	F
7440-62-2	Vanadium_	39.8	B		P
7440-66-6	Zinc____	8.3	B		P

0000702

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN

ILM03.0

9613476.1901

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOC1L7

Lab Name: ITAS_ST._LOUIS_____ Contract: 519.58____

Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0105_____

Matrix (soil/water): WATER Lab Sample ID: 5449-002

Level (low/med): LOW__ Date Received: 06/27/94

% 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_	19.0	U		P
7440-36-0	Antimony_	19.5	U		P
7440-38-2	Arsenic__	3.4	B		F
7440-39-3	Barium___	36.2	B		P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium__	1.8	U		P
7440-70-2	Calcium__	30600			P
7440-47-3	Chromium_	6.7	B		P
7440-48-4	Cobalt___	29.0	U		P
7440-50-8	Copper___	4.5	U		P
7439-89-6	Iron_____	40.4	B		P
7439-92-1	Lead_____	1.3	U		F
7439-95-4	Magnesium	14000			P
7439-96-5	Manganese	16.6			P
7439-97-6	Mercury__	0.10	U		CV
7440-02-0	Nickel___	4.9	U		P
7440-09-7	Potassium	5030			P
7782-49-2	Selenium_	3.5	U	N	F
7440-22-4	Silver___	4.2	U		P
7440-23-5	Sodium___	23200			P
7440-28-0	Thallium_	1.0	U		F
7440-62-2	Vanadium_	24.4	B		P
7440-66-6	Zinc_____	9.1	B		P

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN

ILM03.0

000703

ITAS ST. LOUIS

ANIONS BY I.C.

ug/g ug/L mg/L (circle one)

Project # 519.58
Analyst J. CARRO
Reviewed by R. Patterson 07-29-94
Reviewed by R. Patterson 07-29-94
Page 1 of 2

Prep Date 07-12-94
Analysis Date 07-12-94
Loop Used 50 ml
Batch # 41138
Method # 300.0

Standard Value	Sample ID	Std ID	Solid Fract.	Dil.	Fl	Cl	SO_4	~~PO_4 Fl Dry Wt~~	~~NO_2-N Cl Dry Wt~~	~~NO_3-N SO_4 Dry Wt~~	% Rec	RPD
	QBLK41138				<0.1	<0.25	<1.0	<1.0	<0.02	<0.02		
F 1 NO_2 .98 Cl 4 NO_3 .98 PO_4 4 SO_4 4	QLCS41138	AL2890-94			0.915	0.928	3.69	3.79	0.078	0.079	F 92 NO_2 98 Cl 93 NO_3 99 PO_4 95 SO_4 92	
	5416-001				0.574			<1.0	<0.02			
	001DUP				0.573			<1.0	<0.02			F <1 PO_4 * NO_2 *
F 2 PO_4 2	001MS	AL2891-94			2.55			2.02			F 99 PO_4 101	
	001			XS		8.60	24.2					
	001DUP			XS		8.23	23.3					Cl 4 SO_4 4
SO_4 20 NO_2-N 0.609	001MS	AL2891-94					41.4		0.624		SO_4 80 NO_2 102	
Cl 20	001MS	AL2891-94		X10		27.9					Cl 96	
	001			XSO						6.44		
	001DUP			XSO						6.16		NO_3 4
NO_3-N 0.452	001MS	AL2891-94		XSO						6.24	NO_3 <1 **	
	5416-002				0.481			<1.0	<0.02			
	002			XS		14.5	35.0					
	002			XSO						10.9		
	5416-003				0.444			<1.0	<0.02			
	003			XS		13.2	32.2					
	003			XSO						6.76		

* CAN'T CALCULATE RPD DUE TO VALUES BELOW DETECTION LIMITS

** SAMPLE CONC. 4X > SPIKE AMT.

SL-92-INORG-0055

0001017

96136726.1902

ITAS ST. LOUIS

ANIONS BY I.C.

ug/g ug/L mg/L
(circle one)

Project # 519.58
Analyst J. Carro
Reviewed by R. Patterson/07-29-94
Reviewed by R. Patterson/07-29-94
Page 2 of 2

Prep Date 07-12-94
Analysis Date 07-12-94
Loop Used 50 ul
Batch # 41138
Method # 300.0

Standard Value	Sample ID	Std ID	Solid Fract.	Dil.	Fl	Cl	SO_4	PO_4 ~~Fl Dry Wt~~	NO_2-N ~~Cl Dry Wt~~	NO_3-N ~~SO_4 Dry Wt~~	% Rec	RPD
	5416-004				0.415			<1.0	<0.02			
	004			X5		8.43	23.8					
	004			X20						4.44		
	5430-001				0.265			<1.0	<0.02			
	001			X5		22.9	56.7					
	001			X500						81.8		
	5456-001				0.285			<1.0	0.022			
	001			X10		22.7	58.0					
	001			X200						38.5		
	5456002				0.477			<1.0	<0.02			
	002			X5		11.7	28.7					
	002			X50						6.50		

07-27-94

SL/92-INORG-0055

96154754 1908

ITAS ST. LOUIS

ANIONS BY I.C.

ug/g ug/L mg/L
(circle one)

Project # S19.58
Analyst J.CARPIO
Reviewed by R.Patterson /07-29-94
Reviewed by R.Patterson /07-29-94
Page 1 of 1

Prep Date 07-13-94
Analysis Date 07-13-94
Loop Used 50 µl
Batch # 41139
Method # 300.0

Standard Value	Sample ID	Std ID	Solid Fract.	Dil.	Fl	Cl	SO_4	PO_4 ~~Fl Dry Wt~~	NO_3-N ~~Cl Dry Wt~~	NO_2-N ~~SO_4 Dry Wt~~	% Rec	RPD
	QCBLK41139				<0.1	<0.25	<1.0	<1.0	<0.02	<0.02		
F 1 NO_2 .08 Cl 1 NO_3 .08 PO_4 4 SO_4 4	QCLCS41139	AL2800-94			0.921	0.911	3.68	3.82	0.078	0.080	F 92 NO_2 100 Cl 91 NO_3 98 PO_4 96 SO_4 92	
	S449-001				0.540			<1.0		<0.02		
	↓ 001			X5		10.2	21.5		0.771			
	S485-001				0.309			<1.0		<0.02		
	001			X10		37.4	52.0					
	↓ 001			X50					6.66			
	S485-002				0.311			<1.0		<0.02		
	002			X10		37.6	52.5					
	↓ 002			X50					6.60			

96154761.1904

ITAS ST. LOUIS

ANIONS BY I.C.

ug/g ug/L mg/L (circle one)

Project # various
Analyst J.F Landrean
Reviewed by R. Patterson / 07-21-94
Reviewed by R. Patterson / 07-21-94
Page 1 of 1

Prep Date 07-18-94
Analysis Date 07-18-94
Loop Used 50 ul
Batch # 41353
Method # 300.0

Standard Value	Sample ID	Std ID	Solid Fract.	Dil.	Fl	Cl	SO_4	~~Fl Dry Wt~~	~~Cl Dry Wt~~	SO_4 Dry	Wt	% Rec	RPD
JMF 07-22-94	QCBLK41353-1			1	<.1	<.25	<1	<1	<.02	<.02	<.25		
F 1 Br 1 Cl 1 NO3 .08 NO2 .08 O-PO4 4 SO4 4	QCLCS41353-1	AL2828-94		1	0.935	0.955	3.635	3.666	0.080	.076	.954	F 94 Br 95 Cl 96 NO3 100 NO2 95 O-P 92 SO4 91	
	QCLCS 41353-2			1	0.928	0.924	3.645	3.705	0.078	.079	.973	F 93 Br 97 Cl 92 NO3 94 NO2 99 O-P 93 SO4 91	
	5485-003			1	<.1	<.25	<1	<1	<.02	<.02	–		
	005			F 1 NO3 100 Cl 10 O-P 1 NO2 1 SO4 10	0.375	20.4	35.8	<1	18.4	<.02	–		
	005DUP				0.376	19.5	35.6	<1	18.1	<.02	–		F <1 NO3 2 Cl 5 O-P * NO2 * SO4 <1
F 2 NO3 .452 Cl 20 O-P 2 NO2 .609 SO4 20	005MS	AL2830-94		F 1 NO3 100 Cl 10 O-P 1 NO2 5 SO4 10	2.324	41.1	51.8	2.007	17.9	.583	–	F 97 NO3 0 Cl 104 O-P 100 NO2 96 SO4 80	
	5502-001			F 1 NO3 500 Cl 10 O-P 1 NO2 1 SO4 10	0.331	16.8	54.9	<1	103	<.02	–		
	5516-001			F 1 NO3 5 Cl 10 O-P 1 NO2 1 SO4 5	0.451	25.5	24.0	<1	0.713	<.02	–		
	002			F 1 NO3 5 Cl 1 O-P 1 NO2 1 SO4 5	0.511	3.97	32.3	<1	0.929	<.02	–		
	5529-001			1	0.167	1.39	10.7	<1	0.209	<.02	–		
	5533-001		RP 07-21-94	~~F 1~~ NO3 1 Cl 5 O-P 1 NO2 1 SO4 1	~~0.523~~	8.76	16.7	<1	0.142	<.02	–		
	001DUP				RP 07-21-94 0.513	8.75	16.7	<1	0.139	<.02	–		F 2 NO3 2 Cl <1 O-P * NO2 * SO4 <1
F 2 NO3 .452 Cl 20 O-P 2 NO2 .609 SO4 20	001MS	AL2831-94	RP 07-21-94	~~F 1~~ NO3 5 Cl 10 O-P 1 NO2 5 SO4 5	~~2.447~~	29.4	33.2	1.90	0.609	0.592	–	F 96 NO3 103 Cl 103 O-P 95 NO2 97 SO4 82	
	5559-005			1	<.1	<.25	<1	–	–	–	<.25		
	5553-004			F 1 NO3 Cl 200 O-P NO2 SO4 20	0.372	343	131	–	–	–	–		
				JMF 07-21-94									
									J. Flandrean	07-21-94			

* can't calculate – both values less than lower d.l.

0001020

SL-92-INORG-0155

96 13479 1808

ITAS-ST. LOUIS

NITRATE/NITRITE-N REPORT

Pg. 1 of 2

Prep Date: 07-13-94

Analyst: J. Flandrean
Project No.: 519.58, 519.67, 519.69, 550.01
Reviewed by: R. Patterson

Batch No.: 40971

Analysis Date: 07-13-94 7-14-94
Method No.: 353.1
Date: 07-20-94

True Value	LAB ID	STANDARD ID	RAW VALUE x	DILUTION +	SAMPLE VOLUME (L or g) =	NITRATE/ NITRITE x	EXTRACT VOLUME (L) +	FRACTION SOLID =	FINAL CONCENTRATION (ug/L)-N (ug/g)-N	% RECOVERY	RPD
	QCBLK-40971-1		-0.09210						<50		
564	QCLCS 40971-1	AL2755-94	562.4						562	100	
	5416-001		322.2	20					6440		
	001Dup		299.7	20					5990		7
564	001MS	AL2756-94	355.7	20					7110	119	
	002		113.0	50					5650		
	003		319.5	20					6390		
	004		232.4	20					4650		
	5430-001		366.1	200					73200		
	5449-001		140.7	5					704		
	5456-001		373.8	100					37400		
	002		335.9	20					6720		
	5485-001		317.3	20					6350		
	002		141.3	50					7060		
	003		42.46	1					JMF 07-20-94 ~~42.5~~ <50		
	004		219.3	200					43900		
	004Dup		252.5	200					50500		14
564	004MS	AL2757-94	259.1	200					JMF 07-20-94 ~~18200~~ 51800	1400	~~1400~~ JMF 07-20-94
	005		181.7	100					JMF 07-20-94 ~~10~~ 18200		
	5502-001		109.4	1000					109000		

0001183

SL-91-INORG-0039

ITAS-ST. LOUIS

NITRATE/NITRITE-N REPORT

Pg. 2 of 2

Prep Date: 07-13-94

Analyst: J. Flandrean
Project No.: 519.58, 519.67, 519.69, 550.01
Reviewed by: R. Patterson

Batch No.: 40971

Analysis Date: 07-13-94 *7-14-94
Method No.: 353.1
Date: 07-20-94

Type	LAB ID	STANDARD ID	RAW VALUE x	DILUTION +	SAMPLE VOLUME (L or g) =	NITRATE/ NITRITE x	EXTRACT VOLUME (L) +	FRACTION SOLID =	FINAL CONCENTRATION (ug/L)-N (ug/g)-N	% RECOVERY	RPD
	~~5503-001~~		112.2	1		RP 07-20-94			112		
	5516-001		584.9	1					585		
	5519-001		211.3	1000					211000		
	001 Dup		214.0	1000					214000		1
564	001 MS	AL2758-94	193.2	1000					193000	0	
	002 *		14.99	1					<50		
	5529-001		90.23	1					90.2		
	5533-001		220.6	1					221		
	001 Dup		241.0	1					241		9
564	001 MS	AL2759-94	670.1	1					670	80	

J. Flandrean 07-20-94

SL-91-INORG-0039

0001184

INTERNATIONAL TECHNOLOGY CORPORATION

CERTIFICATE OF ANALYSIS

Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

August 10, 1994

Attention: J.A.Lerch

SAF Number	:	94-256
Date SDG Closed	:	July 1, 1994
Number of Samples	:	Twelve (12)
Sample Type	:	Water
SDG Number	:	W0105
Data Deliverable	:	Stand Alone

I. Introduction

On June 23, 24, 27, and 28, and July 1, 1994, a total of twelve 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 WHC specific IDs:

QTESRL ID	WHC ID	Matrix	Date of Receipt
406519-01A	B0C1K3	Water	6/23/94
406519-02A	B0C1K4	Water	6/23/94
406519-03A	B0C1K5	Water	6/23/94
406519-04A	B0C1N0	Water	6/23/94
406519-05A	B0C1K7	Water	6/23/94
406556-01A	B0C1N3	Water	6/24/94
406587-01A	B0C1L6	Water	6/27/94
406614-01A	B0C1N9	Water	6/28/94
406614-02A	B0C1M8	Water	6/28/94

QTESRL ID	WHC ID	Matrix	Date of Receipt
407011-01A	B0C1M2	Water	7/01/94
407011-02A	B0C1M6	Water	7/01/94
407011-03A	B0C2Y9	Water	7/01/94

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
Uranium-234, -235, -238 by method ITAS-RD-3234
Gamma Spectroscopy
Gamma Scan by method ITAS-RD-3219
Iodine-129 by method ITAS-RD-3229
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
Total Uranium
Total Uranium by method ITAS-RD-4200

III. Quality Control

The analytical results for each analysis performed under SDG W0105 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

Uranium-234, -235, -238 by method ITAS-RD-3234
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0C1M8) results are within contractual limits.

Gamma Spectroscopy

Gamma Scan by method ITAS-RD-3219
Cd-109 is detected in the blank and sample B0C1L6. The Cd-109 is detected due to x-rays from the detector cave liner and not the sample itself, therefore, the Cd-109 results are not reported. Pb-212 is detected in the duplicate of sample B0C1L6 at an activity level that is less than two times the error, therefore, the Pb-212 result is not reported. Co-57 is detected in the LCS. The Co-57 is not reported because it is a false positive caused by the Eu-152 in the spike. The LCS, batch blank, sample and sample duplicate (duplicate of sample B0C1L6) results are within contractual limits.

Iodine-129 by method ITAS-RD-3229
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0C1M2) results are within contractual limits.

Gas Proportional Counting

Gross Alpha by method ITAS-RD-3222
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0C2Y9) results are within contractual limits.

Gross Beta by method ITAS-RD-3222
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0C2Y9) results are within contractual limits.

Strontium-90 by method ITAS-RD-3204
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0C1M8) results are within contractual requirements.

Liquid Scintillation Counting

Technetium-99 by method ITAS-IT-RS-0001
The batch was analyzed in two sets. For both sets, the matrix spike, LCS, batch blank, sample and sample duplicate (duplicate of sample B0C1L6 and sample B0C2Y9) results are within contractual requirements.

Total Uranium

Total Uranium by method ITAS-RD-4200
Two matrix spikes were analyzed with this batch. In both cases the samples utilized for matrix spikes (B0C1K3 and B0C1K5) had activities that far exceeded the activity of the spike which was added, therefore, matrix spike recoveries were not determinable. The LCS, batch blank, sample and sample duplicate (duplicate of sample B0C1K5) 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

Suzanne Gaines
Project Manager

9613476.1912

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40651901	MATRIX:	WATER
CLIENT ID:	B0C1K3	DATE RECEIVED:	6/23/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TC-99	2.58E+02	3.03E+00	3.10E+01	2.12E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	6.87E+01	N/A	1.03E+01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 2

682A-6-93

9613476.1913

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40651902	MATRIX:	WATER
CLIENT ID:	B0C1K4	DATE RECEIVED:	6/23/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TC-99	5.01E+02	4.14E+00	5.74E+01	2.12E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	3.39E+02	N/A	5.09E+01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 2

682A-6-93

9613476.1914

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40651903	MATRIX:	WATER
CLIENT ID:	B0C1K5	DATE RECEIVED:	6/23/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TC-99	3.41E+02	3.48E+00	4.00E+01	2.12E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	1.62E+02	N/A	2.43E+01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 2

682A-6-93

9613476.1915

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40651904	MATRIX:	WATER
CLIENT ID:	B0C1N0	DATE RECEIVED:	6/23/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TC-99	2.39E+02	2.97E+00	2.89E+01	2.12E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	4.75E+00	N/A	7.13E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 2

682A-6-93

9613476.1916

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40651905	MATRIX:	WATER
CLIENT ID:	B0C1K7	DATE RECEIVED:	6/23/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TC-99	1.21E+04	2.70E+01	1.32E+03	2.12E+00	pCi/L	95.10%	ITAS-IT-RS-0001

Number of Results: 1

682A-6-93

9613476.1917

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40655601	MATRIX:	WATER
CLIENT ID:	B0C1N3	DATE RECEIVED:	6/24/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
STRONTIUM	4.07E-01	3.36E-01	3.50E-01	8.15E-01	pCi/L	82.10%	RD3204
TC-99	3.09E+03	1.01E+01	3.40E+02	2.12E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	1.02E+02	N/A	1.53E+01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 3

682A-6-93

9613476.1918

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40658701	MATRIX:	WATER
CLIENT ID:	B0C1L6	DATE RECEIVED:	6/27/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
CO-58	-4.19E+00	5.74E+00	5.75E+00	9.31E+00	pCi/L	N/A	RD3219
CO-60	5.55E-01	4.30E+00	4.30E+00	9.02E+00	pCi/L	N/A	RD3219
CS-137DA	2.59E+00	3.41E+00	3.42E+00	7.35E+00	pCi/L	N/A	RD3219
EU-152	1.82E+00	7.97E+00	7.98E+00	1.50E+01	pCi/L	N/A	RD3219
EU-154	-6.73E+00	1.22E+01	1.22E+01	2.11E+01	pCi/L	N/A	RD3219
EU-155	2.09E+00	7.17E+00	7.17E+00	1.24E+01	pCi/L	N/A	RD3219
FE-59	-2.36E+01	1.76E+01	1.78E+01	2.41E+01	pCi/L	N/A	RD3219
TC-99	1.36E+02	2.29E+00	1.78E+01	2.12E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	6.09E+00	N/A	9.13E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 9

682A-6-93

9613476.1919

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40661401	MATRIX:	WATER
CLIENT ID:	B0C1N9	DATE RECEIVED:	6/28/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TC-99	6.07E+02	4.59E+00	6.89E+01	2.12E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	6.26E+01	N/A	9.38E+00	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 2

682A-6-93

9613476.1920

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40661402	MATRIX:	WATER
CLIENT ID:	B0C1M8	DATE RECEIVED:	6/28/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
U-234	2.33E+02	7.80E+00	3.31E+01	4.04E-01	pCi/L	63.80%	RD3234
U-235	1.10E+01	1.70E+00	2.28E+00	3.69E-01	pCi/L	63.80%	RD3234
U-238DA	2.35E+02	7.83E+00	3.34E+01	4.48E-01	pCi/L	63.80%	RD3234
ALPHA	4.22E+02	1.81E+01	5.45E+01	1.63E+00	pCi/L	100.00%	RD3214
BETA	2.06E+02	7.08E+00	1.62E+01	2.85E+00	pCi/L	100.00%	RD3214
STRONTIUM	0.00E+00	3.07E-01	3.07E-01	8.80E-01	pCi/L	83.20%	RD3204
TC-99	3.94E+01	1.45E+00	7.62E+00	2.12E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	6.50E+02	N/A	9.75E+01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 8

682A-6-93

9613476.1921

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40701101	MATRIX:	WATER
CLIENT ID:	B0C1M2	DATE RECEIVED:	7/1/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
I-129	-3.69E-01	1.17E+00	1.25E+00	1.89E+00	pCi/L	N/A	RD3219
ALPHA	1.46E+00	1.19E+00	1.20E+00	1.53E+00	pCi/L	100.00%	RD3214
BETA	5.83E+00	1.81E+00	1.86E+00	2.79E+00	pCi/L	100.00%	RD3214
TC-99	4.85E+00	1.03E+00	4.35E+00	2.10E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	1.05E+00	N/A	1.58E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 5

682A-6-93

9613476.1922

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40701102	MATRIX:	WATER
CLIENT ID:	B0C1M6	DATE RECEIVED:	7/1/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
I-129	-1.02E+00	1.03E+00	1.10E+00	1.59E+00	pCi/L	N/A	RD3219
ALPHA	9.75E-01	1.08E+00	1.09E+00	1.82E+00	pCi/L	100.00%	RD3214
BETA	5.13E+00	1.80E+00	1.84E+00	2.88E+00	pCi/L	100.00%	RD3214
TC-99	1.96E+00	9.52E-01	4.12E+00	2.10E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	1.03E+00	N/A	1.54E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 5

9613476.1923

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40701103	MATRIX:	WATER
CLIENT ID:	B0C2Y9	DATE RECEIVED:	7/1/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
I-129	-1.01E+00	1.09E+00	1.14E+00	1.71E+00	pCi/L	N/A	RD3219
ALPHA	0.00E+00	3.06E-01	3.06E-01	9.30E-01	pCi/L	100.00%	RD3214
BETA	1.37E+00	1.41E+00	1.41E+00	2.62E+00	pCi/L	100.00%	RD3214
TC-99	1.90E+00	9.61E-01	4.12E+00	2.10E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	7.00E-03	N/A	1.05E-03	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 5

682A-6-93

9613476.1924

INTERNATIONAL TECHNOLOGY CORPORATION

ITAS Data Review Checklist
RADIOCHEMISTRY

Work Order No(s): 406614

Lab Sample Numbers or SDG: W0105

Method/Test/Parameter: R03234 UISD

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

Comments on any "No" response:

Analyst: M Kelley Date: 8-4-94

Second Level Review: Sue Jones Date: 8/8/94

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

OK to Info 8-4-94 MMM

9613476.1925

INTERNATIONAL TECHNOLOGY CORPORATION

ITAS Data Review Checklist
RADIOCHEMISTRY

Work Order No(s): 406587

Lab Sample Numbers or SDG: 10105

Method/Test/Parameter: Gamma

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

Comments on any "No" response: NCM - false detects

Analyst: [signature] Date: 8-4-94

Second Level Review: [signature] Date: 8/8/94

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

Transfer basic 7 isotopes.

INTERNATIONAL TECHNOLOGY CORPORATION

ITAS Data Review Checklist
RADIOCHEMISTRY

Work Order No(s): 407011

Lab Sample Numbers or SDG: W6105

Method/Test/Parameter: I129

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

Comments on any "No" response:

Analyst: Joel Thompson Date: 8-4-94

Second Level Review: Suzy Davies Date: 8/8/94

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

9613476.1927

Jwg 8-4-94

INTERNATIONAL TECHNOLOGY CORPORATION

ITAS Data Review Checklist
RADIOCHEMISTRY

Work Order No(s): 406614 , 407011

Lab Sample Numbers or SDG: 160105

Method/Test/Parameter: Alpha

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

Comments on any "No" response:

Analyst: Joel Thompson Date: 8-4-94

Second Level Review: Suzy Davies Date: 8/7/94

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

0043

Rec'd 8/4/94

9613476.1928

INTERNATIONAL TECHNOLOGY CORPORATION

ITAS Data Review Checklist
RADIOCHEMISTRY

Work Order No(s): 406614, 407011

Lab Sample Numbers or SDG: L0661428 - L0661425 W0105

Method/Test/Parameter: Beta

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

Comments on any "No" response:

Analyst: Joel Kempomo Date: 8-4-94

Second Level Review: Sherry Davies Date: 8/7/94

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

INTERNATIONAL TECHNOLOGY CORPORATION

ITAS Data Review Checklist
RADIOCHEMISTRY

Work Order No(s): WHC

Lab Sample Numbers or SDG: W0105

Method/Test/Parameter: 9310T

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

Comments on any "No" response:

Analyst: [signature] Date: 7/14/94

Second Level Review: [signature] Date: 8/4/94

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

9613476.1930

INTERNATIONAL TECHNOLOGY CORPORATION

ITAS Data Review Checklist
RADIOCHEMISTRY

Work Order No(s): 406519, 406614, 406556, 406587

Lab Sample Numbers or SDG: - W0105

Method/Test/Parameter: Tc-99

	Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level review (✓)
A. 1.	**Calibration** Is the calibration documentation included where applicable?			X	—
B. 1.	**Sample Analysis** Are the sample Yields within acceptance criteria?			X	—
2.	Were all sample holding times met?			X	—
C. 1.	**QC Samples** Is the Blank Yield within acceptance criteria?			X	—
2.	Is the Minimum Detectable Activity for the Blank result ≤ the Contract Detection Limit?	X			—
3.	Is the Blank result ≤ the Contract Detection Limit?	X			—
4.	Is the Blank result greater than the Contract Detection Limit but the Sample result less than the Contract Detection Limit?			X	—
5.	Is the LCS result within acceptance criteria?	X			—
6.	Is the LCS yield within acceptance criteria?	X			—
7.	Is the LCS Minimum Detectable Activity less than or equal to the Contract Detection Limit?	X			—
8.	MS/MSD results and yield meet acceptance criteria?	X		~~X~~ 8/4/94	—
9.	Duplicate sample results and yield meet acceptance criteria?	X			—
D. 1.	**Other** Are all nonconformances included and noted?	X			—
2.	Are all required forms filled out?	X			—
3.	Correct methodology used?	X			—
4.	Transcription checked?	Jm			—
5.	Were all calculations checked at a minimum frequency?	X			—
6.	Units checked?	X			—

Comments on any "No" response:

Analyst: [signature] Date: 8/4/94

Second Level Review: [signature] Date: 8/7/94

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

9613476.1931

INTERNATIONAL TECHNOLOGY CORPORATION

ITAS Data Review Checklist
RADIOCHEMISTRY

Work Order No(s): 407011

Lab Sample Numbers or SDG: W0105

Method/Test/Parameter: Tc99

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

Comments on any "No" response:

Analyst: [signature] Date: 8/8/94

Second Level Review: [signature] Date: 8/8/94

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

INTERNATIONAL TECHNOLOGY CORPORATION

ITAS Data Review Checklist
RADIOCHEMISTRY

Work Order No(s): 406519, 406556, 406587, 406614, 407011

Lab Sample Numbers or SDG: W0105

Method/Test/Parameter: U laser Uranium

	Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level review (✓)
A. 1.	**Calibration** Is the calibration documentation included where applicable?	✓			✓
B. 1.	**Sample Analysis** Are the sample yields within acceptance criteria?			✓	✓
2.	Were all sample holding times met?	✓			✓
C. 1.	**QC Samples** Is the Blank Yield within acceptance criteria?			✓	✓
2.	Is the Minimum-Detectable Activity for the Blank result ≤ the Contract Detection Limit?	✓			✓
3.	Is the Blank result ≤ the Contract Detection Limit?	✓			✓
4.	Is the Blank result greater than the Contract Detection Limit but the Sample result less than the Contract Detection Limit?			✓	✓
5.	Is the LCS result within acceptance criteria?	✓			✓
6.	Is the LCS yield within acceptance criteria?			✓	✓
7.	Is the LCS Minimum Detectable Activity less than or equal to the Contract Detection Limit?			✓	✓
8.	MS/MSD results and yield meet acceptance criteria?		✓		✓
9.	Duplicate sample results and yield meet acceptance criteria?	✓			✓
D. 1.	**Other** Are all nonconformances included and noted?	✓			✓
2.	Are all required forms filled out?	✓			✓
3.	Correct methodology used?	✓			✓
4.	Transcription checked? DMI 8/3/94	✓			PK
5.	Were all calculations checked at a minimum frequency?	✓			✓
6.	Units checked?	✓			✓

Comments on any "No" response:

matrix spikes lost. Too high conc to see the spike.

Analyst: Pam Kenitzer Date: 8-3-94

Second Level Review: Shy Davis Date: 8/4/94

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

9613476.1933

Golder Associates Inc.

4104-148th Avenue, NE
Redmond, WA 98052
Telephone (206) 883-0777
Fax (206) 882-5498

Golder Associates

October 28, 1994

Our ref: 943-1610.015.400
943-1610.018.400
94-1610/0/41

CH2M Hill
P.O. Box 1510
Richland, Washington 99352

ATTENTION: Ms. Jeanette Duncan

RE: TRANSMITTAL OF DATA VALIDATION PACKAGES, ENVIRONMENTAL AND WASTE CHARACTERIZATION ANALYTICAL DATA VALIDATION, CONTRACT NO. MSH-SWV-315905

Dear Ms. Duncan:

Enclosed are data validation reports for the 200-UP-1 Round 2 Groundwater Sampling validation projects. The package(s) included in this shipment are as follows:

- W0105-ITC-113
- W0120-QES-133

Please call if you have any questions.

Sincerely,

GOLDER ASSOCIATES INC.

Christina I. Jensen
Task Manager

Kent M. Angelos
Project Manager

OCT 1994
RECEIVED
Validation
Log In

10/31/94

Data Validation Check List

for Project 200-UP-1

HEIS Samp Number	Client Sample Number	Master DP File Number	DP Sequence Number	Laboratory	Y N VOA	Y N SEMI VOA	Y N PEST/PCB	Y N WETCHEM	Y N METALS	COMMENTS	Y N RADCHEM	Date OSM Rcvd DP
B0C1K3		W0105	113	ITC	N	N	N	Y 8/09/94	N	06/23/94 - SAF-94-256	Y 8/11/94	8/11/94
B0C1K4		W0105	113	ITC	N	N	N	Y 8/09/94	N	06/23/94 - SAF-94-256	Y 8/11/94	8/11/94
B0C1K5		W0105	113	ITC	N	N	N	Y 8/09/94	N	06/23/94 - SAF-94-256	Y 8/11/94	8/11/94
B0C1K7		W0105	113	ITC	N	N	N	N	N	06/23/94 - SAF-94-256	Y 8/11/94	8/11/94
B0C1L6		W0105	113	ITC	N	N	N	Y 8/09/94	Y 8/09/94	06/27/94 - SAF-94-256	Y 8/11/94	8/11/94
B0C1L7		W0105	113	ITC	N	N	N	N	Y 8/09/94	06/27/94 - SAF-94-256	N	8/09/94
B0C1M2		W0105	113	ITC	Y 8/09/94	N	N	Y 8/09/94	N	07/01/94 - SAF-94-256	Y 8/11/94	8/11/94
B0C1M3		W0105	113	ITC	Y 8/09/94	N	N	N	N	07/01/94 - SAF-94-256	N	8/09/94
B0C1M6	field dup of B0C1M2	W0105	113	ITC	Y 8/09/94	N	N	Y 8/09/94	N	07/01/94 - SAF-94-256	Y 8/11/94	8/11/94
B0C1M7		W0105	113	ITC	Y 8/09/94	N	N	N	N	07/01/94 - SAF-94-256	N	8/09/94
B0C1M8		W0105	113	ITC	Y 8/09/94	N	Y 8/09/94	Y 8/09/94	N	06/28/94 - SAF-94-256	Y 8/11/94	8/11/94
B0C1M9		W0105	113	ITC	Y 8/09/94	N	N	N	N	06/28/94 - SAF-94-256	N	8/09/94

Validation Rcvd 10-31-94

9413161.3718

10/31/94

Data Validation Check List

for Project 200-UP-1

HEIS Samp Number	Client Sample Number	Master DP File Number	DP Sequence Number	Laboratory	Y N VOA	Y N SEMI VOA	Y N PEST/PCB	Y N WETCHEM	Y N METALS	COMMENTS	Y N RADCHEM	Date OSM Rcvd DP
B0C1N0		W0105	113	ITC	N	N	N	Y 8/09/94	N	06/23/94 - SAF-94-256	Y 8/11/94	8/11/94
B0C1N3		W0105	113	ITC	Y 8/09/94	N	N	Y 8/09/94	N	06/24/94 - SAF-94-256	Y 8/11/94	8/11/94
B0C1N4		W0105	113	ITC	Y 8/09/94	N	N	N	N	06/24/94 - SAF-94-256	N	8/09/94
B0C1N9		W0105	113	ITC	Y 8/09/94	N	N	Y 8/09/94	N	06/28/94 - SAF-94-256	Y 8/11/94	8/11/94
B0C1P0		W0105	113	ITC	Y 8/09/94	N	N	N	N	06/28/94 - SAF-94-256	N	8/09/94
B0C2Y8	Trip Blank	W0105	113	ITC	Y 8/09/94	N	N	N	N	07/01/94 - SAF-94-256	N	8/09/94
B0C2Y9	Equip. Blank	W0105	113	ITC	Y 8/09/94	N	N	Y 8/09/94	N	07/01/94 - SAF-94-256	Y 8/11/94	8/11/94
B0C2Z0	Equip Blank	W0105	113	ITC	Y 8/09/94	N	N	N	N	07/01/94 - SAF-94-256	N	8/09/94

Data Entry Complete: DP DEA 10 10 94

DATATRAC [illegible]
10/31/94

Validation Rcvd 10-31-94

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RECORD COPY

MEMORANDUM

OCT 1994
RECEIVED
Validation
Log

TO: 200-UP-1 Project QA Record

FR: Christina Jensen, Golder Associates Inc. CJ

RE: INORGANICS DATA VALIDATION SUMMARY FOR DATA PACKAGE W0105-QES-113 (943-1610.018 113MET.UP1)

INTRODUCTION

This memo presents the results of data validation on data package W0105-QES-113 prepared by Quanterra Environmental Services. A list of samples validated along with the analyses reported and the methods of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSES
B0C1L6* B0C1L7	06/24/94 06/24/94	GROUNDWATER GROUNDWATER	SEE NOTE 1
Notes: 1. Indicates the samples were analyzed for target analyte metals. * indicates the sample(s) validated 100%			

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. 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 with the exception of matrix spike and analytical spike recoveries as described below.

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

Detection Limits. Detection limit goals were met.

Completeness. The data package was complete for all requested analyses. A total of two samples were validated in this data package with a total of 46 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets normal work plan completeness objectives of 90 percent.

MAJOR DEFICIENCIES

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

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data.

Laboratory blanks

- Zinc was detected in the preparation blank at a positive value. Attachments 2 and 5 provide a summary of samples affected, qualification applied and supporting documentation.

- Nickel, selenium, and silver were detected in the calibration blanks at a negative value. Attachments 2 and 5 provide a summary of samples affected, qualification applied and supporting documentation.

Matrix spike recovery

- The matrix spike recovery for silver was unacceptable. Attachments 2 and 5 provide a summary of samples affected, qualification applied and supporting documentation.

Analytical spike recovery

- The analytical spike recovery for thallium was unacceptable for sample B0C1L6. Attachments 2 and 5 provide a summary of samples affected, qualification 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 or Work, Revision 1.0; September 7, 1994, Westinghouse Hanford Company, Richland, Washington.

Rcvd 11/1/94

9613476.1938

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 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. Due to a minor quality control deficiency identified during 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 CRDL but greater then the 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 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.

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ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY

SDG:	VALIDATOR: B Jensen	DATE: 10/23/94	PAGE 1 OF 1
COMMENTS: W0105 - PTC 113			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Nickel	UJ	all	neg. blank
Selenium	UJ	all	neg. blank
Silver	UJ	all	neg. blank
Zinc	U	all	pos. blank
Silver	UJ	all	Spike recovery SSR = 35.8
Thallium	~~B0ZIL6~~ 10/23/94 UJ	B0ZIL6	Analytical Spk = 116%
~~Arsenic~~	~~10/23/94 Result corrected from 3.4 to 3.2~~	~~B0ZIL6~~	~~Transcription error~~

AJ 11/1/94

Reviewed AJ 11/1/94

9613476.1942

ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0105-ITC-113

	Samp#	B0C1L6		B0C1L7	
	Date	6-24-94		6-24-94	
	Location	2-W19-12		2-W19-12	
	Depth	---		---	
	Type	WATER		WATER	
	Comments				
Parameter	Units	Result	Q	Result	Q
ALUMINUM	UG/L	38.700	B	19.000	U
ANTIMONY	UG/L	26.900	B	19.500	U
ARSENIC	UG/L	3.200	B	3.400	B
BARIUM	UG/L	36.400	B	36.200	B
BERYLLIUM	UG/L	0.510	B	0.300	U
CADMIUM	UG/L	2.000	B	1.800	U
CALCIUM	UG/L	29800.000		30600.000	
CHROMIUM	UG/L	13.400		6.700	B
COBALT	UG/L	29.000	U	29.000	U
COPPER	UG/L	7.200	B	4.500	U
IRON	UG/L	347.000		40.400	B
LEAD	UG/L	1.300	U	1.300	U
MAGNESIUM	UG/L	13400.000		14000.000	
MANGANESE	UG/L	17.200		16.600	
MERCURY	UG/L	0.100	U	0.100	U
NICKEL	UG/L	4.900	UJ	4.900	UJ
POTASSIUM	UG/L	4840.000	B	5030.000	
SELENIUM	UG/L	3.500	UJ	3.500	UJ
SILVER	UG/L	4.200	UJ	4.200	UJ
SODIUM	UG/L	21500.000		23200.000	
THALLIUM	UG/L	1.000	UJ	1.000	U
VANADIUM	UG/L	39.800	B	24.400	B
ZINC	UG/L	8.300	U	9.100	U

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

Verified - Reviewed
1/14/95

008

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9613476.1944

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOC1L6

Lab Name: ITAS_ST._LOUIS Contract: 519.58

Lab Code: ITMO Case No.: SAS No.: SDG No.: W0105

Matrix (soil/water): WATER Lab Sample ID: 5449-001

Level (low/med): LOW Date Received: 06/27/94

% 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	38.7	B		P	
7440-36-0	Antimony	26.9	B		P	
7440-38-2	Arsenic	3.2	B		F	
7440-39-3	Barium	36.4	B		P	
7440-41-7	Beryllium	0.51	B		P	
7440-43-9	Cadmium	2.0	B		P	
7440-70-2	Calcium	29800			P	
7440-47-3	Chromium	13.4			P	
7440-48-4	Cobalt	29.0	U		P	
7440-50-8	Copper	7.2	B		P	
7439-89-6	Iron	347			P	
7439-92-1	Lead	1.3	U		F	
7439-95-4	Magnesium	13400			P	
7439-96-5	Manganese	17.2			P	
7439-97-6	Mercury	0.10	U		CV	
7440-02-0	Nickel	4.9	~~U~~		P	UJ
7440-09-7	Potassium	4840	B		P	
7782-49-2	Selenium	3.5	~~U~~	N	F	UJ
7440-22-4	Silver	4.2	~~U~~		P	UJ
7440-23-5	Sodium	21500			P	
7440-28-0	Thallium	1.0	~~U~~	W	F	UJ
7440-62-2	Vanadium	39.8	B		P	
7440-66-6	Zinc	8.3	~~B~~		P	U

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

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3/10/25/94

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U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOC1L7

Lab Name: ITAS_ST._LOUIS_____ Contract: 519.58____

Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0105_____

Matrix (soil/water): WATER Lab Sample ID: 5449-002

Level (low/med): LOW__ Date Received: 06/27/94

% 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_	19.0	U		P_	
7440-36-0	Antimony_	19.5	U		P_	
7440-38-2	Arsenic__	~~3.2~~ 3.4	B		F_	
7440-39-3	Barium__	36.2	B		P_	
7440-41-7	Beryllium	0.30	U		P_	
7440-43-9	Cadmium__	1.8	U		P_	
7440-70-2	Calcium__	30600			P_	
7440-47-3	Chromium_	6.7	B		P_	
7440-48-4	Cobalt___	29.0	U		P_	
7440-50-8	Copper___	4.5	U		P_	
7439-89-6	Iron____	40.4	B		P_	
7439-92-1	Lead____	1.3	U		F_	
7439-95-4	Magnesium	14000			P_	
7439-96-5	Manganese	16.6			P_	
7439-97-6	Mercury__	0.10	U		CV	
7440-02-0	Nickel___	4.9	~~U~~		P_	UJ
7440-09-7	Potassium	5030			P_	
7782-49-2	Selenium_	3.5	~~U~~	N	F_	UJ
7440-22-4	Silver___	4.2	~~U~~		P_	UJ
7440-23-5	Sodium___	23200			P_	
7440-28-0	Thallium_	1.0	U		F_	
7440-62-2	Vanadium_	24.4	B		P_	
7440-66-6	Zinc____	9.1	~~B~~		P_	U

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN

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S 10/25/94

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ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

9613476.1947

Quanterra
Environmental Services

CERTIFICATE OF ANALYSIS

Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

August 2, 1994

Attention: J. A. Lerch

Project number	:	519.58
Date Received by Lab	:	June 23, 24, 27 and 28, and July 1, 1994
Number of Samples	:	Nineteen (19)
Sample Type	:	Water
SDG Number	:	W0105
Data Deliverable	:	Standalone

I. Introduction

On June 23, 24, 27 and 28, and July 1, 1994, a total of nineteen (19) water samples were received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analyses. 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
5416-001	BOC1K3	40651801	Water	06/23/94
5416-002	BOC1K4	40651802	Water	06/23/94
5416-003	BOC1K5	40651803	Water	06/23/94
5416-004	BOC1N0	40651804	Water	06/23/94
5430-001	BOC1N3	40655501	Water	06/24/94
5430-002	BOC1N4	40655502	Water	06/24/94
5449-001	BOC1L6	40658601	Water	06/27/94
5449-002	BOC1L7	40658602	Water	06/27/94
5456-001	BOC1N9	40661301	Water	06/28/94
5456-002	BOC1M8	40661303	Water	06/28/94
5456-003	BOC1M9	40666104	Water	06/28/94
5456-004	BOC1P0	40661302	Water	06/28/94
5485-001	BOC1M2	40701001	Water	07/01/94
5485-002	BOC1M6	40701003	Water	07/01/94

Regional Office
13715 Rider Trail North • Earth City, Missouri 63045-1205 • 314-298-8566 • fax: 314-298-8757

Quanterra Environmental Services

St Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
5485-003	BOC2Y9	40701005	Water	07/01/94
5485-006	BOC1M3	40701002	Water	07/01/94
5485-007	BOC1M7	40701004	Water	07/01/94
5485-008	BOC2Z0	40701006	Water	07/01/94
5485-009	BOC2Y8	40701007	Water	07/01/94

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: Chloride, Fluoride, Nitrate, Nitrite, Phosphate and Sulfate by EPA method 300.0. Nitrate by EPA method 353.1. VOA, Pesticide/PCB's, and Metals by using CLP/90 methodology.

III. Quality Control

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

Quanterra
Environmental Services

V. Comments

Samples 5416-001 through -004, 5430-001, 5449-001, 5456-001, 5456-002 and 5485-001 and -002 for Nitrate, Nitrite and Phosphate by method 300.0, were received after holding times had expired.

The Matrix Spike for sample 5416-001, Nitrate by method 300.0, was outside of the suggested limit of 75-125% due to sample results being greater than 4 times the value of the spike amount.

The laboratory was unable to calculate a Relative Percent Difference (RPD) for sample 5416-001 for Nitrite and Phosphate by method 300.0, due to sample values below the detection limit.

Selenium Matrix Spike recovery was out of the specified control limits (36%).

The Decachlorobiphenyl (DCB) surrogate recoveries for the Pesticide/PCB analysis were out of specified limits in Blank, Matrix Spike and Matrix Spike Duplicate analyses. All Tetrachloro-m-xylene recoveries were within specifications.

I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Wade H. Price
Project Manager
z:\annelars\hanw0105.nar

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: ☐ Priority ☒ Normal

Collector: D.St. John / W. Seltzer	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-12	SAF No.: 94-256
Ice Chest No.: ER-26	Field Logbook No.: EFL-1124	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: WHC-U-0746-6	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks: none noted		

Preservative	HNO3<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	HNO3<2	HCl<2			HNO3<2					
Type of Container	P	G	G	P	P	P	G/P			G/P					
No. of Container(s)	1	1	1	1	1	1	1			1					
Volume	1L	500ml	500ml	2L	2L	1L	1L			1L					
SAMPLE ANALYSIS	CLP-ICP METALS, Hg (UNFILTERED)	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4	NO2/NO3	TOTAL URANIUM	GAMMA SPEC (see#1)	GAMMA SPEC (see#2)	Tc-99			CLP-ICP METALS, Hg (FILTERED)					
406586	A	B	C	406587-01											

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

Sample No.	Matrix*	Date Sampled	Time Sampled																
B0C1L6 01	W	6/24/94	1150	X	X	X	X	X	X	X									
B0C1L7 2	W	6/24/94	1150										X[1]						

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: W.C. Seltzer	Date/Time: 6-24-94 / 1540	Received By: WHC C. Simpson	Date/Time: 6/24/94 1540
Relinquished By: WHC C. Simpson	Date/Time: 1115 6/27/94	Received By: ITAS	Date/Time: 6/27/94 1115
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

#1=includes:Co-58/60,Cs-137,Eu-152/154/155,Fe-59] #2=includes:Co-58/60,Cs-137,Eu152/154/155,Fe-59

SDG W0105

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

0000041

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

115

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ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	(D)	E
PROJECT: 200-UP-1 GH20			DATA PACKAGE: W0105-JTC-113		
VALIDATOR: C Jensen		LAB: JTC		DATE: 10/25/94	
CASE:			SDG:		
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: B02LL6, B02LL7					

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
Are 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
Were preparation blanks analyzed? . . . . . Yes No N/A
Are preparation blank results acceptable? . . . . . Yes No N/A
Were field/trip blanks analyzed? . . . . . Yes No N/A
Are field/trip blank results acceptable? . . . . . Yes No N/A

Comments: See Attachment 2 for blank qualification and analyses

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: Silver was unacceptable. See attach. 2

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

Were ICP serial dilution samples analyzed? . . . . . Yes No N/A

Are 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: ~~No qualification is made~~ 5/05/94

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: See attach 2 for qualification / samples

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:

HOLDING TIME SUMMARY

SDG:	VALIDATOR: C Jensen	DATE: 10/23/94	PAGE 1 OF 1
COMMENTS: W0105-ETC-113 Metals			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B02L66	ICP	6/24/94		7/12/94		<180	none
B02L67							
B02L66	Hg			7/15/94		<28	
B02L67						<28	
B02L66	Se			7/15 7/18/94		<180	
B02L67							
B02L66	Tl			7/15/94			
B02L67	~~As, Pb~~						
B02L66	As, Pb			7/14/94			
B02L67							

9613476.1956

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 519.58____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: W0105_____

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

00007111

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	19.0	U	32.5	B	19.0	U	19.0	U	19.000	U	P
Antimony	19.5	U	19.5	U	19.5	U	19.5	U	19.500	U	P
Arsenic	1.1	U	1.1	U	1.1	U	1.1	U	1.100	U	F
Barium	1.3	U	1.3	U	1.3	U	1.3	U	1.300	U	P
Beryllium	0.3	U	0.5	B	0.3	U	0.3	U	0.300	U	P
Cadmium	1.8	U	1.8	U	1.8	U	1.8	U	1.800	U	P
Calcium	17.2	B	35.0	B	23.0	B	22.7	B	85.930	B	P
Chromium	2.8	U	2.8	U	2.8	U	2.8	U	2.800	U	P
Cobalt	29.0	U	29.0	U	29.0	U	29.0	U	29.000	U	P
Copper	4.5	U	4.5	U	4.5	U	4.5	U	4.500	U	P
Iron	4.4	U	14.2	B	5.7	B	7.4	B	4.400	U	P
Lead	1.3	U	1.3	U	1.3	U	1.3	U	1.300	U	F
Magnesium	24.7	U	24.7	U	24.7	U	24.7	U	24.700	U	P
Manganese	0.9	B	1.0	B	1.0	B	1.0	B	1.050	B	P
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.100	U	CV
Nickel	4.9	U	4.9	U	-6.7	B	-5.3	B	4.900	U	P
Potassium	207.9	U	207.9	U	207.9	U	207.9	U	305.330	B	P
Selenium	0.7	U	0.7	U	0.7	U	0.7	U	0.700	U	F
Silver	-5.0	B	4.2	U	-7.1	B	-5.0	B	4.200	U	P
Sodium	26.3	U	26.3	U	26.7	B	32.0	B	108.190	B	P
Thallium	1.0	U	1.0	U	1.0	U	1.0	U	1.000	U	F
Vanadium	9.8	U	9.8	U	9.8	U	9.8	U	9.800	U	P
Zinc	1.3	U	1.3	U	1.3	U	1.3	U	6.850	B	P

B021L6 IC?

B021L7 IC?

FORM III - IN

ILM03.0

Ni, Ag, Zn
qual. due
to blank contam.
5/10/23/94

9613476.1957

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 519.58____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: W0105_____

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

0000712

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum			19.0	U	19.0	U	19.0	U			P
Antimony			19.5	U	19.5	U	19.5	U			P
Arsenic											NR
Barium			1.3	U	1.3	B	1.3	U			P
Beryllium			0.8	B	1.3	B	1.0	B			P
Cadmium			1.8	U	1.8	U	1.8	U			P
Calcium			47.0	B	17.1	U	17.1	U			P
Chromium			2.8	U	2.8	U	2.8	U			P
Cobalt			29.0	U	29.0	U	29.0	U			P
Copper			4.5	U	4.5	U	4.5	U			P
Iron			6.2	B	12.0	B	11.1	B			P
Lead											NR
Magnesium			-25.7	B	24.7	U	24.7	U			P
Manganese			2.3	B	1.0	B	0.6	B			P
Mercury			0.1	U							CV
Nickel			4.9	U	4.9	U	4.9	U			P
Potassium			446.2	B	207.9	U	207.9	U			P
Selenium	-2.0	B	-1.6	B	-1.2	B					F
Silver			4.2	U	4.2	U	4.2	U			P
Sodium			78.6	B	26.3	U	26.3	U			P
Thallium			1.0	U	1.0	U	1.2	B			F
Vanadium			9.8	U	9.8	U	9.8	U			P
Zinc			1.8	B	-3.2	B	-3.7	B			P

Se - both spls qual. UJ

FORM III - IN

ILM03.0

S 10/23/94

9613476.1958

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

BOC1L6S

Lab Name: ITAS_ST._LOUIS Contract: 519.58

Lab Code: ITMO Case No.: SAS No.: SDG No.: W0105

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2163.8100		38.7300	B	2000.00	106.3		P
Antimony	75-125	564.9700		26.8700	B	500.00	107.6		P
Arsenic	75-125	39.9300		3.1500	B	40.00	92.0		F
Barium	75-125	2034.4300		36.4500	B	2000.00	99.9		P
Beryllium	75-125	56.4600		0.5100	B	50.00	111.9		P
Cadmium	75-125	56.6300		2.0300	B	50.00	109.2		P
Calcium									NR
Chromium	75-125	221.0200		13.4200		200.00	103.8		P
Cobalt	75-125	534.6200		29.0000	U	500.00	106.9		P
Copper	75-125	266.3000		7.1500	B	250.00	103.7		P
Iron	75-125	1364.9100		347.4000		1000.00	101.8		P
Lead	75-125	18.7600		1.3000	U	20.00	93.8		F
Magnesium									NR
Manganese	75-125	562.1900		17.2500		500.00	109.0		P
Mercury	75-125	1.0600		0.1000	U	1.00	106.0		CV
Nickel	75-125	553.3000		4.9000	U	500.00	110.7		P
Potassium									NR
Selenium	75-125	3.5800	B	3.5000	U	10.00	35.8	N	F
Silver	75-125	57.3200		4.2000	U	50.00	114.6		P
Sodium									NR
Thallium	75-125	52.5100		1.0000	U	50.00	105.0		F
Vanadium	75-125	587.8500		39.8400	B	500.00	109.6		P
Zinc	75-125	564.8200		8.3300	B	500.00	111.3		P

Comments:

FORM V (Part 1) - IN ILM03.0

All results qualified UJ
5/10/23/94

00007115

ACCURACY DATA SUMMARY

SDG:	VALIDATOR: C Jensen	DATE: 10/23/94	PAGE 1 OF 1	
COMMENTS:	W0105-IR-113 metals			
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
~~Th 60~~ 10/23/94				
~~Thallium~~ ~~S110/23/94~~	Thallium	116	B0C1L6	UJ

9613476.1959

9613476.1960
RECORD COPY

MEMORANDUM

OCT 1994 RECEIVED Validation Log In

TO: 200-UP-1 Project QA Record October 26, 1994

FR: Christina Jensen, Golder Associates Inc.

RE: VOLATILES DATA VALIDATION SUMMARY FOR DATA PACKAGE W0105-ITC-113 (943-1610.018 113VOA.UP1)

INTRODUCTION

This memo presents the results of data validation on data package W0105-QES-113 prepared by Quanterra Environmental Services. A list of samples validated along with the analyses reported and the methods of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSES
B0C1M2	06/29/94	GROUNDWATER	SEE NOTE 1
B0C1M3	06/29/94	GROUNDWATER	
B0C1M6	06/25/94	GROUNDWATER	
B0C1M7*	06/25/94	GROUNDWATER	
B0C1M8	06/23/94	GROUNDWATER	
B0C1M9	06/23/94	GROUNDWATER	
B0C1N3	06/22/94	GROUNDWATER	
B0C1N4	06/22/94	GROUNDWATER	
B0C1N9	06/27/94	GROUNDWATER	
B0C1P0	06/27/94	GROUNDWATER	
B0C2Y8*	06/29/94	GROUNDWATER	
B0C2Y9*	06/29/94	GROUNDWATER	
B0C2Z0	06/29/94	GROUNDWATER	

Notes: 1. Indicates the samples were analyzed for CLP volatile organics.
* indicates the sample(s) validated 100%

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. 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.

Completeness. The data package was complete for all requested analyses. A total of thirteen samples were validated in this data package with a total of 429 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets normal work plan completeness objectives of 90 percent.

MAJOR DEFICIENCIES

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

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data.

Holding Times

- The holding time was exceeded for sample B0C1M6. Attachments 2 and 5 provide a summary of samples affected, qualification applied and supporting documentation.

Laboratory Blanks

- Acetone and methylene chloride were detected in the laboratory method blank. Attachments 2 and 5 provide a summary of samples affected, qualification applied and supporting documentation.

FIELD QUALITY CONTROL

- Samples B0C2Y9 and B0C2Y8 were identified as field blanks. Chloroform and tentatively identified compounds (TICs) were detected in the field blanks. No qualification was applied in accordance with data validation procedures.

- Samples B0C1M6 and B0C1M7 were identified as duplicate samples. All relative percent difference (RPD) values are less than 20% or the range is less than the CRDL with the exception of methylene chloride which had an RPD of 28%. No qualification was applied in accordance with data validation procedures.

Revised 11/1/94

TENTATIVELY IDENTIFIED COMPOUNDS

- Tentatively identified compounds (TICs) detected in samples and associated blanks were qualified as undetected (U) for sample TICs less than five times the associated blank concentration. TICs deemed valid were qualified as presumptive and estimated (JN).

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 or Work, Revision 1.0; September 7, 1994, Westinghouse Hanford Company, Richland, Washington.

Reviewed
11/11/94

9613476.1963

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. 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 quantitation 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 data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.

NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.

UJN - Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected (U) due to associated blank contamination.

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

9613476.1965

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

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

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: W0105-ITC-113	REVIEWER: C. Jensen	DATE: 10-21-94	PAGE 1 OF 1
COMMENTS: VOLATILE ORGANICS			
COMPOUND/ ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
Acetone	U	B0C1M2, B0C1M3, B0C1M6, B0C1N3, B0C1N9, B0C1P0, B0C2Y9, B0C2Z0	detected in method blank
Methylene Chloride	U	B0C1M2, B0C1M6	detected in method blank
All	J,UJ	B0C1M6	holding time exceeded

9613476.1967

ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0105-ITC-113

	Samp#	B0C1M2		B0C1M3		B0C1M6		B0C1M7		B0C1M8		B0C1M9	
	Date	6-29-94		6-29-94		6-29-94		6-29-94		6-23-94		6-23-94	
	Location	2-W19-4		2-W19-4		2-W19-4		2-W19-4		2-W19-18		2-W19-18	
	Depth	---		---		---		---		---		---	
	Type	WATER		WATER		WATER		WATER		WATER		WATER	
	Comments												
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
CHLOROMETHANE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
BROMOMETHANE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
VINYL CHLORIDE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
CHLOROETHANE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
METHYLENE CHLORIDE	UG/L	10.000	U	10.000	U	30.000	J	10.000	U	10.000	U	10.000	U
ACETONE	UG/L	42.000	U	11.000	U	66.000	UJ	10.000	U	10.000	U	10.000	U
CARBON DISULFIDE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
1,1-DICHLOROETHENE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
1,1-DICHLOROETHANE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
1,2-DICHLOROETHENE (TOTAL)	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
CHLOROFORM	UG/L	4.000	J	10.000	U	3.000	J	10.000	U	29.000		3.000	J
1,2-DICHLOROETHANE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
2-BUTANONE	UG/L	9.000	J	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
1,1,1-TRICHLOROETHANE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
CARBON TETRACHLORIDE	UG/L	240.000		10.000	U	230.000	J	10.000	U	170.000		180.000	
BROMODICHLOROMETHANE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
1,2-DICHLOROPROPANE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
CIS-1,3-DICHLOROPROPENE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
TRICHLOROETHENE	UG/L	3.000	J	10.000	U	20.000	UJ	10.000	U	1.000	J	10.000	U
DIBROMOCHLOROMETHANE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
1,1,2-TRICHLOROETHANE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
BENZENE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
TRANS-1,3-DICHLOROPROPENE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
BROMOFORM	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
4-METHYL-2-PENTANONE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
2-HEXANONE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
TETRACHLOROETHENE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
1,1,2,2-TETRACHLOROETHANE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
TOLUENE	UG/L	20.000	U	1.000	J	20.000	UJ	10.000	U	10.000	U	10.000	U
CHLOROBENZENE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
ETHYLBENZENE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
STYRENE	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U
XYLENES (TOTAL)	UG/L	20.000	U	10.000	U	20.000	UJ	10.000	U	10.000	U	10.000	U

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

Revised

008

Validated Data Summary, Data Package: W0105-ITC-113

	Samp#	B0C1N3		B0C1N4		B0C1N9		B0C1P0		B0C2Y8		B0C2Y9	
	Date	6-22-94		6-22-94		6-27-94		6-27-94		6-29-94		6-29-94	
	Location	6-38-70		6-38-70		2-W19-35		2-W19-35		2-W19-4		2-W19-4	
	Depth	---		---		---		---		---		---	
	Type	WATER		WATER		WATER		WATER		WATER		WATER	
	Comments									TRIP BLANK		EQUIP BLANK	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
CHLOROMETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
BROMOMETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
VINYL CHLORIDE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
CHLOROETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
METHYLENE CHLORIDE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
ACETONE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
CARBON DISULFIDE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
1,1-DICHLOROETHENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
1,1-DICHLOROETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
1,2-DICHLOROETHENE (TOTAL)	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
CHLOROFORM	UG/L	4.000	J	4.000	J	3.000	J	10.000	U	3.000	J	26.000	
1,2-DICHLOROETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
2-BUTANONE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
1,1,1-TRICHLOROETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
CARBON TETRACHLORIDE	UG/L	41.000		42.000		83.000		2.000	J	10.000	U	10.000	U
BROMODICHLOROMETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
1,2-DICHLOROPROPANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
CIS-1,3-DICHLOROPROPENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
TRICHLOROETHENE	UG/L	5.000	J	5.000	J	10.000		10.000	U	10.000	U	10.000	U
DIBROMOCHLOROMETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
1,1,2-TRICHLOROETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
BENZENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
TRANS-1,3-DICHLOROPROPENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
BROMOFORM	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
4-METHYL-2-PENTANONE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
2-HEXANONE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
TETRACHLOROETHENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
1,1,2,2-TETRACHLOROETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
TOLUENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
CHLOROBENZENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
ETHYLBENZENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
STYRENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
XYLENES (TOTAL)	UG/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U

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

Reviewed & Verified 11/14/94

009

96134766.1969

Validated Data Summary, Data Package: W0105-ITC-113

	Samp#	B0C2Z0	
	Date	6-29-94	
	Location	2-W19-4	
	Depth	---	
	Type	WATER	
	Comments	EQUIP BLANK	
Parameter	Units	Result	Q
CHLOROMETHANE	UG/L	10.000	U
BROMOMETHANE	UG/L	10.000	U
VINYL CHLORIDE	UG/L	10.000	U
CHLOROETHANE	UG/L	10.000	U
METHYLENE CHLORIDE	UG/L	10.000	U
ACETONE	UG/L	10.000	U
CARBON DISULFIDE	UG/L	10.000	U
1,1-DICHLOROETHENE	UG/L	10.000	U
1,1-DICHLOROETHANE	UG/L	10.000	U
1,2-DICHLOROETHENE (TOTAL)	UG/L	10.000	U
CHLOROFORM	UG/L	10.000	U
1,2-DICHLOROETHANE	UG/L	10.000	U
2-BUTANONE	UG/L	10.000	U
1,1,1-TRICHLOROETHANE	UG/L	10.000	U
CARBON TETRACHLORIDE	UG/L	10.000	U
BROMODICHLOROMETHANE	UG/L	10.000	U
1,2-DICHLOROPROPANE	UG/L	10.000	U
CIS-1,3-DICHLOROPROPENE	UG/L	10.000	U
TRICHLOROETHENE	UG/L	10.000	U
DIBROMOCHLOROMETHANE	UG/L	10.000	U
1,1,2-TRICHLOROETHANE	UG/L	10.000	U
BENZENE	UG/L	10.000	U
TRANS-1,3-DICHLOROPROPENE	UG/L	10.000	U
BROMOFORM	UG/L	10.000	U
4-METHYL-2-PENTANONE	UG/L	10.000	U
2-HEXANONE	UG/L	10.000	U
TETRACHLOROETHENE	UG/L	10.000	U
1,1,2,2-TETRACHLOROETHANE	UG/L	10.000	U
TOLUENE	UG/L	10.000	U
CHLOROBENZENE	UG/L	10.000	U
ETHYLBENZENE	UG/L	10.000	U
STYRENE	UG/L	10.000	U
XYLENES (TOTAL)	UG/L	10.000	U

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

Reviewed
Verified
11/1/94

010

96134761970

9613476.1971

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C1M2

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8902

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/08/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 2.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	20	U
74-83-9	Bromomethane	20	U
75-01-4	Vinyl Chloride	20	U
75-00-3	Chloroethane	20	U
75-09-2	Methylene Chloride	10	~~BJ~~ U
67-64-1	Acetone	42	~~B~~ U
75-15-0	Carbon Disulfide	20	U
75-35-4	1,1-Dichloroethene	20	U
75-34-3	1,1-Dichloroethane	20	U
540-59-0	1,2-Dichloroethene (total)	20	U
67-66-3	Chloroform	4	J
107-06-2	1,2-Dichloroethane	20	U
78-93-3	2-Butanone	9	J
71-55-6	1,1,1-Trichloroethane	20	U
56-23-5	Carbon Tetrachloride	240	
75-27-4	Bromodichloromethane	20	U
78-87-5	1,2-Dichloropropane	20	U
10061-01-5	cis-1,3-Dichloropropene	20	U
79-01-6	Trichloroethene	3	J
124-48-1	Dibromochloromethane	20	U
79-00-5	1,1,2-Trichloroethane	20	U
71-43-2	Benzene	20	U
10061-02-6	trans-1,3-Dichloropropene	20	U
75-25-2	Bromoform	20	U
108-10-1	4-Methyl-2-Pentanone	20	U
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	20	U
79-34-5	1,1,2,2-Tetrachloroethane	20	U
108-88-3	Toluene	20	U
108-90-7	Chlorobenzene	20	U
100-41-4	Ethylbenzene	20	U
100-42-5	Styrene	20	U
1330-20-7	Xylene (total)	20	U

0000130

S 10/21/94

9613476.1972

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0C1M2

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8902

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/08/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 2.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

0000131

FORM I VOA-TIC 3/90

5/10/21/94

9613476.1973

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C1M3

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-006

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8895

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/07/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	11	~~B~~
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

9 U

0000141

FORM I VOA 3/90

5/10/21/94

9613476.1974

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0C1M3

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-006

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8895

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/07/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

0000142

FORM I VOA-TIC 3/90

Sloblad

014

9613476.1975

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C1M6

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-002

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E9682

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/12/94

GC Column: DB-624 ID: 0.530 (mm) Dilution Factor: 2.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	Q
74-87-3	Chloromethane	20	U	UJ
74-83-9	Bromomethane	20	U	UJ
75-01-4	Vinyl Chloride	20	U	UJ
75-00-3	Chloroethane	20	U	UJ
75-09-2	Methylene Chloride	30		J
67-64-1	Acetone	66	~~B~~	~~BJ~~ UJ
75-15-0	Carbon Disulfide	20	U	UJ
75-35-4	1,1-Dichloroethene	20	U	UJ
75-34-3	1,1-Dichloroethane	20	U	UJ
540-59-0	1,2-Dichloroethene (total)	20	U	UJ
67-66-3	Chloroform	3	J	J
107-06-2	1,2-Dichloroethane	20	U	UJ
78-93-3	2-Butanone	20	U	UJ
71-55-6	1,1,1-Trichloroethane	20	U	UJ
56-23-5	Carbon Tetrachloride	230		J
75-27-4	Bromodichloromethane	20	U	UJ
78-87-5	1,2-Dichloropropane	20	U	UJ
10061-01-5	cis-1,3-Dichloropropene	20	U	UJ
79-01-6	Trichloroethene	20	U	UJ
124-48-1	Dibromochloromethane	20	U	UJ
79-00-5	1,1,2-Trichloroethane	20	U	UJ
71-43-2	Benzene	20	U	UJ
10061-02-6	trans-1,3-Dichloropropene	20	U	UJ
75-25-2	Bromoform	20	U	UJ
108-10-1	4-Methyl-2-Pentanone	20	U	UJ
591-78-6	2-Hexanone	20	U	UJ
127-18-4	Tetrachloroethene	20	U	UJ
79-34-5	1,1,2,2-Tetrachloroethane	20	U	UJ
108-88-3	Toluene	20	U	UJ
108-90-7	Chlorobenzene	20	U	UJ
100-41-4	Ethylbenzene	20	U	UJ
100-42-5	Styrene	20	U	UJ
1330-20-7	Xylene (total)	20	U	UJ

0001148

FORM I VOA 3/90

10/21/94

9613476.1976

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0C1M6

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-002

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E9682

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/12/94

GC Column: DB-624 ID: 0.530 (mm) Dilution Factor: 2.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.07	14	J

0000149

FORM I VOA-TIC 3/90

9 10/21/94

016

9613476.1977

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B0C1M7

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-007

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8874

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

0000161

FORM I VOA 3/90

S 10/21/94

9613476.1978

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0C1M7

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-007

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8874

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.81	6	J
2.	UNKNOWN	18.00	12	J
3.	UNKNOWN	20.75	6	J

0000162

FORM I VOA-TIC 3/90

510/21/94

9613476.1979

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC1M8

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5456-002

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8847

Level: (low/med) LOW Date Received: 06/28/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	29	
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	170	
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	1	J
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

0000172

5/10/21/94

9613476.1980

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC1M8

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5456-002

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8847

Level: (low/med) LOW Date Received: 06/28/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

0000173

FORM I VOA-TIC 3/90

Sjw 12/21/94

020

9613476.1981

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC1M9

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5456-003

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8848

Level: (low/med) LOW Date Received: 06/28/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	3	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	180	
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

0000180

FORM I VOA 3/90

S 10/21/94

9613476.1982

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC1M9

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5456-003

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8848

Level: (low/med) LOW Date Received: 06/28/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.13	9	JBBB
2.	UNKNOWN	3.55	5	
3.	UNKNOWN	3.63	6	
4.	UNKNOWN	22.08	150	

Q JBBB

0000181

FORM I VOA-TIC 3/90

SJ 10/21/94

9613476.1983

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC1N3

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5430-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8838

Level: (low/med) LOW Date Received: 06/24/94

% Moisture: not dec. Date Analyzed: 07/05/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	Q
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10	U	
67-64-1	Acetone	10 ~~7~~	~~BJ~~	U
75-15-0	Carbon Disulfide	10	U	
75-35-4	1,1-Dichloroethene	10	U	
75-34-3	1,1-Dichloroethane	10	U	
540-59-0	1,2-Dichloroethene (total)	10	U	
67-66-3	Chloroform	4	J	
107-06-2	1,2-Dichloroethane	10	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	10	U	
56-23-5	Carbon Tetrachloride	41		
75-27-4	Bromodichloromethane	10	U	
78-87-5	1,2-Dichloropropane	10	U	
10061-01-5	cis-1,3-Dichloropropene	10	U	
79-01-6	Trichloroethene	5	J	
124-48-1	Dibromochloromethane	10	U	
79-00-5	1,1,2-Trichloroethane	10	U	
71-43-2	Benzene	10	U	
10061-02-6	trans-1,3-Dichloropropene	10	U	
75-25-2	Bromoform	10	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	10	U	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	
108-88-3	Toluene	10	U	
108-90-7	Chlorobenzene	10	U	
100-41-4	Ethylbenzene	10	U	
100-42-5	Styrene	10	U	
1330-20-7	Xylene (total)	10	U	

0000197

FORM I VOA 3/90

Sjw 12/1/94

9613476.1984

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO

BOC1N3

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5430-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8838

Level: (low/med) LOW Date Received: 06/24/94

% Moisture: not dec. Date Analyzed: 07/05/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

0000198

FORM I VOA-TIC 3/90

CJ 10/21/94

9613476.1985

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC1N4

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5430-002

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8841

Level: (low/med) LOW Date Received: 06/24/94

% Moisture: not dec. Date Analyzed: 07/05/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	4	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	42	
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	5	J
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

0000206

FORM I VOA 3/90

4/10/21/94

9613476.1986

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC1N4

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5430-002

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8841

Level: (low/med) LOW Date Received: 06/24/94

% Moisture: not dec. Date Analyzed: 07/05/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	18.00	26	J
2.	UNKNOWN	20.73	14	J

0000207

FORM I VOA-TIC 3/90

5 10/21/94

9613476.1987

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC1N9

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5456-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8846

Level: (low/med) LOW Date Received: 06/28/94

% Moisture: not dec. Date Analyzed: 07/05/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10 ~~6~~	~~BJ~~ U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	3	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	83	
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

Φ

0000219

FORM I VOA 3/90

10/21/94

9613476.1988

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC1N9

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5456-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8846

Level: (low/med) LOW Date Received: 06/28/94

% Moisture: not dec. Date Analyzed: 07/05/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

0000220

FORM I VOA-TIC 3/90

5/10/21/94

028

9613476.1989

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC1P0

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5456-004

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8849

Level: (low/med) LOW Date Received: 06/28/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10 ~~7~~	~~BJ~~ U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	2	J
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

0000228

FORM I VOA 3/90

10/21/94

029

9613476.1990

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOC1P0

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5456-004

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8849

Level: (low/med) LOW Date Received: 06/28/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

0000229

FORM I VOA-TIC 3/90

S10/21/94

030

9613476.1991

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
TRIP BLK -
B0C2Y8

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-009

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E9646

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/07/94

GC Column: DB-624 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	3	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

0000235

FORM I VOA 3/90

4 10/21/94

9613476.1992

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0C2Y8

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-009

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E9646

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/07/94

GC Column: DB-624 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1. 0	UNKNOWN	19.35	64	~~BJ~~	U
2. 0	UNKNOWN	22.13	110	~~BJ~~	U
3. 0	UNKNOWN	24.84	22	~~BJ~~	U

0000236

TICs qualified U due to blank with similar TICs.
CJ 10/21/94

FORM I VOA-TIC 3/90

CJ 10/21/94

9613476.1993

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
EQUIP BLK
B0C2Y9

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-003

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8872

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10 ~~6~~	~~BJ~~ U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	26	
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

00000248

FORM I VOA 3/90

4/10/21/94

961394/6.1994

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0C2Y9

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-003

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8872

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

0000249

FORM I VOA-TIC 3/90

Cj 10/21/94

9613476.1995

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
EQUIP BLK
B0C2Z0

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-008

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8875

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10 ~~7~~	~~BJ~~ 4
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

0000254

FORM I VOA 3/90

Rj 10/21/94

9613476.1996

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0C2Z0

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5485-008

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8875

Level: (low/med) LOW Date Received: 07/01/94

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

0000255

FORM I VOA-TIC 3/90

10/21/94

9613476.1997

ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

Quanterra
Environmental Services

CERTIFICATE OF ANALYSIS

Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

August 2, 1994

Attention: J. A. Lerch

Project number	:	519.58
Date Received by Lab	:	June 23, 24, 27 and 28, and July 1, 1994
Number of Samples	:	Nineteen (19)
Sample Type	:	Water
SDG Number	:	W0105
Data Deliverable	:	Standalone

I. Introduction

On June 23, 24, 27 and 28, and July 1, 1994, a total of nineteen (19) water samples were received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analyses. 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
5416-001	BOC1K3	40651801	Water	06/23/94
5416-002	BOC1K4	40651802	Water	06/23/94
5416-003	BOC1K5	40651803	Water	06/23/94
5416-004	BOC1N0	40651804	Water	06/23/94
5430-001	BOC1N3	40655501	Water	06/24/94
5430-002	BOC1N4	40655502	Water	06/24/94
5449-001	BOC1L6	40658601	Water	06/27/94
5449-002	BOC1L7	40658602	Water	06/27/94
5456-001	BOC1N9	40661301	Water	06/28/94
5456-002	BOC1M8	40661303	Water	06/28/94
5456-003	BOC1M9	40666104	Water	06/28/94
5456-004	BOC1P0	40661302	Water	06/28/94
5485-001	BOC1M2	40701001	Water	07/01/94
5485-002	BOC1M6	40701003	Water	07/01/94

Regional Office
13715 Rider Trail North • Earth City, Missouri 63045-1205 • 314-298-8566 • fax: 314-298-8757

Quanterra Environmental Services

St Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
5485-003	BOC2Y9	40701005	Water	07/01/94
5485-006	BOC1M3	40701002	Water	07/01/94
5485-007	BOC1M7	40701004	Water	07/01/94
5485-008	BOC2Z0	40701006	Water	07/01/94
5485-009	BOC2Y8	40701007	Water	07/01/94

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: Chloride, Fluoride, Nitrate, Nitrite, Phosphate and Sulfate by EPA method 300.0. Nitrate by EPA method 353.1. VOA, Pesticide/PCB's, and Metals by using CLP/90 methodology.

III. Quality Control

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

Quanterra
Environmental Services

V. Comments

Samples 5416-001 through -004, 5430-001, 5449-001, 5456-001, 5456-002 and 5485-001 and -002 for Nitrate, Nitrite and Phosphate by method 300.0, were received after holding times had expired.

The Matrix Spike for sample 5416-001, Nitrate by method 300.0, was outside of the suggested limit of 75-125% due to sample results being greater than 4 times the value of the spike amount.

The laboratory was unable to calculate a Relative Percent Difference (RPD) for sample 5416-001 for Nitrite and Phosphate by method 300.0, due to sample values below the detection limit.

Selenium Matrix Spike recovery was out of the specified control limits (36%).

The Decachlorobiphenyl (DCB) surrogate recoveries for the Pesticide/PCB analysis were out of specified limits in Blank, Matrix Spike and Matrix Spike Duplicate analyses. All Tetrachloro-m-xylene recoveries were within specifications.

I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Wade H. Price
Project Manager
z:\annelars\hanw0105.nar

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priorty [X] Normal

Collector: D. St. John / W. Selzer	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-18	SAF No.: 94-256
Ice Chest No.: GL-1D	Field Logbook No.: EFL 1124	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: WGH-0-0746-5	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks: none noted		

Preservative	HCl<2	COOL 4	pH=5-9	H2SO4<2	HNO3<2	HNO3<2	HNO3<2	HNO3<2	HNO3<2	HCl<2			HCl<2		
Type of Container	Gs	G	aG	P	P	P	P	P	P	G/P			Gs		
No. of Container(s)	3	1	2	1	1	1	1	1	1	1			3		
Volume	40ml	500ml	1L	500ml	2L	2L	2L	2L	1L	1L			40ml		
SAMPLE ANALYSIS 466613	CLP-VOA 03ABC	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 D	PCB/PEST EF	NO2/NO3 G	GROSS ALPHA/BETA 466	TOTAL URANIUM 61402	U-234/235/238	Sr-90	Sr-90	Tc-99			CLP-VOA 04ABC		

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

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0C1M8 03	W	6/23/94	1111	X	X	X	X										
B0C1M9 04	W	6/23/94	1145												X		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
D.St.John WHC	6/23/94 1411	C.J. Simpson WHC	6/23/94 1411
Relinquished By	Date/Time	Received By	Date/Time
C.J. Simpson	6/28/94 1230	[illegible] DTAS	6/28/94 1235
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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

0000053

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

041

9413176.2001

N6E4

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 00-UP-1	Sampling Location: 607-38-70	SAF No.: 94-256
Ice Chest No.: EL-19	Field Logbook No.: EFL-1124	Method of Shipment: EMERY
Shipped To: T	Offsite Property No.: WX14-0-0746-1	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks: None		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCl<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	HNO3<2	HCL<2			HCl<2					
Type of Container	Gs	G	G	P	P	P	G/P			Gs					
No. of Container(s)	3	1	1	1	1	1	1			3					
Volume	40ml	500ml	500ml	2L	2L	1L	1L			40ml					
SAMPLE ANALYSIS 406555	CLP-VOA VOA CL790 Q4 ABC	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 D	NO2/NO3 E	TOTAL URANIUM 406555(01)	Sr-90	Sr-90	Tc-99			CLP-VOA ABC					

Sample No.	Matrix*	Date Sampled	Time Sampled	CLP-VOA	ANIONS-IC	NO2/NO3	TOTAL URANIUM	Sr-90	Sr-90	Tc-99			CLP-VOA					
30C1N3 01	W	6/22/94		X	X	X				X								
30C1N4 02	W	6/22/94											X					

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By		Date/Time
Received By		Date/Time
Relinquished By		Date/Time
Received By		Date/Time
Relinquished By		Date/Time
Received By		Date/Time
Relinquished By		Date/Time
Received By		Date/Time

SPECIAL INSTRUCTIONS: SDG-100105

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

0000032

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9413476.2002

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: B T. WHITTEN	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-35	SAF No.: 94-256
Ice Chest No.: EK-1D	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W94-0-0746-8	Bill of Lading/Air Bill No.: 140713 AJS 6/28/94 N.A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCl<2	COOL 4	H2SO4<2	HNO3<2	HCl<2			HCl<2							
Type of Container	Gs	G	G	P	G/P			Gs							
No. of Container(s)	3	1	1	1	1			3							
Volume	40ml	500ml	500ml	2L	1L			40ml							
SAMPLE ANALYSIS 406613	CLP-VOA 01ABC	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 D	NO2/NO3 E	TOTAL URANIUM 406	Tc-99 6/401			CLP-VOA 02ABC							

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0C1N9 01	W	06/27/94		X	X	X	X	X									
B0C1P0 02	W	06/27/94									X						

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
[illegible]	6/27/94 1106	K. Mapp / K. Tapp WHC	6/27/94 1106
K. Mapp / K. Tapp		[illegible]	
G.J. Simpson WHC	6/28/94 1230	ITAS	6/28/94 1235

SPECIAL INSTRUCTIONS

SDG W0105

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

0000052

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

043

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: K. Trapp / GG Hamilton	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 200W	SAF No.: 94-256
Ice Chest No.: GN5026	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W94-0-0746-15	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks		

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

Sample No.	Matrix*	Date Sampled	Time Sampled	CLP-VOA	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4	NO2/NO3	GROSS ALPHA/ BETA	TOTAL URANIUM	I-129	Tc-99			CLP-VOA					
Preservative				HCl<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	COOL 4	HCl<2			HCl<2					
Type of Container				Gs	G	G	P	P	P	G/P			Gs					
No. of Container(s)				3	1	1	1	1	1	1			3					
Volume				40ml	500ml	500ml	2L	2L	2L	1L			40ml					
SAMPLE ANALYSIS				ABC	D	E	407011	01					ABC					
B0C1M2 01	W	6/29/94	1420	X	X	X	X	X	X	X								
B0C1M3 02	W	↓	↓										1					

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By: GG Hamilton, GG Hamilton (PS 0614 CDW3) — Date/Time	Received By: WHC CA Simpson 6/30/94 0503 — Date/Time	SDG W0105
Relinquished By: CA Simpson WHC 7/1/94 1145 — Date/Time	Received By: [signature] 7/1/94 1145 — Date/Time	
Relinquished By: — Date/Time	Received By: — Date/Time	
Relinquished By: — Date/Time	Received By: — Date/Time	

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

0000071

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. Trapp / GG Hamilton	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 200W	SAF No.: 94-256
Ice Chest No.: 6WS02L	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W04-0-074L-19	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks		

Preservative	HCl<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	COOL 4	HCl<2			HCl<2					
Type of Container	Gs	G	G	P	P	P	G/P			Gs					
No. of Container(s)	3	1	1	1	1	1	1			3					
Volume	40ml	500ml	500ml	2L	2L	2L	1L			40ml					
SAMPLE ANALYSIS 407010	CLP-VOA ABC	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 D	NO2/NO3 E	GROSS ALPHA/BETA 40701102	TOTAL URANIUM	I-129	Tc-99			CLP-VOA ABC					

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

Sample No.	Matrix*	Date Sampled	Time Sampled															
B0C1M6 03	W	6/29/94	1420	X	X	X	X	X	X	X								
B0C1M7 04	W	↓	↓										X					

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
GG Hamilton	6/30/94	C.J. Simpson	6/30/94
A Simpson	7/1/94 1145 WHC	[illegible]	7/1/94 1145

SPECIAL INSTRUCTIONS: SDG W0105

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

0000072

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

045

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: K. Trapp/GG Hamilton	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 200 W	SAF No.: 94-256
Ice Chest No.: BETA 4	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.	Bill of Lading/Air Bill No.
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCl<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	COOL 4	HCl<2			HCl<2					
Type of Container	Gs	G	G	P	P	P	G/P			Gs					
No. of Container(s)	3	1	1	1	1	1	1			3					
Volume	40ml	500ml	500ml	2L	2L	2L	1L			40ml					
SAMPLE ANALYSIS 407010	CLP-VOA ABC	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 D	NO2/NO3 E	GROSS ALPHA/BETA 407	TOTAL URANIUM 01103	I-129	Tc-99			CLP-VOA					

Sample No.	Matrix*	Date Sampled	Time Sampled															
BOC2Y9 05	W	6/29/94	1700	X	X	X	X	X	X	X								
BOC2Z0 6	W	↓	↓										X					
BOC2Y8 7		6/29/94	1700	X														

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
GG Hamilton	6/30/94 0800	CJ Simpson	6/30/94 0800
CJ Simpson WHC	7/1/94 1145	[signature] Quantera	7/1/94 1145

SPECIAL INSTRUCTIONS

SDG W0105

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: ____

0000073

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

046

9513176.2006

9613476.2007

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	(D)	E

PROJECT: 200 UP1 Gnd H2O		DATA PACKAGE: W0105-ITC-113	
VALIDATOR: C Jensen	LAB: IT		DATE: 10/21/94
CASE:		SDG:	

ANALYSES PERFORMED

☒ CLP Volatiles	☐ SW-846 8240 (cap column)	☐ SW-846 8260 (packed column)	☐ CLP Semivolatiles	☐ SW-846 8270 (cap column)	☐ SW-846 (packed column)
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX water

BOC1N4	BOC1P0	BOC1M3	BOC1M6	BOC24G
BOC24H	BOC1M2	BOC1M7	BOC1M8	BOC1M9
BOC1N3	BOC1N9	BOC2Z0		

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: The holding time for BOC1M6 was exceeded by 3 days. Results qualified as J, UJ.

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION

Is the GC/MS tuning/performance check acceptable? . . . . . Yes No N/A

Are initial calibrations acceptable? . . . . . Yes No N/A

Are continuing calibrations acceptable? . . . . . Yes No N/A

Comments:

4. BLANKS

Were laboratory blanks analyzed? . . . . . Yes[2] No N/A

Are laboratory blank results acceptable? . . . . . Yes No[1] N/A

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

Are field/trip blank results acceptable? . . . . . Yes No[2] N/A

Comments: [1] See form B7 for blank qualification

[2] BOC249 - EQUIP Blk had chloroform at 26 ug/L

BOC248 - TRIP Blk had chloroform at 3J

and TICs. (qualified due to blank)

5. ACCURACY

Were surrogates/System Monitoring Compounds analyzed? . . . . . Yes No N/A

Are surrogate/System Monitoring Compound recoveries acceptable? Yes No N/A

Were MS/MSD samples analyzed? . . . . . Yes No N/A

Are MS/MSD results acceptable? . . . . . Yes No N/A

Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

6. PRECISION

Are MS/MSD RPD values acceptable? . . . . . Yes No N/A

Are field duplicate RPD values acceptable? See following page . Yes No N/A

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

Comments:

	BZ1M2	BZ1M6	RPD	M3	M7	RPD
Chloroform	4J	3J	28	toluene 1J	ND	200
2-Butanone	9J	ND	200			
Carbon Tet	240	230	3			
TCE	3J	ND	200			
Mec2	ND	30J	200			

7. SYSTEM PERFORMANCE

Were internal standards analyzed? . . . . . Yes No N/A

Are internal standard areas acceptable? . . . . . Yes No N/A

Are internal standard retention times acceptable? . . . . . Yes No N/A

Comments:

8. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? . . . . . Yes No N/A

Is compound quantitation acceptable? . . . . . Yes No N/A

Comments:

9. REPORTED RESULTS AND QUANTITATION LIMITS

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

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

Do results meet the CRQLs? . . . . . Yes No N/A

Has the laboratory properly identified and coded all TIC? . . . Yes No N/A

Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

Comments (attach additional sheets as necessary):

[1] Duplicate pairs: B0C1M2/B0C1M6, B0C1M3/B0C1M7

B0C1M2/B0C1M6: 2-Butanone, TCE only detected in B0C1M6., $MeCl_2$ only detected in B0C1M2.

B0C1M3/B0C1M7: toluene detected only in B0C1M3

No qualification is made based on field QC.

[2] Field split not in this package. Evaluation will be provided in the final summary report.

HOLDING TIME SUMMARY

SDG:	VALIDATOR: C. Jensen	DATE: 10/21/94	PAGE 1 OF 1
COMMENTS: VOA W0105-ITC-1130			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B0C1M2	VOA	6/29/94		7/8/94		9	none
B0C1M3		6/29/94		7/7/94		10	
B0C1M6		6/25/94		7/12/94		17	J/UJ
B0C1M7		6/25/94		7/6/94		7	none
B0C1M8		6/23/94		7/6/94		13	
B0C1M9		6/23/94		7/6/94		13	
B0C1N3		6/23/94		7/5/94		13	
B0C1N4		6/22/94		7/5/94		13	
B0C1N9		6/27/94		7/5/94		8	
B0C1P0		6/27/94		7/6/94		9	
B0C248		6/29/94		7/7/94		8	
B0C249		6/29/94		7/6/94		7	
B0C250		6/29/94		7/6/94		7	

9613476.2013

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: QCBLK40505

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8836

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 07/05/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	J
67-64-1	Acetone	20	
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK02

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: QCBLK40595

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8860

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 07/06/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	4	J
67-64-1	Acetone	30	
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

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FORM I VOA 3/90

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK03

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: QCBLK40665

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8880

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 07/07/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	32	
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK04

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: QCBLK40664

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E9631

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 07/07/94

GC Column: DB-624 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 0	UNKNOWN	19.33	16	J
2. 0	UNKNOWN	22.11	25	J
3. 0	UNKNOWN	24.84	11	J

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK05

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: QCBLK40700

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F8897

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 07/08/94

GC Column: DB-624 ID: 0.250 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	9	J
67-64-1	Acetone	24	
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK06

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: V43001 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: QCBLK40879

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E9676

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 07/12/94

GC Column: DB-624 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	27	
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

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FORM I VOA 3/90

MA ~~MA~~ 6/10/21/94
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9613476.2019

RECORD COPY

MEMORANDUM

OCT 1994 RECEIVED Validation Log In

TO: 200-UP-1 Project QA Record

October 26, 1994

FR: Christina Jensen, Golder Associates Inc.

RE: PESTICIDE/PCB DATA VALIDATION SUMMARY FOR DATA PACKAGE W0105-ITC-113 (943-1610.018 113PEST.UP1)

INTRODUCTION

This memo presents the results of data validation on data package W0105-QES-113 prepared by Quanterra Environmental Services. A list of samples validated along with the analyses reported and the methods of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSES
B0C1M8*	06/23/94	GROUNDWATER	SEE NOTE 1

Notes: 1. Indicates the samples were analyzed for pesticide/PCBs.
* indicates the sample(s) validated 100%

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. 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.

Completeness. The data package was complete for all requested analyses. A total of one sample was validated in this data package with a total of 28 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets normal work plan completeness objectives of 90 percent.

MAJOR DEFICIENCIES

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

MINOR DEFICIENCIES

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

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 or Work, Revision 1.0; September 7, 1994, Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. 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 quantitation 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 data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.

NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.

UJN - Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected (U) due to associated blank contamination.

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

9613476.2023

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY

SDG:	VALIDATOR: C Nurson	DATE: 10/23/94	PAGE 1 OF 1
COMMENTS:	W0105-ITC-113		
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
no qualification			

ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0105-ITC-113

	Samp#	B0C1M8	
	Date	6-23-94	
	Location	2-W19-18	
	Depth	---	
	Type	WATER	
	Comments		
Parameter	Units	Result	Q
ALPHA-BHC	UG/L	0.050	U
BETA-BHC	UG/L	0.050	U
DELTA-BHC	UG/L	0.050	U
GAMMA-BHC	UG/L	0.050	U
HEPTACHLOR	UG/L	0.050	U
ALDRIN	UG/L	0.050	U
HEPTACHLOR EPOXIDE	UG/L	0.050	U
ENDOSULFAN I	UG/L	0.050	U
DIELDRIN	UG/L	0.100	U
4,4'-DDE	UG/L	0.100	U
ENDRIN	UG/L	0.100	U
ENDOSULFAN II	UG/L	0.100	U
4,4'-DDD	UG/L	0.100	U
ENDOSULFAN SULFATE	UG/L	0.100	U
4,4'-DDT	UG/L	0.100	U
METHOXYCHLOR	UG/L	0.500	U
ENDRIN KETONE	UG/L	0.100	U
ENDRIN ALDEHYDE	UG/L	0.100	U
ALPHA-CHLORDANE	UG/L	0.050	U
GAMMA-CHLORDANE	UG/L	0.050	U
TOXAPHENE	UG/L	5.000	U
AROCLOR-1016	UG/L	1.000	U
AROCLOR-1221	UG/L	2.000	U
AROCLOR-1232	UG/L	1.000	U
AROCLOR-1242	UG/L	1.000	U
AROCLOR-1248	UG/L	1.000	U
AROCLOR-1254	UG/L	1.000	U
AROCLOR-1260	UG/L	1.000	U

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

Reviewed
Verified
11/19/94

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9613476.2027

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOC1M8

Lab Name: ITAS-ST.LOUIS Contract: 519-58

Lab Code: ITSL Case No.: P45602 SAS No.: SDG No.: W0105

Matrix: (soil/water) WATER Lab Sample ID: 5456-002

Sample wt/vol: 1000 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 06/28/94

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 06/30/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 07/13/94

Injection Volume: 2.50 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

00000516

10/25/94

ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

Quanterra
Environmental Services

CERTIFICATE OF ANALYSIS

Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

August 2, 1994

Attention: J. A. Lerch

Project number	:	519.58
Date Received by Lab	:	June 23, 24, 27 and 28, and July 1, 1994
Number of Samples	:	Nineteen (19)
Sample Type	:	Water
SDG Number	:	W0105
Data Deliverable	:	Standalone

I. Introduction

On June 23, 24, 27 and 28, and July 1, 1994, a total of nineteen (19) water samples were received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analyses. 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
5416-001	BOC1K3	40651801	Water	06/23/94
5416-002	BOC1K4	40651802	Water	06/23/94
5416-003	BOC1K5	40651803	Water	06/23/94
5416-004	BOC1N0	40651804	Water	06/23/94
5430-001	BOC1N3	40655501	Water	06/24/94
5430-002	BOC1N4	40655502	Water	06/24/94
5449-001	BOC1L6	40658601	Water	06/27/94
5449-002	BOC1L7	40658602	Water	06/27/94
5456-001	BOC1N9	40661301	Water	06/28/94
5456-002	BOC1M8	40661303	Water	06/28/94
5456-003	BOC1M9	40666104	Water	06/28/94
5456-004	BOC1P0	40661302	Water	06/28/94
5485-001	BOC1M2	40701001	Water	07/01/94
5485-002	BOC1M6	40701003	Water	07/01/94

Quanterra Environmental Services

St Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
5485-003	BOC2Y9	40701005	Water	07/01/94
5485-006	BOC1M3	40701002	Water	07/01/94
5485-007	BOC1M7	40701004	Water	07/01/94
5485-008	BOC2Z0	40701006	Water	07/01/94
5485-009	BOC2Y8	40701007	Water	07/01/94

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: Chloride, Fluoride, Nitrate, Nitrite, Phosphate and Sulfate by EPA method 300.0. Nitrate by EPA method 353.1. VOA, Pesticide/PCB's, and Metals by using CLP/90 methodology.

III. Quality Control

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

Quanterra Environmental Services

V. Comments

Samples 5416-001 through -004, 5430-001, 5449-001, 5456-001, 5456-002 and 5485-001 and -002 for Nitrate, Nitrite and Phosphate by method 300.0, were received after holding times had expired.

The Matrix Spike for sample 5416-001, Nitrate by method 300.0, was outside of the suggested limit of 75-125% due to sample results being greater than 4 times the value of the spike amount.

The laboratory was unable to calculate a Relative Percent Difference (RPD) for sample 5416-001 for Nitrite and Phosphate by method 300.0, due to sample values below the detection limit.

Selenium Matrix Spike recovery was out of the specified control limits (36%).

The Decachlorobiphenyl (DCB) surrogate recoveries for the Pesticide/PCB analysis were out of specified limits in Blank, Matrix Spike and Matrix Spike Duplicate analyses. All Tetrachloro-m-xylene recoveries were within specifications.

I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Wade H. Price
Project Manager
z:\annelars\hanw0105.nar

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: D. St. John / W. Seltzer	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-18	SAF No.: 94-256
Ice Chest No.: GL-1D	Field Logbook No.: EFL 6124	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: WG4-0-0746-8	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks: none noted		

Preservative	HCl<2	COOL 4	pH=5-9	H2SO4<2	HNO3<2	HNO3<2	HNO3<2	HNO3<2	HNO3<2	HCl<2			HCl<2		
Type of Container	Gs	G	aG	P	P	P	P	P	P	G/P			Gs		
No. of Container(s)	3	1	2	1	1	1	1	1	1	1			3		
Volume	40ml	500ml	1L	500ml	2L	2L	2L	2L	1L	1L			40ml		
SAMPLE ANALYSIS	CLP-VOA	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4	PCB/PEST	NO2/NO3	GROSS ALPHA/BETA	TOTAL URANIUM	U-234/235/238	Sr-90	Sr-90	Tc-99			CLP-VOA		
406613	03ABC	D	EF	G	406	61402							04ABC		

Sample No.	Matrix*	Date Sampled	Time Sampled															
B0C1M8 03	W	6/23/94	1114	X	X	X	X											
B0C1M9 04	W	6/23/94	1145													X		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
D.S. St. John WHC	6/23/94 1410	C.J. Simpson WHC	6/23/94 1410
Relinquished By	Date/Time	Received By	Date/Time
C.J. Simpson	6/28/94 1230	[illegible] DTAS	6/28/94 1235
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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

0000053

DISTRIBUTION: Original- Sample Yellow - Sampler

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ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

PESTICIDE/PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 200UP1 Pud 2 GHzo		DATA PACKAGE: W0105-ITC-113
VALIDATOR: C Jones	LAB: ~~CO~~ 5/10/23/94 ITC	DATE: 10/23/94
CASE:		SDG:

ANALYSES PERFORMED					
☑ CLP3/90	☐ SW-846 8080	☐ SW-846 8081	☐	☐	☐

SAMPLES/MATRIX Water / 3021 ml 8

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:

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE (METHOD 8080 AND 8081)

Are DDT retention times acceptable . . . . . Yes No (N/A)

Are calibration standard retention times acceptable? . . . . . Yes No (N/A)

Are DDT and endrin breakdowns acceptable? . . . . . Yes No (N/A)

PESTICIDE/PCB DATA VALIDATION CHECKLIST

Are DBC retention times acceptable? . . . . . Yes No N/A

Is the GC/MS tuning/performance check acceptable? . . . . . Yes No N/A

Comments:

3.2 CALIBRATIONS (METHOD 8080 AND 8081)

Are EVAL standard calibration factors and %RSD values acceptable? . . . . . Yes No N/A

Are quantitation column calibration factor %RSD values acceptable? . . . . . Yes No N/A

Were the analytical sequence requirements met? . . . . . Yes No N/A

Are continuing calibration %D values acceptable? . . . . . Yes No N/A

Comments:

3.3 INSTRUMENT PERFORMANCE AND INITIAL CALIBRATION (3/90 SOW)

Was the initial calibration sequence performed? . . . . . Yes No N/A

Was the resolution acceptable in the resolution check mix? . . Yes No N/A

Is resolution acceptable in the PEM, INDA and INDB? . . . . . Yes No N/A

Are DDT and Endrin breakdowns acceptable? . . . . . Yes No N/A

Are retention times in PEMs and calibration mixes acceptable? . Yes No N/A

Are RPD values in the PEMs acceptable? . . . . . Yes No N/A

Are %RSD values acceptable? . . . . . Yes No N/A

Comments:

3.4 CALIBRATION VERIFICATION (3/90 SOW)

Were the analytical sequence requirements met? . . . . . Yes No N/A

Is resolution acceptable in the PEMs? . . . . . Yes No N/A

Are initial calibrations acceptable? . . . . . Yes No N/A

PESTICIDE/PCB DATA VALIDATION CHECKLIST

Are retention times acceptable in the PEMs, INDA and INDB mixes? . . . . . Yes No N/A

Are RPD values in the PEMs acceptable? . . . . . Yes No N/A

Are the DDT and endrin breakdowns acceptable? . . . . . Yes No N/A

Was GPC cleanup performed? . . . . . Yes No N/A

Is the GPC calibration check acceptable? . . . . . Yes No N/A

Was Florisil cleanup performed? . . . . . Yes No N/A

Is the Florisil performance check acceptable? . . . . . Yes No N/A

Comments:

4. BLANKS

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

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

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

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

Comments:

5. ACCURACY

Were surrogates analyzed? . . . . . Yes No N/A

Are surrogate recoveries acceptable? . . . . . Yes No[1] N/A

Were MS/MSD samples analyzed? . . . . . Yes No N/A

Are MS/MSD results acceptable? . . . . . Yes No N/A

Were LCS samples analyzed? . . . . . Yes No[2] N/A

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

Comments: [1] DCB recovery for the QC (BLK, MS, MSD) were just below limit. The sample, BOCIM8 was within limits. No sample qualification is required.

[2] LCS not required for CLP90 analysis.

Reviewed 12/20/94

PESTICIDE/PCB DATA VALIDATION CHECKLIST

6. PRECISION

Are MS/MSD RPD values acceptable? . . . . . Yes No N/A

Are laboratory duplicate results 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:

7. SYSTEM PERFORMANCE

Is chromatographic performance acceptable? . . . . . Yes No N/A

Are positive results resolved acceptably? . . . . . Yes No N/A

Comments: All results are nondetects.

8. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? . . . . . Yes No N/A

Is compound quantitation acceptable? . . . . . Yes No N/A

Comments: nondetects in sample.

9. REPORTED RESULTS AND QUANTITATION LIMITS

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

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

Do results meet the CRQLs? . . . . . Yes No N/A

Comments:

HOLDING TIME SUMMARY

SDG:	VALIDATOR: C Johnson	DATE: 10/23/94	PAGE 1 OF 1
COMMENTS: W0105-ITC-113			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B0C1W8	Pest/PCB	6/23/94	6/30/94	7/13/94	7	13	none

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RECORD COPY

MEMORANDUM

TO: 200-UP-1 Project QA Record

October 28, 1994

FR: Thomas Stapp, Golder Associates Inc.

RE: RADIOCHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE W0105-ITC-113 (943-1610.018 113RAD.UP1)

INTRODUCTION

This memo presents the results of data validation on data package W0105-ITC-113 prepared by IT Analytical Services. A list of the samples validated along with the analyses reported and the methods of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSES
B0C1K7	06/20/94	WATER	SEE NOTE 1
B0C1N9	06/27/94	WATER	SEE NOTE 2
B0C1K3	06/21/94	WATER	SEE NOTE 2
B0C1K4	06/20/94	WATER	SEE NOTE 2
B0C1K5	06/21/94	WATER	SEE NOTE 2
B0C1N0*	06/21/94	WATER	SEE NOTE 2
B0C1N3	06/22/94	WATER	SEE NOTE 3
B0C1L6*	06/24/94	WATER	SEE NOTE 4
B0C1M2	06/29/94	WATER	SEE NOTE 5
B0C1M6	06/29/94	WATER	SEE NOTE 5
B0C2Y9*	06/29/94	WATER	SEE NOTE 5
B0C1M8	06/23/94	WATER	SEE NOTE 6

Notes:
1. Indicates the sample was analyzed for technetium-99 (by liquid scintillation) only.
2. Indicates the samples were analyzed for technetium-99 (by liquid scintillation), and total uranium (laser phosphorimetry).
3. Indicates the sample was analyzed for technetium-99 (by liquid scintillation), strontium-90, and total uranium(laser phosphorimetry).
4. Indicates the sample was analyzed for technetium-99 (by liquid scintillation), total uranium (laser phosphorimetry), and selected gamma emmitting isotopes (by gamma spectroscopy).
5. Indicates the samples were analyzed for technetium-99 (by liquid scintillation), gross alpha/beta, total uranium (laser phosphorimetry), and iodine-129 (gamma spectroscopy).
6. Indicates the sample was analyzed for technetium-99 (by liquid scintillation), gross alpha/beta, strontium-90 (beta counting), total uranium (laser phosphorimetry), isotopic uranium (by alpha spectroscopy), and selected gamma emmitting isotopes (by gamma spectroscopy).
* - Indicates the sample recieved 100 % recalculation.

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. 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 with the exception of the minor deficiencies identified below.

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

Detection Limits. Minimum detectable activities could not be verified by recalculation for gross alpha, gross beta, technetium-99 and total uranium therefore nondetect results have been qualified as estimated (UJ).

Completeness. The data package was complete for all requested analyses. A total of twelve samples were validated in this data package with a total of forty-six (46) 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

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

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data.

Laboratory Blank

- Gross beta and total uranium were detected in the laboratory method blank. Attachments 2 and 5 provide a summary of the samples affected, qualification applied, and supporting documentation.

Laboratory Control Sample

- The laboratory control sample recovery for iodine-129 was unacceptable. Attachments 2 and 5 provide a summary of the samples affected, qualification applied, and supporting documentation.

FIELD QC

- Sample B0C2Y9 is identified as an equipment blank and total uranium was detected in the sample. No qualification was applied in accordance with data validation procedures.

- Sample B0C1M6 is identified as the field duplicate of sample B0C1M2. All relative percent differences were acceptable.

Reviewed 11/1/94

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.

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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.

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ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

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

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: W0105-ITC-113	REVIEWER: T. STAPP	DATE: 10-28-94	PAGE 1 OF 1
COMMENTS: RADIOCHEMISTRY			
COMPOUND/ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
GROSS BETA	J	B0C1M2, B0C1M6	DETECTED IN BLANK
TOTAL URANIUM	J	B0C2Y9	DETECTED IN BLANK
IODINE-129	J/UJ	BOC1M2, B0C1M6, B0C2Y9	LABORATORY CONTROL SAMPLE RECOVERY <70% BUT >30%
GROSS ALPHA	UJ	B0C1M2, B0C1M6, B0C2Y9	RECALCULATED MDA'S DO NOT MATCH REPORTED MDA'S
GROSS BETA	UJ	B0C2Y9	RECALCULATED MDA'S DO NOT MATCH REPORTED MDA'S
TECHNETIUM-99	UJ	B0C2Y9, B0C1M6	RECALCULATED MDA'S DO NOT MATCH REPORTED MDA'S

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ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0105-ITC-113

	Samp#	B0C1K3		B0C1K4		B0C1K5		B0C1K7		B0C1L6		B0C1M2	
	Date	6-21-94		6-20-94		6-21-94		6-20-94		6-24-94		6-29-94	
	Location	2-W19-9		2-W19-11		2-W19-16		2-W19-23		2-W19-12		2-W19-4	
	Depth	---		---		---		---		---		---	
	Type	WATER		WATER		WATER		WATER		WATER		WATER	
	Comments												
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
URANIUM-234	pCi/L	NR		NR		NR		NR		NR		NR	
URANIUM-235	pCi/L	NR		NR		NR		NR		NR		NR	
URANIUM-238	pCi/L	NR		NR		NR		NR		NR		NR	
COBALT-58	pCi/L	NR		NR		NR		NR		9.310	U	NR	
COBALT-60	pCi/L	NR		NR		NR		NR		9.020	U	NR	
CESIUM-137	pCi/L	NR		NR		NR		NR		7.350	U	NR	
EUROPIUM-152	pCi/L	NR		NR		NR		NR		15.000	U	NR	
EUROPIUM-154	pCi/L	NR		NR		NR		NR		21.100	U	NR	
EUROPIUM-155	pCi/L	NR		NR		NR		NR		12.400	U	NR	
IRON-59	pCi/L	NR		NR		NR		NR		24.100	U	NR	
IODINE-129	pCi/L	NR		NR		NR		NR		NR		1.890	UJ
GROSS ALPHA	pCi/L	NR		NR		NR		NR		NR		1.530	UJ
GROSS BETA	pCi/L	NR		NR		NR		NR		NR		5.830	J
STRONTIUM	pCi/L	NR		NR		NR		NR		NR		NR	
TECHNETIUM-99	pCi/L	258.000		501.000		341.000		12100.000		136.000		4.850	
TOTAL URANIUM	UG/L	68.700		339.000		162.000		NR		6.090		1.050	

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

Reviewed
Verified
1/14/94

9613476.2047

Validated Data Summary, Data Package: W0105-ITC-113

	Samp#	B0C1M6		B0C1M8		B0C1N0		B0C1N3		B0C1N9		B0C2Y9	
	Date	6-29-94		6-23-94		6-21-94		6-22-94		6-27-94		6-29-94	
	Location	2-W19-4		2-W19-18		2-W19-13		6-38-70		2-W19-35		2-W19-4	
	Depth	---		---		---		---		---		---	
	Type	WATER		WATER		WATER		WATER		WATER		WATER	
	Comments	DUPLICATE										EQUIP BLANK	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
URANIUM-234	pCi/L	NR		233.000		NR		NR		NR		NR	
URANIUM-235	pCi/L	NR		11.000		NR		NR		NR		NR	
URANIUM-238	pCi/L	NR		235.000		NR		NR		NR		NR	
COBALT-58	pCi/L	NR		NR		NR		NR		NR		NR	
COBALT-60	pCi/L	NR		NR		NR		NR		NR		NR	
CESIUM-137	pCi/L	NR		NR		NR		NR		NR		NR	
EUROPIUM-152	pCi/L	NR		NR		NR		NR		NR		NR	
EUROPIUM-154	pCi/L	NR		NR		NR		NR		NR		NR	
EUROPIUM-155	pCi/L	NR		NR		NR		NR		NR		NR	
IRON-59	pCi/L	NR		NR		NR		NR		NR		NR	
IODINE-129	pCi/L	1.590	UJ	NR		NR		NR		NR		1.710	UJ
GROSS ALPHA	pCi/L	1.820	UJ	422.000		NR		NR		NR		0.930	UJ
GROSS BETA	pCi/L	5.130	J	206.000		NR		NR		NR		2.620	UJ
STRONTIUM	pCi/L	NR		0.880	U	NR		0.815	U	NR		NR	
TECHNETIUM-99	pCi/L	2.100	UJ	39.400		239.000		3090.000		607.000		2.100	UJ
TOTAL URANIUM	UG/L	1.030		650.000		4.750		102.000		62.600		0.007	J

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

Reviewed
Verified
11/14/94

010

9515476.2040

9613476.2049

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

Well # 2-W19-9

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40651901	MATRIX:	WATER
CLIENT ID:	B0C1K3	DATE RECEIVED:	6/23/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TC-99	2.58E+02	3.03E+00	3.10E+01	2.12E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	6.87E+01	N/A	1.03E+01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 2

Verified 10-28-94

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IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

Well # 2-W19-11

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40651902	MATRIX:	WATER
CLIENT ID:	B0C1K4	DATE RECEIVED:	6/23/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TC-99	5.01E+02	4.14E+00	5.74E+01	2.12E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	3.39E+02	N/A	5.09E+01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 2

Verified 10-28-94

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IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

Well # 2-W19-16

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40651903	MATRIX:	WATER
CLIENT ID:	B0C1K5	DATE RECEIVED:	6/23/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TC-99	3.41E+02	3.48E+00	4.00E+01	2.12E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	1.62E+02	N/A	2.43E+01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 2

Verified 10-28-94

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IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

Well # 2-W19-13

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40651904	MATRIX:	WATER
CLIENT ID:	B0C1N0	DATE RECEIVED:	6/23/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TC-99	2.39E+02	2.97E+00	2.89E+01	2.12E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	4.75E+00	N/A	7.13E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 2

Verified 10-28-94

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IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

Well # 2-W19-23

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40651905	MATRIX:	WATER
CLIENT ID:	B0C1K7	DATE RECEIVED:	6/23/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TC-99	1.21E+04	2.70E+01	1.32E+03	2.12E+00	pCi/L	95.10%	ITAS-IT-RS-0001

Number of Results: 1

Verified 10-28-94

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IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

Well # 6-38-70

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40655601	MATRIX:	WATER
CLIENT ID:	B0C1N3	DATE RECEIVED:	6/24/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT Q	UNIT	YIELD	METHOD NUMBER
STRONTIUM	~~4.07E-01~~	~~3.36E-01~~	~~3.50E-01~~	8.15E-01	U	pCi/L	82.10%	RD3204
TC-99	3.09E+03	1.01E+01	3.40E+02	2.12E+00		pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	1.02E+02	N/A	1.53E+01	3.54E-03		ug/L	100.00%	RD4200

Number of Results: 3

Verified 10-28-94

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IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

Well # 2-W19-12

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40658701	MATRIX:	WATER
CLIENT ID:	B0C1L6	DATE RECEIVED:	6/27/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
CO-58	~~4.19E+00~~	~~5.74E+00~~	~~5.75E+00~~	9.31E+00 U	pCi/L	N/A	RD3219
CO-60	~~5.55E-01~~	~~4.30E+00~~	~~4.30E+00~~	9.02E+00 U	pCi/L	N/A	RD3219
CS-137DA	~~2.59E+00~~	~~3.41E+00~~	~~3.42E+00~~	7.35E+00 U	pCi/L	N/A	RD3219
EU-152	~~1.82E+00~~	~~7.97E+00~~	~~7.98E+00~~	1.50E+01 U	pCi/L	N/A	RD3219
EU-154	~~6.73E+00~~	~~1.22E+01~~	~~1.22E+01~~	2.11E+01 U	pCi/L	N/A	RD3219
EU-155	~~2.09E+00~~	~~7.17E+00~~	~~7.17E+00~~	1.24E+01 U	pCi/L	N/A	RD3219
FE-59	~~2.36E+01~~	~~1.76E+01~~	~~1.78E+01~~	2.41E+01 U	pCi/L	N/A	RD3219
TC-99	1.36E+02	2.29E+00	1.78E+01	2.12E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	6.09E+00	N/A	9.13E-01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 9

Verified [illegible] 10-28-94

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IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

Well # 2-W19-35

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40661401	MATRIX:	WATER
CLIENT ID:	B0C1N9	DATE RECEIVED:	6/28/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TC-99	6.07E+02	4.59E+00	6.89E+01	2.12E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	6.26E+01	N/A	9.38E+00	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 2

Verified 10-28-94

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9613476.2057

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

Well # 2-W19-18

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40661402	MATRIX:	WATER
CLIENT ID:	B0C1M8	DATE RECEIVED:	6/28/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
U-234	2.33E+02	7.80E+00	3.31E+01	4.04E-01	pCi/L	63.80%	RD3234
U-235	1.10E+01	1.70E+00	2.28E+00	3.69E-01	pCi/L	63.80%	RD3234
U-238DA	2.35E+02	7.83E+00	3.34E+01	4.48E-01	pCi/L	63.80%	RD3234
ALPHA	4.22E+02	1.81E+01	5.45E+01	1.63E+00	pCi/L	100.00%	RD3214
BETA	2.06E+02	7.08E+00	1.62E+01	2.85E+00	pCi/L	100.00%	RD3214
STRONTIUM	~~0.00E+00~~	~~3.07E-01~~	~~3.07E-01~~	8.80E-01 U	pCi/L	83.20%	RD3204
TC-99	3.94E+01	1.45E+00	7.62E+00	2.12E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	6.50E+02	N/A	9.75E+01	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 8

Verified 10-28-94

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IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

Well # 2-W19-4

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40701101	MATRIX:	WATER
CLIENT ID:	B0C1M2	DATE RECEIVED:	7/1/94

ISOTOPE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	Q	REPORT UNIT	YIELD	METHOD NUMBER
I-129	~~-3.69E-01~~	~~J~~	~~1.17E+00~~	~~1.25E+00~~	1.89E+00	UJ	pCi/L	N/A	RD3219
ALPHA	~~1.46E+00~~		~~1.19E+00~~	~~1.20E+00~~	1.53E+00	UJ	pCi/L	100.00%	RD3214
BETA	5.83E+00	J	1.81E+00	1.86E+00	2.79E+00		pCi/L	100.00%	RD3214
TC-99	4.85E+00		1.03E+00	4.35E+00	2.10E+00		pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	1.05E+00	J	N/A	1.58E-01	3.54E-03		ug/L	100.00%	RD4200

10-28-94

Number of Results: 5

Verified 10-28-94

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IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS FIELD DUPLICATE

Well # 2-W19-4

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40701102	MATRIX:	WATER
CLIENT ID:	B0C1M6	DATE RECEIVED:	7/1/94

ISOTOPE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	Q	REPORT UNIT	YIELD	METHOD NUMBER
I-129	~~1.02E+00~~	~~UJ~~	~~1.03E+00~~	~~1.10E+00~~	1.59E+00	UJ	pCi/L	N/A	RD3219
ALPHA	~~9.75E-01~~		~~1.08E+00~~	~~1.09E+00~~	1.82E+00	UJ	pCi/L	100.00%	RD3214
BETA	5.13E+00	J	1.80E+00	1.84E+00	2.88E+00		pCi/L	100.00%	RD3214
TC-99	~~1.96E+00~~		~~9.52E-01~~	~~4.12E+00~~	2.10E+00	UJ	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	1.03E+00		N/A	1.54E-01	3.54E-03		ug/L	100.00%	RD4200

Number of Results: 5

Verified 10-28-94

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IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS EQUIPMENT BLANK

Well # @ 2-W19-4

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	40701103	MATRIX:	WATER
CLIENT ID:	B0C2Y9	DATE RECEIVED:	7/1/94

ISOTOPE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	Q	REPORT UNIT	YIELD	METHOD NUMBER
I-129	~~1.01E+00~~		~~1.09E+00~~	~~1.14E+00~~	1.71E+00	UJ	pCi/L	N/A	RD3219
ALPHA	~~0.00E+00~~		~~3.06E-01~~	~~3.06E-01~~	9.30E-01	UJ	pCi/L	100.00%	RD3214
BETA	~~1.37E+00~~		~~1.41E+00~~	~~1.41E+00~~	2.62E+00	UJ	pCi/L	100.00%	RD3214
TC-99	~~1.90E+00~~		~~9.61E-01~~	~~4.12E+00~~	2.10E+00	UJ	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	7.00E-03	J	N/A	1.05E-03	3.54E-03		ug/L	100.00%	RD4200

Number of Results: 5

Verified 10-28-94

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ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

9613476.2062

INTERNATIONAL TECHNOLOGY CORPORATION

CERTIFICATE OF ANALYSIS

Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

August 10, 1994

Attention: J.A.Lerch

SAF Number	:	94-256
Date SDG Closed	:	July 1, 1994
Number of Samples	:	Twelve (12)
Sample Type	:	Water
SDG Number	:	W0105
Data Deliverable	:	Stand Alone

I. Introduction

On June 23, 24, 27, and 28, and July 1, 1994, a total of twelve 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 WHC specific IDs:

QTESRL ID	WHC ID	Matrix	Date of Receipt
406519-01A	B0C1K3	Water	6/23/94
406519-02A	B0C1K4	Water	6/23/94
406519-03A	B0C1K5	Water	6/23/94
406519-04A	B0C1N0	Water	6/23/94
406519-05A	B0C1K7	Water	6/23/94
406556-01A	B0C1N3	Water	6/24/94
406587-01A	B0C1L6	Water	6/27/94
406614-01A	B0C1N9	Water	6/28/94
406614-02A	B0C1M8	Water	6/28/94

QTESRL ID	WHC ID	Matrix	Date of Receipt
407011-01A	B0C1M2	Water	7/01/94
407011-02A	B0C1M6	Water	7/01/94
407011-03A	B0C2Y9	Water	7/01/94

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
Uranium-234, -235, -238 by method ITAS-RD-3234
Gamma Spectroscopy
Gamma Scan by method ITAS-RD-3219
Iodine-129 by method ITAS-RD-3229
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
Total Uranium
Total Uranium by method ITAS-RD-4200

III. Quality Control

The analytical results for each analysis performed under SDG W0105 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

Uranium-234, -235, -238 by method ITAS-RD-3234
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0C1M8) results are within contractual limits.

Gamma Spectroscopy

Gamma Scan by method ITAS-RD-3219
Cd-109 is detected in the blank and sample B0C1L6. The Cd-109 is detected due to x-rays from the detector cave liner and not the sample itself, therefore, the Cd-109 results are not reported. Pb-212 is detected in the duplicate of sample B0C1L6 at an activity level that is less than two times the error, therefore, the Pb-212 result is not reported. Co-57 is detected in the LCS. The Co-57 is not reported because it is a false positive caused by the Eu-152 in the spike. The LCS, batch blank, sample and sample duplicate (duplicate of sample B0C1L6) results are within contractual limits.

Iodine-129 by method ITAS-RD-3229
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0C1M2) results are within contractual limits.

Gas Proportional Counting

Gross Alpha by method ITAS-RD-3222
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0C2Y9) results are within contractual limits.

Gross Beta by method ITAS-RD-3222
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0C2Y9) results are within contractual limits.

Strontium-90 by method ITAS-RD-3204
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0C1M8) results are within contractual requirements.

Liquid Scintillation Counting

Technetium-99 by method ITAS-IT-RS-0001
The batch was analyzed in two sets. For both sets, the matrix spike, LCS, batch blank, sample and sample duplicate (duplicate of sample B0C1L6 and sample B0C2Y9) results are within contractual requirements.

Total Uranium

Total Uranium by method ITAS-RD-4200
Two matrix spikes were analyzed with this batch. In both cases the samples utilized for matrix spikes (B0C1K3 and B0C1K5) had activities that far exceeded the activity of the spike which was added, therefore, matrix spike recoveries were not determinable. The LCS, batch blank, sample and sample duplicate (duplicate of sample B0C1K5) 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

Suzanne Gaines
Project Manager

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: B.T. WHITTEN	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-23	SAF No.: 94-256
Ice Chest No.: OWS 104	Field Logbook No.: FFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: 11324-0-0554-46	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

SAMPLE ANALYSIS: 40651905

Sample No.	Matrix*	Date Sampled	Time Sampled	Preservative	Type of Container	No. of Container(s)	Volume	Tc-99
				HCl<2	G/P	1	1L	
B0C1K7	W	06/20/94	0934					X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
[signature]	06/20/94 1324	[signature]	6/20/94 1324
[signature] with	6/23/94 1200	[signature] ITAS	6/23/94 1200

SPECIAL INSTRUCTIONS

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 ☒ Normal

Collector: B.T. WHITTEN	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-9	SAF No.: 94-256
Ice Chest No.: GWS104	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W94-0-0554-46	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	COOL 4	H2SO4<2	HNO3 <2	HCL<2													
Type of Container	G	P	P	G/P													
No. of Container(s)	1	1	1	1													
Volume	500ml	500ml	2L	1L													
SAMPLE ANALYSIS	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4	NO2/NO3	TOTAL URANIUM	Tc-99													
406518	01A	B	406518 01														

Sample No.	Matrix*	Date Sampled	Time Sampled															
B0C1K3	W	06/21/94	1024	X	X	X	X											

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Kathy Dhee	06/21/94 1230	K L Thompson	6/21/94 1230
K L Thompson	06/21/94 1248	C A Simpson WHC	6/21/94 1248
C A Simpson WHC	6/23/94 1200	ITAS	6/23/94 1200

SPECIAL INSTRUCTIONS

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)

9613476.2067

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Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-11	SAF No.: 94-256
Ice Chest No.: GWS104	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W94-0-0554-46	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	COOL 4	H2SO4<2	HNO3 <2	HCl<2														
Type of Container	G	P	P	G/P														
No. of Container(s)	1	1	1	1														
Volume	500ml	500ml	2L	1L														
SAMPLE ANALYSIS 406518	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 02A	NO2/NO3 B	TOTAL URANIUM 4065/902	Tc-99														

Sample No.	Matrix*	Date Sampled	Time Sampled															
B0C1K4	W	6/20/94	1104	X	X	X	X											

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[signature]	06/20/94 1324	[signature]	6/20/94 1324
Relinquished By	Date/Time	Received By	Date/Time
[signature]	6/23/94 1200	[signature] ITAS	6/23/94 1200
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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)

9613476.2069

030

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Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priorty [X] Normal

Collector: B.T. WHITTEN	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-16	SAF No.: 94-256
Ice Chest No.: GWS104	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W94-0-0554-46	Bill of Lading/Air Bill No.: None
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	COOL 4	H2SO4<2	HNO3 <2	HCl<2													
Type of Container	G	P	P	G/P													
No. of Container(s)	1	1	1	1													
Volume	500ml	500ml	2L	1L													
SAMPLE ANALYSIS	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4	NO2/NO3	TOTAL URANIUM	Tc-99													
40651803	A	B	4065/903														

Sample No.	Matrix*	Date Sampled	Time Sampled															
B0C1K5	W	06/21/94	0855	X	X	X	X											

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
[signature]	6/21/94 1230	[signature]	6/21/94 1230
[signature]	6/21/94 1245	[signature]	6/21/94 1245
[signature]	6/23/94 1200	[signature] ITAS	6/23/94 1200

SPECIAL INSTRUCTIONS

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: B.T. WHITTEN	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-13	SAF No.: 94-256
Ice Chest No.: GWS104	Field Logbook No.: EFL-11.35	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W94-0-0594-416	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		

Preservative	COOL 4	H2SO4<2	HNO3 <2	HCl<2	
Type of Container	G	P	P	G/P	
No. of Container(s)	1	1	1	1	
Volume	500ml	500ml	2L	1L	
SAMPLE ANALYSIS 406518	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 04A	NO2/NO3 B	TOTAL URANIUM 406518	Tc-99 04	

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

Sample No.	Matrix*	Date Sampled	Time Sampled				
B0C1N0	W	06/21/94	1115	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[illegible]	06/21/94 1230	[illegible]	6/21/94 1230
Relinquished By	Date/Time	Received By	Date/Time
[illegible]	6/21/94 1248	[illegible]	6/21/94 1248
Relinquished By	Date/Time	Received By	Date/Time
[illegible]	6/23/94 1200	[illegible] ITAS	6/23/94 1200
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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: B.T. WHITTEN	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-35	SAF No.: 94-256
Ice Chest No.: GR-11	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W94-0-0746-8	Bill of Lading/Air Bill No.: 440213 AJS checkin N.A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCl<2	COOL 4	H2SO4<2	HNO3<2	HCl<2			HCl<2								
Type of Container	Gs	G	G	P	G/P			Gs								
No. of Container(s)	3	1	1	1	1			3								
Volume	40ml	500ml	500ml	2L	1L			40ml								
SAMPLE ANALYSIS 406613	CLP-VOA 01ABC	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 D	NO2/NO3 E	TOTAL URANIUM 406	Tc-99 6/401			CLP-VOA 02ABC								

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0C1N9 01	W	06/27/94		X	X	X	X	X									
B0C1P0 02	W	06/27/94									X						

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
[illegible]	6/27/94 1106	K.J. Rapp / [illegible] WHC	6/27/94 1106
[illegible]	[illegible]	[illegible]	[illegible]
[illegible] WHC	6/28/94 1230	ITAS	6/28/94 1235

SPECIAL INSTRUCTIONS

SDG W0105

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: D.St.John / W. Seizer	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 699-38-7D	SAF No.: 94-256
Ice Chest No.: EL-19	Field Logbook No.: EEL-1124	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W914-0-0746-1	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks: None		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCl<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	HNO3<2	HCL<2			HCl<2					
Type of Container	Gs	G	~~G~~ P	P	P	P	G/P			Gs					
No. of Container(s)	3	1	1	1	1	1	1			3					
Volume	40ml	500ml	500ml	2L	2L	1L	1L			40ml					
SAMPLE ANALYSIS 4066555	CLP-VOA	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4	NO2/NO3	TOTAL URANIUM 4066552	Sr-90	Sr-90	Tc-99			CLP-VOA					
	ABC	D	E							ABC					

Sample No.	Matrix*	Date Sampled	Time Sampled															
BOC1N3 01	W	6/22/94	1324	X	X	X	X	X	X	X								
BOC1N4 02	W	6/22/94	1324										X					

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Dave Stilson with	6/22/94 1525	Joan E. Rogers	6-22-94 1525
Joan E. Rogers	6/22/94 1530	R Simpson with	6/22 1530
R Simpson	6/24/94 1105	~~[illegible]~~ ITAS	6/24/94 1165

SPECIAL INSTRUCTIONS: SDG W0105

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)

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Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: ☐ Priorty ☒ Normal

Collector: P.St. John / W. Schlosser	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-12	SAF No.: 94-256
Ice Chest No.: EL-26	Field Logbook No.: CFL-1124	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: WHC-U-0746-6	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks: none noted		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HNO3<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	HNO3<2	HCl<2			HNO3<2					
Type of Container	P	G	G	P	P	P	G/P			G/P					
No. of Container(s)	1	1	1	1	1	1	1			1					
Volume	1L	500ml	500ml	2L	2L	1L	1L			1L					
SAMPLE ANALYSIS 406586	CLP-ICP METALS, Hg (UNFILTERED) A	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 B	NO2/NO3 C	TOTAL URANIUM 406587-01	GAMMA SPEC (see#1)	GAMMA SPEC (see#2)	Tc-99			CLP-ICP METALS, Hg (FILTERED)					

Sample No.	Matrix*	Date Sampled	Time Sampled															
B0C1L6 01	W	6/24/94	1150	X	X	X	X	X	X	X								
B0C1L7 2	W	6/24/94	1150										X A					

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[signature]	6/24/94 1540	[signature] WHC	6/24/94 1540
Relinquished By	Date/Time	Received By	Date/Time
[signature] WHC	1115 6/24/94	[signature] ITAS	6/27/94 1115
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

#1=includes:Co-58/60,Cs-137,Eu-152/154/155,Fe-59] #2=includes:Co-58/60,Cs-137,Eu152/154/155,Fe-59

SDG W0105

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: K. Trapp / GG Hamilton	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 200W	SAF No.: 94-256
Ice Chest No.: GWS026	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W94-0-0746-15	Bill of Lading/Air Bill No.: NA

Possible Sample Hazards/Remarks

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

Preservative	HCl<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	COOL 4	HCl<2			HCl<2					
Type of Container	Gs	G	G	P	P	P	G/P			Gs					
No. of Container(s)	3	1	1	1	1	1	1			3					
Volume	40ml	500ml	500ml	2L	2L	2L	1L			40ml					
SAMPLE ANALYSIS 407010	CLP-VOA ABC	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 D	NO2/NO3 E	GROSS ALPHA/BETA 4070101	TOTAL URANIUM	I-129	Tc-99			CLP-VOA ABC					

Sample No.	Matrix*	Date Sampled	Time Sampled															
BOC1M2 01	W	6/29/94	1420	X	X	X	X	X	X	X								
BOC1M3 02	W	↓	↓										X					

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
GG Hamilton GG Hamilton	6/30/94 0803	WHC AG Simpson	6/30/94 0803
AG Simpson WHC	7/1/94 1145	[signature]	7/1/94 1145

SPECIAL INSTRUCTIONS

SDG W0105

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: K. Trapp / GG Hamilton	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 200W	SAF No.: 94-256
Ice Chest No.: GWS026	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W04-0-0746.15	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCl<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	COOL 4	HCl<2			HCl<2					
Type of Container	Gs	G	G	P	P	P	G/P			Gs					
No. of Container(s)	3	1	1	1	1	1	1			3					
Volume	40ml	500ml	500ml	2L	2L	2L	1L			40ml					
SAMPLE ANALYSIS 407010	CLP-VOA ABC	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 D	NO2/NO3 E	GROSS ALPHA/BETA 407011 02	TOTAL URANIUM	I-129	Tc-99			CLP-VOA ABC					

Sample No.	Matrix*	Date Sampled	Time Sampled															
B0C1M6 03	W	6/29/94	1420	X	X	X	X	X	X	X								
B0C1M7 04	W	↓	↓										X					

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
GG Hamilton	6/30/94 0845	WHC AG Simpson	6/30/94 0805
AG Simpson	7/1/94 1145 WHC	[signature]	7/1/94 1145

SPECIAL INSTRUCTIONS

SDG W0105

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: D. St. John / W. Selzer	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-18	SAF No.: 94-256
Ice Chest No.: EL-1D	Field Logbook No.: EFL 1124	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: WG4-0-0746-8	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks: none noted		

Preservative	HCl<2	COOL 4	pH=5-9	H2SO4<2	HNO3<2	HNO3<2	HNO3<2	HNO3<2	HNO3<2	HCl<2			HCl<2		
Type of Container	Gs	G	aG	P	P	P	P	P	P	G/P			Gs		
No. of Container(s)	3	1	2	1	1	1	1	1	1	1			3		
Volume	40ml	500ml	1L	500ml	2L	2L	2L	2L	1L	1L			40ml		
SAMPLE ANALYSIS	CLP-VOA	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4	PCB/PEST	NO2/NO3	GROSS ALPHA/BETA	TOTAL URANIUM	U-234/235/238	Sr-90	Sr-90	Tc-99			CLP-VOA		
466613	03ABC	D	EF	G	4660	61402							04ABC		

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

Sample No.	Matrix*	Date Sampled	Time Sampled
B0C1M8 03	W	6/23/94	1145
B0C1M9 04	W	6/23/94	1145

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
DSJ WHC	6/23/94 1440	A Simpson WHC	6/23/94 1440
Relinquished By	Date/Time	Received By	Date/Time
A Simpson	6/28/94 1230	[illegible] ETAS	6/28/94 1235
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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: K. Trapp/GG Hamilton	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 200 W	SAF No.: 94-256
Ice Chest No.: BETA 4	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.	Bill of Lading/Air Bill No.
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCl<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	COOL 4	HCl<2			HCl<2					
Type of Container	Gs	G	G	P	P	P	G/P			Gs					
No. of Container(s)	3	1	1	1	1	1	1			3					
Volume	40ml	500ml	500ml	2L	2L	2L	1L			40ml					
SAMPLE ANALYSIS 407010	CLP-VOA ABC	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 D	NO2/NO3 E	GROSS ALPHA/BETA 407	TOTAL URANIUM 01103	I-129	Tc-99			CLP-VOA					

Sample No.	Matrix*	Date Sampled	Time Sampled															
BOC2Y9 05	W	6/29/94	1700	X	X	X	X	X	X	X								
BOC2Z0 6	W	↓	↓										X					
BOC2Y8 7		6/29/94	1700	X														

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
[signature] RGG Hamilton	6/30/94 0803	[signature]	6/30/94 0803
[signature] WHC	7/1/94 1145	[signature]	7/1/94 1145

SPECIAL INSTRUCTIONS

SDG W0105

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

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 200-UP-1			DATA PACKAGE: W0105-ITC-113		
VALIDATOR: T. Stapp	LAB:			DATE: 10-25-94	
CASE:			SDG:		

ANALYSES PERFORMED

X Gross Alpha/Beta 5,6	X Strontium-90 3,6	X Technetium-99 1,2,3,4,5,6	X Alpha Spectroscopy 6	X Gamma Spectroscopy 4	
X Total Uranium 2,3,4,5,6	☐ Radium-22	☐ Tritium	X I-129 5		

SAMPLES/MATRIX BOCIK7 / WATER 1

BOCIN9, BOCIK3, BOCIK4, BOCIK5, BOCIN0 / WATER 2

BOCIN3 / WATER 3

BOCIL6 / WATER 4

BOCIM2, BOCIM6 / WATER 5 ; BOC2Y9 / WATER 5

BOCIM8 / WATER 6

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 Isotopic uranium, gross α/β and Sr-90, however continuing calib. is acceptable and no qualif. is required.

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? . . . Note (2) . . . . (Yes) No N/A
Field blank(s) analyzed? . . . NOTE (1) . . . . . (Yes) No N/A
Field blank results acceptable? . . . . . Yes (No) N/A
Analytes detected in field blank(s)? . . NOTE (3) . . . . (Yes) No N/A
Transcription/Calculation Errors? . . . . . Yes (No) N/A

Comments: (1) Sample BOC2Y9 is identified as an equipment blank (2) See blank summary pages for affected analytes. (3) Total Uranium detected in field blank.

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:

6. Laboratory Control Samples . . . . . ☐ N/A

LCS analyzed? . . . . . Yes No N/A
LCS recoveries acceptable? . . . NOTE ① . . . . . Yes No N/A
LCS traceable? . . . . . Yes No N/A
Transcription/Calculation Errors? . . . . . Yes No N/A

Comments: ① See Laboratory control Sample summary page.

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? . . . . . Yes No N/A
Transcription/Calculation Errors? . . . . . Yes No N/A

Comments:

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? . . . . . NOTE ② . . . . . Yes No (N/A)
Field split RPD values acceptable? . . . . . Yes No (N/A)
Performance audit sample(s) analyzed? . . . NOTE ② . . . . Yes No (N/A)
Performance audit sample results acceptable? . . . . . Yes No (N/A)

Comments: ① Sample BOC1M6 is identified as the field duplicate of sample BOC1M2.
② Field QC beyond the field duplicate was not included in this SDG.

10. Holding Times

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

Comments: See holding time summary pages (B-1).

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~~ . . . . . (Yes) No N/A
Transcription/calculation errors? . . . . . Yes (No) N/A

Comments: ~~① MDA's are not specified for gamma spec isotopes Cobalt-58 and Iron-59 for Sample BOC1L6 however no qualification is required.~~
MDAs for gross alpha, gross beta, and TC-99 not verified in recalculation, results qualified estimated (US)

044

9613476.2083

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

LABORATORY CONTROL SAMPLE

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	L070111S	MATRIX:	WATER

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	EXPECTED	RECOVERY
I-129	2.69E+01	3.19E+00	4.28E+00	N/A	pCi/L	N/A	4.06E+01	66.26%

Number of Results: 1

The circled recovery value is below acceptable limits and associated data is qualified (J/UJ).

10-27-94

~~0030~~

045

682A-6-93

9613476.2084

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

BLANK RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	L065191B	MATRIX:	WATER

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TC-99	1.23E+00	9.27E-01	4.12E+00	2.12E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TOTAL-URANIUM	7.60E-02	N/A	1.14E-02	3.54E-03	ug/L	100.00%	RD4200

Number of Results: 2

The circled amount qualifies associated sample results as estimated (J) when results are < 5 times the blank result but above the MDA.

10-27-94

~~0025~~

046

692A-6-93

9613476.2085

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

BLANK RESULTS
SUMMARY

LAB NAME:	ITAS-RICHLAND	SDG:	W0105
LAB SAMPLE ID:	L066142B	MATRIX:	WATER

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
U-234	1.88E-01	2.14E-01	2.16E-01	3.16E-01	pCi/L	78.10%	RD3234
U-235	-4.27E-03	8.53E-03	8.55E-03	2.15E-01	pCi/L	78.10%	RD3234
U-238DA	3.56E-01	2.83E-01	2.86E-01	2.85E-01	pCi/L	78.10%	RD3234
ALPHA	1.64E-02	2.99E-01	2.99E-01	8.87E-01	pCi/L	100.00%	RD3214
BETA	2.68E+00	1.50E+00	1.51E+00	2.59E+00	pCi/L	100.00%	RD3214

Number of Results: 5

The result circled qualifies associated sample results less than 5 times the blank result but above the MDA as estimated (J).

10-27-94

~~0028~~

682A-6-93

HOLDING TIME SUMMARY

SDG: W0105-ITC-113 | VALIDATOR: T. Stapp | DATE: 10/25/94 | PAGE 1 OF 3

COMMENTS:

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B0C1M8	Alpha Spec.	6-23-94	N/A	8-02-94	N/A	≤180	NONE
B0C1L6	Gamma Spec	6-24-94		8-03-94		≤180	NONE
B0C1M2	I-129	6-29-94		7-31-94		≤180	NONE
B0C1M6		6-29-94		8-01-94			
B0C2Y9				8-01-94			
B0C1M8	Gross α	6-23-94		8-02-94		≤180	NONE
B0C1M2		6-29-94					
B0C1M6		6-29-94					
B0C2Y9							
B0C1M8	Gross β	6-23-94		8-03-94		≤180	NONE
B0C1M2		6-29-94					
B0C1M6		6-29-94					
B0C2Y9							

HOLDING TIME SUMMARY

SDG: W0105-ITC-113	VALIDATOR: T. Stapp	DATE: 10/25/94	PAGE 2 OF 3
COMMENTS:			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B0C1M8	Sr-90	6-23-94	N/A	7-13-94	N/A	≤180	NONE
B0C1N3	↓	6-22-94	↓	7-13-94	↓	≤180	NONE
B0C1K7	Tc-99	6-20-94	↓	7-12-94	↓	≤180	NONE
B0C1N9	↓	6-27-94	↓	↓	↓	↓	↓
B0C1K3	↓	6-21-94	↓	↓	↓	↓	↓
B0C1K4	↓	6-20-94	↓	↓	↓	↓	↓
B0C1K5	↓	6-21-94	↓	↓	↓	↓	↓
B0C1N0	↓	6-21-94	↓	↓	↓	↓	↓
B0C1N3	↓	6-22-94	↓	↓	↓	↓	↓
B0C1L6	↓	6-24-94	↓	↓	↓	↓	↓
B0C1M2	↓	6-29-94	↓	7-28-94	↓	↓	↓
B0C1M6	↓	6-29-94	↓	7-28-94	↓	↓	↓
B0C1M8	↓	6-23-94	↓	7-12-94	↓	↓	↓
B0C2Y9	↓	6-29-94	↓	7-28-94	↓	↓	↓

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HOLDING TIME SUMMARY

SDG: W0105-ITC-113 | VALIDATOR: T. Stapp | DATE: 10/25/94 | PAGE 3 OF 3

COMMENTS:

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
BOC1K3	Total U	6-21-94	N/A	8-03-94	N/A	≤180	NONE
BOC1K4		6-20-94					
BOC1K5		6-21-94					
BOC1N0		6-21-94					
BOC1N3		6-22-94					
BOC1L6		6-24-94					
BOC1N9		6-27-94					
BOC1M8		6-23-94					
BOC1M2		6-29-94					
BOC1M6		6-29-94					
BOC2Y9		6-29-94					

W0105-ITC-113

Gross Alpha	
HEIS No.:	B0C2Y9
Lab ID:	40701103
Aliquot:	2.00E-01
Net counts:	0
Bkg counts:	0.04
Spl count time:	50
Bkg count time:	300
d/c:	2.223
Calc.:	0.00E+00
Rptd:	0.00E+00
MDA calc:	7.77E-01
MDA rptd:	9.30E-01

Gross Beta	
HEIS No.:	B0C2Y9
Lab ID:	40701103
Aliquot:	2.00E-01
Net counts:	0.25
Bkg counts:	0.94
Spl count time:	100
Bkg count time:	200
d/c:	2.43
Calc.:	1.37E+00
Rptd:	1.37E+00
MDA calc:	2.29E+00
MDA rptd:	2.62E+00

Verified [illegible] 10-28-94

W0105-ITC-113

Technetium-99			
HEIS No.:	B0C2Y9	B0C1L6	B0C1N0
Sample:	40701103	40658701	40651904
Bkg cpm:	25.4	26.59	26.59
Spl, amt:	5.00E-01	5.00E-01	5.00E-01
Spl cpm:	25.21	159.16	254.04
Count time:	125	125	125
Spl dpm:	28.48	170.29	279.13
d/c:	1.13	1.07	1.099
Yield:	0.951	0.951	0.951
Blk, dpm:	2.78E+01	2.83E+01	2.83E+01
Calc:	1.90E+00	1.36E+02	2.39E+02
Rptd:	1.90E+00	1.36E+02	2.39E+02
MDA, calc:	2.27E+00	2.20E+00	2.26E+00
MDA, rptd:	2.10E+00	2.12E+00	2.12E+00

Total Uranium			
HEIS No.:	B0C2Y9	B0C1L6	B0C1N0
Lab ID:	40701103	40658701	40651904
ng, raw:	7.00E-03	6.09E+00	4.75E+00
g, sample:	1.00E-01	1.00E-01	1.00E-01
Dil. vol:	100	100	100
Yield, corr:	1	1	1
Calc.:	7.00E-03	6.09E+00	4.75E+00
Rptd:	3.54E-03	3.54E-03	3.54E-03

Verified 10-28-94

9613476.2091

RECORD COPY

MEMORANDUM

OCT 1994 RECEIVED Log In

TO: 200-UP-1 Project QA Record

FR: Christina Jensen, Golder Associates Inc. Cy

RE: GENERAL CHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE W0105-QES-113 (943-1610.018 113GEN.UP1)

INTRODUCTION

This memo presents the results of data validation on data package W0105-QES-113 prepared by Quanterra Environmental Services. A list of samples validated along with the analyses reported and the methods of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSES
B0C1K3	06/21/94	GROUNDWATER	SEE NOTE 1
B0C1K4	06/20/94	GROUNDWATER	
B0C1K5	06/21/94	GROUNDWATER	
B0C1N0*	06/21/94	GROUNDWATER	
B0C1N3	06/22/94	GROUNDWATER	
B0C1L6*	06/24/94	GROUNDWATER	
B0C1N9	06/27/94	GROUNDWATER	
B0C1M2	06/29/94	GROUNDWATER	
B0C1M6	06/29/94	GROUNDWATER	
B0C2Y9*	06/29/94	GROUNDWATER	
B0C1M8	06/23/94	GROUNDWATER	

Notes: 1. Indicates the samples were analyzed for anions (chloride, fluoride, sulfate, nitrate, nitrite and phosphate) and nitrate/nitrite.
* indicates sample(s) validated 100%

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. 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 with the exception of ortho-phosphate.

Completeness. The data package was complete for all requested analyses. A total of ten samples were validated in this data package with a total of 44 determinations reported, 22 of which were deemed valid. This results in a completeness of 50 percent which does not meet normal work plan completeness objectives of 90 percent.

MAJOR DEFICIENCIES

Th following major deficiencies were identified during data validation which required qualification of data as unusable.

Holding Times

- The holding times for ortho-phosphate, nitrate as N and nitrite as N were unacceptable. Attachments 2 and 5 provide a summary of samples affected, qualification applied and supporting documentation.

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data.

Holding Times

- The holding time was exceeded for nitrite as N and nitrate as N. Attachments 2 and 5 provide a summary of samples affected, qualification 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 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. Due to a minor quality control deficiency identified during 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 CRDL but greater then the 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 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.

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ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY

SDG:	VALIDATOR: C Jensen	DATE: 10/23/94	PAGE 1 OF 1
COMMENTS: Gen Chem W0105-ITC-113			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
O Phosphate	UR	BOCIK3	Holding time
		BOCIK4	
		BOCIK5, BOCIN0	
		BOCIN3, BOCIN9	
		BOCIL6, BOCIM2	
		BOCIM6, BOC2Y9	
		BOCIM8	
nitrite-N	UR	BOCIK3, BOCIM8	
		BOCIK4	
		BOCIK5	
		BOCIN0, BOCIN3	
		BOCIL6, BOCIM2	
	J	BOCIN9	
nitrite-N	UR	BOCIM6,	
		BOC2Y9	
Nitrate-N	UR	BOC2Y9	
nitrate-N	J	BOCIK3	
		BOCIK4	
		BOCIK5 BOCIN0	
		BOCIN3, BOCIN9	
		BOCIL6, BOCIM2	
		BOCIM6, BOCIM8	

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ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0105-ITC-113

	Samp#	BOC1K3		BOC1K4		BOC1K5		BOC1L6		BOC1M2		BOC1M6	
	Date	6-21-94		6-20-94		6-21-94		6-24-94		6-29-94		6-29-94	
	Location	2-W19-9		2-W19-11		2-W19-16		2-W19-12		2-W19-4		2-W19-4 DUPLICATE	
	Depth	---		---		---		---		---			
	Type	WATER		WATER		WATER		WATER		WATER		WATER	
	Comments												
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
FLUORIDE	MG/L	0.574		0.481		0.444		0.540		0.309		0.311	
CHLORIDE	MG/L	8.600		14.500		13.200		10.200		37.400		37.600	
SULFATE	MG/L	24.200		35.000		32.200		21.500		52.000		52.500	
PHOSPHATE	MG-P/L	1.000	UR	1.000	UR	1.000	UR	1.000	UR	1.000	UR	1.000	UR
NITRATE	MG/L	6.440	J	10.900	J	6.760	J	0.771	J	6.660	J	6.600	J
NITRITE	MG-N/L	0.020	UR	0.020	UR	0.020	UR	0.020	UR	0.020	UR	0.020	UR
NITRATE+NITRITE	UG-N/L	6440.000		5650.000		6390.000		704.000		6350.000		7060.000	

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

Reviewed
Verified
11/14/94

008

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Validated Data Summary, Data Package: W0105-ITC-113

	Samp#	B0C1M8		B0C1N0		B0C1N3		B0C1N9		B0C2Y9	
	Date	6-23-94		6-21-94		6-22-94		6-27-94		6-29-94	
	Location	2-W19-18		2-W19-13		6-38-70		2-W19-35		2-W19-4	
	Depth	---		---		---		---		---	
	Type	WATER		WATER		WATER		WATER		WATER	
	Comments									EQUIP BLANK	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
FLUORIDE	MG/L	0.477		0.415		0.265		0.285		0.100	U
CHLORIDE	MG/L	11.700		8.430		22.900		22.700		0.250	U
SULFATE	MG/L	28.700		23.800		56.700		58.000		1.000	U
PHOSPHATE	MG-P/L	1.000	UR	1.000	UR	1.000	UR	1.000	UR	1.000	U
NITRATE	MG/L	6.500	J	4.440	J	81.800	J	38.500	J	0.020	U
NITRITE	MG-N/L	0.020	UR	0.020	UR	0.020	UR	0.020	UR	0.020	U
NITRATE+NITRITE	UG-N/L	6720.000		4650.000		73200.000		37400.000		50.000	U

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

Revised
Verified
11/14/94

009

96134762.0009

WO105-ITC-113

NITRA...

Pg. 1 of 2

Prep Date: 07-13-94

Analyst: J. Flandreau

Project No.: 519.58, 519.67, 519.69, 550.01

Reviewed by: R. Patterson

Batch No.: 40971

Analysis Date: 07-13-94 7-14-94

Method No.: 353.1

Date: 07-20-94

LAB ID	STANDARD ID	RAW VALUE x	DILUTION +	SAMPLE VOLUME (L or g) =	NITRATE/ NITRITE x	EXTRACT VOLUME (L) +	FRACTION SOLID =	FINAL CONCENTRATION (ug/L) N (ug/g)-N	% RECOVERY	RPD
QCBLK 40971-1		-0.09210						<50		
QCLCS 40971-1	AL2755-94	562.4						562	100	
5416-001	~~BOC1K6~~ K6	322.2	20					6440		
001Dup		299.7	20					5990		7
001MS	AL2756-94	355.7	20					7110	119	
002	BOC1K4	113.0	50					5650		
003	BOC1K5	319.5	20					6390		
004	BOC1N0	232.4	20					4650		
5430-001	BOC1N3	366.1	200					73200		
5449-001	BOC1L6	140.7	5					704		
5456-001	BOC1N9	373.8	100					37400		
002	BOC1M8	335.9	20					6720		
5485-001	BOC1M2	317.3	20					6350		
002	BOC1M4	141.3	50					7060		
003	BOC249	42.46	1					JMF 07-20-94 ~~42.5~~ <50		
004		219.3	200					43900		
004Dup		252.5	200					50500		14
004MS	AL2757-94	259.1	200					JMF 07-20-94 ~~18200~~ 51800	1400	~~1400~~ JMF 07-20-94
005		181.7	100					JMF 07-20-94 ~~10~~ 18200		
5502-001		109.4	1000					109000		

0001183

SL-91-INORG-0039

010

0015976.2100

ITAS ST. LOUIS

ANIONS BY I.C.

ug/g ug/L mg/L (circle one)

Project # 519.58
Analyst J. CARRO
Reviewed by R. Patterson 07-29-94
Reviewed by R. Patterson 07-29-94
Page 1 of 2

Prep Date 07-12-94
Analysis Date 07-12-94
Loop Used 50 ml
Batch # 41138
Method # 300.0

Standard Value	Sample ID	Std ID	Solid Fract.	Dil.	Fl	Cl	SO_4	~~PO_4 Fl Dry Wt~~	~~NO_2-N Cl Dry Wt~~	~~NO_3-N SO_4 Dry Wt~~	% Rec	RPD
	QCLCK41138				<0.1	<0.25	<1.0	<1.0	<0.02	<0.02		
Fl 1 NO_2 .04 Cl 1 NO_3 .04 PO_4 4 SO_4 4	QCLCS41138	AL2890-94			0.915	0.928	3.69	3.79	0.078	0.079	F 92 NO_2 98 Cl 93 NO_3 99 PO_4 95 SO_4 92	
	S416-001	BOCLK3			0.574 J 10/23/94			<1.0 UR	<0.02 UR			
	001 DUP				0.573			<1.0	<0.02			Fl <1 PO_4 ** NO_2 **
F 2 PO_4 2	001 MS	AL2891-94			2.55			2.02			PO_4 101	
	001	BOCLK3		XS		8.60 J 10/23/94	24.2 J 10/23/94					
	001 DUP			XS		8.23	23.3					Cl 4 SO_4 4
SO_4 20 NO_3-N 0.609	001 MS	AL2891-94					41.4		0.624		SO_4 96 NO_2 102	
Cl 20	001 MS	AL2891-94		X10		27.9					Cl 96	
	001	BOCLK3		X50						6.44 J		
	001 DUP			X50						6.16		NO_3 4
NO_3-N 0.452	001 MS	AL2891-94		X50						6.24	NO_3 <1 **	
	S416-002	BOCLK4			0.481			<1.0 UR	<0.02 UR			
	002			XS		14.5	35.0					
	002			X50						10.9 J		
	S416-003	BOCLK5			0.444			<1.0 UR	<0.02 UR			
	003			XS		13.2	32.2					
	003			X50						6.76 J		

* CAN'T CALCULATE RPD DUE TO VALUES BELOW DETECTION LIMITS

** SAMPLE CONC. 4X > SPIKE AMT.

SL-92-INORG-0065

10/13/94

0001017

0113

9613946.2101

ITAS ST. LOUIS

ANIONS BY I.C.

ug/g ug/L mg/L (circle one)

Project # 519.58
Analyst J. CARRO
Reviewed by R. Patterson 07-29-94
Reviewed by R. Patterson 07-29-94
Page 2 of 2

Prep Date 07-12-94
Analysis Date 07-12-94
Loop Used 50 ul
Batch # 41138
Method # 300.0

Standard Value	Sample ID	Std ID	Solid Fract.	Dil.	Fl	Cl	SO_4	~~Fl Dry Wt~~	~~Cl Dry Wt~~	~~SO_4 Dry Wt~~	% Rec	RPD
	5416-004	BOCIN0			0.415			<1.0 ug	<0.02 ug			
	004			X5		8.43	23.8					
	004			X20						4.44 J		
	5430-001	BOCIN3			0.265			<1.0 ug	<0.02 ug			
	001			X5		22.9	56.7					
	001			X500						81.8 J		
	5456-001	BOCIN9			0.285			<1.0 ug	0.022 J			
	001			X10		22.7	58.0					
	001			X200						38.5 J		
	5456002	~~BOCIN8~~	BOCIN8		0.477			<1.0 ug	<0.02 ug			
	002	~~not in Hess~~	OK	X5		11.7	28.7					
	002	~~OK 5/10/13/94~~		X50						6.50 J		
		5/10/25/94										
					~~07-27-94~~							

5/10/13/94

0001018

SL/92-INORG-0055

0123

96135476.2102

ITAS ST. LOUIS

ANIONS BY I.C.

ug/g ug/L mg/L
(circle one)

Project # 519.58
Analyst J. CARRIO
Reviewed by R. Patterson /07-29-94
Reviewed by R. Patterson /07-29-94
Page 1 of 1

Prep Date 07-13-94
Analysis Date 07-13-94
Loop Used 50 µl
Batch # 41139
Method # 300-0

Standard Value	Sample ID	Std ID	Solid Fract.	Dil.	Fl	Cl	SO_4	~~PO_4 Dry Wt~~	~~NO_3-N Cl Dry Wt~~	~~NO_2-N SO_4 Dry Wt~~	% Rec	RPD
	QCBLK41139				<0.1	<0.25	<1.0	<1.0	<0.02	<0.02		
F 1 N2 .09 Cl 1 N3 .08 PO4 4 SO4 4	QCLCS41139	AL2800-94			0.921	0.911	3.68	3.82	0.078	0.080	F .92 N2 .09 Cl 1.11 N3 .08 PO4 3.96 SO4 4.02	✓
	S449-001	BOCILL			0.540			<1.0 UJ		<0.02 UJ		
	↓ 001	↓		X5		10.2	21.5		0.771 J			
	S485-001	BOCIM7			0.309			<1.0 UJ		<0.02 UJ		
	↓ 001	↓		X10		37.4	52.0					
	↓ 001	↓		X50					6.66 J			
	S485-002	BOCIM6			0.311			<1.0 UJ		<0.02 UJ		
	↓ 002	↓		X10		37.6	52.5					
	↓ 002	↓		X50					6.60 J			

0001019

SL92-INORG-0065

sp 10/13/94

013

96134762 2103

ITAS ST. LOUIS

ANIONS BY I.C.

ug/g ug/L mg/L
(circle one)

Project # various
Analyst J. Flandreau
Reviewed by R. Patterson / 07-21-94
Reviewed by R. Patterson / 07-21-94
Page 1 of 1

Prep Date 07-18-94
Analysis Date 07-18-94
Loop Used 50 ul
Batch # 41353
Method # 300.0

Standard Value	Sample ID	Std ID	Solid Fract.	Dil.	Fl	Cl	SO_4	~~Fl Dry Wt~~	~~Cl Dry Wt~~	NO_2-N Dry	SO_4 Dry Wt	% Rec	RPD
JMF 07-20-94	QCBLK41353-1			1	<.1	<.25	<1	<1	<.02	<.02	<.25		
F 1 Br 1 Cl 1 NO_3 .08 NO_2 .08 O-P 04 SO_4 4	QCLCS41353-1	AL2828-94		1	0.935	0.955	3.635	3.666	0.080	.076	.954	F 94 Br 95 Cl 96 NO_3 100 NO_2 95 O-P 92 SO_4 91	
↓	QCLCS 41353-2			1	0.928	0.924	3.645	3.705	0.078	.079	.973	F 93 Br 97 Cl 92 NO_3 98 NO_2 99 O-P 93 SO_4 91	
	5485-003	BOC249		1	<.1	<.25	<1	<1 UR	<.02 UR	<.02 UR	–		
	005			F 1 NO_3 100 Cl 10 O-P 1 NO_2 1 SO_4 10	0.375	20.4	35.8	<1	18.4	<.02	–		
	005DUP	10/23/94		↓	0.376	19.5	35.6	<1	18.1	<.02	–		F <1 NO_3 2 Cl 5 O-P * NO_2 * SO_4 <1
F 2 NO_3 .452 Cl 20 O-P 2 NO_2 .609 SO_4 20	005MS	AL2830-94		F 1 NO_3 100 Cl 10 O-P 1 NO_2 5 SO_4 10	2.324	41.1	51.8	2.007	17.9	.583	–	F 97 NO_3 0 Cl 104 O-P 100 NO_2 96 SO_4 80	
	5502-001			F 1 NO_3 500 Cl 10 O-P 1 NO_2 1 SO_4 10	0.331	16.8	54.9	<1	103	<.02	–		
	5516-001			F 1 NO_3 5 Cl 10 O-P 1 NO_2 1 SO_4 5	0.451	25.5	24.0	<1	0.713	<.02	–		
	002			F 1 NO_3 5 Cl 1 O-P 1 NO_2 1 SO_4 5	0.511	3.97	32.3	<1	0.929	<.02	–		
	5529-001			1	0.167	1.39	10.7	<1	0.209	<.02	–		
	5533-001		RP 07-21-94	F 1 NO_3 1 Cl 5 O-P 1 NO_2 1 SO_4 1	~~0.523~~	8.76	16.7	<1	0.142	<.02	–		
	001DUP			↓	RP 07-21-94 0.513	8.75	16.7	<1	0.139	<.02	–		F 2 NO_3 2 Cl <1 O-P * NO_2 * SO_4 <1
F 2 NO_3 .452 Cl 20 O-P 2 NO_2 .609 SO_4 20	001MS	AL2831-94	RP 07-21-94	F 1 NO_3 5 Cl 10 O-P 1 NO_2 5 SO_4 5	~~2.447~~	29.4	33.2	1.90	0.609	0.592	–	F 96 NO_3 103 Cl 103 O-P 95 NO_2 97 SO_4 82	
	5559-005			1	<.1	<.25	<1	–	–	–	<.25		
	5553-004			F 1 NO_3 Cl 200 O-P NO_2 SO_4 20	0.372	343	131	–	–	–	–		
				JMF 07-21-94									
									J. Flandreau 07-21-94				

* can't calculate – both values less than lower d.l.

10/13/94

0001020

SL-92-INORG-0155

014

96196276.2100

9613476.2105

ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

Quanterra
Environmental Services

CERTIFICATE OF ANALYSIS

Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

August 2, 1994

Attention: J. A. Lerch

Project number	:	519.58
Date Received by Lab	:	June 23, 24, 27 and 28, and July 1, 1994
Number of Samples	:	Nineteen (19)
Sample Type	:	Water
SDG Number	:	W0105
Data Deliverable	:	Standalone

I. Introduction

On June 23, 24, 27 and 28, and July 1, 1994, a total of nineteen (19) water samples were received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analyses. 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
5416-001	BOC1K3	40651801	Water	06/23/94
5416-002	BOC1K4	40651802	Water	06/23/94
5416-003	BOC1K5	40651803	Water	06/23/94
5416-004	BOC1N0	40651804	Water	06/23/94
5430-001	BOC1N3	40655501	Water	06/24/94
5430-002	BOC1N4	40655502	Water	06/24/94
5449-001	BOC1L6	40658601	Water	06/27/94
5449-002	BOC1L7	40658602	Water	06/27/94
5456-001	BOC1N9	40661301	Water	06/28/94
5456-002	BOC1M8	40661303	Water	06/28/94
5456-003	BOC1M9	40666104	Water	06/28/94
5456-004	BOC1P0	40661302	Water	06/28/94
5485-001	BOC1M2	40701001	Water	07/01/94
5485-002	BOC1M6	40701003	Water	07/01/94

Quanterra
Environmental Services

St Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
5485-003	BOC2Y9	40701005	Water	07/01/94
5485-006	BOC1M3	40701002	Water	07/01/94
5485-007	BOC1M7	40701004	Water	07/01/94
5485-008	BOC2Z0	40701006	Water	07/01/94
5485-009	BOC2Y8	40701007	Water	07/01/94

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: Chloride, Fluoride, Nitrate, Nitrite, Phosphate and Sulfate by EPA method 300.0. Nitrate by EPA method 353.1. VOA, Pesticide/PCB's, and Metals by using CLP/90 methodology.

III. Quality Control

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

Quanterra
Environmental Services

V. Comments

Samples 5416-001 through -004, 5430-001, 5449-001, 5456-001, 5456-002 and 5485-001 and -002 for Nitrate, Nitrite and Phosphate by method 300.0, were received after holding times had expired.

The Matrix Spike for sample 5416-001, Nitrate by method 300.0, was outside of the suggested limit of 75-125% due to sample results being greater than 4 times the value of the spike amount.

The laboratory was unable to calculate a Relative Percent Difference (RPD) for sample 5416-001 for Nitrite and Phosphate by method 300.0, due to sample values below the detection limit.

Selenium Matrix Spike recovery was out of the specified control limits (36%).

The Decachlorobiphenyl (DCB) surrogate recoveries for the Pesticide/PCB analysis were out of specified limits in Blank, Matrix Spike and Matrix Spike Duplicate analyses. All Tetrachloro-m-xylene recoveries were within specifications.

I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Wade H. Price
Project Manager
z:\annelars\hanw0105.nar

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: B.T. WHITTEN	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-9	SAF No.: 94-256
Ice Chest No.: GWS104	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W94-0-0534-46	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	COOL 4	H2SO4<2	HNO3 <2	HCl<2
Type of Container	G	P	P	G/P
No. of Container(s)	1	1	1	1
Volume	500ml	500ml	2L	1L
SAMPLE ANALYSIS	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4	NO2/NO3	TOTAL URANIUM	Tc-99
406518	01A	B	406518901	

Sample No.	Matrix*	Date Sampled	Time Sampled				
B0C1K3	W	06/21/94	1074	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
Kirby Oher	06/21/94 1230	K S Thompson	6/21/94 1230
Relinquished By	Date/Time	Received By	Date/Time
K S Thompson	06/21/94 1241	C G Sumner WHC	6/21/94 1248
Relinquished By	Date/Time	Received By	Date/Time
C Sumner WHC	6/23/94 1200	ITAS	6/23/94 1200
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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

0000017

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9408147.2109

019

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-11	SAF No.: 94-256
Ice Chest No.: 6WS104	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W74-0 0554-46	Bill of Lading/Air Bill No.: DONE
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	COOL 4	H2SO4<2	HNO3 <2	HCl<2
Type of Container	G	P	P	G/P
No. of Container(s)	1	1	1	1
Volume	500ml	500ml	2L	1L
SAMPLE ANALYSIS 406518	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 02A	NO2/NO3 B	TOTAL URANIUM 4065/902	Tc-99

Sample No.	Matrix*	Date Sampled	Time Sampled				
B0C1K4	W	6/20/94	1104	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[illegible]	06/20/94 1324	A G Simpson	6/20/94 1324
Relinquished By	Date/Time	Received By	Date/Time
A G Simpson	6/23/94 1200	[illegible] ITAS	6/23/94 1200
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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

.0000019

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

020

06/20/94 2110

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: B.T. WHITTEN	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-16	SAF No.: 94-256
Ice Chest No.: GWS104	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W94-0-0554-46	Bill of Lading/Air Bill No.: NONE

Possible Sample Hazards/Remarks:

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

Preservative	COOL 4	H2SO4<2	HNO3 <2	HCL<2
Type of Container	G	P	P	G/P
No. of Container(s)	1	1	1	1
Volume	500ml	500ml	2L	1L
SAMPLE ANALYSIS	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4	NO2/NO3	TOTAL URANIUM	Tc-99
40651803	A	B	4065/903	

Sample No.	Matrix*	Date Sampled	Time Sampled				
B0C1K5	W	06/21/94	0855	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[signature]	6/21/94 1230	[signature]	6/21/94 1230
Relinquished By	Date/Time	Received By	Date/Time
[signature]	6/21/94 1245	[signature]	6/21/94 1245
Relinquished By	Date/Time	Received By	Date/Time
[signature]	6/23/94 1200	[signature] ITAS	6/23/94 1200
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

Matrix*
- S = Soil
- SE = Sediment
- SO = Solid
- SL = Sludge
- W = Water
- O = Oil
- A = Air
- DS = Drum Sol
- DL = Drum Liq
- T = Tissue
- WI = Wipe
- L = Liquid
- V = Vegetatio
- X = Other

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

0000021

DISTRIBUTION: Original- Sample Yellow - Sampler

9613476.2111

021

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priorty [X] Normal

Collector: B.T. WHITTEN	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-13	SAF No.: 94-256
Ice Chest No.: GWS104	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W94-0-0594-46	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	COOL 4	H2SO4<2	HNO3 <2	HCl<2
Type of Container	G	P	P	G/P
No. of Container(s)	1	1	1	1
Volume	500ml	500ml	2L	1L
SAMPLE ANALYSIS 406518	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 04A	NO2/NO3 B	TOTAL URANIUM 4065/F04	Tc-99

Sample No.	Matrix*	Date Sampled	Time Sampled				
B0C1N0	W	06/21/94	1115	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[signature]	06/21/94 1230	[signature]	6/21/94 1230
Relinquished By	Date/Time	Received By	Date/Time
[signature]	6/21/94 1245	[signature]	6/21/94 1248
Relinquished By	Date/Time	Received By	Date/Time
[signature]	6/23/94 1200	[signature] ITAS	6/23/94 1200
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

Matrix*
- S = Soil
- SE = Sediment
- SO = Solid
- SL = Sludge
- W = Water
- O = Oil
- A = Air
- DS = Drum Solid
- DL = Drum Liquid
- 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

0000023

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613476.2112

022

N6C4

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priorty [X] Normal

Collector	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 00-UP-1	Sampling Location: 699-38-7D	SAF No.: 94-256
Ice Chest No.: EL-19	Field Logbook No.: EFL-1124	Method of Shipment: EMERY
Shipped To: T	Offsite Property No.: WX14-0-0746-1	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks: None		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

SAMPLE ANALYSIS: 406555

Preservative	HCl<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	HNO3<2	HCL<2			HCl<2					
Type of Container	Gs	G	G	P	P	P	G/P			Gs					
No. of Container(s)	3	1	1	1	1	1	1			3					
Volume	40ml	500ml	500ml	2L	2L	1L	1L			40ml					
	CLP-VOA VOA CLP90 Q4 ABC	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 D	NO2/NO3 E	TOTAL URANIUM 406552(01)	Sr-90	Sr-90	Tc-99			CLP-VOA ABC					

Sample No.	Matrix*	Date Sampled	Time Sampled														
00C1N3 01	W	6/22/94		X	X	X											
00C1N4 02	W	6/22/94															

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
[illegible]		[illegible]	6/22/94 1525
[illegible]	6/22/94 1530	[illegible]	6/22/94 1530
[illegible]	6/24/94 1105	[illegible]	6/24/94 1105

SPECIAL INSTRUCTIONS: SDG 100105

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: 0000032	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

23

9613476.2113

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: ☐ Priority ☒ Normal

Collector	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-11	SAF No.: 94-256
Ice Chest No.: GWS104	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W74-0 20554-46	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	COOL 4	H2SO4<2	HNO3 <2	HCL<2														
Type of Container	G	P	P	G/P														
No. of Container(s)	1	1	1	1														
Volume	500ml	500ml	2L	1L														
SAMPLE ANALYSIS	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4	NO2/NO3	TOTAL URANIUM	Tc-99														
406518	02A	B	4065/902															

Sample No.	Matrix*	Date Sampled	Time Sampled															
B0C1K4	W	6/20/94	1104	X	X	X	X											

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[illegible]	06/20/94 1324	AJ Simpson	6/20/94 1324
Relinquished By	Date/Time	Received By	Date/Time
AJ Simpson	6/23/94 1200	[illegible] ITAS	6/23/94 1200
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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

.0000019

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

24

9613476.2111

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: B.T. WHITTEN	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-16	SAF No.: 94-256
Ice Chest No.: GWS104	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W94-0-0554-46	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	COOL 4	H2SO4<2	HNO3 <2	HCL<2
Type of Container	G	P	P	G/P
No. of Container(s)	1	1	1	1
Volume	500ml	500ml	2L	1L
SAMPLE ANALYSIS	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4	NO2/NO3	TOTAL URANIUM	Tc-99
40651803	A	B	4065/903	

Sample No.	Matrix*	Date Sampled	Time Sampled				
B0C1K5	W	06/21/94	0855	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[signature]	6/21/94 1230	[signature]	6/21/94 1230
Relinquished By	Date/Time	Received By	Date/Time
[signature]	6/21/94 1245	[signature]	6/21/94 1245
Relinquished By	Date/Time	Received By	Date/Time
[signature]	6/23/94 1200	[signature] ITAS	6/23/94 1200
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

Matrix*
- S = Soil
- SE = Sediment
- SO = Solid
- SL = Sludge
- W = Water
- O = Oil
- A = Air
- DS = Drum Sol
- DL = Drum Liq
- T = Tissue
- WI = Wipe
- L = Liquid
- V = Vegetatio
- X = Other

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

0000021

DISTRIBUTION: Original- Sample Yellow - Sampler

025

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: D.St. John / W. Seltzer	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-12	SAF No.: 94-256
Ice Chest No.: ER-26	Field Logbook No.: EFC-1124	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: WHC-U-0746-6	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks: none noted		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

SAMPLE ANALYSIS	CLP-ICP METALS, Hg (UNFILTERED)	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4	NO2/NO3	TOTAL URANIUM	GAMMA SPEC (see#1)	GAMMA SPEC (see#2)	Tc-99			CLP-ICP METALS, Hg (FILTERED)					
Preservative	HNO3<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	HNO3<2	HCl<2			HNO3<2					
Type of Container	P	G	G	P	P	P	G/P			G/P					
No. of Container(s)	1	1	1	1	1	1	1			1					
Volume	1L	500mL	500mL	2L	2L	1L	1L			1L					
406586	A	B	C	406587-01											

Sample No.	Matrix*	Date Sampled	Time Sampled															
B0C1L6 01	W	6/24/94	1150	X	X	X	X	X	X	X								
B0C1L7 2	W	6/24/94	1150										X A					

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: W.C. Seltzer	Date/Time: 6-24-94 / 1540	Received By: WHC C. Simpson	Date/Time: 6/24/94 1540
Relinquished By: WHC C. Simpson	Date/Time: 1115 6/27/94	Received By: ITAS	Date/Time: 6/27/94 1115
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

#1=includes:Co-58/60,Cs-137,Eu-152/154/155,Fe-59] #2=includes:Co-58/60,Cs-137,Eu152/154/155,Fe-59

SDG W0105

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

0000041

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

026

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: B. T. WHITTEN	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-35	SAF No.: 94-256
Ice Chest No.: EK-1D	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W94-0-0746-8	Bill of Lading/Air Bill No.: 440213 AJS 6/28/94 N.A

Possible Sample Hazards/Remarks

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

SAMPLE ANALYSIS: 406613

Sample No.	Matrix*	Date Sampled	Time Sampled	CLP-VOA	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4	NO2/NO3	TOTAL URANIUM	Tc-99			CLP-VOA							
Preservative				HCl<2	COOL 4	H2SO4<2	HNO3<2	HCl<2			HCl<2							
Type of Container				Gs	G	G	P	G/P			Gs							
No. of Container(s)				3	1	1	1	1			3							
Volume				40ml	500ml	500ml	2L	1L			40ml							
				01ABC	D	E	406	6/401			02ABC							
B0C1N9 01	W	06/27/94		X	X	X	X	X										
B0C1P0 02	W	06/27/94									X							

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By		
Received By	K. J. Mapp / K. Tapp	6/27/94 1106
Relinquished By	K. J. Mapp / K. Tapp	
Received By		
Relinquished By	G. J. Simpson WHC	6/28/94 1230
Received By	ITAS	6/28/94 1235
Relinquished By		
Received By		

SPECIAL INSTRUCTIONS: SDG W0105

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

.0000052

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-B2R 11/93

2413476.2117

027

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priorty [X] Normal

Collector: K. Trapp / GG Hamilton	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 200W	SAF No.: 94-256
Ice Chest No.: GW5026	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W94-0-0746-15	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks		

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE																
	Preservative	HCl<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	COOL 4	HCl<2			HCl<2					
	Type of Container	Gs	G	G	P	P	P	G/P			Gs					
	No. of Container(s)	3	1	1	1	1	1	1			3					
	Volume	40ml	500ml	500ml	2L	2L	2L	1L			40ml					
SAMPLE ANALYSIS 407010		CLP-VOA ABC	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4 D	NO2/NO3 E	GROSS ALPHA/BETA 4070101	TOTAL URANIUM	I-129	Tc-99			CLP-VOA ABC					

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0C1M2 01	W	6/29/94	1420	X	X	X	X	X	X	X							
B0C1M3 02	W	↓	↓										1				

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By: GG Hamilton, GG Hamilton (GS OLIPKOWS) — Date/Time	Received By: WHC C/J Simpson — Date/Time: 6/30/94 0503	SDG W0105
Relinquished By: C/J Simpson WHC — Date/Time: 7/1/94 1145	Received By: [signature] — Date/Time: 7/1/94 1145	
Relinquished By: — Date/Time:	Received By: — Date/Time:	
Relinquished By: — Date/Time:	Received By: — Date/Time:	

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

0000071

DISTRIBUTION: Original- Sample Yellow - Sampler

9413472118

028

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: K. Trapp / GG Hamilton	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 200W	SAF No.: 94-256
Ice Chest No.: GWS026	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: W04-0-0746-15	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks		

Preservative	HCl<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	COOL 4	HCl<2			HCl<2					
Type of Container	Gs	G	G	P	P	P	G/P			Gs					
No. of Container(s)	3	1	1	1	1	1	1			3					
Volume	40ml	500ml	500ml	2L	2L	2L	1L			40ml					
SAMPLE ANALYSIS	CLP-VOA	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4	NO2/NO3	GROSS ALPHA/ BETA	TOTAL URANIUM	I-129	Tc-99			CLP-VOA					
407010	ABC	D	E	407	01102					ABC					

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

Sample No.	Matrix*	Date Sampled	Time Sampled															
B0C1M6 03	W	6/29/94	1420	X	X	X	X	X	X	X								
B0C1M7 04	W	↓	↓										X					

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
GG Hamilton	6/30/94 0845	WHC A.P. Simpson	6/30/94 0800
Relinquished By	Date/Time	Received By	Date/Time
A Simpson	7/1/94 1145 WHC	[illegible]	7/1/94 1145
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

SDG W0105

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

0000072

DISTRIBUTION: Original- Sample Yellow - Sampler

9413476.2119

029

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: K. Trapp/GG Hamilton	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 200 W	SAF No.: 94-256
Ice Chest No.: BETA 4	Field Logbook No.: EFL-1135	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.	Bill of Lading/Air Bill No.
Possible Sample Hazards/Remarks		

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

SAMPLE ANALYSIS: 407010

Preservative	HCl<2	COOL 4	H2SO4<2	HNO3<2	HNO3<2	COOL 4	HCl<2			HCl<2					
Type of Container	Gs	G	G	P	P	P	G/P			Gs					
No. of Container(s)	3	1	1	1	1	1	1			3					
Volume	40ml	500ml	500ml	2L	2L	2L	1L			40ml					
	CLP-VOA	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4	NO2/NO3	GROSS ALPHA/ BETA	TOTAL URANIUM	I-129	Tc-99			CLP-VOA					
	ABC	D	E	407	01103										

Sample No.	Matrix*	Date Sampled	Time Sampled	CLP-VOA	ANIONS-IC	NO2/NO3	GROSS ALPHA/BETA	TOTAL URANIUM	I-129	Tc-99			CLP-VOA					
BOC2Y9 05	W	6/29/94	1700	X	X	X	X	X	X	X								
BOC2Z0 6	W	↓	↓										X					
BOC2Y8 7		6/29/94	1700	X														

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	GG Hamilton	6/30/94 0800	CJ Simpson	6/30/94 0800
Relinquished By	CJ Simpson WHC	7/1/94 1145	[illegible]	7/1/94 1145
Relinquished By			Received By	
Relinquished By			Received By	

SPECIAL INSTRUCTIONS: SDG W0105

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

0000073

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-628 (12/92)

030

9413176.2121

N 590

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: D. St. John / W. Selzer	Company Contact: PH BUTCHER	Telephone No.: (509)376-4388
Project Designation: 200-UP-1	Sampling Location: 299-W19-18	SAF No.: 94-256
Ice Chest No.: GL-1D	Field Logbook No.: EFL 6124	Method of Shipment: EMERY
Shipped To: IT	Offsite Property No.: WG4-0-0746-S	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks: none noted		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Sample No.	Matrix*	Date Sampled	Time Sampled	CLP-VOA	ANIONS-IC; F, Cl, SO4, NO2, NO3 PO4	PCB/PEST	NO2/NO3	GROSS ALPHA/BETA	TOTAL URANIUM	U-234/235/238	Sr-90	Sr-90	Tc-99			CLP-VOA		
Preservative				HCl<2	COOL 4	pH=5-9	H2SO4<2	HNO3<2	HNO3<2	HNO3<2	HNO3<2	HNO3<2	HCl<2			HCl<2		
Type of Container				Gs	G	aG	P	P	P	P	P	P	G/P			Gs		
No. of Container(s)				3	1	2	1	1	1	1	1	1	1			3		
Volume				40ml	500ml	1L	500ml	2L	2L	2L	2L	1L	1L			40ml		
SAMPLE ANALYSIS				03ABC	D	EF	G	4660	61402							04ABC		
B0C1M8 03	W	6/23/94	1114	X	X	X	X											
B0C1M9 04	W	6/23/94	1115													X		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
D.St John WHC	6/23/94 1416	C.J. Simpson WHC	6/23/94 1416
Relinquished By	Date/Time	Received By	Date/Time
C.J. Simpson	6/28/94 1230	[illegible] DETAS	6/28/94 1235
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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

0000053

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613476.2122

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	(D)	E

PROJECT: 200UP1 Rnd 2 GH20		DATA PACKAGE: W0105-ITC-113
VALIDATOR: C Jensen	LAB: ITC	DATE: 10/23/94
CASE:	SDG:	

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 / B0ZIK3, B0ZIK4, B0ZIK5
B0ZIN0, B0ZIN3, ~~B0ZIK4, B0ZIK5~~, B0ZIL6 10/23/94
B0ZIN9, B0ZIM2, B0ZIM6, B0Z249, B0ZIM8

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: NO_2, NO_3 and PO_4 by ICP holding time of 2 days was greatly exceeded (12 to 20 days past holding time). All samples qualified as J or UR for these analytes as shown in Attachment 2.

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

3. INSTRUMENT CALIBRATION

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 analyzed? . . . . . (Yes) No N/A

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

Were field/trip blanks analyzed? . . . . . (Yes) No N/A

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

Comments: BOC249 is an equipment blank. All results are nondetect.

5. ACCURACY

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

Are spike recoveries acceptable? . . . . . (Yes) No N/A

Were LCS analyses performed at the required frequency? . . . . (Yes) No N/A

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

Comments:

6. PRECISION

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

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

Are field duplicate RPD values acceptable? . . . . . (Yes) No N/A 2

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

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

Comments: [1] B0C1W1 is a dup of B0C1W2. See attached sheet for duplicate comparison.

[2] Split B0C1W2 cannot be evaluated in this package because the split is not available. Will be evaluated in final summary.

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[1] N/A

Comments: [1] Anion detection limit of ~~0.1~~ 0.5 SJD/25/94 for several sample was not met for OPO4. No qualification of results is made due to this item.

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

Comments (attach additional sheets as necessary):

Analyte	B02IM2	B02IM6	RPD
Fl	.309	.311	<1
Cl	37.4	37.6	<1
SO_4	52	52.5	<1
OPO_4	<1 UR	<1 UR	NC
NO_2N	<.02UR ~~6.06J~~	<.02UR	NC
NO_3N	6.66J	6.60J	<1
NO_2NO_3	6350	7060	11

NC= not calculable

HOLDING TIME SUMMARY

SDG:	VALIDATOR: Jensen	DATE: 10/23/94	PAGE 1 OF 1
COMMENTS: W0105-ITC-113 Gen Chem			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS		ICP QUALIFIER	NO2/NO3 QUALIFIER
BOC1K3	ICP / NO2 NO3	6/21/94		ICP 7/12/94 7/13/94		21	22	NO2 NO3 PO4	none
BOC1K4		6/20/94				22	23	J, UR	
BOC1K5		6/21/94				21	22	all samples	
BOC1N0		6/21/94				21	22		
BOC1N3		6/22/94				20	21		
~~BOC1K4~~ S 10/23/94		6/20/94							
~~BOC1K5~~ S 10/23/94		6/21/94							
BOC1L6		6/24/94		7/13/94		19	20		
BOC1N9		6/27/94		7/12/94		15	16		
BOC1M3		6/29/94		7/13/94		14	15		
BOC1M6		6/29/94		7/13/94		14	15		
BOC2Y9		6/29/94		7/13/94		19	15		
BOC1M8		6/23/94		7/12/94		19	20		

9613476.2127

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

037