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START

W0005-ITC-020 5012

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INTERNATIONAL TECHNOLOGY CORPORATION

MAY 1994 RECEIVED SDLA

CERTIFICATE OF ANALYSIS

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

RECORD COPY

April 27, 1994

Attention: J.A.Lerch

NOV 1996 RECEIVED EDMC

Project number	:	519.04
Date Received by Lab	:	March 11, 15, 21 and 23 1994
Number of Samples	:	Eleven (11)
Sample Type	:	Soil and Water
SDG Number	:	W0005

000009

I. Introduction

On March 11, 15, 21 and 23, 1994, a total of one (1) water and ten (10) soil samples were received by ITAS-Richland and transferred to ITAS-St. Louis for chemical analysis. Upon receipt, the samples were given the following laboratory ID numbers to correspond with their specific client ID's:

St. Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
4679-001	B09WG5	W40323401	Soil	03/11/94
4698-001	B09WI8	40326401	Soil	03/15/94
4698-002	B09WG4	40326402	Soil	03/15/94
4698-003	B09WJ1	40326403	Soil	03/15/94
4698-004	Trip Blank	40326404	Water	03/15/94
4743-001	B09WH2	40338501	Soil	03/21/94
4743-002	B09WH3	40338502	Soil	03/21/94
4743-003	B09WH4	40338503	Soil	03/21/94
4743-004	B09WH6	40338504	Soil	03/21/94
4756-001	B09WI0	40343201	Soil	03/23/94
4756-002	B09WI1	40343202	Soil	03/23/94

jc

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: VOA, BNA and Metals including Cyanide using CLP/90 protocol. Chloride, Sulfate and Fluoride by EPA method 300.0. Nitrate by EPA method 353.1. Total Petroleum Hydrocarbons (Kerosene) by method 8015.

III. Quality Control

A Laboratory Control Sample and Method Blank are routinely analyzed with each preparation batch. Matrix Spike and Matrix Spike Duplicate or Duplicate analyses were performed for all analytes in this SDG.

IV. Comments

A sample (4679-001) was received on 3/11/94 that was labelled B09WG5 on the sample container and appeared on the Chain of Custody as B09WG4. It was determined that the Chain of Custody was correct at that time. On 3/15/94 a sample (4698-002) was received that was labelled B09WG4 and also appeared on the Chain of Custody as B09WG4. It was determined that the first sample received was B09WG5 as labelled on the sample container and that the Chain of Custody was incorrect. The appropriate corrections were made and it was decided that from now on the client ID on the sample container label will be considered correct.

IT-St. Louis PQL's were used for the kerosene analysis.

The Relative Percent Difference (RPD) for Cyanide sample B09WG5 (4679-001) was calculated using values below the contract detection limit but above the instrument detection limit.

The laboratory was unable to calculate a Relative Percent Difference (RPD) for Fluoride sample B09WG5 (4679-001) due to sample values below the detection limit.

jd

The Matrix Spike recovery for Fluoride sample B09WG5 (4679-001) was low due to matrix interference.

The Matrix Spike recovery for Antimony, Chromium, Manganese, Titanium and Selenium were outside the 75% - 125% control limits.

Matrix Spike recovery for sample B09WG5 (4679-001) for Mercury was < 75%. The sample concentration for this sample was four times greater than the spike concentration, therefore, this sample was not flagged.

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:\annealers\hanw0005.nar

ie

9713506.1304

Quanterra
Environmental Services

Quanterra Incorporated
2800 George Washington Way
Richland, Washington 99352

509 375-3131 Telephone
509 375-5590 Fax

October 19, 1995

OCT 1995
RECEIVED
Data
Log In

Ms. Joan Kessner
Technical Representative
Bechtel Hanford Incorporated
1022 Lee Blvd.
Richland, WA 99352

Dear Ms. Kessner:

This letter serves as notification that the records for the following Sample Delivery Group have been scheduled for disposal, three months after the date of this letter, per contract MPV-SVV-239000. Since the data deliverable was a "standalone" there are no other records to be transmitted.

SDG	SAF	HEIS Sample Number
W0005	94-065	B09WG4
		B09WG5
		B09WH2
		B09WH3
		B09WH4
		B09WH6
		B09WI0
		B09WI1
		B09WI8
		B09WJ1

If this is not acceptable, or you have any questions, please call me.

Sincerely,

Jodie Carnes
Document Control Officer

9213506.1305

DON'T SAY IT --- Write It!

DATE May 12, 1994

To W0005, samples B09WG4, B09WG5, and B09WI8

FROM Jeff Lerch H4-23
Telephone 372-2596

cc: Doris Ayres
Briana Colley
Chris Koerner
Sandy Walls

SUBJECT Iodine-129 data not reported

Due to matrix effect problems (described on page 0008 of the radiochemistry laboratory case narrative), data for I-129 will not be reported for samples B09WG4, B09WG5 and B09WI8.

9213506.1506

Westinghouse Hanford Company

NONCONFORMANCE REPORT

1. Page 1 of 21 mj 4/27/94

2. Preprinted No. 051952

QA Log No. EQA-94-029

3. P. O., W. O., or Job Control No.	4. System/End Use	5. Item/Material	6. Dwg./Spec./Other No.	7. Rev.
N/A	Site Characterization	Samples	N/A	N/A

8. Program/Project/Other	9. Safety Class	10. ASME Code Items
200-UP-2 LFI	N/A	☐ Yes ☒ No (If yes, notify authorized inspector)

11. Supplier Name/Address	12. Notification of Potential Occurence Required
Environmental Field Services	☐ Yes ☒ No

13. Code: Lot/Heat/Serial	14. Lot Size	15. Sample	16. Qty. Acc.	17. Inspection Criteria
N/A	1	B09WG4	0	☐ Dwg. ☐ Spec. ☐ Insp. Plan ☒ Other EII 5.11 Rev 3

18. Item	19. Description of Nonconformance (list serial no. where applicable)	22. Disposition, Justification, and Instructions
1	Chain of Custody was compromised for sample B09WG4 received by IT on 3/11/94. Chain of Custody and Sample Analysis Request documentation indicate that a sample B09WG4 was shipped to IT on 3/11/94. IT did not receive a sample labeled B09WG4 on this date. IT did receive containers labeled B09WG5 on 3/11. The documentation submitted with samples on 3/11/94 lists a sample B09WG5 which was previously lined out, signed, and dated by the sampler on 3/11/94. (See ROD-94-0070)	

20. Originator's Signature JA Lerch Date 3/28/94

23. Design Document Change Required? ☐ Yes, Doc. No. _____ ☐ No

21. Cognizant QA Manager's Signature D.D. Volkman Date 4/27/94

24. Corrective Action Required? ☐ Yes, No. _____ ☐ No

Disp. App.

25. Cognizant Engineer	Date	26. Technical Rep.	Date	Signature/Org.	Date
MA WASEMILLER					
QA Engineer	Date	Signature/Org.	Date	Signature/Org.	Date
GS CORRIGAN					

Close

27. Accept _____ Reject _____ Follow on NCR _____ QA/C Personnel _____ Date

1-7310-104 (10/91)

9713506.1307

Westinghouse Hanford Company

NONCONFORMANCE REPORT

1. Page 1 of 1

2. Preprinted No. 052855

QA Log No. EQA-94-018

3. P. O., W. O., or Job Control No.	4. System/End Use	5. Item/Material	6. Dwg./Spec./Other No.	7. Rev.
NA	Remedial Investigation	Soil Samples	NA	NA

8. Program/Project/Other	9. Safety Class	10. ASME Code Items
200-UP-2, SAF #94-065	NA	☐ Yes ☒ No (If yes, notify authorized inspector)

11. Supplier Name/Address	12. Notification of Potential Occurence Required
NA	☐ Yes ☒ No

13. Code: Lot/Heat/Serial	14. Lot Size	15. Sample	16. Qty. Acc.	17. Inspection Criteria
NA	1	4	0	☐ Dwg. ☐ Spec. ☐ Insp. Plan ☒ Other WHC-CM-7-7, EII 5.10, R. 0

18. Item	19. Description of Nonconformance (list serial no. where applicable)	22. Disposition, Justification, and Instructions
1.	Required Condition: WHC-CM-7-7, EII 5.10, Rev. 0, Section 3.0, "HEIS Sample Number" identifies the format that HEIS sample numbers shall follow when assigned. This format specifically indicates that no vowels shall be used in the HEIS sample number format. Actual Condition: Contrary to the above requirement, the following four sample numbers, each containing a vowel, were assign to HEIS samples: B09WI0, B09WI1, B09WI8 and B09WI9.	Accept-As-Is The PNL Code Custodian shall enter these sample numbers into the HEIS Sample Number Library. These sample numbers do not create words with the imbedded vowel and therefore do not violate the intent of the above referenced EII. Note: The HEIS software and documentation will be modified by HCR and ICA, respectively, to allow HEIS Sample Number Library Custodians to manually enter Customer sample numbers with vowels subject to review for a "no-word" rule.

20. Originator's Signature	Date	23. Design Document Change Required?
G.S. Corrigan Gary S. Corrigan	4-7-94	☐ Yes, Doc. No. ☒ No
21. Cognizant QA Manager's Signature	**Date**	**24. Corrective Action Required?**
T.L. Bennington T.L. Bennington	4/7/94	☐ Yes, No. ☒ No

Disp. App.				
25. Cognizent Engineer: M.R. Schwab MR Schwab	Date: 4/20/94	26. Technical Rep.: NA	Date	Signature/Org.: NA — Date
QA Engineer: G.S. Corrigan Gary S. Corrigan	Date: 4-20-94	Signature/Org.: NA	Date	Signature/Org.: NA — Date

Close

27. Accept 4 Reject 0 Follow on NCR NA

Gary S. Corrigan — QA/C Personnel — Date 4-20-94

A-7310-104 (11/92)

9213506.1308 W0005

HANFORD ANALYTICAL SERVICES MANAGEMENT

RECORD OF DISPOSITION

ROD-94-0070
Record of Disposition No.

DATE: March 29, 1994	LABORATORY: IT
PROJECT TITLE/NO.: 200-UP-2/SAF 94-065	NCR NO.: 051952

SAMPLE IDENTIFICATION NUMBERS: B09WG4

DESCRIPTION OF EVENT:

Chain of Custody was compromised for sample B09WG4 received by IT on 3/11/94 as documented below.

a) Due to oversight by the sampler, identification #B09WG4 was used twice on COC and Sample Analysis Request form documentation. The identification # was listed on samples custody documentation received by IT on 3/11/94 and 3/14/94.

b) Due to oversight by the sampler, collection dates recorded on the chain of custody and sample labels do not match.

- B09WG4 received at IT on 3/11/94: The chain of custody and Sample Analysis Request forms indicate that the sample was collected on 3/8/94. The B09WG4 sample label indicates that the sample was collected on 3/9/94.
- B09WG4 received at IT on 3/14/94: The chain of custody form indicates that the sample was collected on 3/10/94. The Sample Analysis Request form indicates that the sample was collected on 3/8/94.

c) Due to oversight by the sampler, the sample identification numbers listed on the COC and Sample Analysis Request form are inconsistent with the sample identification number listed on the sample container label. COC and Sample Analysis Request documentation submitted with samples received by IT on 3/11/94 list a sample with identification # B09WG4. The documentation submitted with the samples also lists a sample identification # B09WG5 which was lined out, initialed, and dated by the sampler on 3/11/94. On 3/11/94 there was no sample received by IT with identification # B09WG4 on the container label. IT did receive a sample container labeled B09WG5 on 3/11/94.

d) After being shipped from the IT-Richland facility, sample B09WG4 was received by the St.Louis facility on 3/12/94 at a temperature of 1°C.

DISPOSITION OF SAMPLES:

a) IT is directed to proceed with the requested analyses for B09WG4 (B09WG5 on sample label) which was received by the laboratory on 3/11/94. Consistent with the sample labels, results shall be reported under sample ID# B09WG5.

b) The correct collection date for the sample received on 3/14/94 is 3/8/94. IT is directed to proceed with analysis of sample B09WG4 received by the laboratory on 3/14/94.

Each of the issues identified above are to be noted in the Case Narrative for the associated delivery group (with reference to this ROD #).

APPROVAL SIGNATURES:

J. A. Lerch — 3/18/94
CAS Project Coordinator (Print/Sign Name) — **Date**

M. A. Wasemiller — 3/18/94
Technical Representative (Print/Sign Name) — **Date**

N/A
Quality Assurance (Print/Sign Name) — **Date**

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WG4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-002

Sample wt/vol: 5.00 (g/mL) G Lab File ID: E8276

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: not dec. 3 Date Analyzed: 03/18/94

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/KG	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	15	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	3	J
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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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WG4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-002

Sample wt/vol: 5.00 (g/mL) G Lab File ID: E8276

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: not dec. 3 Date Analyzed: 03/18/94

GC Column: DB-624 ID: 0.530 (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/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	19.34	19	J
2.	UNKNOWN	22.15	10	J

IT

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WG5

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4679-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: E8272

Level: (low/med) LOW Date Received: 03/11/94

% Moisture: not dec. 5 Date Analyzed: 03/17/94

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/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	4	J
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WG5

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4679-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: E8272

Level: (low/med) LOW Date Received: 03/11/94

% Moisture: not dec. 5 Date Analyzed: 03/17/94

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

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	19.36	130	J
2.	UNKNOWN	22.13	120	J
3.	UNKNOWN	22.35	6	J
4.	UNKNOWN ALKANE	23.03	8	J
5.	UNKNOWN	24.84	15	J

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH2

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8133

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: not dec. 8 Date Analyzed: 03/28/94

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/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WH2

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8133

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: not dec. 8 Date Analyzed: 03/28/94

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/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	19.87	26	J
2.	UNKNOWN	22.66	46	J
3.	UNKNOWN	25.41	9	J

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH3

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-002

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8134

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: not dec. 8 Date Analyzed: 03/28/94

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/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	5	J
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

9713506_1316

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WH3

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-002

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8134

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: not dec. 8 Date Analyzed: 03/28/94

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

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	22.65	23	J

12

9715506 1517

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-003

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8139

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: not dec. 13 Date Analyzed: 03/28/94

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/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

jaa

9713506 1318

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WH4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-003

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8139

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: not dec. 13 Date Analyzed: 03/28/94

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

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	22.66	23	J

jab

9713506 PA 1319

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH6

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-004

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8136

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: not dec. Date Analyzed: 03/28/94

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/KG	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	26	
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	2	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

iac

9713506 1320

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WH6

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-004

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8136

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: not dec. Date Analyzed: 03/28/94

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/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	19.86	43	J
2.	UNKNOWN	22.65	80	J
3.	UNKNOWN	25.40	27	J

jad

9713506.1521

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WI0

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4756-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8137

Level: (low/med) LOW Date Received: 03/23/94

% Moisture: not dec. 4 Date Analyzed: 03/28/94

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/KG	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

iae

9713506.1322

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WI0

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4756-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8137

Level: (low/med) LOW Date Received: 03/23/94

% Moisture: not dec. 4 Date Analyzed: 03/28/94

GC Column: DB-624 ID: 0.530 (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/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	19.87	49	J
2.	UNKNOWN	22.65	34	J

iaf

9713506 1523

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WI1

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4756-002

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8138

Level: (low/med) LOW Date Received: 03/23/94

% Moisture: not dec. Date Analyzed: 03/28/94

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/KG	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

iag

9713506 1324

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WI1

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4756-002

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8138

Level: (low/med) LOW Date Received: 03/23/94

% Moisture: not dec. Date Analyzed: 03/28/94

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/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	19.88	6	J
2.	UNKNOWN	22.65	50	J
3.	UNKNOWN	25.40	13	J

jah

9713506 1525

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BO9WI8

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: E8275

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: not dec. 14 Date Analyzed: 03/18/94

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/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	25	B
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

iai

9713506 1326

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WI8

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: E8275

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: not dec. 14 Date Analyzed: 03/18/94

GC Column: DB-624 ID: 0.530 (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/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	19.36	130	J
2.	UNKNOWN	22.14	85	J

iab

9715506 1527

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BO9WJ1

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-003

Sample wt/vol: 5.00 (g/mL) G Lab File ID: E8277

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: not dec. Date Analyzed: 03/18/94

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/KG	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	1	J
67-64-1	Acetone	12	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	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

jak

9713506.1328

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WJ1

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-003

Sample wt/vol: 5.00 (g/mL) G Lab File ID: E8277

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: not dec. Date Analyzed: 03/18/94

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

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.40	15	J
2.	UNKNOWN	19.35	150	J
3.	UNKNOWN	21.11	9	J
4.	UNKNOWN	22.13	73	J
5.	UNKNOWN	22.35	7	J

ial

Project # ~~262.01~~ 300401 , 519.04 , 521.01
Analyst J. CARPO
Reviewed by R. Patterson 04-04-94
Reviewed by R. Patterson 04-04-94
Page 1 of 1

ITAS ST. LOUIS

ANIONS BY I.C.

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

Prep Date 03-28-94
Analysis Date 03-30-94
Loop Used 50 ml
Batch # 34832
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
	BLK34832				<0.992	<2.48	~~<9.93~~ <4.92 04-04-94					
F 9.18 Cl 9.96 SO4 39.8	LCS34832	AL1179-94			9.64	9.81	37.3				F 97 Cl 98 SO4 94	
	4679-001		0.9499		~~<1.05~~	~~7.36~~		<1.05	7.36	35.9		
	001AP							<1.05	7.28	35.4		F 1 SO4 1
F 20.8 SO4 208 Cl 208	001MS	AL1180-94		XS				12.8	231	250	F 62 Cl 108 SO4 120	
	4698-001		0.8654					1.40	24.0	187		
	002		0.9741					1.85	7.95	20.3		
	4743-001		0.9205					<1.08	13.4	34.7		
	002		0.9164					<1.09	12.5	35.4		
	003		0.8682					2.24	19.1	107		
	4756-001		0.9607					<1.03	12.4	19.8		
	4758-001		0.9428					1.06	8.91	13.5		
F 20.8 SO4 208 Cl 208	001MS	AL1181-94		XS				23.3	227	218	F 107 SO4 98 Cl 105	
F 20.9 SO4 209 Cl 209	001MSD	82-		XS				21.8	229	220	F 99 SO4 99 Cl 105	F 8 SO4 1 Cl 0

2a

* CAN'T CALCULATE RPD DUE TO VALUES BELOW DETECTION LIMIT
** CORRECTED FOR % MOISTURE

SL92-INORG-0065

ITAS-ST. LOUIS

NITRATE/NITRITE-N REPORT

Pg. 1 of 1

Analyst: J. Carpio
Project No.: 26L-01, 519.04, 521.01
Reviewed by: R. Patterson

Batch No.: 34530

PREP DATE: 03-28-94
Analysis Date: 03-29-94
Method No.: 353.1
Date: 03-31-94

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 (NO3 + NO2)	% RECOVERY	RPD
SCBLK 34530-1		0.02637		5.038		0.05		<0.198		
QCLCS 34530-1	AC1125-94	572.7		5.028				5.70	102	
4618-001		224.1	X5	5.063			0.2305	* 48.0		
001DUP		215.3	X5	5.032				46.4		3
001MS	AC1126-94	364.1	X5	5.058				78.1	124	
4679-001		366.6		5.026			0.9499	RP 03-31-94 ~~3.83~~ 3.84		
001DUP		349.6		5.033				3.66	RPD 3-31-94	5
001MS	AC1127-94	207.1	X5	5.051				10.8	~~119~~ 118	
4648-001		229.7	X50	5.048			0.8654	131		
002		460.1		5.065			0.9741	4.66		
4743-001		641.6		5.046			0.9205	6.91		
002		589.7		5.023			0.9164	6.41		
003		772.5		5.035			0.8682	8.84		
4756-001		590.6		5.061			0.9607	6.07		
4758-001		436.5		5.045			0.9428	4.59		
001MS	AC1138-94	209.3	X5	5.021				11.1	109	
001MSD	39-	209.3	X5	5.052				11.0	108	<1

* corrected for moisture

SL-91-INORG-0039

3a

9715506.1351

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WG4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-002

Sample wt/vol: 30.10 (g/mL) G Lab File ID: A4370

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: 3 decanted: (Y/N) N Date Extracted: 03/21/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/29/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	340	U
111-44-4	bis(2-Chloroethyl)Ether	340	U
95-57-8	2-Chlorophenol	340	U
541-73-1	1,3-Dichlorobenzene	340	U
106-46-7	1,4-Dichlorobenzene	340	U
95-50-1	1,2-Dichlorobenzene	340	U
95-48-7	2-Methylphenol	340	U
108-60-1	2,2'-oxybis(1-Chloropropane)	340	U
106-44-5	4-Methylphenol	340	U
621-64-7	N-Nitroso-Di-n-Propylamine	340	U
67-72-1	Hexachloroethane	340	U
98-95-3	Nitrobenzene	340	U
78-59-1	Isophorone	340	U
88-75-5	2-Nitrophenol	340	U
105-67-9	2,4-Dimethylphenol	340	U
111-91-1	bis(2-Chloroethoxy)Methane	340	U
120-83-2	2,4-Dichlorophenol	340	U
120-82-1	1,2,4-Trichlorobenzene	340	U
91-20-3	Naphthalene	340	U
106-47-8	4-Chloroaniline	340	U
87-68-3	Hexachlorobutadiene	340	U
59-50-7	4-Chloro-3-Methylphenol	340	U
91-57-6	2-Methylnaphthalene	340	U
77-47-4	Hexachlorocyclopentadiene	340	U
88-06-2	2,4,6-Trichlorophenol	340	U
95-95-4	2,4,5-Trichlorophenol	820	U
91-58-7	2-Chloronaphthalene	340	U
88-74-4	2-Nitroaniline	820	U
131-11-3	Dimethyl Phthalate	340	U
208-96-8	Acenaphthylene	340	U
606-20-2	2,6-Dinitrotoluene	340	U
99-09-2	3-Nitroaniline	820	U
83-32-9	Acenaphthene	340	U

qa

9713506.1352
1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WG4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-002

Sample wt/vol: 30.10 (g/mL) G Lab File ID: A4370

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: 3 decanted: (Y/N) N Date Extracted: 03/21/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/29/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	820	U
100-02-7	4-Nitrophenol	820	U
132-64-9	Dibenzofuran	340	U
121-14-2	2,4-Dinitrotoluene	340	U
84-66-2	Diethylphthalate	340	U
7005-72-3	4-Chlorophenyl-phenylether	340	U
86-73-7	Fluorene	340	U
100-01-6	4-Nitroaniline	820	U
534-52-1	4,6-Dinitro-2-Methylphenol	820	U
86-30-6	N-Nitrosodiphenylamine (1)	340	U
101-55-3	4-Bromophenyl-phenylether	340	U
118-74-1	Hexachlorobenzene	340	U
87-86-5	Pentachlorophenol	820	U
85-01-8	Phenanthrene	340	U
120-12-7	Anthracene	340	U
86-74-8	Carbazole	340	U
84-74-2	Di-n-Butylphthalate	340	U
206-44-0	Fluoranthene	340	U
129-00-0	Pyrene	340	U
85-68-7	Butylbenzylphthalate	340	U
91-94-1	3,3'-Dichlorobenzidine	340	U
56-55-3	Benzo(a)Anthracene	340	U
218-01-9	Chrysene	340	U
117-81-7	bis(2-Ethylhexyl)Phthalate	340	U
117-84-0	Di-n-Octyl Phthalate	340	U
205-99-2	Benzo(b)Fluoranthene	340	U
207-08-9	Benzo(k)Fluoranthene	340	U
50-32-8	Benzo(a)Pyrene	340	U
193-39-5	Indeno(1,2,3-cd)Pyrene	340	U
53-70-3	Dibenz(a,h)Anthracene	340	U
191-24-2	Benzo(g,h,i)Perylene	340	U

(1) - Cannot be separated from Diphenylamine

10A

9713506.1353

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WG4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-002

Sample wt/vol: 30.10 (g/mL) G Lab File ID: A4370

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: 3 decanted: (Y/N) N Date Extracted: 03/21/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/29/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	25.96	2800	J
2.	UNKNOWN	28.85	110	J

11A

9713506.1334

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WG5

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4679-001

Sample wt/vol: 30.00 (g/mL) G Lab File ID: A4366

Level: (low/med) LOW Date Received: 03/11/94

% Moisture: 5 decanted: (Y/N) N Date Extracted: 03/21/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/29/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	350	U
111-44-4	bis(2-Chloroethyl)Ether	350	U
95-57-8	2-Chlorophenol	350	U
541-73-1	1,3-Dichlorobenzene	350	U
106-46-7	1,4-Dichlorobenzene	350	U
95-50-1	1,2-Dichlorobenzene	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-Di-n-Propylamine	350	U
67-72-1	Hexachloroethane	350	U
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	350	U
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethylphenol	350	U
111-91-1	bis(2-Chloroethoxy)Methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
120-82-1	1,2,4-Trichlorobenzene	350	U
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
59-50-7	4-Chloro-3-Methylphenol	350	U
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	840	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	840	U
131-11-3	Dimethyl Phthalate	350	U
208-96-8	Acenaphthylene	350	U
606-20-2	2,6-Dinitrotoluene	350	U
99-09-2	3-Nitroaniline	840	U
83-32-9	Acenaphthene	350	U

12A

9713506.1335

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WG5

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4679-001

Sample wt/vol: 30.00 (g/mL) G Lab File ID: A4366

Level: (low/med) LOW Date Received: 03/11/94

% Moisture: 5 decanted: (Y/N) N Date Extracted: 03/21/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/29/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	840	U
100-02-7	4-Nitrophenol	840	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
86-73-7	Fluorene	350	U
100-01-6	4-Nitroaniline	840	U
534-52-1	4,6-Dinitro-2-Methylphenol	840	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
87-86-5	Pentachlorophenol	840	U
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
86-74-8	Carbazole	350	U
84-74-2	Di-n-Butylphthalate	350	U
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	72	J
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)Anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)Phthalate	110	J
117-84-0	Di-n-Octyl Phthalate	350	U
205-99-2	Benzo(b)Fluoranthene	350	U
207-08-9	Benzo(k)Fluoranthene	350	U
50-32-8	Benzo(a)Pyrene	350	U
193-39-5	Indeno(1,2,3-cd)Pyrene	350	U
53-70-3	Dibenz(a,h)Anthracene	350	U
191-24-2	Benzo(g,h,i)Perylene	350	U

(1) - Cannot be separated from Diphenylamine

9713506.1356

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WG5

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4679-001

Sample wt/vol: 30.00 (g/mL) G Lab File ID: A4366

Level: (low/med) LOW Date Received: 03/11/94

% Moisture: 5 decanted: (Y/N) N Date Extracted: 03/21/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/29/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9713506.1357

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH2

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-001

Sample wt/vol: 30.20 (g/mL) G Lab File ID: H8402

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: 8 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360	U
111-44-4	bis(2-Chloroethyl)Ether	360	U
95-57-8	2-Chlorophenol	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-Di-n-Propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2,4-Dimethylphenol	360	U
111-91-1	bis(2-Chloroethoxy)Methane	360	U
120-83-2	2,4-Dichlorophenol	360	U
120-82-1	1,2,4-Trichlorobenzene	360	U
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
87-68-3	Hexachlorobutadiene	360	U
59-50-7	4-Chloro-3-Methylphenol	360	U
91-57-6	2-Methylnaphthalene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U
88-06-2	2,4,6-Trichlorophenol	360	U
95-95-4	2,4,5-Trichlorophenol	860	U
91-58-7	2-Chloronaphthalene	360	U
88-74-4	2-Nitroaniline	860	U
131-11-3	Dimethyl Phthalate	360	U
208-96-8	Acenaphthylene	360	U
606-20-2	2,6-Dinitrotoluene	360	U
99-09-2	3-Nitroaniline	860	U
83-32-9	Acenaphthene	360	U

15A

9713506.1338

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH2

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-001

Sample wt/vol: 30.20 (g/mL) G Lab File ID: H8402

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: 8 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	860	U
100-02-7	4-Nitrophenol	860	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	860	U
534-52-1	4,6-Dinitro-2-Methylphenol	860	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	860	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-Butylphthalate	360	U
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)Anthracene	360	U
218-01-9	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)Phthalate	360	U
117-84-0	Di-n-Octyl Phthalate	360	U
205-99-2	Benzo(b)Fluoranthene	360	U
207-08-9	Benzo(k)Fluoranthene	360	U
50-32-8	Benzo(a)Pyrene	360	U
193-39-5	Indeno(1,2,3-cd)Pyrene	360	U
53-70-3	Dibenz(a,h)Anthracene	360	U
191-24-2	Benzo(g,h,i)Perylene	360	U

(1) - Cannot be separated from Diphenylamine

16A

9713506.1339

1F

EPA SAMPLE NO.

B09WH2

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-001

Sample wt/vol: 30.20 (g/mL) G Lab File ID: H8402

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: 8 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.7

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 0	UNKNOWN	7.18	120	BJ

17A

9713506.1340

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH3

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-002

Sample wt/vol: 30.00 (g/mL) G Lab File ID: H8403

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: 8 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360	U
111-44-4	bis(2-Chloroethyl)Ether	360	U
95-57-8	2-Chlorophenol	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-Di-n-Propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2,4-Dimethylphenol	360	U
111-91-1	bis(2-Chloroethoxy)Methane	360	U
120-83-2	2,4-Dichlorophenol	360	U
120-82-1	1,2,4-Trichlorobenzene	360	U
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
87-68-3	Hexachlorobutadiene	360	U
59-50-7	4-Chloro-3-Methylphenol	360	U
91-57-6	2-Methylnaphthalene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U
88-06-2	2,4,6-Trichlorophenol	360	U
95-95-4	2,4,5-Trichlorophenol	870	U
91-58-7	2-Chloronaphthalene	360	U
88-74-4	2-Nitroaniline	870	U
131-11-3	Dimethyl Phthalate	360	U
208-96-8	Acenaphthylene	360	U
606-20-2	2,6-Dinitrotoluene	360	U
99-09-2	3-Nitroaniline	870	U
83-32-9	Acenaphthene	360	U

18A

9713506.1341

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH3

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-002

Sample wt/vol: 30.00 (g/mL) G Lab File ID: H8403

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: 8 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	870	U
100-02-7	4-Nitrophenol	870	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	870	U
534-52-1	4,6-Dinitro-2-Methylphenol	870	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	870	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-Butylphthalate	360	U
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)Anthracene	360	U
218-01-9	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)Phthalate	360	U
117-84-0	Di-n-Octyl Phthalate	360	U
205-99-2	Benzo(b)Fluoranthene	360	U
207-08-9	Benzo(k)Fluoranthene	360	U
50-32-8	Benzo(a)Pyrene	360	U
193-39-5	Indeno(1,2,3-cd)Pyrene	360	U
53-70-3	Dibenz(a,h)Anthracene	360	U
191-24-2	Benzo(g,h,i)Perylene	360	U

(1) - Cannot be separated from Diphenylamine

19K

9713506.1342

1F

EPA SAMPLE NO.

B09WH3

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-002

Sample wt/vol: 30.00 (g/mL) G Lab File ID: H8403

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: 8 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 0	UNKNOWN	7.17	120	BJ
2.	UNKNOWN	28.64	98	J

20A

9715506.1345

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-003

Sample wt/vol: 30.20 (g/mL) G Lab File ID: H8404

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: 13 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)Ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-Di-n-Propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	bis(2-Chloroethoxy)Methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-Methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	910	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	910	U
131-11-3	Dimethyl Phthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	910	U
83-32-9	Acenaphthene	380	U

2 A 9/5/10

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-003

Sample wt/vol: 30.20 (g/mL) G Lab File ID: H8404

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: 13 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	910	U
100-02-7	4-Nitrophenol	910	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	910	U
534-52-1	4,6-Dinitro-2-Methylphenol	910	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	910	U
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-Butylphthalate	380	U
206-44-0	Fluoranthene	380	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)Anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)Phthalate	380	U
117-84-0	Di-n-Octyl Phthalate	380	U
205-99-2	Benzo(b)Fluoranthene	380	U
207-08-9	Benzo(k)Fluoranthene	380	U
50-32-8	Benzo(a)Pyrene	380	U
193-39-5	Indeno(1,2,3-cd)Pyrene	380	U
53-70-3	Dibenz(a,h)Anthracene	380	U
191-24-2	Benzo(g,h,i)Perylene	380	U

(1) - Cannot be separated from Diphenylamine

9713506_1345

1F

EPA SAMPLE NO.

B09WH4

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-003

Sample wt/vol: 30.20 (g/mL) G Lab File ID: H8404

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: 13 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.5

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.17	110	JB

23A

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WI0

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4756-001

Sample wt/vol: 30.10 (g/mL) G Lab File ID: H8405

Level: (low/med) LOW Date Received: 03/23/94

% Moisture: 4 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	340	U
111-44-4	bis(2-Chloroethyl)Ether	340	U
95-57-8	2-Chlorophenol	340	U
541-73-1	1,3-Dichlorobenzene	340	U
106-46-7	1,4-Dichlorobenzene	340	U
95-50-1	1,2-Dichlorobenzene	340	U
95-48-7	2-Methylphenol	340	U
108-60-1	2,2'-oxybis(1-Chloropropane)	340	U
106-44-5	4-Methylphenol	340	U
621-64-7	N-Nitroso-Di-n-Propylamine	340	U
67-72-1	Hexachloroethane	340	U
98-95-3	Nitrobenzene	340	U
78-59-1	Isophorone	340	U
88-75-5	2-Nitrophenol	340	U
105-67-9	2,4-Dimethylphenol	340	U
111-91-1	bis(2-Chloroethoxy)Methane	340	U
120-83-2	2,4-Dichlorophenol	340	U
120-82-1	1,2,4-Trichlorobenzene	340	U
91-20-3	Naphthalene	340	U
106-47-8	4-Chloroaniline	340	U
87-68-3	Hexachlorobutadiene	340	U
59-50-7	4-Chloro-3-Methylphenol	340	U
91-57-6	2-Methylnaphthalene	340	U
77-47-4	Hexachlorocyclopentadiene	340	U
88-06-2	2,4,6-Trichlorophenol	340	U
95-95-4	2,4,5-Trichlorophenol	830	U
91-58-7	2-Chloronaphthalene	340	U
88-74-4	2-Nitroaniline	830	U
131-11-3	Dimethyl Phthalate	340	U
208-96-8	Acenaphthylene	340	U
606-20-2	2,6-Dinitrotoluene	340	U
99-09-2	3-Nitroaniline	830	U
83-32-9	Acenaphthene	340	U

24A

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WI0

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4756-001

Sample wt/vol: 30.10 (g/mL) G Lab File ID: H8405

Level: (low/med) LOW Date Received: 03/23/94

% Moisture: 4 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	830	U
100-02-7	4-Nitrophenol	830	U
132-64-9	Dibenzofuran	340	U
121-14-2	2,4-Dinitrotoluene	340	U
84-66-2	Diethylphthalate	340	U
7005-72-3	4-Chlorophenyl-phenylether	340	U
86-73-7	Fluorene	340	U
100-01-6	4-Nitroaniline	830	U
534-52-1	4,6-Dinitro-2-Methylphenol	830	U
86-30-6	N-Nitrosodiphenylamine (1)	340	U
101-55-3	4-Bromophenyl-phenylether	340	U
118-74-1	Hexachlorobenzene	340	U
87-86-5	Pentachlorophenol	830	U
85-01-8	Phenanthrene	340	U
120-12-7	Anthracene	340	U
86-74-8	Carbazole	340	U
84-74-2	Di-n-Butylphthalate	74	J
206-44-0	Fluoranthene	340	U
129-00-0	Pyrene	340	U
85-68-7	Butylbenzylphthalate	340	U
91-94-1	3,3'-Dichlorobenzidine	340	U
56-55-3	Benzo(a)Anthracene	340	U
218-01-9	Chrysene	340	U
117-81-7	bis(2-Ethylhexyl)Phthalate	340	U
117-84-0	Di-n-Octyl Phthalate	340	U
205-99-2	Benzo(b)Fluoranthene	340	U
207-08-9	Benzo(k)Fluoranthene	340	U
50-32-8	Benzo(a)Pyrene	340	U
193-39-5	Indeno(1,2,3-cd)Pyrene	340	U
53-70-3	Dibenz(a,h)Anthracene	340	U
191-24-2	Benzo(g,h,i)Perylene	340	U

(1) - Cannot be separated from Diphenylamine

9713506.1348

1F

EPA SAMPLE NO.

B09WI0

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4756-001

Sample wt/vol: 30.10 (g/mL) G Lab File ID: H8405

Level: (low/med) LOW Date Received: 03/23/94

% Moisture: 4 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.2

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 0	UNKNOWN	7.22	95	BJ

26A

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BO9WI8

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-001

Sample wt/vol: 30.00 (g/mL) G Lab File ID: A4369

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: 14 decanted: (Y/N) N Date Extracted: 03/21/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/29/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)Ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-Di-n-Propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	bis(2-Chloroethoxy)Methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-Methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	930	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	930	U
131-11-3	Dimethyl Phthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	930	U
83-32-9	Acenaphthene	380	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BO9WI8

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-001

Sample wt/vol: 30.00 (g/mL) G Lab File ID: A4369

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: 14 decanted: (Y/N) N Date Extracted: 03/21/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/29/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	930	U
100-02-7	4-Nitrophenol	930	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	930	U
534-52-1	4,6-Dinitro-2-Methylphenol	930	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	930	U
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-Butylphthalate	380	U
206-44-0	Fluoranthene	380	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)Anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)Phthalate	380	U
117-84-0	Di-n-Octyl Phthalate	380	U
205-99-2	Benzo(b)Fluoranthene	380	U
207-08-9	Benzo(k)Fluoranthene	380	U
50-32-8	Benzo(a)Pyrene	380	U
193-39-5	Indeno(1,2,3-cd)Pyrene	380	U
53-70-3	Dibenz(a,h)Anthracene	380	U
191-24-2	Benzo(g,h,i)Perylene	380	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WI8

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-001

Sample wt/vol: 30.00 (g/mL) G Lab File ID: A4369

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: 14 decanted: (Y/N) N Date Extracted: 03/21/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/29/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

Number TICs found: 10

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	20.70	97	J
2.	UNKNOWN	25.48	82	J
3.	UNKNOWN	25.99	120	J
4.	UNKNOWN	26.46	110	J
5.	UNKNOWN	27.48	220	J
6.	UNKNOWN	27.91	110	J
7.	UNKNOWN	28.87	200	J
8.	UNKNOWN	29.41	94	J
9.	UNKNOWN	29.92	140	J
10.	UNKNOWN	30.91	100	J

9713506.1552

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BO9WI8

Lab Name: ITAS-St. Louis Contract: 519-04

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-001

Sample wt/vol: 30.1 (g/ml) G Lab File ID: _____

Level: (low/med) LOW Date Sampled : 03-10-94

% Moisture: not dec. 13 dec. _____ Date Extracted: 03-22-94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03-24-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CAS NO.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.2	U
319-85-7	beta-BHC	2.3	U
319-86-8	delta-BHC	3.5	U
58-89-9	gamma-BHC (Lindane)	1.5	U
76-44-8	Heptachlor	1.2	U
309-00-2	Aldrin	1.5	U
1024-57-3	Heptachlor epoxide	32	U
959-98-8	Endosulfan I	5.4	U
60-57-1	Dieldrin	0.77	U
72-55-9	4,4'-DDE	1.5	U
72-20-8	Endrin	2.3	U
33213-65-9	Endosulfan II	1.5	U
72-54-8	4,4'-DDD	4.2	U
1031-07-8	Endosulfan sulfate	25	U
50-29-3	4,4'-DDT	4.6	U
72-43-5	Methoxychlor	68	U
53494-70-5	Endrin Aldehyde	8.8	U
57-74-9	Tech. Chlordane	5.4	U
8001-35-2	Toxaphene	92	U
11104-28-2	Aroclor-1221	38	U
11141-28-2	Aroclor-1232	38	U
53469-21-9/12674-11-2	Aroclor-1242/1016	25	U
12672-29-6	Aroclor-1248	38	U
11097-57-4	Aroclor1254	41	
11096-82-5	Aroclor-1660	48	

U: Concentration of analyte is less than the value given.

FORM I PEST 1/87 Rev.

3a

9715506.1555

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09WI8

Lab Name: ITAS_ST._LOUIS Contract: 519.04

Lab Code: ITMO Case No.: SAS No.: SDG No.: W0005

Matrix (soil/water): SOIL Lab Sample ID: 4698-001

Level (low/med): LOW Date Received: 03/15/94

% Solids: 86.5

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7220			P
7440-36-0	Antimony	7.1	U	N	P
7440-38-2	Arsenic	1.8	B	S	F
7440-39-3	Barium	69.7			P
7440-41-7	Beryllium	0.46	B		P
7440-43-9	Cadmium	1.3			P
7440-70-2	Calcium	7670			P
7440-47-3	Chromium	10.5		N*	P
7440-48-4	Cobalt	8.9	B		P
7440-50-8	Copper	20.5			P
7439-89-6	Iron	20000		*	P
7439-92-1	Lead	8.1			F
7439-95-4	Magnesium	4450		*	P
7439-96-5	Manganese	229		N*	P
7439-97-6	Mercury	0.08	B		CV
7440-02-0	Nickel	17.5			P
7440-09-7	Potassium	1490			P
7782-49-2	Selenium	0.32	U	N	F
7440-22-4	Silver	0.62	U		P
7440-23-5	Sodium	282	B		P
7440-28-0	Thallium	0.32	B		F
7440-62-2	Vanadium	36.3			P
7440-66-6	Zinc	64.3		*	P
	Cyanide	0.24	B		AS
7440-32-6	Titanium	1410		N*	P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

FORM I - IN

ILM03.0

2a

9713506.1354

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09WG4

Lab Name: ITAS_ST._LOUIS_____ Contract: 519.04____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0005_____
Matrix (soil/water): SOIL_ Lab Sample ID: 4698-002
Level (low/med): LOW__ Date Received: 03/15/94
% Solids: _97.4

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5990			P
7440-36-0	Antimony	6.3	U	N	P
7440-38-2	Arsenic	1.8	B		F
7440-39-3	Barium	50.9			P
7440-41-7	Beryllium	0.35	B		P
7440-43-9	Cadmium	0.99	B		P
7440-70-2	Calcium	4170			P
7440-47-3	Chromium	54.6		N*	P
7440-48-4	Cobalt	8.2	B		P
7440-50-8	Copper	21.1			P
7439-89-6	Iron	17300		*	P
7439-92-1	Lead	156			F
7439-95-4	Magnesium	4250		*	P
7439-96-5	Manganese	203		N*	P
7439-97-6	Mercury	1.2			CV
7440-02-0	Nickel	22.4			P
7440-09-7	Potassium	733	B		P
7782-49-2	Selenium	0.29	U	N	F
7440-22-4	Silver	14.9			P
7440-23-5	Sodium	205	B		P
7440-28-0	Thallium	0.10	U		F
7440-62-2	Vanadium	28.8			P
7440-66-6	Zinc	88.8		*	P
	Cyanide	0.03	U		AS
7440-32-6	Titanium	1100		N*	P

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM
Color After: COLORLESS Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN

ILM03.0

3a

9713506.1355

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09WG5

Lab Name: ITAS_ST._LOUIS Contract: 519.04
Lab Code: ITMO Case No.: SAS No.: SDG No.: W0005
Matrix (soil/water): SOIL Lab Sample ID: 4679-001
Level (low/med): LOW Date Received: 03/11/94
% Solids: 95.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6020			P
7440-36-0	Antimony	6.4	U	N	P
7440-38-2	Arsenic	3.4			F
7440-39-3	Barium	47.9			P
7440-41-7	Beryllium	0.29	B		P
7440-43-9	Cadmium	0.72	B		P
7440-70-2	Calcium	2600			P
7440-47-3	Chromium	67.8		N*	P
7440-48-4	Cobalt	5.2	B		P
7440-50-8	Copper	12.4			P
7439-89-6	Iron	11200		*	P
7439-92-1	Lead	4.7			F
7439-95-4	Magnesium	3060		*	P
7439-96-5	Manganese	133		N*	P
7439-97-6	Mercury	4.7			CV
7440-02-0	Nickel	13.4			P
7440-09-7	Potassium	746	B		P
7782-49-2	Selenium	0.35	B	WN	F
7440-22-4	Silver	0.57	U		P
7440-23-5	Sodium	171	B		P
7440-28-0	Thallium	0.11	U		F
7440-62-2	Vanadium	14.7			P
7440-66-6	Zinc	32.5		*	P
	Cyanide	0.24	B		AS
7440-32-6	Titanium	578		N*	P

Color Before: BROWN Clarity Before: Texture: MEDIUM
Color After: COLORLESS Clarity After: Artifacts:

Comments:

FORM I - IN

ILM03.0

4a

9715506.1356

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09WH2

Lab Name: ITAS_ST._LOUIS_____ Contract: 519.04____
Lab Code: ITMO___ Case No.:_____ SAS No.:_____ SDG No.: W0005_____
Matrix (soil/water): SOIL_ Lab Sample ID: 4743-001
Level (low/med): LOW__ Date Received: 03/21/94
% Solids: _92.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	11300			P
7440-36-0	Antimony_	6.6	U	N	P
7440-38-2	Arsenic__	8.0		S	F
7440-39-3	Barium___	98.2			P
7440-41-7	Beryllium	0.57	B		P
7440-43-9	Cadmium__	0.89	B		P
7440-70-2	Calcium__	12400			P
7440-47-3	Chromium_	17.0		N*	P
7440-48-4	Cobalt___	9.6	B		P
7440-50-8	Copper___	16.6			P
7439-89-6	Iron_____	21600		*	P
7439-92-1	Lead_____	10.2		S	F
7439-95-4	Magnesium	7400		*	P
7439-96-5	Manganese	320		N*	P
7439-97-6	Mercury__	0.05	U		CV
7440-02-0	Nickel___	18.9			P
7440-09-7	Potassium	2230			P
7782-49-2	Selenium_	0.30	U	WN	F
7440-22-4	Silver___	0.59	U		P
7440-23-5	Sodium___	260	B		P
7440-28-0	Thallium_	0.11	U		F
7440-62-2	Vanadium_	34.5			P
7440-66-6	Zinc_____	55.9		*	P
	Cyanide__	0.07	B		AS
7440-32-6_	Titanium_	1020		N*	P

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM
Color After: COLORLESS Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN

ILM03.0

SA

9713506_1357

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09WH3

Lab Name: ITAS_ST._LOUIS_____ Contract: 519.04____

Lab Code: ITMO___ Case No.:_____ SAS No.:_____ SDG No.: W0005_____

Matrix (soil/water): SOIL_ Lab Sample ID: 4743-002

Level (low/med): LOW__ Date Received: 03/21/94

% Solids: _91.6

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	11400			P_
7440-36-0	Antimony_	6.7	U	N	P_
7440-38-2	Arsenic__	7.1			F_
7440-39-3	Barium___	102			P_
7440-41-7	Beryllium	0.57	B		P_
7440-43-9	Cadmium__	0.97	B		P_
7440-70-2	Calcium__	12400			P_
7440-47-3	Chromium_	17.6		N*	P_
7440-48-4	Cobalt___	10.4	B		P_
7440-50-8	Copper___	17.8			P_
7439-89-6	Iron____	22100		*	P_
7439-92-1	Lead____	10.7		S	F_
7439-95-4	Magnesium	7670		*	P_
7439-96-5	Manganese	330		N*	P_
7439-97-6	Mercury__	0.05	U		CV
7440-02-0	Nickel___	19.7			P_
7440-09-7	Potassium	2210			P_
7782-49-2	Selenium_	0.31	U	WN	F_
7440-22-4	Silver___	0.59	U		P_
7440-23-5	Sodium___	240	B		P_
7440-28-0	Thallium_	0.11	U		F_
7440-62-2	Vanadium_	32.4			P_
7440-66-6	Zinc____	61.8		*	P_
	Cyanide__	0.07	B		AS
7440-32-6_	Titanium_	1020		N*	P_

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: COLORLESS Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN

ILM03.0

6a

9713506.1358

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09WH4

Lab Name: ITAS_ST._LOUIS Contract: 519.04
Lab Code: ITMO Case No.: SAS No.: SDG No.: W0005
Matrix (soil/water): SOIL Lab Sample ID: 4743-003
Level (low/med): LOW Date Received: 03/21/94
% Solids: 86.8

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8780			P
7440-36-0	Antimony	7.0	U	N	P
7440-38-2	Arsenic	6.0		S	F
7440-39-3	Barium	103			P
7440-41-7	Beryllium	0.60	B		P
7440-43-9	Cadmium	0.88	B		P
7440-70-2	Calcium	116000			P
7440-47-3	Chromium	11.7		N*	P
7440-48-4	Cobalt	8.4	B		P
7440-50-8	Copper	18.2			P
7439-89-6	Iron	15600		*	P
7439-92-1	Lead	5.3			F
7439-95-4	Magnesium	9600		*	P
7439-96-5	Manganese	540		N*	P
7439-97-6	Mercury	0.06	U		CV
7440-02-0	Nickel	13.7			P
7440-09-7	Potassium	1130	B		P
7782-49-2	Selenium	0.32	U	WN	F
7440-22-4	Silver	0.62	U		P
7440-23-5	Sodium	290	B		P
7440-28-0	Thallium	0.12	U		F
7440-62-2	Vanadium	65.9			P
7440-66-6	Zinc	31.8		*	P
	Cyanide	0.07	B		AS
7440-32-6	Titanium	980		N*	P

Color Before: BROWN Clarity Before: Texture: MEDIUM
Color After: COLORLESS Clarity After: Artifacts:

Comments:

FORM I - IN

ILM03.0

7a

9713506.1359

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09WI0

Lab Name: ITAS_ST._LOUIS_____ Contract: 519.04____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0005_____
Matrix (soil/water): SOIL_ Lab Sample ID: 4756-001
Level (low/med): LOW__ Date Received: 03/23/94
% Solids: _96.1

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7180			P
7440-36-0	Antimony	6.3	U	N	P
7440-38-2	Arsenic	3.3			F
7440-39-3	Barium	34.0	B		P
7440-41-7	Beryllium	0.42	B		P
7440-43-9	Cadmium	0.62	B		P
7440-70-2	Calcium	4320			P
7440-47-3	Chromium	9.1		N*	P
7440-48-4	Cobalt	6.6	B		P
7440-50-8	Copper	10.1			P
7439-89-6	Iron	17500		*	P
7439-92-1	Lead	6.1			F
7439-95-4	Magnesium	5460		*	P
7439-96-5	Manganese	249		N*	P
7439-97-6	Mercury	0.05	U		CV
7440-02-0	Nickel	11.2			P
7440-09-7	Potassium	1120			P
7782-49-2	Selenium	0.29	U	WN	F
7440-22-4	Silver	0.56	U		P
7440-23-5	Sodium	175	B		P
7440-28-0	Thallium	0.10	U		F
7440-62-2	Vanadium	19.0			P
7440-66-6	Zinc	38.2		*	P
	Cyanide	0.03	U		AS
7440-32-6	Titanium	645		N*	P

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM
Color After: COLORLESS Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN

ILM03.0

Ga

9715506.1360

1D
HBH ANALYSIS DATA SHEET

EPA SAMPLE NO.
B09WG5

Lab Name: ITAS-St. Louis
Contract: 519.04

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: W0005

Matrix : (soil/water) SOIL
Lab Sample ID: 4679-001

Sample wt/vol: 20.2 (g/ml) g
Lab File ID: _____

Level: (low/med) LOW
Date Sampled: 03-08-94

% Moisture: not dec. 5 dec. _____
Date Extracted: 03-22-94

Extraction: (SepF/Cont/Sonc/Shak) SHAK
Date Analyzed: 03-24-94

GPC Cleanup: (Y/N) N pH: _____
Dilution Factor: 1

CAS NO.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/Kg	Q
	HBH (1)	26	U

U: Concentration of analyte is less than the value given.

(1): High Boiling Hydrocarbon (HBH) is quantitated as if it is Fuel Oil #2.

FORM I HBH

2a

1D
HBH ANALYSIS DATA SHEET

EPA SAMPLE NO.
B09WI8

Lab Name: ITAS-St. Louis
Contract: 519.04

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: W0005

Matrix : (soil/water) SOIL
Lab Sample ID: 4698-001

Sample wt/vol: 20.2 (g/ml) g
Lab File ID: _____

Level: (low/med) LOW
Date Sampled: 03-10-94

% Moisture: not dec. 13 dec. _____
Date Extracted: 03-22-94

Extraction: (SepF/Cont/Sonc/Shak) SHAK
Date Analyzed: 03-25-94

GPC Cleanup: (Y/N) N pH: _____
Dilution Factor: 1

CAS NO.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/Kg	Q
	HBH (1)	29	U

U: Concentration of analyte is less than the value given.

(1): High Boiling Hydrocarbon (HBH) is quantitated as if it is Fuel Oil #2.

1D
HBH ANALYSIS DATA SHEET

EPA SAMPLE NO.
B09WG4

Lab Name: ITAS-St. Louis Contract: 519.04

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: W0005

Matrix : (soil/water) SOIL Lab Sample ID: 4698-002

Sample wt/vol: 20.1 (g/ml) g Lab File ID: _____

Level: (low/med) LOW Date Sampled: 03-08-94

% Moisture: not dec. 2 dec. _____ Date Extracted: 03-22-94

Extraction:(SepF/Cont/Sonc/Shak) SHAK Date Analyzed: 03-25-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CAS NO.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/Kg	Q
	HBH (1)	26	U

U: Concentration of analyte is less than the value given.

(1): High Boiling Hydrocarbon (HBH) is quantitated as if it is Fuel Oil #2.

FORM I HBH

4a

1D
HBH ANALYSIS DATA SHEET

EPA SAMPLE NO.
B09WH2

Lab Name: ITAS-St. Louis
Contract: 519.04

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: W0005

Matrix : (soil/water) SOIL
Lab Sample ID: 4743-001

Sample wt/vol: 20.1 (g/ml) g
Lab File ID: _____

Level: (low/med) LOW
Date Sampled: 03-17-94

% Moisture: not dec. 8 dec. _____
Date Extracted: 03-28-94

Extraction: (SepF/Cont/Sonc/Shak) SHAK
Date Analyzed: 03-30-94

GPC Cleanup: (Y/N) N pH: _____
Dilution Factor: 1

CAS NO.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/Kg	Q
	HBH (1)	27	U

U: Concentration of analyte is less than the value given.

(1): High Boiling Hydrocarbon (HBH) is quantitated as if it is Fuel Oil #2.

FORM I HBH

5a

1D
HBH ANALYSIS DATA SHEET

EPA SAMPLE NO.
B09WH3

Lab Name: ITAS-St. Louis Contract: 519.04

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: W0005

Matrix : (soil/water) SOIL Lab Sample ID: 4743-002

Sample wt/vol: 20.1 (g/ml) g Lab File ID: _____

Level: (low/med) LOW Date Sampled: 03-17-94

% Moisture: not dec. 8 dec. _____ Date Extracted: 03-28-94

Extraction:(SepF/Cont/Sonc/Shak) SHAK Date Analyzed: 03-30-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CAS NO.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/Kg	Q
	HBH (1)	27	U

U: Concentration of analyte is less than the value given.

(1): High Boiling Hydrocarbon (HBH) is quantitated as if it is Fuel Oil #2.

FORM I HBH

6a

9713506.1365

1D
HBH ANALYSIS DATA SHEET

EPA SAMPLE NO.
B09WH4

Lab Name: ITAS-St. Louis Contract: 519.04

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: W0005

Matrix : (soil/water) SOIL Lab Sample ID: 4743-003

Sample wt/vol: 20.1 (g/ml) g Lab File ID: _____

Level: (low/med) LOW Date Sampled: 03-17-94

% Moisture: not dec. 13 dec. _____ Date Extracted: 03-28-94

Extraction:(SepF/Cont/Sonc/Shak) SHAK Date Analyzed: 03-30-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CAS NO.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/Kg	Q
	HBH (1)	28	U

U: Concentration of analyte is less than the value given.

(1): High Boiling Hydrocarbon (HBH) is quantitated as if it is Fuel Oil #2.

FORM I HBH

7a

1D
HBH ANALYSIS DATA SHEET

EPA SAMPLE NO.
B09WI0

Lab Name: ITAS-St. Louis
Contract: 519.04

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: W0005

Matrix : (soil/water) SOIL
Lab Sample ID: 4756-001

Sample wt/vol: 20.0 (g/ml) g
Lab File ID: _____

Level: (low/med) LOW
Date Sampled: 03-22-94

% Moisture: not dec. 4 dec. _____
Date Extracted: 03-28-94

Extraction:(SepF/Cont/Sonc/Shak) SHAK
Date Analyzed: 03-30-94

GPC Cleanup: (Y/N) N pH: _____
Dilution Factor: 1

CAS NO.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/Kg	Q
	HBH (1)	26	U

U: Concentration of analyte is less than the value given.

(1): High Boiling Hydrocarbon (HBH) is quantitated as if it is Fuel Oil #2.

8a

W0005-ITC-020

9213506.1367

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 3/11/94 1055 Client Name WHC

Project/Client # 94-065 Batch or Case # N/A

Cooler ID (if noted on the outside of cooler) SML-178

1. Condition of shipping container? OK
2. Custody Seals on cooler intact? Yes ☒ No ☐
3. Custody Seals dated and signed? Yes ☒ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☒ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☒
6. Each sample is in a plastic bag? Yes ☒ No ☐
7. Number of sample containers in cooler: 8
8. Samples have: ____ tape ☒ hazard labels
   ☒ custody seals ☒ appropriate sample labels
9. Samples are: ☒ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☒ No ☐

Sample temperature 4°C

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

Printed Name/Signature Tom Gilmore Date/Time 3/11/94 1055

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

0000014

9213506.1368

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2300 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST
SAMPLE NUMBER MATRIX

WHC ID NUMBER	SAMPLE LABEL NUMBER	LABORATORY ID NUMBER	AGREEMENT OF INFORMATION
B09WG4	Same	40323401A-G	Yes

0000015

FORM NO. LS-043, Rev. 0, 2/94

9215506.1369

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.W. SETZER

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-8-94

Ice Chest No.:

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 RADIOACTIVE

Sample Identification

1) 403235 01 TH 3/11/94

A 1,250ml P:CLP;TAL Metals,Hg,Ti B09W64

B 1,250ml Gs:VOA CLP

C 1,250ml aG:Semi-VOA CLP

D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)

E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)

~~1,250ml aGs:PCB/Pest (8080)~~ 3-9-94

F 1,125ml G:Cyanide CLP

G 1,125ml Gw:Kerosene (8015M)

1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40323501

2)

~~1,250ml P:CLP;TAL Metals,Hg,Ti B09W65 3-11-94 WWS~~

~~1,250ml Gs:VOA CLP~~

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~ 3-9-94 WWS 3-11-94

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W. V. Setzer	805 cpm ITAS	3/11/94 1055
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

0000016

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9215596.1570

Westinghouse Hanford Company	SAMPLE ANALYSIS REQUEST

Collector L E ROGERS S.A.F. # 94-065 Date 3-8-94
Company Contact L E ROGERS Telephone (509) 376-7690

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B09WG4	S	3-8-94	0905	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) ~~1,250ml aGs:PCB/Pest (8080)~~ BR 3-9-94 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)
~~B09WG5~~	~~S~~	~~3-9-94~~ WVS 3-11-94	~~0937~~	~~1,250ml P:CLP;TAL Metals,Hg,Ti~~ ~~1,250ml Gs:VOA CLP~~ ~~1,250ml aG:Semi-VOA CLP~~ ~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~ ~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~ ~~1,250ml aGs:PCB/Pest (8080)~~ BR 3-9-94 ~~1,125ml G:Cyanide CLP~~ ~~1,125ml Gw:Kerosene (8015M)~~ ~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

*Type of Sample	A = Air	L = Liquid	SE = Sediment	T = Tissue	X = Other
	DL = Drum Liquids	O = Oil	SL = Sludge	W = Water	
	DS = Drum Solids	S = Soil	SO = Solid	WI = Wipe	

Field Information **IT, Richland**

Special Handling and/or Storage Maintain at 4C ; (SOIL)

Possible Sample Hazards RADIOACTIVE

0000017

A-6000-406 (06/91) WEF060

Emergency Contact: (509) 373-3800 Overnight Delivery Air Bill # ERG#6 / ATTACHED

SHIP TO:

Company: International Technologies

Address: 2800 George Washington Way

City, State, Zip: Richland, WA 99352

Attention: Tammy Hiedelberg

OFFSITE RADIOACTIVE SHIPMENT RECORD

- EXTERIOR INSPECTION PERMITTED -

18105

Contractor: ☐ PNL ☐ KEH ☒ WHC

Site Carrier: W.U. SETZER

PR No. 84279 Veh. No. 16-7566

Ship: ☒ Prepaid ☐ Collect Via: ☐ Motor-Rail ☐ Air Psgr. ☐ Excl. Use ☐ Air Cargo ☒ DOE Veh. ☐ Mail ☐ UPS Sur. ☐

SHIPMENT DESCRIPTION AND CERTIFICATION

Proper Shipping Name: Radioactive Material, ~~n.o.s.~~ of Material, 7

UN Number:
- ☐ UN 2908
- ☐ UN 2912
- ☒ UN 2910
- ☐ UN 2982
- ☐ UN 2918
- ☐ UN 2974
- ☐ UN 2911

1. Empty Packages
3. Limited quantity
6. Special Form, n.o.s.
7. Instruments & Articles
8.

Material Form: ☐ Special (A1) ☒ Normal (A2)

Labels Applied: ☐ Empty ☐ Radioactive LSA ☐ White I ☐ Yellow II ☐ Yellow III ☒ None ☐ Danger (Air Cargo) ☐ Secondary

Material Category: ☐ Empty ☐ Low Specific Act. (LSA) ☒ Limited Quantity ☐ Type A Quantity ☐ Type B Quantity ☐ Highway Route Controlled Quantity

For Normal Form Identify:

Physical Form: ☒ Solid ☐ Liquid ☐ Gas

Chemical Form: ☐ Metal ☐ Oxide ☒ Elemental ☐ Nitrate

Other

TYPE PACKAGE: ☒ Strong Tight ☐ Type A ☐ Type B ☐ Type B (U) ☐ Type B (M)

CONSTRUCTION: ☐ Box, FB ☐ Wood ☐ Steel ☐ Drum ☐ Cask ☒ Other Poly cooler

FISSILE CLASS: ☒ Non Fissile ☐ Fissile Exempt ☐ Fissile I ☐ Fissile II ☐ Fissile III

Grams Fissile

SNM: ☒ No ☐ Yes ☐ < 1 gr ☐ Category I ☐ Category II ☐ Category III

ACCOUNTABILITY/SECURITY CONTROL: ☐ Classified ☒ Unclassified

Consignee authorized to receive this qty ☒

~~Sig. Security Svc. Req.~~ ☐ N/A ☒

~~Pu, U, U > 1 g~~ ☐ N/A ~~All, U, U > 1 Kg~~ ☐

Security Escorts Req: ☐ Not Req. ☒

External Cask Temperature: N/A ☒ (Max. 122° F LTL, 180° F Ex. Use) °F

Packaging conforms to appropriate packaging procedure ☐ N/A ☒ Yes

Complies with D.O.T packaging marking and labeling requirements ☐ N/A ☒ Yes

Container acceptability documented (incl 7A cert.) ☒ N/A ☐ Yes

Container examined: No evidence of deterioration or damage ☒ Yes

QA Inspection Current ☐ Yes ☒ N/A ~~Seals intact~~ ☐ Yes

Shipping Doc. 49 CFR Authorization No. N/A

No. Pkgs.	Model Package	COC/Spec. No.	Serial No.	Seal No.	Isotopes	Curies/Pkg.	T.I.	Gr. Wt.
1	Strong Tight	N/A	N/A	N/A	Sr90, Cs137	0.6 uCi	N/A	48 LBS
Poly Cooler # SML 178 contains 8 bottles, total volume 2230 ml								
Sample #s: B09WG4								
Soil samples in glass bottles, bottles are double bagged and packed in wet ice & vermiculite						0.6 uCi	N/A	48 LBS

(Shipper may describe package in detail on one of unused lines above)

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable federal, state, local and international regulations for the transportation of hazardous materials.

Certifier's Signature: [signature] Date: 3/11/94 Organization: Env Field Services Complete Cost Code (inc. end function): PT2BA

AREA MONITOR

Surface Dose Rate of Package: ☒ ≤ 0.5 or ___ mrem/hr (N + βγ)

Dose Rate at 1 Meter from Surface of Package: ☒ ≤ 0.5 or ___ mrem/hr (N + βγ)

Smears of Outer Container: ☒ ≤ 22 dpm βγ/cm² ☒ ≤ 2.2 dpm α/cm²

TRUCK LOAD OR EXCLUSIVE USE: Surface: ☐ ≤ 200 mrem/hr (N + βγ) @ 6 feet: ☐ ≤ 10 mrem/hr (N + βγ) @ Cab or Sleeper: ☐ ≤ 2.0 mrem/hr (N + βγ)

Additional Data and Instructions (inc. Readings on Internal Packaging)

Signature - Radiation Monitoring: [signature] Bldg. 222U Survey No. 157438 Date 3-11-94

00000018

AUTHORIZATION FOR SHIPMENT

APPROVAL

AIR TRANSPORT CERTIFICATION ▸ Cargo Only: ☐ Danger Labels Applied

Passenger: ☐ 1. Ltd. Qty. ☐ 2. ≤ 3 T.I. ☐ 3. Research or Medical Diagnosis ☐ 4. Human Medical Research

Pkg. Dimensions: N/A

Traffic has inspected and verified preshipment compliance to DOT regulations.

Authorized Signature ▸ [signature] Printed Name ▸ M.A. SAMS Date ▸ 3-11-94

APPROVED FOR OFFSITE SHIPMENT

TRAFFIC

B.L. No. PNW 8526 Date Shipped 3-11-94 E.T.A. 3-11-94 Routing WHC VEHICLE ☐ N/A

Placards: ☐ Yes ☒ No

Surveyed By — Date — Approved for Shipment Westinghouse Hanford Company [signature] Date 3-11-94

Route Plan: ☐ Yes ☒ No

54-6000-088 (10/88)

TIME DATE: 3/11/94 1055

9213506.1572

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
1300 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 3/14/94 1430 Client Name WHC

Project/Client # 94-065 Batch or Case # na

Cooler ID (if noted on the outside of cooler) WHC 169

1. Condition of shipping container? OK
2. Custody Seals on cooler intact? Yes ☒ No ☐
3. Custody Seals dated and signed? Yes ☒ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☐ No ☒ (outside)
5. Vermiculite/packing material is: Wet ☒ Dry ☐
6. Each sample is in a plastic bag? Yes ☒ No ☐
7. Number of sample containers in cooler: 18
8. Samples have: ____ tape ✓ hazard labels ✓ custody seals ✓ appropriate sample labels
9. Samples are: ✓ in good condition ____ leaking ____ broken ____ have air bubbles ____ other
10. Coolant present? Yes ☒ No ☐

Sample temperature 2°

11. The following paperwork should be accounted for (N/A if not applicable):

Chain of Custody #'(s) N/A

Request for analysis #(s) N/A

Airbill # N/A Carrier ____

12. Have any anomalies been identified above? Yes ☐ No ☒
13. Memos have been initiated for all anomalies identified above? Yes ☐

Printed Name/Signature R. Boyd R. Boyd Date/Time 3/14/94 1430

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

0000019

9713506.1373

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
1800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST
SAMPLE NUMBER MATRIX

WHC ID NUMBER	SAMPLE LABEL NUMBER	LABORATORY ID NUMBER	AGREEMENT OF INFORMATION
60BWI8	Same	40326401 AH 40326501	Chem Rad Yes
B09WG4	Same	40326402 AC 40326502	Chem Rad Yes
B09WJ1	Same	40326403	Chem Yes

0000020

FORM NO. LS-043, Rev. 0, 2/94

EMERGENCY COMPANY: 509 943-5000 OVERNIGHT DELIVERY AIR BILL #

SHIPPING INST.

SHIP TO: 9713506 1374

Company: INTERNATIONAL TECHNOLOGIES

Address: 2800 GEORGE WASHINGTON WAY

City, State, Zip: RICHLAND, WA 99352

Attention: TAMMY KIEDELBERG

OFFSITE RADIOACTIVE SHIPMENT RECORD

– EXTERIOR INSPECTION PERMITTED –

18107

Contractor: ☐ PNL ☐ KEH ☒ WHC

Site Carrier: W.U. SETZER

PR No. 84279 Veh. No. 76-1566

Ship: ☒ Prepaid ☐ Collect Via:

☒ Motor ☐ Air Psgr. ☐ Excl. Use ☐ Air Cargo ☐ DOE Veh. ☐ Mail ☐ UPS Sur. ☐

SHIPMENT DESCRIPTION AND CERTIFICATION

Proper Shipping Name	UN Number
Radioactive Material,	
1. Emnty Packages	☐ UN 2908
2. Excepted Packages	☐ UN 2912
3. Limited quantity	☒ UN 2910
4. N.O.S. MATERIAL, 7	☐ UN 2982
	☐ UN 2918
6. Special Form, n.o.s.	☐ UN 2974
7. Instruments & Articles	☐ UN 2911
8.	☐

Material Form: ☐ Special (A1) ☒ Normal (A2)

Labels Applied: ☐ Empty ☐ Radioactive LSA ☐ White I ☐ Yellow II ☐ Yellow III ☒ None ☐ Danger (Air Cargo) ☐ Secondary

Material Category: ☐ Empty ☐ Low Specific Act (LSA) ☒ Limited Quantity ☐ Type A Quantity ☐ Type B Quantity ☐ Highway Route Controlled Quantity

For Normal Form Identify:

Physical Form: ☒ Solid ☐ Liquid ☐ Gas

Chemical Form: ☐ Metal ☐ Oxide ☒ Elemental ☐ Nitrate

Other

TYPE PACKAGE: ☒ Strong Tight ☐ Type A ☐ Type B ☐ Type B (U) ☐ Type B (M)

CONSTRUCTION: ☐ Box, FB ☐ Wood ☐ Steel ☐ Drum ☐ Cask ☒ Other Poly Cooler

FISSILE CLASS: ☒ Non Fissile ☐ Fissile Exempt ☐ Fissile I ☐ Fissile II ☐ Fissile III

Grams Fissile

SNM: ☒ No ☐ Yes ☐ <1 gr ☐ Category I ☐ Category II ☐ Category III

ACCOUNTABILITY/SECURITY CONTROL: ☐ Classified ☒ Unclassified

Consignee authorized to receive the qty ☒

Sig. Security Sve. Req. ☐ Yes ☐ N/A ☒

Pu, SU > 1 g ☐ N/A ☐

Security Escorts Req. ☐ Yes ☐ Not Req. ☒

External Cask Temperature [redacted]

(Max. 122°F LTL, 180°F [redacted]

Packaging conforms to appropriate packaging procedure ☐ N/A ☒ Yes

Complies with D.O.T. packaging marking and labeling requirements ☐ N/A ☒ Yes

Container acceptability documented (incl. 7A cert.) ☒ N/A ☐ Yes

Container examined: No evidence of [redacted] Yes

QA Inspection Current ☐ Yes ☒ N/A [redacted]

Shipping Doc. 49 CFR [redacted]

No. Pkgs.	Model Package	COC/Spec. No.	Serial No.	Seal No.	Isotopes	[redacted]		
1	STRONG Tight	N/A	N/A	N/A	Sr 90, Cs 137	[redacted]		58 lbs

Poly Cooler # WHC 169 CONTAINS 17 BOTTLES, TOTAL VOLUME: 4750 ML

Soil samples in glass bottles, double-bagged AND PACKED IN WET ICE

SAMPLE #'s: B09WG84, B09WJ1, B09WI8

(Shipper may describe package in de[redacted] of unused lines above) TOTAL 1.7 mci N/A 58 lbs

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable federal, state, local and international regulations for the transportation of hazardous materials.

Certifier's Signature: W.U. Setzer | Date: 3-14-94 | Organization: EFS | Complete Cost Code (inc. end function): PT2BA

AREA MONITOR

Surface Dose Rate of Package: ☒ ≤0.5 or ___ mrem/hr (N + βγ)

Dose Rate at 1 Meter from Surface of Package: ☒ ≤0.5 or ___ mrem/hr (N + βγ)

Smears of Outer Container: ☒ ≤22 dpm βγ/cm² ☒ ≤2.2 dpm α/cm²

TRUCK LOAD OR EXCLUSIVE USE [redacted]

Surface: ☒ ≤ 200 [redacted] mrem/hr (N + βγ)

@ 6 feet: ☒ [redacted] (N + βγ)

@ Cab [redacted] βγ)

or Stowage [redacted]

Additional Data and Instructions (inc. Readings on Internal Packaging)

Signature - Radiation Monitoring: Michael S. Jones | Bldg. 222 U | Survey No. 157442 [redacted]-94

APPROVAL

AUTHORIZATION FOR SHIPMENT

AIR TRANSPORT CERTIFICATION ▶ Cargo Only: ☐ Danger Labels Applied

Passenger: ☐ 1. Ltd. Qty. ☐ 2. ≤3 T.I. ☐ 3. Research or Medical Diagnosis ☐ 4. Human Medical Research

Traffic has inspected and verified preshipment compliance to DOT regulations.

Authorized Signature ▶ M.A. Sams | Printed Name ▶ M.A. SAMS [redacted]-94

APPROVED FOR OFFSITE SHIPMENT

TRAFFIC

B.L. No.	Date Shipped	E.T.A.	Routing	[redacted]	Placards
RMW8528	3-14-94	3-14-94	WHC VEHICLE		☐ Yes ☒ No
Surveyed By	Date	Approved for Shipment		Date	Route Plan
		Westinghouse Hanford Company M.A. Sams		3-14-94	☐ Yes ☒ No

*U.S. GPO: 1991-691-714/40068 [redacted] (10/88)

RECEIVED [redacted] ETAS Date 3/14/94 1430

9716500 SDG W0005

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.W. SETZER

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-10-94

Ice Chest No.: WHC 169

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.: ~~NA~~ WVB 3-14-94 NA

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 RADIOACTIVE

Sample Identification

1) B09WI8

CAT II

400 cpm

403264 01

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
F 1,250ml aGs:PCB/Pest (8080)
G 1,125ml G:Cyanide CLP
H 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40326501

2) B09WG4

200 cpm

403264 02

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ GR 3-14-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40326502

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: W.W. Setzer	Received by: R. Boyd	Date/Time: 3/14/94 1430
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

0000022

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9716506.1576

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.U. SETZER

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-10-94

Ice Chest No.: — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) B09W51

40326403

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
1,250ml Gs:VOA CLP
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,250ml aGs:PCB/Pest (8080)~~
~~1,125ml G:Cyanide CLP~~
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

SER 3-14-94

2)

1,250ml P:CLP;TAL Metals,Hg,Ti
1,250ml Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,250ml aGs:PCB/Pest (8080)
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Name)

Relinquished by:	Received by:	Date/Time:
W.U. Setzer	R. Boyd JT <100	3/14/94 1430
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

000023

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713506.1377

Westinghouse Hanford Company	SAMPLE ANALYSIS REQUEST

Collector L E ROGERS — S.A.F. # 94-065 — Date 3-10-94

Company Contact L E ROGERS — Telephone (509) 376-7690

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B09WI8	S	3-10-94	1020	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) 1,250ml aGs:PCB/Pest (8080) 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)
B09W64	S	3-8-94	0905	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) ~~1,250ml aGs:PCB/Pest (8080)~~ JCR 3-14-94 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

***Type of Sample**

A = Air	L = Liquid	SE = Sediment	T = Tissue	X = Other
DL = Drum Liquids	O = Oil	SL = Sludge	W = Water	
DS = Drum Solids	S = Soil	SO = Solid	WI = Wipe	

Field Information **IT, Richland**

Special Handling and/or Storage Maintain at 4C ; (SOIL)

Possible Sample Hazards RADIOACTIVE

0000024

A-6000-406 (06/91) WEF060

9213506.1378

Westinghouse Hanford Company	SAMPLE ANALYSIS REQUEST

Collector L E ROGERS — S.A.F. # 94-065 — Date 3-10-94

Company Contact L E ROGERS — Telephone (509) 376-7690

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B09W51	S	3-10-94	0700	~~1,250ml P:CLP;TAL Metals,Hg,Ti~~ 1,250ml Gs:VOA CLP ~~1,250ml aG:Semi-VOA CLP~~ ~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~ ~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~ ~~1,250ml aGs:PCB/Pest (8080)~~ ~~1,125ml G:Cyanide CLP~~ ~~1,125ml Gw:Kerosene (8015M)~~ 3-10-94 ~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~
			ER 3-14-94	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) 1,250ml aGs:PCB/Pest (8080) 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

*Type of Sample					
	A = Air	L = Liquid	SE = Sediment	T = Tissue	X = Other
	DL = Drum Liquids	O = Oil	SL = Sludge	W = Water	
	DS = Drum Solids	S = Soil	SO = Solid	WI = Wipe	

Field Information **IT, Richland**

Special Handling and/or Storage Maintain at 4C ; (SOIL)

Possible Sample Hazards NONE NOTED

0000025

A-6000-406 (06/91) WEF060

9713506.1379

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
1300 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 11:20 3-21-94 Client Name WHC

Project/Client # 94-C65 Batch or Case # na

Cooler ID (if noted on the outside of cooler) GWS 127

1. Condition of shipping container? O.K.
2. Custody Seals on cooler intact? Yes ☑ No ☐
3. Custody Seals dated and signed? Yes ☑ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☑ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☑
6. Each sample is in a plastic bag? Yes ☑ No ☐
7. Number of sample containers in cooler: 6 Kit 32144 25
8. Samples have: ____ tape ____ hazard labels
   ✓ custody seals ____ appropriate sample labels
9. Samples are: ✓ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☑ No ☐

Sample temperature 6°C

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

Printed Name/Signature [signature] Date/Time 3/21 1120

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

0000026

9713506.1380

Contractor Westinghouse Hanford Company	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT) W94-0-0369-29

PART I – TO BE COMPLETED BY ORIGINATOR

Department ENVIRONMENTAL	Section ENV Field Services	Unit ENV Charac + sampling

The following items are to be shipped from ☒ Contractor ☐ Vendor

Routing ☒ Contractor ☐ Vendor

Shipped to	Off-site Custodian
IT 2800 George Washington Way Richland, WA 99352	Tammy Hieldelberg
	Full Title Project Coordinator

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1	#127 1 Poly Cooler Contains soil samples that are double-bagged and packed in wet ice and vermiculite. Samples are NON hazardous. Sample # B09WH2, B09WH3, B09WH4, B09WH6	

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

Necessity for the Off-Site Use of this Property

To support drilling and sampling in the 200 Areas.

RECEIVED
MAR 21 1994
PROPERTY RECORDS

0000027

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

RM Clearance for Public Release: Michael S. Jones	RM Survey No 157457	Date 3-21-94
Location of Property (Area & Bldg.) 200 Area	Contact L.E. Rogers	Phone 376-7690
Date Ready for Shipment	Cost Code to be Charged 8B410/PT2AB	Approximate Date This Property will be Returned
Originated By Relinquished by: Jerome E. Rogers	Date 3-21-94	Authorized By Jerome E. Rogers — Date 3-21-94
Signature and Name of Property Control	Custodian Date	Property Management Approval J. Stankel — Date 3/21/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
K. Dryn IT Date 3-31-94 11.05				

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)

9713506.1331

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-17-94

Ice Chest No.: SML-127 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) B09WH2

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ ER 3-17-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

2) B09WH3

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ ER 3-17-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: 3-21-94 0930	Received by:	Date/Time: 3/21 1120
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

0000028

9713506.1332

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-17-94

Ice Chest No.: SML-127 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) B09WH4

1,250ml P:CLP;TAL Metals,Hg,Ti
1,250ml Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ SER 3-17-94
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

~~2)~~

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml Gs:VOA CLP~~
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,250ml aGs:PCB/Pest (8080)~~ SER 3-17-94
~~1,125ml G:Cyanide CLP~~
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
3-21-94 Karen E. Rogers 0930	J Hindelang Jr	3/21 1120
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

0000029

9713506.1333

Westinghouse Hanford Company	SAMPLE ANALYSIS REQUEST

Collector L E ROGERS S.A.F. # 94-065 Date 3-17-94
Company Contact L E ROGERS Telephone (509) 376-7690

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B09WH2	S	3-17-94	1030	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) ~~1,250ml aGs:PCB/Pest (8080)~~ 3-17-94 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)
B09WH3	S	3-17-94	1030	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) ~~1,250ml aGs:PCB/Pest (8080)~~ 3-17-94 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

*Type of Sample	A = Air	L = Liquid	SE = Sediment	T = Tissue	X = Other
	DL = Drum Liquids	O = Oil	SL = Sludge	W = Water	
	DS = Drum Solids	S = Soil	SO = Solid	WI = Wipe	

Field Information IT, Richland

Special Handling and/or Storage Maintain at 4C ; (SOIL)

Possible Sample Hazards NONE NOTED

0000030

A-6000-406 (06/91) WEF060

9213506.1534

Westinghouse Hanford Company	SAMPLE ANALYSIS REQUEST

Collector L E ROGERS S.A.F. # 94-065 Date 3-17-94

Company Contact L E ROGERS Telephone (509) 376-7690

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B09WH4	S	3-17-94	1402	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) ~~1,250ml aGs:PCB/Pest (8080)~~ SER 3-17-94 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)
			SER 3-17-94	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) 1,250ml aGs:PCB/Pest (8080) 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

***Type of Sample** A = Air; L = Liquid; SE = Sediment; T = Tissue; X = Other; DL = Drum Liquids; O = Oil; SL = Sludge; W = Water; DS = Drum Solids; S = Soil; SO = Solid; WI = Wipe

Field Information **IT, Richland**

Special Handling and/or Storage Maintain at 4C ; (SOIL)

Possible Sample Hazards NONE NOTED

A-6000-406 (06/91) WEF060

0000031

9713506.1335

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-21-94

Ice Chest No.: SML-127 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1)

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~ 309WA6

A 1,250ml Gs:VOA CLP

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

FOR 3-21-94

~~2)~~

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~

~~1,250ml Gs:VOA CLP~~

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

FOR 3-21-94

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
3-21-94 0930		3-21 1120
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

0000032

9713506.1336

Westinghouse Hanford Company	SAMPLE ANALYSIS REQUEST

Collector L E ROGERS — S.A.F. # 94-065 — Date 3-21-94

Company Contact L E ROGERS — Telephone (509) 376-7690

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B09WH6	S	3-21-94	0700	~~1,250ml P:CLP;TAL Metals,Hg,Ti~~ 1,250ml Gs:VOA CLP ~~1,250ml aG:Semi-VOA CLP~~ ~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~ ~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~ ~~1,250ml aGs:PCB/Pest (8080)~~ ~~1,125ml G:Cyanide CLP~~ ~~1,125ml Gw:Kerosene (8015M)~~ ~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~ 3-21-94 ~~LER 3-24-94~~
			LER 3-21-94	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) 1,250ml aGs:PCB/Pest (8080) 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

***Type of Sample** A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information **IT, Richland**

Special Handling and/or Storage Maintain at 4C ; (SOIL)

Possible Sample Hazards NONE NOTED

0000033

A-6000-406 (06/91) WEF060

9715506.1537

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
1500 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(Per Shipping Container)

Date/Time Received 3-23-94 11:00 Client Name WHC-19

Project/Client # ~~3-25-94~~ 94-065 Batch or Case # n/A

Cooler ID (if noted on the outside of cooler) WHC-19

1. Condition of shipping container? O.K.
2. Custody Seals on cooler intact? Yes ☑ No ☐
3. Custody Seals dated and signed? Yes ☑ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☑ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☑
6. Each sample is in a plastic bag? Yes ☑ No ☐
7. Number of sample containers in cooler: 9
8. Samples have: ✓ tape ____ hazard labels
   ✓ custody seals ____ appropriate sample labels
9. Samples are: ✓ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☑ No ☐

Sample temperature 6°C

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

Printed Name/Signature Karen Achtenberg Date/Time 3-23-94 11:00

FORM NO. LS-042, Rev 0 2 94

0000034

9713506.1338

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
Westinghouse Hanford Company		W94-0 - C369 #34

PART I - TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
Environmental	Field & Analytical Support	Env. Rest. Fld. Sampling

The following items are to be shipped from ☒ Contractor ☐ Vendor

Routing ☒ Contractor ☐ Vendor

Shipped to
IT
2800 George Washington Way
Richland, WA 99352

Off-site Custodian: Tammy Hiedelberg

Full Title: Project Coordinator

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1	WHC-19 poly cooler. Contains soil samples that are double-bagged and packed in wet ice and vermiculite. Samples are nonhazardous. Sample #'s: B09W10, B09W11	N/A

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

Necessity for the Off-Site Use of this Property

To support drilling at 200-UP-2

RECEIVED
MAR 23 1994
PROPERTY RECORDS

0000035

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
BK Smith	157463	3/23/94

Location of Property (Area & Bldg.)	Contact	Phone
200 Area	376-7690 L. E. Rogers / 376-2413 W. V. Setzer	

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
3-23-94	8B410/PT2AB	N/A

Originated By; Relinquished by:	Date	Authorized By	Date
		W.V. Setzer	3-23-94

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		[illegible]	3/23/94

PART II - TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No	Date Issued	Purchase Order No	Date Issued
Karen Hottenberg IT-S				
Date 3/23/94 11:00				

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)

9713506.1339

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS/W. SETZER

Company Contact: L E ROGERS — Telephone: 376-7690 WVS 3-22-94

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-21-94

Ice Chest No.: WHC-19 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: NA — Offsite Property No.: WB4-0-

Method of Shipment: Government vehicle — SDX-W0011

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065

Sample Identification

1) WVS 3-21-94

BQWI0 40343201

A 1,250ml ~~P~~ aGs:CLP;TAL Metals,Hg,Ti
B 1,250ml ~~Gs~~ aGs:VOA CLP
C 1,250ml ~~aG~~ aGs:Semi-VOA CLP
D 1,125ml ~~G~~ G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml ~~P/G~~ P/G:Anions NO2,NO3 (EPA 353.2)
1,~~250ml aGs:PCB/Pest (8080)~~ WVS 3-21-94
F 1,125ml ~~G~~ G:Cyanide CLP
G 1,125ml ~~G:K~~ G:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40343301

40343202 A

2) BQWI1 (TRIP) 1,250ML, aGs : CLP:VOA

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml Gs:VOA CLP~~
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,250ml aGs:PCB/Pest (8080)~~
~~1,125ml G:Cyanide CLP~~ WVS 3-22-94
~~1,125ml G:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: 3-23-94 0920 W.V. SETZER	Received by: ITAS Karen Ashtenburg 2000	Date/Time: 3-23-94 11:00
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

0000036

9713506.1390

Westinghouse Hanford Company	SAMPLE ANALYSIS REQUEST

Collector L E ROGERS / W.U. SETZER S.A.F. # 94-065 Date 3-23-94
Company Contact L E ROGERS Telephone (509) 376-7690

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B09W10	S	3-22-94	0903	1,250ml ~~P~~ aGs:CLP;TAL Metals,Hg,Ti WUS 3-23-94 1,250ml ~~G~~ aGs:VOA CLP 1,250ml ~~G~~ aGs:Semi-VOA CLP 1,125ml ~~G~~ aGs:Anions F,Cl,SO4 (EPA 300.0) 1,125ml ~~P/G~~ aGs:Anions NO2,NO3 (EPA 353.2) ~~1,250ml aGs:PCB/Pest (8080)~~ WUS 3-23-94 1,125ml ~~G~~ aGs:Cyanide CLP 1,125ml ~~G~~ aGs:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)
B09W11	S	3-22-94	0700	~~1,250ml P:CLP;TAL Metals,Hg,Ti~~ 1,250ml aGs:VOA CLP WUS 3-23-94 ~~1,250ml aG:Semi-VOA CLP~~ ~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~ ~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~ ~~1,250ml aGs:PCB/Pest (8080)~~ ~~1,125ml G:Cyanide CLP~~ ~~1,125ml GW:Kerosene (8015M)~~ 1,~~1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137,~~ Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

*Type of Sample					
	A = Air	L = Liquid	SE = Sediment	T = Tissue	X = Other
	DL = Drum Liquids	O = Oil	SL = Sludge	W = Water	
	DS = Drum Solids	S = Soil	SO = Solid	WI = Wipe	

Field Information IT, Richland

Special Handling and/or Storage Maintain at 4C ; (SOIL)

Possible Sample Hazards NONE OBSERVED

0000037

A-6000-406 (06/91) WEF060

23lbs

CUR 489

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 340325
Page 1 of 1

Project Name/No. 1: SAF # 94-065
Sample Team Members 2:
Profit Center No. 3: 4637
Project Manager 4: [redacted]
Purchase Order No. 6:
Required Report Date 11: [redacted]

Samples Shipment Date 7: 3/11/94
Lab Destination 8: St. Louis
Lab Contact 9:
Project Contact/Phone 12:
Carrier/Waybill No. 13: FedX 3768502586

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

ONE CONTAINER PER LINE

Sample Number 14	Sample Description/Type	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
W403234 01A	B09WG4 / Soil	3/8/94 0905	glass	250ml	4°C	Metals: TAl, Hg, Ti	100% full containers, bottom [illegible]	
B						VOA	FOR LAB USE ONLY	
C						Semi VOA	[illegible]	3-14-94
D				125ml		Anions: Fcl SO4		
E						Anions: NO2 NO3	FOR LAB USE ONLY	
F						CN		
G						kerosene (8015M)		
								3/14/94

Special Instructions: 23

Possible Hazard Identification: 24 Radioactive CAT III
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# W0005

1. Relinquished by 28 (Signature/Affiliation) ITAS	Date: 3/11/94 Time: 1600	1. Received by 28 (Signature/Affiliation)	Date: 03-12-94 Time: 1100
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

0000038

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

MCA 3/15/91

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Temp 3°C CUR 501

Reference Document No. 340326

Page 1 of 2

Project Name/No. 1 SAF #94-065

Sample Team Members 2

Profit Center No. 3 4632

Project Manager 4 Van Petty

Purchase Order No. 6

Required Report Date 11 4-28-94

Samples Shipment Date 7 3-15-94

Lab Destination 8 ST Louis

Lab Contact 9

Project Contact/Phone 12

Carrier/Waybill No. 13 376921929 1

Bill to: 5 IT Richland

Report to: 10 IT 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
40326401 A	B09WI8/soil	3-10-94 10:20	AG	250ml	Cool 4°	ICP Metals, Hg, Ti	100% full	
B						VOA	FOR LAB USE ONLY	
C						SEMI VOA		
D				125 ml		EPA 300.0		
E						EPA ~~353.2~~ 353.1 per [illegible] 3/17/94		
F				250 ml		PCB/Pest	FOR LAB USE ONLY	
G				125ml		cyanide		
H						Kerosene		

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 W0005

1. Relinquished by 28 (Signature/Affiliation) R. Boyd ST	Date: 3-15-94 Time: 16:00	1. Received by 29 (Signature/Affiliation) [signature]	Date: March 16, 1994 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.

MCA 3/15/91

Temp 3°C CUR 501

INTERNATIONAL TECHNOLOGY CORPORATION

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

Reference Document No.[30] 340324

Page 2 of 2

Project Name SAF # 94-065

Project No.

Samples Shipment Date 3-15-94

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description	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.
40326402 A	BOAW GH [redacted]	3-8-94 09:05	AG	250ml	Cool 4°	ICP Metals, Hg, Tl	100% full	
B						Voa	FOR LAB USE ONLY	
C						Semi Voa		
D				125ml		EPA 300.0		
E						EPA ~~353.2~~ 353.1	FOR LAB USE ONLY	
F						Cyanide		
G						Kerosene		
40326403	BOAW51 /Soil	3-10-94 07:00	AG	250ml	Cool 4°	Voa		
40326404 A	TRIP Blank	3-15-94	AG	40ml	Cool 4°	Voa		
B								

0000040

White: To accompany samples

Yellow: Field copy

*See back of form for special instructions.

Temp 0

Cur # 543

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 340337
Page 1 of 2

Project Name/No. 1 SAF 94-065
Sample Team Members 2
Profit Center No. 3 4632
Project Manager 4 Van Petteyr
Purchase Order No. 6
Required Report Date 11

Samples Shipment Date 7 3-21-94
Lab Destination 8 ~~Middlebrook~~ ST. Louis Richland JH 3/21/94
Lab Contact 9
Project Contact/Phone 12
Carrier/Waybill No. 13

Bill to: 5 IT Richland
Report to: 10 IT 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
4-03-385-01A	B09WH2 / Soil	3/17 1030	Amber glass	250ml	Cool 4°	TAL Metals, Hg, Ti	100% full	
B			Amb.			VOA	FOR LAB USE ONLY	
C			Am.			Semi VOA		
D			Amber Clear	125ml		EPA 300.0		
E			clear			EPA 353.2		
F			clear			Cyanide	FOR LAB USE ONLY	
G			Amber			Kerosene		
4-03-385-02A	B09WH3 / Soil		Amber	250ml	Cool 4°	TAL Metals, Hg, Ti		

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): SDG W0010 05 JH 3/21/94

1. Relinquished by 28 (Signature/Affiliation) Heidelberg IT	Date: 3-21-94 Time: 16:00	1. Received by 28 (Signature/Affiliation) John Walker	Date: 03-22-94 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 0000041

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

MCA 3.15.91

INTERNATIONAL TECHNOLOGY CORPORATION

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

Reference Document No.[30] 340337
Page 2 of 2

Project Name SAF 94-065

Project No. SDL W001005 JH 3/21/94

Samples Shipment Date 3-21-94

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description	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.
4-03-385-02B	B09WH3	3/17 1030	glass Amber	250ml	Cool 4°	VOA	100% full	
C			Amber	↓		Semi voa		
D			clear	125ml		EPA 300.0		
E			clear			EPA 353.2		
F			clear			Cyanide		
G			Amber	↓		Kerosene		
4-03-385-03A	B09WH4/Soil	3/17 1402	Am.	250ml		TAL Metals, Hg Ti		
B			Am.			VOA		
C			Am.	↓		Semi-voa		
D			clear	125 ml		EPA 300.0		
E			clear			EPA 353.2 JH 3/21/94		
F			clear			Cyanide		
G			Am	↓		Kerosene		
4-03-385-04A	B09WH6/Soil	3/21 0700	Amber	250ml		VOA		
4-03-385-05A	Trip Blank	3/21/94	Amber	40ml		↓	✓	
↓ B	Trip Blank	↓	Amber	↓	↓			
	0000042							

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

5°
CUR575

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 340341
Page 1 of ____

Project Name/No. [1] SAF 94-065
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] 3-23-94
Lab Destination [8] St Louis
Lab Contact [9]
Project Contact/Phone [12]
Carrier/Waybill No. [13]

Bill to: [5] IT Richland
Report to: [10] IT 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]
4-03-43201A	BOGWIO/Soil	3/22/94 0900	Amber Glass	250 ml	Cool 4°	TAL Metals, Hg, Ti	100% full	
B						Voa	FOR LAB USE ONLY	
C						Semi Voa		
D				125 ml		EPA 300.0		
E						EPA 353.2		
F						Cyanide	FOR LAB USE ONLY	
G						Kerosene		
4-03-432-02A	BOGWI1/Soil	3/22/94 0700		250 ml		VOA		

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): SDG W00005

1. Relinquished by [28] (Signature/Affiliation) R. Boyd Jr	Date: 3-23-94 Time: 1600	1. Received by [28] (Signature/Affiliation) Sue Anderson	Date: 03.24.94 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]

0000043

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

INTERNATIONAL TECHNOLOGY CORPORATION

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

Reference Document No.[30] 340341
Page 2 of 2

Project Name SAF 94-065   Project No.   Samples Shipment Date

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]
4-03-432-03A	Trip Blank	3-23-94	AG	40ml	Cool 4°	Voa	100% full	
↓ B	Trip Blank	↓	↓	↓	↓	Voa	↓	
	0000044							

FOR LAB USE ONLY

White: To accompany samples   Yellow: Field copy

*See back of form for special instructions.

9715506.1598

Login No.: 4679

Condition Upon Receipt/Variance Report
ITAS - St. Louis Laboratory

Project Number: 519.04

Initiated By (signature): Sue Atkins

Receipt Date/Time: 03-12-94 1150

RFA/COC Numbers: 340323 / 340325

Login Date and Time: 03-14-94 1356

Login Review Date/Time: 03-14-94 1500

Login Release Date and Time: 03-16-94 17:46

Information Checklist (circle Y or N):

1.	Y	N	Air Bill included with shipment? 376 8502 586	8.	Y	N	Custody seals on Sample Containers? All ok
2.	Y	N	Damage to Shipping Containers?	9.	Y	N	Temperature of Container(s) 4 ± 2° C? List temperature(s) 1°
3.	Y	N	Shipping Containers Rad Surveyed?	10.	Y	N	Broken/Leaking Containers?
4.	Y	N	Custody Seals on Shipping Containers?	11.	Y	N	Do Sample Containers Match C of C?
5.	Y	N	Shipping Containers Opened in hood?	12.	Y	N	Are preservatives correct? temp.
6.	Y	N	Client Chain of Custody included?		Y	N	Is the pH < 2 for acid preserved samples? metals oil sample is not preserved
7.	Y	N	Headspace in VOA samples? n/a		Y	N	Is the pH > 12 for base preserved samples? n/a

Notes: ~~See client~~ custody seal on TCLP metals B0BJ20 container was not intact, has obviously been opened. Sample date for W403234 samples on C-O-C is 03-08-94 - jars have 03-09-94. I.D. on jar for sampl W403234-01 ~~W403234~~ has description of B09WG4 5, C-O-C has B09WG4.

Corrective Action: ~~W4328~~ 03-14-94

☑ Client's Name: ITAS-Richland Informed ~~verbally~~ by FAX on: 3/14/94 By: WMP

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

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

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

Project Management Review: Wade A. Price Date: 3/14/94

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

C.U.R. and C.O.C.
COPIED TO: W. Price
DATE: 03-12-94
TIME: 1359
BY: SJ

SL-92-QA-0026, Rev.1

0000045

9713506.1399

Login No.: 4698

Condition Upon Receipt/Variance Report
ITAS - St. Louis Laboratory

Project Number: 519.04

Initiated By (signature): Stephen Schrader

Receipt Date/Time: March 16, 1994 0900

RFA/COC Numbers: 340326

Login Date and Time: 03-16-94 16:13

Login Review Date/Time: 03-16-94 1645

Login Release Date and Time: 03-22-94 0750

Information Checklist (circle Y or N):

1.	Y	N	Air Bill included with shipment? 5769219291	8.	Y	N	Custody seals on Sample Containers? * see below
2.	Y	N	Damage to Shipping Containers?	9.	Y	N	Temperature of Container(s) 4 ± 2° C? List temperature(s) 3°
3.	Y	N	Shipping Containers Rad Surveyed?	10.	Y	N	Broken/Leaking Containers?
4.	Y	N	Custody Seals on Shipping Containers?	11.	Y	N	Do Sample Containers Match C of C?
5.	Y	N	Shipping Containers Opened in hood?	12.	Y	N	Are preservatives correct? Temp 3°C
6.	Y	N	Client Chain of Custody included?	n/a	Y	N	Is the pH < 2 for acid preserved samples?
7.	Y	N	Headspace in VOA samples?	n/a	Y	N	Is the pH > 12 for base preserved samples?

Notes: * All samples had custody seals except the two trip blank viles.

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: _____

Project Management Review: W A Price Date: 3/17/94

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

C.U.R. and C.O.C.
COPIED TO: Wade Price
DATE: March 16, 1994
TIME: 1015
BY: Stephen Schrader

SL-92-QA-0026, Rev.1

00000046

9713506.1400

Login No.: 4743

Condition Upon Receipt/Variance Report
ITAS - St. Louis Laboratory

Project Number: 519.04

Initiated By (signature): John Walker

Receipt Date/Time: 03-22-94 0900

RFA/COC Numbers: 340337

Login Date and Time: 03-22-94 1527

Login Review Date/Time: 03-22-94 1700

Login Release Date and Time: 03-22-94 14:01

Information Checklist (circle Y or N):

1.	Y	(N)	Air Bill included with shipment? 377 0789 531	8.	(Y)	N	Custody seals on Sample Containers?
2.	Y	(N)	Damage to Shipping Containers?	9.	Y	(N)	Temperature of Container(s) 4 ± 2° C? T. check frozen List temperature(s) 0°C
3.	(Y)	N	Shipping Containers Rad Surveyed? * see below	10.	Y	(N)	Broken/Leaking Containers?
4.	(Y)	N	Custody Seals on Shipping Containers?	11.	(Y)	N	Do Sample Containers Match C of C?
5.	(Y)	N	Shipping Containers Opened in hood?	12.	Y	(N)	Are preservatives correct? 0°C
6.	(Y)	N	Client Chain of Custody included?		Y	N	Is the pH < 2 for acid preserved samples? N/A
7.	Y	(N)	Headspace in VOA samples?		Y	N	Is the pH > 12 for base preserved samples?

Notes: * sample # 4-03-385-03D for EPA 300.0 1x125mL w/mouth clear - was dropped while being rcvd. in sample control. The bottom of the jar broke off - but the sample remained intact in container. The container was then placed in ziplok-bag. gw 03-22-94

Corrective Action:

☑ Client's Name: S. Gaines Informed ~~verbally~~ Fax on: 3/22/94 12:05p By: WHP

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

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

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

Project Management Review: W H Price Date: 3/22/94

0000047

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

Copied 03-22-94 1200

SL-92-QA-0026, Rev.1

Use dropped sample as backup.
Temp checked in cooler: T. check vial frozen solid

9713506.1401

Login No.: 4756

Condition Upon Receipt/Variance Report
ITAS - St. Louis Laboratory

Project Number: 519.04

Initiated By (signature): Sue Miller

Receipt Date/Time: 03.24.94 0900

RFA/COC Numbers: 340341

Login Date and Time: 03-24-94 1635

Login Review Date/Time: 03-24-94 1700

Login Release Date and Time: 03-30-94 0900

Information Checklist (circle Y or N):

377 1661 047

1.	Y	N	Air Bill included with shipment?	8.	Y	N	Custody seals on Sample Containers?
2.	Y	N	Damage to Shipping Containers?	9.	Y	N	Temperature of Container(s) 4 ± 2° C? List temperature(s) 4° / temp. via 4°
3.	Y	N	Shipping Containers Rad Surveyed?	10.	Y	N	Broken/Leaking Containers?
4.	Y	N	Custody Seals on Shipping Containers?	11.	Y	N	Do Sample Containers Match C of C?
5.	Y	N	Shipping Containers Opened in hood?	12.	Y	N	Are preservatives correct?
6.	Y	N	Client Chain of Custody included?	n/a	Y	N	Is the pH < 2 for acid preserved samples?
7.	Y	N	Headspace in VOA samples?	n/a	Y	N	Is the pH >12 for base preserved samples?

Notes: Samples packed in bubble wrap & individual ziploks. 4 Ice paks used.

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: _____

Project Management Review: W. Price Date: 3/24/94

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

C.U.R. and C.O.C.
COPIED TO: W. Price
DATE: 03.24.94
TIME: 1030
BY: SM

SL-92-QA-0026, Rev.1

0000048

ITAS - St. Louis April 11, 1994 03:27 pm
Account: 10722 Project: 519.04 ITAS - Richland QAS No. 480 Rev. 0
Master Sample Login: [illegible]

Project Manager: M. Price

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

Sample Header Template:

Sample No. #	Client ID / Container Type	C-Matrix / Analysis	Date: Collected / Class	Received / Preservative	Dum / Anal. Due Date	Shipper / Hold Date	Site	Rad Category / (Container Numbers:% Filled)	Rad Sample No.
4679-001	B09M64	Soil	08-MAR-94 09:05	11-MAR-94 11:00	15-APR-94	3768502586	2		R2003-002
NOTE: CONTAINER-01A=METALS+t1,01B=VOA,01C=SEMI-VOA,01D=ANIONS-FL-CL-SO4,01E=ANIONS=NO2-NO3,01F=CN,01G=KEROSENE 8015, RICHLAND I.D. 403234									
1	GN - Glass Jar-250ML	AS/CLP90/Q4	S	COLD	22-APR-94	07-SEP-94	R22D	(73308:99)	
1		BNA/CLP90/Q4	S	COLD	22-APR-94	22-MAR-94	R22D	(73310:99)	
1		HG/CLP90/Q4	S	COLD	22-APR-94	06-APR-94	R22D	(73308:99)	
1		ICAP/CLP90/Q4	S	COLD	22-APR-94	07-SEP-94	R22D	(73308:99)	
1		PB/CLP90/Q4	S	COLD	22-APR-94	07-SEP-94	R22D	(73308:99)	
1		PH/CLP/Q4	S	COLD	22-APR-94	25-MAR-94	R22D	(73308:99)	
1		PM/IT/Q4	S	COLD	22-APR-94	04-SEP-94	R22D	(73308:99)	
1		SE/CLP90/Q4	S	COLD	22-APR-94	07-SEP-94	R22D	(73308:99)	
1		TL/CLP90/Q4	S	COLD	22-APR-94	07-SEP-94	R22D	(73308:99)	
1		VOA/CLP90/Q4	S	COLD	22-APR-94	22-MAR-94	R22D	(73309:99)	
1	GN - Glass Jar-120ML	CL/300.0/Q4	S	COLD	22-APR-94	05-APR-94	R22D	(70915:100)	
1		CN/CLP/Q4	S	COLD	22-APR-94	22-MAR-94	R22D	(70917:98)	
1		FL/300.0/Q4	S	COLD	22-APR-94	05-APR-94	R22D	(70915:100)	
1		NO3/353.1/Q4	S	COLD	22-APR-94	05-APR-94	R22D	(70916:99)	
1		SO4/300.0/Q4	S	COLD	22-APR-94	05-APR-94	R22D	(70915:100)	
1		TPH/8015/Q4	S	COLD	22-APR-94	22-MAR-94	R22D	(70918:97)	
These Products have no assigned containers.									
		DATA/CUSTOM/Q4	S		22-APR-94	07-APR-94			
4679-001DUP	B09M64	Soil	08-MAR-94 09:05	11-MAR-94 11:00	15-APR-94	3768502586	2		R2003-002
NOTE: CONTAINER-01A=METALS+t1,01D=ANIONS-FL-CL-SO4,01E=ANIONS=NO2-NO3,01F=CN									
1	GN - Glass Jar-500ML	AS/CLP90/Q4	S	COLD	22-APR-94	07-SEP-94	R22D	(70912:99)	
1		HG/CLP90/Q4	S	COLD	22-APR-94	06-APR-94	R22D	(70912:99)	
1		ICAP/CLP90/Q4	S	COLD	22-APR-94	07-SEP-94	R22D	(70912:99)	
1		PB/CLP90/Q4	S	COLD	22-APR-94	07-SEP-94	R22D	(70912:99)	
1		SE/CLP90/Q4	S	COLD	22-APR-94	07-SEP-94	R22D	(70912:99)	
1		TL/CLP90/Q4	S	COLD	22-APR-94	07-SEP-94	R22D	(70912:99)	
1	GN - Glass Jar-120ML	CL/300.0/Q4	S	COLD	22-APR-94	05-APR-94	R22D	(70915:100)	
1		CN/CLP/Q4	S	COLD	22-APR-94	22-MAR-94	R22D	(70917:98)	
1		FL/300.0/Q4	S	COLD	22-APR-94	05-APR-94	R22D	(70915:100)	
1		NO3/353.1/Q4	S	COLD	22-APR-94	05-APR-94	R22D	(70916:99)	
1		SO4/300.0/Q4	S	COLD	22-APR-94	05-APR-94	R22D	(70915:100)	
These Products have no assigned containers.									
		DATA/CUSTOM/Q4	S		22-APR-94	07-APR-94			

3*=Sample has not been rad screened.

0000049

ITAS - St. Louis April 11, 1994 03:27 pm
Account: 10722 Project: 519.04 ITAS - Richland QAS No. 480 Rev. 0
Master Sample Login: 4679

Project Manager: M. Price

Drafts: Finals: 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.
Comments									
Data:									
4679-001MS		809MG4 Soil	08-MAR-94 09:05	11-MAR-94 11:00	15-APR-94	3768502586	2		R2003-002
NOTE: CONTAINER-01A=METALS+ti,01B=VOA,-1C=SEMI-VOA,01D=ANIONS-FL-CL-SO4,01E=ANIONS-NO2-NO3,01F=CN,01G=KEROSENE 8015									
1	GM - Glass Jar-500ML	AS/CLP90/Q4	S	COLD	22-APR-94	07-SEP-94	R22D	(70912:99)	
1		BNA/CLP90/Q4	S	COLD	22-APR-94	22-MAR-94	R22D	(70914:98)	
1		MG/CLP90/Q4	S	COLD	22-APR-94	06-APR-94	R22D	(70912:99)	
1		ICAP/CLP90/Q4	S	COLD	22-APR-94	07-SEP-94	R22D	(70912:99)	
1		PB/CLP90/Q4	S	COLD	22-APR-94	07-SEP-94	R22D	(70912:99)	
1		SE/CLP90/Q4	S	COLD	22-APR-94	07-SEP-94	R22D	(70912:99)	
1		TL/CLP90/Q4	S	COLD	22-APR-94	07-SEP-94	R22D	(70912:99)	
1		VOA/CLP90/Q4	S	COLD	22-APR-94	22-MAR-94	109H	(70913:100)	
1	GM - Glass Jar-120ML	CL/300.0/Q4	S	COLD	22-APR-94	05-APR-94	R22D	(70915:100)	
1		CN/CLP/Q4	S	COLD	22-APR-94	22-MAR-94	R22D	(70917:98)	
1		FL/300.0/Q4	S	COLD	22-APR-94	05-APR-94	R22D	(70915:100)	
1		NO3/353.1/Q4	S	COLD	22-APR-94	05-APR-94	R22D	(70916:99)	
1		SO4/300.0/Q4	S	COLD	22-APR-94	05-APR-94	R22D	(70915:100)	
1		TPH/8015/Q4	S	COLD	22-APR-94	22-MAR-94	R22D	(70918:97)	
These Products have no assigned containers.									
		DATA/CUSTOM/Q4	S		22-APR-94	07-APR-94			
4679-001MSD		809MG4 Soil	08-MAR-94 09:05	11-MAR-94 11:00	15-APR-94	3768502586	2		R2003-002
NOTE: CONTAINER-01B=VOA,01C=SEMI-VOA,01G=KEROSENE 8015									
1	GM - Glass Jar-500ML	BNA/CLP90/Q4	S	COLD	22-APR-94	22-MAR-94	R22D	(70914:98)	
1		VOA/CLP90/Q4	S	COLD	22-APR-94	22-MAR-94	109H	(70913:100)	
1	GM - Glass Jar-120ML	TPH/8015/Q4	S	COLD	22-APR-94	22-MAR-94	R22D	(70918:97)	

3*=Sample has not been rad screened.

0000050

9713506.1403

ITAS - St. Louis April 11, 1994 03:40 pm
Account: 10722 Project: 519.04 ITAS - Richland QAS No. 480 Rev. 0
Master Sample Login: 4698

Project Manager: W. Price

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

Sample Header Template:

Sample No. #	Client ID / Container Type	Analysis	C-Matrix / Class	Date: Collected / Preservative	Received / Anal. Due Date	Due / Hold Date	Shipper / Site	Rad Category / (Container Numbers:% Filled)	Rad Sample No.
4698-001	B09W18		Soil	10-MAR-94 10:20	15-MAR-94 09:00	19-APR-94	3769219291 2		R2003-003
NOTE: CONTAINER-01A=METALS-HG-TI,01B=VOA,01C=SEMI-VOA,01D=EPA(300.0),01E=EPA(353.2),01F=PCB-PEST,01G=CN,01H=KEROSENE;RICHLAND I.D.#40326401									
1	AN - Amber Glass-250ML	AS/CLP90/Q4	S	COLD	22-APR-94	11-SEP-94	R17A	(71155:100)	
1		BNA/CLP90/Q4	S	COLD	22-APR-94	24-MAR-94	R17A	(71157:99)	
1		HG/CLP90/Q4	S	COLD	22-APR-94	10-APR-94	R17A	(71155:100)	
1		ICAP/CLP90/Q4	S	COLD	22-APR-94	11-SEP-94	R17A	(71155:100)	
1		PB/CLP90/Q4	S	COLD	22-APR-94	11-SEP-94	R17A	(71155:100)	
1		PEST/8080/Q4	S	COLD	22-APR-94	24-MAR-94	R17A	(71158:98)	
1		PH/CLP/Q4	S	COLD	22-APR-94	29-MAR-94	R17A	(71155:100)	
1		PM/IT/Q4	S	COLD	22-APR-94	06-SEP-94	R17A	(71155:100)	
1		SE/CLP90/Q4	S	COLD	22-APR-94	11-SEP-94	R17A	(71155:100)	
1		TL/CLP90/Q4	S	COLD	22-APR-94	11-SEP-94	R17A	(71155:100)	
1		VOA/CLP90/Q4	S	COLD	22-APR-94	24-MAR-94	109V	(71156:100)	
1	AN - Amber Glass-120ML	CL/300.0/Q4	S	COLD	22-APR-94	07-APR-94	R17A	(71159:100)	
1		CN/CLP/Q4	S	COLD	22-APR-94	24-MAR-94	R17A	(71161:100)	
1		FL/300.0/Q4	S	COLD	22-APR-94	07-APR-94	R17A	(71159:100)	
1		NO3/353.1/Q4	S	COLD	22-APR-94	07-APR-94	R17A	(71160:100)	
1		SO4/300.0/Q4	S	COLD	22-APR-94	07-APR-94	R17A	(71159:100)	
1		TPH/8015/Q4	S	COLD	22-APR-94	24-MAR-94	R17A	(71162:100)	
4698-001MS	B09W18		Soil	10-MAR-94 10:20	15-MAR-94 09:00	19-APR-94	3769219291 2		R2003-003
NOTE: CONTAINER-01A=METALS-HG-TI,01B=VOA,01C=SEMI-VOA,01D=EPA(300.0),01E=EPA(353.2),01F=PCB-PEST,01G=CN,01H=KEROSENE;RICHLAND I.D.#40326401									
1	AN - Amber Glass-250ML	PEST/8080/Q4	S	COLD	22-APR-94	24-MAR-94	R17A	(71158:98)	
4698-001MSD	B09W18		Soil	10-MAR-94 10:20	15-MAR-94 09:00	19-APR-94	3769219291 2		R2003-003
NOTE: CONTAINER-01A=METALS-HG-TI,01B=VOA,01C=SEMI-VOA,01D=EPA(300.0),01E=EPA(353.2),01F=PCB-PEST,01G=CN,01H=KEROSENE;RICHLAND I.D.#40326401									
1	AN - Amber Glass-250ML	PEST/8080/Q4	S	COLD	22-APR-94	24-MAR-94	R17A	(71158:98)	
4698-002	B09W04		Soil	08-MAR-94 09:05	15-MAR-94 09:00	19-APR-94	3769219291 2		R2003-002
NOTE: CONTAINER-01A=METALS-HG-TI,01B=VOA,01C=SEMI-VOA,01D=EPA(300.0),01E=EPA(353.2),01F=CN,01G=KEROSENE									
1	AN - Amber Glass-250ML	AS/CLP90/Q4	S	COLD	22-APR-94	12-SEP-94	R17A	(71163:100)	
1		BNA/CLP90/Q4	S	COLD	22-APR-94	22-MAR-94	R17A	(71165:99)	
1		HG/CLP90/Q4	S	COLD	22-APR-94	11-APR-94	R17A	(71163:100)	
1		ICAP/CLP90/Q4	S	COLD	22-APR-94	12-SEP-94	R17A	(71163:100)	
1		PB/CLP90/Q4	S	COLD	22-APR-94	12-SEP-94	R17A	(71163:100)	
1		PH/CLP/Q4	S	COLD	22-APR-94	30-MAR-94	R17A	(71163:100)	
1		PM/IT/Q4	S	COLD	22-APR-94	04-SEP-94	R17A	(71163:100)	
1		SE/CLP90/Q4	S	COLD	22-APR-94	12-SEP-94	R17A	(71163:100)	
1		TL/CLP90/Q4	S	COLD	22-APR-94	12-SEP-94	R17A	(71163:100)	

3*=Sample has not been rad screened.

0000051

ITAS - St. Louis April 11, 1994 03:40 pm
Account: 10722 Project: 519.04 ITAS - Richland QAS No. 480 Rev. 0
Master Sample Login: 4698

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.
4698-003	BOMAJ1	Soil	10-MAR-94 07:00	15-MAR-94 09:00	19-APR-94	3769219291	1	82003-004

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1		VOA/CLP90/Q4	S	COLD	22-APR-94	22-MAR-94	109V	(71164:100)
1	AM - Amber Glass-120ML	CL/300.0/Q4	S	COLD	22-APR-94	05-APR-94	R17A	(71167:100)
1		CN/CLP/Q4	S	COLD	22-APR-94	22-MAR-94	R17A	(71169:100)
1		FL/300.0/Q4	S	COLD	22-APR-94	05-APR-94	R17A	(71167:100)
1		NO3/353.1/Q4	S	COLD	22-APR-94	05-APR-94	R17A	(71168:100)
1		SO4/300.0/Q4	S	COLD	22-APR-94	05-APR-94	R17A	(71167:100)
1		TPH/8015/Q4	S	COLD	22-APR-94	22-MAR-94	R17A	(71170:100)
1	AM - Amber Glass-250ML	PH/11/Q4	S	COLD	22-APR-94	06-SEP-94	109V	(71171:100)
1		VOA/CLP90/Q4	S	COLD	22-APR-94	24-MAR-94	109V	(71171:100)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
4698-004 CHECK PH!	TRIP BLANK	Water	15-MAR-94 00:00	16-MAR-94 09:00	19-APR-94	3769219291	1	Screening not Required

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
2	VI - Vial-40ml	VOA/CLP90/Q4	S	COLD	22-APR-94	26-MAR-94	109V	(71172:100 71173:100)

3*=Sample has not been rad screened.

0000052

9413506.1405

ITAS - St. Louis March 25, 1994 04:30 pm
Account: 10722 Project: 519.04 ITAS - Richland QAS No. 480 Rev. 0
Master Sample Login: 4743

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.
4743-001	B09WH2	Soil	17-MAR-94 10:30	21-MAR-94 16:00	25-APR-94	3770789512	3*		R2041-004
NOTE: CONTAINER #01A=METALS-HG-TI,01B=VOA,01C=SEMI-VOA,01D=EPA-300.0,01E=EPA-353.1,01F=CN,01G=KEROSENE Richland ID 4-03-385-01									
1	AN - Amber Glass-250ML	AS/CLP90/Q4	S	COLD	13-APR-94	17-SEP-94	R1C	(71829:99)	
1		BHA/CLP90/Q4	S	COLD	13-APR-94	31-MAR-94	R1C	(71831:100)	
1		HG/CLP90/Q4	S	COLD	13-APR-94	16-APR-94	R1C	(71829:99)	
1		ICAP/CLP90/Q4	S	COLD	13-APR-94	17-SEP-94	R1C	(71829:99)	
1		PB/CLP90/Q4	S	COLD	13-APR-94	17-SEP-94	R1C	(71829:99)	
1		PH/CLP/Q4	S	COLD	13-APR-94	04-APR-94	R1C	(71829:99)	
1		PM/IT/Q4	S	COLD	13-APR-94	13-SEP-94	R1C	(71829:99)	
1		SE/CLP90/Q4	S	COLD	13-APR-94	17-SEP-94	R1C	(71829:99)	
1		TL/CLP90/Q4	S	COLD	13-APR-94	17-SEP-94	R1C	(71829:99)	
1		VOA/CLP90/Q4	S	COLD	13-APR-94	31-MAR-94	109S	(71830:100)	
1	AN - Amber Glass-120ML	TPH/8015/Q4	S	COLD	13-APR-94	31-MAR-94	R1C	(71833:99)	
1	GN - Glass Jar-120ML	CL/300.0/Q4	S	COLD	13-APR-94	14-APR-94	R1C	(71844:98)	
1		CN/CLP/Q4	S	COLD	13-APR-94	31-MAR-94	R1C	(71835:99)	
1		FL/300.0/Q4	S	COLD	13-APR-94	14-APR-94	R1C	(71844:98)	
1		NO3/353.1/Q4	S	COLD	13-APR-94	14-APR-94	R1C	(71834:100)	
1		SO4/300.0/Q4	S	COLD	13-APR-94	14-APR-94	R1C	(71844:98)	
These Products have no assigned containers.									
		DATA/CUSTOM/Q4	S		13-APR-94	16-APR-94			
4743-002	B09WH3	Soil	17-MAR-94 10:30	21-MAR-94 16:00	25-APR-94	3770789512	3*		R2041-003
NOTE: CONTAINER #02A=METALS-HG-TI,02B=VOA,02C=SEMI-VOA,02D=EPA-300.0,02E=EPA-353.1,02F=CN,02G=KEROSENE Richland ID 4-03-385-02									
1	AN - Amber Glass-250ML	AS/CLP90/Q4	S	COLD	13-APR-94	17-SEP-94	R1C	(71836:99)	
1		BHA/CLP90/Q4	S	COLD	13-APR-94	31-MAR-94	R1C	(71838:100)	
1		HG/CLP90/Q4	S	COLD	13-APR-94	16-APR-94	R1C	(71836:99)	
1		ICAP/CLP90/Q4	S	COLD	13-APR-94	17-SEP-94	R1C	(71836:99)	
1		PB/CLP90/Q4	S	COLD	13-APR-94	17-SEP-94	R1C	(71836:99)	
1		PH/CLP/Q4	S	COLD	13-APR-94	04-APR-94	R1C	(71836:99)	
1		PM/IT/Q4	S	COLD	13-APR-94	13-SEP-94	R1C	(71836:99)	
1		SE/CLP90/Q4	S	COLD	13-APR-94	17-SEP-94	R1C	(71836:99)	
1		TL/CLP90/Q4	S	COLD	13-APR-94	17-SEP-94	R1C	(71836:99)	
1		VOA/CLP90/Q4	S	COLD	13-APR-94	31-MAR-94	109S	(71837:100)	
1	AN - Amber Glass-120ML	TPH/8015/Q4	S	COLD	13-APR-94	31-MAR-94	R1C	(71840:99)	
1	GN - Glass Jar-120ML	CL/300.0/Q4	S	COLD	13-APR-94	14-APR-94	R1C	(71843:98)	
1		CN/CLP/Q4	S	COLD	13-APR-94	31-MAR-94	R1C	(71842:99)	
1		FL/300.0/Q4	S	COLD	13-APR-94	14-APR-94	R1C	(71843:98)	
1		NO3/353.1/Q4	S	COLD	13-APR-94	14-APR-94	R1C	(71841:100)	
1		SO4/300.0/Q4	S	COLD	13-APR-94	14-APR-94	R1C	(71843:98)	

4743-002 is continued on next page.

3*=Sample has not been rad screened.

0000053

9413506.1446

ITAS - St. Louis March 25, 1994 04:30 pm
Account: 10722 Project: 519.04 ITAS - Richland QAS No. 480 Rev. 0
Master Sample Login: 4743

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.
4743-002	B09WH3	Soil	17-MAR-94 10:30	21-MAR-94 16:00	25-APR-94	3770789512 3*		R2041-003

(Continued from previous page) NOTE: CONTAINER #02A=METALS-HG-TI,02B=VOA,02C=SEMI-VOA,02D=EPA-300.0,02E=EPA-353.1,02F=CN,02G=KEROSENE Richland ID 4-03-385-02

These Products have no assigned containers.

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
		DATA/CUSTOM/04	S		13-APR-94	16-APR-94		

Sample No.	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
4743-003	B09WH4	Soil	17-MAR-94 14:02	21-MAR-94 16:00	25-APR-94	3770789512 3*		R2041-002

NOTE: CONTAINER #03A=METALS-HG-TI,03B=VOA,03C=SEMI-VOA,03D=BROKEN ON HOLD,03E=EPA-353.1,03F=CN,03G=KEROSENE Richland ID 4-03-385-03

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-250ML	AS/CLP90/04	S	COLD	13-APR-94	17-SEP-94	R1C	(71845:99)
1		BNA/CLP90/04	S	COLD	13-APR-94	31-MAR-94	R1C	(71847:100)
1		HG/CLP90/04	S	COLD	13-APR-94	16-APR-94	R1C	(71845:99)
1		ICAP/CLP90/04	S	COLD	13-APR-94	17-SEP-94	R1C	(71845:99)
1		PB/CLP90/04	S	COLD	13-APR-94	17-SEP-94	R1C	(71845:99)
1		PH/CLP/04	S	COLD	13-APR-94	04-APR-94	R1C	(71845:99)
1		PM/IT/04	S	COLD	13-APR-94	13-SEP-94	R1C	(71845:99)
1		SE/CLP90/04	S	COLD	13-APR-94	17-SEP-94	R1C	(71845:99)
1		TL/CLP90/04	S	COLD	13-APR-94	17-SEP-94	R1C	(71845:99)
1		VOA/CLP90/04	S	COLD	18-APR-94	31-MAR-94	109S	(71846:100)
1	AN - Amber Glass-120ML	TPH/8015/04	S	COLD	13-APR-94	31-MAR-94	R1C	(71848:99)
1	GN - Glass Jar-120ML	CL/300.0/04	S	COLD	13-APR-94	14-APR-94	R1C	(71849:100)
1		CN/CLP/04	S	COLD	13-APR-94	31-MAR-94	R1C	(71850:99)
1		FL/300.0/04	S	COLD	13-APR-94	14-APR-94	R1C	(71849:100)
1		HOLD//04	S	COLD	13-APR-94	31-MAR-94	R1C	(71851:98)
1		NO3/353.1/04	S	COLD	13-APR-94	14-APR-94	R1C	(71849:100)
1		SO4/300.0/04	S	COLD	13-APR-94	14-APR-94	R1C	(71849:100)

These Products have no assigned containers.

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
		DATA/CUSTOM/04	S		13-APR-94	16-APR-94		

Sample No.	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
4743-004	B09WH6	Soil	21-MAR-94 07:00	21-MAR-94 16:00	25-APR-94	3770789512 3		R2041-001

NOTE: CONTAINER #04A=VOA Richland ID 4-03-385-04AAB

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-250ML	PM/IT/04	S	COLD	18-APR-94	17-SEP-94	109S	(71852:100)
1		VOA/CLP90/04	S	COLD	18-APR-94	04-APR-94	109S	(71852:100)

These Products have no assigned containers.

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
		DATA/CUSTOM/04	S		18-APR-94	20-APR-94		

3*=Sample has not been rad screened.

0000054

9713506.1407

ITAS - St. Louis March 25, 1994 04:30 pm
Account: 10722 Project: 519.04 ITAS - Richland QAS No. 480 Rev. 0
Master Sample Login: 4743

Project Manager: M. 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.
4743-005	TRIP BLANK	Water	21-MAR-94 00:00	21-MAR-94 16:00	25-APR-94	3770789512 1		Screening not Required
RICHLAND I.D. # 4-03-385-054+8								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
2	VI : Vial-40mL	HOLD/VOA	S	COLD	18-APR-94	31-MAR-94	100%	(71858:100 71862:100)
	These Products have no assigned containers.							
		DATA/CUSTOM/04	S		18-APR-94	20-APR-94		

Data:

97135046.1408

3*=Sample has not been rad screened.

0000055

ITAS - St. Louis March 25, 1994 04:25 pm
Account: 10722 Project: 519.04 ITAS - Richland QAS No. 480 Rev. 0
Master Sample Login: 4756

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.
4756-001	B09W10	Soil	22-MAR-94 09:03	23-MAR-94 16:00	27-APR-94	3771661047	3*		R2055-001
NOTE: CONTAINER #01A=METALS+HG+TI,01B=VOA,01C=SEMI-VOA,01D=EPA-300.0,01E=EPA-353.2,01F=CN,01G=KEROSENE Richland ID 4-03--432-01									
1	AN - Amber Glass-250ML	AS/CLP90/Q4	S	COLD	20-APR-94	19-SEP-94	R1C	(72047:100)	
1		BNA/CLP90/Q4	S	COLD	20-APR-94	05-APR-94	R1C	(72049:100)	
1		HG/CLP90/Q4	S	COLD	20-APR-94	18-APR-94	R1C	(72047:100)	
1		ICAP/CLP90/Q4	S	COLD	20-APR-94	19-SEP-94	R1C	(72047:100)	
1		PB/CLP90/Q4	S	COLD	20-APR-94	19-SEP-94	R1C	(72047:100)	
1		PH/CLP/Q4	S	COLD	20-APR-94	06-APR-94	R1C	(72047:100)	
1		PM/IT/Q4	S	COLD	20-APR-94	18-SEP-94	R1C	(72047:100)	
1		SE/CLP90/Q4	S	COLD	20-APR-94	19-SEP-94	R1C	(72047:100)	
1		TL/CLP90/Q4	S	COLD	20-APR-94	19-SEP-94	R1C	(72047:100)	
1		VOA/CLP90/Q4	S	COLD	20-APR-94	05-APR-94	109W	(72048:100)	
1	AN - Amber Glass-120ML	CL/300.0/Q4	S	COLD	20-APR-94	19-APR-94	R1C	(72050:100)	
1		CN/CLP/Q4	S	COLD	20-APR-94	05-APR-94	R1C	(72052:100)	
1		FL/300.0/Q4	S	COLD	20-APR-94	19-APR-94	R1C	(72050:100)	
1		NO3/353.1/Q4	S	COLD	20-APR-94	19-APR-94	R1C	(72051:100)	
1		SO4/300.0/Q4	S	COLD	20-APR-94	19-APR-94	R1C	(72050:100)	
1		TPH/8015/Q4	S	COLD	20-APR-94	05-APR-94	R1C	(72053:100)	
These Products have no assigned containers.									
		DATA/CUSTOM/Q4	S		20-APR-94	21-APR-94			
4756-002	B09W11	Soil	22-MAR-94 07:00	23-MAR-94 16:00	27-APR-94	3771661047	3		R2055-002
Richland ID 4-03-432-02									
1	AN - Amber Glass-250ML	PM/IT/Q4	S	COLD	20-APR-94	18-SEP-94	109W	(72054:100)	
1		VOA/CLP90/Q4	S	COLD	20-APR-94	05-APR-94	109W	(72054:100)	
These Products have no assigned containers.									
		DATA/CUSTOM/Q4	S		25-APR-94	21-APR-94			
4756-003	TRIP BLANKS	Water	23-MAR-94 07:00	23-MAR-94 16:00	27-APR-94	3771661047	1	Screening not Required	
Richland ID 4-03-432-03ABN									
2	VI - Vial-40ml	HOLD//Q4	S	COLD	20-APR-94	27-APR-94	109W	(72055:100 72056:100)	

3*=Sample has not been rad screened.

0000056

9413506.1409

9215906.1410

HANFORD ANALYTICAL SERVICES MANAGEMENT
RECORD OF DISPOSITION

ROD-94-0066
Record of Disposition No.

DATE: March 28, 1994	LABORATORY: IT
PROJECT TITLE/NO.: 200-UP-2/SAF 94-065 ✓	NCR NO.: n/a

SAMPLE IDENTIFICATION NUMBERS: All samples to be analyzed for Kerosene and/or Titanium.

DESCRIPTION OF EVENT:

Clarification is being provided to the laboratory for samples being analyzed for Kerosene and Titanium (Ti).

DISPOSITION OF SAMPLES:

IT will analyze for Kerosene by performing a modification to method 8015 (TPH) in which the peak search is started earlier to pick up the kerosene. As an additional element to the metals TAL, Ti will be analyzed for using ICP methodology.

APPROVAL SIGNATURES:

J. A. Lerch — 3/28/94
CAS Project Coordinator (Print/Sign Name) — Date

M. A. Wasemiller — 3/28/94
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

W0002 - Middlebrook
W0005 - St Louis
W0013 - Middlebrook
W0014 - St Louis

all SAF 94-065

0000056

9713506.1411 ITAS - St. Louis

CONVERSATION RECORD

TIME 4:00 | DATE 4/15/94 | PROJECT NO. 519.04

TYPE ☐ VISIT ☐ CONFERENCE ☐ TELEPHONE ☐ INCOMING ☐ OUTGOING

Location of Visit/Conference:

ROUTING	
NAME/SYMBOL	INT

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU	ORGANIZATION (Office, dept., bureau, etc.)	TELEPHONE NO.
Suzi Gaines	ITAS Richland	

SUBJECT

2 samples w/ same ID

SUMMARY

W0005

B09W64

[4679-001 Richland 403234-01 3/11/94
had B09WG5 on bottle see CUR

[4698-002 " 403264-02 3/15/94

In the future, assume the # on the bottle is correct.

ACTION REQUIRED

NAME OF PERSON DOCUMENTING CONVERSATION	SIGNATURE	DATE

ACTION TAKEN

SIGNATURE	TITLE	DATE

Page ____ of

9715506.1412

W0005-ITC-020

INTERNATIONAL TECHNOLOGY CORPORATION

MAY 1994 RECEIVED SDLA

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

Dear Mr. Lerch

Thank you for purchasing analytical testing services from IT Corporation. 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. 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,

Suzanne Davies

Project Manager

Regional Office
2800 George Washington Way • Richland, Washington 99352-1613 • 509-375-3131 • FAX: 509-375-5590

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INTERNATIONAL TECHNOLOGY CORPORATION

CERTIFICATE OF ANALYSIS

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

May 10, 1994

Attention: J.A.Lerch

SAF Number	:	94-065
Date Received by Lab	:	March 23, 1994
Number of Samples	:	Seven (7)
Sample Type	:	Soil
SDG Number	:	W0005
Data Deliverable	:	Stand-Alone

I. Introduction

On March 11, 14, 21, and 23, 1994, seven soil samples were received by ITAS-Richland for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the WHC specific IDs:

ITAS-Richland ID	WHC ID	Matrix	Date of Receipt
403235-01A	B09WG5	Soil	3/11/94
403265-01A	B09WI8	Soil	3/14/94
403265-02A	B09WG4	Soil	3/14/94
403386-01A	B09WH2	Soil	3/21/94
403386-02A	B09WH3	Soil	3/21/94
403386-03A	B09WH4	Soil	3/21/94
403433-01A	B09WI0	Soil	3/23/94

Regional Office
2800 George Washington Way • Richland, Washington 99352-1613 • 509-375-3131 • FAX: 509-375-5590

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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
Americium-241, Curium-244 by method ITAS-RD-3302
Neptunium-237 by method ITAS-RD-3208
Plutonium-238, 239/40 by method ITAS-RD-3209
Uranium-234, 235, 238 by method ITAS-RD-3234
Gamma Spectroscopy
Gamma Scan by method ITAS-RD-3219
Iodine-129 by method ITAS-RD-3219
Gas Proportional Counting
Gross Alpha by method ITAS-RD-3222
Gross Beta by method ITAS-RD-3222
Strontium-90 by method ITAS-RD-3204
Liquid Scintillation Counting
Selenium-79 by method ITAS-RD-3253
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 W0005 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate.

Quality control sample results are reported in the same units as sample results except for gross alpha and gross beta quality control sample results which are reported in pCi/sample.

IV. Comments

On 3/23/94 Jim Harvey delivered an Issue Resolution Form to WHC regarding the duplicate use of sample ID# B09WG4. An additional Issue Resolution Form for the same issue was delivered to WHC on 4/15/94. In this Case Narrative we are referring to the sample identified as B09WG4 on the Chain of Custody form and received on 3/11/94 as B09WG5 (the sample ID number given on the sample bottle label). The sample ID numbers reported in the hardcopy report, raw data, and EDD are reported as they were submitted on the Chain of Custody forms (both are reported as B09WG4). A WHC Record of Disposition has not been received regarding the duplication of the sample ID numbers on the Chain of Custody forms.

The initial radioactivity screening of the samples classified them as Category II with the exception of WHC sample B09WG5 which was classified as Category III.

Alpha Spectroscopy

Due to the activity of sample B09WG5, a .5 gram aliquot of the sample was prepared by microwave bomb digestion and then diluted to 100 ml. The resultant volume analyzed for each of the listed alpha isotopic analyses was .05 grams.

Americium-241, Curium-244 by method ITAS-RD-3302
The LCS and batch blank results were acceptable. The technician noted that a portion of the batch blank was lost during the vortexing step in the sample preparation, however the results and yield were acceptable. The sample and sample duplicate results were within the 3 sigma control limit.

Neptunium-237 by method ITAS-RD-3208
Three matrix spikes were analyzed with the batch and the average yield was used for yield correction. The LCS was biased high (135.2%) after yield correction using the matrix spike yield average value of 47.7%. The high bias is attributed to the difference in the matrices of the matrix spike and the LCS. The batch blank result was acceptable. The sample and sample duplicate results were within the 3 sigma control limit.

Plutonium-238, 239/40 by method ITAS-RD-3209
The LCS result was acceptable. The technician noted that a portion of the batch blank was lost during the vortexing step in the sample preparation resulting in the low tracer recovery for the blank (21.8%). The sample and sample duplicate results were within the 3 sigma control limit. Sample B09WI0 had a low yield (14.9%). The sample was analyzed in duplicate and the duplicate result was within the 3 sigma control limit and had an acceptable yield of 36.4%, therefore, the sample data was accepted.

Uranium-234, 235, 238 by method ITAS-RD-3234
The LCS and the batch blank results were acceptable. The sample and sample duplicate results for sample ID# B09WG5 and sample ID# B09WI0 were within the 3 sigma control limit.

Gamma Spectroscopy

Gamma Scan by method ITAS-RD-3219
Samples B09WH2, B09WH3, B09WH4, B09WI0, the batch duplicate (duplicate of sample B09WH3), the LCS, and the batch blank were recounted for an extended counting time (1000 min.) in order to meet the detection limit for one or more isotopes. The recount data were acceptable and are reported. The detection limit was not met for isotopes Eu-152, Eu-154, and Eu-155, for samples B09WG5, B09WI8, and B09WG4 due to matrix effects (elevated Cs-137 activity in the samples). The sample and sample duplicate results of sample B09WH3 were within the 3 sigma control limit for all isotopes except Co-60. The Co-60 results were less than the detection limit for the sample and sample duplicate and therefore the data were accepted.

Iodine-129 by method ITAS-RD-3219
The LCS result was acceptable but biased high (148%). The batch blank result was acceptable. The sample and sample duplicate results for sample ID# B09WI8 were within the 3 sigma control limit, however, the results will not be reported due to matrix effects. The following samples are not reported due to matrix effects caused by high levels of Cs-137 in the samples: B09WG5, B09WI8, B09WG4, and the duplicate of B09WG4. The samples were each counted twice, both counts indicating interferences caused by elevated backgrounds due to the Cs-137 activity.

Gas Proportional Counting

Gross Alpha by method ITAS-RD-3222
The LCS and batch blank results were acceptable. The sample and sample duplicate results were within the 3 sigma control limit. The routine sample size of .05 grams was reduced to .029 grams for sample B09WG5 due to the high activity.

Gross Beta by method ITAS-RD-3222
The LCS and batch blank results were acceptable. The sample and sample duplicate results were within the 3 sigma control limit. The routine sample size of .25 grams was reduced to .026 grams for sample B09WG5 due to the high activity.

Strontium-90 by method ITAS-RD-3204
The LCS recovery was biased high (161%). The high result is attributed to strontium-85 in the spike. Concurrently analyzed spikes without strontium-85 added were acceptable. Strontium-85 will not be used in future spikes for this analysis on WHC samples. The batch blank result was acceptable. The sample and sample duplicate results were within the 3 sigma control limit. The routine sample size of 6 grams was reduced to .58 grams for sample B09WG5 due to the high activity.

Liquid Scintillation Counting

Selenium-79 by method ITAS-RD-3253
The LCS and batch blank results were acceptable. The matrix spike result for sample 40326501 (B09WI8) and matrix spike result for sample 40326502 (B09WG4) were acceptable and the average chemical yield was used for batch yield corrections. The sample and sample duplicate results were within the 3 sigma control limit. The routine sample size of 1 gram was reduced to .25 grams for sample B09WG5 due to the high activity.

Technetium-99 by method ITAS-IT-RS-0001
The LCS and batch blank results were acceptable. Two matrix spikes were analyzed with the set. Matrix spike W0326502 was spilled during the analytical process and the results were not used for the batch yield correction. The sample and sample duplicate results were within the 3 sigma control limit. Sample B09WG4 was reanalyzed due to a high quench during the first analysis. The quality control samples in the reanalysis set were acceptable. The reanalysis matrix spike (W0323501) results were used for the yield correction of the samples in the reanalysis set. The reanalysis data were accepted and are reported for this sample.

Total Uranium

Total Uranium by method ITAS-RD-4200
The LCS was biased low (32%). The batch blank result was acceptable. The matrix spike results were acceptable. The average chemical yield was greater than 100% (113%) therefore no yield correction was performed. The sample and sample duplicate results were within the 3 sigma control limit. Sample B09WG5 and the duplicate of sample B09WG5 were analyzed using a reduced sample volume of .05 grams due to the sample activity.

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

9713506.1419

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

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND
SDG NO.: W0005
LAB SAMPLE ID: 4-03-235-01
MATRIX: SOIL
WHC ID: B09WG5
DATE RECEIVED: 3/11/94
REPORTING UNITS: pCi/G

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	YIELD	METHOD NUMBER
AM-241	1.18E+02	5.67E+00	1.45E+01	0.427	RD3302
CM-242	0.00E+00	0.00E+00	2.51E-01	0.427	RD3302
CM-244	-2.73E-02	5.47E-02	5.47E-02	0.427	RD3302
NP-237	8.53E-01	5.10E-01	5.42E-01	0.477	RD3208
PU-238	1.39E-01	7.33E-01	7.34E-01	0.482	RD3209
PU239/40	0.00E+00	0.00E+00	1.04E+00	0.482	RD3209
U-234	5.75E+00	2.52E+00	2.64E+00	0.621	RD3234
U-235	7.83E-01	9.30E-01	9.37E-01	0.621	RD3234
U-238DA	7.74E+00	2.89E+00	3.08E+00	0.621	RD3234
K-40	1.81E+01	6.53E-01	6.53E-01	N/A	RD3219
CO-60	2.33E-01	2.43E-02	3.36E-02	N/A	RD3219
EU-152	4.41E-01	7.76E-02	8.93E-02	N/A	RD3219
CS-137DA	1.98E+03	1.58E+00	1.58E+00	N/A	RD3219
CS-134	-5.91E-02	1.52E-01	1.52E-01	N/A	RD3219
RU-106DA	-8.24E-01	1.55E+00	1.56E+00	N/A	RD3219
NA-22	1.46E-02	2.93E-02	2.94E-02	N/A	RD3219
EU-155	1.63E-01	4.89E-01	4.89E-01	N/A	RD3219
EU-154	1.07E-01	7.81E-02	7.88E-02	N/A	RD3219
ALPHA	1.72E+02	1.43E+01	2.69E+01	1	RD3222
BETA	2.41E+03	6.51E+01	1.75E+02	1	RD3222
TOTAL-SR	3.55E+01	2.19E+00	8.95E+00	0.834	RD3204
SE-79	-9.46E-01	2.15E+00	5.77E+00	0.819	RD3253
TC-99	1.49E+00	2.45E-01	1.11E+00	0.99	ITAS-IT-RS-0001
URANIUM	1.25E+01	N/A	1.88E+00	1	RD4200

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

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG NO.:	W0005
LAB SAMPLE ID:	4-03-265-01	MATRIX:	SOIL
WHC ID:	B09WI8	DATE RECEIVED:	3/14/94
REPORTING UNITS:	pCi/g		

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	YIELD	METHOD NUMBER
AM-241	5.45E+00	1.41E-01	5.64E-01	0.796	RD3302
CM-242	6.56E-04	2.36E-03	2.36E-03	0.796	RD3302
CM-244	9.15E-03	5.78E-03	5.86E-03	0.796	RD3302
NP-237	1.02E-01	2.68E-02	3.47E-02	0.477	RD3208
PU-238	5.39E+00	4.48E-01	1.04E+00	0.448	RD3209
PU239/40	2.65E+01	9.93E-01	4.72E+00	0.448	RD3209
U-234	8.81E+00	4.93E-01	1.32E+00	0.603	RD3234
U-235	6.25E-01	1.32E-01	1.58E-01	0.603	RD3234
U-238DA	8.26E+00	4.78E-01	1.25E+00	0.603	RD3234
K-40	1.36E+01	5.54E-01	5.54E-01	N/A	RD3219
CO-60	9.33E-02	2.13E-02	2.32E-02	N/A	RD3219
EU-152	2.28E-02	6.66E-02	6.66E-02	N/A	RD3219
CS-137DA	1.15E+03	1.17E+00	1.17E+00	N/A	RD3219
CS-134	-8.14E-02	1.14E-01	1.14E-01	N/A	RD3219
RU-106DA	-1.21E+00	1.17E+00	1.18E+00	N/A	RD3219
NA-22	5.46E-02	2.29E-02	2.35E-02	N/A	RD3219
EU-155	-2.19E-01	3.53E-01	3.53E-01	N/A	RD3219
EU-154	1.68E-01	6.23E-02	6.46E-02	N/A	RD3219
ALPHA	4.25E+01	6.46E+00	7.93E+00	1	RD3222
BETA	1.37E+03	1.69E+01	9.17E+01	1	RD3222
TOTAL-SR	2.01E+00	1.70E-01	5.11E-01	0.768	RD3204
SE-79	2.02E+01	8.86E-01	3.68E+00	0.819	RD3253
TC-99	5.82E-01	2.41E-01	1.12E+00	0.956	ITAS-IT-RS-0001
URANIUM	1.92E+01	N/A	2.88E+00	1	RD4200

9713506.1421

IT ANALYTICAL SERVICES
RICHLAND, WA
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SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG NO.:	W0005
LAB SAMPLE ID:	4-03-265-02	MATRIX:	SOIL
WHC ID:	B09WG4	DATE RECEIVED:	3/14/94
REPORTING UNITS:	pCi/g		

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	YIELD	METHOD NUMBER
AM-241	1.94E+02	9.92E+00	1.31E+02	0.572	RD3302
CM-242	-3.15E-03	4.45E-03	4.93E-03	0.572	RD3302
CM-244	0.00E+00	0.00E+00	3.82E-01	0.572	RD3302
NP-237	3.45E-01	4.91E-02	8.90E-02	0.477	RD3208
PU-238	3.51E-01	1.26E-01	1.42E-01	0.368	RD3209
PU239/40	6.81E+00	5.55E-01	1.40E+00	0.368	RD3209
U-234	1.59E+00	2.84E-01	3.95E-01	0.329	RD3234
U-235	6.12E-02	5.66E-02	5.76E-02	0.329	RD3234
U-238DA	1.51E+00	2.77E-01	3.81E-01	0.329	RD3234
K-40	1.38E+01	5.79E-01	5.79E-01	N/A	RD3219
CO-60	2.08E+00	6.80E-02	6.80E-02	N/A	RD3219
EU-152	5.87E-01	9.67E-02	1.13E-01	N/A	RD3219
CS-137DA	2.02E+02	4.92E-01	4.92E-01	N/A	RD3219
CS-134	1.81E-02	4.86E-02	4.86E-02	N/A	RD3219
RU-106DA	1.94E-01	4.96E-01	4.96E-01	N/A	RD3219
NA-22	1.07E-01	2.08E-02	2.34E-02	N/A	RD3219
EU-155	3.02E-02	1.63E-01	1.63E-01	N/A	RD3219
EU-154	2.11E-01	4.72E-02	5.16E-02	N/A	RD3219
ALPHA	1.96E+02	1.34E+01	2.51E+01	1	RD3222
BETA	5.19E+02	1.05E+01	3.58E+01	1	RD3222
TOTAL-SR	7.24E+01	9.64E-01	1.75E+01	0.782	RD3204
SE-79	3.23E+00	6.09E-01	1.82E+00	0.819	RD3253
TC-99	7.78E-01	2.46E-01	1.13E+00	0.956	ITAS-IT-RS-0001
URANIUM	4.21E+00	N/A	6.32E-01	1	RD4200

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IT ANALYTICAL SERVICES
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SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG NO.:	W0005
LAB SAMPLE ID:	4-03-386-01	MATRIX:	SOIL
WHC ID:	B09WH2	DATE RECEIVED:	3/21/94
REPORTING UNITS:	pCi/g		

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	YIELD	METHOD NUMBER
AM-241	7.74E-01	7.65E-02	1.18E-01	0.384	RD3302
CM-242	2.20E-03	4.40E-03	4.41E-03	0.384	RD3302
CM-244	1.90E-03	3.79E-03	3.80E-03	0.384	RD3302
NP-237	6.63E-03	8.17E-03	8.29E-03	0.477	RD3208
PU-238	-5.24E-03	6.05E-03	6.12E-03	0.477	RD3209
PU239/40	0.00E+00	0.00E+00	2.62E-02	0.477	RD3209
U-234	8.60E-01	1.47E-01	1.88E-01	0.66	RD3234
U-235	4.89E-02	3.57E-02	3.63E-02	0.66	RD3234
U-238DA	1.01E+00	1.60E-01	2.10E-01	0.66	RD3234
K-40	1.75E+01	4.85E-01	1.82E+00	N/A	RD3219
CO-60	-2.98E-03	1.03E-02	1.03E-02	N/A	RD3219
EU-152	1.65E-01	4.71E-02	4.99E-02	N/A	RD3219
CS-137DA	2.38E-02	1.32E-02	1.34E-02	N/A	RD3219
CS-134	-6.75E-03	9.24E-03	9.26E-03	N/A	RD3219
RU-106DA	1.05E-02	8.70E-02	8.70E-02	N/A	RD3219
NA-22	2.98E-02	1.12E-02	1.16E-02	N/A	RD3219
EU-155	5.60E-02	3.04E-02	3.09E-02	N/A	RD3219
EU-154	8.19E-02	3.06E-02	3.17E-02	N/A	RD3219
I-129LP	4.34E-01	5.80E-01	5.82E-01	N/A	RD3219
ALPHA	1.40E+01	3.80E+00	4.09E+00	1	RD3222
BETA	2.83E+01	2.69E+00	3.27E+00	1	RD3222
TOTAL-SR	1.20E-02	5.12E-02	5.13E-02	0.773	RD3204
SE-79	-1.16E+00	5.18E-01	1.34E+00	0.819	RD3253
TC-99	1.48E+00	2.53E-01	1.19E+00	0.956	ITAS-IT-RS-0001
URANIUM	2.64E+00	N/A	3.96E-01	1	RD4200

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IT ANALYTICAL SERVICES
RICHLAND, WA
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SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG NO.:	W0005
LAB SAMPLE ID:	4-03-386-02	MATRIX:	SOIL
WHC ID:	B09WH3	DATE RECEIVED:	3/21/94
REPORTING UNITS:	pCi/g		

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	YIELD	METHOD NUMBER
AM-241	5.08E-01	5.41E-02	7.73E-02	0.506	RD3302
CM-242	3.68E-03	6.09E-03	6.10E-03	0.506	RD3302
CM-244	2.88E-04	3.31E-03	3.31E-03	0.506	RD3302
NP-237	1.05E-03	3.75E-03	3.76E-03	0.477	RD3208
PU-238	-2.15E-03	4.29E-03	4.31E-03	0.388	RD3209
PU239/40	0.00E+00	0.00E+00	3.22E-02	0.388	RD3209
U-234	1.11E+00	1.76E-01	2.34E-01	0.6	RD3234
U-235	8.27E-02	4.81E-02	4.94E-02	0.6	RD3234
U-238DA	1.23E+00	1.85E-01	2.52E-01	0.6	RD3234
K-40	1.67E+01	4.31E-01	1.72E+00	N/A	RD3219
CO-60	-6.61E-03	9.59E-03	9.62E-03	N/A	RD3219
EU-152	7.62E-02	4.41E-02	4.48E-02	N/A	RD3219
CS-137DA	4.83E-03	9.09E-03	9.10E-03	N/A	RD3219
CS-134	4.82E-04	8.62E-03	8.62E-03	N/A	RD3219
RU-106DA	1.42E-02	8.52E-02	8.52E-02	N/A	RD3219
NA-22	7.47E-03	1.11E-02	1.11E-02	N/A	RD3219
EU-155	4.44E-02	2.78E-02	2.81E-02	N/A	RD3219
EU-154	2.05E-02	3.04E-02	3.04E-02	N/A	RD3219
I-129LP	-1.38E-01	5.56E-01	5.56E-01	N/A	RD3219
ALPHA	7.29E+00	2.92E+00	3.03E+00	1	RD3222
BETA	2.57E+01	2.57E+00	3.08E+00	1	RD3222
TOTAL-SR	-5.90E-03	4.57E-02	4.57E-02	0.769	RD3204
SE-79	-3.62E-01	5.31E-01	1.42E+00	0.819	RD3253
TC-99	6.15E-01	2.40E-01	1.12E+00	0.956	ITAS-IT-RS-0001
URANIUM	2.61E+00	N/A	3.92E-01	1	RD4200

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

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG NO.:	W0005
LAB SAMPLE ID:	4-03-386-03	MATRIX:	SOIL
WHC ID:	B09WH4	DATE RECEIVED:	3/21/94
REPORTING UNITS:	pCi/g		

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	YIELD	METHOD NUMBER
AM-241	5.69E-01	6.50E-02	9.25E-02	0.391	RD3302
CM-242	-8.66E-04	1.73E-03	1.74E-03	0.391	RD3302
CM-244	-2.24E-03	2.59E-03	2.60E-03	0.391	RD3302
NP-237	1.74E-03	3.48E-03	3.50E-03	0.477	RD3208
PU-238	0.00E+00	0.00E+00	2.66E-02	0.469	RD3209
PU239/40	2.48E-02	3.09E-02	3.12E-02	0.469	RD3209
U-234	1.76E+00	2.13E-01	3.20E-01	0.647	RD3234
U-235	5.73E-02	3.86E-02	3.93E-02	0.647	RD3234
U-238DA	1.59E+00	2.02E-01	2.95E-01	0.647	RD3234
K-40	9.95E+00	3.93E-01	1.07E+00	N/A	RD3219
CO-60	4.66E-03	9.06E-03	9.07E-03	N/A	RD3219
EU-152	1.15E-01	4.76E-02	4.90E-02	N/A	RD3219
CS-137DA	9.32E-04	9.27E-03	9.27E-03	N/A	RD3219
CS-134	-5.00E-03	8.64E-03	8.66E-03	N/A	RD3219
RU-106DA	7.29E-03	8.60E-02	8.60E-02	N/A	RD3219
NA-22	2.29E-03	1.02E-02	1.02E-02	N/A	RD3219
EU-155	2.26E-02	2.68E-02	2.68E-02	N/A	RD3219
EU-154	-3.34E-02	2.97E-02	2.99E-02	N/A	RD3219
I-129LP	3.18E-01	4.87E-01	4.88E-01	N/A	RD3219
ALPHA	8.46E+00	3.14E+00	3.27E+00	1	RD3222
BETA	2.04E+01	2.36E+00	2.72E+00	1	RD3222
TOTAL-SR	2.67E-02	4.78E-02	4.82E-02	0.82	RD3204
SE-79	9.84E-01	5.63E-01	1.57E+00	0.819	RD3253
TC-99	6.27E-01	2.40E-01	1.12E+00	0.956	ITAS-IT-RS-0001
URANIUM	3.92E+00	N/A	5.88E-01	1	RD4200

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

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG NO.:	WOOO5
LAB SAMPLE ID:	4-03-433-01	MATRIX:	SOIL
WHC ID:	B09WI0	DATE RECEIVED:	3/23/94
REPORTING UNITS:	pCi/g		

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	YIELD	METHOD NUMBER
AM-241	5.91E-01	5.87E-02	8.73E-02	0.5	RD3302
CM-242	3.34E-04	3.83E-03	3.83E-03	0.5	RD3302
CM-244	1.75E-03	4.45E-03	4.45E-03	0.5	RD3302
NP-237	1.75E-03	3.49E-03	3.51E-03	0.477	RD3208
PU-238	0.00E+00	0.00E+00	8.38E-02	0.149	RD3209
PU239/40	2.23E-02	5.69E-02	5.73E-02	0.149	RD3209
U-234	1.02E+00	1.49E-01	1.99E-01	0.76	RD3234
U-235	3.15E-02	2.69E-02	2.72E-02	0.76	RD3234
U-238DA	1.02E+00	1.50E-01	2.00E-01	0.76	RD3234
K-40	1.96E+01	4.45E-01	2.01E+00	N/A	RD3219
CO-60	8.52E-03	9.61E-03	9.65E-03	N/A	RD3219
EU-152	3.32E-02	4.54E-02	4.55E-02	N/A	RD3219
CS-137DA	3.98E-03	8.39E-03	8.40E-03	N/A	RD3219
CS-134	-1.07E-02	8.50E-03	8.57E-03	N/A	RD3219
RU-106DA	-1.18E-01	8.33E-02	8.41E-02	N/A	RD3219
NA-22	-2.63E-03	1.11E-02	1.11E-02	N/.A	RD3219
EU-155	6.69E-02	2.58E-02	2.67E-02	N/A	RD3219
EU-154	-7.24E-03	3.06E-02	3.06E-02	N/A	RD3219
I-129LP	3.70E-01	5.23E-01	5.24E-01	N/A	RD3219
ALPHA	9.23E+00	3.40E+00	3.54E+00	1	RD3222
BETA	4.00E+01	3.09E+00	4.07E+00	1	RD3222
TOTAL-SR	5.72E-02	5.31E-02	5.49E-02	0.766	RD3204
SE-79	9.85E-02	5.42E-01	1.47E+00	0.819	RD3253
TC-99	8.84E-01	2.45E-01	1.14E+00	0.956	ITAS-IT-RS-0001
URANIUM	2.01E+00	N/A	3.02E-01	1	RD4200

9713506.1426

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.V. SETZER

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-8-94

Ice Chest No.:

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 RADIOACTIVE

Sample Identification

1) 403235 01 TH 3/11/94

A 1,250ml P:CLP;TAL Metals,Hg,Ti B09W64
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ 3-9-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

403235 01

2)

~~1,250ml P:CLP;TAL Metals,Hg,Ti B09W65 3-11-94 WVS~~
~~1,250ml Gs:VOA CLP~~
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,250ml aGs:PCB/Pest (8080)~~ SCR 3-9-94 WVS 3-11-94
~~1,125ml G:Cyanide CLP~~
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W.V. Setzer	800 cpm ITAS	3/11/94 1055
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713506.1427

Westinghouse Hanford Company	SAMPLE ANALYSIS REQUEST

Collector L E ROGERS — S.A.F. # 94-065 — Date 3-8-94

Company Contact L E ROGERS — Telephone (509) 376-7690

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B09WG4	S	3-8-94	0905	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) ~~1,250ml aGs:PCB/Pest (8080)~~ SR 3-9-94 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)
~~B09WG5~~	~~S~~	WVS 3-11-94 ~~3-9-94~~	~~0937~~	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) ~~1,250ml aGs:PCB/Pest (8080)~~ SR 3-9-94 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

***Type of Sample** A = Air; L = Liquid; SE = Sediment; T = Tissue; X = Other; DL = Drum Liquids; O = Oil; SL = Sludge; W = Water; DS = Drum Solids; S = Soil; SO = Solid; WI = Wipe

Field Information **IT, Richland**

Special Handling and/or Storage Maintain at 4C ; (SOIL)

Possible Sample Hazards RADIOACTIVE

0065

A-6000-406 (06/91) WEF060

9213506.1428

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 3/11/94 1055 Client Name WHC

Project/Client # 94-065 Batch or Case # N/A

Cooler ID (if noted on the outside of cooler) SML -178

1. Condition of shipping container? OK
2. Custody Seals on cooler intact? Yes ☑ No ☐
3. Custody Seals dated and signed? Yes ☑ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☑ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☑
6. Each sample is in a plastic bag? Yes ☑ No ☐
7. Number of sample containers in cooler: 8
8. Samples have: ____ tape ☑ hazard labels
   ☑ custody seals ☑ appropriate sample labels
9. Samples are: ☑ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☑ No ☐

Sample temperature 4°C

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

Printed Name/Signature Tom Gilmore Tom G Date/Time 3/11/94 1055

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

6900

TENNELEC #1

SCREENING CALCULATION SPREADSHEET

Category III !
JRM 11 Mar 94

Code	Received Date	Time	Screening Date	Prep Time	Count Date	Min. Cntd	Background Alpha	Background Beta	Min.
WHC			31194		311	10	21	237	240

Sample ID	pH Lab Hood (Reg)	Fresh Wgt. (mGrms)	Vol. Anal. mG	mL	Sample Size Gm	L	Alpha Hid Nuc	Alpha Total	DPM Counts Beta	DPM Counts Alpha	Net Sample Counts Beta	DPM Alpha	DPM Beta	Alpha Rate	Beta Rate	Alpha Rate	Beta Rate	Alpha Rate	Beta Rate	Alpha Rate	Beta Rate	Alpha Rate	Beta Rate	Alpha Rate	Beta Rate	Alpha Rate	Beta Rate
WHC/SOIL																											
B09WG4		99.8	100		1250.0		35	54	2492	5.31	******	4.3E+01	6.2E+02	2.4E-01	3.5E+00	1.1E-04	2.4E-04	1.9E+02	2.8E+03	No		5.2E+01	3.5E+01				

9411 9054 76

W.V. Setzer 3-11-94

B09W64

SAMPLE STATUS REPORT FOR E 4448. E-BLANK ~~B09WG2~~ TIME: 3/ 9/94 8: 4
DISPATCHED: 1/13/94 11:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 3/ 8/94 14:18

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	1.86000E 02 pCi/G	N	Y	VOGEL

END OF REPORT

Emergency Contact: (509) 373-6300 Overnight Delivery Air Bill # ERG#61 ATTACHED

SHIPPING INST.

SHIP TO:

Company: International Technologies

Address: 2800 George Washington Way

City, State, Zip: Richland, WA 99352

Attention: Tammy Hiedelberg

OFFSITE RADIOACTIVE SHIPMENT RECORD

- EXTERIOR INSPECTION PERMITTED -

18105

Contractor: ☐ PNL ☐ KEH ☐ WHC

Site Carrier: W.U. SETZER

PR No. 84279 Veh. No. 16-1566

Ship: ☒ Prepaid ☐ Collect Via:
☐ Motor-Rail ☐ Air Psgr.
☐ Excl. Use ☐ Air Cargo
☒ DOE Veh. ☐ Mail
☐ UPS Sur. ☐

SHIPMENT DESCRIPTION AND CERTIFICATION

Proper Shipping Name: Radioactive Material, ~~n.o.s.~~ 7

UN Number:
1. Empty Packages ☐ UN 2908
☐ UN 2912
3. Limited quantity ☒ UN 2910
☐ UN 2982
☐ UN 2918
6. Special Form, n.o.s. ☐ UN 2974
7. Instruments & Articles ☐ UN 2911
8. ☐

Material Form: ☐ Special (A1) ☒ Normal (A2)

Labels Applied: ☐ Empty ☐ Radioactive LSA ☐ White I ☐ Yellow II ☐ Yellow III ☒ None ☐ Danger (Air Cargo) ☐ Secondary

Material Category: ☐ Empty ☐ Low Specific Act. (LSA) ☒ Limited Quantity ☐ Type A Quantity ☐ Type B Quantity ☐ Highway Route Controlled Quantity

For Normal Form Identify:
Physical Form: ☒ Solid ☐ Liquid ☐ Ga
Chemical Form: ☐ Metal ☐ Oxide ☒ Elemental ☐ Nitrate
Other

TYPE PACKAGE: ☐ Strong Tight ☐ Type A ☐ Type B ☐ Type B (U) ☐ Type B (M)

CONSTRUCTION: ☐ Box, FB ☐ Wood ☐ Steel ☐ Drum ☐ Cask ☒ Other Poly cooler

FISSILE CLASS: ☒ Non Fissile ☐ Fissile Exempt ☐ Fissile I ☐ Fissile II ☐ Fissile III
Grams Fissile

SNM: ☒ No ☐ Yes ☐ <1 gr ☐ Category I ☐ Category II ☐ Category III

ACCOUNTABILITY/SECURITY CONTROL: ☐ Classified ☒ Unclassified
Consignee authorized to receive this qty ☒
~~Sig. Security Svc. Req.~~ ☐ NA ☒
~~Pu, EU > 1 g~~ ☐ NA ~~NU, DU > 1 Kg~~ ☐
Security Escorts Req. ☐ Not. Req. ☒
External Cask Temperature N/A ☒ (Max. 122° F LTL, 180° F Ex. Use) °F

Packaging conforms to appropriate packaging procedure ☐ N/A ☒ Yes
Complies with D.O.T packaging marking and labeling requirements ☐ N/A ☒ Yes
Container acceptability documented (incl. 7A cert.) ☒ N/A ☐ Yes

Container examined: No evidence of deterioration or damage ☒ Ye
QA Inspection Current ☐ Yes ☒ N/A Seals required ☒ No ☐ Ye
Shipping Doc. 49 CFR Authorization No. NA

No. Pkgs.	Model Package	COC/Spec. No.	Serial No.	Seal No.	Isotopes	Curies/Pkg	T.I.	Gr. Wt
1	Strong Tight	N/A	N/A	N/A	Sr 90, Cs 137	0.6 uCi	N/A	48LB
Poly Cooler #SML 178 contains 9 bottles, total volume 2230 ml								
Sample #s: B09WG4								
Soil samples in glass bottles, bottles are double bagged and packed								
(Shipper may describe package in detail on one of unused lines above) in wet ice & vermiculite						0.6 uCi	N/A	48LB

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable federal, state, local and international regulations for the transportation of hazardous materials.

Certifier's Signature: [signature] Date: 3/11/94 Organization: Env Field Services Complete Cost Code (inc. end function): PT2BA

AREA MONITOR

Surface Dose Rate of Package: ☒ ≤0.5 or ___ mrem/hr (N + βγ)

Dose Rate at 1 Meter from Surface of Package: ☒ ≤0.5 or ___ mrem/hr (N + βγ)

Smears of Outer Container: ☒ ≤22 dpm βγ/cm² ☒ ≤2.2 dpm α/cm²

TRUCK LOAD OR EXCLUSIVE USE
Surface: ☐ ≤ 200 mrem/hr (N + βγ)
@ 6 feet: ☐ ≤ 10 mrem/hr (N + βγ)
@ Cab or Sleeper ☐ ≤ 2.0 mrem/hr (N + βγ)

Additional Data and Instructions (inc. Readings on Internal Packaging)

Signature - Radiation Monitoring: [signature] Bldg. 222U Survey No. 157438 Date 3-11-94

AUTHORIZATION FOR SHIPMENT

APPROVAL

AIR TRANSPORT CERTIFICATION ▶ Cargo Only: ☐ Danger Labels Applied

Passenger: ☐ 1. Ltd. Qty. ☐ 2. ≤3 T.I ☐ 3. Research or Medical Diagnosis ☐ 4. Human Medical Research

Pkg. Dimensions: N/A

Traffic has inspected and verified preshipment compliance to DOT regulations.

Authorized Signature ▶ [signature] Printed Name ▶ M.A. SAMS Date ▶ 3-11-94

APPROVED FOR OFFSITE SHIPMENT

00071 [signature] 5/19/9

TRAFFIC

B.L. No. RMW 8526 Date Shipped 3-11-94 E.T.A. 3-11-94 Routing WHC VEHICLE ☐ N/A

Placards ☐ Yes ☒ No

Surveyed By ___ Date ___ Approved for Shipment Westinghouse Hanford Company [signature] Date 3-11-94

Route Plan ☐ Yes ☒ No

*U.S. GPO: 1991-691-714/40068

54-6000-088 (10/88)

RECEIVED ITAS DATE 3/11/94 1055

9713506.1432

IT/WHC ISSUE RESOLUTION FORM

SAF No. 94-065 Project 200-UP-2 LFI-3 Date 3/23/94

Sample No.(s) B09WG4

Submitted By: Jim Harvey

Phone No. 615-690-3211 x5611

Fax No. 615-693-2348

Submitted To: Jeff Lerch

Phone No. 509-372-2596

Fax No. 509-372-2106

ISSUE	PROPOSED RESOLUTION
Indicated sample has collection date of 3/8/94 on COC and 3/9/94 on bottles. WHC Sample Analysis Request has collection date of 3/8/94.	WHC to notify IT which collection date is correct.
Samples received on 3/12/94 were received in the St Louis Lab @ 1°C B0BJ20 SAF 94-091 B09WG4 SAF 94-065	Run requested analytical suite and note receiving temp in case narrative

IT/WHC0001

9715DD453W 0005

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.W. SETZER

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-10-94

Ice Chest No.: WHC 169 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.: ~~NA~~ WWS 3-14-94 NA

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 RADIOACTIVE

Sample Identification

1) B09WI8

CAT II

500 cpm

403264 01

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
F 1,250ml aGs:PCB/Pest (8080)
G 1,125ml G:Cyanide CLP
H 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40326501

2) B09WG4

200 cpm

403264 02

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~F 1,250ml aGs:PCB/Pest (8080)~~ GR 3-14-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40326502

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: W.W. Setzer	Received by: R Boyd JT	Date/Time: 3/14/94 1430
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713506.1434

Westinghouse Hanford Company	SAMPLE ANALYSIS REQUEST

Collector L E ROGERS S.A.F. # 94-065 Date 3-10-94
Company Contact L E ROGERS Telephone (509) 376-7690

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B09WI8	S	3-10-94	1020	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) 1,250ml aGs:PCB/Pest (8080) 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)
B09W64	S	3-8-94	0905	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) ~~1,250ml aGs:PCB/Pest (8080)~~ JER 3-14-94 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

***Type of Sample** A = Air; L = Liquid; SE = Sediment; T = Tissue; X = Other; DL = Drum Liquids; O = Oil; SL = Sludge; W = Water; DS = Drum Solids; S = Soil; SO = Solid; WI = Wipe

Field Information **IT, Richland**

Special Handling and/or Storage Maintain at 4C ; (SOIL)

Possible Sample Hazards RADIOACTIVE

A-6000-406 (06/91) WEF060

9713506.1435

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.U. SETZER

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-10-94

Ice Chest No.: — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) B09WJ1

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~

1,250ml Gs:VOA CLP

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

10326403

SER 3-14-94

2)

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~

~~1,250ml Gs:VOA CLP~~

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W.U. Setzer	R. Boyd JT <100	3/14/94 1430
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713506.1436

Westinghouse Hanford Company	SAMPLE ANALYSIS REQUEST

Collector L E ROGERS — S.A.F. # 94-065 — Date 3-10-94

Company Contact L E ROGERS — Telephone (509) 376-7690

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B09W51	S	3-10-94	0700	~~1,250ml P:CLP;TAL Metals,Hg,Ti~~ 1,250ml Gs:VOA CLP ~~1,250ml aG:Semi-VOA CLP~~ ~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~ ~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~ ~~1,250ml aGs:PCB/Pest (8080)~~ ~~1,125ml G:Cyanide CLP~~ ~~1,125ml Gw:Kerosene (8015M)~~ 3-10-94 ~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~
			ER 3-14-94	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) 1,250ml aGs:PCB/Pest (8080) 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

*Type of Sample					
	A = Air	L = Liquid	SE = Sediment	T = Tissue	X = Other
	DL = Drum Liquids	O = Oil	SL = Sludge	W = Water	
	DS = Drum Solids	S = Soil	SO = Solid	WI = Wipe	

Field Information **IT, Richland**

Special Handling and/or Storage Maintain at 4C ; (SOIL)

Possible Sample Hazards NONE NOTED

A-6000-406 (06/91) WEF060

9713506.1457

B09WG4 D.C. Setzer 3-14-94

SAMPLE STATUS REPORT FOR E 4448. E-BLANK ~~B09WG2~~ TIME: 3/14/94 12:35
DISPATCHED: 1/13/94 11:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 3/ 8/94 14:18

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	1.86000E 02 pCi/G	N	Y	VOGEL

END OF REPORT

B09WJ1 fcR 3-14-94

SAMPLE STATUS REPORT FOR E 5072. E-BLANK ~~B09WI8~~ TIME: 3/11/94 8: 0
DISPATCHED: 2/11/94 15: 4 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 3/11/94 7:46

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

END OF REPORT

9713506.1459

SAMPLE STATUS REPORT FOR E 5072. E-BLANK B09WI8 TIME: 3/11/94 8: 0
DISPATCHED: 2/11/94 15: 4 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 3/11/94 7:46

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

END OF REPORT

9413506.1440

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
1300 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(Per Shipping Container)

Date/Time Received 3/14/94 1430 Client Name WHC

Project/Client # 94-065 Batch or Case # N/A

Cooler ID (if noted on the outside of cooler) WHC 169

1. Condition of shipping container? OK
2. Custody Seals on cooler intact? Yes ☒ No ☐
3. Custody Seals dated and signed? Yes ☒ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☐ No ☒ (outside)
5. Vermiculite/packing material is: Wet ☒ Dry ☐
6. Each sample is in a plastic bag? Yes ☒ No ☐
7. Number of sample containers in cooler: 18
8. Samples have: ____ tape ✓ hazard labels
   ✓ custody seals ✓ appropriate sample labels
9. Samples are: ✓ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☒ No ☐

Sample temperature 2°

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

Printed Name/Signature R. Boyd R. Boyd Date/Time 3/14/94 1430

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

TENNELEC #1

SCREENING CALCULATION SPREADSHEET

Code	Date	Time	Date	Time	Date	Cmpl.	Abst.	Hold	Hold
WHC			31494		314	10	17	221	240

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
WHC/SOIL																				
* B09WG7		81.4	81	1200.0	60	2	34	0.13	2.48	1.1E+00	6.0E+00	7.3E-03	4.0E-02	1.5E-05	1.7E-05	6.1E+00	3.3E+01	Yes	1.6E+03	3.0E+03
* B09W16		81.4	81	850.0	61	20	533	1.93	52.38	1.5E+01	1.3E+02	7.3E-02	6.0E-01	4.6E-05	4.5E-04	8.6E+01	7.1E+02	No	1.2E+02	1.4E+02
* B09W19		89.4	89	1200.0	62	1	57	0.03	4.78	2.8E-02	1.2E+01	1.7E-04	7.2E-02	6.6E-06	9.0E-03	1.4E-01	6.0E+01	Yes	7.1E+04	1.7E+03
* B09WJ0		98.1	98	1150.0	63	2	26	0.13	1.68	1.3E+00	4.1E+00	6.8E-03	2.2E-02	1.3E-05	3.6E-05	5.9E+00	1.9E+01	Yes	1.7E+03	5.3E+03
** B09WG4		89.8	90	1300.0	64	40	319	3.93	30.98	3.8E+01	7.3E+01	2.5E-01	4.8E-01	1.0E-04	1.2E-04	1.9E+02	3.7E+02	No	5.3E+01	2.7E+02
TOTAL	uCi							-0.07	-0.92	-2E-01	-2E+00	3.3E-01	1.2E+00	ERR	ERR	ERR	ERR	No	ERR	ERR

* Below Cat I
MMF 3-15-94

** ~~above~~ Cat II
Mac Lacey
3-15-94

9713506.1441

0082

TENNELEC #1

SCREENING CALCULATION SPREADSHEET

0083

Code	Date	Time	Date	Time	Date				
WHC			31494		314	10	17	221	240

	Date																			
WHC/SOIL																				
B09WG7		61.4	61	1200.0	60	2	34	0.13	2.46	1.1E+00	6.0E+00	7.3E-03	4.0E-02	1.5E-05	1.7E-05	6.1E+00	3.3E+01	Yes	1.6E+03	3.0E+03
B09W18		61.4	61	850.0	61	20	533	1.93	52.36	1.5E+01	1.3E+02	7.3E-02	6.0E-01	4.6E-05	4.5E-04	8.6E+01	7.1E+02	No	1.2E+02	1.4E+02
B09W19		89.4	89	1200.0	62	1	57	0.03	4.76	2.6E-02	1.2E+01	1.7E-04	7.2E-02	6.6E-06	9.0E-03	1.4E-01	6.0E+01	Yes	7.1E+04	1.7E+03
B09WJ0		98.1	98	1150.0	63	2	26	0.13	1.66	1.3E+00	4.1E+00	6.6E-03	2.2E-02	1.3E-05	3.6E-05	5.9E+00	1.9E+01	Yes	1.7E+03	5.3E+03
B09WG4		89.6	90	1300.0	64	40	319	3.93	30.98	3.6E+01	7.3E+01	2.5E-01	4.6E 01	1.0E-04	1.2E-04	1.9E+02	3.7E+02	No	5.3E+01	2.7E+02
TOTAL	uCi							-0.07	-0.92	-2E-01	-2E+00	3.3E-01	1 2E+00	ERR	ERR	ERR	ERR	No	ERR	ERR

* Below Cat I
MMF 3-15-94

** ~~above~~ Cat II

Mac Lerdy

3-15-94

2HI-9059146

EMERGENCY CONTACT: 509 373-[illegible] OVERNIGHT DELIVERY AIR Bill # ERG 61 ATTI

OFFSITE RADIOACTIVE SHIPMENT RECORD

- EXTERIOR INSPECTION PERMITTED -

18107

SHIPPING INST.

SHIP TO:

Company: INTERNATIONAL TECHNOLOGIES

Address: 2800 GEORGE WASHINGTON WAY

City, State, Zip: RICHLAND, WA 79352

Attention: TAMMY HIEDELBERG

Contractor: ☐ PNL ☐ KEH ☒ WHC

Site Carrier: W.U. SETZER

PR No. 84279 Veh. No. 16-156

Ship: ☒ Prepaid ☐ Collect Via:

☒ Motor ☐ Air Psgr.

☐ Excl. Use ☐ Air Cargo

☐ DOE Veh. ☐ Mail

☐ UPS Sur. ☐

SHIPMENT DESCRIPTION AND CERTIFICATION

Proper Shipping Name (Radioactive Material,)	UN Number
1. Empty Packages	☐ UN 2908
2. [illegible]	☐ UN 2912
3. Limited quantity	☒ UN 2910
4. [illegible] MATERIAL, T	☐ UN 2982
	☐ UN 2918
6. Special Form, n.o.s.	☐ UN 2974
7. Instruments & Articles	☐ UN 2911
8.	☐

Material Form: ☐ Special (A1) ☒ Normal (A2)

Labels Applied: ☐ Empty ☐ Radioactive LSA ☐ White I ☐ Yellow II ☐ Yellow III ☒ None ☐ Danger (Air Cargo) ☐ Secondary

Material Category: ☐ Empty ☐ Low Specific Act. (LSA) ☒ Limited Quantity ☐ Type A Quantity ☐ Type B Quantity ☐ Highway Route Controlled Quantity

For Normal Form Identify:

Physical Form: ☒ Solid ☐ Liquid ☐ Ga

Chemical Form: ☐ Metal ☐ Oxide ☒ Elemental ☐ Nitrate

Other

TYPE PACKAGE: ☒ Strong Tight ☐ Type A ☐ Type B ☐ Type B (U) ☐ Type B (M)

CONSTRUCTION: ☐ Box, FB ☐ Wood ☐ Steel ☐ Drum ☐ Cask ☒ Other Poly Cooler

FISSILE CLASS: ☒ Non Fissile ☐ Fissile Exempt ☐ Fissile I ☐ Fissile II ☐ Fissile III

Grams Fissile

SNM: ☒ No ☐ Yes ☐ < 1 gr ☐ Category I ☐ Category II ☐ Category III

ACCOUNTABILITY/SECURITY CONTROL: ☐ Classified ☒ Unclassified

Consignee authorized to receive this qty ☒

~~Sig. Security Sve. Req.~~ ☐ NA ☒

~~Pu, EU > 1 g~~ ☐ NA ~~NU, DU > 1 Kg~~ ☐

Security Escorts Req. ☐ Not. Req. ☒

External Cask Temperature (Max. 122° F LTL, 180° F Ex. Use) N/A ☒ °F

Packaging conforms to appropriate packaging procedure ☐ N/A ☒ Yes

Complies with D. O. T packaging marking and labeling requirements ☐ N/A ☒ Yes

Container acceptability documented (incl. 7A cert.) ☒ N/A ☐ Yes

Container examined: No evidence of deterioration or damage ☒ Yes

QA Inspection Current ☐ Yes ☒ N/A Seals required ☒ No ☐ Yes

Shipping Doc. 49 CFR Authorization No. NA

No. Pkgs.	Model Package	COC/Spec. No.	Serial No.	Seal No.	Isotopes	Curies/Pkg	T. I.	Gr. Wt.
1	STRONG Tight	N/A	N/A	N/A	Sr 90, Cs 137	1.7 mci	N/A	58 lb
Poly Cooler # WHC 169 CONTAINS 17 Bottles, TOTAL VOLUME: 4750 ML								
Soil samples in glass bottles, double-bagged AND PACKED IN WET ICE								
SAMPLE #'s: B09WG84, B09WJ1, B09WI8								
(Shipper may describe package in de[illegible] of unused lines above)					TOTAL	1.7 mci	N/A	58 lbs

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable federal, state, local and international regulations for the transportation of hazardous materials.

Certifier's Signature: W.U. Setzer Date: 3-14-94 Organization: EFS Complete Cost Code (inc. end function): PT2BA

AREA MONITOR

Surface Dose Rate of Package: ☒ ≤0.5 or ___ mrem/hr (N + βγ)

Dose Rate at 1 Meter from Surface of Package: ☒ ≤0.5 or ___ mrem/hr (N + βγ)

Smears of Outer Container: ☒ ≤22 dpm βγ/cm² ☒ ≤2.2 dpm α/cm²

TRUCK LOAD OR EXCLUSIVE USE: Surface: ☒ ≤ 200 mrem/hr (N + βγ) @6 feet: ☒ ≤10 mrem/hr (N + βγ) @Cab or Sleeper ☒ ≤2.0 mrem/hr (N + βγ)

Additional Data and Instructions (inc. Readings on Internal Packaging)

Signature - Radiation Monitoring: Michael S. Sams Bldg. 222 U Survey No. 157441 Date 3-14-94

AUTHORIZATION FOR SHIPMENT

APPROVAL

AIR TRANSPORT CERTIFICATION ▸ Cargo Only: ☐ Danger Labels Applied

Passenger: ☐ 1. Ltd. Qty. ☐ 2. ≤3 T.I ☐ 3. Research or Medical Diagnosis ☐ 4. Human Medical Research

Pkg. Dimensions: N/A

Traffic has inspected and verified preshipment compliance to DOT regulations.

Authorized Signature ▸ M.A. Sams Printed Name ▸ M.A. SAMS Date ▸ 3-14-94

APPROVED FOR OFFSITE SHIPMENT

TRAFFIC

B. L. No. RMW8528 Date Shipped 3-14-94 E. T. A. 3-14-94 Routing WHC VEHICLE ☐ N/A 0084 Placards ☐ Yes ☒ No

Surveyed By ___ Date ___ Approved for Shipment Westinghouse Hanford Company M.A. Sams Date 3-14-94 Route Plan ☐ Yes ☒ No

*U.S. GPO: 1991-691-714/40068 54-6000-088 (10/88)

RECEIVED [illegible] ITAS Date 3/14/94 1430

9213506.1444

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-17-94

Ice Chest No.: SML-127

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) B09WH2

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ JR 3-17-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

2) B09WH3

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ JR 3-17-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
3-21-94 0930		3/21 1120
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9715506.1445

Westinghouse Hanford Company	SAMPLE ANALYSIS REQUEST

Collector L E ROGERS S.A.F. # 94-065 Date 3-17-94
Company Contact L E ROGERS Telephone (509) 376-7690

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B09WH2	S	3-17-94	1030	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) ~~1,250ml aGs:PCB/Pest (8080)~~ SR 3-17-94 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)
B09WH3	S	3-17-94	1030	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) ~~1,250ml aGs:PCB/Pest (8080)~~ SR 3-17-94 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

***Type of Sample** A = Air; L = Liquid; SE = Sediment; T = Tissue; X = Other; DL = Drum Liquids; O = Oil; SL = Sludge; W = Water; DS = Drum Solids; S = Soil; SO = Solid; WI = Wipe

Field Information **IT, Richland**

Special Handling and/or Storage Maintain at 4C ; (SOIL)

Possible Sample Hazards NONE NOTED

A-6000-406 (06/91) WEF060

9213506.1446

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-17-94

Ice Chest No.: SML-127

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) B09WH4

1,250ml P:CLP;TAL Metals,Hg,Ti
1,250ml Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ SER 3-17-94
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

~~2)~~

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml Gs:VOA CLP~~
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,250ml aGs:PCB/Pest (8080)~~ SER 3-17-94
~~1,125ml G:Cyanide CLP~~
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
Loren E. Rogers 3-21-94 0930	J Hindelang Jr	3/21 1150
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713506.1447

Westinghouse Hanford Company	SAMPLE ANALYSIS REQUEST

Collector L E ROGERS — S.A.F. # 94-065 — Date 3-17-94

Company Contact L E ROGERS — Telephone (509) 376-7690

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B09WH4	S	3-17-94	1402	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) ~~1,250ml aGs:PCB/Pest (8080)~~ SER 3-17-94 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)
			SER 3-17-94	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) 1,250ml aGs:PCB/Pest (8080) 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

***Type of Sample** A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information **IT, Richland**

Special Handling and/or Storage Maintain at 4C ; (SOIL)

Possible Sample Hazards NONE NOTED

A-6000-406 (06/91) WEF060

9715506.1448

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-21-94

Ice Chest No.: SML-127 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1)

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~ 309WH6

A 1,250ml Gs:VOA CLP

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

FER 3-21-94

2)

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~

~~1,250ml Gs:VOA CLP~~

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

FER 3-21-94

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
3-21-94 0930		3/21 1130
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9213506.1449

Westinghouse Hanford Company	SAMPLE ANALYSIS REQUEST

Collector L E ROGERS — S.A.F. # 94-065 — Date 3-21-94

Company Contact L E ROGERS — Telephone (509) 376-7690

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B09WH6	S	3-21-94	0700	~~1,250ml P:CLP;TAL Metals,Hg,Ti~~ 1,250ml Gs:VOA CLP ~~1,250ml aG:Semi-VOA CLP~~ ~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~ ~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~ ~~1,250ml aGs:PCB/Pest (8080)~~ 3-21-94 ~~1,125ml G:Cyanide CLP~~ ~~SQR 3-24-94~~ ~~1,125ml Gw:Kerosene (8015M)~~ ~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~
			~~SQR~~ 3-21-94	1,250ml P:CLP;TAL Metals,Hg,Ti 1,250ml Gs:VOA CLP 1,250ml aG:Semi-VOA CLP 1,125ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.2) 1,250ml aGs:PCB/Pest (8080) 1,125ml G:Cyanide CLP 1,125ml Gw:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

***Type of Sample** A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information **IT, Richland**

Special Handling and/or Storage Maintain at 4C ; (SOIL)

Possible Sample Hazards NONE NOTED

A-6000-406 (06/91) WEF060

9713506.1450

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
1100 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(Per Shipping Container)

Date/Time Received 1120 3-21-94 Client Name WHC

Project/Client # 94-065 Batch or Case # NA

Cooler ID (if noted on the outside of cooler) GWS 127

1. Condition of shipping container? O.K.
2. Custody Seals on cooler intact? Yes ☑ No ☐
3. Custody Seals dated and signed? Yes ☑ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☑ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☑
6. Each sample is in a plastic bag? Yes ☑ No ☐
7. Number of sample containers in cooler: 6 KH 3/21/94 25
8. Samples have: ____ tape ____ hazard labels
   ✓ custody seals ____ appropriate sample labels
9. Samples are: ✓ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ✓ other
10. Coolant present? Yes ☑ No ☐

Sample temperature 5°C

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

Printed Name/Signature [illegible] Date/Time 3/21 1120

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

9713506.1451

Contractor Westinghouse Hanford Company	OFF-SITE - PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT) W94-0-0369-29

PART I – TO BE COMPLETED BY ORIGINATOR

Department ENVIRONMENTAL	Section ENV Field Services	Unit ENV Charac + sampling

The following items are to be shipped from ☒ Contractor ☐ Vendor

Routing ☒ Contractor ☐ Vendor

Shipped to
IT
2800 George Washington Way
Richland, WA 99352

Off-site Custodian: Tammy Hieldelberg

Full Title: Project Coordinator

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1	#127 1 Poly Cooler Contains soil samples that are double-bagged and packed in wet ice and vermiculite. Samples are NON hazardous. Sample # B09WH2, B09WH3, B09WH4, B09WH6	

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

Necessity for the Off-Site Use of this Property

To support drilling and sampling in the 200 Areas.

RECEIVED
MAR 21 1994
PROPERTY RECORDS

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

RM Clearance for Public Release: Michael S. Jones	RM Survey No 157457	Date 3-21-94
Location of Property (Area & Bldg.) 200 Area	Contact L.E. Rogers	Phone 376-7690
Date Ready for Shipment	Cost Code to be Charged 8B410/PT2AB	Approximate Date This Property will be Returned
Originated By Relinquished by: Leone. Rogers	Date 3-21-94	Authorized By Leone Rogers — Date 3-21-94
Signature and Name of Property Control	Custodian Date	Property Management Approval J. Hankel — Date 3/21/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
K. Dryk IT				
Date 3-31-94 11:05				0092

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)

9715506.1452

SAMPLE STATUS REPORT FOR E 5056. E-BLANK B09WH2 TIME: 3/21/94 7:41
DISPATCHED: 2/11/94 14:26 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 3/18/94 7:37

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

END OF REPORT

9713506.1453

SAMPLE STATUS REPORT FOR E 5057. E-BLANK B09WH3 TIME: 3/21/94 7:41
DISPATCHED: 2/11/94 14:27 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 3/18/94 7:38

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

END OF REPORT

SAMPLE STATUS REPORT FOR E 5053. E-BLANK B09WH4 TIME: 3/18/94 8: 7
DISPATCHED: 2/11/94 14:28 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 3/18/94 7:38

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

END OF REPORT

9713506.1455

B040H6 [redacted] 3-21-94

SAMPLE STATUS REPORT FOR E[redacted] E-BLANK [redacted] TIME: 3/21/94 7:41
DISPATCHED: 2/11/94 14:26 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 3/18/94 7:37

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

END OF REPORT

9213506.1456

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
1300 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 11:20 3-21-94 Client Name WHC

Project/Client # 94-065 Batch or Case # NA

Cooler ID (if noted on the outside of cooler) GWS 127

1. Condition of shipping container? O.K.
2. Custody Seals on cooler intact? Yes ☑ No ☐
3. Custody Seals dated and signed? Yes ☑ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☑ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☑
6. Each sample is in a plastic bag? Yes ☑ No ☐
7. Number of sample containers in cooler: 6 [illegible] 25
8. Samples have: ____ tape ____ hazard labels
   ✓ custody seals ____ appropriate sample labels
9. Samples are: ✓ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ✓ other
10. Coolant present? Yes ☑ No ☐

Sample temperature 6°C

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

Printed Name/Signature [illegible] Date/Time 3/21 1120

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

9713506.1457

Contractor Westinghouse Hanford Company	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT) W94-0-0369-29

PART I – TO BE COMPLETED BY ORIGINATOR

Department ENVIRONMENTAL	Section ENV Field Services	Unit ENV Charac + sampling

The following items are to be shipped from ☒ Contractor ☐ Vendor

Routing ☒ Contractor ☐ Vendor

Shipped to	Off-site Custodian
IT 2800 George Washington Way Richland, WA 99352	Tammy Hieldelberg
	Full Title Project Coordinator

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1	#122 1 Poly Cooler Contains soil samples that are double-bagged and packed in wet ice and vermiculite. Samples are NON hazardous. Sample # B09WH2, B09WH3, B09WH4, B09WH6	

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

Necessity for the Off-Site Use of this Property

To support drilling and sampling in the 200 Areas.

RECEIVED
MAR 21 1994
PROPERTY RECORDS

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

RM Clearance for Public Release Michael S. Jones	RM Survey No 157457	Date 3-21-94
Location of Property (Area & Bldg.) 200 Area	Contact L.E. Rogers	Phone 376-7690
Date Ready for Shipment	Cost Code to be Charged 8B410/PT2AB	Approximate Date This Property will be Returned
Originated By Relinquished by: Jerome Rogers	Date 3-21-94	Authorized By Jerome Rogers — Date 3-21-94
Signature and Name of Property Control	Custodian Date	Property Management Approval J. Hankel — Date 3/21/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient K. Dryd JT	Return Order No.	Date Issued	Purchase Order No.	Date Issued
Date 3-31-94 11:05				

0098

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)

TENNELEC #1

SCREENING CALCULATION SPREADSHEET

6600

Cust Code	Recieved Date	Time	Screening Prep Date	Time	Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC			32194		321	10	12	166	180

Customer ID	pH <2 Rcvd/Relq	Pincht Wght (mGrms)	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	Catagory 1 Yes/No	Aliquot to Cat 1 Gm or Ltr Alpha	Beta
WHC/SOIL																				
B09WH2		94.8	95	1050.0	53	4	30	0.33	2.08	3.4E+00	4.9E+00	1.7E-02	2.4E-02	2.0E-05	1.2E-05	1.6E+01	2.3E+01	No	6.3E+02	4.3E+03
B09WH3		94.0	94	1050.0	54	4	35	0.33	2.58	3.3E+00	6.1E+00	1.7E-02	3.1E-02	2.1E-05	2.5E-05	1.6E+01	2.9E+01	No	6.3E+02	3.4E+03
B09WH4		90.2	90	1250.0	55	3	14	0.23	0.48	2.3E+00	9.5E-01	1.5E-02	6.0E-03	2.1E-05	3.1E-06	1.2E+01	4.8E+00	No	8.6E+02	2.1E+04
TOTAL	uCi							-0.07	-0.92	-2E-01	-2E+00	4.8E-02	6.1E-02	ERR	ERR	ERR	ERR	No	ERR	ERR

Cat II

[illegible] Lindley

3 31 94

9413054.1158

9213506.1459

IT/WHC ISSUE RESOLUTION FORM

SAF No. 94-065 Project 200-UP-2 -FI-3 Date 3/23/94

Sample No.(s) B09WG4

Submitted By: Jim Harvey

Phone No. 615-690-3211 x5611

Fax No. 615-693-2348

Submitted To: Jeff Lerch

Phone No. 509-372-2596

Fax No. 509-372-2106

ISSUE	PROPOSED RESOLUTION
Sample number has been duplicated. Receipt dates are: 3/11/94 [COC date 3/8/94, SAR date 3/8/94] and 3/14/94 [COC date 3/14/94, SAR date 3/8/94]	WHC to advise how to handle.

IT/WHC0001

0100

9213506.1460

IT/WHC ISSUE RESOLUTION FORM

SAF No. 94-065 Project 200-UP-2 LFI-3 Date 3/23/94

Sample No.(s) Any requesting Kerosene / Ti

Submitted By: Jim Harvey

Phone No. 615-690-3211 x5611

Fax No. 615-693-2348

Submitted To: Jeff Lerch

Phone No. 509-372-2596

Fax No. 509-372-2106

ISSUE	PROPOSED RESOLUTION
SAF indicates request for TPH Diesel Range COC's requesting Kerosene	Lab will run TPH Diesel Range modified to begin Search early to pick up Kerosene.
Ti is requested as additional Metal	Lab will run Ti by ICP as additonal metal.

IT/WHC0001

9713596.1461

IT/WHC ISSUE RESOLUTION FORM

SAF No. 94-065 Project 200-UP-2 LFI-3 Date 3/24/94

Sample No.(s) B09WH2, B09WH3, B09WH4, B09WH6

Submitted By: Jim Harvey

Phone No. 615-690-3211 x5611

Fax No. 615-693-2348

Submitted To: Jeff Lerch

Phone No. 509-372-2596

Fax No. 509-372-2106

ISSUE	PROPOSED RESOLUTION
St. Louis received indicated samples from Richland Lab @ 0°C. Samples are soils.	Lab to run all analyses as requested and note temp upon receipt in case narrative.
Soil sample B09WH4 was received @ St. Louis with container for Anions by EPA 300.0 broken on bottom	Lab stored sample in Ziploc bag. Will run requested analysis using excess from another appropriate container. Note in case narrative.

IT/WHC0001

9413506.1462

HANFORD ANALYTICAL SERVICES MANAGEMENT

RECORD OF DISPOSITION

ROD-94-0068
Record of Disposition No.

DATE: March 28, 1994	LABORATORY: IT
PROJECT TITLE/NO.: 200-UP-2/SAF 94-065	NCR NO.: n/a

SAMPLE IDENTIFICATION NUMBERS: B09WH2, B09WH3, B09WH4, B09WH6

DESCRIPTION OF EVENT:

a) After being shipped from the IT-Richland facility, the samples listed above were received by the St.Louis facility on 3/12/94 at a temperature of 1°C. The sample matrix was soil.

b) After being shipped from the IT-Richland facility, the B09WH4 sample container for Anions by 300.0 was received at St.Louis broken on the bottom.

DISPOSITION OF SAMPLES:

a) IT is directed to proceed with the requested analysis.

b) Since soil samples are chemically unpreserved, IT is directed to use excess sample from the other containers associated with sample B09WH4 to create an aliquot for analysis by method 300.0.

The issues identified above are to be noted in the Case Narrative for the associated delivery group.

APPROVAL SIGNATURES:

J. A. Lerch — 3/28/94
CAS Project Coordinator (Print/Sign Name) — Date

M. A. Wasemiller — 3/28/94
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

403385

SDL 10005 St Louis

9213506.1463

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS/W. SETZER

Company Contact: L E ROGERS — Telephone: 376-7690 WVS 3-22-94

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-22-94

Ice Chest No.: WHC-19 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: NA — Offsite Property No.: WA4-0-

Method of Shipment: Government vehicle — SIX-W0011

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065

Sample Identification

1) WVS 3-21-94

B09WI0 40343201

A 1,250ml ~~P~~ aGs:CLP;TAL Metals,Hg,Ti
B 1,250ml aGs ~~Gs~~:VOA CLP
C 1,250ml aGs ~~aG~~:Semi-VOA CLP
D 1,125ml aGs ~~G~~:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml aGs ~~P/G~~:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ WVS 3-21-94
F 1,125ml aGs ~~G~~:Cyanide CLP
G 1,125ml aGs ~~Gw~~:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40343301

40343202 A

2) B09WI1 (TRIP) 1,250ML, aGs : CLP:VOA

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml Gs:VOA CLP~~
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,250ml aGs:PCB/Pest (8080)~~
~~1,125ml G:Cyanide CLP~~ WVS 3-22-94
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: 3-23-94 0920 W.V. SETZER	Received by: ITAS Karen Lichtenberg 2100	Date/Time: 3-23-94 11:00
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

TENNELEC #1

SCREENING CALCULATION SPREADSHEET

Cust Code	Received Date	Time	Screening Prep Date	Time	Count Date	Mins Cntd	BACKGROUND Alpha	Beta	Mins
WHC	3-23-94	1250	3-23-94	1300	3-23	10	13	217	240

Category II
JRM 23 Mar 94

Customer ID	Cnt Vol	Physical Wgt	Vol Dilu	Sample Time	SAMPLE CNT DATA Total Alpha	Total Beta	Net Sample Counts/Minute Alpha	Beta	DF-S / Aliquot Alpha	Beta	Bq/per Sample Alpha	Beta	2 Sigma Error Bq/per Sample Alpha	Beta	pCi/Gm or L Alpha	Beta	Category Alpha	Alpha Incl. Beta
B09W10		96.3	97	1000.0	2	3	33	0.25	2.40	2.45E+00	5.79E+00	1.1E-02	2.7E-02	1.8E-05	1.2E-05	1.1E+01	2.7E+01	No	8.8E+02	3.7E+03
								-0.05	-0.90	-1.8E-01	-1.9E+00	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR

0105

97 1450 1461

WWS 3-23-94

SAMPLE STATUS REPORT FOR E 5064. E-BLANK B09WIØ TIME: 3/23/94 8:37
DISPATCHED: 2/11/94 14:59 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 3/23/94 8:11

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

END OF REPORT

9713506.1466

SAMPLE STATUS REPORT FOR E 5064. E-BLANK B09WI0 TIME: 3/23/94 8:37
DISPATCHED: 2/11/94 14:59 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 3/23/94 8:11

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

END OF REPORT

9713586.1467

Westinghouse Hanford Company	SAMPLE ANALYSIS REQUEST

Collector L E ROGERS / W.U. SETZER S.A.F. # 94-065 Date 3-23-94
Company Contact L E ROGERS Telephone (509) 376-7690

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B09WI0	S	3-22-94	0903	1,250ml ~~P~~ aGs WUS 3-23-94:CLP;TAL Metals,Hg,Ti 1,250ml ~~aGs~~:VOA CLP 1,250ml ~~aGs~~:Semi-VOA CLP 1,125ml ~~aGs~~:Anions F,Cl,SO4 (EPA 300.0) 1,125ml ~~P/G~~:Anions NO2,NO3 (EPA 353.2) ~~1,250ml aGs:PCB/Pest (8080)~~ WUS 3-23-94 1,125ml ~~aGs~~:Cyanide CLP 1,125ml ~~aGs~~:Kerosene (8015M) 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Cs-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)
B09WI1	S	3-22-94	0700	~~1,250ml P:CLP;TAL Metals,Hg,Ti~~ 1,250ml aGs:VOA CLP WUS 3-23-94 ~~1,250ml aG:Semi-VOA CLP~~ ~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~ ~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~ ~~1,250ml aGs:PCB/Pest (8080)~~ ~~1,125ml G:Cyanide CLP~~ ~~1,125ml Gw:Kerosene (8015M)~~ 1,~~1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include, Cs-134, Co-137, Co-60, Eu- 152, Eu-154, Eu-155, K-40, Ru-106, Na-22, I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235, U-234, U-238 (ITAS-RD-3234) Np-237, (ITAS-RD-3208) Pu-238, Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241, Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

*Type of Sample	A = Air	L = Liquid	SE = Sediment	T = Tissue	X = Other
	DL = Drum Liquids	O = Oil	SL = Sludge	W = Water	
	DS = Drum Solids	S = Soil	SO = Solid	WI = Wipe	

Field Information **IT, Richland**

Special Handling and/or Storage Maintain at 4C ; (SOIL)

Possible Sample Hazards NONE OBSERVED

0109

A-6000-406 (06/91) WEF060

9713506.1468

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS/W. SETZER

Company Contact: L E ROGERS — Telephone: 376-7690 WVS 3-22-94

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-21-94

Ice Chest No.: WHC-19 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: NA — Offsite Property No.: WA4-0-

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065

Sample Identification

1) WVS 3-21-94

BQWI0

1,250ml ~~P~~ aGs:CLP;TAL Metals,Hg,Ti
1,250ml ~~G~~ aGs:VOA CLP
1,250ml ~~aG~~ aGs:Semi-VOA CLP
1,125ml ~~G~~ aGs:Anions F,Cl,SO4 (EPA 300.0)
1,125ml ~~P/G~~ aGs:Anions NO2,NO3 (EPA 353.2)
1,~~250ml aGs:PCB/Pest (8080)~~ WVS 3-21-94
1,125ml ~~G~~ aGs:Cyanide CLP
1,125ml ~~G~~ aGs:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

2) BQWI1 (TRIP) 1,250ml, aGs : CLP : VOA

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml G:VOA CLP~~
1,~~250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,250ml aGs:PCB/Pest (8080)~~
~~1,125ml G:Cyanide CLP~~ WVS 3-22-94
~~1,125ml G:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
3-23-94 0920 W.V. SETZER	ITAS Karen Schtenlug 200	3-23-94 11:00
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

0110

9413506.1469

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
Westinghouse Hanford Company		W94-0-0369 #34

PART I – TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
Environmental	Field & Analytical Support	Env. Rest. Fld. Sampling

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

Routing [X] Contractor [ ] Vendor

Shipped to	Off-site Custodian
IT 2800 George Washington Way Richland, WA 99352	Tammy Hiedelberg
	Full Title Project Coordinator

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1	WHC-19 poly cooler. Contains soil samples that are double-bagged and packed in wet ice and vermiculite. Samples are nonhazardous. Sample #'s: B09W10, B09W11	N/A

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

Necessity for the Off-Site Use of this Property

To support drilling at 200-UP-2

RECEIVED
MAR 23 1994
PROPERTY RECORDS

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

RM Clearance for Public Release	RM Survey No	Date
RL Smith	157463	3/23/94

Location of Property (Area & Bldg.)	Contact	Phone
200 Area	376-7690 L. E. Rogers / 376-2413 W. V. Setzer	

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
3-23-94	8B410/PT2AB	N/A

Originated By; Relinquished by:	Date	Authorized By	Date
		W.V. Setzer	3-23-94
Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
			3/23/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
Karen Ashtenling IT-S				
Date 3/23/94 11:00				

DISTRIBUTION

0111

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)

TENNELEC #1

SCREENING CALCULATION SPREADSHEET

Code	Received Date	Time	Screening Date	Prep Time	Count Date	Meas. Cntd	BACKGROUND Alpha	Beta	Meas.
WHC	3-23-94	1250	3-23-94	1300	3-23	10	13	217	240

Category II
JRN 23 Mar 94

Customer ID	Dil. Factor	Prep Wgt.	Vol. Count	Sample Date	MEDIUM CNT DATA Total Alpha	Total Beta	Net Sample Counts/Minute Alpha	Beta	DCM/Aliquot Alpha	Beta	uCi/per Sample Alpha	Beta	% Error Counting Sample Alpha	Beta	pCi/Gram or L Alpha	Beta	Category Code	Allowable Limits Alpha	Beta
B09W10		96.3	97	1000.0	2	3	33	0.25	2.40	2.45E+00	5.79E+00	1.1E-02	2.7E-02	1.6E-05	1.2E-05	1.1E+01	2.7E+01	No	8.8E+02	3.7E+03
								-0.05	-0.90	-1.8E-01	-1.9E+00	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR

0112

9412045.1420

9213506.1471

HANFORD ANALYTICAL SERVICES MANAGEMENT

RECORD OF DISPOSITION

ROD-94-0066
Record of Disposition No.

DATE: March 28, 1994	**LABORATORY:** IT
PROJECT TITLE/NO.: 200-UP-2/SAF 94-065	**NCR NO.:** n/a

SAMPLE IDENTIFICATION NUMBERS: All samples to be analyzed for Kerosene and/or Titanium.

DESCRIPTION OF EVENT:

Clarification is being provided to the laboratory for samples being analyzed for Kerosene and Titanium (Ti).

DISPOSITION OF SAMPLES:

IT will analyze for Kerosene by performing a modification to method 8015 (TPH) in which the peak search is started earlier to pick up the kerosene. As an additional element to the metals TAL, Ti will be analyzed for using ICP methodology.

APPROVAL SIGNATURES:

J. A. Lerch — 3/28/94
CAS Project Coordinator (Print/Sign Name) — **Date**

M. A. Wasemiller — 3/28/94
Technical Representative (Print/Sign Name) — **Date**

N/A
Quality Assurance (Print/Sign Name) — **Date**

9214506.1472

Westinghouse Hanford Company

NONCONFORMANCE REPORT

1. Page 1 of 21 MLH 4/27/94

2. Preprinted No. 051953

QA Log No. EQA-94-030

3. P. O., W. O., or Job Control No.	4. System/End Use	5. Item/Material	6. Dwg./Spec./Other No.	7. Rev
N/A	Site Characterization	Samples	N/A	N/A

8. Program/Project/Other	9. Safety Class	10. ASME Code Items
200-UP-2 LFI	N/A	☐ Yes ☒ No (If yes, notify authorized inspector)

11. Supplier Name/Address	12. Notification of Potential Occurence Requir
Environmental Field Services	☐ Yes ☒ No

13. Code: Lot/Heat/Serial	14. Lot Size	15. Sample	16. Qty. Acc.	17. Inspection Criteria
N/A	1	B09WG2	0	☐ Dwg. ☐ Spec. ☐ Insp. Plan ☒ Other EII 5.11 Rev 3

18. Item	19. Description of Nonconformance (list serial no. where applicable)	22. Disposition, Justification, and Instructions
1	Sample ID B09WG2 was used twice. The ID# was used on samples received by IT on 3/4/94 and 3/10/94. (see ROD-94-0067)	Reject - Cancel analysis of sample received on 3/10/94 labeled B09WG2.

20. Originator's Signature JA Lerch Jeff Lerch Date 3/28/94

23. Design Document Change Required? ☐ Yes, Doc. No. _____ ☒ No

21. Cognizant QA Manager's Signature D.J. Volkman D.J. Volkman Date 4/27/94

24. Corrective Action Required? ☐ Yes, No. _____ ☒ No

Disp. App.

25. Cognizant Engineer	Date	26. Technical Rep.	Date	Signature/Org.	Date
Mark A. Wanamaker	3/30/94	N/A		N/A	

QA Engineer	Date	Signature/Org.	Date	Signature/Org.	Date
Gary Corrigan	5-9-94	N/A		N/A	

Close

27. Accept 1 Reject 0 Follow on NCR N/A

Gary L Corrigan QA/C Personnel 5-9-96 Date

A-7310-104 (10

9713506.1473

HANFORD ANALYTICAL SERVICES MANAGEMENT

RECORD OF DISPOSITION

ROD-94-0067
Record of Disposition No.

DATE: March 28, 1994	LABORATORY: IT
PROJECT TITLE/NO.: 200-UP-2/SAF 94-065	NCR NO.: 051953

SAMPLE IDENTIFICATION NUMBERS: B09WG2

DESCRIPTION OF EVENT:

a) Due to oversight by the sampler, identification #B09WG2 was used twice. The identification # was used on samples received by IT on 3/4/94 and 3/10/94.

b) Due to oversight by the sampler, the collection dates recorded on the sample analysis request and Chain of Custody (COC) forms are inconsistent for sample B09WG2 received on 3/10/94. A collection date of 3/10/94 is specified on the sample analysis request form and a collection date of 3/4/94 is documented on the COC. Field logbook EFL-1115 documents on one sample with an identification number of B09WG2, collected on 3/4/94.

DISPOSITION OF SAMPLES:

a) IT is directed to proceed with the requested analysis and use identification number B09WG2 for the sample received on 3/4/94.

b) IT is directed to cancel analysis of the sample identified as B09WG2 which was received on 3/10/94.

The issues identified above are to be noted in the Case Narrative for the associated delivery group.

APPROVAL SIGNATURES:

J. A. Lerch — 3/28/94
CAS Project Coordinator (Print/Sign Name) — Date

M. A. Wasemiller — 3/30/94
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

9713506.1424

HANFORD ANALYTICAL SERVICES MANAGEMENT

RECORD OF DISPOSITION

ROD-94-0068
Record of Disposition No.

DATE: March 28, 1994	LABORATORY: IT
PROJECT TITLE/NO.: 200-UP-2/SAF 94-065	NCR NO.: n/a

SAMPLE IDENTIFICATION NUMBERS: B09WH2, B09WH3, B09WH4, B09WH6

DESCRIPTION OF EVENT:

a) After being shipped from the IT-Richland facility, the samples listed above were received by the St.Louis facility on 3/12/94 at a temperature of 1°C. The sample matrix was soil.

b) After being shipped from the IT-Richland facility, the B09WH4 sample container for Anions by 300.0 was received at St.Louis broken on the bottom.

DISPOSITION OF SAMPLES:

a) IT is directed to proceed with the requested analysis.

b) Since soil samples are chemically unpreserved, IT is directed to use excess sample from the other containers associated with sample B09WH4 to create an aliquot for analysis by method 300.0.

The issues identified above are to be noted in the Case Narrative for the associated delivery group.

APPROVAL SIGNATURES:

J. A. Lerch — 3/28/94
CAS Project Coordinator (Print/Sign Name) — Date

M. A. Wasemiller — 3/28/94
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

BATCH SUMMARY/CHAIN OF CUSTODY

9/13506.1975

ANALYSIS Am/Cm MATRIX Soil DUE DATE 4/25/94

WORK ORDER	SEQUENCE #	CLIENT	COMMENTS
L032351BV	-1B	-	QC BATCH REAGENT BLANK
L	-1X		QC BATCH MATRIX BLANK
L032351S	-1M or 1S (circle)		QC BATCH MATRIX/REAGENT SPIKE IQO 003
L	-2M or 2S (circle)		QC BATCH MATRIX/REAGENT SPIKE
F0323501 ✓	-		Duplicate of Sample # 40323501
F0343301 ✓	-		Dup of Sa # 40343301
40323501 ✓	-		
40326501 ✓✓	- 02		
40338601 ✓✓✓	03		
40343301 ✓	-		
	-		
	-		
	-		
	-		
	-		
	-		
	-		

Batched and QC updated by Bom on 4/5/94 Rec'd in C.R. by KC on 4-21-94

Rec'd in Prep Lab by Bom on 4/5/94 Data Reviewed and anal. Prep stored MMM on 4-29-94

RD3221 4/6/94 Bom

Rec'd in Sep Lab by Susie on 4-7-94

Rec'd in Sep lab by JF on 4bday Samples Disposed by _____ on _____

Original batch sheet and complete calculation file to be filed with the FIRST listed work order number.

FORM NO.: RC-52, 1/94, Rev. 4

copy + 4-26-94 MM

9713506.1476

4/25/94
4-27-94

*** AM/CMISO ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

11-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-235

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	part of sample lost vortexing 4/13/94 JF				
	L0323515	ESJ10333			
	L0323515	IQ0003			
1)	40323501	ESJ10334	WHC	B09WG4	
	F0323501	10335			

ACTIONS (Initial & Date)

1) INITIATED 3/11/94

2) PREP LAB RECEIVED 4/5/94 Bm

3) SAMPLE REMAINDER STORED N/A

4) SEPARATION LAB RECEIVED RD 3221 4/6/94 Bm 4/20/94

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED 4-7-94 Susie

0117

4-28-94
4-27-94

9713506.1477 *** AM/CMISO ***

SAF 94 045

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

16-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-245

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40326501	ESJ10336	WHC	B09WI8	
2)	40326502	10337	WHC	B09WG4	

ACTIONS (Initial & Date)

1) INITIATED RB 3/16/94

2) PREP LAB RECEIVED 4/5/94 Bm 4-7-94 Susie

3) SAMPLE REMAINDER STORED N/A

4) SEPARATION LAB RECEIVED RD 3221 4/6/94 Bm 4/20/94 JF

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED

0118

4-27-94

971506.1478 ***AM/CMISO ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

22-Mar-1994
Page 1

CUSTOMER: WHC SAF 94-068

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-386

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40338601	ESJ10338	WHC	B09WH2	
2)	40338602	ESJ10339	WHC	B09WH3	
3)	40338603	ESJ10340	WHC	B09WH4	

ACTIONS (Initial & Date)

1) INITIATED JH 3/22/94

2) PREP LAB RECEIVED 4/5/94 Bm 4-7-94 Susie

3) SAMPLE REMAINDER STORED N/A

4) SEPARATION LAB RECEIVED RD3221 4/6/94 Bm 4/20/94 JF

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED 4-29-94

4-27-94

9713506.1479 *** AM/CMISO ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

24-Mar-1994
Page 1

CUSTOMER: WHC SAF

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL 94-065

BATCH NUMBER 3-433

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40343301	ESF 10341	WHC	B09WI0	
	~~E0343301~~	10342			

ACTIONS (Initial & Date)

1) INITIATED JH 3/24/94

2) PREP LAB RECEIVED 4/5/94 BRM 4-7-94 [illegible]

3) SAMPLE REMAINDER STORED N/A

4) SEPARATION LAB RECEIVED 4/6/94 JF RD 3221 4/6/94 BRM

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED [illegible] 4/29/94

0120

9713506.1450

BATCH SUMMARY/CHAIN OF CUSTODY

ANALYSIS Np237 MATRIX Soil DUE DATE 4-~~25~~ 27-94

WORK ORDER	SEQUENCE #	CLIENT	COMMENTS
L C32351B ✓	-1B		QC BATCH REAGENT BLANK
L C32351S ✓	-1X EWR008	25.048± .35224	QC BATCH MATRIX BLANK
L	-1M or 1S (circle)		QC BATCH MATRIX/REAGENT SPIKE
L	-2M or 2S (circle)		QC BATCH MATRIX/REAGENT SPIKE
F C323501 ✓	-		Duplicate of Sample # 4C32351
WC32351 M ✓ 651 SS 5-2-94	-		
WC32352 M ✓ 652 SS 5-2-94	-		
WC33862 M	-		This was with card 10-8-94 ~~WC 33~~ WC32653 KC 4-25-94
3-235 ✓	-		
3-265 ✓✓	-		
3-386 ✓✓✓	-		
3-433 ✓	-		
F C326502 ✓	-		
	-		
	-		
	-		
	-		

Batched and QC updated by Susie on 4-6-94 Rec'd in C.R. by KC on 4-22-94

Rec'd in Prep Lab by Susie on 4-6-94 Data Reviewed and anal. Prep stored MMM on 5-5-94

Rec'd in Sep Lab by JK on 4-19-94

Rec'd in Sep lab by _____ on _____ Samples Disposed by _____ on _____

Original batch sheet and complete calculation file to be filed with the FIRST listed work order number.

FORM NO.: RC-52, 1/94, Rev. 4

0121

copy 4.22.94

9713506.1481

*** NP-237 ***

4/25/94

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

11-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-235

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	L0323518 ✓	L0326518 ✓		L0338628	
	L0323515 ✓	L0326528 ✓			
1)	40323501 ✓		WHC	B09WG4	
	F0323501 ✓				

ACTIONS (Initial & Date)

1) INITIATED 3/4/94

2) PREP LAB RECEIVED 4/5/94 4-26-94

3) SAMPLE REMAINDER STORED N/A
RD3221

4) SEPARATION LAB RECEIVED

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED 5-5-94

9713506.1432

4-28-94

*** NP-237 *** SAF 94 065

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

16-Mar-1994
Page 1

CUSTOMER: WHC SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL BATCH NUMBER 3-265

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40326501 ✓		WHC	B09WI8	
2)	40326502 ✓		WHC	B09WG4	

ACTIONS (Initial & Date)

1) INITIATED DL 3/16/94

2) PREP LAB RECEIVED 4/5/94 [illegible] 4-6-94 [illegible]

3) SAMPLE REMAINDER STORED UK
RO3221

4) SEPARATION LAB RECEIVED _____

5) COUNTING/MEASUREMENT LAB _____

6) DATA REVIEWED AND ANALYTICAL PREP STORED MWK 5-5-94

9713506.1433

*** NP-237 ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

22-Mar-1994
Page 1

CUSTOMER: WHC SAF 94-065

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-386

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40338601 ✓		WHC	B09WH2	
2)	40338602 ✓		WHC	B09WH3	
3)	40338603 ✓		WHC	B09WH4	

ACTIONS (Initial & Date)

1) INITIATED JH 3/22/94

2) PREP LAB RECEIVED 4/5/94 bm 4-6-94 susie

3) SAMPLE REMAINDER STORED N/A

4) SEPARATION LAB RECEIVED RD3221

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED mm 5-5-94 5-5-94 mm

9713506.1434

*** NP-237 ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

24-Mar-1994
Page 1

CUSTOMER: WHC SAF

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL 94-065

BATCH NUMBER 3.433

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40343301		WHC	B09WI0	

ACTIONS (Initial & Date)

1) INITIATED JH 3/24/94

2) PREP LAB RECEIVED 4/5/94 bm 4-6-94 sum

3) SAMPLE REMAINDER STORED N/A

- 1RD3221

4) SEPARATION LAB RECEIVED _____

5) COUNTING/MEASUREMENT LAB _____

6) DATA REVIEWED AND ANALYTICAL PREP STORED mmm 5-5 gh

9713506.1435

INTERNATIONAL TECHNOLOGY CORPORATION

DUE DATE 5-9-94

REANALYSIS / RECOUNT

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

ANALYSIS Np

NAME/DATE mm / 5-2-94

CUSTOMER WHC

SAMPLE DELIVERY GROUP

MATRIX soil

BATCH NUMBER

ITAS ID	CUSTOMER ID	COMMENTS
1) W032651M	EQR009 25.033 ±	.35203
2) 32601 2M	EQR010 25.048 ±	.35224
3) 33802M	EQR011 25.018 ±	.35182
4)		
5)		
6)		
7)		
8)		
9)		
10)		

REANALYSIS

REFERENCED QC

ITAS ID - BLANK

ITAS ID - SPIKE

CLIENT CODE

ACTIONS (Initial & Date)

PREP LAB RECEIVED

SAMPLE REMAINDER

RETURNED TO SCG ☐ (CHECK ONE)

NO SAMPLE REMAINING ☐

SEPARATION LAB

COUNTING/MEASUREMENT

DATA REVIEWED

ANALYTICAL PREP STORED

RECOUNT

ACTIONS (Initial & Date)

COUNTING/MEASUREMENT AS 5-2-

DATA REVIEWED mm 5-4-94

ANALYTICAL PREP STORED mm 5-

ADDITIONAL COMMENTS:

0126

RC-048 12/92 REV 2

9713506.1436

BATCH SUMMARY/CHAIN OF CUSTODY

ANALYSIS Pu MATRIX SOIL DUE DATE 4/25/94

WORK ORDER	SEQUENCE #	CLIENT	COMMENTS
L 03235 ✓	-1B		QC BATCH REAGENT BLANK
L	-1X		QC BATCH MATRIX BLANK
L 03235015 ✓	-1M or 1S (circle)		QC BATCH MATRIX/REAGENT SPIKE
L	-2M or 2S (circle)		QC BATCH MATRIX/REAGENT SPIKE
F 03235501 ✓			Duplicate of Sample # 40323501
F 03433301 ✓			Duplicate of Sample 40343301
40323501 ✓			
40326501 ✓			
40326502 ✓			
40338601 ✓			
40338602 ✓			
40338603 ✓			
40343301 ✓			

Batched and QC updated by JF on 4-6-94 Rec'd in C.R. by KC on 4-20-94

Rec'd in Prep Lab by NA on _____ Data Reviewed and anal. Prep stored PK on 4-29-94

Rec'd in Sep Lab by JF on 4-6-94

Rec'd in Sep lab by NA on _____ Samples Disposed by _____ on _____

Original batch sheet and complete calculation file to be filed with the FIRST listed work order number.

FORM NO.: RC-52, 1/94, Rev. 4

ED 4-19-94

9713506.1437 *** PUISO ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

22-Mar-1994
Page 1

CUSTOMER: WHC SAF 94-065

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-386

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40338601	ESH15679	WHC	B09WH2	
2)	40338602	15680	WHC	B09WH3	
3)	40338603	15681	WHC	B09WH4	

ACTIONS (Initial & Date)

1) INITIATED JH 3/30/94

2) PREP LAB RECEIVED 4/5/94 4-7-94

3) SAMPLE REMAINDER STORED NA
RD 3221

4) SEPARATION LAB RECEIVED NA

5) COUNTING/MEASUREMENT LAB NA

6) DATA REVIEWED AND ANALYTICAL PREP STORED PK 4-29-94

4/22

9713506.1438 *** PUISO ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

24-Mar-1994
Page 1

CUSTOMER: WHC SAF SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL 94-065 BATCH NUMBER 3-433

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40343301	ES#15682	WHC	B09WI0	
	E0343301	15683			

ACTIONS (Initial & Date)

1) INITIATED JH 3/24/94

2) PREP LAB RECEIVED 4/5/94 Kon 4-7-94 Susan

3) SAMPLE REMAINDER STORED N/A
- RD 3221

4) SEPARATION LAB RECEIVED NA

5) COUNTING/MEASUREMENT LAB NA

6) DATA REVIEWED AND ANALYTICAL PREP STORED PK 4-29-94

ncm on
40343301 PK 4/29/94
low yield

0129

JH 4/3

4-28-94

9713506.1439 *** PUISO ***

SAF 94 065

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

16-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-265

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40326501	ESH15677	WHC	B09WI8	
2)	40326502	15678	WHC	B09WG4	

ACTIONS (Initial & Date)

1) INITIATED RB 3/16/94

2) PREP LAB RECEIVED 4/5/94 4-7-94 Smart

3) SAMPLE REMAINDER STORED N/A
RD 3221

4) SEPARATION LAB RECEIVED _____

5) COUNTING/MEASUREMENT LAB _____

6) DATA REVIEWED AND ANALYTICAL PREP STORED PK 4-29-94

0130

JH30

9713506.1430 *** PUISO ***

4/25/94

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

11-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-235

ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
pad of sample lost vortexing 4/13/94 JT				
L0323515 ESH15673				
L0323515 IOHI028				
1) 40323501 ESH15674		WHC	B09WG4	
F0323501 15673				

ACTIONS (Initial & Date)

1) INITIATED 3/11/94

2) PREP LAB RECEIVED 4/5/94 4-7-94 Susie

3) SAMPLE REMAINDER STORED N/A
RO 3221

4) SEPARATION LAB RECEIVED NA

5) COUNTING/MEASUREMENT LAB NA

6) DATA REVIEWED AND ANALYTICAL PREP STORED PK 4-29-94

0131

9715506.1491

BATCH SUMMARY/CHAIN OF CUSTODY

ANALYSIS uso MATRIX Soil DUE DATE 4-25-94

WORK ORDER	SEQUENCE #	CLIENT	COMMENTS
L 032351B	-1B	WHC	QC BATCH REAGENT BLANK
L	-1X		QC BATCH MATRIX BLANK
L 032351S	-1M or 1S (circle)		QC BATCH MATRIX/REAGENT SPIKE
L	-2M or 2S (circle)		QC BATCH MATRIX/REAGENT SPIKE
F 03235501	-		Duplicate of Sample # 40323501
F0343301	-		40343301
40323501	-		
40326501	- 02		
40338601	- 03		
40343301	-		
	-		
	-		
	-		
	-		
	-		
	-		
	-		

Batched and QC updated by Bom on 4/5/94 Rec'd in C.R. by KC on 4-18-94 KC 4-15-94

Rec'd in Prep Lab by Bom on 4/5/94 Data Reviewed and anal. Prep stored PK on 4-29-94

RD3221 Susie 4-7-94

Rec'd in Sep Lab by [illegible] on 4/7/94

Rec'd in Sep lab by NA on _____ Samples Disposed by _____ on _____

Original batch sheet and complete calculation file to be filed with the FIRST listed work order number.

FORM NO.: RC-52, 1/94, Rev. 4

Ext 4-11-94

Ext 4.13-94

EP 4.14.94

0132

9713506.1492

4/25/94

*** UISO ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

11-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-235

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	L0323518	ESI14905			
	L0323515	EQI c 083			
1)	40323501	ESI14906	WHC	B09WG4	
	F0323501	ESI14907			

ACTIONS (Initial & Date)

1) INITIATED 3/11/94

2) PREP LAB RECEIVED 4/5/94 Btm 4-7-94 Susan

3) SAMPLE REMAINDER STORED N/A
RD3221

4) SEPARATION LAB RECEIVED NA

5) COUNTING/MEASUREMENT LAB NA

6) DATA REVIEWED AND ANALYTICAL PREP STORED PK 4-29-94

9713506.1493

4-28-94

*** UISO ***

SAF 94065

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

16-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-265

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40326501	ESF14908	WHC	B09WI8	
2)	40326502	14909	WHC	B09WG4	

ACTIONS (Initial & Date)

1) INITIATED RB 3/16/94

2) PREP LAB RECEIVED 4/5/94 BMM 4-7-94 Susan

3) SAMPLE REMAINDER STORED N/A
RD3221

4) SEPARATION LAB RECEIVED NA

5) COUNTING/MEASUREMENT LAB NA

6) DATA REVIEWED AND ANALYTICAL PREP STORED RK 4-29-94

0134

4/5/94

9713506.1494

*** UISO ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

22-Mar-1994
Page 1

CUSTOMER: WHC SAF SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL 94-065 BATCH NUMBER 3-386

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40338601	ESI14910	WHC	B09WH2	
2)	40338602	14917	WHC	B09WH3	
3)	40338603	14912	WHC	B09WH4	

ACTIONS (Initial & Date)

1) INITIATED SH 3/22/94

2) PREP LAB RECEIVED 4/5/94 BTM 4-7-94 Susan

3) SAMPLE REMAINDER STORED N/A

RD 3221

4) SEPARATION LAB RECEIVED NA

5) COUNTING/MEASUREMENT LAB NA

6) DATA REVIEWED AND ANALYTICAL PREP STORED PK 4-29-94

9713506.1495

*** UISO ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

24-Mar-1994
Page 1

CUSTOMER: WHC SAF

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL 94-065

BATCH NUMBER 3-433

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40343301 ES71493		WHC	B09WI0	
	E0343301	14914			

ACTIONS (Initial & Date)

1) INITIATED JH 3/24/94

2) PREP LAB RECEIVED 4/5/94 BM 4-7-94 [illegible]

3) SAMPLE REMAINDER STORED NA
RD3221

4) SEPARATION LAB RECEIVED NA

5) COUNTING/MEASUREMENT LAB NA

6) DATA REVIEWED AND ANALYTICAL PREP STORED PK 4-29-94

9713506.1496

BATCH SUMMARY/CHAIN OF CUSTODY

ANALYSIS GAMMA MATRIX SOIL DUE DATE 4-25-94

WP0005

WORK ORDER	SEQUENCE #	CLIENT	COMMENTS
L 03386	-1B		QC BATCH REAGENT BLANK
L	-1X		QC BATCH MATRIX BLANK
L 03386	-1M or 1S (circle)		QC BATCH MATRIX/REAGENT SPIKE
L	-2M or 2S (circle)		QC BATCH MATRIX/REAGENT SPIKE
F 03386	02		Duplicate of Sample # 4L338602
4L03386	01-03		
4L03265	01-02		
4L03433	01		
4L03235	01		

Batched and QC updated by NMI on 4-6-94 Rec'd in C.R. by AS on 4-6-94

Rec'd in Prep Lab by NMI on 3-17-94 Data Reviewed and anal. Prep stored TR on 5-7-94

Rec'd in Sep Lab by N/A on

Rec'd in Sep lab by N/A on Samples Disposed by on

Original batch sheet and complete calculation file to be filed with the FIRST listed work order number.

FORM NO.: RC-52, 1/94, Rev. 4

9713506.1497

4/25/94

*** GAMMA ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

11-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-235

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40323501		WHC	B09WG4	

ACTIONS (Initial & Date)

1) INITIATED 3/11/94

2) PREP LAB RECEIVED MM 3-12-94

3) SAMPLE REMAINDER STORED MM 4-4-94

4) SEPARATION LAB RECEIVED N/A

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED

9713506.1498

4-28-94

*** GAMMA ***

SAF 94 065

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

16-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-265

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40326501		WHC	B09WI8	
2)	40326502		WHC	B09WG4	

ACTIONS (Initial & Date)

1) INITIATED RG 3/16/94

2) PREP LAB RECEIVED MM 3-17-94

3) SAMPLE REMAINDER STORED MM 4-4-94

4) SEPARATION LAB RECEIVED N/A

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED

9713506.1439

*** GAMMA ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

22-Mar-1994
Page 1

CUSTOMER: WHC SAF 94-065

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-386

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	L0338618 ✓				
	L0338615 ✓				
1)	40338601 ✓		WHC	B09WH2	
2)	40338602 ✓		WHC	B09WH3	
	E0338602 ✓				
3)	40338603 ✓		WHC	B09WH4	

ACTIONS (Initial & Date)

1) INITIATED JH 3/22/94

2) PREP LAB RECEIVED NM 3-23-94

3) SAMPLE REMAINDER STORED NM 4-4-94

4) SEPARATION LAB RECEIVED N/A

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED

9713506.1500

*** GAMMA ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

24-Mar-1994
Page 1

CUSTOMER: WHC SAF SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL 94-065 BATCH NUMBER 3433

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40343301		WHC	B09WI0	

ACTIONS (Initial & Date)

1) INITIATED JH 3/24/94

2) PREP LAB RECEIVED MM 3-25-94

3) SAMPLE REMAINDER STORED MM 4-4-94

4) SEPARATION LAB RECEIVED N/A

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED

9715506.1501

INTERNATIONAL TECHNOLOGY CORPORATION

DUE DATE 4/25/94

REANALYSIS / RECOUNT

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

ANALYSIS X

NAME/DATE JK / 5-2-94

CUSTOMER NHC

SAMPLE DELIVERY GROUP

MATRIX Soil

BATCH NUMBER W0005

ITAS ID	CUSTOMER ID	COMMENTS
1) 403386 01 ✓		1000 min
2) 02 ✓		
3) 03 ✓		
4) ~~403386 01~~	JK 5-4-94 per Jim Hanvan	
5) ~~02~~	JK 5-4-94	
6) 403433 01		
7) ~~403375 01~~	JK 5-4-94	
8) L03386 1B		
9) L03386 1S		
10) F03386 02 ✓		

REANALYSIS

REFERENCED QC

ITAS ID - BLANK

ITAS ID - SPIKE

CLIENT CODE

ACTIONS (Initial & Date)

PREP LAB RECEIVED

SAMPLE REMAINDER RETURNED TO SCG ☐ (CHECK ONE)

NO SAMPLE REMAINING ☐

SEPARATION LAB

COUNTING/MEASUREMENT

DATA REVIEWED

ANALYTICAL PREP STORED

RECOUNT

ACTIONS (Initial & Date)

COUNTING/MEASUREMENT

DATA REVIEWED JK 5-7-94

ANALYTICAL PREP STORED

ADDITIONAL COMMENTS:

0142

RC-048 12/92 REV

9715506.1502

INTERNATIONAL TECHNOLOGY CORPORATION

DUE DATE 4/25/94

REANALYSIS / RECOUNT

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

ANALYSIS γ

NAME/DATE TK / 5-2-94

CUSTOMER WHC

SAMPLE DELIVERY GROUP

MATRIX Soil

BATCH NUMBER W0005

ITAS ID	CUSTOMER ID	COMMENTS
1) 40338601 ✓		1000 min
2) 02 ✓		
3) 03 ✓		
4) ~~40326501~~	TK 5-4-94 Per Tim Harvey	
5) ~~02~~	TK 5-4-94	
6) 40343301		
7) ~~40323501~~	TK 5-4-94	
8) L03386 1B		
9) L03386 1S		
10) F03386 02 ✓		

REANALYSIS

REFERENCED QC

ITAS ID - BLANK

ITAS ID - SPIKE

CLIENT CODE

ACTIONS (Initial & Date)

PREP LAB RECEIVED

SAMPLE REMAINDER RETURNED TO SCG ☐ (CHECK ONE)

NO SAMPLE REMAINING ☐

SEPARATION LAB

COUNTING/MEASUREMENT

DATA REVIEWED

ANALYTICAL PREP STORED

RECOUNT

ACTIONS (Initial & Date)

COUNTING/MEASUREMENT AS 5-2-

DATA REVIEWED TK 5-7-94

ANALYTICAL PREP STORED

ADDITIONAL COMMENTS:

0143

RC-048 12/92 REV 2

9213506.1503

BATCH SUMMARY/CHAIN OF CUSTODY

ANALYSIS I 129LP MATRIX SOIL DUE DATE 4-27-94

WORK ORDER	SEQUENCE #	CLIENT	COMMENTS
L 03 235	-1B	WHC	QC BATCH REAGENT BLANK
L	-1X		QC BATCH MATRIX BLANK
L 03 235	-1M or 1S (circle)		QC BATCH MATRIX/REAGENT SPIKE EQZK004
L	-2M or 2S (circle)		QC BATCH MATRIX/REAGENT SPIKE
F 03 265 01	-		Duplicate of Sample # 40326501
403 23501	-		CAT III
403 26501	-02		CAT II
403 38601	-03		
403 43301	-		
	-		
	-		
	-		
	-		
	-		
	-		
	-		
	-		

Batched and QC updated by JN on 4-20-94 Rec'd in C.R. by AS on 4-20-94

Rec'd in Prep Lab by JN on 4-19-94 Data Reviewed and anal. Prep stored TK on 5-2-94

Rec'd in Sep Lab by NA on NA

Rec'd in Sep lab by NA on NA Samples Disposed by _____ on _____

Original batch sheet and complete calculation file to be filed with the FIRST listed work order number.

FORM NO.: RC-52, 1/94, Rev. 4

9713506.1504

Due 4-27-94

*** I-129LP ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

16-Apr-1994
Page 1

CUSTOMER: WHC SAF

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL 94-065

BATCH NUMBER 3-235

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	L03 2351B / L03 2351S	EQZK 004		1.0015 E+3 ± 1.1888 E+1	
1)	40323501		WHC	B09WG4	CAT III

ACTIONS (Initial & Date)

INITIATED JH 4/16/94

PREP LAB RECEIVED JN 4-19-94

SAMPLE REMAINDER STORED JN 4-20-94

SEPARATION LAB RECEIVED NA

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED

9713506.1505

*** I-129LP ***

Due 4-27-94

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

16-Apr-1994
Page 1

CUSTOMER: WHC SAF

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL 94-065

BATCH NUMBER 3-265

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40326501		WHC	B09WI8	CAT II
	F0326501	DUP			
2)	40326502		WHC	B09WG4	↓

ACTIONS (Initial & Date)

INITIATED JH 4/16/94

PREP LAB RECEIVED JN 4-19-94

SAMPLE REMAINDER STORED JN 4-20-94

SEPARATION LAB RECEIVED NA

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED

9713506.1506

Due 4-27-94

*** I-129LP ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

16-Apr-1994
Page 1

CUSTOMER: WHC SAF 94-065

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-433

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40343301		WHC	B09WI0	CAT II

ACTIONS (Initial & Date)

INITIATED JH 4/16/94

PREP LAB RECEIVED JN 4-1994

SAMPLE REMAINDER STORED JN 4-20-94

SEPARATION LAB RECEIVED NA

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED

9213506.1507

Due 4-27-94

*** I-129LP ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

16-Apr-1994
Page 1

CUSTOMER: WHC SAF

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL 94-065

BATCH NUMBER 3-386

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40338601		WHC	B09WH2	CAT II ~~CAT III~~ JN 4-20-94
2)	40338602		WHC	B09WH3	↓
3)	40338603		WHC	B09WH4	

ACTIONS (Initial & Date)

INITIATED JH 4/16/94

PREP LAB RECEIVED JN 4-19-94

SAMPLE REMAINDER STORED JN 4-20-94

SEPARATION LAB RECEIVED NA

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED

9713506.1508

BATCH SUMMARY/CHAIN OF CUSTODY

ANALYSIS ALPHA MATRIX SOIL DUE DATE 4-25-94

WORK ORDER	SEQUENCE #	CLIENT	COMMENTS
L [illegible]	-1B	VCAC	QC BATCH REAGENT BLANK
L	-1X		QC BATCH MATRIX BLANK
L [illegible]265	-1M or 1S (circle)		QC BATCH MATRIX/REAGENT SPIKE
L	-2M or 2S (circle)		QC BATCH MATRIX/REAGENT SPIKE
F [illegible]	-		Duplicate of Sample # [illegible]501
[illegible]	[illegible]1-13		
[illegible]	[illegible]		
[illegible]235	[illegible]1		
[illegible]235	[illegible]1-12		
	-		
	-		
	-		
	-		
	-		
	-		
	-		
	-		

Batched and QC updated by [illegible] on [illegible] Rec'd in C.R. by [illegible] on 4/9/94

Rec'd in Prep Lab by [illegible] on [illegible] Data Reviewed and anal. Prep stored JR on 4-21-94

Rec'd in Sep Lab by N/A on

Rec'd in Sep lab by N/A on Samples Disposed by on

Original batch sheet and complete calculation file to be filed with the FIRST listed work order number.

FORM NO.: RC-52, 1/94, Rev. 4

4/25/94

9713506.1509 *** ALPHA ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

11-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-235

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40323501		WHC	B09WG4	

ACTIONS (Initial & Date)

1) INITIATED 3/11/94

2) PREP LAB RECEIVED 3-12-94

3) SAMPLE REMAINDER STORED 4-6-94

4) SEPARATION LAB RECEIVED N/A

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED

4-28-94

9713506.1510 *** ALPHA *** SAF 94 065

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

16-Mar-1994
Page 1

CUSTOMER: WHC SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL BATCH NUMBER 3-265

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	✓L0326518 ✓L0326515		EQEG191 = 10.634 ± .096219 dpm = 4.5198 ± .04334		
1)	✓40326501 ✓F0326501		WHC	B09WI8	
2)	✓40326502		WHC	B09WG4	

ACTIONS (Initial & Date)

1) INITIATED RB 3/16/94

2) PREP LAB RECEIVED JMJ 3-17-94

3) SAMPLE REMAINDER STORED JMJ 4-8-94

4) SEPARATION LAB RECEIVED N/A

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED

9715506.1511 *** ALPHA ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

22-Mar-1994
Page 1

CUSTOMER: WHC SAT

MATRIX : SOIL 14-00

SAMPLE DELIVERY GROUP W0005

BATCH NUMBER 3-386

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1	✓ 40338601		WHC	B09WH2	
2	40338602		WHC	B09WH3	
3	40338603		WHC	B09WH4	

ACTIONS (Initial & Date)

1) INITIATED JH 3/23/94

2) PREP LAB RECEIVED JH 3-23-94

3) SAMPLE REMAINDER STORED JH 4-4-94

4) SEPARATION LAB RECEIVED N/A

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED

9713506.1512 *** ALPHA ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

24-Mar-1994
Page 1

CUSTOMER: WHC SAF

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL 94-065

BATCH NUMBER 3-433

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40343301		WHC	B09WI0	

ACTIONS (Initial & Date)

1) INITIATED JH 3/24/94

2) PREP LAB RECEIVED [illegible] 3-25-94

3) SAMPLE REMAINDER STORED [illegible] 4-2-94

4) SEPARATION LAB RECEIVED N/A

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED

9713506.1513

BATCH SUMMARY/CHAIN OF CUSTODY

ANALYSIS E4 MATRIX SOIL DUE DATE 4-25-94

WORK ORDER	SEQUENCE #	CLIENT	COMMENTS
L 63265	-1B	KMC	QC BATCH REAGENT BLANK
L	-1X		QC BATCH MATRIX BLANK
L 63265	-1M or 1S (circle)		QC BATCH MATRIX/REAGENT SPIKE
L	-2M or 2S (circle)		QC BATCH MATRIX/REAGENT SPIKE
F 0326501	-		Duplicate of Sample # 4132501
41 2265	01-12		
41 3326	1-3		
41 2433	-		
41 235	-		
	-		
	-		
	-		
	-		
	-		
	-		
	-		
	-		

Batched and QC updated by MM on 4-8-94 Rec'd in C.R. by AS on 08apr94

Rec'd in Prep Lab by MM on 3-17-94 Data Reviewed and anal. Prep stored MK on 4-21-94

Rec'd in Sep Lab by N/A on

Rec'd in Sep lab by N/A on Samples Disposed by on

Original batch sheet and complete calculation file to be filed with the FIRST listed work order number.

FORM NO.: RC-52, 1/94, Rev. 4

9713506.1514 *** BETA ***

4/25/94

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

11-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-235

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40323501		WHC	B09WG4	

ACTIONS (Initial & Date)

1) INITIATED 3/11/94

2) PREP LAB RECEIVED [illegible]

3) SAMPLE REMAINDER STORED [illegible] 4-8-94

4) SEPARATION LAB RECEIVED N/A

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED

9713506.1515*** BETA ***

SAF 94 065

4-28-94

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

16-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP ___WO005___

MATRIX : SOIL

BATCH NUMBER ___3-265___

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	L0326515		LABA037	2506	± .35354 dpm = 1.2883 ± .15925
1)	40326501		WHC	B09WI8	
2)	40326502		WHC	B09WG4	

ACTIONS (Initial & Date)

1) INITIATED PB 3/16/94

2) PREP LAB RECEIVED [illegible] 3-17-94

3) SAMPLE REMAINDER STORED [illegible] 4-[illegible]-94

4) SEPARATION LAB RECEIVED ___N/A___

5) COUNTING/MEASUREMENT LAB___

6) DATA REVIEWED AND ANALYTICAL PREP STORED ___

9213506.1516 *** BETA ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

22-Mar-1994
Page 1

CUSTOMER: WHC SAF 94-005

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-386

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40338601		WHC	B09WH2	
2)	40338602		WHC	B09WH3	
3)	40338603		WHC	B09WH4	

ACTIONS (Initial & Date)

1) INITIATED JH 3/23/94

2) PREP LAB RECEIVED MMM 3-23-94

3) SAMPLE REMAINDER STORED MMM 4-6-94

4) SEPARATION LAB RECEIVED N/A

5) COUNTING/MEASUREMENT LAB _____

6) DATA REVIEWED AND ANALYTICAL PREP STORED _____

9713506.1517 *** BETA ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

24-Mar-1994
Page 1

CUSTOMER: WHC SAF SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL 94-065 BATCH NUMBER 3-433

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40343301		WHC	B09WI0	

ACTIONS (Initial & Date)

1) INITIATED JH 3/24/94

2) PREP LAB RECEIVED [illegible] 4-4-94

3) SAMPLE REMAINDER STORED [illegible] 4-4-94

4) SEPARATION LAB RECEIVED N/A

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED

5713506.1518

BATCH SUMMARY/CHAIN OF CUSTODY

ANALYSIS Total SR MATRIX Soil DUE DATE 4-25-94

WOODS

WORK ORDER	SEQUENCE #	CLIENT	COMMENTS
L03265	-1B	WMC	QC BATCH REAGENT BLANK
L	-1X		QC BATCH MATRIX BLANK
L03265	-1M or 1S (circle)		QC BATCH MATRIX/REAGENT SPIKE 5.2643 ± .0755 60GI Ø91 70.121 ± 1.006 ppm
L	-2M or 2S (circle)		QC BATCH MATRIX/REAGENT SPIKE
F0326501			Duplicate of Sample # 40326501
40326501	2		2 sa
40338601	3		3 sa
40343301			1 sa
40323501			1 sa

Batched and QC updated by [illegible] on 4/7/94 Rec'd in C.R. by AB on 4-27-94

Rec'd in Prep Lab by [illegible] on 4/7/94 Data Reviewed and anal. Prep stored [illegible] on 5/2/94

Rec'd in Sep Lab by TK on 4-11-94

Rec'd in Sep lab by ↓ on ↓ Samples Disposed by _____ on _____

Original batch sheet and complete calculation file to be filed with the FIRST listed work order number.

FORM NO.: RC-52, 1/94, Rev. 4

9713506.1519

4-28-94

*** ~~SR-90~~ TOTAL SR *** SAF 94 065

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

16-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-265

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	L0326518				
	L0326513				
1)	40326501		WHC	B09WI8	
	F0326501-DUP				
2)	40326502		WHC	B09WG4	

ACTIONS (Initial & Date)

1) INITIATED PB 3/16/94

2) PREP LAB RECEIVED _____

3) SAMPLE REMAINDER STORED _____

4) SEPARATION LAB RECEIVED _____

5) COUNTING/MEASUREMENT LAB _____

6) DATA REVIEWED AND ANALYTICAL PREP STORED _____

9713506.1520

TOTAL SR
*** ~~SR-90~~ ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

22-Mar-1994
Page 1

CUSTOMER: WHC SAF SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL 94-065 BATCH NUMBER 3-386

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40338601		WHC	B09WH2	
2)	40338602		WHC	B09WH3	
3)	40338603		WHC	B09WH4	

ACTIONS (Initial & Date)

1) INITIATED JH 3/22/94

2) PREP LAB RECEIVED _____

3) SAMPLE REMAINDER STORED _____

4) SEPARATION LAB RECEIVED _____

5) COUNTING/MEASUREMENT LAB_____

6) DATA REVIEWED AND ANALYTICAL PREP STORED _____

9713506.1521

TOTAL-SR
~~*** GR-90~~ ***
4/7/94

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

24-Mar-1994
Page 1

CUSTOMER: WHC SAF

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL 94-065

BATCH NUMBER 3-433

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40343301		WHC	B09WI0	

ACTIONS (Initial & Date)

1) INITIATED JH 3/24/94

2) PREP LAB RECEIVED _____

3) SAMPLE REMAINDER STORED _____

4) SEPARATION LAB RECEIVED _____

5) COUNTING/MEASUREMENT LAB _____

6) DATA REVIEWED AND ANALYTICAL PREP STORED _____

9713506.1522

4/25/94

*** ~~SR-90~~ TOTAL-SR *** 4/7/94

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

11-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP ____W0005_____

MATRIX : SOIL

BATCH NUMBER ____3-235_____

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40323501		WHC	B09WG4	

ACTIONS (Initial & Date)

1) INITIATED 3/11/94

2) PREP LAB RECEIVED _____

3) SAMPLE REMAINDER STORED _____

4) SEPARATION LAB RECEIVED _____

5) COUNTING/MEASUREMENT LAB_____

6) DATA REVIEWED AND ANALYTICAL PREP STORED _____

9713506.1523

BATCH SUMMARY/CHAIN OF CUSTODY

ANALYSIS Se 79 MATRIX Soil DUE DATE 4-25-94

WORK ORDER	SEQUENCE #	CLIENT	COMMENTS
L032351B	-1B	WHC	QC BATCH REAGENT BLANK
L	-1X		QC BATCH MATRIX BLANK
L032351S L032651M	-1M or 1S (circle)		QC BATCH MATRIX/REAGENT SPIKE
L032652M	-2M or 2S (circle)		QC BATCH MATRIX/REAGENT SPIKE
F0323501	-		Duplicate of Sample # 40323501
F0343301	-		40343301
40323501	-		
40326501	- 02		
40338601	- 03		
40343301	-		
L032351N	-		
L032352N	-		
	-		
	-		
	-		
	-		
	-		

Batched and QC updated by BJM on 4/5/94 Rec'd in C.R. by AP on 4-20-94

Rec'd in Prep Lab by BJM on 4/5/94 Data Reviewed and anal. Prep stored ml on 4/29/94

RD3221

Rec'd in Sep Lab by Susie on 4-19-94

Rec'd in Sep lab by N/A on _____ Samples Disposed by _____ on _____

Original batch sheet and complete calculation file to be filed with the FIRST listed work order number.

FORM NO.: RC-52, 1/94, Rev. 4

4/25/94

9713506.1501 *** SE-79 ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

11-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-235

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	L0323513				
	L0323515	E0BS004			4-19-94
1)	40323501		WHC	B09WG4	sample would not complete, dissolve in 9M HCl
	F0323501				"

ACTIONS (Initial & Date)

INITIATED 3/11/94

PREP LAB RECEIVED 4/5/94 Bon

SAMPLE REMAINDER STORED N/A

SEPARATION LAB RECEIVED 4-18-94 Susie

5) COUNTING/MEASUREMENT LAB 5/2/94

6) DATA REVIEWED AND ANALYTICAL PREP STORED

0165

4-28-94

9713506.1525 *** SE-79 *** SAF 94 065

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

16-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-265

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	L0326501M EQBS005				
	L0326502M EQBS006				
1)	40326501		WHC	B09WI8	
2)	40326502		WHC	B09WG4	

ACTIONS (Initial & Date)

) INITIATED RB 3/14/94

) PREP LAB RECEIVED 4/5/94 Bm

) SAMPLE REMAINDER STORED N/A

) SEPARATION LAB RECEIVED 4-19-94 Susie
RD3221

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED

9713506.1526

*** SE-79 ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

22-Mar-1994
Page 1

CUSTOMER: WHC

SAF 94-065

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3386

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40338601		WHC	B09WH2	
2)	40338602		WHC	B09WH3	
3)	40338603		WHC	B09WH4	

ACTIONS (Initial & Date)

INITIATED JH 3/22/94

PREP LAB RECEIVED 4/5/94 Bm

SAMPLE REMAINDER STORED N/A

RO 3221

SEPARATION LAB RECEIVED 4-19-94 Susie

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED

9713506.1567 *** SE-79 ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

24-Mar-1994
Page 1

CUSTOMER: WHC SAF

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL 94-065

BATCH NUMBER 3-433

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40343301		WHC	B09WI0	

ACTIONS (Initial & Date)

INITIATED JH 3/24/94

PREP LAB RECEIVED 4/5/94 Bon

SAMPLE REMAINDER STORED N/A

SEPARATION LAB RECEIVED 4-19-94 Susie

RD3221

5) COUNTING/MEASUREMENT LAB

6) DATA REVIEWED AND ANALYTICAL PREP STORED

9713506.1528

BATCH SUMMARY/CHAIN OF CUSTODY

ANALYSIS Tc 99 MATRIX Soil DUE DATE 4-19-94

W0005

WORK ORDER	SEQUENCE #	CLIENT	COMMENTS
L 03433	-1B	WHC	QC BATCH REAGENT BLANK
L ~~W~~ 03433 JM 4/26/94	-1X	~~L034331~~ M JM 4/26/94	QC BATCH MATRIX BLANK
L W0326501	~~-1M~~ JM 4/22/94 or 1S (circle)	EQn 118	QC BATCH MATRIX/REAGENT SPIKE 22.4836 ± .2781 99.827 ± 1.2347 DPM
L W0326502	~~-2M~~ JM 4/22/94 or 2S (circle)	EQn 119	QC BATCH MATRIX/REAGENT SPIKE 22.5038 ± .2783 99.917 ± 1.2358 DPM
F 03386 02	-		Duplicate of Sample # 40338602
40326501	02		
40323501	-		
403433 01	- ~~0~~ MK 4-6-94	-	W0326502-M spike Low due to spill.
403386 01	03		
	-		
	-		
	-		
L034331 m	-	EQn 120	22.5038 ± .2783 99.917 ± 1.2358 DPM
L034331N	instrument		
L034332N	BKs.	-	
L034333N	BKs.		
	-		

Batched and QC updated by MK on 4-6-94 Rec'd in C.R. by RH on 4/14/94

Rec'd in Prep Lab by 3-29-94 on ~~[illegible]~~ Data Reviewed and anal. Prep stored [illegible] on 5/2/94

Rec'd in Sep Lab by MM on 4/07/94

Rec'd in Sep lab by NA on NA Samples Disposed by _____ on _____

Original batch sheet and complete calculation file to be filed with the FIRST listed work order number.

FORM NO.: RC-52, 1/94, Rev. 4

9716506.1529

INTERNATIONAL TECHNOLOGY CORPORATION

DUE DATE _____

REANALYSIS / RECOUNT

CHAIN ~~OF-CUSTODY~~ BATCH ANALYSIS RECORD

ANALYSIS Tc99

NAME/DATE SEL / 4/27

CUSTOMER WHC

SAMPLE DELIVERY GROUP W0005

MATRIX soil

BATCH NUMBER _____

ITAS ID	CUSTOMER ID	COMMENTS
1) 40323501		
2) W0323501	EQnI 181 300.53 ±	3.7163 DPM
3) L0323531	67.6869 ±	.837
4) L0323541		
5)		
6)		
7)		
8)		
9)		
10)		

REANALYSIS

REFERENCED QC

ITAS ID - BLANK L032352 B

ITAS ID - SPIKE L032352 -M

EQnI 184 - 300.83 ± 3.7208

CLIENT CODE 67.7545 ± .838

ACTIONS (Initial & Date)

PREP LAB RECEIVED N/A

SAMPLE REMAINDER

RETURNED TO SCG _____ ☐ (CHECK ONE)

NO SAMPLE REMAINING _ ☐

SEPARATION LAB _____

COUNTING/MEASUREMENT DLM 4/29/94

DATA REVIEWED SEL 5/1/94

ANALYTICAL PREP STORED SEL 5/1/94

RECOUNT

ACTIONS (Initial & Date)

COUNTING/MEASUREMENT _____

DATA REVIEWED _____

ANALYTICAL PREP STORED _____

ADDITIONAL COMMENTS:

0170

RC-048 12/92 REV 2

9713506.1530

4-28-94

*** TC-99 ***

SAF 94 065

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

16-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP ____W0005____

MATRIX : SOIL

BATCH NUMBER ____3-265____

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40326501		WHC	B09WI8	
2)	40326502		WHC	B09WG4	

ACTIONS (Initial & Date)

1) INITIATED PB 3/16/94

2) PREP LAB RECEIVED _____

3) SAMPLE REMAINDER STORED _____

4) SEPARATION LAB RECEIVED _____

5) COUNTING/MEASUREMENT LAB_____

6) DATA REVIEWED AND ANALYTICAL PREP STORED _____

9713586.1531

*** TC-99 ***

4/25/94

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

11-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-235

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40323501		WHC	B09WG4	

ACTIONS (Initial & Date)

1) INITIATED 3/11/94

2) PREP LAB RECEIVED _____

3) SAMPLE REMAINDER STORED _____

4) SEPARATION LAB RECEIVED _____

5) COUNTING/MEASUREMENT LAB _____

6) DATA REVIEWED AND ANALYTICAL PREP STORED _____

9213506.1552

*** TC-99 ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

24-Mar-1994
Page 1

CUSTOMER: WHC SAF

MATRIX : SOIL 94-065

SAMPLE DELIVERY GROUP W0005

BATCH NUMBER 3-433

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40343301		WHC	B09WI0	

ACTIONS (Initial & Date)

1) INITIATED JH 3/24/94

2) PREP LAB RECEIVED _____

3) SAMPLE REMAINDER STORED _____

4) SEPARATION LAB RECEIVED 4/07/94 MM

5) COUNTING/MEASUREMENT LAB _____

6) DATA REVIEWED AND ANALYTICAL PREP STORED _____

9713506.1533

*** TC-99 ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

22-Mar-1994
Page 1

CUSTOMER: WHC SHF

MATRIX : SOIL 94-065

SAMPLE DELIVERY GROUP W0005

BATCH NUMBER 3-386

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40338601		WHC	B09WH2	
2)	40338602		WHC	B09WH3	
3)	40338603		WHC	B09WH4	

ACTIONS (Initial & Date)

1) INITIATED AH 3/22/94

2) PREP LAB RECEIVED _____

3) SAMPLE REMAINDER STORED _____

4) SEPARATION LAB RECEIVED _____

5) COUNTING/MEASUREMENT LAB _____

6) DATA REVIEWED AND ANALYTICAL PREP STORED _____

4/25/94

9213506.1534 *** URANIUM ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

11-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-235

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	LC32351B	LC32651M			
	LC32351S	LC32652M			
1)	40323501		WHC	B09WG4	
	EC323501				

ACTIONS (Initial & Date)

1) INITIATED 3/11/94

2) PREP LAB RECEIVED 4/5/94 4-7-94

3) SAMPLE REMAINDER STORED N/A

RD 3221

4) SEPARATION LAB RECEIVED NA

5) COUNTING/MEASUREMENT LAB MU: 4/19/94

6) DATA REVIEWED AND ANALYTICAL PREP STORED PK 4/22/94

4-28-94

9713506.1535 ** URANIUM ***

SAF 94 045

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

16-Mar-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3-365

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40326501		WHC	B09WI8	
2)	40326502		WHC	B09WG4	

ACTIONS (Initial & Date)

1) INITIATED RR 3/16/94

2) PREP LAB RECEIVED 4/5/94 BM 4-7-94 S...

3) SAMPLE REMAINDER STORED N/A

4) SEPARATION LAB RECEIVED RD 3221 NA

5) COUNTING/MEASUREMENT LAB MLL 4/19/94

6) DATA REVIEWED AND ANALYTICAL PREP STORED RK 4/22/94

9713506.1536 *** URANIUM ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

22-Mar-1994
Page 1

CUSTOMER: WHC SAF SAMPLE DELIVERY GROUP 11665

MATRIX : SOIL BATCH NUMBER 3-356

14-00

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1)	40338601		WHC	B09WH2	
2)	40338602		WHC	B09WH3	
3)	40338603		WHC	B09WH4	

ACTIONS (Initial & Date)

1) INITIATED [illegible]

2) PREP LAB RECEIVED 4/5/94 [illegible] 4-7-94 [illegible]

3) SAMPLE REMAINDER STORED N/A
RD 3221

4) SEPARATION LAB RECEIVED NA

5) COUNTING/MEASUREMENT LAB [illegible] 4/8/94

6) DATA REVIEWED AND ANALYTICAL PREP STORED PK 4/22/94

0177

9713506.1537

*** URANIUM ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

5-Apr-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0005

MATRIX : SOIL

BATCH NUMBER 3453

ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
1) 40343301		WHC	B09WI0	

ACTIONS (Initial & Date)

1) INITIATED 4/5/94

2) PREP LAB RECEIVED 4/5/94 BM

3) SAMPLE REMAINDER STORED 4/7/94 N/A

4) SEPARATION LAB RECEIVED N/A

5) COUNTING/MEASUREMENT LAB 4/12/94

6) DATA REVIEWED AND ANALYTICAL PREP STORED 4/22/94 4/22/94

0178

9713506.1538

VALIDATION SUMMARY

9713506.1539

MEMORANDUM

JUN 1994 RECEIVED TQO

TO: 200-UP-2 Project QA Record

June 11, 1994

FR: Tom Stapp, Golder Associates Inc.

RE: GENERAL GC DATA VALIDATION SUMMARY FOR DATA PACKAGE: W0005-ITC-020 (923-E418 W0005G.UP2)

INTRODUCTION

This memorandum presents the results of data validation on data package W0005-ITC-020 prepared by International Technology Corporation (IT) laboratory. A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

RECEIVED JUN 17 1994 VALIDATION DOCUMENTATION SDLA

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09WG5	03/08/94	SOIL	SEE NOTE 1
B09WI8	03/10/94	SOIL	
B09WG4	03/10/94	SOIL	
B09WH2	03/17/94	SOIL	
B09WH3	03/17/94	SOIL	
B09WH4	03/17/94	SOIL	
B09WI0	03/22/94	SOIL	

Notes: 1. The samples were analyzed for high boiling hydrocarbons using 8015M.

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

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

DATA QUALITY OBJECTIVES

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

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

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

Detection Limits. Detection limit goals were met for all sample results as specified in the reference analytical method.

Completeness. The data package was complete for all requested analyses. A total of seven (7) samples were validated in this data package with a total of seven determinations reported, all of which were deemed valid. This results in a completeness of 100 percent, which meets the normal work plan 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.

Calibration

- The percent difference (%D) of the continuing calibration factor associated with samples B09WG5, B09WI8, and B09WG4 was unacceptable. Attachments 2 and 5 provide a summary of data qualifications applied and supporting documentation.

REFERENCES

WHC 1993a, Validation of 200-UP-2 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

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

9713506.1541

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.

9713506.1543

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: W0005-ITC-020	REVIEWER: T. STAPP	DATE: 6-11-94	PAGE 1 OF 1
COMMENTS: EXTRACTABLE FUEL HYDROCARBONS			
COMPOUND/ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
HIGH BOILING HYDROCARBONS	UJ	B09WG5 B09WI8 B09WG4	%D OF CONTINUING CALIBRATION FACTOR IS >15%

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0005-ITC-020

	Samp#	B09WG4		B09WG5		B09WH2		B09WH3		B09WH4		B09WI0	
	Date	3-10-94		3-8-94		3-17-94		3-17-94		3-17-94		3-22-94	
	Location	---		---		---		---		---		---	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments	---		---		---		---		---		---	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
HIGH BOILING HYDROCARBONS	MG/KG	26.000	UJ	26.000	UJ	27.000	U	27.000	U	28.000	U	26.000	U

Verified RS 6-15-94

9713506.1546

008

Validated Data Summary, Data Package: W0005-ITC-020

	Samp#	B09WI8	
	Date	3-10-94	
	Location	---	
	Depth	---	
	Type	SOIL	
	Comments	---	
Parameter	Units	Result	Q
HIGH BOILING HYDROCARBONS	MG/KG	29.000	UJ

Verified RS 6-15-94

9713506.1547

SDG: W0005 97T3506.1548

1D
HBH ANALYSIS DATA SHEET

EPA SAMPLE NO.
B09WG5

Lab Name: ITAS-St. Louis Contract: 519.04

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: W0005

Matrix : (soil/water) SOIL Lab Sample ID: 4679-001

Sample wt/vol: 20.2 (g/ml) g Lab File ID: _____

Level: (low/med) LOW Date Sampled: 03-08-94

% Moisture: not dec. 5 dec. _____ Date Extracted: 03-22-94

Extraction: (SepF/Cont/Sonc/Shak) SHAK Date Analyzed: 03-24-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CAS NO.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/Kg	Q	Q
	HBH (1)	26	~~U~~	UJ

U: Concentration of analyte is less than the value given.

(1): High Boiling Hydrocarbon (HBH) is quantitated as if it is Fuel Oil #2.

Verified
6-11-94

FORM I HBH

SDG: W0005-ITC-020
9713506.1549

1D
HBH ANALYSIS DATA SHEET

EPA SAMPLE NO.
B09WI8

Lab Name: ITAS-St. Louis Contract: 519.04

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: W0005

Matrix : (soil/water) SOIL Lab Sample ID: 4698-001

Sample wt/vol: 20.2 (g/ml) g Lab File ID: _____

Level: (low/med) LOW Date Sampled: 03-10-94

% Moisture: not dec. 13 dec. _____ Date Extracted: 03-22-94

Extraction: (SepF/Cont/Sonc/Shak) SHAK Date Analyzed: 03-25-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CAS NO.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/Kg	Q	Q
	HBH (1)	29	~~U~~	UJ

U: Concentration of analyte is less than the value given.

(1): High Boiling Hydrocarbon (HBH) is quantitated as if it is Fuel Oil #2.

Verified 6-11-94

FORM I HBH

SDG: W0005-ITC-020
9713506.1550

1D
HBH ANALYSIS DATA SHEET

EPA SAMPLE NO.
B09WG4

Lab Name: ITAS-St. Louis Contract: 519.04

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: W0005

Matrix : (soil/water) SOIL Lab Sample ID: 4698-002

Sample wt/vol: 20.1 (g/ml) g Lab File ID: _____

Level: (low/med) LOW Date Sampled: 03-08-94

% Moisture: not dec. 2 dec. _____ Date Extracted: 03-22-94

Extraction: (SepF/Cont/Sonc/Shak) SHAK Date Analyzed: 03-25-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CAS NO.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/Kg	Q	Q
	HBH (1)	26	~~U~~	UJ

U: Concentration of analyte is less than the value given.

(1): High Boiling Hydrocarbon (HBH) is quantitated as if it is Fuel Oil #2.

Verified 6-11-94

FORM I HBH

SDG: W0005-ITG-020 9713506.1551

1D
HBH ANALYSIS DATA SHEET

EPA SAMPLE NO.
B09WH2

Lab Name: ITAS-St. Louis Contract: 519.04

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: W0005

Matrix : (soil/water) SOIL Lab Sample ID: 4743-001

Sample wt/vol: 20.1 (g/ml) g Lab File ID: _____

Level: (low/med) LOW Date Sampled: 03-17-94

% Moisture: not dec. 8 dec. _____ Date Extracted: 03-28-94

Extraction:(SepF/Cont/Sonc/Shak) SHAK Date Analyzed: 03-30-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CAS NO.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/Kg	Q
	HBH (1)	27	U

U: Concentration of analyte is less than the value given.

(1): High Boiling Hydrocarbon (HBH) is quantitated as if it is Fuel Oil #2.

Verified 6-11-94

FORM I HBH

SDG: W0005-ITS-029 9715506.1592

1D
HBH ANALYSIS DATA SHEET

EPA SAMPLE NO.
B09WH3

Lab Name: ITAS-St. Louis Contract: 519.04

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: W0005

Matrix : (soil/water) SOIL Lab Sample ID: 4743-002

Sample wt/vol: 20.1 (g/ml) g Lab File ID: _____

Level: (low/med) LOW Date Sampled: 03-17-94

% Moisture: not dec. 8 dec. _____ Date Extracted: 03-28-94

Extraction:(SepF/Cont/Sonc/Shak) SHAK Date Analyzed: 03-30-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CAS NO.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/Kg	Q
	HBH (1)	27	U

U: Concentration of analyte is less than the value given.

(1): High Boiling Hydrocarbon (HBH) is quantitated as if it is Fuel Oil #2.

Verified 6-11-94

FORM I HBH

SDG: WC005 ~~97T5806.4953~~

1D
HBH ANALYSIS DATA SHEET

EPA SAMPLE NO.
B09WH4

Lab Name: ITAS-St. Louis Contract: 519.04

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: W0005

Matrix : (soil/water) SOIL Lab Sample ID: 4743-003

Sample wt/vol: 20.1 (g/ml) g Lab File ID: _____

Level: (low/med) LOW Date Sampled: 03-17-94

% Moisture: not dec. 13 dec. _____ Date Extracted: 03-28-94

Extraction:(SepF/Cont/Sonc/Shak) SHAK Date Analyzed: 03-30-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CAS NO.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/Kg	Q
	HBH (1)	28	U

U: Concentration of analyte is less than the value given.

(1): High Boiling Hydrocarbon (HBH) is quantitated as if it is Fuel Oil #2.

Verified 6-11-94

FORM I HBH

SDG: W0005-ITC-020
9713506.1554

1D
HBH ANALYSIS DATA SHEET

EPA SAMPLE NO.
B09WI0

Lab Name: ITAS-St. Louis
Contract: 519.04

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: W0005

Matrix : (soil/water) SOIL
Lab Sample ID: 4756-001

Sample wt/vol: 20.0 (g/ml) g
Lab File ID: _____

Level: (low/med) LOW
Date Sampled: 03-22-94

% Moisture: not dec. 4 dec. _____
Date Extracted: 03-28-94

Extraction: (SepF/Cont/Sonc/Shak) SHAK
Date Analyzed: 03-30-94

GPC Cleanup: (Y/N) N pH: _____
Dilution Factor: 1

CAS NO.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/Kg	Q
	HBH (1)	26	U

U: Concentration of analyte is less than the value given.

(1): High Boiling Hydrocarbon (HBH) is quantitated as if it is Fuel Oil #2.

Verified
6-11-94

FORM I HBH

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

Westinghouse Hanford Company

9713506.1556

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.V. SETZER

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-8-94

Ice Chest No.:

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 RADIOACTIVE

Sample Identification

~~B09WG4~~ B09WG5 * 6-6-94

* See laboratory narrative for explanation of Sample I.D. discrepancy.

40323501 TH 5/11/94

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ 3-9-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40323501

2)

~~B09WG5~~ 3-11-94 WVS

1,250ml P:CLP;TAL Metals,Hg,Ti
1,250ml Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ SCR 3-9-94 WVS 3-11-94
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: W.V. Setzer	Received by: 800 cpm ITAS	Date/Time: 3/11/94 1055
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

W0003

Westinghouse Hanford Company

9713506.1557

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.W. SETZER

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-10-94

Ice Chest No.: WHC 169

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.: ~~NA~~ WVS 3-14-94 NA

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 RADIOACTIVE

Sample Identification

1) B09WI8

CAT II

400 cpm

403264 01

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
F 1,250ml aGs:PCB/Pest (8080)
G 1,125ml G:Cyanide CLP
H 1,125ml GW:Kerosene (8015M)

1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40326501

2) B09WG4

200 cpm

403264 02

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ ER 3-14-94
F 1,125ml G:Cyanide CLP
G 1,125ml GW:Kerosene (8015M)

1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40326502

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W.W. Setzer	R. Boyd IT	3/14/94 1430
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713506.1558

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-17-94

Ice Chest No.: SML-127 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) BC9WH2

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ ER 3-17-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

2) BC9WH3

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ ER 3-17-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
3-21-94 0930	[illegible] IT	3/21 1120
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

~~8200000~~

020

9713506.1559

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-17-94

Ice Chest No.: SML-127 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) BC4WH4

1,250ml P:CLP;TAL Metals,Hg,Ti
1,250ml Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ SER 3-17-94
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

2)

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml Gs:VOA CLP~~
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,250ml aGs:PCB/Pest (8080)~~ SER 3-17-94
~~1,125ml G:Cyanide CLP~~
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
3-21-94 Karen E. Rogers 0930	J Hindley Jr	3/21 1120
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

~~0000029~~

021

9713506.1560

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS/W. SETZER

Company Contact: L E ROGERS — Telephone: 376-7690 WVS 3.22.94

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3.22.94

Ice Chest No.: WHC-19 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: NA — Offsite Property No.: WP4-0-

Method of Shipment: Government vehicle — SDX-W0011

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065

Sample Identification

1) WVS 3.22.94

BQQWI0 — 40343201

A 1,250ml aGs ~~P~~:CLP;TAL Metals,Hg,Ti
B 1,250ml aGs ~~G~~:VOA CLP
C 1,250ml aGs ~~aG~~:Semi-VOA CLP
D 1,125ml aGs ~~G~~:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml aGs ~~P/G~~:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ WVS 3.21.94
F 1,125ml aGs ~~G~~:Cyanide CLP
G 1,125ml aGs ~~G~~:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40343301

40343202 A

2) BQQWI1 (TRIP) 1,250ML, aGs : CLP: VOA

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml G:VOA CLP~~
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,250ml aGs:PCB/Pest (8080)~~
~~1,125ml G:Cyanide CLP~~ WVS 3.22.94
~~1,125ml G:Kerosene (8015M)~~
1,1000ml ~~P/G:Gross alpha (ITAS-RD-3322)~~ Gross beta (ITAS-RD-3322), ~~Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
3-23-94 0920 W.V. SETZER	ITAS Karen Lichtenberg	3-23-94 11:00
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9600000022

9713506.1561

INTERNATIONAL TECHNOLOGY CORPORATION

CERTIFICATE OF ANALYSIS

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

April 27, 1994

Attention: J. A. Lerch

Project number	:	519.04
Date Received by Lab	:	March 11, 15, 21 and 23, 1994
Number of Samples	:	Eleven (11)
Sample Types	:	Soil and Water
SDG Number	:	W0005

I. Introduction

On March 11, 15, 21 and 23, 1994, a total of one (1) water and ten (10) soil samples were received by ITAS-Richland and transferred to ITAS-St. Louis for chemical analysis. Upon receipt, the samples were given the following laboratory ID numbers to correspond with their specific client ID's:

St. Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
4679-001	B09WG5	W40323401	Soil	03/11/94
4698-001	B09W18	40326401	Soil	03/15/94
4698-002	B09WG4	40326402	Soil	03/15/94
4698-003	B09WJ1	40326403	Soil	03/15/94
4698-004	Trip Blank	40326404	Water	03/15/94
4743-001	B09WH2	40338501	Soil	03/21/94
4743-002	B09WH3	40338502	Soil	03/21/94
4743-003	B09WH4	40338503	Soil	03/21/94
4743-004	B09WH6	40338504	Soil	03/21/94
4756-001	B09WI0	40343201	Soil	03/23/94
4756-002	B09WI1	40343202	Soil	03/23/94

Regional Office
13715 N. Rider Trail • Earth City, Missouri 63045-1205 • 314-298-8566 • FAX 314-298-8757

IT Corporation is a wholly owned subsidiary of International Technology Corporation

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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: VOA, BNA and Metals including Cyanide using CLP/90 protocol. Chloride, Sulfate and Fluoride by EPA method 300.0. Nitrate by EPA method 353.1. Total Petroleum Hydrocarbons (Kerosene) by method 8015.

III. Quality Control

A Laboratory Control Sample and Method Blank are routinely analyzed with each preparation batch. Matrix Spike and Matrix Spike Duplicate or Duplicate analyses were performed for all analytes in this SDG.

IV. Comments

A sample (4679-001) was received on 3/11/94 that was labelled B09WG5 on the sample container and appeared on the Chain of Custody as B09WG4. It was determined that the Chain of Custody was correct at that time. On 3/15/94 a sample (4698-002) was received that was labelled B09WG4 and also appeared on the Chain of Custody as B09WG4. It was determined that the first sample received was B09WG5 as labelled on the sample container and that the Chain of Custody was incorrect. The appropriate corrections were made and it was decided that from now on the client ID on the sample container label will be considered correct.

IT-St. Louis PQL's were used for the kerosene analysis.

The Relative Percent Difference (RPD) for Cyanide sample B09WG5 (4679-001) was calculated using values below the contract detection limit but above the instrument detection limit.

The laboratory was unable to calculate a Relative Percent Difference (RPD) for Fluoride sample B09WG5 (4679-001) due to sample values below the detection limit.

The Matrix Spike recovery for Fluoride sample B09WG5 (4679-001) was low due to matrix interference.

The Matrix Spike recovery for Antimony, Chromium, Manganese, Titanium and Selenium were outside the 75% - 125% control limits.

Matrix Spike recovery for sample B09WG5 (4679-001) for Mercury was < 75%. The sample concentration for this sample was four times greater than the spike concentration, therefore, this sample was not flagged.

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:\annealers\hanw0005.nar

9713506.1564

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GENERAL GC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 200-UP-2		DATA PACKAGE: W0005-ITC-020	
VALIDATOR: T. Stapp	LAB: ITC St. Louis		DATE: 6-11-94
CASE:		SDG:	

ANALYSES PERFORMED

☐ 8010	☐ 8015	☐ 8020	☐ 8021	8140	8141
☐ 8150	☐ 8151	☐ WTPH-HCID	☐ WTPH-G	☐ WTPH-D	☐
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX: B09WG5, B09WI8, B09WG4, B09WH2, B09WH3, B09WH4, B09WI0 / SOIL

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? Note ① . . . (Yes) No N/A

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

Comments: ① Performed by WHC.

2. HOLDING TIMES

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

Comments: See holding time Summary page B-1.

GENERAL GC DATA VALIDATION CHECKLIST

3. INSTRUMENT CALIBRATION

3.1 INITIAL CALIBRATION

Was an initial calibration performed? . . . . . Yes No N/A

Are %RSD values for calibration or response factors acceptable? . . . . . Yes No N/A

Comments:

3.2 CONTINUING CALIBRATION

Was a continuing calibration check performed? . . . . . Yes No N/A

Are %D values for calibration or response factors acceptable? . Yes No N/A

Comments: (1) %D of calib. factor for 3-25-94 cont. calib. was >15% which qualifies associated results for B09W65, B09W13, and B09W64 as estimated J/UJ. See calibration summary page.

4. BLANKS

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

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

Were field/trip blanks analyzed? . . . . See Note 1 . . . . . Yes No N/A

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

Comments: (1) Field QC was not identified in this sample set but it has been requested. Field Blanks will be evaluated in the final data summary.

5. ACCURACY

Were surrogates analyzed? . . . . . Yes No N/A

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

Were MS/MSD samples analyzed? . . . . . Yes No N/A

Are MS/MSD recoveries acceptable? . ~~Note (1)~~ . ~~[illegible]~~ 5-6-15-94 . . Yes No N/A

Were LCS samples analyzed? . . . . . Yes No N/A

Are LCS recoveries acceptable? . . ~~Note (1)~~ . ~~[illegible]~~ 5-6-15-94 . . Yes No N/A

GENERAL GC DATA VALIDATION CHECKLIST

Comments:

6. PRECISION

Are MS/MSD sample RPD values acceptable? . . . . . Yes No N/A

Are field duplicate RPD values acceptable? . Note ① . . . . . Yes No N/A

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

Comments: ① Field QC was not identified with this sample set but it has been requested. Field duplicates will be evaluated in the final data summary.

7. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? . . . . Note ① . . Yes No N/A

Is compound quantitation acceptable? . . . . . Yes No N/A

Comments: ① All samples are non-detect.

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

Do results meet the CRQLs? . . . Note ① . . . . . Yes No N/A

Comments: ① CRQL's are not established as yet, but a detection limit of 25 ppm was reported by the laboratory and all sample results meet this level.

HOLDING TIME SUMMARY

SDG: W0005-ITC-020	VALIDATOR: T. Stapp	DATE: 6-11-94	PAGE 1 OF 1
COMMENTS: EXTRACTABLE FUEL HYDROCARBONS / Kerosene			

FIELD SAMPLE ID	ANALYSIS TYPE ★	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09WG5	★ ~~Kerosene~~	3-8-94	3-22-94	3-24-94	14	≤ 40	NONE
B09WI8		3-10-94		3-25-94	12		
B09WG4		3-10-94		3-25-94	12		
B09WH2		3-17-94	3-28-94	3-30-94	11		
B09WH3		3-17-94			11		
B09WH4		3-17-94			11		
B09WIØ		3-22-94			6		
★ High Boiling Hydrocarbons							

KS 6-15-94

SDG: W0005 9/1550G.1569 C20

9

HBH STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 519.04

Lab Code: ITSL Case No.: SAS No.: SDG No.: W0005

Instrument ID: GC F GC Column ID: DB-1

	DATE(S) OF ANALYSIS FROM: 03-24-94 TO: 03-24-94 TIME(S) OF ANALYSIS FROM: 16:06 TO: 20:30				DATE OF ANALYSIS 03-25-94 TIME OF ANALYSIS 04:39 EPA SAMPLE NO. (STANDARD) TPH4				
COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D	
Fuel Oil #2		2.37	24.75	3125224		4241698	N	36	★

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.

%D must be less than or equal to 15% for quantitation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 15% criteria.

★ - This analysis is associated with samples B09WG5, B09WI8, and B09WG4 and qualification of J/UJ will be applied to associated results due to % Difference of calibration factors > 15%.

6-11-94

6-11-94

page 1 of 1

FORM IX HBH

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031

9713506.1570

MEMORANDUM

JUN 1994 RECEIVED TQO

TO: 200-UP-2 Project QA Record

Jun 15, 1994

FR: Tom Stapp, Golder Associates Inc.

RE: SEMIVOLATILE DATA VALIDATION SUMMARY FOR DATA PACKAGE: W0005-ITC-020 (923-E418 W0005B.UP2)

INTRODUCTION

This memorandum presents the results of data validation on data package W0005-ITC-020 prepared by International Technology (ITC) laboratory, St. Louis. A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09WG5	03/08/94	SOIL	SEE NOTE 1
B09WI8	03/10/94	SOIL	
B09WG4	03/10/94	SOIL	
B09WH2	03/17/94	SOIL	
B09WH3	03/17/94	SOIL	
B09WH4	03/17/94	SOIL	
B09WI0	03/22/94	SOIL	

RECEIVED JUN 17 1994 VALIDATION DOCUMENTATION SDLA

Notes: 1. The samples were analyzed for target compound list (TCL) semivolatile organics.

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

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

DATA QUALITY OBJECTIVES

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

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

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

Detection Limits. Detection limit goals were met for all sample results as specified in the reference analytical method.

Completeness. The data package was complete for all requested analyses. A total of seven samples were validated in this data package with a total of 448 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent, which meets the normal work plan 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.

Calibration

- The initial calibration relative response factor (RRF) and the %RSD for benzo-(k)-fluoranthene were unacceptable for samples B09WH2, B09WH3, B09WH4 and B09WI0. Attachments 2 and 5 provide a summary of qualification applied and supporting documentation.

- Continuing calibration percent differences for N-nitroso-di-n-propylamine, pentachlorophenol, and pyrene were unacceptable. Attachments 2 and 5 provide a summary of associated samples affected, qualification applied and supporting documentation.

TENTATIVELY IDENTIFIED COMPOUND EVALUATION

Tentatively identified compounds (TICs) reported by the laboratory were evaluated during validation and qualified as follows:

- TICs were detected in the samples and determined to be valid, resulting in qualification of the results as presumptive and valid (JN).

- TICs were detected in the samples and associated laboratory blanks and have been qualified due to associated blank contamination and have been determined to be presumptive and valid.

revised page
5/6/2/4/94

002

REFERENCES

WHC 1993a, Validation of 200-UP-2 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

WHC 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. 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.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: W0005-ITC-020	REVIEWER: T. STAPP	DATE: 6-08-94	PAGE 1 OF 1
COMMENTS: SEMI-VOLATILE ORGANICS			
COMPOUND/ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
BENZO (K) FLUORANTHENE	UJ	B09WH2, B09WH3, B09WH4, B09WI0	INITIAL CALIBRATION RRF < MINIMUM AND %RSD >20.5%
N-NITROSO-DI-N-PROPYLAMINE	UJ	B09WH2, B09WH3, B09WH4, B09WI0	CONTINUING CALIBRATION %DIFFERENCE >25%
PENTACHLOROPHENOL, PYRENE	J/UJ	B09WG5, B09WI8, B09WG4	CONTINUING CALIBRATION %DIFFERENCE >25%

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0005-ITC-020

	Samp#	B09WG4		B09WG5		B09WH2		B09WH3		B09WH4		B09WI0	
	Date	3-10-94		3-8-94		3-17-94		3-17-94		3-17-94		3-22-94	
	Location	---		---		---		---		---		---	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments	---		---		---		---		---		---	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
PHENOL	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
BIS(2-CHLOROETHYL)ETHER	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
2-CHLOROPHENOL	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
1,3-DICHLOROBENZENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
1,4-DICHLOROBENZENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
1,2-DICHLOROBENZENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
2-METHYLPHENOL	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
4-METHYLPHENOL	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
N-NITROSO-DI-N-PROPYLAMINE	UG/KG	340.000	U	350.000	U	360.000	UJ	360.000	UJ	380.000	UJ	340.000	UJ
HEXACHLOROETHANE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
NITROBENZENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
ISOPHORONE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
2-NITROPHENOL	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
2,4-DIMETHYLPHENOL	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
2,4-DICHLOROPHENOL	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
1,2,4-TRICHLOROBENZENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
NAPHTHALENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
4-CHLOROANILINE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
HEXACHLOROBUTADIENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
4-CHLORO-3-METHYLPHENOL	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
2-METHYLNAPHTHALENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
HEXACHLOROCYCLOPENTADIENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
2,4,6-TRICHLOROPHENOL	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
2,4,5-TRICHLOROPHENOL	UG/KG	820.000	U	840.000	U	860.000	U	870.000	U	910.000	U	830.000	U
2-CHLORONAPHTHALENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
2-NITROANILINE	UG/KG	820.000	U	840.000	U	860.000	U	870.000	U	910.000	U	830.000	U
DIMETHYLPHTHALATE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
ACENAPHTHYLENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
2,6-DINITROTOLUENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
3-NITROANILINE	UG/KG	820.000	U	840.000	U	860.000	U	870.000	U	910.000	U	830.000	U

Verified RS 6-13-94

9413506.1578

Validated Data Summary, Data Package: W0005-ITC-020

	Samp#	B09WG4		B09WG5		B09WH2		B09WH3		B09WH4		B09WI0	
	Date	3-10-94		3-8-94		3-17-94		3-17-94		3-17-94		3-22-94	
	Location	---		---		---		---		---		---	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments	---		---		---		---		---		---	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
ACENAPHTHENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
2,4-DINITROPHENOL	UG/KG	820.000	U	840.000	U	860.000	U	870.000	U	910.000	U	830.000	U
4-NITROPHENOL	UG/KG	820.000	U	840.000	U	860.000	U	870.000	U	910.000	U	830.000	U
DIBENZOFURAN	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
2,4-DINITROTOLUENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
DIETHYLPHTHALATE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
4-CHLOROPHENYL-PHENYLETHER	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
FLUORENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
4-NITROANILINE	UG/KG	820.000	U	840.000	U	860.000	U	870.000	U	910.000	U	830.000	U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	820.000	U	840.000	U	860.000	U	870.000	U	910.000	U	830.000	U
N-NITROSODIPHENYLAMINE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
4-BROMOPHENYL-PHENYLETHER	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
HEXACHLOROBENZENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
PENTACHLOROPHENOL	UG/KG	820.000	UJ	840.000	UJ	860.000	U	870.000	U	910.000	U	830.000	U
PHENANTHRENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
ANTHRACENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
CARBAZOLE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
DI-N-BUTYLPHTHALATE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	74.000	J
FLUORANTHENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
PYRENE	UG/KG	340.000	UJ	72.000	J	360.000	U	360.000	U	380.000	U	340.000	U
BUTYLBENZYLPHTHALATE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
3,3'-DICHLOROBENZIDINE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
BENZO(A)ANTHRACENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
CHRYSENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	340.000	U	110.000	J	360.000	U	360.000	U	380.000	U	340.000	U
DI-N-OCTYLPHTHALATE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
BENZO(B)FLUORANTHENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
BENZO(K)FLUORANTHENE	UG/KG	340.000	U	350.000	U	360.000	UJ	360.000	UJ	380.000	UJ	340.000	UJ
BENZO(A)PYRENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
INDENO(1,2,3-CD)PYRENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
DIBENZ(A,H)ANTHRACENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U
BENZO(G,H,I)PERYLENE	UG/KG	340.000	U	350.000	U	360.000	U	360.000	U	380.000	U	340.000	U

Verified 6-15-94

97150&.579

Validated Data Summary, Data Package: W0005-ITC-020

	Samp#	B09WI8	
	Date	3-10-94	
	Location	---	
	Depth	---	
	Type	SOIL	
	Comments	---	
Parameter	Units	Result	Q
PHENOL	UG/KG	380.000	U
BIS(2-CHLOROETHYL)ETHER	UG/KG	380.000	U
2-CHLOROPHENOL	UG/KG	380.000	U
1,3-DICHLOROBENZENE	UG/KG	380.000	U
1,4-DICHLOROBENZENE	UG/KG	380.000	U
1,2-DICHLOROBENZENE	UG/KG	380.000	U
2-METHYLPHENOL	UG/KG	380.000	U
2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	380.000	U
4-METHYLPHENOL	UG/KG	380.000	U
N-NITROSO-DI-N-PROPYLAMINE	UG/KG	380.000	U
HEXACHLOROETHANE	UG/KG	380.000	U
NITROBENZENE	UG/KG	380.000	U
ISOPHORONE	UG/KG	380.000	U
2-NITROPHENOL	UG/KG	380.000	U
2,4-DIMETHYLPHENOL	UG/KG	380.000	U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	380.000	U
2,4-DICHLOROPHENOL	UG/KG	380.000	U
1,2,4-TRICHLOROBENZENE	UG/KG	380.000	U
NAPHTHALENE	UG/KG	380.000	U
4-CHLOROANILINE	UG/KG	380.000	U
HEXACHLOROBUTADIENE	UG/KG	380.000	U
4-CHLORO-3-METHYLPHENOL	UG/KG	380.000	U
2-METHYLNAPHTHALENE	UG/KG	380.000	U
HEXACHLOROCYCLOPENTADIENE	UG/KG	380.000	U
2,4,6-TRICHLOROPHENOL	UG/KG	380.000	U
2,4,5-TRICHLOROPHENOL	UG/KG	930.000	U
2-CHLORONAPHTHALENE	UG/KG	380.000	U
2-NITROANILINE	UG/KG	930.000	U
DIMETHYLPHTHALATE	UG/KG	380.000	U
ACENAPHTHYLENE	UG/KG	380.000	U
2,6-DINITROTOLUENE	UG/KG	380.000	U
3-NITROANILINE	UG/KG	930.000	U

Verified RS 6-13-94

9713506.1530

Validated Data Summary, Data Package: W0005-ITC-020

	Samp#	B09WI8	
	Date	3-10-94	
	Location	---	
	Depth	-	
	Type	SOIL	
	Comments	---	
Parameter	Units	Result	Q
ACENAPHTHENE	UG/KG	380.000	U
2,4-DINITROPHENOL	UG/KG	930.000	U
4-NITROPHENOL	UG/KG	930.000	U
DIBENZOFURAN	UG/KG	380.000	U
2,4-DINITROTOLUENE	UG/KG	380.000	U
DIETHYLPHTHALATE	UG/KG	380.000	U
4-CHLOROPHENYL-PHENYLETHER	UG/KG	380.000	U
FLUORENE	UG/KG	380.000	U
4-NITROANILINE	UG/KG	930.000	U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	930.000	U
N-NITROSODIPHENYLAMINE	UG/KG	380.000	U
4-BROMOPHENYL-PHENYLETHER	UG/KG	380.000	U
HEXACHLOROBENZENE	UG/KG	380.000	U
PENTACHLOROPHENOL	UG/KG	930.000	UJ
PHENANTHRENE	UG/KG	380.000	U
ANTHRACENE	UG/KG	380.000	U
CARBAZOLE	UG/KG	380.000	U
DI-N-BUTYLPHTHALATE	UG/KG	380.000	U
FLUORANTHENE	UG/KG	380.000	U
PYRENE	UG/KG	380.000	UJ
BUTYLBENZYLPHTHALATE	UG/KG	380.000	U
3,3'-DICHLOROBENZIDINE	UG/KG	380.000	U
BENZO(A)ANTHRACENE	UG/KG	380.000	U
CHRYSENE	UG/KG	380.000	U
BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	380.000	U
DI-N-OCTYLPHTHALATE	UG/KG	380.000	U
BENZO(B)FLUORANTHENE	UG/KG	380.000	U
BENZO(K)FLUORANTHENE	UG/KG	380.000	U
BENZO(A)PYRENE	UG/KG	380.000	U
INDENO(1,2,3-CD)PYRENE	UG/KG	380.000	U
DIBENZ(A,H)ANTHRACENE	UG/KG	380.000	U
BENZO(G,H,I)PERYLENE	UG/KG	380.000	U

Verified TS 6-13-94

9113506.1581

SDG: W0005-ITC-020
9713506 1532

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WG5

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4679-001

Sample wt/vol: 30.00 (g/mL) G Lab File ID: A4366

Level: (low/med) LOW Date Received: 03/11/94

% Moisture: 5 decanted: (Y/N) N Date Extracted: 03/21/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/29/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	350	U
111-44-4	bis(2-Chloroethyl)Ether	350	U
95-57-8	2-Chlorophenol	350	U
541-73-1	1,3-Dichlorobenzene	350	U
106-46-7	1,4-Dichlorobenzene	350	U
95-50-1	1,2-Dichlorobenzene	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-Di-n-Propylamine	350	U
67-72-1	Hexachloroethane	350	U
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	350	U
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethylphenol	350	U
111-91-1	bis(2-Chloroethoxy)Methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
120-82-1	1,2,4-Trichlorobenzene	350	U
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
59-50-7	4-Chloro-3-Methylphenol	350	U
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	840	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	840	U
131-11-3	Dimethyl Phthalate	350	U
208-96-8	Acenaphthylene	350	U
606-20-2	2,6-Dinitrotoluene	350	U
99-09-2	3-Nitroaniline	840	U
83-32-9	Acenaphthene	350	U

Verified 6-8-94

9713506.1533

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WG5

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4679-001

Sample wt/vol: 30.00 (g/mL) G Lab File ID: A4366

Level: (low/med) LOW Date Received: 03/11/94

% Moisture: 5 decanted: (Y/N) N Date Extracted: 03/21/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/29/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
51-28-5	2,4-Dinitrophenol	840	U	
100-02-7	4-Nitrophenol	840	U	
132-64-9	Dibenzofuran	350	U	
121-14-2	2,4-Dinitrotoluene	350	U	
84-66-2	Diethylphthalate	350	U	
7005-72-3	4-Chlorophenyl-phenylether	350	U	
86-73-7	Fluorene	350	U	
100-01-6	4-Nitroaniline	840	U	
534-52-1	4,6-Dinitro-2-Methylphenol	840	U	
86-30-6	N-Nitrosodiphenylamine (1)	350	U	
101-55-3	4-Bromophenyl-phenylether	350	U	
118-74-1	Hexachlorobenzene	350	U	
87-86-5	Pentachlorophenol	840	~~U~~	UJ
85-01-8	Phenanthrene	350	U	
120-12-7	Anthracene	350	U	
86-74-8	Carbazole	350	U	
84-74-2	Di-n-Butylphthalate	350	U	
206-44-0	Fluoranthene	350	U	
129-00-0	Pyrene	72	~~J~~	J
85-68-7	Butylbenzylphthalate	350	U	
91-94-1	3,3'-Dichlorobenzidine	350	U	
56-55-3	Benzo(a)Anthracene	350	U	
218-01-9	Chrysene	350	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	110	J	
117-84-0	Di-n-Octyl Phthalate	350	U	
205-99-2	Benzo(b)Fluoranthene	350	U	
207-08-9	Benzo(k)Fluoranthene	350	U	
50-32-8	Benzo(a)Pyrene	350	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	350	U	
53-70-3	Dibenz(a,h)Anthracene	350	U	
191-24-2	Benzo(g,h,i)Perylene	350	U	

(1) - Cannot be separated from Diphenylamine

Verified 6-8-94

9713506L1534

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WG5

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4679-001

Sample wt/vol: 30.00 (g/mL) G Lab File ID: A4366

Level: (low/med) LOW Date Received: 03/11/94

% Moisture: 5 decanted: (Y/N) N Date Extracted: 03/21/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/29/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

SDG: W0005-ITC-02C

9713506 1535

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WI8

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-001

Sample wt/vol: 30.00 (g/mL) G Lab File ID: A4369

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: 14 decanted: (Y/N) N Date Extracted: 03/21/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/29/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)Ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-Di-n-Propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	bis(2-Chloroethoxy)Methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-Methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	930	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	930	U
131-11-3	Dimethyl Phthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	930	U
83-32-9	Acenaphthene	380	U

Verified ts 6-8-94

9713506 1d 536

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BO9WI8

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-001

Sample wt/vol: 30.00 (g/mL) G Lab File ID: A4369

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: 14 decanted: (Y/N) N Date Extracted: 03/21/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/29/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
51-28-5	2,4-Dinitrophenol	930	U	
100-02-7	4-Nitrophenol	930	U	
132-64-9	Dibenzofuran	380	U	
121-14-2	2,4-Dinitrotoluene	380	U	
84-66-2	Diethylphthalate	380	U	
7005-72-3	4-Chlorophenyl-phenylether	380	U	
86-73-7	Fluorene	380	U	
100-01-6	4-Nitroaniline	930	U	
534-52-1	4,6-Dinitro-2-Methylphenol	930	U	
86-30-6	N-Nitrosodiphenylamine (1)	380	U	
101-55-3	4-Bromophenyl-phenylether	380	U	
118-74-1	Hexachlorobenzene	380	U	
87-86-5	Pentachlorophenol	930	~~U~~	UJ
85-01-8	Phenanthrene	380	U	
120-12-7	Anthracene	380	U	
86-74-8	Carbazole	380	U	
84-74-2	Di-n-Butylphthalate	380	U	
206-44-0	Fluoranthene	380	U	
129-00-0	Pyrene	380	~~U~~	UJ
85-68-7	Butylbenzylphthalate	380	U	
91-94-1	3,3'-Dichlorobenzidine	380	U	
56-55-3	Benzo(a)Anthracene	380	U	
218-01-9	Chrysene	380	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	380	U	
117-84-0	Di-n-Octyl Phthalate	380	U	
205-99-2	Benzo(b)Fluoranthene	380	U	
207-08-9	Benzo(k)Fluoranthene	380	U	
50-32-8	Benzo(a)Pyrene	380	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	380	U	
53-70-3	Dibenz(a,h)Anthracene	380	U	
191-24-2	Benzo(g,h,i)Perylene	380	U	

(1) - Cannot be separated from Diphenylamine

Verified RS 6-8-94

9713506_1537
1F

EPA SAMPLE NO.

BO9WI8

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-001

Sample wt/vol: 30.00 (g/mL) G Lab File ID: A4369

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: 14 decanted: (Y/N) N Date Extracted: 03/21/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/29/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

Number TICs found: 10

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1.	UNKNOWN	20.70	97	~~J~~	JN
2.	UNKNOWN	25.48	82	~~J~~	JN
3.	UNKNOWN	25.99	120	~~J~~	JN
4.	UNKNOWN	26.46	110	~~J~~	JN
5.	UNKNOWN	27.48	220	~~J~~	JN
6.	UNKNOWN	27.91	110	~~J~~	JN
7.	UNKNOWN	28.87	200	~~J~~	JN
8.	UNKNOWN	29.41	94	~~J~~	JN
9.	UNKNOWN	29.92	140	~~J~~	JN
10.	UNKNOWN	30.91	100	~~J~~	JN

Verified
RS 6-8-94

~~299~~

SDG: WC005-ITC-020

9713506.1538

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WG4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-002

Sample wt/vol: 30.10 (g/mL) G Lab File ID: A4370

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: 3 decanted: (Y/N) N Date Extracted: 03/21/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/29/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	340	U
111-44-4	bis(2-Chloroethyl)Ether	340	U
95-57-8	2-Chlorophenol	340	U
541-73-1	1,3-Dichlorobenzene	340	U
106-46-7	1,4-Dichlorobenzene	340	U
95-50-1	1,2-Dichlorobenzene	340	U
95-48-7	2-Methylphenol	340	U
108-60-1	2,2'-oxybis(1-Chloropropane)	340	U
106-44-5	4-Methylphenol	340	U
621-64-7	N-Nitroso-Di-n-Propylamine	340	U
67-72-1	Hexachloroethane	340	U
98-95-3	Nitrobenzene	340	U
78-59-1	Isophorone	340	U
88-75-5	2-Nitrophenol	340	U
105-67-9	2,4-Dimethylphenol	340	U
111-91-1	bis(2-Chloroethoxy)Methane	340	U
120-83-2	2,4-Dichlorophenol	340	U
120-82-1	1,2,4-Trichlorobenzene	340	U
91-20-3	Naphthalene	340	U
106-47-8	4-Chloroaniline	340	U
87-68-3	Hexachlorobutadiene	340	U
59-50-7	4-Chloro-3-Methylphenol	340	U
91-57-6	2-Methylnaphthalene	340	U
77-47-4	Hexachlorocyclopentadiene	340	U
88-06-2	2,4,6-Trichlorophenol	340	U
95-95-4	2,4,5-Trichlorophenol	820	U
91-58-7	2-Chloronaphthalene	340	U
88-74-4	2-Nitroaniline	820	U
131-11-3	Dimethyl Phthalate	340	U
208-96-8	Acenaphthylene	340	U
606-20-2	2,6-Dinitrotoluene	340	U
99-09-2	3-Nitroaniline	820	U
83-32-9	Acenaphthene	340	U

Verified 6-8-94

9713506.1539

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WG4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-002

Sample wt/vol: 30.10 (g/mL) G Lab File ID: A4370

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: 3 decanted: (Y/N) N Date Extracted: 03/21/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/29/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	G
51-28-5	2,4-Dinitrophenol	820	U	
100-02-7	4-Nitrophenol	820	U	
132-64-9	Dibenzofuran	340	U	
121-14-2	2,4-Dinitrotoluene	340	U	
84-66-2	Diethylphthalate	340	U	
7005-72-3	4-Chlorophenyl-phenylether	340	U	
86-73-7	Fluorene	340	U	
100-01-6	4-Nitroaniline	820	U	
534-52-1	4,6-Dinitro-2-Methylphenol	820	U	
86-30-6	N-Nitrosodiphenylamine (1)	340	U	
101-55-3	4-Bromophenyl-phenylether	340	U	
118-74-1	Hexachlorobenzene	340	U	
87-86-5	Pentachlorophenol	820	~~U~~	UJ
85-01-8	Phenanthrene	340	U	
120-12-7	Anthracene	340	U	
86-74-8	Carbazole	340	U	
84-74-2	Di-n-Butylphthalate	340	U	
206-44-0	Fluoranthene	340	U	
129-00-0	Pyrene	340	~~U~~	UJ
85-68-7	Butylbenzylphthalate	340	U	
91-94-1	3,3'-Dichlorobenzidine	340	U	
56-55-3	Benzo(a)Anthracene	340	U	
218-01-9	Chrysene	340	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	340	U	
117-84-0	Di-n-Octyl Phthalate	340	U	
205-99-2	Benzo(b)Fluoranthene	340	U	
207-08-9	Benzo(k)Fluoranthene	340	U	
50-32-8	Benzo(a)Pyrene	340	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	340	U	
53-70-3	Dibenz(a,h)Anthracene	340	U	
191-24-2	Benzo(g,h,i)Perylene	340	U	

(1) - Cannot be separated from Diphenylamine

Verified 6-8-94

FORM I SV-2

3/90

020

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9713506 1590

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WG4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-002

Sample wt/vol: 30.10 (g/mL) G Lab File ID: A4370

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: 3 decanted: (Y/N) N Date Extracted: 03/21/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/29/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1.	UNKNOWN	25.96	2800	~~J~~	JN
2.	UNKNOWN	28.85	110	~~J~~	JN

Verified
6-8-94

FORM I SV-TIC

3/90

SDG: WCCC5-ITC-020

9713506 1591

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH2

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-001

Sample wt/vol: 30.20 (g/mL) G Lab File ID: H8402

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: 8 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
108-95-2	Phenol	360	U	
111-44-4	bis(2-Chloroethyl)Ether	360	U	
95-57-8	2-Chlorophenol	360	U	
541-73-1	1,3-Dichlorobenzene	360	U	
106-46-7	1,4-Dichlorobenzene	360	U	
95-50-1	1,2-Dichlorobenzene	360	U	
95-48-7	2-Methylphenol	360	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U	
106-44-5	4-Methylphenol	360	U	
621-64-7	N-Nitroso-Di-n-Propylamine	360	~~U~~	UJ
67-72-1	Hexachloroethane	360	U	
98-95-3	Nitrobenzene	360	U	
78-59-1	Isophorone	360	U	
88-75-5	2-Nitrophenol	360	U	
105-67-9	2,4-Dimethylphenol	360	U	
111-91-1	bis(2-Chloroethoxy)Methane	360	U	
120-83-2	2,4-Dichlorophenol	360	U	
120-82-1	1,2,4-Trichlorobenzene	360	U	
91-20-3	Naphthalene	360	U	
106-47-8	4-Chloroaniline	360	U	
87-68-3	Hexachlorobutadiene	360	U	
59-50-7	4-Chloro-3-Methylphenol	360	U	
91-57-6	2-Methylnaphthalene	360	U	
77-47-4	Hexachlorocyclopentadiene	360	U	
88-06-2	2,4,6-Trichlorophenol	360	U	
95-95-4	2,4,5-Trichlorophenol	860	U	
91-58-7	2-Chloronaphthalene	360	U	
88-74-4	2-Nitroaniline	860	U	
131-11-3	Dimethyl Phthalate	360	U	
208-96-8	Acenaphthylene	360	U	
606-20-2	2,6-Dinitrotoluene	360	U	
99-09-2	3-Nitroaniline	860	U	
83-32-9	Acenaphthene	360	U	

Verified 6-8-94

022

~~ISA~~

9713506.1592

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH2

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-001

Sample wt/vol: 30.20 (g/mL) G Lab File ID: H8402

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: 8 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	860	U
100-02-7	4-Nitrophenol	860	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	860	U
534-52-1	4,6-Dinitro-2-Methylphenol	860	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	860	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-Butylphthalate	360	U
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)Anthracene	360	U
218-01-9	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)Phthalate	360	U
117-84-0	Di-n-Octyl Phthalate	360	U
205-99-2	Benzo(b)Fluoranthene	360	U
207-08-9	Benzo(k)Fluoranthene	360	~~U~~ ~~UR~~ UJ
50-32-8	Benzo(a)Pyrene	360	U
193-39-5	Indeno(1,2,3-cd)Pyrene	360	U
53-70-3	Dibenz(a,h)Anthracene	360	U
191-24-2	Benzo(g,h,i)Perylene	360	U

(1) - Cannot be separated from Diphenylamine

Q

6-15-94

Verified 6-8-94

FORM I SV-2

3/90

023

~~16A~~

9713506 1F 1593

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WH2

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-001

Sample wt/vol: 30.20 (g/mL) G Lab File ID: H8402

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: 8 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.7

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1. 0	UNKNOWN	7.18	120	~~BJ~~	UJN

Verified
6-8-94

FORM I SV-TIC

SDG: W0005-1 1C-020

9713506.1594

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH3

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-002

Sample wt/vol: 30.00 (g/mL) G Lab File ID: H8403

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: 8 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
108-95-2	Phenol	360	U	
111-44-4	bis(2-Chloroethyl)Ether	360	U	
95-57-8	2-Chlorophenol	360	U	
541-73-1	1,3-Dichlorobenzene	360	U	
106-46-7	1,4-Dichlorobenzene	360	U	
95-50-1	1,2-Dichlorobenzene	360	U	
95-48-7	2-Methylphenol	360	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U	
106-44-5	4-Methylphenol	360	U	
621-64-7	N-Nitroso-Di-n-Propylamine	360	~~U~~	UJ
67-72-1	Hexachloroethane	360	U	
98-95-3	Nitrobenzene	360	U	
78-59-1	Isophorone	360	U	
88-75-5	2-Nitrophenol	360	U	
105-67-9	2,4-Dimethylphenol	360	U	
111-91-1	bis(2-Chloroethoxy)Methane	360	U	
120-83-2	2,4-Dichlorophenol	360	U	
120-82-1	1,2,4-Trichlorobenzene	360	U	
91-20-3	Naphthalene	360	U	
106-47-8	4-Chloroaniline	360	U	
87-68-3	Hexachlorobutadiene	360	U	
59-50-7	4-Chloro-3-Methylphenol	360	U	
91-57-6	2-Methylnaphthalene	360	U	
77-47-4	Hexachlorocyclopentadiene	360	U	
88-06-2	2,4,6-Trichlorophenol	360	U	
95-95-4	2,4,5-Trichlorophenol	870	U	
91-58-7	2-Chloronaphthalene	360	U	
88-74-4	2-Nitroaniline	870	U	
131-11-3	Dimethyl Phthalate	360	U	
208-96-8	Acenaphthylene	360	U	
606-20-2	2,6-Dinitrotoluene	360	U	
99-09-2	3-Nitroaniline	870	U	
83-32-9	Acenaphthene	360	U	

Verified 6-8-94

025

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9713506.1595

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH3

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-002

Sample wt/vol: 30.00 (g/mL) G Lab File ID: H8403

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: 8 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	870	U
100-02-7	4-Nitrophenol	870	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	870	U
534-52-1	4,6-Dinitro-2-Methylphenol	870	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	870	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-Butylphthalate	360	U
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)Anthracene	360	U
218-01-9	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)Phthalate	360	U
117-84-0	Di-n-Octyl Phthalate	360	U
205-99-2	Benzo(b)Fluoranthene	360	U
207-08-9	Benzo(k)Fluoranthene	360	~~U~~ UR UJ
50-32-8	Benzo(a)Pyrene	360	U
193-39-5	Indeno(1,2,3-cd)Pyrene	360	U
53-70-3	Dibenz(a,h)Anthracene	360	U
191-24-2	Benzo(g,h,i)Perylene	360	U

(1) - Cannot be separated from Diphenylamine

Q

RS 6-14-94

Verified RS 6-8-94

FORM I SV-2

3/90 026

~~19K~~

9713506.1596

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WH3

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-002

Sample wt/vol: 30.00 (g/mL) G Lab File ID: H8403

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: 8 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1. 0	UNKNOWN	7.17	120	~~BJ~~	UJN
2.	UNKNOWN	28.64	98	~~J~~	JN

Verified
RS 6-8-94

FORM I SV-TIC

~~90A~~

SDG W0005-1TC-020

9713506 1597

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-003

Sample wt/vol: 30.20 (g/mL) G Lab File ID: H8404

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: 13 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
108-95-2	Phenol	380	U	
111-44-4	bis(2-Chloroethyl)Ether	380	U	
95-57-8	2-Chlorophenol	380	U	
541-73-1	1,3-Dichlorobenzene	380	U	
106-46-7	1,4-Dichlorobenzene	380	U	
95-50-1	1,2-Dichlorobenzene	380	U	
95-48-7	2-Methylphenol	380	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U	
106-44-5	4-Methylphenol	380	U	
621-64-7	N-Nitroso-Di-n-Propylamine	380	~~U~~	UJ
67-72-1	Hexachloroethane	380	U	
98-95-3	Nitrobenzene	380	U	
78-59-1	Isophorone	380	U	
88-75-5	2-Nitrophenol	380	U	
105-67-9	2,4-Dimethylphenol	380	U	
111-91-1	bis(2-Chloroethoxy)Methane	380	U	
120-83-2	2,4-Dichlorophenol	380	U	
120-82-1	1,2,4-Trichlorobenzene	380	U	
91-20-3	Naphthalene	380	U	
106-47-8	4-Chloroaniline	380	U	
87-68-3	Hexachlorobutadiene	380	U	
59-50-7	4-Chloro-3-Methylphenol	380	U	
91-57-6	2-Methylnaphthalene	380	U	
77-47-4	Hexachlorocyclopentadiene	380	U	
88-06-2	2,4,6-Trichlorophenol	380	U	
95-95-4	2,4,5-Trichlorophenol	910	U	
91-58-7	2-Chloronaphthalene	380	U	
88-74-4	2-Nitroaniline	910	U	
131-11-3	Dimethyl Phthalate	380	U	
208-96-8	Acenaphthylene	380	U	
606-20-2	2,6-Dinitrotoluene	380	U	
99-09-2	3-Nitroaniline	910	U	
83-32-9	Acenaphthene	380	U	

Verified 6-8-94

21A 6/14/94

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-003

Sample wt/vol: 30.20 (g/mL) G Lab File ID: H8404

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: 13 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	910	U
100-02-7	4-Nitrophenol	910	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	910	U
534-52-1	4,6-Dinitro-2-Methylphenol	910	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	910	U
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-Butylphthalate	380	U
206-44-0	Fluoranthene	380	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)Anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)Phthalate	380	U
117-84-0	Di-n-Octyl Phthalate	380	U
205-99-2	Benzo(b)Fluoranthene	380	U
207-08-9	Benzo(k)Fluoranthene	380	~~U~~
50-32-8	Benzo(a)Pyrene	380	U
193-39-5	Indeno(1,2,3-cd)Pyrene	380	U
53-70-3	Dibenz(a,h)Anthracene	380	U
191-24-2	Benzo(g,h,i)Perylene	380	U

Q

~~UR~~ UJ
RC 6-14-94

(1) - Cannot be separated from Diphenylamine

Verified
RS 6-8-94

FORM I SV-2

3/90 029

~~22A~~

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

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

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

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

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

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

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

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

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: W0005-ITC-020	REVIEWER: T. STAPP	DATE: 6-13-94	PAGE 1 OF 1
COMMENTS: INORGANIC ANALYSIS			
COMPOUND/ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
ANTIMONY, SELENIUM	J/UJ	ALL	MATRIX SPIKE RECOVERY IS <75% BUT >30%
CHROMIUM, MANGANESE, TITANIUM	J	ALL	MATRIX SPIKE RECOVERY IS >125%
COBALT	U	B09WG5	DETECTED IN CALIBRATION BLANK
CYANIDE	U	B09WG5,B09WI8 B09WH2,B09WH3 B09WH4	DETECTED IN CALIBRATION BLANK
BERYLLIUM, CADMIUM	U	ALL	DETECTED IN CALIBRATION BLANK
CHROMIUM, IRON, ZINC	J	ALL	DUPLICATE RPD >35%
MAGNESIUM	J	B09WH2,B09WH3 B09WH4,B09WI0	DUPLICATE RPD >35%
VANADIUM	J	B09WH4	DUPLICATE RPD >35%
THALLIUM	J/UJ	ALL	ABSOLUTE VALUE OF NEGATIVE CALIBRATION BLANK EXCEEDS IDL
SELENIUM	J, UJ	ALL	ANALYTICAL SPIKE %R EXCEEDED

Revised page
6/6/24/94

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ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0005-ITC-020

	Samp#	B09WG4		B09WG5		B09WH2		B09WH3		B09WH4		B09WI0	
	Date	3-10-94		3-8-94		3-17-94		3-17-94		3-17-94		3-22-94	
	Location	---		---		---		---		---		---	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments	---		---		---		---		---		---	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
ALUMINUM	MG/KG	5990.000		6020.000		11300.000		11400.000		8780.000		7180.000	
ANTIMONY	MG/KG	6.300	UJ	6.400	UJ	6.600	UJ	6.700	UJ	7.000	UJ	6.300	UJ
ARSENIC	MG/KG	1.800	B	3.400		8.000		7.100		6.000		3.300	
BARIUM	MG/KG	50.900		47.900		98.200		102.000		103.000		34.000	B
BERYLLIUM	MG/KG	0.350	U	0.290	U	0.570	U	0.570	U	0.600	U	0.420	U
CADMIUM	MG/KG	0.990	U	0.720	U	0.890	U	0.970	U	0.880	U	0.620	U
CALCIUM	MG/KG	4170.000		2600.000		12400.000		12400.000		116000.000		4320.000	
CHROMIUM	MG/KG	54.600	J	67.800	J	17.000	J	17.600	J	11.700	J	9.100	J
COBALT	MG/KG	8.200	B	5.200	U	9.600	B	10.400	B	8.400	B	6.600	B
COPPER	MG/KG	21.100		12.400		16.600		17.800		18.200		10.100	
IRON	MG/KG	17300.000	J	11200.000	J	21600.000	J	22100.000	J	15600.000	J	17500.000	J
LEAD	MG/KG	156.000		4.700		10.200		10.700		5.300		6.100	
MAGNESIUM	MG/KG	4250.000		3060.000		7400.000	J	7670.000	J	9600.000	J	5460.000	J
MANGANESE	MG/KG	203.000	J	133.000	J	320.000	J	330.000	J	540.000	J	249.000	J
MERCURY	MG/KG	1.200		4.700		0.050	U	0.050	U	0.060	U	0.050	U
NICKEL	MG/KG	22.400		13.400		18.900		19.700		13.700		11.200	
POTASSIUM	MG/KG	733.000	B	746.000	B	2230.000		2210.000		1130.000	B	1120.000	
SELENIUM	MG/KG	0.290	UJ	0.350	BJ	0.300	UJ	0.310	UJ	0.320	UJ	0.290	UJ
SILVER	MG/KG	14.900		0.570	U	0.590	U	0.590	U	0.620	U	0.560	U
SODIUM	MG/KG	205.000	B	171.000	B	260.000	B	240.000	B	290.000	B	175.000	B
THALLIUM	MG/KG	0.100	UJ	0.110	UJ	0.110	UJ	0.110	UJ	0.120	UJ	0.100	UJ
VANADIUM	MG/KG	28.800		14.700		34.500		32.400		65.900	J	19.000	
ZINC	MG/KG	88.800	J	32.500	J	55.900	J	61.800	J	31.800	J	38.200	J
CYANIDE	MG/KG	0.030	U	0.240	U	0.070	U	0.070	U	0.070	U	0.030	U
TITANIUM	MG/KG	1100.000	J	578.000	J	1020.000	J	1020.000	J	980.000	J	645.000	J

Verified FC 6-14-94

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Validated Data Summary, Data Package: W0005-ITC-020

	Samp#	B09W18	
	Date	3-10-94	
	Location	---	
	Depth	---	
	Type	SOIL	
	Comments	---	
Parameter	Units	Result	Q
ALUMINUM	MG/KG	7220.000	
ANTIMONY	MG/KG	7.100	UJ
ARSENIC	MG/KG	1.800	B
BARIUM	MG/KG	69.700	
BERYLLIUM	MG/KG	0.460	U
CADMIUM	MG/KG	1.300	U
CALCIUM	MG/KG	7670.000	
CHROMIUM	MG/KG	10.500	J
COBALT	MG/KG	8.900	B
COPPER	MG/KG	20.500	
IRON	MG/KG	20000.000	J
LEAD	MG/KG	8.100	
MAGNESIUM	MG/KG	4450.000	
MANGANESE	MG/KG	229.000	J
MERCURY	MG/KG	0.080	B
NICKEL	MG/KG	17.500	
POTASSIUM	MG/KG	1490.000	
SELENIUM	MG/KG	0.320	UJ
SILVER	MG/KG	0.620	U
SODIUM	MG/KG	282.000	B
THALLIUM	MG/KG	0.320	BJ
VANADIUM	MG/KG	36.300	
ZINC	MG/KG	64.300	J
CYANIDE	MG/KG	0.240	U
TITANIUM	MG/KG	1410.000	J

Verified 6-14-94

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09WG5

Lab Name: ITAS_ST._LOUIS Contract: 519.04

Lab Code: ITMO Case No.: SAS No.: SDG No.: W0005

Matrix (soil/water): SOIL Lab Sample ID: 4679-001

Level (low/med): LOW Date Received: 03/11/94

% Solids: 95.0

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	6020			P	
7440-36-0	Antimony	6.4	~~U~~	N	P	UJ
7440-38-2	Arsenic	3.4			F	
7440-39-3	Barium	47.9			P	
7440-41-7	Beryllium	0.29	~~B~~		P	U
7440-43-9	Cadmium	0.72	~~B~~		P	U
7440-70-2	Calcium	2600			P	
7440-47-3	Chromium	67.8		N*	P	J
7440-48-4	Cobalt	5.2	~~B~~		P	U
7440-50-8	Copper	12.4			P	
7439-89-6	Iron	11200		*	P	J
7439-92-1	Lead	4.7			F	
7439-95-4	Magnesium	3060		*	P	
7439-96-5	Manganese	133		N*	P	J
7439-97-6	Mercury	4.7			CV	
7440-02-0	Nickel	13.4			P	
7440-09-7	Potassium	746	B		P	
7782-49-2	Selenium	0.35	~~B~~	WN	F	BJ
7440-22-4	Silver	0.57	U		P	
7440-23-5	Sodium	171	B		P	
7440-28-0	Thallium	0.11	~~U~~		F	UJ
7440-62-2	Vanadium	14.7			P	
7440-66-6	Zinc	32.5		*	P	J
	Cyanide	0.24	~~B~~		AS	U
7440-32-6	Titanium	578		N*	P	J

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

FORM I - IN ILM03.0

Verified

6-13-94

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09WI8

Lab Name: ITAS_ST._LOUIS_____ Contract: 519.04____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0005_____
Matrix (soil/water): SOIL_ Lab Sample ID: 4698-001
Level (low/med): LOW__ Date Received: 03/15/94
% Solids: _86.5

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	7220			P	
7440-36-0	Antimony	7.1	U	N	P	UJ
7440-38-2	Arsenic	1.8	B	S	F	
7440-39-3	Barium	69.7			P	
7440-41-7	Beryllium	0.46	B		P	U
7440-43-9	Cadmium	1.3			P	U
7440-70-2	Calcium	7670			P	
7440-47-3	Chromium	10.5		N*	P	J
7440-48-4	Cobalt	8.9	B		P	
7440-50-8	Copper	20.5			P	
7439-89-6	Iron	20000		*	P	J
7439-92-1	Lead	8.1			F	
7439-95-4	Magnesium	4450		*	P	
7439-96-5	Manganese	229		N*	P	J
7439-97-6	Mercury	0.08	B		CV	
7440-02-0	Nickel	17.5			P	
7440-09-7	Potassium	1490			P	
7782-49-2	Selenium	0.32	U	N	F	UJ
7440-22-4	Silver	0.62	U		P	
7440-23-5	Sodium	282	B		P	
7440-28-0	Thallium	0.32	B		F	BJ
7440-62-2	Vanadium	36.3			P	
7440-66-6	Zinc	64.3		*	P	J
	Cyanide	0.24	B		AS	U
7440-32-6	Titanium	1410		N*	P	J

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM
Color After: COLORLESS Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN

Verified TS 6-13-94

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9713506_1607 U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09WG4

Lab Name: ITAS_ST._LOUIS Contract: 519.04
Lab Code: ITMO Case No.: SAS No.: SDG No.: W0005
Matrix (soil/water): SOIL Lab Sample ID: 4698-002
Level (low/med): LOW Date Received: 03/15/94
% Solids: 97.4

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	5990			P	
7440-36-0	Antimony	6.3	~~U~~	N	P	UJ
7440-38-2	Arsenic	1.8	B		F	
7440-39-3	Barium	50.9			P	
7440-41-7	Beryllium	0.35	~~B~~		P	U
7440-43-9	Cadmium	0.99	~~B~~		P	U
7440-70-2	Calcium	4170			P	
7440-47-3	Chromium	54.6		N*	P	J
7440-48-4	Cobalt	8.2	B		P	
7440-50-8	Copper	21.1			P	
7439-89-6	Iron	17300		*	P	J
7439-92-1	Lead	156			F	
7439-95-4	Magnesium	4250		*	P	
7439-96-5	Manganese	203		N*	P	J
7439-97-6	Mercury	1.2			CV	
7440-02-0	Nickel	22.4			P	
7440-09-7	Potassium	733	B		P	
7782-49-2	Selenium	0.29	~~U~~	N	F	UJ
7440-22-4	Silver	14.9			P	
7440-23-5	Sodium	205	B		P	
7440-28-0	Thallium	0.10	~~U~~		F	UJ
7440-62-2	Vanadium	28.8			P	
7440-66-6	Zinc	88.8		*	P	J
	Cyanide	0.03	U		AS	
7440-32-6	Titanium	1100		N*	P	J

Color Before: BROWN Clarity Before: Texture: MEDIUM
Color After: COLORLESS Clarity After: Artifacts:

Comments:

FORM I - IN ILM03.0

Verified 6-13-94

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09WH2

Lab Name: ITAS_ST._LOUIS Contract: 519.04

Lab Code: ITMO Case No.: SAS No.: SDG No.: W0005

Matrix (soil/water): SOIL Lab Sample ID: 4743-001

Level (low/med): LOW Date Received: 03/21/94

% Solids: 92.0

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	11300			P	
7440-36-0	Antimony	6.6	~~U~~	N	P	UJ
7440-38-2	Arsenic	8.0		S	F	
7440-39-3	Barium	98.2			P	
7440-41-7	Beryllium	0.57	~~B~~		P	U
7440-43-9	Cadmium	0.89	~~B~~		P	U
7440-70-2	Calcium	12400			P	
7440-47-3	Chromium	17.0		N*	P	J
7440-48-4	Cobalt	9.6	B		P	
7440-50-8	Copper	16.6			P	
7439-89-6	Iron	21600		*	P	J
7439-92-1	Lead	10.2		S	F	
7439-95-4	Magnesium	7400		*	P	J
7439-96-5	Manganese	320		N*	P	J
7439-97-6	Mercury	0.05	U		CV	
7440-02-0	Nickel	18.9			P	
7440-09-7	Potassium	2230			P	
7782-49-2	Selenium	0.30	~~U~~	WN	F	UJ
7440-22-4	Silver	0.59	U		P	
7440-23-5	Sodium	260	B		P	
7440-28-0	Thallium	0.11	~~U~~		F	UJ
7440-62-2	Vanadium	34.5			P	
7440-66-6	Zinc	55.9		*	P	J
	Cyanide	0.07	~~B~~		AS	U
7440-32-6	Titanium	1020		N*	P	J

~~0001057~~

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

FORM I - IN

Verified RS 6-13-94

ILM03.0

9713506.1609

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09WH3

Lab Name: ITAS_ST._LOUIS_____ Contract: 519.04____

Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0005_____

Matrix (soil/water): SOIL_ Lab Sample ID: 4743-002

Level (low/med): LOW__ Date Received: 03/21/94

% Solids: _91.6

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	11400			P	
7440-36-0	Antimony	6.7	~~U~~	N	P	UJ
7440-38-2	Arsenic	7.1			F	
7440-39-3	Barium	102			P	
7440-41-7	Beryllium	0.57	~~B~~		P	U
7440-43-9	Cadmium	0.97	~~B~~		P	U
7440-70-2	Calcium	12400			P	
7440-47-3	Chromium	17.6		N*	P	J
7440-48-4	Cobalt	10.4	B		P	
7440-50-8	Copper	17.8			P	
7439-89-6	Iron	22100		*	P	J
7439-92-1	Lead	10.7		S	F	
7439-95-4	Magnesium	7670		*	P	J
7439-96-5	Manganese	330		N*	P	J
7439-97-6	Mercury	0.05	U		CV	
7440-02-0	Nickel	19.7			P	
7440-09-7	Potassium	2210			P	
7782-49-2	Selenium	0.31	~~U~~	WN	F	UJ
7440-22-4	Silver	0.59	U		P	
7440-23-5	Sodium	240	B		P	
7440-28-0	Thallium	0.11	~~U~~		F	UJ
7440-62-2	Vanadium	32.4			P	
7440-66-6	Zinc	61.8		*	P	J
	Cyanide	0.07	~~B~~		AS	U
7440-32-6	Titanium	1020		N*	P	J

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: COLORLESS Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN

ILM03.0

Verified RS 6-13-94

~~0001058~~

9713506 1610

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09WH4

Lab Name: ITAS_ST._LOUIS_____ Contract: 519.04____

Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0005_____

Matrix (soil/water): SOIL_ Lab Sample ID: 4743-003

Level (low/med): LOW__ Date Received: 03/21/94

% Solids: _86.8

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	8780			P	
7440-36-0	Antimony	7.0	U	N	P	UJ
7440-38-2	Arsenic	6.0		S	F	
7440-39-3	Barium	103			P	
7440-41-7	Beryllium	0.60	B		P	U
7440-43-9	Cadmium	0.88	B		P	U
7440-70-2	Calcium	116000			P	
7440-47-3	Chromium	11.7		N*	P	J
7440-48-4	Cobalt	8.4	B		P	
7440-50-8	Copper	18.2			P	
7439-89-6	Iron	15600		*	P	J
7439-92-1	Lead	5.3			F	
7439-95-4	Magnesium	9600		*	P	J
7439-96-5	Manganese	540		N*	P	J
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	13.7			P	
7440-09-7	Potassium	1130	B		P	
7782-49-2	Selenium	0.32	U	WN	F	UJ
7440-22-4	Silver	0.62	U		P	
7440-23-5	Sodium	290	B		P	
7440-28-0	Thallium	0.12	U		F	UJ
7440-62-2	Vanadium	65.9			P	J
7440-66-6	Zinc	31.8		*	P	J
	Cyanide	0.07	B		AS	U
7440-32-6	Titanium	980		N*	P	J

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: COLORLESS Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN

ILM03.0

Verified 6-13-94

~~001059~~

016

9713506 1611 U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09WI0

Lab Name: ITAS_ST._LOUIS_____ Contract: 519.04____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0005_____
Matrix (soil/water): SOIL_ Lab Sample ID: 4756-001
Level (low/med): LOW__ Date Received: 03/23/94
% Solids: _96.1

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	7180			P	
7440-36-0	Antimony	6.3	~~U~~	N	P	UJ
7440-38-2	Arsenic	3.3			F	
7440-39-3	Barium	34.0	B		P	
7440-41-7	Beryllium	0.42	~~B~~		P	U
7440-43-9	Cadmium	0.62	~~B~~		P	U
7440-70-2	Calcium	4320			P	
7440-47-3	Chromium	9.1		N*	P	J
7440-48-4	Cobalt	6.6	B		P	
7440-50-8	Copper	10.1			P	
7439-89-6	Iron	17500		*	P	J
7439-92-1	Lead	6.1			F	
7439-95-4	Magnesium	5460		*	P	J
7439-96-5	Manganese	249		N*	P	J
7439-97-6	Mercury	0.05	U		CV	
7440-02-0	Nickel	11.2			P	
7440-09-7	Potassium	1120			P	
7782-49-2	Selenium	0.29	~~U~~	WN	F	UJ
7440-22-4	Silver	0.56	U		P	
7440-23-5	Sodium	175	B		P	
7440-28-0	Thallium	0.10	~~U~~		F	UJ
7440-62-2	Vanadium	19.0			P	
7440-66-6	Zinc	38.2		*	P	J
	Cyanide	0.03	U		AS	
7440-32-6	Titanium	645		N*	P	J

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM
Color After: COLORLESS Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN ILM03.0

Verified 6-13-94

0001060

017

ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

9713506.1613

INTERNATIONAL TECHNOLOGY CORPORATION

CERTIFICATE OF ANALYSIS

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

April 27, 1994

Attention: J. A. Lerch

Project number	:	519.04
Date Received by Lab	:	March 11, 15, 21 and 23, 1994
Number of Samples	:	Eleven (11)
Sample Types	:	Soil and Water
SDG Number	:	W0005

I. Introduction

On March 11, 15, 21 and 23, 1994, a total of one (1) water and ten (10) soil samples were received by ITAS-Richland and transferred to ITAS-St. Louis for chemical analysis. Upon receipt, the samples were given the following laboratory ID numbers to correspond with their specific client ID's:

St. Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
4679-001	B09WG5	W40323401	Soil	03/11/94
4698-001	B09W18	40326401	Soil	03/15/94
4698-002	B09WG4	40326402	Soil	03/15/94
4698-003	B09WJ1	40326403	Soil	03/15/94
4698-004	Trip Blank	40326404	Water	03/15/94
4743-001	B09WH2	40338501	Soil	03/21/94
4743-002	B09WH3	40338502	Soil	03/21/94
4743-003	B09WH4	40338503	Soil	03/21/94
4743-004	B09WH6	40338504	Soil	03/21/94
4756-001	B09WI0	40343201	Soil	03/23/94
4756-002	B09WI1	40343202	Soil	03/23/94

Regional Office
13715 N. Rider Trail • Earth City, Missouri 63045-1205 • 314-298-8566 • FAX: 314-298-8757

IT Corporation is a wholly owned subsidiary of International Technology Corporation

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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: VOA, BNA and Metals including Cyanide using CLP/90 protocol. Chloride, Sulfate and Fluoride by EPA method 300.0. Nitrate by EPA method 353.1. Total Petroleum Hydrocarbons (Kerosene) by method 8015.

III. Quality Control

A Laboratory Control Sample and Method Blank are routinely analyzed with each preparation batch. Matrix Spike and Matrix Spike Duplicate or Duplicate analyses were performed for all analytes in this SDG.

IV. Comments

A sample (4679-001) was received on 3/11/94 that was labelled B09WG5 on the sample container and appeared on the Chain of Custody as B09WG4. It was determined that the Chain of Custody was correct at that time. On 3/15/94 a sample (4698-002) was received that was labelled B09WG4 and also appeared on the Chain of Custody as B09WG4. It was determined that the first sample received was B09WG5 as labelled on the sample container and that the Chain of Custody was incorrect. The appropriate corrections were made and it was decided that from now on the client ID on the sample container label will be considered correct.

IT-St. Louis PQL's were used for the kerosene analysis.

The Relative Percent Difference (RPD) for Cyanide sample B09WG5 (4679-001) was calculated using values below the contract detection limit but above the instrument detection limit.

The laboratory was unable to calculate a Relative Percent Difference (RPD) for Fluoride sample B09WG5 (4679-001) due to sample values below the detection limit.

Westinghouse Hanford Company
April 27, 1994
Project Number: 519.04
page 3

The Matrix Spike recovery for Fluoride sample B09WG5 (4679-001) was low due to matrix interference.

The Matrix Spike recovery for Antimony, Chromium, Manganese, Titanium and Selenium were outside the 75% - 125% control limits.

Matrix Spike recovery for sample B09WG5 (4679-001) for Mercury was < 75%. The sample concentration for this sample was four times greater than the spike concentration, therefore, this sample was not flagged.

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:\annealers\hanw0005.nar

9713506.1616

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.W. SETZER

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-8-94

Ice Chest No.:

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 RADIOACTIVE

Sample Identification

1) 403235 TH 5/11/94

A 1,250ml P:CLP;TAL Metals,Hg,Ti ~~B09WG4~~ B09WG5 * 6-6-94

B 1,250ml Gs:VOA CLP

C 1,250ml aG:Semi-VOA CLP

D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)

E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)

~~1,250ml aGs:PCB/Pest (8080)~~ 3-9-94

F 1,125ml G:Cyanide CLP

G 1,125ml Gw:Kerosene (8015M)

1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40323501

* See laboratory narrative for explanation of sample I.D. discrepancy.

2)

~~1,250ml P:CLP;TAL Metals,Hg,Ti B09WG5 3-11-94 WWS~~

~~1,250ml Gs:VOA CLP~~

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~ SR 3-9-94 WWS 3-11-94

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W. W. Setzer	800 cpm ITAS	3/11/94 1055
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

SDG W0005

9713506.1617

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.W. SETZER

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-10-94

Ice Chest No.: WHC 169

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.: ~~NA~~ WVS 3-14-94 NA

Method of Shipment: Government vehicle

Shipped to: IT, Richland.

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 RADIOACTIVE

Sample Identification

1) B09WI8

CAT II

400 cpm

403264 01

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
F 1,250ml aGs:PCB/Pest (8080)
G 1,125ml G:Cyanide CLP
H 1,125ml GW:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40326501

2) B09WG4

200 cpm

403264 02

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ ER 3-14-94
F 1,125ml G:Cyanide CLP
G 1,125ml GW:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40326502

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W.W. Setzer	R. Boyd	3/14/94 1430
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time: 6-13-94

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713506.1618

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-17-94

Ice Chest No.: SML-127 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) B09WH2

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ ER 3-17-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

2) B09WH3

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ ER 3-17-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: 3-21-94 0930	Received by:	Date/Time: 3/21 1120
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

6-13-94

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

200000

024

9713506.1619

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-17-94

Ice Chest No.: SML-127 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) BC4WH4

1,250ml P:CLP;TAL Metals,Hg,Ti
1,250ml Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ SER 3-17-94
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

~~2)~~
~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml Gs:VOA CLP~~
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,250ml aGs:PCB/Pest (8080)~~ SER 3-17-94
~~1,125ml G:Cyanide CLP~~
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
3-21-94 0930	J Hindelang Jr	3/21 1120
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

RS 6-13-94

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

025

9713506.1620

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS/W. SETZER

Company Contact: L E ROGERS — Telephone: 376-7690 WVS 3-22-94

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-21-94

Ice Chest No.: WHC-19 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: NA — Offsite Property No.: WP4-0-

Method of Shipment: Government vehicle — SDX-WC011

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065

Sample Identification

1) WVS 3-21-94

BQ4WI0 — 40343201

A 1,250ml aGs P:CLP;TAL Metals,Hg,Ti
B 1,250ml aGs Ds:VOA CLP
C 1,250ml aGs ~~aG~~:Semi-VOA CLP
D 1,125ml aGs ~~G~~:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml aGs ~~P/G~~:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ WVS 3-21-94
F 1,125ml aGs ~~G~~:Cyanide CLP
G 1,125ml aGs ~~G~~:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40343301

40343202 A

2) BQ4WI1 (TRIP) 1,250ML, aGs : CLP:VOA

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml Gs:VOA CLP~~
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,250ml aGs:PCB/Pest (8080)~~
~~1,125ml G:Cyanide CLP~~ WVS 3-22-94
~~1,125ml G:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: 3-23-94 0920 W.V. SETZER	Received by: ITAS Karen Ashtenburg	Date/Time: 3-23-94 11:00
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

6-13-94

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9600036

026

9713506.1621

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-21-94

Ice Chest No.: SML-127 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1)

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~ 309W46

A 1,250ml Gs:VOA CLP

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

KER 3-21-94

~~2)~~

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~

~~1,250ml Gs:VOA CLP~~

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

KER 3-21-94

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
3-21-94 0930		3-21 1120
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

6-13-94

~~000032~~

027

9713506.1622

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.U. SETZER

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-10-94

Ice Chest No.:

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) B09W51

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~

40326403 1,250ml Gs:VOA CLP

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

SR 3-14-94

2)

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~

1,250ml Gs:VOA CLP

1,250ml aG:Semi-VOA CLP

1,125ml G:Anions F,Cl,SO4 (EPA 300.0)

1,125ml P/G:Anions NO2,NO3 (EPA 353.2)

1,250ml aGs:PCB/Pest (8080)

1,125ml G:Cyanide CLP

1,125ml Gw:Kerosene (8015M)

1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

RA 6-13-94

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Name)

Relinquished by:	Received by:	Date/Time:
W.U. Setzer	R. Boyd IT <100	3/14/94 1430
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

Temp 3°C CUR 501

INTERNATIONAL TECHNOLOGY CORPORATION

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

Reference Document No.[30] 340326

Page 2 of 2

Project Name SAF # 94-065

Project No.

Samples Shipment Date 3-15-94

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.
40326402 A	BOAWG4 /Soil	3-8-94 09:05	AG	250ml	Cool 4°	ICP Metals, Hg, Tl	100% full	
B						Voa	FOR LAB USE ONLY	
C						Semi Voa		
D				125ml		EPA 300.0		
E						EPA ~~353.2~~ 353.1 per WHP 3/17/94		
F						Cyanide		
G						Kerosene		
40326403	BOAW51 /Soil	3-10-94 07:00	AG	250ml	Cool 4°	Voa		
40326404 A	TRIP Blank	3-15-94	AG	40ml	Cool 4°	Voa		
B								
	0000040							

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

029

9713506.1624

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 200-UP-2		DATA PACKAGE: W0005-ITC-020	
VALIDATOR: T. Stapp	LAB: ITC/St. Louis	DATE: 6-11-94	
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 B09WG5, B09WI8, B09WG4, B09WH2, B09WH3, B09WH4, B09WI0 / SOIL

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . Note ① . . . Yes No N/A

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

Comments: ① Performed by WHC.

2. HOLDING TIMES

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

Comments: See holding time Summary Sheets.

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? . . . Note ① . . . . . 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? . . . . Note ② . . . . . Yes No N/A
Are field/trip blank results acceptable? . . . . . Yes No N/A
Comments: ① Multiple analytes were detected in calibration blanks. See attached Blank summary for analytes and samples qualified. ② Field QC was not identified in this sample set, but it has been requested. Field Blanks will be evaluated in the final data summary.

5. ACCURACY

Were spike samples analyzed? . . . . . Yes No N/A
Are spike sample recoveries acceptable? . . . . Note ① . . . . . Yes No N/A
Were laboratory control samples (LCS) analyzed? . . . . . Yes No N/A
Are LCS recoveries acceptable? . . . . . Yes No N/A
Comments: ① MS recovery limits not met for Sb, Cr, Mn, Se, and Ti and qualify associated samples as indicated on accuracy summary.

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

6. PRECISION

Were laboratory duplicates analyzed? . . . . . Yes No N/A

Are laboratory duplicate samples RPD values acceptable? Note ①. 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? .Note ② . . . . . Yes No N/A

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

Comments: ① RPD exceeds 35% limit for Cr, Fe, Mg, V and Zn. Qualif. of associated Samples is as indicated on Precision Summary page B-5.
② Field QC was not identified in this Sample set, but it has been requested. Field dups. will be evaluated in the final data Summary.

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? . .Note ①. . . . . Yes No N/A

Was MSA performed as required? . . . . . Yes No N/A

Are MSA results acceptable? . . . . . Yes No N/A

Comments: ① Selenium analytical spike recoveries were outside of limits. See accuracy data summary for Samples & Qualif.

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:

W0005-ITC-020

HOLDING TIME SUMMARY - FORM B-1

SDG:	REVIEWER: T. Stapp	DATE: June 11 1994	PAGE 1 OF 2
COMMENTS:			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09WG5	ICP⊕	3-8-94	3-28-94	3-28-94		* ≤ 180	NONE
B09WI8		3-10-94					
B09WG4		"					
B09WH2		3-17-94					
B09WH3		"					
B09WH4		"					
B09WIØ		3-22-94					
				Pb Se Tl			
B09WG5	GFAA*	3-8	3-28-94	3/31 3/29 3/29		≤ 180	NONE
I8		3-10		3/31			
G4		"		3/31			
H2		3-17		3/31			
H3		"		3/31			
H4		"		3/31			
IØ		3-22		3/31			

⊕ - Includes Titanium and Mercury by Cold Vapor AA. * HG analysis ≤ 28 days.

* - Page 2 for Arsenic.

9713506.1628

WHC-SD-EN-SPP-002, ~~Rev. 1~~ Rev. 2

6-11-94

WO005-ITC-020

HOLDING TIME SUMMARY - FORM B-1

SDG:	REVIEWER: T. Stapp	DATE: June, 11 1994	PAGE 2 OF 2

COMMENTS:

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09WG5	~~HG~~ CN	3-8-94	3-16-94	3-16-94	8	≤ 14	NONE
I8		3-10-94	3-22-94	3-22-94	12		
G4		"	"	"	12		
H2		3-17-94	3-31-94	3-31-94	14		
H3		"	"	"	14		
H4		"	"	"	14		
I0		3-22-94	"	"	9		
B09WG5	AS	3-8-94	3-16-94	3-29-94	8	≤ 180	NONE
I8		3-10-94	3-22-94	"	12		
G4		"		3-29-94	12		
H2		3-17-94	3-31-94		14		
H3		"			14		
H4		"			14		
I0		3-22-94			9		

6-11-94

WHC-SD-EN-SPP-002, ~~Rev. 1~~ Rev. 2 6-11-94

9413506.1629

WC005-ITC-020

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG:	REVIEWER: T. Stapp	DATE: 6-11-94	PAGE 1 OF 1
COMMENTS:			

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
CCB1	Be	2.6			µg/L	13		~~B09WC45~~ ALL	U
↓	Cd	2.2				11		ALL	U
↓	Co	5.6				28		B09WG5	U
ICB	Tl	-0.6				(±2x) ~~1.8~~ 2	~~±6.0~~	B09WI8	~~U~~ J
↓	Tl	-0.6				1.2	~~±6.0~~	All except B09WI8	UJ
ICB	CN (3-16-94)	2.6				13		B09WG5	U
↓	CN (3-22-94)	2.4				12.1		B09WI8	U
↓	CN (3-31-94)	3.8				19		B09WH2,	U
ICB	" "	"				"		B09WH3, B09WH4	U

6-15-94

6-11-94

6-11-94

6-11-94

6-11-94

6-11-94

WHC-SD-EN-SPP-002, Rev. ~~1~~ Rev. 2

9713506.1630

B-3

036

9713506.1631

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 519.04____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: W0005_____

Preparation Blank Matrix (soil/water): SOIL_

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

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony			30.5	U							P
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium			4.3	U							P
Cobalt											NR
Copper											NR
Iron											NR
Lead	0.9	U	0.9	U	0.9	U					F
Magnesium											NR
Manganese			2.7	B							P
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide	3.8	B	2.9	B	1.4	B			0.077	B	AS
Titanium			6.0	B							P

Cyanide ICAL result qualifies B09WH2, B09WH3, B09WH4 as nondetect (U).

FORM III - IN

ILM03.0

6-13-94

00071072

9713506.1632

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WH4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-003

Sample wt/vol: 30.20 (g/mL) G Lab File ID: H8404

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: 13 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.5

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1.	UNKNOWN	7.17	110	~~JB~~	UJN

Verified
~~FS~~ 6-8-94

SDG: W0005-ITC-020

9713506 14633

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WI0

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4756-001

Sample wt/vol: 30.10 (g/mL) G Lab File ID: H8405

Level: (low/med) LOW Date Received: 03/23/94

% Moisture: 4 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
108-95-2	Phenol	340	U	
111-44-4	bis(2-Chloroethyl)Ether	340	U	
95-57-8	2-Chlorophenol	340	U	
541-73-1	1,3-Dichlorobenzene	340	U	
106-46-7	1,4-Dichlorobenzene	340	U	
95-50-1	1,2-Dichlorobenzene	340	U	
95-48-7	2-Methylphenol	340	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	340	U	
106-44-5	4-Methylphenol	340	U	
621-64-7	N-Nitroso-Di-n-Propylamine	340	~~U~~	UJ
67-72-1	Hexachloroethane	340	U	
98-95-3	Nitrobenzene	340	U	
78-59-1	Isophorone	340	U	
88-75-5	2-Nitrophenol	340	U	
105-67-9	2,4-Dimethylphenol	340	U	
111-91-1	bis(2-Chloroethoxy)Methane	340	U	
120-83-2	2,4-Dichlorophenol	340	U	
120-82-1	1,2,4-Trichlorobenzene	340	U	
91-20-3	Naphthalene	340	U	
106-47-8	4-Chloroaniline	340	U	
87-68-3	Hexachlorobutadiene	340	U	
59-50-7	4-Chloro-3-Methylphenol	340	U	
91-57-6	2-Methylnaphthalene	340	U	
77-47-4	Hexachlorocyclopentadiene	340	U	
88-06-2	2,4,6-Trichlorophenol	340	U	
95-95-4	2,4,5-Trichlorophenol	830	U	
91-58-7	2-Chloronaphthalene	340	U	
88-74-4	2-Nitroaniline	830	U	
131-11-3	Dimethyl Phthalate	340	U	
208-96-8	Acenaphthylene	340	U	
606-20-2	2,6-Dinitrotoluene	340	U	
99-09-2	3-Nitroaniline	830	U	
83-32-9	Acenaphthene	340	U	

031

Verified RS 6-8-94

~~24A~~

9713506 1634

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WI0

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4756-001

Sample wt/vol: 30.10 (g/mL) G Lab File ID: H8405

Level: (low/med) LOW Date Received: 03/23/94

% Moisture: 4 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	830	U
100-02-7	4-Nitrophenol	830	U
132-64-9	Dibenzofuran	340	U
121-14-2	2,4-Dinitrotoluene	340	U
84-66-2	Diethylphthalate	340	U
7005-72-3	4-Chlorophenyl-phenylether	340	U
86-73-7	Fluorene	340	U
100-01-6	4-Nitroaniline	830	U
534-52-1	4,6-Dinitro-2-Methylphenol	830	U
86-30-6	N-Nitrosodiphenylamine (1)	340	U
101-55-3	4-Bromophenyl-phenylether	340	U
118-74-1	Hexachlorobenzene	340	U
87-86-5	Pentachlorophenol	830	U
85-01-8	Phenanthrene	340	U
120-12-7	Anthracene	340	U
86-74-8	Carbazole	340	U
84-74-2	Di-n-Butylphthalate	74	J
206-44-0	Fluoranthene	340	U
129-00-0	Pyrene	340	U
85-68-7	Butylbenzylphthalate	340	U
91-94-1	3,3'-Dichlorobenzidine	340	U
56-55-3	Benzo(a)Anthracene	340	U
218-01-9	Chrysene	340	U
117-81-7	bis(2-Ethylhexyl)Phthalate	340	U
117-84-0	Di-n-Octyl Phthalate	340	U
205-99-2	Benzo(b)Fluoranthene	340	U
207-08-9	Benzo(k)Fluoranthene	340	~~U~~
50-32-8	Benzo(a)Pyrene	340	U
193-39-5	Indeno(1,2,3-cd)Pyrene	340	U
53-70-3	Dibenz(a,h)Anthracene	340	U
191-24-2	Benzo(g,h,i)Perylene	340	U

Q

~~UR~~ UJ
TCG-15-94

(1) - Cannot be separated from Diphenylamine

Verified 6-8-94

9713506F1635

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WI0

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4756-001

Sample wt/vol: 30.10 (g/mL) G Lab File ID: H8405

Level: (low/med) LOW Date Received: 03/23/94

% Moisture: 4 decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.2

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1. 0	UNKNOWN	7.22	95	~~BJ~~	UJN

Verified
~~RC~~ 6-8-94

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

9713506.1637

INTERNATIONAL TECHNOLOGY CORPORATION

MAY 1994 RECEIVED SDLA

CERTIFICATE OF ANALYSIS

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

RECORD COPY

April 27, 1994

Attention: J.A.Lerch

Project number	:	519.04
Date Received by Lab	:	March 11, 15, 21 and 23 1994
Number of Samples	:	Eleven (11)
Sample Type	:	Soil and Water
SDG Number	:	W0005

I. Introduction

On March 11, 15, 21 and 23, 1994, a total of one (1) water and ten (10) soil samples were received by ITAS-Richland and transferred to ITAS-St. Louis for chemical analysis. Upon receipt, the samples were given the following laboratory ID numbers to correspond with their specific client ID's:

St. Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
4679-001	B09WG5	W40323401	Soil	03/11/94
4698-001	B09WI8	40326401	Soil	03/15/94
4698-002	B09WG4	40326402	Soil	03/15/94
4698-003	B09WJ1	40326403	Soil	03/15/94
4698-004	Trip Blank	40326404	Water	03/15/94
4743-001	B09WH2	40338501	Soil	03/21/94
4743-002	B09WH3	40338502	Soil	03/21/94
4743-003	B09WH4	40338503	Soil	03/21/94
4743-004	B09WH6	40338504	Soil	03/21/94
4756-001	B09WI0	40343201	Soil	03/23/94
4756-002	B09WI1	40343202	Soil	03/23/94

Regional Office
2800 George Washington Way • Richland, Washington 99352-1613 • 509-375-3131 • FAX 509-375-5590

IT Corporation is a wholly owned subsidiary of International Technology Corporation

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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: VOA, BNA and Metals including Cyanide using CLP/90 protocol. Chloride, Sulfate and Fluoride by EPA method 300.0. Nitrate by EPA method 353.1. Total Petroleum Hydrocarbons (Kerosene) by method 8015.

III. Quality Control

A Laboratory Control Sample and Method Blank are routinely analyzed with each preparation batch. Matrix Spike and Matrix Spike Duplicate or Duplicate analyses were performed for all analytes in this SDG.

IV. Comments

A sample (4679-001) was received on 3/11/94 that was labelled B09WG5 on the sample container and appeared on the Chain of Custody as B09WG4. It was determined that the Chain of Custody was correct at that time. On 3/15/94 a sample (4698-002) was received that was labelled B09WG4 and also appeared on the Chain of Custody as B09WG4. It was determined that the first sample received was B09WG5 as labelled on the sample container and that the Chain of Custody was incorrect. The appropriate corrections were made and it was decided that from now on the client ID on the sample container label will be considered correct.

IT-St. Louis PQL's were used for the kerosene analysis.

The Relative Percent Difference (RPD) for Cyanide sample B09WG5 (4679-001) was calculated using values below the contract detection limit but above the instrument detection limit.

The laboratory was unable to calculate a Relative Percent Difference (RPD) for Fluoride sample B09WG5 (4679-001) due to sample values below the detection limit.

The Matrix Spike recovery for Fluoride sample B09WG5 (4679-001) was low due to matrix interference.

The Matrix Spike recovery for Antimony, Chromium, Manganese, Titanium and Selenium were outside the 75% - 125% control limits.

Matrix Spike recovery for sample B09WG5 (4679-001) for Mercury was < 75%. The sample concentration for this sample was four times greater than the spike concentration, therefore, this sample was not flagged.

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:\annealers\hanw0005.nar

Westinghouse Hanford Company

9713506.1640

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.V. SETZER

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-8-94

Ice Chest No.:

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 RADIOACTIVE

Sample Identification

1) 403235 01 TH 3/11/94

A 1,250ml P:CLP;TAL Metals,Hg,Ti ~~B09WG4~~ B09WG5 * 6-6-94

B 1,250ml Gs:VOA CLP

C 1,250ml aG:Semi-VOA CLP

D 1,125ml G:Anions F,Cl;SO4 (EPA 300.0)

E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)

~~1,250ml aGs:PCB/Pest (8080)~~ 3-9-94

F 1,125ml G:Cyanide CLP

G 1,125ml Gw:Kerosene (8015M)

1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40323501

* See laboratory narrative for explanation of Sample I.D. discrepancy.

2)

~~1,250ml P:CLP;TAL Metals,Hg,Ti B09WG5 3-11-94 WVS~~

~~1,250ml Gs:VOA CLP~~

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~ 3-9-94 WVS 3-11-94

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: W.V. Setzer	Received by: 800 cpm ITAS	Date/Time: 3/11/94 1055
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

SDG W0005

9713506.1641

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.W. SETZER

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-10-94

Ice Chest No.: WHC 169

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.: ~~NA~~ WWS 3-14-94 NA

Method of Shipment: Government vehicle

Shipped to: IT, Richland .

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 RADIOACTIVE

Sample Identification

1)

B09WI8

CAT II

400 cpm

40326401

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353:2)
F 1,250ml aGs:PCB/Pest (8080)
G 1,125ml G:Cyanide CLP
H 1,125ml GW:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40326501

2)

B09WG4

200 cpm

40326402

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ GR 3-14-94
F 1,125ml G:Cyanide CLP
G 1,125ml GW:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40326502

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: W.W. Setzer	Received by: R. Boyd IT	Date/Time: 3/14/94 1430
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713506.1642

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.U. SETZER

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-10-94

Ice Chest No.:

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1)

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~ B09WJ1

40326403 1,250ml Gs:VOA CLP

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

SR 3-14-94

2)

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~

1,250ml Gs:VOA CLP

1,250ml aG:Semi-VOA CLP

1,125ml G:Anions F,Cl,SO4 (EPA 300.0)

1,125ml P/G:Anions NO2,NO3 (EPA 353.2)

1,250ml aGs:PCB/Pest (8080)

1,125ml G:Cyanide CLP

1,125ml Gw:Kerosene (8015M)

1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Name)

Relinquished by	Received by	Date/Time
W.U. Setzer	R. Boyd JT <100	3/14/94 1430
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713506.1643

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-17-94

Ice Chest No.: SML-127 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) B09WH2

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ ER 3-17-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

2) B09WH3

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ ER 3-17-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: 3-21-94 0930	Received by:	Date/Time: 3/21 1120
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

~~8200000~~

041

9713506.1644

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-17-94

Ice Chest No.: SML-127 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) B9WH4

1,250ml P:CLP;TAL Metals,Hg,Ti
1,250ml Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ SOR 3-17-94
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

2)

1,250ml P:CLP;TAL Metals,Hg,Ti
1,250ml Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,250ml aGs:PCB/Pest (8080) SOR 3-17-94
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
3-21-94 Karen E. Rogers 0930	J Hindelang Jr	3/21 1120
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

~~620000~~ 042

9713506.1645

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-21-94

Ice Chest No.: SML-127 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1)

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~ 309W46

A 1,250ml Gs:VOA CLP

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~ KER

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~ 3-21-94

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

2)

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~

1,250ml ~~Gs:VOA CLP~~

1,250ml aG:Semi-~~VOA CLP~~

1,125ml G:Anions F,Cl,SO4 ~~(EPA 300.0)~~

1,125ml P/G:Anions NO2,NO3 (EPA 353.2)

1,250ml aGs:PCB/Pest (8080) KER

1,125ml G:Cyanide CLP 3-21-94

1,125ml Gw:Kerosene (8015M)

1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), ~~Gamma~~ Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: 3-21-94 0930	Received by:	Date/Time: 3-21 1120
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

0 ~~0000~~ 3

9713506.1646

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS/W. SETZER

Company Contact: L E ROGERS — Telephone: 376-7690 ~~B WVS~~ 3.22.94

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-22-94

Ice Chest No.: WHC-19 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: NA — Offsite Property No.: WA4-0-

Method of Shipment: Government vehicle — SIX-WC011

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065

Sample Identification

1) WVS 3.21.94

BQWI0 — 40343201

A 1,250ml aGs ~~P~~:CLP;TAL Metals,Hg,Ti
B 1,250ml aGs ~~Gs~~:VOA CLP
C 1,250ml aGs ~~aG~~:Semi-VOA CLP
D 1,125ml aGs ~~G~~:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml aGs ~~P/G~~:Anions NO2,NO3 (EPA 353.2)
1,~~250ml aGs:PCB/Pest (8080)~~ WVS 3.21.94
F 1,125ml aGs ~~G~~:Cyanide CLP
G 1,125ml aGs ~~Gw~~:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40343301

40343202 A

2) BQWI1 (TRIP) 1,250ML, aGs : CLP:VOA

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml Gs:VOA CLP~~
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,250ml aGs:PCB/Pest (8080)~~
~~1,125ml G:Cyanide CLP~~ WVS 3.22.94
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: 3-23-94 0920 W.V. SETZER	Received by: ITAS Karen Achtenberg 200	Date/Time: 3-23-94 11:00
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

~~0000036~~

044

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

9713506.1648

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 200-UP-2			DATA PACKAGE: W0005-ITC-020		
VALIDATOR: T. Stapp		LAB: ITC St. Louis		DATE: 6-7-94	
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 B09WG5, B09WI8, B09WG4, B09WH2, B09WH3, B09WH4, B09WI0 / SOIL

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? Note ① . . . (Yes) No N/A

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

Comments: ① Performed by WHC.

2. HOLDING TIMES

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

Comments: See Holding Time Summary page B-1.

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? . Note ① . . . . . Yes No N/A

Are continuing calibrations acceptable? . . Note ② . . . . . Yes No N/A

Comments: ① RRF for Benzo(K)Fluoranthene is below min. requirement and qualifies associated samples (J/UJ). See attached summary

② %Difference of RRF for N-Nitroso-di-n-propylamine assoc. with 4-18-94 CCAL, and pentachlorophenol, pyrene assoc. with the 3-29-94 CCAL exceeded 25% maximum qualifying results (J/UJ). See attached summary pages for associated samples.

RE 7-15-94

4. BLANKS

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

Are laboratory blank results acceptable? . . Note ① . . . . . Yes No N/A

Were field/trip blanks analyzed? . . . . . Note ② . . . . Yes No N/A

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

Comments: ① TIC contamination was detected in SBLK02 @ 7.19 min. and has qualified associated sample TIC as UJN. See attached blank summary.

② Field QC was not identified in the fraction of samples analyzed for semi-volatiles but ID has been requested. Field blanks will be evaluated in the final data summary.

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? Note ① . . . . . Yes No N/A

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

Comments: ① Field QC was not identified with this sample set, but it has been requested. Field Duplicates will be evaluated in the final data summary.

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:

WC005-ITC-020

HOLDING TIME SUMMARY - FORM B-1

SDG:	REVIEWER: T. Stapp	DATE: 6-7-94	PAGE 1 OF 1
COMMENTS:	SEMIVOLATILE ANALYSIS		

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09WG5		3-8-94	3-21-94	3-29-94	13	≤40	NONE
B09WI8		3-10-94	↓	↓	11	↓	↓
B09WG4		3-10-94	↓	↓	11	↓	↓
B09WH2		3-17-94	3-28-94	4-18-94	11	↓	↓
B09WH3		3-17-94	↓	↓	11	↓	↓
B09WH4		3-17-94	↓	↓	11	↓	↓
B09WIØ		3-22-94	↓	↓	6	↓	↓

WHC-SD-EN-SPP-002, ~~Rev. 1~~ → Rev. 2 6-4-94

9413506.1671

SDG W0005-ITC-020
9713506.1652

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: * SDG No.: W0005

Instrument ID: MSH Calibration Date(s): 04/12/94 04/12/94

Calibration Times: 1331 1627

LAB FILE ID: RRF20 = H8340 RRF50 = H8341
RRF80 = H8342 RRF120= H8343 RRF160= H8344

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Diethylphthalate	1.554	1.596	1.674	1.549	1.462	1.567	4.9
4-Chlorophenyl-phenylether *	0.704	0.688	0.678	0.666	0.610	0.669	5.4*
Fluorene *	1.387	1.370	1.367	1.314	1.227	1.333	4.9*
4-Nitroaniline		0.366	0.295	0.260	0.231	0.288	20.2
4,6-Dinitro-2-Methylphenol		0.181	0.190	0.186	0.176	0.183	3.3
N-Nitrosodiphenylamine (1)	0.439	0.443	0.412	0.377	0.357	0.406	9.3
4-Bromophenyl-phenylether *	0.234	0.241	0.248	0.237	0.224	0.237	3.7*
Hexachlorobenzene *	0.292	0.295	0.292	0.280	0.262	0.284	4.8*
Pentachlorophenol *		0.189	0.196	0.199	0.183	0.192	3.7*
Phenanthrene *	1.143	1.157	1.195	1.152	1.060	1.141	4.4*
Anthracene *	1.154	1.157	1.152	1.071	1.023	1.111	5.5*
Carbazole	1.089	0.900	0.778	0.610	0.607	0.797	25.7
Di-n-Butylphthalate	1.694	1.711	1.788	1.732	1.658	1.717	2.8
Fluoranthene *	1.279	1.316	1.335	1.273	1.246	1.290	2.8*
Pyrene *	1.443	1.470	1.523	1.510	1.452	1.480	2.4*
Butylbenzylphthalate	0.811	0.871	0.950	0.978	0.960	0.914	7.7
3,3'-Dichlorobenzidine	0.364	0.322	0.277	0.279	0.311	0.311	11.5
Benzo(a)Anthracene *	1.178	1.225	1.256	1.283	1.236	1.236	3.2*
Chrysene *	1.175	1.203	1.209	1.174	1.112	1.175	3.3*
bis(2-Ethylhexyl)Phthalate	1.129	1.204	1.241	1.234	1.171	1.196	3.9
Di-n-Octyl Phthalate	1.906	2.065	2.143	2.129	2.001	2.049	4.8
Benzo(b)Fluoranthene *	1.112	1.166	1.244	1.371	1.415	1.262	10.3*
Benzo(k)Fluoranthene *	1.164	1.140	1.058	0.910	0.634	0.981	22.2*
Benzo(a)Pyrene *	1.043	1.092	1.108	1.060	1.006	1.062	3.8*
Indeno(1,2,3-cd)Pyrene *	1.020	1.132	1.246	1.367	1.245	1.202	10.9*
Dibenz(a,h)Anthracene *	0.975	1.038	1.058	1.033	0.926	1.006	5.4*
Benzo(g,h,i)Perylene *	0.996	1.092	1.134	1.131	1.041	1.079	5.5*
Nitrobenzene-d5 *	0.385	0.401	0.425	0.418	0.407	0.407	3.8*
2-Fluorobiphenyl *	1.427	1.396	1.453	1.424	1.366	1.413	2.4*
Terphenyl-d14 *	0.968	0.985	1.019	1.010	0.958	0.988	2.7*
Phenol-d5 *	1.511	1.571	1.658	1.724	1.666	1.626	5.2*
2-Fluorophenol *	1.318	1.350	1.415	1.450	1.402	1.387	3.8*
2,4,6-Tribromophenol	0.258	0.251	0.249	0.242	0.221	0.244	5.8
2-Chlorophenol-d4 *	1.315	1.362	1.405	1.413	1.334	1.366	3.1*
1,2-Dichlorobenzene-d4 *	0.917	0.962	0.951	0.934	0.849	0.923	4.8*

(1) Cannot be separated from Diphenylamine
* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

6-7-94

FORM VI SV-2 3/90

* - This initial calibration is associated with Samples B09WH2, -WH3, -WH4, and B09WI049

000638

SDG: WCCC5-ITC-020

9713506.1653

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: * SDG No.: W0005

Instrument ID: MSH Calibration date: 04/18/94 Time: 0932

Lab File ID: H8396 Init. Calib. Date(s): 04/12/94 04/12/94

Init. Calib. Times: 1331 1627

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Phenol	1.944	1.900	0.800	2.3	25.0
bis(2-Chloroethyl)Ether	1.592	1.661	0.700	-4.3	25.0
2-Chlorophenol	1.391	1.363	0.800	2.0	25.0
1,3-Dichlorobenzene	1.533	1.506	0.600	1.8	25.0
1,4-Dichlorobenzene	1.507	1.506	0.500	0.1	25.0
1,2-Dichlorobenzene	1.408	1.409	0.400	-0.1	25.0
2-Methylphenol	1.085	1.143	0.700	-5.3	25.0
2,2'-oxybis(1-Chloropropane)	0.364	0.449		-23.4	
4-Methylphenol	1.153	1.199	0.600	-4.0	25.0
N-Nitroso-Di-n-Propylamine	0.778	1.011	0.500	-30.0	25.0
Hexachloroethane	0.599	0.648	0.300	-8.2	25.0
Nitrobenzene	0.415	0.455	0.200	-9.6	25.0
Isophorone	0.834	0.894	0.400	-7.2	25.0
2-Nitrophenol	0.278	0.273	0.100	1.8	25.0
2,4-Dimethylphenol	0.316	0.325	0.200	-2.8	25.0
bis(2-Chloroethoxy)Methane	0.518	0.557	0.300	-7.5	25.0
2,4-Dichlorophenol	0.329	0.339	0.200	-3.0	25.0
1,2,4-Trichlorobenzene	0.366	0.390	0.200	-6.6	25.0
Naphthalene	1.050	1.052	0.700	-0.2	25.0
4-Chloroaniline	0.422	0.351		16.8	
Hexachlorobutadiene	0.183	0.206		-12.6	
4-Chloro-3-Methylphenol	0.316	0.325	0.200	-2.8	25.0
2-Methylnaphthalene	0.672	0.677	0.400	-0.7	25.0
Hexachlorocyclopentadiene	0.430	0.527		-22.6	
2,4,6-Trichlorophenol	0.449	0.461	0.200	-2.7	25.0
2,4,5-Trichlorophenol	0.526	0.578	0.200	-9.9	25.0
2-Chloronaphthalene	1.624	1.617	0.800	0.4	25.0
2-Nitroaniline	0.460	0.498		-8.3	
Dimethyl Phthalate	1.701	1.699		0.1	
Acenaphthylene	2.013	2.024	1.300	-0.5	25.0
2,6-Dinitrotoluene	0.411	0.423	0.200	-2.9	25.0
3-Nitroaniline	0.371	0.273		26.4	
Acenaphthene	1.249	1.249	0.800	0.0	25.0
2,4-Dinitrophenol	0.259	0.254		1.9	
4-Nitrophenol	0.226	0.223		1.3	
Dibenzofuran	1.771	1.881	0.800	-6.2	25.0
2,4-Dinitrotoluene	0.507	0.545	0.200	-7.5	25.0

(1) Cannot be separated from Diphenylamine
All other compounds must meet a minimum RRF of 0.010.

* - This continuing calibration is associated with samples BC9WH2, BC9WH3, BC9WH4, and BC9WI2. Qualification of J/UJ will be applied for the indicated analyte. 6-7-94

FORM VII SV-1 3/90

050

0000675

9713506.1654 7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: * SDG No.: W0005

Instrument ID: MSA Calibration date: 03/29/94 Time: 0834

Lab File ID: A4362 Init. Calib. Date(s): 03/23/94 03/23/94

Init. Calib. Times: 1511 1804

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Diethylphthalate	1.402	1.224		12.7	
4-Chlorophenyl-phenylether	0.605	0.525	0.400	13.2	25.0
Fluorene	1.181	1.119	0.900	5.2	25.0
4-Nitroaniline	0.446	0.368		17.5	
4,6-Dinitro-2-Methylphenol	0.178	0.155		12.9	
N-Nitrosodiphenylamine (1)	0.432	0.380		12.0	25.0
4-Bromophenyl-phenylether	0.214	0.188	0.100	12.2	25.0
Hexachlorobenzene	0.266	0.236	0.100	11.3	25.0
Pentachlorophenol	0.172	0.121	0.050	29.6	25.0
Phenanthrene	0.993	0.952	0.700	4.1	25.0
Anthracene	1.002	0.936	0.700	6.6	25.0
Carbazole	1.018	0.889		12.7	
Di-n-Butylphthalate	1.398	1.276		8.7	
Fluoranthene	0.972	0.942	0.600	3.1	25.0
Pyrene	1.655	1.180	0.600	28.7	25.0
Butylbenzylphthalate	0.924	0.658		28.8	
3,3'-Dichlorobenzidine	0.472	0.298		36.9	
Benzo(a)Anthracene	1.302	1.025	0.800	21.3	25.0
Chrysene	1.203	0.943	0.700	21.6	25.0
bis(2-Ethylhexyl)Phthalate	1.255	0.922		26.5	
Di-n-Octyl Phthalate	1.917	1.767		7.8	
Benzo(b)Fluoranthene	1.191	1.014	0.700	14.9	25.0
Benzo(k)Fluoranthene	0.998	0.955	0.700	4.3	25.0
Benzo(a)Pyrene	1.002	0.935	0.700	6.7	25.0
Indeno(1,2,3-cd)Pyrene	0.982	0.868	0.500	11.6	25.0
Dibenz(a,h)Anthracene	0.836	0.846	0.400	-1.2	25.0
Benzo(g,h,i)Perylene	0.920	0.834	0.500	9.3	25.0
Nitrobenzene-d5	0.484	0.384	0.200	20.7	25.0
2-Fluorobiphenyl	1.304	1.145	0.700	12.2	25.0
Terphenyl-d14	1.107	0.794	0.500	28.3	25.0
Phenol-d5	1.603	1.611	0.800	-0.5	25.0
2-Fluorophenol	1.265	1.146	0.600	9.4	25.0
2,4,6-Tribromophenol	0.229	0.185		19.2	
2-Chlorophenol-d4	1.216	1.261	0.800	-3.7	25.0
1,2-Dichlorobenzene-d4	0.842	0.846	0.400	-0.5	25.0

No qualifier applied RS 6-7-94

(1) Cannot be separated from Diphenylamine
All other compounds must meet a minimum RRF of 0.010.

* - This continuing calibration is associated with samples BC9WC5, BC9WI8, BC9WG4. Qualification of J/UJ will be applied ~~to~~ for the indicated analyte. RS 6-7-94

FORM VII SV-2 3/90

000069

051

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BLANK AND SAMPLE DATA SUMMARY - FORM B-3

W0C05-ITC-020

SDG:	REVIEWER: T. Stapp	DATE: 6-8-94	PAGE 1 OF 1

COMMENTS:

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
SBLKC2	7.19 min. TIC	68			ug/kg	340		B09WH2	UJN
								B09WH3	UJN
								B09WH4	UJN
								B09WIØ	UJN

SDG: W0005-1FC-02C

9713506 1F 1656

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLK02

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: S67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: QCBLK34533

Sample wt/vol: 30.00 (g/mL) G Lab File ID: H8400

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) N Date Extracted: 03/28/94

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 04/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 0	UNKNOWN *	7.19	68	J

* This TIC is associated with samples B09WH2, B09WH3, B09WH4, and B09WI0 and qualifies similar TIC's found as (UJN) presumptive, valid and undetected. FS 6-8-94

FORM I SV-TIC 3/90

~~70~~ 053

9713506.1657

MEMORANDUM

JUN 1994 RECEIVED TQO

TO: 200 UP-2 Project QA Record

June 15, 1994

FR: Thomas Stapp, Golder Associates Inc.

RE: INORGANIC DATA VALIDATION SUMMARY FOR DATA PACKAGE W0005-ITC-020 (923-E418 726MET.UP2)

INTRODUCTION

This memo presents the results of data validation on data package W0005-ITC-020 prepared by International Technology (ITC) laboratory, St. Louis. 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
B09WG5	3/08/94	SOIL	SEE NOTE 1
B09WI8	3/10/94	SOIL	
B09WG4	3/10/94	SOIL	
B09WH2	3/17/94	SOIL	
B09WH3	3/17/94	SOIL	
B09WH4	3/17/94	SOIL	
B09WI0	3/22/94	SOIL	

RECEIVED JUN 17 1994 VALIDATION DOCUMENTATION SDLA

Notes:

1. Indicates the samples were analyzed for CLP TAL metals, titanium, and cyanide.

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). 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

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

Precision. Goals for precision were met with the exception of relative percent differences (RPD) as indicated below.

Accuracy. Goals for accuracy were met with the exception of the matrix spike and analytical spike recoveries as indicated below.

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

Detection Limits. Detection limit goals were met for all sample results.

Completeness. The data package was complete for all requested analyses. A total of seven (7) samples were validated in this data package with a total of 175 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets the work plan completeness objective 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

- Beryllium, cadmium, cobalt, and cyanide were detected in the calibration blanks. Attachments 2 and 5 provide a summary of the samples affected, data qualification applied and supporting documentation.

- Thallium was detected at a negative concentration in the calibration blanks. Attachments 2 and 5 provide a summary of the samples affected, data qualification applied and supporting documentation.

Matrix Spike Recoveries

- Matrix spike recoveries for antimony, selenium, chromium, manganese, and titanium were unacceptable. Attachments 2 and 5 provide a summary of the samples affected, data qualification applied, and supporting documentation.

- Analytical spikes for selenium were unacceptable requiring qualification of all selenium results as estimated (J/UJ).

Duplicates

- Relative percent difference of duplicate results for chromium, iron, magnesium, vanadium, and zinc were unacceptable. Attachments 2 and 5 provide a summary of the samples affected, data qualification applied and supporting documentation.

REFERENCES

WHC, 1993a, Validation of 200 UP-2 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

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

9713506.1660

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 519.04____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: W0005_____

Preparation Blank Matrix (soil/water): SOIL_

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

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	* Prepa-ration Blank	C	M
Aluminum	29.5	U	29.5	U	29.5	U	29.5	U	5.900	U	P
Antimony	30.5	U	30.5	U	30.5	U	30.5	U	6.100	U	P
Arsenic	0.8	U	0.8	U	0.8	U	0.8	U	0.160	U	F
Barium	4.2	U	4.2	U	4.2	U	4.2	U	0.840	U	P
Beryllium	0.7	U	1.5	B	2.2	B	2.0	B	0.140	U	P
Cadmium	1.3	U	1.3	B	1.9	B	2.5	B	0.260	U	P
Calcium	31.1	U	31.1	U	31.1	U	105.1	B	8.422	B	P
Chromium	4.3	U	4.3	U	4.3	U	4.3	U	0.860	U	P
Cobalt	3.7	U	3.7	U	5.0	B	4.2	B	0.740	U	P
Copper	3.6	U	3.6	U	3.6	U	3.6	U	0.720	U	P
Iron	6.2	U	20.0	B	21.1	B	25.9	B	4.694	B	P
Lead	0.9	U	0.9	U	0.9	U	0.9	U	0.180	U	F
Magnesium	42.0	U	42.0	U	42.0	U	42.0	U	8.400	U	P
Manganese	1.0	U	2.2	B	3.1	B	2.7	B	0.292	B	P
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.050	U	CV
Nickel	5.0	U	5.0	U	5.0	U	5.0	U	1.000	U	P
Potassium	370.6	U	370.6	U	370.6	U	370.6	U	74.120	U	P
Selenium	1.4	U	1.4	U	1.4	U	1.4	U	0.280	U	F
Silver	2.7	U	2.7	U	2.7	U	2.7	U	0.540	U	P
Sodium	55.4	U	55.4	U	55.4	U	55.4	U	11.394	B	P
Thallium	-0.6	B	0.5	U	0.5	U	-0.5	B	0.100	U	F
Vanadium	6.2	B	11.1	B	4.0	U	4.0	U	~~1.240~~	~~B~~	P
Zinc	13.3	U	13.3	U	13.3	U	13.3	U	2.660	U	P
Cyanide	2.6	B	2.6	B	2.4	B			0.097	B	AS
Titanium	2.2	U	2.2	U	4.4	B	3.8	B	1.076	B	P

Cyanide in ICAL qualifies B09WG5 as non-detect (U).

Thallium negative ICAL result qualifies sample non-detects as "UJ" and ~~ø~~ sample detects as "J".

6-13-94

FORM III - IN ILM03.0

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U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 519.04____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: W0005_____

Preparation Blank Matrix (soil/water): SOIL_

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

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1 *	C	2 *	C	3 *	C	Prepa-ration Blank	C	M
Aluminum			59.9	B	29.5	U	29.5	U			P
Antimony			30.5	U	30.5	U	30.5	U			P
Arsenic			0.8	U	0.8	U	0.8	U			F
Barium			4.2	U	4.2	U	4.2	U			P
Beryllium			2.6	B	~~2.0~~	~~B~~	1.4	B			P
Cadmium			2.2	B	~~1.8~~	~~B~~	1.3	U			P
Calcium			97.9	B	31.1	U	48.6	B			P
Chromium			4.3	U	4.3	U	4.3	U			P
Cobalt			5.6	B	4.6	B	3.7	U			P
Copper			3.6	U	3.6	U	3.6	U			P
Iron			49.4	B	~~23.8~~	~~B~~	23.5	B			P
Lead			0.9	U							F
Magnesium			79.0	B	42.0	U	42.0	U			P
Manganese			4.0	B	~~2.7~~	~~B~~	2.4	B			P
Mercury			0.1	U							CV
Nickel			5.0	U	5.0	U	5.0	U			P
Potassium			370.6	U	370.6	U	370.6	U			P
Selenium			1.4	U							F
Silver			2.7	U	2.7	U	2.7	U			P
Sodium			57.0	B	55.4	U	55.4	U			P
Thallium			0.5	U							F
Vanadium			5.0	B	7.4	B	4.0	U			P
Zinc			13.3	U	13.3	U	13.3	U			P
Cyanide	2.4	B	2.0	B	0.5	U			0.106	B	AS
Titanium			6.2	B	~~6.0~~	~~B~~	6.0	B			P

* - Associated with ICP analyses for all samples in this SDG.

FORM III - IN

ILM03.0

CCB1	CCB2	CCB3
B09WG5	B09WH2	
B09WI8	B09WH3	
B09WG4	B09WH4	
	B09WI0	

Cyanide ICAL result qualifies B09WI8 and B09WG4 as nondetect.

W0005-ITC-020

PRECISION DATA SUMMARY - FORM B-5

SDG:	REVIEWER T. Stapp	DATE: 6-11-94	PAGE 1 OF 1

COMMENTS:

COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
Chromium	B09WG5	B09WG5 DUP.	35	All	J
Iron			39.6	All	J
Magnesium			36.	B09WH2, B09WH3 B09WH4, B09WIC	J
Vanadium			42.5	B09WH4	J
Zinc			44.7	All	J

WHC-SD-EN-SPP-002, Rev. 1 — Rev. 2 6-11-94

9713506.1663

WCC05-ITC-020

ACCURACY DATA SUMMARY - FORM B-4

SDG:	REVIEWER: T. Stapp	DATE: 6-11-94	PAGE 1 OF 1	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
MS B09WG5	Antimony	65.7	All	J/UJ
	Selenium	71.4	All	J/UJ
	Chromium	134.6	All	J
	Manganese	165.6	All	J
	Titanium	148.7	All	J
Analytical Spike	Selenium	62.7	B09WG5	J/UJ
		78.8	B09WI8	
		72.3	B09WG4	
		69.4	B09WH2	
		59.9	B09WH3	
		56.7	B09WH4	
		74.7	B09WI0	

WHC-SD-EN-SPP-002, ~~Rev. 1~~ Rev. 2

6-11-94

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MEMORANDUM

JUN 1994
RECEIVED
TQO

TO: 200-UP-2 Project QA Record

June 7, 1994

FR: Tom Stapp, Golder Associates Inc.

RE: VOLATILE ORGANICS DATA VALIDATION SUMMARY FOR DATA PACKAGE: W0005-ITC-020 (923-E418, Filename W0005V.UP2)

INTRODUCTION

This memo presents the results of data validation on data package W0005-ITC-020 prepared by the International Technology (ITC) laboratory, St.Louis. A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09WG5	03/08/94	SOIL	SEE NOTE 1
B09WI8	03/10/94	SOIL	
B09WG4	03/10/94	SOIL	
B09WJ1	03/10/94	SOIL	
B09WH2	03/17/94	SOIL	
B09WH3	03/17/94	SOIL	
B09WH4	03/17/94	SOIL	
B09WH6	03/21/94	SOIL	
B09WI0	03/22/94	SOIL	
B09WI1	03/22/94	SOIL	
TRIP BLANK	03/15/94	WATER	

Note 1. All samples were analyzed for CLP TCL volatile organics.

RECEIVED
JUN 17 1994
VALIDATION DOCUMENTATION
SDLA

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

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

DATA QUALITY OBJECTIVES

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

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

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

Detection Limits. Detection limit goals were met for all sample results as specified in the reference analytical method.

Completeness. The data package was complete for all requested analyses. A total of eleven samples were validated in this data package with a total of 363 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent, which meets normal work plan objectives of 90%.

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 as estimated.

Laboratory Blanks

- Acetone was detected in the associated laboratory blanks. Attachments 2 and 5 provide a summary of the samples affected, data qualifications applied and supporting documentation.

Field Blanks

- Chloroform was detected in the sample identified as "Trip Blank". No qualification applied to field samples in accordance with validation procedures.

TENTATIVELY IDENTIFIED COMPOUND EVALUATION

Tentatively identified compounds (TICs) reported by the laboratory were evaluated during validation and qualified as follows:

- TICs were detected in the sample(s) and determined to be valid, resulting in qualification of the results as presumptive and valid (JN).

REFERENCES

WHC 1993a, Validation of 200-UP-2 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

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

9713506.1667

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.

9713506.1669

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY

SDG: W0005-1TC-020	VALIDATOR:	DATE: June 7, 1994	PAGE 1 OF 1
COMMENTS: VOLATILE ORGANICS			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
ACETONE	U	B09WI8 B09WG4 B09WJ1	CONTAMINANT DETECTED IN BLANK

9713506.1671

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0005-ITC-020

	Samp#	B09WI0		B09WI1		B09WI8		B09WJ1		TRIP BLANK	
	Date	3-22-94		3-22-94		3-10-94		3-10-94		3-15-94	
	Location	---		---		---		---		---	
	Depth	---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		WATER	
	Comments	---		---		---		---		(in ug/l)	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
CHLOROMETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
BROMOMETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
VINYL CHLORIDE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
CHLOROETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
METHYLENE CHLORIDE	UG/KG	10.000	U	10.000	U	12.000	U	1.000	J	10.000	U
ACETONE	UG/KG	10.000	U	10.000	U	25.000	U	12.000	U	10.000	U
CARBON DISULFIDE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
1,1-DICHLOROETHENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
1,1-DICHLOROETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
1,2-DICHLOROETHENE (TOTAL)	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
CHLOROFORM	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	3.000	J
1,2-DICHLOROETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
2-BUTANONE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
1,1,1-TRICHLOROETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
CARBON TETRACHLORIDE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
VINYL ACETATE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
BROMODICHLOROMETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
1,2-DICHLOROPROPANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
CIS-1,3-DICHLOROPROPENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
TRICHLOROETHENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
DIBROMOCHLOROMETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
1,1,2-TRICHLOROETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
BENZENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
TRANS-1,3-DICHLOROPROPENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
BROMOFORM	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
4-METHYL-2-PENTANONE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
2-HEXANONE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
TETRACHLOROETHENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
1,1,2,2-TETRACHLOROETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
TOLUENE	UG/KG	10.000	U	10.000	U	2.000	J	10.000	U	10.000	U
CHLOROBENZENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
ETHYLBENZENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
STYRENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U
XYLENES (TOTAL)	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	10.000	U

Verified RC 6-13-94

9713506.1672

Validated Data Summary, Data Package: W0005-ITC-020

	Samp#	B09WG4		B09WG5		B09WH2		B09WH3		B09WH4		B09WH6	
	Date	3-10-94		3-8-94		3-17-94		3-17-94		3-17-94		3-21-94	
	Location	---		---		---		---		---		---	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments	---		---		---		---		---		---	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
CHLOROMETHANE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
BROMOMETHANE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
VINYL CHLORIDE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
CHLOROETHANE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
METHYLENE CHLORIDE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
ACETONE	UG/KG	15.000	U	11.000	U	11.000	U	11.000	U	11.000	U	26.000	
CARBON DISULFIDE	UG/KG	10.000	U	4.000	J	11.000	U	11.000	U	11.000	U	10.000	U
1,1-DICHLOROETHENE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
1,1-DICHLOROETHANE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
1,2-DICHLOROETHENE (TOTAL)	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
CHLOROFORM	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
1,2-DICHLOROETHANE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
2-BUTANONE	UG/KG	3.000	J	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
1,1,1-TRICHLOROETHANE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
CARBON TETRACHLORIDE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
VINYL ACETATE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
BROMODICHLOROMETHANE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
1,2-DICHLOROPROPANE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
CIS-1,3-DICHLOROPROPENE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
TRICHLOROETHENE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
DIBROMOCHLOROMETHANE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
1,1,2-TRICHLOROETHANE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
BENZENE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
TRANS-1,3-DICHLOROPROPENE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
BROMOFORM	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
4-METHYL-2-PENTANONE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
2-HEXANONE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
TETRACHLOROETHENE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
1,1,2,2-TETRACHLOROETHANE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
TOLUENE	UG/KG	10.000	U	11.000	U	3.000	J	5.000	J	3.000	J	2.000	J
CHLOROBENZENE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
ETHYLBENZENE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
STYRENE	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U
XYLENES (TOTAL)	UG/KG	10.000	U	11.000	U	11.000	U	11.000	U	11.000	U	10.000	U

Verified PS 6-13-94

9413506.1673

SDG: W0005-ITS-C2C

9213506 1674

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WG5

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4679-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: E8272

Level: (low/med) LOW Date Received: 03/11/94

% Moisture: not dec. 5 Date Analyzed: 03/17/94

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/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	4	J
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

Verified 6-6-94

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WG5

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4679-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: E8272

Level: (low/med) LOW Date Received: 03/11/94

% Moisture: not dec. 5 Date Analyzed: 03/17/94

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

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	G
1.	UNKNOWN	19.36	130	J	N
2.	UNKNOWN	22.13	120	J	N
3.	UNKNOWN	22.35	6	J	N
4.	UNKNOWN ALKANE	23.03	8	J	N
5.	UNKNOWN	24.84	15	J	N

Verified 6-6-94

9713506.1676

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BO9WI8

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: E8275

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: not dec. 14 Date Analyzed: 03/18/94

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/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	25	~~B~~ U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

FORM I VOA

Verified 6-6-94

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WI8

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: E8275

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: not dec. 14 Date Analyzed: 03/18/94

GC Column: DB-624 ID: 0.530 (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/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1.	UNKNOWN	19.36	130	J	JN
2.	UNKNOWN	22.14	85	J	JN

Verified 6-6-94

SDG W0005-ITC-C2C

9713506.1678

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WG4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-002

Sample wt/vol: 5.00 (g/mL) G Lab File ID: E8276

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: not dec. 3 Date Analyzed: 03/18/94

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/KG	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	15	~~B~~	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	3	J	
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	

FORM I VOA 3/90

Verified 6-6-94

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WG4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-002

Sample wt/vol: 5.00 (g/mL) G Lab File ID: E8276

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: not dec. 3 Date Analyzed: 03/18/94

GC Column: DB-624 ID: 0.530 (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/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	UNKNOWN	19.34	19	J	JN
2.	UNKNOWN	22.15	10	J	JN

Verified
6-6-94

SDG: W0005-17C-C2C

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WJ1

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-003

Sample wt/vol: 5.00 (g/mL) G Lab File ID: E8277

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: not dec. Date Analyzed: 03/18/94

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/KG	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	1	J	
67-64-1	Acetone	12	~~B~~	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	

Verified 6-6-94

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9713506.1631

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WJ1

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-003

Sample wt/vol: 5.00 (g/mL) G Lab File ID: E8277

Level: (low/med) LOW Date Received: 03/15/94

% Moisture: not dec. Date Analyzed: 03/18/94

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

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.40	15	J
2.	UNKNOWN	19.35	150	J
3.	UNKNOWN	21.11	9	J
4.	UNKNOWN	22.13	73	J
5.	UNKNOWN	22.35	7	J

Q
JN
JN
JN
JN
JN

Verified 6-6-94

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SDG: WCCCE-ITC-026
9713506.1632

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP_BLANK

ab Name: ITAS-ST.LOUIS Contract: 519-04

ab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

atrix: (soil/water) WATER Lab Sample ID: 4698-004

ample wt/vol: 5.00 (g/mL) ML Lab File ID: B8052

evel: (low/med) LOW Date Received: 03/16/94

Moisture: not dec. Date Analyzed: 03/21/94

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

oil 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

018

FORM I VOA 3/90

Verified 6-6-94

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TRIP_BLANK

ab Name: ITAS-ST.LOUIS Contract: 519-04

ab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

atrix: (soil/water) WATER Lab Sample ID: 4698-004

ample wt/vol: 5.00 (g/mL) ML Lab File ID: B8052

evel: (low/med) LOW Date Received: 03/16/94

Moisture: not dec. Date Analyzed: 03/21/94

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

oil 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

WJCC05-ITC-C20

9713506 1A634

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH2

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8133

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: not dec. 8 Date Analyzed: 03/28/94

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/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

020

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WH2

ab Name: ITAS-ST.LOUIS Contract: 519-04

ab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

atrix: (soil/water) SOIL Lab Sample ID: 4743-001

ample wt/vol: 5.00 (g/mL) G Lab File ID: B8133

evel: (low/med) LOW Date Received: 03/21/94

Moisture: not dec. 8 Date Analyzed: 03/28/94

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

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

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	G
1.	UNKNOWN	19.87	26	~~J~~	JN
2.	UNKNOWN	22.66	46	~~J~~	JN
3.	UNKNOWN	25.41	9	~~J~~	JN

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SDG: W0005-ITC-C2D
9713586.1636

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH3

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-002

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8134

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: not dec. 8 Date Analyzed: 03/28/94

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/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	5	J
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

022

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9713506.1637

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WH3

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-002

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8134

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: not dec. 8 Date Analyzed: 03/28/94

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

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	22.65	23	J

G
IN

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6-6-94

SDG WCC05-ITC-020
971550A.1638

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-003

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8139

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: not dec. 13 Date Analyzed: 03/28/94

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/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WH4

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-003

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8139

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: not dec. 13 Date Analyzed: 03/28/94

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

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	22.66	23	~~J~~

Q
JN

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6-6-94

~~lab~~

SDG: W0005 - ITS - 026

971350 1690

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WH6

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-004

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8136

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: not dec. Date Analyzed: 03/28/94

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/KG	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	26	
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	2	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

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97135TB 1692

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WH6

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4743-004

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8136

Level: (low/med) LOW Date Received: 03/21/94

% Moisture: not dec. Date Analyzed: 03/28/94

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/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	19.86	43	J
2.	UNKNOWN	22.65	80	J
3.	UNKNOWN	25.40	27	J

Q
JN
JN
JN

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SDG: WCC5-ITC-020
9713506.1693

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WI0

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4756-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8137

Level: (low/med) LOW Date Received: 03/23/94

% Moisture: not dec. 4 Date Analyzed: 03/28/94

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/KG	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

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WI0

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4756-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8137

Level: (low/med) LOW Date Received: 03/23/94

% Moisture: not dec. 4 Date Analyzed: 03/28/94

GC Column: DB-624 ID: 0.530 (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/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1.	UNKNOWN	19.87	49	~~J~~	JN
2.	UNKNOWN	22.65	34	~~J~~	JN

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6-6-94

SDG: W0005 - ITC-C26
9713506.1695

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WI1

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4756-002

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8138

Level: (low/med) LOW Date Received: 03/23/94

% Moisture: not dec. Date Analyzed: 03/28/94

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/KG	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

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WI1

Lab Name: ITAS-ST.LOUIS Contract: 519-04

Lab Code: ITSL Case No.: V67901 SAS No.: SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4756-002

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B8138

Level: (low/med) LOW Date Received: 03/23/94

% Moisture: not dec. Date Analyzed: 03/28/94

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/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	19.88	6	J
2.	UNKNOWN	22.65	50	J
3.	UNKNOWN	25.40	13	J

Q
JN
JN
JN

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9713506.1697

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

9713506.1698

INTERNATIONAL TECHNOLOGY CORPORATION

MAY 1994 RECEIVED SDLA

CERTIFICATE OF ANALYSIS

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

RECORD COPY

April 27, 1994

Attention: J.A.Lerch

Project number	:	519.04
Date Received by Lab	:	March 11, 15, 21 and 23 1994
Number of Samples	:	Eleven (11)
Sample Type	:	Soil and Water
SDG Number	:	W0005

I. Introduction

On March 11, 15, 21 and 23, 1994, a total of one (1) water and ten (10) soil samples were received by ITAS-Richland and transferred to ITAS-St. Louis for chemical analysis. Upon receipt, the samples were given the following laboratory ID numbers to correspond with their specific client ID's:

St. Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
4679-001	B09WG5	W40323401	Soil	03/11/94
4698-001	B09WI8	40326401	Soil	03/15/94
4698-002	B09WG4	40326402	Soil	03/15/94
4698-003	B09WJ1	40326403	Soil	03/15/94
4698-004	Trip Blank	40326404	Water	03/15/94
4743-001	B09WH2	40338501	Soil	03/21/94
4743-002	B09WH3	40338502	Soil	03/21/94
4743-003	B09WH4	40338503	Soil	03/21/94
4743-004	B09WH6	40338504	Soil	03/21/94
4756-001	B09WI0	40343201	Soil	03/23/94
4756-002	B09WI1	40343202	Soil	03/23/94

Regional Office
2800 George Washington Way • Richland, Washington 99352-1613 • 509-375-3131 • FAX: 509-375-5590

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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: VOA, BNA and Metals including Cyanide using CLP/90 protocol. Chloride, Sulfate and Fluoride by EPA method 300.0. Nitrate by EPA method 353.1. Total Petroleum Hydrocarbons (Kerosene) by method 8015.

III. Quality Control

A Laboratory Control Sample and Method Blank are routinely analyzed with each preparation batch. Matrix Spike and Matrix Spike Duplicate or Duplicate analyses were performed for all analytes in this SDG.

IV. Comments

A sample (4679-001) was received on 3/11/94 that was labelled B09WG5 on the sample container and appeared on the Chain of Custody as B09WG4. It was determined that the Chain of Custody was correct at that time. On 3/15/94 a sample (4698-002) was received that was labelled B09WG4 and also appeared on the Chain of Custody as B09WG4. It was determined that the first sample received was B09WG5 as labelled on the sample container and that the Chain of Custody was incorrect. The appropriate corrections were made and it was decided that from now on the client ID on the sample container label will be considered correct.

IT-St. Louis PQL's were used for the kerosene analysis.

The Relative Percent Difference (RPD) for Cyanide sample B09WG5 (4679-001) was calculated using values below the contract detection limit but above the instrument detection limit.

The laboratory was unable to calculate a Relative Percent Difference (RPD) for Fluoride sample B09WG5 (4679-001) due to sample values below the detection limit.

id

The Matrix Spike recovery for Fluoride sample B09WG5 (4679-001) was low due to matrix interference.

The Matrix Spike recovery for Antimony, Chromium, Manganese, Titanium and Selenium were outside the 75% - 125% control limits.

Matrix Spike recovery for sample B09WG5 (4679-001) for Mercury was < 75%. The sample concentration for this sample was four times greater than the spike concentration, therefore, this sample was not flagged.

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:\annealers\hanw0005.nar

9713506.1701

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.V. SETZER

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-8-94

Ice Chest No.:

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 RADIOACTIVE

Sample Identification

1)

40323501 TH 5/11/94

A 1,250ml P:CLP;TAL Metals,Hg,Ti ~~B09W64~~ B09W65 * 6-6-94

B 1,250ml Gs:VOA CLP

C 1,250ml aG:Semi-VOA CLP

D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)

E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)

~~1,250ml aGs:PCB/Pest (8080)~~ 3-9-94

F 1,125ml G:Cyanide CLP

G 1,125ml Gw:Kerosene (8015M)

1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40323501

* See laboratory narrative for explanation of Sample I.D. discrepancy.

2)

~~1,250ml P:CLP;TAL Metals,Hg,Ti B09W65 3-11-94 WVS~~

~~1,250ml Gs:VOA CLP~~

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~ 3-9-94 WVS 3-11-94

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W.V. Setzer	805cpm ITAS	3/11/94 1055
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

SDG W0005

9713506.1702

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.W. SETZER

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-10-94

Ice Chest No.: WHC 169

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.: ~~WWS~~ 3-14-94 NA

Method of Shipment: Government vehicle

Shipped to: IT, Richland.

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 RADIOACTIVE

Sample Identification

1) B09WI8

CAT II

400 cpm

403264 01

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
F 1,250ml aGs:PCB/Pest (8080)
G 1,125ml G:Cyanide CLP
H 1,125ml GW:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40326501

2) B09WG4

200 cpm

403264 02

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ CR 3-14-94
F 1,125ml G:Cyanide CLP
G 1,125ml GW:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40326502

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W.W. Setzer	R. Boyd	3/14/94 1430
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713506.1703

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.U. SETZER

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-10-94

Ice Chest No.:

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1)

B09WJ1

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~

40326403 1,250ml Gs:VOA CLP

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

SR 3-14-94

2)

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~

~~1,250ml Gs:VOA CLP~~

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Name)

Relinquished by:	Received by:	Date/Time:
W.U. Setzer	R. Boyd JT <100	3/14/94 1430
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

0000023

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713506.1704

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-17-94

Ice Chest No.: SML-127 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) B09WH2

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ ER 3-17-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

2) B09WH3

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ ER 3-17-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: 3-21-94 0930	Received by:	Date/Time: 3/21 1120
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

039

0000028

9713506.1705

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-17-94

Ice Chest No.: SML-127 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) BC4WH4

1,250ml P:CLP;TAL Metals,Hg,Ti
1,250ml Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ SER 3-17-94
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

2)

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml Gs:VOA CLP~~
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,250ml aGs:PCB/Pest (8080)~~ SER 3-17-94
~~1,125ml G:Cyanide CLP~~
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
3-21-94 0930	J Hindelang Jr	3/21 1120
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

000029

040

9713506.1706

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-21-94

Ice Chest No.: SML-127 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1)

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~ 309WH6

A 1,250ml Gs:VOA CLP

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

KER 3-21-94

2)

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~

1,250ml ~~Gs:VOA CLP~~

1,250ml ~~aG:Semi-VOA CLP~~

1,125ml G:Anions F,Cl,SO4 ~~(EPA 300.0)~~

1,125ml P/G:Anions NO2,NO3 (EPA 353.2)

1,250ml aGs:PCB/Pest (8080)

1,125ml G:Cyanide CLP

1,125ml Gw:Kerosene (8015M)

1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

KER 3-21-94

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
3-21-94 0930 Loren E. Rogers	Michael Chiles	3-21 1130
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

0000032

041

9713506.1707

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS/W. SETZER

Company Contact: L E ROGERS — Telephone: 376-7690 ~~WVS~~ 3-22-94

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-21-94

Ice Chest No.: WHC-19 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: NA — Offsite Property No.: WP4-0-

Method of Shipment: Government vehicle — SDG-W0011

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065

Sample Identification

1) ~~WVS 3-21-94~~ BQ4WI0

40343201

A 1,250ml ~~aGs~~ P:CLP;TAL Metals,Hg,Ti
B 1,250ml ~~aGs~~ Gs:VOA CLP
C 1,250ml ~~aGs~~ aG:Semi-VOA CLP
D 1,125ml ~~G/P~~ G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml ~~G/P~~ P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ WVS 3-21-94
F 1,125ml ~~G~~ G:Cyanide CLP
G 1,125ml ~~G~~ Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40343301

40343202 A

2) BQ4WI1 (TRIP) 1,250ML, aGs : CLP:VOA

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml Gs:VOA CLP~~
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,250ml aGs:PCB/Pest (8080)~~
~~1,125ml G:Cyanide CLP~~ WVS 3-22-94
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: 3-23-94 0920 W.V. SETZER	Received by: ITAS Karen Achtenberg 2000	Date/Time: 3-23-94 11:00
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9600036

042

Temp 3°C CUR 501

INTERNATIONAL TECHNOLOGY CORPORATION

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

Reference Document No.[30] 340324
Page 2 of 2

Project Name SAF # 94-065

Project No.

Samples Shipment Date 3-15-94

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.
40326402 A	BOAW04 /Soil	3-8-94 09:05	AG	250ml	Cool 4°	ICP Metals, Hg, Tl	100% full	
B						Voa	FOR LAB USE ONLY	
C						Semi Voa		
D				125ml		EPA 300.0		
E						EPA ~~353.2~~ 353.1 per WHP 3/17/94		
F						Cyanide		
G						Kerosene		
40326403	BOAW01 /Soil	3-10-94 07:00	AG	250ml	Cool 4°	Voa		
40326404 A	TRIP Blank	3-15-94	AG	40ml	Cool 4°	Voa		
B								
	~~0000040~~							

White: To accompany samples. Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

043

9713506.1709

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 200-UP-2	DATA PACKAGE: W0005-ITC-020	
VALIDATOR: T. Stapp	LAB: ITAS St.Louis	DATE: 6-6-94
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 B09WG5, B09WI8, B09WG4, B09WJ1, B09WH2, B09WH3, B09WH4, B09WH6, B09WI0, B09WI1, Trip Blank*/ SOIL (* - WATER)

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? Note ①+② . . . . . Yes No N/A

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

Comments: ① Performed by WHC.
② WHC chain of custody is not available for Samples "Trip Blank", however IT analysis request is included for this Sample! 6/6

2. HOLDING TIMES

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

Comments: See holding time summary page B-1.

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 No N/A

Are laboratory blank results acceptable? . . Note ① . . . . . Yes No N/A

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

Are field/trip blank results acceptable? . . Note ② . . . . . Yes No N/A

Comments: ① Lab Blank VBLK04 contained <5xCRQL of acetone, which qualifies associated samples BC9WI8, BC9WE4, BC9WJ1. See Blank Summary page. ② The water sample identified as Trip Blank contained 3ug/L of Chloroform. Qualif. to assoc. samples will not apply but discussion will be included in the validation memo. See blank summary page. ~~Rev~~ RS 6-6-94

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? . Note ① . . . . . Yes No N/A

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

Comments: ① Field Duplicates were not identified in this SDG, but ID has been requested. F. Dups. will be evaluated in the final data Summary.

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:

HOLDING TIME SUMMARY

SDG: W0005-ITC-020	VALIDATOR: T. Stapp	DATE: 6-6-94	PAGE 1 OF ___
COMMENTS: VOLATILES / SOIL			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09W65		3-8-94	N/A	3-17-94	N/A	≤14	NONE
B09WI8		3-10-94		3-18-94			
B09WG4							
B09WJ1							
Trip Blank		3-15-94		3-21-94			
B09WH2		3-17-94		3-28-94			
B09WH3							
B09WH4							
B09WH6		3-21-94					
B09WI0		3-22-94					
B09WI1		3-22-94					

N/A - Not Applicable

BLANK AND SAMPLE DATA SUMMARY

SDG: W0005-ITC-020	VALIDATOR: T. Stapp	DATE: 6-6-94	PAGE 1 OF ____
COMMENTS: VOLATILES ANALYSIS / SOILS			

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
VBLNK03	ACETONE	20			UG/KG		200	NONE	—
VBLNK04	ACETONE	20			↓		200.	B09WI8	25 U
↓	↓	↓			↓		↓	B09WG4	15 U
↓	↓	↓			↓		↓	B09WJ1	12 U
Trip Blank	Chloroform	3			UG/L	—	—	NONE	NONE

9713506.1714
WHC-SD-EN-SPP-002, Rev. 2

9713506.1715

MEMORANDUM

JUN 1994 RECEIVED TQO

TO: 200 UP-2 Project QA Record June 15, 1994

FR: Thomas Stapp, Golder Associates Inc.

RE: GENERAL CHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE W0005-ITC-020 (923-E418 W0005W.UP2)

INTRODUCTION

This memo presents the results of data validation on data package W0005-ITC-020 prepared by International Technology Corporation (ITC) laboratory, St.Louis. 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
B09WG5	3/08/94	SOIL	SEE NOTE
B09WI8	3/10/94	SOIL	
B09WG4	3/10/94	SOIL	
B09WH2	3/17/94	SOIL	
B09WH3	3/17/94	SOIL	
B09WH4	3/17/94	SOIL	
B09WI0	3/22/94	SOIL	

Notes:

1. Indicates the sample was analyzed for Nitrate/Nitrite as N (by colorimetry), and IC anions (fluoride, chloride, and sulfate).

RECEIVED JUN 17 1994 VALIDATION DOCUMENTATION SDLA

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). 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

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met except for matrix spike recoveries as indicated under "Minor Deficiencies" below.

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

Detection Limits. Detection limit goals were met with the exception of chloride and sulfate which were reported above the RDL of 0.1 mg/L.

Completeness. The data package was complete for all requested analyses. A total of seven (7) samples were validated in this data package with a total of twenty-eight (28) determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets the work plan completeness objective 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 deficiency was identified during data validation which required qualification of data.

Matrix Spike Recovery

- Fluoride matrix spike recovery was unacceptable. Attachments 2 and 5 provide a summary of the qualification applied and supporting documentation.

DATA REPORTING

- Laboratory report forms were not provided, however laboratory worksheets are included and have been annotated with HEIS numbers. In addition, sample data not associated with this SDG has been crossed out.

REFERENCES

WHC, 1993a, Validation of 200 UP-2 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

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

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

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

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

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

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

J - Indicates the constituent was analyzed for and detected. Due to a minor quality control deficiency identified during 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 - FORM B-7

SDG: W0005-ITC-020	REVIEWER: T. STAPP	DATE: 6-10-94	PAGE 1 OF 1
COMMENTS: WET CHEMISTRY			
COMPOUND/ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
FLUORIDE	J/UJ	ALL	MATRIX SPIKE RECOVERY IS BELOW 75% BUT ABOVE 30% LIMITS

9713506.1721

ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0005-ITC-020

	Samp#	B09WG4		B09WG5		B09WH2		B09WH3		B09WH4		B09WI0	
	Date	3-10-94		3-8-94		3-17-94		3-17-94		3-17-94		3-22-94	
	Location	---		---		---		---		---		---	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments	---		---		---		---		---		---	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
FLUORIDE	MG/KG	1.850	J	1.050	UJ	1.080	UJ	1.090	UJ	2.240	J	1.030	UJ
CHLORIDE	MG/KG	7.950		7.360		13.400		12.500		19.100		12.400	
SULFATE	MG/KG	20.300		35.900		34.700		35.400		107.000		19.800	
NITRATE+NITRITE	MG-N/KG	4.660		3.840		6.910		6.410		8.840		6.070	

Verified [illegible] 6-15-94

9713506.1722

Validated Data Summary, Data Package: W0005-ITC-020

	Samp#	B09W18	
	Date	3-10-94	
	Location	---	
	Depth	---	
	Type	SOIL	
	Comments	---	
Parameter	Units	Result	Q
FLUORIDE	MG/KG	1.400	J
CHLORIDE	MG/KG	24.000	
SULFATE	MG/KG	187.000	
NITRATE+NITRITE	MG-N/KG	131.000	

Verified TS 6-15-94

9713506.1723

Project # ~~202.01~~, 519.04, 521.01
Analyst J. CRPW
Reviewed by R. Patterson / 04-04-94
Reviewed by R. Patterson / 04-04-94
Page 1 of 1

ANIONS BY I.C.

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

Prep Date 03-28-94
Analysis Date 03-30-94
Loop Used 50 ml
Batch # 34832
Method # 300.0

Standard Value	Sample ID	Std ID	Solid Fract.	Dil.	~~Fl~~	~~Cl~~	~~SO_4~~ Sample HEIS #	Fl Dry Wt	Cl Dry Wt	SO_4 Dry Wt	% Rec	RPD
	BLK34832				<0.992	<2.48	~~<9.93~~ 29.02 04-04-94					
F 9.16 Cl 9.16 SO4 39.8	LCS34832	AL1179-94			9.64	9.81	37.3	Q			F 97 Cl 98 SO4 94	
	4679-001		0.9499		~~<1.05~~	~~7.36~~	B09W65	<1.05UJ	7.36	35.9		
	001AP							<1.05UJ	7.28	35.4		F 1 SO4 1
F 20.8 SO4 208 Cl 208	001MS	AL1180-94		XS				12.8 J	231	250	F 62 Cl 108 SO4 120	
	4698-001		0.8651				B09WI8	1.40 J	24.0	187		
	002		0.9741				B09W64	1.85 J	7.95	20.3		
	4743-001		0.9205				B09WH2	<1.08UJ	13.4	34.7		
	002		0.9164				B09WH3	<1.09UJ	12.5	35.4		
	003		0.8682				B09WH4	2.24 J	19.1	107		
	4756-001		0.9607				B09WIØ	<1.03UJ	12.4	19.8		
	~~4758-001~~		~~0.9428~~					~~1.06~~	~~8.91~~	~~13.5~~		
F 20.8 SO4 208 Cl 208	001MS	~~AL1181-94~~		XS				~~23.3~~	~~227~~	~~218~~	F 107 SO4 98 Cl 106	
F 20.9 SO4 209 Cl 209	001MSD	~~82~~		XS				~~218~~	~~229~~	~~220~~	F 99 SO4 99 Cl 105	F 8 SO4 1 Cl 0

* CAN'T CALCULATE RPD DUE TO VALUES BELOW DETECTION LIMIT
** CORRECTED FOR % MOISTURE
+ MATRIX INTERFERENCE

Verified 6-10-94

SL92-INORG-0065

SDG: WCCC5-1IC-020

ITAS-ST. LOUIS

NITRATE/NITRITE-N REPORT

Pg. 1 of 1

Analyst: J. Arpw
Project No.: 26L-01, 519.04, 521.01
Reviewed by: R. Patterson

Batch No.: 34530

SAMPLE HEIS #

PREP DATE: 03-28-94
Analysis Date: 03-29-94
Method No.: 353.1
Date: 03-31-94

LAB ID	STANDARD ID	RAW VALUE x	DILUTION +	SAMPLE VOLUME (L or g) =	~~NITRATE/ NITRITE x~~	EXTRACT VOLUME (L) +	FRACTION SOLID =	NO3 + NO2 FINAL CONCENTRATION (ug/L)-N (ug/g)-N	% RECOVERY	RPD
SBLK34530-1		0.02637		5.038		0.05		<0.198		
QCLCS34530-1	AL1125-94	572.7		5.028				5.70	102	
1618-001		224.1	X5	5.063			0.2305	48.0		
001DUP		215.3	X5	5.032				46.4		3
001MS	AL1126-94	364.1	X5	5.058				78.1	124	
4679-001		366.6		5.026	B09WG5		0.9499	03-31-94 ~~3.83~~ 3.84		
001DUP		349.6		5.033				3.66		5
001MS	AL1127-94	207.1	X5	5.051				10.8	03-31-94 ~~119~~ 118	
4698-001		229.7	X50	5.048	B09WI8		0.8654	131		
002		460.1		5.065	B09WG4		0.9741	4.66		
4743-001		641.6		5.046	B09WH2		0.9205	6.91		
002		589.7		5.023	B09WH3		0.9164	6.41		
003		772.5		5.035	B09WH4		0.8682	8.84		
4756-001		590.6		5.061	B09WI0		0.9607	6.07		
4758-001		436.5		5.045			0.9428	4.59		
001MS	AL1138-94	209.3	X5	5.021				11.1	109	
001MSD	39	209.3	X5	5.052				11.0	108	1

* corrected for % moisture

Verified 6-10-94

SL-91-INORG-0039

011

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ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

9713506.1727

INTERNATIONAL TECHNOLOGY CORPORATION

CERTIFICATE OF ANALYSIS

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

April 27, 1994

Attention: J. A. Lerch

Project number	:	519.04
Date Received by Lab	:	March 11, 15, 21 and 23, 1994
Number of Samples	:	Eleven (11)
Sample Types	:	Soil and Water
SDG Number	:	W0005

I. Introduction

On March 11, 15, 21 and 23, 1994, a total of one (1) water and ten (10) soil samples were received by ITAS-Richland and transferred to ITAS-St. Louis for chemical analysis. Upon receipt, the samples were given the following laboratory ID numbers to correspond with their specific client ID's:

St. Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
4679-001	B09WG5	W40323401	Soil	03/11/94
4698-001	B09W18	40326401	Soil	03/15/94
4698-002	B09WG4	40326402	Soil	03/15/94
4698-003	B09WJ1	40326403	Soil	03/15/94
4698-004	Trip Blank	40326404	Water	03/15/94
4743-001	B09WH2	40338501	Soil	03/21/94
4743-002	B09WH3	40338502	Soil	03/21/94
4743-003	B09WH4	40338503	Soil	03/21/94
4743-004	B09WH6	40338504	Soil	03/21/94
4756-001	B09WI0	40343201	Soil	03/23/94
4756-002	B09WI1	40343202	Soil	03/23/94

Regional Office
13715 N. Rider Trail • Earth City, Missouri 63045-1205 • 314-298-8566 • FAX: 314-298-8757

IT Corporation is a wholly owned subsidiary of International Technology Corporation

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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: VOA, BNA and Metals including Cyanide using CLP/90 protocol. Chloride, Sulfate and Fluoride by EPA method 300.0. Nitrate by EPA method 353.1. Total Petroleum Hydrocarbons (Kerosene) by method 8015.

III. Quality Control

A Laboratory Control Sample and Method Blank are routinely analyzed with each preparation batch. Matrix Spike and Matrix Spike Duplicate or Duplicate analyses were performed for all analytes in this SDG.

IV. Comments

A sample (4679-001) was received on 3/11/94 that was labelled B09WG5 on the sample container and appeared on the Chain of Custody as B09WG4. It was determined that the Chain of Custody was correct at that time. On 3/15/94 a sample (4698-002) was received that was labelled B09WG4 and also appeared on the Chain of Custody as B09WG4. It was determined that the first sample received was B09WG5 as labelled on the sample container and that the Chain of Custody was incorrect. The appropriate corrections were made and it was decided that from now on the client ID on the sample container label will be considered correct.

IT-St. Louis PQL's were used for the kerosene analysis.

The Relative Percent Difference (RPD) for Cyanide sample B09WG5 (4679-001) was calculated using values below the contract detection limit but above the instrument detection limit.

The laboratory was unable to calculate a Relative Percent Difference (RPD) for Fluoride sample B09WG5 (4679-001) due to sample values below the detection limit.

The Matrix Spike recovery for Fluoride sample B09WG5 (4679-001) was low due to matrix interference.

The Matrix Spike recovery for Antimony, Chromium, Manganese, Titanium and Selenium were outside the 75% - 125% control limits.

Matrix Spike recovery for sample B09WG5 (4679-001) for Mercury was < 75%. The sample concentration for this sample was four times greater than the spike concentration, therefore, this sample was not flagged.

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:\annealers\hanw0005.nar

9713506.1730

Westinghouse
Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.W. SETZER

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-8-94

Ice Chest No.:

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 RADIOACTIVE

Sample Identification

1) 403235 TH 5/11/94

A 1,250ml P:CLP;TAL Metals,Hg,Ti ~~B09WG4~~ B09WG5 * 6-6-94
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ 3-9-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40323501

* See laboratory narrative for explanation of sample I.D. discrepancy.

2)

~~1,250ml P:CLP;TAL Metals,Hg,Ti B09WG5 3-11-94 WWS~~
~~1,250ml Gs:VOA CLP~~
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,250ml aGs:PCB/Pest (8080)~~ 3-9-94 WWS 3-11-94
~~1,125ml G:Cyanide CLP~~
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W. W. Setzer	800 cpm ITAS	3/11/94 1055
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

SD6-W0005

9713506.1731

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.W. SETZER

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-10-94

Ice Chest No.: WHC 169

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.: ~~WW~~ WVS 3-14-94 ~~NA~~

Method of Shipment: Government vehicle

Shipped to: IT, Richland .

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 RADIOACTIVE

Sample Identification

1) B09WI8

CAT II

400 cpm

403264 01

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
F 1,250ml aGs:PCB/Pest (8080)
G 1,125ml G:Cyanide CLP
H 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40326501

2) B09WG4

200 cpm

403264 02

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ CR 3-14-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40326502

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W.W. Setzer	R. Boyd IT	3/14/94 1430
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713506.1732

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-17-94

Ice Chest No.: SML-127 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) B09WH2

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ ER 3-17-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

2) B09WH3

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ ER 3-17-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
3-21-94 0930		3/21 1120
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

~~8200000~~ 018

9713506.1733

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-17-94

Ice Chest No.: SML-127 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) BC9WH4

1,250ml P:CLP;TAL Metals,Hg,Ti.
1,250ml Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ SER 3-17-94
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

2)

1,250ml P:CLP;TAL Metals,Hg,Ti
1,250ml Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,250ml aGs:PCB/Pest (8080)
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

SER 3-17-94

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
3-21-94 Karen E. Rogers 0930	J Hilarlung Jr	3/21 1130
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

~~6200000~~

019

9713506.1734

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS/W. SETZER

Company Contact: L E ROGERS — Telephone: 376-7690 WVS 3.22.94

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-22-94

Ice Chest No.: WHC-19 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: NA — Offsite Property No.: WA4-0-

Method of Shipment: Government vehicle — SIX-WC011

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065

Sample Identification

1) WVS 3.21.94

BQ4WI0 — 40343201

A 1,250ml aGs P:CLP;TAL Metals,Hg,Ti,
B 1,250ml aGs Vs:VOA CLP
C 1,250ml aGs ~~aG~~:Semi-VOA CLP
D 1,125ml aGs ~~aG~~:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml aGs ~~P/G~~:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ WVS 3.21.94
F 1,125ml aGs ~~G~~:Cyanide CLP
G 1,125ml aGs ~~Gw~~:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40343301

40343202 A

2) BQ4WI1 (TRIP) 1,250mL, aGs : CIP: VOA

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml G:VOA CLP~~
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,250ml aGs:PCB/Pest (8080)~~
~~1,125ml G:Cyanide CLP~~ WVS 3.22.94
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha (ITAS-RD-3322)~~ Gross beta ~~(ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: 3-23-94 0920 W.V. SETZER	Received by: ITAS Karen Lichtenberg 200	Date/Time: 3-23-94 11:00
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

~~0000036~~

020

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 200-UP-2		DATA PACKAGE: W0005-ITC-020
VALIDATOR: T. Stapp	LAB: ITC St.Louis	DATE: 6-10-94
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—N
☐ Sulfate	☐ TDS	☐ TKN	☐ Phosphate	☐	☐
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX B09WG5, B09WI8, B09WG4, B09WH2, B09WH3, B09WH4, B09WI0 / SOIL

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? Note ① . . . . . Yes No N/A

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

Comments: ① Performed by WHC.

2. HOLDING TIMES

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

Comments: See holding time summary page B-1.

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? . . . . . Note ① . . . . . Yes No (N/A)
Are field/trip blank results acceptable? . . . . . Yes No (N/A)
Comments: ① Field QC was not identified in this sample set, but it has been requested. Field Blanks will be evaluated in the final data Summary.

5. ACCURACY

Were spike samples analyzed at the required frequency? . . . . (Yes) No N/A
Are spike recoveries acceptable? . . Note ① . . . . . ~~Yes~~ (No) N/A 6-16-94
Were LCS analyses performed at the required frequency? . . . . (Yes) No N/A
Are LCS recoveries acceptable? . . . . . (Yes) No N/A
Comments: ① Fluoride MS recovery @ 62% qualifies all associated sample results J for detects, and UJ for non-detects.

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? . . Note ① . . . . Yes No (N/A)
Are field split RPD values acceptable? . . . . . Yes No (N/A)

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

Comments: ① Field QC was not identified with this sample set, but it has been requested. Field Duplicates will be evaluated with the final data summary.

7. ANALYTE QUANTITATION

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

Comments: Form 1 sheets were not provided by the laboratory. ~~NO_2/NO_3-N result for B09W18 appears on the lab work sheet without a decimal however recalculated Amount shown is correct for B09W18~~ RS 6-10-94 RS 6-15-94

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? . . . Note ① . . . . . Yes No N/A

Comments: ① CRDL of 0.1 mg/L for Chloride and Sulfate were not satisfied for this sample set. Reported CRDL's are 0.25 mg/L for Chloride and 1.0 mg/L for Sulfates.

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W0005-ITC-020

HOLDING TIME SUMMARY - FORM B-I

SDG:	REVIEWER: T. Stapp	DATE: 6-10-94	PAGE 1 OF 1
COMMENTS:			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING * TIME, DAYS	QUALIFIER
B09WG5	Anions	3-8-94	3-28-94	3-30-94	20	≤ 28	NONE
B09WG4		3-10-94			18		
B09WI8		"			18		
B09WH2		3-17-94			11		
WH3		"			11		
WH4		"			11		
B09WIØ		3-22-94			6		
B09WG5	NO_2/NO_3-N	3-8-94	3-28-94	3-29-94	20	≤ 28	NONE
WG4		3-10-94			18		
WI8		3-10-94			18		
WH2		3-17-94			11		
WH3		3-17-94			11		
WH4		3-17-94			11		
B09WIØ		3-22-94			6		

* - Analysis date from date of extraction.

9713506.1740

WHC-SD-EN-SPP-002, ~~Rev. 1~~ Rev. 2

6-10-94

9713506.1741

MEMORANDUM

JUN 1994 RECEIVED TQO

TO: 200 UP-2 Project QA Record

June 16, 1994

FR: Thomas Stapp, Golder Associates Inc.

RE: PESTICIDE/PCB DATA VALIDATION SUMMARY FOR DATA PACKAGE W0005-ITC-020 (923-E418 W0005P.UP2)

INTRODUCTION

This memo presents the results of data validation on data package W0005-ITC-020 prepared by International Technology Corporation (ITC) laboratory, St.Louis. A list of samples validated along with the analyses reported and the methods of analysis is provided in the following table.

RECEIVED JUN 17 1994 VALIDATION DOCUMENTATION SOHA

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSES
B09WI8	03/10/94	SOIL	SEE NOTE 1

Notes:
1. Indicates the samples were analyzed for target compound list (TCL) pesticides and arochlor PCB's.

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). 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 generally acceptable and within the method specific requirements.

Completeness. The data package was complete for all requested analyses. A total of one (1) sample was validated in this data package with a total of twenty-five (25) determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets the work plan completeness objective 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.

Calibration

- The percent difference of continuing calibration factors for multiple compounds associated with sample B09WI8 were unacceptable. Attachments 2 and 5 provide a summary of compounds affected, qualification applied, and supporting documentation.

REFERENCES

WHC, 1993a, Validation of 200 UP-2 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

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

9713506.1743

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.

9713506.1745

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

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

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: W0005-ITC-020	REVIEWER: T. STAPP	DATE: 6-9-94	PAGE 1 OF 1
COMMENTS: PESTICIDE/PCB			
COMPOUND/ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
GAMMA-BHC, HEPTACHLOR, ALDRIN, ENDOSULFAN I, ENDRIN, 4,4'-DDT, METHOXYCHLOR, AND ENDRIN ALDEHYDE.	UJ	B09WI8	% DIFFERENCE OF CONTINUING CALIBRATION FACTORS >15%

9713506.1747

ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0005-ITC-020

	Samp#	B09WI8	
	Date	3-10-94	
	Location	---	
	Depth	---	
	Type	SOIL	
	Comments	---	
Parameter	Units	Result	Q
ALPHA-BHC	UG/KG	1.200	U
BETA-BHC	UG/KG	2.300	U
DELTA-BHC	UG/KG	3.500	U
GAMMA-BHC (LINDANE)	UG/KG	1.500	UJ
HEPTACHLOR	UG/KG	1.200	UJ
ALDRIN	UG/KG	1.500	UJ
HEPTACHLOR EPOXIDE	UG/KG	32.000	U
ENDOSULFAN I	UG/KG	5.400	UJ
DIELDRIN	UG/KG	0.770	U
4,4'-DDE	UG/KG	1.500	U
ENDRIN	UG/KG	2.300	UJ
ENDOSULFAN II	UG/KG	1.500	U
4,4'-DDD	UG/KG	4.200	U
ENDOSULFAN SULFATE	UG/KG	25.000	U
4,4'-DDT	UG/KG	4.600	UJ
METHOXYCHLOR	UG/KG	68.000	UJ
ENDRIN ALDEHYDE	UG/KG	8.800	UJ
TECH. CHLORDANE	UG/KG	5.400	U
TOXAPHENE	UG/KG	92.000	U
AROCLOR-1221	UG/KG	38.000	U
AROCLOR-1232	UG/KG	38.000	U
AROCLOR-1242/1016	UG/KG	25.000	U
AROCLOR-1248	UG/KG	38.000	U
AROCLOR-1254	UG/KG	41.000	
AROCLOR-1260	UG/KG	48.000	

Verified RS 6-10-94

9715506.1748

SDG: WCC05-ITC-020

9713506.1749

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BO9WI8

Lab Name: ITAS-St. Louis Contract: 519-04

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: W0005

Matrix: (soil/water) SOIL Lab Sample ID: 4698-001

Sample wt/vol: 30.1 (g/ml) G Lab File ID: _____

Level: (low/med) LOW Date Sampled : 03-10-94

% Moisture: not dec. 13 dec. _____ Date Extracted: 03-22-94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03-24-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

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

CAS NO.	Compound		Q	Q
319-84-6	alpha-BHC	1.2	U	
319-85-7	beta-BHC	2.3	U	
319-86-8	delta-BHC	3.5	U	
58-89-9	gamma-BHC (Lindane)	1.5	~~U~~	UJ
76-44-8	Heptachlor	1.2	~~U~~	UJ
309-00-2	Aldrin	1.5	~~U~~	UJ
1024-57-3	Heptachlor epoxide	32	U	
959-98-8	Endosulfan I	5.4	~~U~~	UJ
60-57-1	Dieldrin	0.77	U	
72-55-9	4,4'-DDE	1.5	U	
72-20-8	Endrin	2.3	~~U~~	UJ
33213-65-9	Endosulfan II	1.5	U	
72-54-8	4,4'-DDD	4.2	U	
1031-07-8	Endosulfan sulfate	25	U	
50-29-3	4,4'-DDT	4.6	~~U~~	UJ
72-43-5	Methoxychlor	68	~~U~~	UJ
53494-70-5	Endrin Aldehyde	8.8	~~U~~	UJ
57-74-9	Tech. Chlordane	5.4	U	
8001-35-2	Toxaphene	92	U	
11104-28-2	Aroclor-1221	38	U	
11141-28-2	Aroclor-1232	38	U	
53469-21-9/12674-11-2	Aroclor-1242/1016	25	U	
12672-29-6	Aroclor-1248	38	U	
11097-57-4	Aroclor1254	41		
11096-82-5	Aroclor-1660	48		

U: Concentration of analyte is less than the value given.

FORM I PEST 1/87 Rev.

Verified
6-9-94

2A

ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

9713506.1751

INTERNATIONAL TECHNOLOGY CORPORATION

MAY 1994 RECEIVED SDLA

CERTIFICATE OF ANALYSIS

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

RECORD COPY

April 27, 1994

Attention: J.A.Lerch

Project number	:	519.04
Date Received by Lab	:	March 11, 15, 21 and 23 1994
Number of Samples	:	Eleven (11)
Sample Type	:	Soil and Water
SDG Number	:	W0005

I. Introduction

On March 11, 15, 21 and 23, 1994, a total of one (1) water and ten (10) soil samples were received by ITAS-Richland and transferred to ITAS-St. Louis for chemical analysis. Upon receipt, the samples were given the following laboratory ID numbers to correspond with their specific client ID's:

St. Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
4679-001	B09WG5	W40323401	Soil	03/11/94
4698-001	B09WI8	40326401	Soil	03/15/94
4698-002	B09WG4	40326402	Soil	03/15/94
4698-003	B09WJ1	40326403	Soil	03/15/94
4698-004	Trip Blank	40326404	Water	03/15/94
4743-001	B09WH2	40338501	Soil	03/21/94
4743-002	B09WH3	40338502	Soil	03/21/94
4743-003	B09WH4	40338503	Soil	03/21/94
4743-004	B09WH6	40338504	Soil	03/21/94
4756-001	B09WI0	40343201	Soil	03/23/94
4756-002	B09WI1	40343202	Soil	03/23/94

Regional Office
2800 George Washington Way • Richland, Washington 99352-1613 • 509-375-3131 • FAX 509-375-5590

IT Corporation is a wholly owned subsidiary of International Technology Corporation

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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: VOA, BNA and Metals including Cyanide using CLP/90 protocol. Chloride, Sulfate and Fluoride by EPA method 300.0. Nitrate by EPA method 353.1. Total Petroleum Hydrocarbons (Kerosene) by method 8015.

III. Quality Control

A Laboratory Control Sample and Method Blank are routinely analyzed with each preparation batch. Matrix Spike and Matrix Spike Duplicate or Duplicate analyses were performed for all analytes in this SDG.

IV. Comments

A sample (4679-001) was received on 3/11/94 that was labelled B09WG5 on the sample container and appeared on the Chain of Custody as B09WG4. It was determined that the Chain of Custody was correct at that time. On 3/15/94 a sample (4698-002) was received that was labelled B09WG4 and also appeared on the Chain of Custody as B09WG4. It was determined that the first sample received was B09WG5 as labelled on the sample container and that the Chain of Custody was incorrect. The appropriate corrections were made and it was decided that from now on the client ID on the sample container label will be considered correct.

IT-St. Louis PQL's were used for the kerosene analysis.

The Relative Percent Difference (RPD) for Cyanide sample B09WG5 (4679-001) was calculated using values below the contract detection limit but above the instrument detection limit.

The laboratory was unable to calculate a Relative Percent Difference (RPD) for Fluoride sample B09WG5 (4679-001) due to sample values below the detection limit.

id

Westinghouse Hanford Company
April 27, 1994
Project Number: 519.04
page 3

The Matrix Spike recovery for Fluoride sample B09WG5 (4679-001) was low due to matrix interference.

The Matrix Spike recovery for Antimony, Chromium, Manganese, Titanium and Selenium were outside the 75% - 125% control limits.

Matrix Spike recovery for sample B09WG5 (4679-001) for Mercury was < 75%. The sample concentration for this sample was four times greater than the spike concentration, therefore, this sample was not flagged.

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:\annealers\hanw0005.nar

SDG W0005

Westinghouse Hanford Company

9713506.1754

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.W. SETZER

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-10-94

Ice Chest No.: WHC 169

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.: ~~NA~~ WWS 3-14-94 NA

Method of Shipment: Government vehicle

Shipped to: IT, Richland .

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 RADIOACTIVE

Sample Identification

1) B09WJ8

CAT II

400 cpm

403264 01

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
F 1,250ml aGs:PCB/Pest (8080)
G 1,125ml G:Cyanide CLP
H 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40326501

2) B09WJ64

200 cpm

403264 02

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ BR 3-14-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40326502

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W.W. Setzer	R. Boyd	3/14/94 1430
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
		RE 6-10-94

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

0000022

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

PESTICIDE/PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 200-UP-2		DATA PACKAGE: W0005-ITC-020	
VALIDATOR: T. Stapp	LAB:		DATE: 6-9-94
CASE:		SDG:	

ANALYSES PERFORMED

☐ CLP3/90	☑ SW-846 8080	☐ SW-846 8081	☐	☐	☐

SAMPLES/MATRIX B09W18 / SOIL

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? Note ① . . . . . Yes No N/A

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

Comments: ① Performed by WHC.

2. HOLDING TIMES

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

Comments: See holding time summary page B-1.

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? . . . Note ① . . . . 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? . . Note ② . Yes No N/A

Comments: ① DDT and Endrin breakdowns checked on EVAL B Standard analyzed on same day of sample analysis. All < 20%, No qualifier. ② GC/MS analysis not performed. Dual column GC only.

3.2 CALIBRATIONS (METHOD 8080 AND 8081)

Are EVAL standard calibration factors and %RSD values acceptable? . . . . . Note ① . . . . . 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? . Note ② . . Yes No N/A

Comments: ① EVAL standard used for Endrin & DDT breakdown check only. ② CCAL factors exceeded for multiple compounds on quantitation column. See attached data summaries for continuing calibration % difference deficiencies, and qualifiers applied.

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: Modified method 8080 analysis performed and validation procedures that apply were used accordingly.

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: Modified method 8080 analysis performed and validation procedures that apply were used.

4. BLANKS

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

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

Were field/trip blanks analyzed? . . . . . Note ① . . . . . Yes No N/A

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

Comments: ① Field QC was not identified with this sample set, but it has been requested. Field Blanks will be evaluated in the final data summary.

5. ACCURACY

Were surrogates analyzed? . . . . . Yes No N/A

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

Were MS/MSD samples analyzed? . . . . . Yes No N/A

Are MS/MSD results acceptable? . . . . . Yes No N/A

Were LCS samples analyzed? . . . . Note ① . . . . . ~~Yes~~ No N/A

Are LCS results acceptable? . . . . . ~~Yes~~ No N/A

Comments: ① LCS analysis is not mandatory when ms/msd recoveries are acceptable.

6-9-94

PESTICIDE/PCB DATA VALIDATION CHECKLIST

6. PRECISION

Are MS/MSD RPD values acceptable? . . . . . Yes No N/A

Are laboratory duplicate results acceptable? . Note ① . . . . Yes No N/A

Are field duplicate RPD values acceptable? . . Note ② . . . Yes No N/A

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

Comments: ① Laboratory duplicate analysis not performed. ② Field QC was not identified in this sample set but it has been requested. Field QC will be evaluated in the final data summary.

7. SYSTEM PERFORMANCE

Is chromatographic performance acceptable? . . . . . Yes No N/A

Are positive results resolved acceptably? . . . . . 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

Comments:

W0005-ITC-020

HOLDING TIME SUMMARY - FORM B-1

SDG:	REVIEWER: T. Stapp	DATE: 6-9-94	PAGE 1 OF 1
COMMENTS:			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09WI8		3-10-94	3-22-94	3-24-94	12	≤ 40	NONE

9713506.1730

WHC-SD-EN-SPP-002, ~~Rev. 1~~ Rev. 2 TS 6-10-94

SDG: W0005-ITC-020

9713506.1761

CONTINUING CALIBRATION

9

PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 519-04

Lab Code: ITSL Case No.: SAS No.: SDG No.: W0005

Instrument ID: GCA GC Column ID: DB-1701

DATE(S) OF ANALYSIS FROM: 09-20-93 TO: 02-25-94
TIME(S) OF ANALYSIS FROM: 19:51 TO: 21:28

DATE OF ANALYSIS 03-24-94
TIME OF ANALYSIS 20:12
EPA SAMPLE NO. (STANDARD) INDA 4

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
alpha-BHC	6.55	6.47	6.63	13736762				
beta-BHC	10.38	10.30	10.46	7532143				
delta-BHC	11.10	11.02	11.18	11101611				
gamma-BHC	7.79	7.74	7.84	13800745	7.77	16461920	N	19
Heptachlor	8.37	8.32	8.42	13372921	8.35	16819968	N	26
Aldrin	9.21	9.13	9.29	14301405	9.19	16590904	N	16
Hept. epoxide	11.43	11.40	11.46	13315946	11.42	15375864	N	15
Endosulfan I	12.31	12.28	12.34	13948866	12.29	16187472	N	16
Dieldrin	13.51	13.46	13.56	14040255	13.50	16092184	N	15
4,4-DDE	13.22	13.14	13.30	12937712				
Endrin	14.15	14.06	14.24	10304645				
Endosulfan II	15.85	15.79	15.91	12774508	15.83	14354582	N	12
4,4'-DDD	15.87	15.79	15.95	9790947				
Endo. sulfate	18.22	18.14	18.30	8595512				
4,4-DDT	16.37	16.31	16.43	8965886	16.36	11750202	N	31
Methoxychlor	18.52	18.44	18.60	4779087	18.51	6351467	N	18
Endrin Alde.	17.16	17.10	17.22	9476851	17.15	11478050	N	21
DBC	18.72	18.66	18.78	11145308	18.71	13282317	N	19
T. Chlordane	12.55	12.44	12.66	4071860				
Toxaphene	14.03	13.88	14.18	676267				
Aroclor-1016								
Aroclor-1221								
Aroclor-1232								
Aroclor-1242								
Aroclor-1248								
Aroclor-1254								
Aroclor-1260								

* Surrogate No Qualif. 6/9/94

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 15.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

FORM IX PEST 8/87 Rev.

* Associated results are qualified J/UJ.

SDG: W0005-ITC-020
9713506.1762

CONTINUING CALIBRATION

9
PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 519-04

Lab Code: ITSL Case No.: SAS No.: SDG No.: W0005

Instrument ID: GCA GC Column ID: DB-1701

DATE(S) OF ANALYSIS FROM: 09-20-93 TO: 02-25-94
TIME(S) OF ANALYSIS FROM: 19:51 TO: 21:28

DATE OF ANALYSIS 03-24-94
TIME OF ANALYSIS 20:44
EPA SAMPLE NO. (STANDARD) IND B 3

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
alpha-BHC	6.55	6.47	6.63	13736762	6.53	14587904	N	6
beta-BHC	10.38	10.30	10.46	7532143	10.36	7910832	N	5
delta-BHC	11.10	11.02	11.18	11101611	11.08	12386168	N	12
gamma-BHC	7.79	7.74	7.84	13800745				
Heptachlor	8.37	8.32	8.42	13372921				
Aldrin	9.21	9.13	9.29	14301405				
Hept. epoxide	11.43	11.40	11.46	13315946				
Endosulfan I	12.31	12.28	12.34	13948866				
Dieldrin	13.51	13.46	13.56	14040255				
4,4-DDE	13.22	13.14	13.30	12937712	13.20	13683888	N	6 *
Endrin	14.15	14.06	14.24	10304645	14.13	11990216	N	16
Endosulfan II	15.85	15.79	15.91	12774508				
4,4'-DDD	15.87	15.79	15.95	9790947	15.85	10381288	N	6
Endo. sulfate	18.22	18.14	18.30	8595512	18.21	9249968	N	7
4,4-DDT	16.37	16.31	16.43	8965886				
Methoxychlor	18.52	18.44	18.60	4779087				
Endrin Alde.	17.16	17.10	17.22	9476851				
DBC	18.72	18.66	18.78	11145308				
T. Chlordane	12.55	12.44	12.66	4071860				
Toxaphene	14.03	13.88	14.18	676267				
Aroclor-1016								
Aroclor-1221								
Aroclor-1232								
Aroclor-1242								
Aroclor-1248								
Aroclor-1254								
Aroclor-1260								

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 15.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 15.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

6-10-94

FORM IX PEST 8/87 Rev.

* Associated result for B09WI8 is qualified UJ.

9713506.1763

Golder Associates Inc.

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

Golder Associates

June 25, 1994

Our ref: 923-E418
S/O/3182

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

ATTENTION: Ms. Jeanette Duncan

RE: TRANSMITTAL OF REVIEWER COMMENT RESPONSES AND REVISED DATA VALIDATION PACKAGES, 200-UP-2 DATA VALIDATION, TASK ORDER S94-18, CONTRACT MJK-SVV-M073750

Dear Ms. Duncan:

Enclosed are reviewer comment responses and revised data validation packages for the following radiochemistry data packages:

- W0005-ITC-020: pages 7, 8, 10, 11, 12, 13 and 14.
- W0006-ITC-004: pages 2, 5, 7, 8, 23, 24, 25 and 30.

Please call us if you have questions concerning the above revisions.

Sincerely,

GOLDER ASSOCIATES INC.

Kent M. Angelos
Project Manager

KMA\ah

cc: P.K. Brockman, SAIC

6/22/94

Data Validation Check List

for Project 200-UP-2

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
B09WG4		W0005	020	ITC	Y 5/09/94	Y 5/09/94	N	Y 5/09/94	Y 5/09/94	03/14/94 - SAF-94-065	Y 5/10/94	5/10/94
B09WG5		W0005	020	ITC	Y 5/09/94	Y 5/09/94	N	Y 5/09/94	Y 5/09/94	03/11/94 - SAF-94-065	Y 5/10/94	5/10/94
B09WH2		W0005	020	ITC	Y 5/09/94	Y 5/09/94	N	Y 5/09/94	Y 5/09/94	03/21/94 - SAF-94-065	Y 5/10/94	5/10/94
B09WH3		W0005	020	ITC	Y 5/09/94	Y 5/09/94	N	Y 5/09/94	Y 5/09/94	03/21/94 - SAF-94-065	Y 5/10/94	5/10/94
B09WH4		W0005	020	ITC	Y 5/09/94	Y 5/09/94	N	Y 5/09/94	Y 5/09/94	03/21/94 - SAF-94-065	Y 5/10/94	5/10/94
B09WH6		W0005	020	ITC	Y 5/09/94	N	N	N	N	03/21/94 - SAF-94-065	N	5/09/94
B09WI0		W0005	020	ITC	Y 5/09/94	Y 5/09/94	N	Y 5/09/94	Y 5/09/94	03/23/94 - SAF-94-065	Y 5/10/94	5/10/94
B09WI1		W0005	020	ITC	Y 5/09/94	N	N	N	N	03/23/94 - SAF-94-065	N	5/09/94
B09WI8		W0005	020	ITC	Y 5/09/94	Y 5/09/94	Y 5/09/94	Y 5/09/94	Y 5/09/94	03/14/94 - SAF-94-065	Y 5/10/94	5/10/94
B09WJ1		W0005	020	ITC	Y 5/09/94	N	N	N	N	03/14/94 - SAF-94-065	N	5/09/94

Data Entry Complete: DP SKW

DATATRAC gc

6/22/94 Validation Rcvd 6/22/94

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
6-23-94	
3. Project No.	4. Page
200-UP-2	1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
W0005-ITC-020	200-UP-2	MC WEBB	LATA	943-0244

17. disposition(s)

Comment Submittal Approval:
11. CLOSED

10. Agreement with indicated comment

Organization Manager (Optional) _____ Date _____

Reviewer/Point of Contact _____ Author/Originator _____

Date _____

Reviewer/Point of Contact _____ Author/Originator _____

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1	Radiochemistry - no comments			

9425056.1765

A 6400-090.1 (03/92) WEF011

9713506.1766

MEMORANDUM

JUN 1994 RECEIVED TQD

TO: 200-UP-2 Project QA Record

June 20, 1994

FR: Kent Angelos, Golder Associates Inc.

RE: RADIOCHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE: W0005-ITC-020, (923-E418, Filename W0005R.UP2)

INTRODUCTION

This memo presents the results of data validation on data package W0005-ITC-020 prepared by IT Analytical Services of Richland, Washington. A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

RECEIVED JUN 22 1994 VALIDATION DOCUMENTATION SDLA

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09WG5*	3/8/94	SOIL	SEE NOTE 1
B09WI8	3/10/94	SOIL	
B09WG4	3/10/94	SOIL	
B09WH2	3/17/94	SOIL	
B09WH3	3/17/94	SOIL	
B09WH4	3/17/94	SOIL	
B09WI0	3/22/94	SOIL	

Note 1. The samples were analyzed for americium-241, neptunium-237, plutonium-238, 239/240 and uranium-234, 235 and 238 by alpha spectroscopy; iodine-129 and selected radionuclides by gamma spectroscopy; gross alpha, gross beta and strontium-90 by gas proportional counting; selenium-79 and technetium-99 by liquid scintillation counting and total uranium by kinetic phosphorimetry.

*Sample B09WG5 was identified as B09WG4 on the chain-of-custody documentation but was identified in the case narrative and raw data as B09WG5.

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). 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. Results for selenium-79 and minimum detectable activities (MDA) for curium-244, neptunium-237, plutonium-238, selenium-79, and technetium-99 could not be accurately verified by recalculation using the formulae provided by IT, therefore results for these analytes have been qualified as estimated (J for detects, UJ for non-detects).

Detection Limits. Detection limit goals were met for all results with the exception of curium-244, plutonium-239/240, plutonium-238, uranium-235, europium-155, europium-154, and europium-152 in a few of the samples. Attachment 5 provides supporting documentation. The detection limits for gamma scan analytes were exceeded due to the high cesium-137 activity. The laboratory did not provide an explanation in the case narrative regarding the detection limits for the remaining analytes.

Completeness. The data package was complete for all requested analyses with the exception that results for iodine-129 were not reported for samples B09WG5, B09WI8, B09WG4 and B09WG4-duplicate due to an identified matrix interference from cesium-137. A total of seven samples were validated in this data package with a total of 172 determinations reported, of which 165 were deemed valid. This results in a completeness of 96 percent, which meets normal work plan objectives of 90%.

MAJOR DEFICIENCIES

The following major deficiencies were identified requiring rejection of data.

Laboratory Control Samples

- Plutonium-238 recovery in the LCS was less than 30% requiring qualification of all sample results as unusable (R for detects, UR for nondetects). Attachments 2 and 5 provide a summary of the samples affected, qualifications applied and supporting documentation.

MINOR DEFICIENCIES

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

Method Blanks

- Americium-241 and neptunium-237 were detected in the associated method blanks. Attachments 2 and 5 provide a summary of the samples affected and qualifications applied.

Laboratory Duplicates

- Duplicate sample relative percent differences were unacceptable for plutonium-239/240 and uranium-238. Attachments 2 and 5 provide a summary of the samples affected and qualifications applied.

Spike Sample Recovery

- Matrix spike percent recovery was unacceptable for neptunium-237. Attachments 2 and 5 provide a summary of the samples affected and qualifications applied.

Laboratory Control Samples

- LCS percent recovery was unacceptable for iodine-129, neptunium-237, uranium and strontium. Attachments 2 and 5 provide a summary of the samples affected and qualifications applied. No qualification was necessary for iodine-129 since all results were less than the minimum detectable activity.

Tracer Recovery

- Tracer recovery for plutonium in sample B09WI0 was unacceptable, therefore plutonium-239 results have been qualified as estimated (J for detects, UJ for non-detects). No qualification was necessary for plutonium-238 since the results were rejected due to low LCS recoveries.

DATA REPORTING

- Results reported at a concentration of less than the minimum detectable activity have been qualified as undetected (U) and the MDA is reported in the validated data summary in attachment 3.

REFERENCES

WHC 1993a, Validation of 200-UP-2 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

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

ATTACHMENT 1

GLOSSARY OF RADIOCHEMISTRY DATA REPORTING QUALIFIERS

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

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

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

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

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

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

SDG: W0005-ITC-020	VALIDATOR: KA	DATE: June 16, 1994	PAGE 1 OF 1
COMMENTS: RADIOCHEMISTRY			
ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
PLUTONIUM-238	R DETECTS UR NONDETECTS	ALL	LCS PERCENT RECOVERY LESS THAN 30%
AMERICIUM-241	J	B09WH2 B09WH3 B09WH4 B09WI0	DETECTED IN METHOD BLANK
NEPTUNIUM-237	J	B09WH2	DETECTED IN METHOD BLANK
PLUTONIUM-239/240	J DETECTS UJ NONDETECTS	ALL	DUPLICATE SAMPLE RPD >35% OR >2XRDL
URANIUM-238	J DETECTS	ALL	DUPLICATE SAMPLE RPD >35% OR >2XRDL
NEPTUNIUM-237	J DETECTS UJ NONDETECTS	ALL	MATRIX SPIKE RECOVERY <60% BUT GREATER THAN 10%
NEPTUNIUM-237	J DETECTS	B09WG4, B09WG5, B09WH2, B09WI8	LCS RECOVERY >130%
URANIUM	J DETECTS UJ NONDETECTS	ALL	LCS RECOVERY <70% BUT GREATER THAN 30%
STRONTIUM	J DETECTS	B09WG4, B09WG5, B09WI8	LCS RECOVERY >130%
PLUTONIUM-239/240	J DETECTS UJ NONDETECTS	B09WI0	TRACER RECOVERY <19% BUT GREATER THAN 5%
SELENIUM-79, ~~STRONTIUM, TECHNETIUM-99;~~ CURIUM-244, NEPTUNIUM-237, PLUTONIUM-238	J DETECTS UJ NONDETECTS	ALL SAMPLES	RESULTS COULD NOT BE VERIFIED BY RECALCULATION USING THE FORMULAE PROVIDED BY IT, NO QUALIFICATION APPLIED TO PLUTONIUM-238 SINCE RESULTS WERE QUALIFIED AS UNUSABLE DUE TO LCS RECOVERY
IODINE-129	J DETECTS	NONE	LCS RECOVERY >130%

KMA 6/20/94

mrt 6/21/94

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: W0005-ITC-020

	Samp#	B09WG4		B09WG5		B09WH2		B09WH3		B09WH4		B09WI0	
	Date	3-10-94		3-8-94		3-17-94		3-17-94		3-17-94		3-22-94	
	Location	---		---		---		---		---		---	
	Depth	---		---		---		---		---		---	
	Type	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Comments	---		---		---		---		---		---	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
AMERICIUM-241	PCI/G	194.000		118.000		0.774	J	0.508	J	0.569	J	0.591	J
CURIUM-242	PCI/G	0.500	U	0.227	U	0.006	U	0.010	U	0.011	U	0.010	U
CURIUM-244	PCI/G	0.345	UJ	0.353	UJ	0.005	UJ	0.009	UJ	0.013	UJ	0.009	UJ
NEPTUNIUM-237	PCI/G	0.345	J	0.853	J	0.007	J	0.004	UJ	0.002	UJ	0.002	UJ
PLUTONIUM-239/240	PCI/G	6.810	J	0.936	UJ	0.024	UJ	0.029	UJ	0.038	UJ	0.120	UJ
PLUTONIUM-238	PCI/G	0.351	R	1.910	UR	0.048	UR	0.046	UR	0.024	UR	0.076	UR
URANIUM-234	PCI/G	1.590		5.750		0.860		1.110		1.760		1.020	
URANIUM-235	PCI/G	0.061		0.985	U	0.049		0.083		0.057		0.032	
URANIUM-238	PCI/G	1.510	J	7.740	J	1.010	J	1.230	J	1.590	J	1.020	J
POTASSIUM-40	PCI/G	13.800		18.100		17.500		16.700		9.950		19.600	
COBALT-60	PCI/G	2.080		0.233		0.017	U	0.015	U	0.015	U	0.017	U
EUROPIUM-152	PCI/G	0.587		0.441		0.165		0.080	U	0.115		0.079	U
CESIUM-137	PCI/G	202.000		1980.000		0.024		0.015	U	0.015	U	0.014	U
CESIUM-134	PCI/G	0.077	U	0.238	U	0.014	U	0.014	U	0.014	U	0.013	U
RUTHENIUM-106	PCI/G	0.789	U	2.460	U	0.142	U	0.141	U	0.140	U	0.131	U
SODIUM-22	PCI/G	0.107		0.050	U	0.030		0.019	U	0.018	U	0.018	U
EUROPIUM-155	PCI/G	0.269	U	0.806	U	0.056		0.044		0.045	U	0.061	
EUROPIUM-154	PCI/G	0.211		0.137	U	0.082		0.051	U	0.048	U	0.050	U
IODINE-129	PCI/G	NR		NR		1.040	U	0.947	U	0.881	U	0.944	U
ALPHA	PCI/G	196.000		172.000		14.000		7.290		8.460		9.230	
BETA	PCI/G	519.000		2410.000		28.300		25.700		20.400		40.000	
TOTAL STRONTIUM	PCI/G	72.400	J	35.500	J	0.115	UJ	0.109	UJ	0.103	UJ	0.107	UJ
SELENIUM-79	PCI/G	3.230	J	4.670	UJ	1.170	UJ	1.160	UJ	1.170	UJ	1.160	UJ
TECHNETIUM-99	PCI/G	0.778		1.490		1.480		0.615		0.627		0.884	
URANIUM	UG/G	4.210	J	12.500	J	2.640	J	2.610	J	3.920	J	2.010	J

Verified
MAT
6/25/94

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MAT 6/25/94

007

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Validated Data Summary, Data Package: W0005-ITC-020

	Samp#	B09WI8	
	Date	3-10-94	
	Location	---	
	Depth	---	
	Type	SOIL	
	Comments	---	
Parameter	Units	Result	Q
AMERICIUM-241	PCI/G	5.450	
CURIUM-242	PCI/G	0.006	U
CURIUM-244	PCI/G	0.009	J
NEPTUNIUM-237	PCI/G	0.102	J
PLUTONIUM-239/240	PCI/G	26.500	J
PLUTONIUM-238	PCI/G	5.390	R
URANIUM-234	PCI/G	8.810	
URANIUM-235	PCI/G	0.625	
URANIUM-238	PCI/G	8.260	J
POTASSIUM-40	PCI/G	13.600	
COBALT-60	PCI/G	0.093	
EUROPIUM-152	PCI/G	0.115	U
CESIUM-137	PCI/G	1150.000	
CESIUM-134	PCI/G	0.180	U
RUTHENIUM-106	PCI/G	1.870	U
SODIUM-22	PCI/G	0.055	
EUROPIUM-155	PCI/G	0.581	U
EUROPIUM-154	PCI/G	0.168	
IODINE-129	PCI/G	NR	
ALPHA	PCI/G	42.500	
BETA	PCI/G	1370.000	
TOTAL STRONTIUM	PCI/G	2.010	J
SELENIUM-79	PCI/G	20.200	J
TECHNETIUM-99	PCI/G	0.582	
URANIUM	UG/G	19.200	J

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6/25/94

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9713506.1724

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

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND SDG NO.: W0005

LAB SAMPLE ID: 4-03-265-02 MATRIX: SOIL

WHC ID: B09WG4 DATE RECEIVED 3/14/94

REPORTING UNITS pCi/g (uranium in ug/g)

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER	Q
AM-241	1.94E+02	9.92E+00	1.31E+02	4.02E-01	0.572	RD3302	
CM-242	-3.15E-03	4.45E-03	4.93E-03	5.00E-01	0.572	RD3302	U
CM-244	0.00E+00	0.00E+00	3.82E-01	3.45E-01	0.572	RD3302	UJ
NP-237	3.45E-01	4.91E-02	8.90E-02	4.30E-03	0.477	RD3208	J
PU-238	3.51E-01	1.26E-01	1.42E-01	3.06E-02	0.368	RD3209	R
PU239/40	6.81E+00	5.55E-01	1.40E+00	3.06E-02	0.368	RD3209	J
U-234	1.59E+00	2.84E-01	3.95E-01	5.86E-02	0.329	RD3234	
U-235	6.12E-02	5.66E-02	5.76E-02	5.15E-02	0.329	RD3234	
U-238DA	1.51E+00	2.77E-01	3.81E-01	6.15E-02	0.329	RD3234	J
K-40	1.38E+01	5.79E-01	5.79E-01	N/A	N/A	RD3219	-
CO-60	2.08E+00	6.80E-02	6.80E-02	N/A	N/A	RD3219	
EU-152	5.87E-01	9.67E-02	1.13E-01	N/A	N/A	RD3219	
CS-137DA	2.02E+02	4.92E-01	4.92E-01	N/A	N/A	RD3219	
CS-134	1.81E-02	4.86E-02	4.86E-02	7.68E-02	N/A	RD3219	U
RU-106DA	1.94E-01	4.96E-01	4.96E-01	7.89E-01	N/A	RD3219	U
NA-22	1.07E-01	2.08E-02	2.34E-02	N/A	N/A	RD3219	
EU-155	3.02E-02	1.63E-01	1.63E-01	2.69E-01	N/A	RD3219	U
EU-154	2.11E-01	4.72E-02	5.16E-02	1.02E-01	N/A	RD3219	
ALPHA	1.96E+02	1.34E+01	2.51E+01	2.77E+00	1	RD3222	
BETA	5.19E+02	1.05E+01	3.58E+01	2.05E+00	1	RD3222	
TOTAL-SR	7.24E+01	9.64E-01	1.75E+01	1.05E-01	0.782	RD3204	J
SE-79	3.23E+00	6.09E-01	1.82E+00	1.16E+00	0.819	RD3253	J
TC-99	7.78E-01	2.46E-01	1.13E+00	5.37E-01	0.956	ITAS-IT-RS-0001	
URANIUM	4.21E+00	N/A	6.32E-01	1.00E-02	1	RD4200	J

Verified [illegible] 6/16/94

9713506.1775

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

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND SDG NO.: W0005

LAB SAMPLE ID: 4-03-235-01 MATRIX: SOIL

WHC ID: B09WG~~4~~5 DATE RECEIVED 3/11/94

REPORTING UNITS pCi/g (Uranium in ug/g)

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER	Q
AM-241	1.18E+02	5.67E+00	1.45E+01	4.21E-01	0.427	RD3302	
CM-242	0.00E+00	0.00E+00	2.51E-01	2.27E-01	0.427	RD3302	U
CM-244	-2.73E-02	5.47E-02	5.47E-02	3.53E-01	0.427	RD3302	UJ
NP-237	8.53E-01	5.10E-01	5.42E-01	2.06E-01	0.477	RD3208	J
PU-238	1.39E-01	7.33E-01	7.34E-01	1.91E+00	0.482	RD3209	UR
PU239/40	0.00E+00	0.00E+00	1.04E+00	9.37E-01	0.482	RD3209	UJ
U-234	5.75E+00	2.52E+00	2.64E+00	1.41E+00	0.621	RD3234	
U-235	7.83E-01	9.30E-01	9.37E-01	9.85E-01	0.621	RD3234	U
U-238DA	7.74E+00	2.89E+00	3.08E+00	1.09E+00	0.621	RD3234	J
K-40	1.81E+01	6.53E-01	6.53E-01	N/A	N/A	RD3219	
CO-60	2.33E-01	2.43E-02	3.36E-02	N/A	N/A	RD3219	
EU-152	4.41E-01	7.76E-02	8.93E-02	1.83E-01	N/A	RD3219	
CS-137DA	1.98E+03	1.58E+00	1.58E+00	N/A	N/A	RD3219	
CS-134	-5.91E-02	1.52E-01	1.52E-01	2.38E-01	N/A	RD3219	U
RU-106DA	-8.24E-01	1.55E+00	1.56E+00	2.46E+00	N/A	RD3219	U
NA-22	1.46E-02	2.93E-02	2.94E-02	4.96E-02	N/A	RD3219	U
EU-155	1.63E-01	4.89E-01	4.89E-01	8.06E-01	N/A	RD3219	U
EU-154	1.07E-01	7.81E-02	7.88E-02	1.37E-01	N/A	RD3219	U
ALPHA	1.72E+02	1.43E+01	2.69E+01	3.94E+00	1	RD3222	
BETA	2.41E+03	6.51E+01	1.75E+02	1.69E+01	1	RD3222	
TOTAL-SR	3.55E+01	2.19E+00	8.95E+00	1.16E+00	0.834	RD3204	J
SE-79	-9.46E-01	2.15E+00	5.77E+00	4.67E+00	0.819	RD3253	U ~~J~~ J
TC-99	1.49E+00	2.45E-01	1.11E+00	5.37E-01	0.99	ITAS-IT-RS-0001	MAA 6/24/94
URANIUM	1.25E+01	N/A	1.88E+00	1.00E-02	1	RD4200	J

Verified MAA 6/10/94

Revised MAA 6/24/94

9713506.1776

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

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND SDG NO.: W0005

LAB SAMPLE ID: 4-03-386-01 MATRIX: SOIL

WHC ID: B09WH2 DATE RECEIVED 3/21/94

REPORTING UNITS pCi/g (uranium in ug/g

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER	Q
AM-241	7.74E-01	7.65E-02	1.18E-01	5.11E-03	0.384	RD3302	J
CM-242	2.20E-03	4.40E-03	4.41E-03	5.96E-03	0.384	RD3302	U
CM-244	1.90E-03	3.79E-03	3.80E-03	5.13E-03	0.384	RD3302	UJ
NP-237	6.63E-03	8.17E-03	8.29E-03	5.80E-03	0.477	RD3208	J
PU-238	-5.24E-03	6.05E-03	6.12E-03	4.81E-02	0.477	RD3209	UR
PU239/40	0.00E+00	0.00E+00	2.62E-02	2.36E-02	0.477	RD3209	UJ
U-234	8.60E-01	1.47E-01	1.88E-01	2.92E-02	0.66	RD3234	
U-235	4.89E-02	3.57E-02	3.63E-02	2.76E-02	0.66	RD3234	
U-238DA	1.01E+00	1.60E-01	2.10E-01	2.56E-02	0.66	RD3234	J
K-40	1.75E+01	4.85E-01	1.82E+00	N/A	N/A	RD3219	
CO-60	-2.98E-03	1.03E-02	1.03E-02	1.71E-02	N/A	RD3219	U
EU-152	1.65E-01	4.71E-02	4.99E-02	9.30E-02	N/A	RD3219	
CS-137DA	2.38E-02	1.32E-02	1.34E-02	N/A	N/A	RD3219	
CS-134	-6.75E-03	9.24E-03	9.26E-03	1.44E-02	N/A	RD3219	U
RU-106DA	1.05E-02	8.70E-02	8.70E-02	1.42E-01	N/A	RD3219	U
NA-22	2.98E-02	1.12E-02	1.16E-02	2.07E-02	N/A	RD3219	
EU-155	5.60E-02	3.04E-02	3.09E-02	4.87E-02	N/A	RD3219	
EU-154	8.19E-02	3.06E-02	3.17E-02	5.68E-02	N/A	RD3219	
I-129LP	4.34E-01	5.80E-01	5.82E-01	1.04E+00	N/A	RD3219	U
ALPHA	1.40E+01	3.80E+00	4.09E+00	2.77E+00	1	RD3222	~~U~~ MW 6/25/94
BETA	2.83E+01	2.69E+00	3.27E+00	2.03E+00	1	RD3222	
TOTAL-SR	1.20E-02	5.12E-02	5.13E-02	1.15E-01	0.773	RD3204	UJ
SE-79	-1.16E+00	5.18E-01	1.34E+00	1.17E+00	0.819	RD3253	UJ
TC-99	1.48E+00	2.53E-01	1.19E+00	5.37E-01	0.956	ITAS-IT-RS-0001	MW
URANIUM	2.64E+00	N/A	3.96E-01	1.00E-02	1	RD4200	J 6/21/94

Verified MW 6/16/94

Reviewed MW 6/25/94

~~0014~~ 011

682A-6-93

9713506.1777

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

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND SDG NO.: W0005

LAB SAMPLE ID: 4-03-386-02 MATRIX: SOIL

WHC ID: B09WH3 DATE RECEIVED 3/21/94

REPORTING UNITS pCi/g (uranium in ug/g)

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER	Q
AM-241	5.08E-01	5.41E-02	7.73E-02	8.87E-03	0.506	RD3302	J
CM-242	3.68E-03	6.09E-03	6.10E-03	1.03E-02	0.506	RD3302	U
CM-244	2.88E-04	3.31E-03	3.31E-03	8.91E-03	0.506	RD3302	UJ
NP-237	1.05E-03	3.75E-03	3.76E-03	4.30E-03	0.477	RD3208	UJ
PU-238	-2.15E-03	4.29E-03	4.31E-03	4.64E-02	0.388	RD3209	UR
PU239/40	0.00E+00	0.00E+00	3.22E-02	2.90E-02	0.388	RD3209	UJ
U-234	1.11E+00	1.76E-01	2.34E-01	3.38E-02	0.6	RD3234	
U-235	8.27E-02	4.81E-02	4.94E-02	2.55E-02	0.6	RD3234	
U-238DA	1.23E+00	1.85E-01	2.52E-01	3.22E-02	0.6	RD3234	J
K-40	1.67E+01	4.31E-01	1.72E+00	N/A	N/A	RD3219	
CO-60	-6.61E-03	9.59E-03	9.62E-03	1.55E-02	N/A	RD3219	U
EU-152	7.62E-02	4.41E-02	4.48E-02	8.02E-02	N/A	RD3219	U
CS-137DA	4.83E-03	9.09E-03	9.10E-03	1.53E-02	N/A	RD3219	U
CS-134	4.82E-04	8.62E-03	8.62E-03	1.41E-02	N/A	RD3219	U
RU-106DA	1.42E-02	8.52E-02	8.52E-02	1.41E-01	N/A	RD3219	U
NA-22	7.47E-03	1.11E-02	1.11E-02	1.87E-02	N/A	RD3219	U
EU-155	4.44E-02	2.78E-02	2.81E-02	4.40E-02	N/A	RD3219	
EU-154	2.05E-02	3.04E-02	3.04E-02	5.12E-02	N/A	RD3219	U
I-129LP	-1.38E-01	5.56E-01	5.56E-01	9.47E-01	N/A	RD3219	U
ALPHA	7.29E+00	2.92E+00	3.03E+00	2.91E+00	1	RD3222	~~U~~ 6/25/94
BETA	2.57E+01	2.57E+00	3.08E+00	1.96E+00	1	RD3222	
TOTAL-SR	-5.90E-03	4.57E-02	4.57E-02	1.09E-01	0.769	RD3204	UJ
SE-79	-3.62E-01	5.31E-01	1.42E+00	1.16E+00	0.819	RD3253	UJ
TC-99	6.15E-01	2.40E-01	1.12E+00	5.37E-01	0.956	ITAS-IT-RS-0001	6/21/94
URANIUM	2.61E+00	N/A	3.92E-01	1.00E-02	1	RD4200	J

Verified 6/16/94

Revised 6/25/94

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682A-6-93

9713506.1778

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

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND
SDG NO.: W0005
LAB SAMPLE ID: 4-03-386-03
MATRIX: SOIL
WHC ID: B09WH4
DATE RECEIVED: 3/21/94
REPORTING UNITS: pCi/g (uranium in ug/g)

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	Q YIELD	METHOD NUMBER
AM-241	5.69E-01	6.50E-02	9.25E-02	5.03E-03	J 0.391	RD3302
CM-242	-8.66E-04	1.73E-03	1.74E-03	1.12E-02	U 0.391	RD3302
CM-244	-2.24E-03	2.59E-03	2.60E-03	1.30E-02	UJ 0.391	RD3302
NP-237	1.74E-03	3.48E-03	3.50E-03	2.25E-03	UJ 0.477	RD3208
PU-238	0.00E+00	0.00E+00	2.66E-02	2.40E-02	UR 0.469	RD3209
PU239/40	2.48E-02	3.09E-02	3.12E-02	3.83E-02	UJ 0.469	RD3209
U-234	1.76E+00	2.13E-01	3.20E-01	3.38E-02	0.647	RD3234
U-235	5.73E-02	3.86E-02	3.93E-02	2.36E-02	0.647	RD3234
U-238DA	1.59E+00	2.02E-01	2.95E-01	2.81E-02	J 0.647	RD3234
K-40	9.95E+00	3.93E-01	1.07E+00	N/A	N/A	RD3219
CO-60	4.66E-03	9.06E-03	9.07E-03	1.54E-02	U N/A	RD3219
EU-152	1.15E-01	4.76E-02	4.90E-02	8.86E-02	N/A	RD3219
CS-137DA	9.32E-04	9.27E-03	9.27E-03	1.53E-02	U N/A	RD3219
CS-134	-5.00E-03	8.64E-03	8.66E-03	1.38E-02	U N/A	RD3219
RU-106DA	7.29E-03	8.60E-02	8.60E-02	1.40E-01	U N/A	RD3219
NA-22	2.29E-03	1.02E-02	1.02E-02	1.76E-02	U N/A	RD3219
EU-155	2.26E-02	2.68E-02	2.68E-02	4.50E-02	U N/A	RD3219
EU-154	-3.34E-02	2.97E-02	2.99E-02	4.81E-02	U N/A	RD3219
I-129LP	3.18E-01	4.87E-01	4.88E-01	8.81E-01	U N/A	RD3219
ALPHA	8.46E+00	3.14E+00	3.27E+00	3.04E+00	~~U~~ 1	RD3222
BETA	2.04E+01	2.36E+00	2.72E+00	2.03E+00	1	RD3222
TOTAL-SR	2.67E-02	4.78E-02	4.82E-02	1.03E-01	UJ 0.82	RD3204
SE-79	9.84E-01	5.63E-01	1.57E+00	1.17E+00	UJ 0.819	RD3253
TC-99	6.27E-01	2.40E-01	1.12E+00	5.37E-01	0.956	ITAS-IT-RS-0001
URANIUM	3.92E+00	N/A	5.88E-01	1.00E-02	J 1	RD4200

4/25/94 Verified 6/16/94 Revised 4/25/94

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682A-6-93

9713506.1779

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

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND SDG NO.: W0005

LAB SAMPLE ID: 4-03-433-01 MATRIX: SOIL

WHC ID: B09WI0 DATE RECEIVE 3/23/94

REPORTING UNITS pCi/g (uranium in ug/g)

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER	Q
AM-241	5.91E-01	5.87E-02	8.73E-02	9.01E-03	0.5	RD3302	J
CM-242	3.34E-04	3.83E-03	3.83E-03	1.03E-02	0.5	RD3302	U
CM-244	1.75E-03	4.45E-03	4.45E-03	9.03E-03	0.5	RD3302	UJ
NP-237	1.75E-03	3.49E-03	3.51E-03	2.25E-03	0.477	RD3208	UJ
PU-238	0.00E+00	0.00E+00	8.38E-02	7.56E-02	0.149	RD3209	UR
PU239/40	2.23E-02	5.69E-02	5.73E-02	1.21E-01	0.149	RD3209	UJ
U-234	1.02E+00	1.49E-01	1.99E-01	2.54E-02	0.76	RD3234	
U-235	3.15E-02	2.69E-02	2.72E-02	2.40E-02	0.76	RD3234	
U-238DA	1.02E+00	1.50E-01	2.00E-01	2.23E-02	0.76	RD3234	J
K-40	1.96E+01	4.45E-01	2.01E+00	N/A	N/A	RD3219	
CO-60	8.52E-03	9.61E-03	9.65E-03	1.66E-02	N/A	RD3219	U MAT 6/25/94
EU-152	3.32E-02	4.54E-02	4.55E-02	7.86E-02	N/A	RD3219	U
CS-137DA	3.98E-03	8.39E-03	8.40E-03	1.42E-02	N/A	RD3219	U
CS-134	-1.07E-02	8.50E-03	8.57E-03	1.34E-02	N/A	RD3219	U
RU-106DA	-1.18E-01	8.33E-02	8.41E-02	1.31E-01	N/A	RD3219	U
NA-22	-2.63E-03	1.11E-02	1.11E-02	1.82E-02	N/.A	RD3219	U MAT 6/25/94
EU-155	6.69E-02	2.58E-02	2.67E-02	4.40E-02	N/A	RD3219	~~U~~
EU-154	-7.24E-03	3.06E-02	3.06E-02	5.02E-02	N/A	RD3219	U
I-129LP	3.70E-01	5.23E-01	5.24E-01	9.44E-01	N/A	RD3219	U MAT 6/25/94
ALPHA	9.23E+00	3.40E+00	3.54E+00	3.56E+00	1	RD3222	~~U~~
BETA	4.00E+01	3.09E+00	4.07E+00	1.96E+00	1	RD3222	
TOTAL-SR	5.72E-02	5.31E-02	5.49E-02	1.07E-01	0.766	RD3204	UJ
SE-79	9.85E-02	5.42E-01	1.47E+00	1.16E+00	0.819	RD3253	UJ MAT 6/24/94
TC-99	8.84E-01	2.45E-01	1.14E+00	5.37E-01	0.956	ITAS-IT-RS-0001	
URANIUM	2.01E+00	N/A	3.02E-01	1.00E-02	1	RD4200	J

MAT 6/24/94

Revised MAT 6/25/94

verified MAT 6/16/94

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682A-6-93

9713506.1730

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

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND SDG NO.: W0005

LAB SAMPLE ID: 4-03-265-01 MATRIX: SOIL

WHC ID: B09WI8 DATE RECEIVED 3/14/94

REPORTING UNITS pCi/g (Uranium in ug/g)

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER	Q
AM-241	5.45E+00	1.41E-01	5.64E-01	2.46E-03	0.796	RD3302	
CM-242	6.56E-04	2.36E-03	2.36E-03	5.65E-03	0.796	RD3302	U
CM-244	9.15E-03	5.78E-03	5.86E-03	2.48E-03	0.796	RD3302	J
NP-237	1.02E-01	2.68E-02	3.47E-02	4.29E-03	0.477	RD3208	J
PU-238	5.39E+00	4.48E-01	1.04E+00	4.02E-02	0.448	RD3209	R
PU239/40	2.65E+01	9.93E-01	4.72E+00	2.51E-02	0.448	RD3209	J
U-234	8.81E+00	4.93E-01	1.32E+00	3.63E-02	0.603	RD3234	
U-235	6.25E-01	1.32E-01	1.58E-01	3.36E-02	0.603	RD3234	
U-238DA	8.26E+00	4.78E-01	1.25E+00	3.02E-02	0.603	RD3234	J
K-40	1.36E+01	5.54E-01	5.54E-01	N/A	N/A	RD3219	
CO-60	9.33E-02	2.13E-02	2.32E-02	N/A	N/A	RD3219	
EU-152	2.28E-02	6.66E-02	6.66E-02	1.15E-01	N/A	RD3219	U
CS-137DA	1.15E+03	1.17E+00	1.17E+00	N/A	N/A	RD3219	
CS-134	-8.14E-02	1.14E-01	1.14E-01	1.80E-01	N/A	RD3219	U
RU-106DA	-1.21E+00	1.17E+00	1.18E+00	1.87E+00	N/A	RD3219	U
NA-22	5.46E-02	2.29E-02	2.35E-02	4.27E-02	N/A	RD3219	
EU-155	-2.19E-01	3.53E-01	3.53E-01	5.81E-01	N/A	RD3219	U
EU-154	1.68E-01	6.23E-02	6.46E-02	1.18E-01	N/A	RD3219	
ALPHA	4.25E+01	6.46E+00	7.93E+00	3.56E+00	1	RD3222	
BETA	1.37E+03	1.69E+01	9.17E+01	1.96E+00	1	RD3222	
TOTAL-SR	2.01E+00	1.70E-01	5.11E-01	1.12E-01	0.768	RD3204	J
SE-79	2.02E+01	8.86E-01	3.68E+00	1.16E+00	0.819	RD3253	J
TC-99	5.82E-01	2.41E-01	1.12E+00	5.37E-01	0.956	ITAS-IT-RS-0001	
URANIUM	1.92E+01	N/A	2.88E+00	1.00E-02	1	RD4200	J

Verified [illegible] 4/16/94

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

INTERNATIONAL TECHNOLOGY CORPORATION

CERTIFICATE OF ANALYSIS

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

May 10, 1994

Attention: J.A.Lerch

SAF Number	:	94-065
Date Received by Lab	:	March 23, 1994
Number of Samples	:	Seven (7)
Sample Type	:	Soil
SDG Number	:	W0005
Data Deliverable	:	Stand-Alone

I. Introduction

On March 11, 14, 21, and 23, 1994, seven soil samples were received by ITAS-Richland for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the WHC specific IDs:

ITAS-Richland ID	WHC ID	Matrix	Date of Receipt
403235-01A	B09WG5	Soil	3/11/94
403265-01A	B09WI8	Soil	3/14/94
403265-02A	B09WG4	Soil	3/14/94
403386-01A	B09WH2	Soil	3/21/94
403386-02A	B09WH3	Soil	3/21/94
403386-03A	B09WH4	Soil	3/21/94
403433-01A	B09WI0	Soil	3/23/94

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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
Americium-241, Curium-244 by method ITAS-RD-3302
Neptunium-237 by method ITAS-RD-3208
Plutonium-238, 239/40 by method ITAS-RD-3209
Uranium-234,-235, 238 by method ITAS-RD-3234
Gamma Spectroscopy
Gamma Scan by method ITAS-RD-3219
Iodine-129 by method ITAS-RD-3219
Gas Proportional Counting
Gross Alpha by method ITAS-RD-3222
Gross Beta by method ITAS-RD-3222
Strontium-90 by method ITAS-RD-3204
Liquid Scintillation Counting
Selenium-79 by method ITAS-RD-3253
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 W0005 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate.

Quality control sample results are reported in the same units as sample results except for gross alpha and gross beta quality control sample results which are reported in pCi/sample.

IV. Comments

On 3/23/94 Jim Harvey delivered an Issue Resolution Form to WHC regarding the duplicate use of sample ID# B09WG4. An additional Issue Resolution Form for the same issue was delivered to WHC on 4/15/94. In this Case Narrative we are referring to the sample identified as B09WG4 on the Chain of Custody form and received on 3/11/94 as B09WG5 (the sample ID number given on the sample bottle label). The sample ID numbers reported in the hardcopy report, raw data, and EDD are reported as they were submitted on the Chain of Custody forms (both are reported as B09WG4). A WHC Record of Disposition has not been received regarding the duplication of the sample ID numbers on the Chain of Custody forms.

The initial radioactivity screening of the samples classified them as Category II with the exception of WHC sample B09WG5 which was classified as Category III.

Alpha Spectroscopy

Due to the activity of sample B09WG5, a .5 gram aliquot of the sample was prepared by microwave bomb digestion and then diluted to 100 ml. The resultant volume analyzed for each of the listed alpha isotopic analyses was .05 grams.

Americium-241, Curium-244 by method ITAS-RD-3302
The LCS and batch blank results were acceptable. The technician noted that a portion of the batch blank was lost during the vortexing step in the sample preparation, however the results and yield were acceptable. The sample and sample duplicate results were within the 3 sigma control limit.

Neptunium-237 by method ITAS-RD-3208
Three matrix spikes were analyzed with the batch and the average yield was used for yield correction. The LCS was biased high (135.2%) after yield correction using the matrix spike yield average value of 47.7%. The high bias is attributed to the difference in the matrices of the matrix spike and the LCS. The batch blank result was acceptable. The sample and sample duplicate results were within the 3 sigma control limit.

Plutonium-238, 239/40 by method ITAS-RD-3209
The LCS result was acceptable. The technician noted that a portion of the batch blank was lost during the vortexing step in the sample preparation resulting in the low tracer recovery for the blank (21.8%). The sample and sample duplicate results were within the 3 sigma control limit. Sample B09WI0 had a low yield (14.9%). The sample was analyzed in duplicate and the duplicate result was within the 3 sigma control limit and had an acceptable yield of 36.4%, therefore, the sample data was accepted.

Uranium-234, 235, 238 by method ITAS-RD-3234
The LCS and the batch blank results were acceptable. The sample and sample duplicate results for sample ID# B09WG5 and sample ID# B09WI0 were within the 3 sigma control limit.

Gamma Spectroscopy

Gamma Scan by method ITAS-RD-3219
Samples B09WH2, B09WH3, B09WH4, B09WI0, the batch duplicate (duplicate of sample B09WH3), the LCS, and the batch blank were recounted for an extended counting time (1000 min.) in order to meet the detection limit for one or more isotopes. The recount data were acceptable and are reported. The detection limit was not met for isotopes Eu-152, Eu-154, and Eu-155, for samples B09WG5, B09WI8, and B09WG4 due to matrix effects (elevated Cs-137 activity in the samples). The sample and sample duplicate results of sample B09WH3 were within the 3 sigma control limit for all isotopes except Co-60. The Co-60 results were less than the detection limit for the sample and sample duplicate and therefore the data were accepted.

Iodine-129 by method ITAS-RD-3219
The LCS result was acceptable but biased high (148%). The batch blank result was acceptable. The sample and sample duplicate results for sample ID# B09WI8 were within the 3 sigma control limit, however, the results will not be reported due to matrix effects. The following samples are not reported due to matrix effects caused by high levels of Cs-137 in the samples: B09WG5, B09WI8, B09WG4, and the duplicate of B09WG4. The samples were each counted twice, both counts indicating interferences caused by elevated backgrounds due to the Cs-137 activity.

Gas Proportional Counting

Gross Alpha by method ITAS-RD-3222
The LCS and batch blank results were acceptable. The sample and sample duplicate results were within the 3 sigma control limit. The routine sample size of .05 grams was reduced to .029 grams for sample B09WG5 due to the high activity.

Gross Beta by method ITAS-RD-3222
The LCS and batch blank results were acceptable. The sample and sample duplicate results were within the 3 sigma control limit. The routine sample size of .25 grams was reduced to .026 grams for sample B09WG5 due to the high activity.

Strontium-90 by method ITAS-RD-3204
The LCS recovery was biased high (161%). The high result is attributed to strontium-85 in the spike. Concurrently analyzed spikes without strontium-85 added were acceptable. Strontium-85 will not be used in future spikes for this analysis on WHC samples. The batch blank result was acceptable. The sample and sample duplicate results were within the 3 sigma control limit. The routine sample size of 6 grams was reduced to .58 grams for sample B09WG5 due to the high activity.

Liquid Scintillation Counting

Selenium-79 by method ITAS-RD-3253
The LCS and batch blank results were acceptable. The matrix spike result for sample 40326501 (B09WI8) and matrix spike result for sample 40326502 (B09WG4) were acceptable and the average chemical yield was used for batch yield corrections. The sample and sample duplicate results were within the 3 sigma control limit. The routine sample size of 1 gram was reduced to .25 grams for sample B09WG5 due to the high activity.

Technetium-99 by method ITAS-IT-RS-0001
The LCS and batch blank results were acceptable. Two matrix spikes were analyzed with the set. Matrix spike W0326502 was spilled during the analytical process and the results were not used for the batch yield correction. The sample and sample duplicate results were within the 3 sigma control limit. Sample B09WG4 was reanalyzed due to a high quench during the first analysis. The quality control samples in the reanalysis set were acceptable. The reanalysis matrix spike (W0323501) results were used for the yield correction of the samples in the reanalysis set. The reanalysis data were accepted and are reported for this sample.

Total Uranium

Total Uranium by method ITAS-RD-4200
The LCS was biased low (32%). The batch blank result was acceptable. The matrix spike results were acceptable. The average chemical yield was greater than 100% (113%) therefore no yield correction was performed. The sample and sample duplicate results were within the 3 sigma control limit. Sample B09WG5 and the duplicate of sample B09WG5 were analyzed using a reduced sample volume of .05 grams due to the sample activity.

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

9213506.1738

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.V. SETZER

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-8-94

Ice Chest No.:

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 RADIOACTIVE

Sample Identification

1) 403235 TH 5/11/94

A 1,250ml P:CLP;TAL Metals,Hg,Ti B09WG4

B 1,250ml Gs:VOA CLP

C 1,250ml aG:Semi-VOA CLP

D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)

E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)

~~1,250ml aGs:PCB/Pest (8080)~~ 3-9-94

F 1,125ml G:Cyanide CLP

G 1,125ml Gw:Kerosene (8015M)

1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

Validation Note! This sample is identified as B09WG5 in data package MAS 6/20/94

403235 01

2)

~~1,250ml P:CLP;TAL Metals,Hg,Ti B09WG5 3-11-94 WVS~~

~~1,250ml Gs:VOA CLP~~

~~1,250ml aG:Semi-VOA CLP~~

~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~

~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~

~~1,250ml aGs:PCB/Pest (8080)~~ SER 3-9-94 WVS 3-11-94

~~1,125ml G:Cyanide CLP~~

~~1,125ml Gw:Kerosene (8015M)~~

~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W.V. Setzer	800 cpm ITAS	3/11/94 1055
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

~~0064~~

97 [illegible] 0005

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.W. SETZER

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-10-94

Ice Chest No.: WHC 169 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.: ~~NA~~ WWS 3-14-94 NA

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 RADIOACTIVE

Sample Identification

1) B09WI8

CAT II

400 cpm

403264 01

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
F 1,250ml aGs:PCB/Pest (8080)
G 1,125ml G:Cyanide CLP
H 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40326501

2) B09WG4

200 cpm

403264 02

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ GR 3-14-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40326502

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: W.W. Setzer	Received by: R. Boyd JT	Date/Time: 3/14/94 1430
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713506.1790

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-17-94

Ice Chest No.: SML-127 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) B09WH2

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ JER 3-17-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

2) B09WH3

A 1,250ml P:CLP;TAL Metals,Hg,Ti
B 1,250ml Gs:VOA CLP
C 1,250ml aG:Semi-VOA CLP
D 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ JER 3-17-94
F 1,125ml G:Cyanide CLP
G 1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
3-21-94 0930		3/21 1120
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

~~0085~~
024

9713506.1791

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 3-17-94

Ice Chest No.: SML-127

Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.:

Offsite Property No.:

Method of Shipment: Government vehicle

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065 NONE NOTED

Sample Identification

1) B09WH4

- 1,250ml P:CLP;TAL Metals,Hg,Ti
- 1,250ml Gs:VOA CLP
- 1,250ml aG:Semi-VOA CLP
- 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
- ~~1,250ml aGs:PCB/Pest (8080)~~ SCR 3-17-94
- 1,125ml G:Cyanide CLP
- 1,125ml Gw:Kerosene (8015M)
- 1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

2)

- ~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
- ~~1,250ml Gs:VOA CLP~~
- ~~1,250ml aG:Semi-VOA CLP~~
- ~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
- ~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
- ~~1,250ml aGs:PCB/Pest (8080)~~ SCR 3-17-94
- ~~1,125ml G:Cyanide CLP~~
- ~~1,125ml Gw:Kerosene (8015M)~~
- ~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
3-21-94 Karen E. Rogers 0930	J Hudiburg Jr	3/21 1130
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

~~0087~~
025

9713506.1792

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS/W. SETZER

Company Contact: L E ROGERS — Telephone: 376-7690 WVS 3-22-94

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 3-21-94

Ice Chest No.: WHC-19 — Field Logbook No.: EFL-1115

Bill of Lading/Airbill No.: NA — Offsite Property No.: WA4-0-

Method of Shipment: Government vehicle — SDX-W0011

Shipped to: IT, Richland

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) SAF # 94-065

Sample Identification

1) WVS 3-21-94

BQ4WI0 — 40343201

A 1,250ml aGs P:CLP;TAL Metals,Hg,Ti
B 1,250ml aGs Gs:VOA CLP
C 1,250ml aGs aG:Semi-VOA CLP
D 1,125ml aGs G:Anions F,Cl,SO4 (EPA 300.0)
E 1,125ml aGs P/G:Anions NO2,NO3 (EPA 353.2)
~~1,250ml aGs:PCB/Pest (8080)~~ WVS 3-21-94
F 1,125ml aGs G:Cyanide CLP
G 1,125ml aGs Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)

40343301

40343202 A

2) BQ4WI1 (TRIP) 1,250mL, aGs : CLP : VOA

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml Gs:VOA CLP~~
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,250ml aGs:PCB/Pest (8080)~~
~~1,125ml G:Cyanide CLP~~ WVS 3-22-94
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha (ITAS-RD-3322) Gross beta (ITAS-RD-3322), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22,I-129 (ITAS-RD-3219), Total Uranium (ITAS-RD-4200, ITAS-RD-4201) U-235,U-234,U-238 (ITAS-RD-3234) Np-237,(ITAS-RD-3208) Pu-238,Pu-239/240 (ITAS-RD-3209) Sr-90 (ITAS-RD-3204) Tc-99 (ITAS-IT-RS-0001) Am-241,Cm-244 (ITAS-RD-3302) Se-79 (ITAS-RD-3253)~~

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: 3-23-94 0920 W.V. SETZER	Received by: ITAS Karen Achtenberg 200	Date/Time: 3-23-94 11:00
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

~~0104~~

9713506.1793

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

W0005-ITC-020
Rad

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 200 UP2		DATA PACKAGE: W0005-ITC-020
VALIDATOR: K.A.	LAB: IT	DATE: 6/16/94
CASE:		SDG:

ANALYSES PERFORMED

☑ Gross Alpha/Beta	☑ Strontium-90	☐ Technetium-99	☑ Alpha Spectroscopy	☐ Gamma Spectroscopy	
☑ Total Uranium	☐ Radium-22	☐ Tritium	☑ I-129		

SAMPLES/MATRIX B09W65, B09WI8, B09W64, B09WH2, B09WH3, B09WH4, ~~B09~~ B09WI0, SOIL

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? . . . . . ~~Yes~~ No N/A (mit 6/16/94)

Initial calibration acceptable? . . . . . Yes No N/A

Standards NIST traceable? . . . . . Yes No N/A

Standards Expired? . . . . . Yes No N/A

Comments: Initial calibration not performed within one year, no qualification necessary.

Revised mit 6/25/94

028

3. Continuing Calibration . . . . . ☐ N/A

Calibration checked within one week of sample analysis? . . . (Yes) No N/A
Calibration check acceptable? . . . . . (Yes) No N/A
Calibration check standards NIST traceable? . . . . . (Yes) No N/A
Calibration check standards expired? . . . . . Yes (No) N/A

Comments:

4. Blanks . . . . . ☐ N/A

Method blank analyzed? . . . . . (Yes) No N/A
Method blank results acceptable? . . . . . Yes (No) N/A
Analytes detected in method blank? . . . . . (Yes) No N/A
Field blank(s) analyzed? . . . . . Yes No (N/A)
Field blank results acceptable? . . . . . Yes No (N/A)
Analytes detected in field blank(s)? . . . . . Yes No (N/A)
Transcription/Calculation Errors? . . . . . Yes (No) N/A

Comments: Am241/Np237 detected in blank. Results for 309WH2, 309WH3, 309WH4 309WI0 (Am241) and 309WH2 (Np237) qualified as J

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: Np237 MS recovery <60 but >10, quality results as J/UJ

6. Laboratory Control Samples . . . . . ☐ N/A

LCS analyzed? . . . . . (Yes) No N/A
LCS recoveries acceptable? . . . . . Yes (No) N/A
LCS traceable? . . . . . (Yes) No N/A
Transcription/Calculation Errors? . . . . . Yes (No) N/A

Comments: LCS %R for Pu238 low (<30%) Results R/UR. LCS %R for Np237 Uranium, Strontium exceeded Np237 and Sr qualified J Uranium qualified UJ/J

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: Tracer recovery for Pu242 low for 309WTO results qualified J/UJ

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: Duplicate RPD's for Pu239/40 and U-238 >35% or >2x RDL, Results qualified as J/UJ

9. Field QC Samples . . . . . ☑ N/A

Field duplicate sample(s) analyzed? . . . . . Yes No N/A
Field duplicate RPD values acceptable? . . . . . Yes No N/A
Field split sample(s) analyzed? . . . . . Yes No N/A
Field split RPD values acceptable? . . . . . Yes No N/A
Performance audit sample(s) analyzed? . . . . . Yes No N/A
Performance audit sample results acceptable? . . . . . Yes No N/A

Comments:

10. Holding Times

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

Comments: All samples collected 3/8 – 3/22/94
All analyses completed within 180 days.

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? . . . . . Yes (No) N/A
Transcription/calculation errors? . . . . . Yes (No) N/A

Comments: I-129 not reported for B09W65, B09W18
B09W64 due to Cs137 interferences.
Some results/MDA's not verified see attached.
Some MDA's do not meet RDL's see attached.

9713506.1798

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

BLANK RESULTS

LAB NAME: ITAS-RICHLAND SDG NO.: W0005

LAB SAMPLE ID: L-03-235-1B

REPORTING UNITS pCi/g

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	Q YIELD	METHOD NUMBER	Assoc Detected Sample Q
AM-241	6.80E-01	5.93E-02	9.37E-02	6.68E-03	0.562	RD3302	J
CM-242	-5.67E-04	1.13E-03	1.14E-03	7.32E-03	U 0.562	RD3302	
CM-244	0.00E+00	0.00E+00	3.89E-03	3.51E-03	U 0.562	RD3302	
NP-237	3.49E-03	4.94E-03	5.00E-03	2.26E-03	0.477	RD3208	J
PU-238	-3.83E-03	7.65E-03	7.71E-03	8.27E-02	U 0.218	RD3209	
PU239/40	0.00E+00	0.00E+00	5.74E-02	5.18E-02	U 0.218	RD3209	
U-234	3.46E-02	3.31E-02	3.35E-02	3.43E-02	0.564	RD3234	J
U-235	-1.77E-03	2.05E-03	2.06E-03	3.24E-02	U 0.564	RD3234	
U-238DA	3.58E-02	3.31E-02	3.35E-02	3.01E-02	0.564	RD3234	J
I-129LP	1.31E-01	2.62E-01	2.62E-01	5.02E-01	U N/A	RD3219	
SE-79	-2.81E-01	5.37E-01	1.44E+00	1.17E+00	U 0.818	RD3253	
URANIUM	0.00E+00	N/A	1.00E-05	1.00E-02	U 1	RD4200	

LAB SAMPLE ID: L-03-433-1B

REPORTING UNITS pCi/g

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	Q YIELD	METHOD NUMBER
TC-99	5.19E-02	2.30E-01	1.08E+00	5.37E-01	U 0.956	ITAS-IT-RS-0001

Verified 6/16/04 MA

9713506.1799

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

BLANK RESULTS

LAB NAME: ITAS-RICHLAND SDG NO.: W0005

LAB SAMPLE ID: L-03-433-1X

REPORTING UNITS pCi/g

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	Q YIELD	METHOD NUMBER
TC-99	1.49E-01	2.32E-01	1.08E+00	5.37E-01	U 0.956	ITAS-IT-RS-0001

LAB SAMPLE ID: L-03-386-1B

REPORTING UNITS pCi/g

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER	Rejected sample Q
K-40	1.10E+00	1.89E-01	2.19E-01	3.28E-01	N/A	RD3219	J
CO-60	5.74E-03	7.64E-03	7.66E-03	1.42E-02	U N/A	RD3219	
EU-152	4.77E-02	3.23E-02	3.27E-02	6.64E-02	U N/A	RD3219	
CS-137DA	-3.30E-02	8.31E-03	8.32E-03	1.36E-02	U N/A	RD3219	
CS-134	-2.20E-02	7.35E-03	7.35E-03	1.23E-02	U N/A	RD3219	
RU-106DA	-1.90E-02	7.04E-02	7.04E-02	1.23E-01	U N/A	RD3219	
NA-22	-2.00E-03	8.91E-03	8.91E-03	1.51E-02	U N/A	RD3219	
EU-155	-1.30E-02	1.74E-02	1.74E-02	2.71E-02	U N/A	RD3219	
EU-154	-1.30E-02	2.56E-02	2.56E-02	4.21E-02	U N/A	RD3219	

Verified 6/16/94

9713506.1800

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

BLANK RESULTS

LAB NAME: ITAS-RICHLAND SDG NO.: W0005

LAB SAMPLE ID: L-03-265-1B

REPORTING UNITS pCi/g

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
ALPHA	1.10E-02	3.41E-02	3.42E-02	6.41E-02	U 1	RD3222
BETA	2.19E-01	2.52E-01	2.52E-01	4.11E-01	U 1	RD3222
TOTAL-SR	3.70E-02	4.80E-02	4.89E-02	1.00E-01	U 0.869	RD3204

9713506.1801

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

MATRIX SPIKE RESULTS

LAB NAME: ITAS-RICHLAND **SDG NO.:** W0005

LAB SAMPLE ID: W-03-265-1M

REPORTING UNITS: pCi/g &ug/g

Assoc Result Q

ISOTOPE	SPIKE RESULT*	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	SAMPLE RESULT	EXPECTED	% RECOVERY	
NP-237	2.41E+00	2.00E-01	5.57E-01	1.53E-02	1.02E-01	5.63E+00	43	J/UJ
URANIUM	1.34E+01	N/A	2.01E+00	N/A	1.25E+01	1.01E+01	133	ok

LAB SAMPLE ID: W-03-265-2M

REPORTING UNITS: pCi/g & ug/g

ISOTOPE	SPIKE RESULT*	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	SAMPLE RESULT	EXPECTED	% RECOVERY	
NP-237	2.22E+00	1.92E-01	5.17E-01	1.53E-02	3.45E-01	5.63E+00	39	J/UJ
URANIUM	9.41E+00	N/A	1.41E+00	N/A	1.25E+01	1.01E+01	93	

LAB SAMPLE ID: W-03-386-2M

REPORTING UNITS: pCi/g & ug/g

ISOTOPE	SPIKE RESULT*	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	SAMPLE RESULT	EXPECTED	% RECOVERY	
NP-237	3.42E+00	2.39E-01	7.75E-01	2.03E-02	1.05E-03	5.63E+00	61	ok

LAB SAMPLE ID: W-03-265-01

REPORTING UNITS: pCi/g & ug/g

ISOTOPE	SPIKE RESULT*	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	SAMPLE RESULT	EXPECTED	% RECOVERY	
TC-99	9.54E+01	1.06E+00	7.17E+00	5.37E-01	5.82E-01	9.98E+01	96	ok

Verified MMA 6/16/94

9713506.1802

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

MATRIX SPIKE RESULTS

LAB NAME: ITAS-RICHLAND **SDG NO.:** W0005

LAB SAMPLE ID: L-03-265-1M

REPORTING UNITS: pCi/g & ug/g

ISOTOPE	SPIKE RESULT*	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	SAMPLE RESULT	EXPECTED	% RECOVERY
SE-79	4.38E+01	N/A	6.77E+00	N/A	2.01E+01	5.37E+01	82

dh

LAB SAMPLE ID: L-03-265-2M

REPORTING UNITS: pCi/g & ug/g

ISOTOPE	SPIKE RESULT*	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	SAMPLE RESULT	EXPECTED	% RECOVERY
SE-79	4.44E+01	N/A	7.52E+00	N/A	2.01E+01	5.40E+01	82

dh

*SPIKE RESULT CORRECTED FOR SAMPLE RESULT

Verified 6/16/94

9713506.1803

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

LABORATORY CONTROL SAMPLES

LAB NAME: ITAS-RICHLAND **SDG NO.:** W0005

LAB SAMPLE ID: L-03-235-1S

REPORTING UNITS: pCi/g & ug/g

Assoc. Result Q

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	EXPECTED	% RECOVERY	
AM-241	4.42E+00	1.22E-01	4.54E-01	2.26E-03	0.87	4.58E+00	97	
NP-237	7.63E+00	2.31E-01	1.66E+00	4.31E-03	0.477	5.64E+00	135	J
PU-238	1.19E-02	2.37E-02	2.38E-02	3.21E-02	0.351	1.00E+00	1	R/UR
PU239/40	3.92E-01	1.36E-01	1.51E-01	3.21E-02	0.351	4.68E-01	84	
U-234	1.02E+00	2.14E-01	2.71E-01	5.19E-02	0.372	8.67E-01	118	
U-235	4.21E-02	4.49E-02	4.54E-02	4.90E-02	0.372	3.95E-02	107	
U-238DA	9.70E-01	2.09E-01	2.63E-01	5.19E-02	0.372	9.08E-01	107	
I-129LP	1.33E+01	1.04E+00	1.69E+00	2.35E+00	N/A	8.99E+00	148	J
SE-79	5.90E+01	1.30E+01	1.30E+01	N/A	0	5.42E+01	109	
URANIUM	3.21E+00	N/A	4.81E-01	1.00E-02	1	1.01E+01	32	J/UJ

LAB SAMPLE ID: L-03-386-1S

REPORTING UNITS: pCi/g & ug/g

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	EXPECTED	% RECOVERY
CS-137DA	3.44E-01	3.25E-02	4.73E-02	N/A	N/A	3.58E-01	96

LAB SAMPLE ID: L-03-265-1S

REPORTING UNITS: pCi/g & ug/g

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	EXPECTED	% RECOVERY	
BETA	1.17E+01	7.55E-01	1.12E+00	4.27E-01	1	1.13E+01	104	
ALPHA	4.55E+00	3.04E-01	8.24E-01	6.75E-02	1	4.52E+00	101	
TOTAL-SR	8.50E+00	3.26E-01	2.12E+00	1.04E-01	0.856	5.26E+00	162	J

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9713506.1804

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

DUPLICATE RESULTS

LAB NAME: ITAS-RICHLAND SDG NO.: W0005

LAB SAMPLE ID: F-03-386-02

WHC ID: B09WH3

REPORTING UNITS: pCi/g &ug/g

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	Q	YIELD	METHOD NUMBER
K-40	1.83E+01	4.28E-01	1.88E+00	N/A		N/A	RD3219
CO-60	8.98E-03	1.01E-02	1.01E-02	1.73E-02	U	N/A	RD3219
EU-152	1.29E-01	3.97E-02	4.17E-02	7.86E-02		N/A	RD3219
CS-137DA	1.41E-02	9.83E-03	9.93E-03	1.65E-02	U	N/A	RD3219
CS-134	-9.10E-03	8.47E-03	8.52E-03	1.37E-02	U	N/A	RD3219
RU-106DA	2.71E-02	8.72E-02	8.73E-02	1.48E-01	U	N/A	RD3219
NA-22	-3.29E-04	1.11E-02	1.11E-02	1.88E-02	U	N/A	RD3219
EU-155	4.55E-02	2.58E-02	2.62E-02	4.15E-02		N/A	RD3219
EU-154	-9.04E-04	3.04E-02	3.04E-02	5.15E-02	U	N/A	RD3219
TC-99	-1.18E-02	2.30E-01	1.07E+00	5.37E-01	U	0.956	ITAS-IT-RS-0001

LAB SAMPLE ID: F-03-433-01

WHC ID: B09WI0

REPORTING UNITS: pCi/g &ug/g

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	Q	YIELD	METHOD NUMBER
AM-241	5.93E-01	6.13E-02	9.01E-02	4.29E-03		0.459	RD3302
CM-242	1.82E-03	3.63E-03	3.64E-03	4.92E-03	U	0.459	RD3302
CM-244	-6.36E-04	1.27E-03	1.27E-03	8.22E-03	U	0.459	RD3302
PU239/40	2.06E-02	3.27E-02	3.29E-02	4.94E-02	U	0.364	RD3209
PU-238	0.00E+00	0.00E+00	3.44E-02	3.10E-02	U	0.364	RD3209
U-234	8.83E-01	1.44E-01	1.86E-01	2.58E-02		0.707	RD3234
U-235	4.08E-02	3.12E-02	3.17E-02	2.17E-02		0.707	RD3234
U-238DA	8.71E-01	1.43E-01	1.84E-01	2.40E-02		0.707	RD3234
SE-79	5.37E-01	5.51E-01	1.52E+00	1.16E+00	U	0.819	RD3253
URANIUM	2.21E+00	N/A	3.32E-01	1.00E-02		1	RD4200

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

DUPLICATE RESULTS

LAB NAME: ITAS-RICHLAND SDG NO.: W0005

LAB SAMPLE ID: F-03-235-01

WHC ID: B09WG4

REPORTING UNITS: pCi/g &ug/g

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
AM-241	1.22E+02	4.40E+00	1.31E+01	2.46E-01	0.73	RD3302
CM-242	-1.96E-02	3.92E-02	3.93E-02	2.54E-01	U 0.73	RD3302
CM-244	-3.20E-02	4.53E-02	4.54E-02	2.48E-01	U 0.73	RD3302
NP-237	6.99E-02	1.40E-01	1.41E-01	9.02E-02	U 0.477	RD3208
PU-238	-5.42E-02	1.08E-01	1.09E-01	1.17E+00	U 0.616	RD3209
PU239/40	5.41E-01	7.65E-01	7.70E-01	7.32E-01	U 0.616	RD3209
U-234	6.45E+00	2.62E+00	2.77E+00	1.28E+00	0.635	RD3234
U-235	7.45E-01	9.10E-01	9.16E-01	1.07E+00	U 0.635	RD3234
U-238DA	4.94E+00	2.29E+00	2.38E+00	1.07E+00	0.635	RD3234
SE-79	-1.23E+00	2.15E+00	5.74E+00	4.67E+00	U 0.819	RD3253
URANIUM	1.51E+01	N/A	2.26E+00	1.00E-02	1	RD4200

LAB SAMPLE ID: F-03-265-01

WHC ID: B09WI8

REPORTING UNITS: pCi/g &ug/g

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
ALPHA	3.18E+01	5.56E+00	6.54E+00	3.04E+00	1	RD3222
BETA	1.32E+03	1.66E+01	8.85E+01	2.06E+00	1	RD3222
TOTAL-SR	1.98E+00	1.68E-01	5.03E-01	1.16E-01	0.767	RD3204

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9713506.1806

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

DUPLICATE RESULTS

LAB NAME: ITAS-RICHLAND SDG NO.: W0005

LAB SAMPLE ID: F-03-265-02

WHC ID: B09WG4

REPORTING UNITS: pCi/g &ug/g

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
NP-237	3.46E-01	4.92E-02	8.93E-02	4.29E-03	0.477	RD3208

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

RPD CALCULATIONS

LAB NAME: ITAS-RICHLAND SDG NO.: W0005

LAB SAMPLE ID: 4-03-235-01

WHC ID: B09WG~~4~~5

REPORTING UNITS: pCi/g & ug/g

ISOTOPE	SAMPLE RESULT	DUPLICATE RESULT	RPD	
AM-241	1.18E+02	1.22E+02	3.33	
CM-242	0.00E+00	-1.96E-02	200.00	ok
CM-244	-2.73E-02	-3.20E-02	15.85	
NP-237	8.53E-01	6.99E-02	169.70	ok
PU-238	1.39E-01	-5.42E-02	455.66	ok
PU239/40	0.00E+00	5.41E-01	200.00	J/UJ
U-234	5.75E+00	6.45E+00	11.47	
U-235	7.83E-01	7.45E-01	5.04	
U-238DA	7.74E+00	4.94E+00	44.11	J/UJ
SE-79	-9.46E-01	-1.23E+00	26.10	
URANIUM	1.25E+01	1.51E+01	18.84	

LAB SAMPLE ID: 4-03-265-01

WHC ID: B09WI8

REPORTING UNITS: pCi/g & ug/g

ISOTOPE	SAMPLE RESULT	DUPLICATE RESULT	RPD
ALPHA	4.25E+01	3.18E+01	28.80
BETA	1.37E+03	1.32E+03	3.72
TOTAL-SR	2.01E+00	1.98E+00	1.50

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

RPD CALCULATIONS

LAB NAME: ITAS-RICHLAND SDG NO.: W0005

LAB SAMPLE ID: 4-03-265-02

WHC ID: B09WG4

REPORTING UNITS: pCi/g &ug/g

ISOTOPE	SAMPLE RESULT	DUPLICATE RESULT	RPD
NP-237	3.45E-01	3.46E-01	0.29

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

RPD CALCULATIONS

LAB NAME: ITAS-RICHLAND SDG NO.: W0005

LAB SAMPLE ID: 4-03-386-02

WHC ID: B09WH3

REPORTING UNITS: pCi/g & ug/g

ISOTOPE	SAMPLE RESULT	DUPLICATE RESULT	RPD	
K-40	1.67E+01	1.83E+01	9.14	
CO-60	-6.61E-03	8.98E-03	1315.61	ok
EU-152	7.62E-02	1.29E-01	51.46	ok
CS-137DA	4.83E-03	1.41E-02	97.94	ok
CS-134	4.82E-04	-9.10E-03	222.37	no RDL
RU-106DA	1.42E-02	2.71E-02	62.47	no RDL
NA-22	7.47E-03	-3.29E-04	218.43	no RDL
EU-155	4.44E-02	4.55E-02	2.45	
EU-154	2.05E-02	-9.04E-04	218.45	ok
TC-99	6.15E-01	-1.18E-02	207.82	ok

LAB SAMPLE ID: 4-03-433-01

WHC ID: B09WI0

REPORTING UNITS: pCi/g & ug/g

ISOTOPE	SAMPLE RESULT	DUPLICATE RESULT	RPD	
AM-241	5.91E-01	5.93E-01	0.34	
CM-242	3.34E-04	1.82E-03	137.98	no RDL
CM-244	1.75E-03	-6.36E-04	428.37	ok
PU-238	0.00E+00	0.00E+00	N/A	
PU239/40	2.23E-02	2.06E-02	7.93	
U-234	1.02E+00	8.83E-01	14.40	
U-235	3.15E-02	4.08E-02	25.73	
U-238DA	1.02E+00	8.71E-01	15.76	
SE-79	9.85E-02	5.37E-01	138.00	ok
URANIUM	2.01E+00	2.21E+00	9.48	

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682A-6-93

W0005-ITC-020

Americium/Curium	
HEIS No.:	B09WG5
Lab ID:	40323501
Aliquot:	5.00E-02
Am241 net cpm:	1.7325
Am241 bkg cpm:	0.0008
Spl count time:	1000
Bkg count time:	2500
Eff d/c:	3.225
Decay:	1
Yield:	0.427
Am241 calc:	1.18E+02
Am241 rptd:	1.18E+02
Am241 MDA calc:	4.21E-01
Am241 MDA rptd:	4.21E-01
Cm244 net cpm:	-0.0004
Cm244 bkg cpm:	0.0004
Cm244 decay:	1.005
Cm244 calc:	-2.74E-02
Cm244 rptd:	-2.73E-02
Cm244 MDA calc:	3.86E-01
Cm244 MDA rptd:	3.53E-01
Cm242 net cpm:	0.00E+00
Cm242 bkg cpm:	0.00E+00
Cm242 decay:	1.232
Cm242 calc.:	0.00E+00
Cm242 rptd:	0.00E+00
Cm242 MDA calc:	2.27E-01
Cm242 MDA rptd:	2.27E-01
Neptunium	
HEIS No.:	B09WG5
Lab ID:	40323501
Aliquot:	5.00E-02
Np237 net cpm:	0.0122
Np237 bkg cpm:	0.0008
Spl count time:	1000
Bkg count time:	2500
Eff d/c:	3.7
Decay:	1
Yield:	0.477
Np237 calc:	8.53E-01
Np237 rptd:	8.53E-01
Np237 MDA calc:	4.80E-01
Np237 MDA rptd:	2.06E-01

W0005-ITC-020

Plutonium	
HEIS No.:	B09WG5
Lab ID:	40323501
Aliquot:	5.00E-02
Pu238 net cpm:	0.002
Pu238 bkg cpm:	0.003
Spl count time:	200
Bkg count time:	1000
Pu238 Eff d/c:	3.7
Decay:	1
Yield:	0.482
Pu238 calc:	1.38E-01
Pu238 rptd:	1.38E-01
Pu238 MDA calc:	2.18E+00
Pu238 MDA rptd:	1.91E+00
Pu239 net cpm:	0
Pu239 bkg cpm:	0
Pu239 d/c:	3.7
Pu239 decay:	1
Pu239 calc:	0.00E+00
Pu239 rptd:	0.00E+00
Pu239 MDA calc:	9.37E-01
Pu239 MDA rptd:	9.36E-01
Uranium	
HEIS No.:	B09WG5
Lab ID:	40323501
Aliquot:	5.00E-02
U-234 net cpm:	0.1072
U-234 bkg cpm:	0.0028
Spl count time:	200
Bkg count time:	2500
Eff d/c:	3.7
Decay:	1
Yield:	0.621
U-234 calc:	5.75E+00
U-234 rptd:	5.75E+00
U-234 MDA calc:	1.41E+00
U-234 MDA rptd:	1.41E+00
U-235 net cpm:	0.0146
U-235 bkg cpm:	0.0004
U-235 decay:	1
U-235 calc:	7.84E-01
U-235 rptd:	7.83E-01
U-235 MDA calc:	9.87E-01
U-235 MDA rptd:	9.85E-01
U-238 net cpm:	0.1442
U-238 bkg cpm:	0.0008
U-238 decay:	1
U-238 calc.:	7.74E+00
U-238 rptd:	7.74E+00
U-238 MDA calc:	1.09E+00
U-238 MDA rptd:	1.09E+00

W0005-ITC-020

Gross Alpha	
HEIS No.:	B09WG5
Lab ID:	40323501
Aliquot:	2.93E-02
Net counts:	2.942
Bkg counts:	0.038
Spl count time:	200
Bkg count time:	500
d/c:	3.81
Calc.:	1.72E+02
Rptd:	1.72E+02
MDA calc:	3.95E+00
MDA rptd:	3.94E+00
Gross Beta	
HEIS No.:	B09WG5
Lab ID:	40323501
Aliquot:	2.63E-02
Net counts:	56.294
Bkg counts:	1.036
Spl count time:	100
Bkg count time:	500
d/c:	2.504
Calc.:	2.41E+03
Rptd:	2.41E+03
MDA calc:	1.69E+01
MDA rptd:	1.69E+01
Strontium 90	
HEIS No.:	B09WG5
Sample:	40323501
Sep date:	4/26/94
Sep time:	15:30
Count date:	4/27/94
Count time:	17:50
Hours:	26.333333
Sample amt:	5.81E-01
Net counts:	22.052
Count time:	50
Bkg counts:	1.088
Count time:	500
D/C 1:	2.203
D/C 2:	1.844
D/C 3:	1.989
Yield:	0.834
Calc:	3.54E+01
Rptd:	3.54E+01
MDA, Calc:	1.15E+00
MDA, rptd:	1.16E+00

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Selenium 79	
HEIS No.:	B09WG5
Sample:	40323501
Bkg cpm:	20.45
Spl, amt:	2.50E-01
Spl cpm:	19.75
Count time:	100
Spl dpm:	21.74
d/c:	1.101
Yield:	0.818
Blk, dpm:	2.71E+01
Calc:	-9.78E-01
Rptd:	-9.47E-01
MDA, calc:	5.16E+00
MDA, rptd:	4.67E+00
Technetium-99	
HEIS No.:	B09WG5
Sample:	40323501
Bkg cpm:	25.22
Spl, amt:	2.00E+00
Spl cpm:	30.3
Count time:	125
Spl dpm:	33.09
d/c:	1.092
Yield:	0.99
Blk, dpm:	2.68E+01
Calc:	1.49E+00
Rptd:	1.49E+00
MDA, calc:	5.24E-01
MDA, rptd:	5.37E-01
Total Uranium	
HEIS No.:	B09WG5
Lab ID:	40323501
ng, raw:	6.27E+02
g, analyzed:	0.05
Calc, ug/g:	1.25E+01
Rptd, ug/g:	1.25E+01

DATA PACKAGE: W0005-ITC-020
COMPARISON OF MDA VS RDL
DATE: 6/16/94

SAMPLE ID	ISOTOPE	REPORTED	MDA	MDA FLAG	RDL	RDL FLAG
B09WG5	CM-244	-2.73E-02	3.53E-01	U	0.05	MDA>RDL!
B09WG5	PU239/240	1.39E-01	1.91E+00	U	0.05	MDA>RDL!
B09WG5	PU-238	0.00E+00	9.36E-01	U	0.05	MDA>RDL!
B09WG5	U-235	7.83E-01	9.85E-01	U	0.3	MDA>RDL!
B09WG5	EU-155	1.63E-01	8.06E-01	U	0.1	MDA>RDL!
B09WG5	EU-154	1.07E-01	1.37E-01	U	0.1	MDA>RDL!
B09WI8	EU-152	2.28E-02	1.15E-01	U	0.1	MDA>RDL!
B09WI8	EU-155	-2.19E+01	5.81E-01	U	0.1	MDA>RDL!
B09WG4	CM-244	0.00E+00	3.45E-01	U	0.05	MDA>RDL!
B09WG4	EU-155	3.02E-02	2.69E-01	U	0.1	MDA>RDL!
B09WI0	PU239/240	0.00E+00	7.56E-02	U	0.05	MDA>RDL!
B09WI0	PU-238	2.48E-02	1.21E-01	U	0.05	MDA>RDL!