START 9613490.0413

W0186-QES

Quanterra Environmental Services

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
314 298-8757 Fax

0045382

CERTIFICATE OF ANALYSIS

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

October 5, 1994

OCT 1996 RECEIVED EDMC

OCT 1994 RECEIVED Date Log In

Attention: J. A. Lerch

Project number	:	550.08
Date Received by Lab	:	August 30, 31, and September 1, 1994
Number of Samples	:	Twenty (20)
Sample Type	:	Liquid
SDG Number	:	W0186
Data Deliverable	:	Standalone

RECORD COPY

I. Introduction

Between the dates of August 30, 31, and September 1, 1994, a total of twenty (20) liquid samples were received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analyses. Upon receipt, the samples were given the following laboratory ID numbers to correspond with the specific client ID's:

St Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
5991-001	B09VX0	40870301	Liquid	08/30/94
5991-002	B09VY2	40870303	Liquid	08/30/94
5991-003	B09VX1	40870302	Liquid	08/30/94
5991-004	B09VY3	40870304	Liquid	08/30/94
5998-001	B09VX8	40872801	Liquid	08/31/94
5998-002	B09VX6	40872803	Liquid	08/31/94
5998-003	B09VZ0	40872805	Liquid	08/31/94
5998-004	B09VY4	40872807	Liquid	08/31/94
5998-005	B09VX4	40872809	Liquid	08/31/94
5998-006	B09VX9	40872802	Liquid	08/31/94
5998-007	B09VX7	40872804	Liquid	08/31/94
5998-008	B09VZ1	40872806	Liquid	08/31/94
5998-009	B09VY5	40872808	Liquid	08/31/94

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St Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
5998-010	B09VX5	40872810	Liquid	08/31//94
6012-001	B09VXZ	40901501	Liquid	09/01/94
6012-002	B09VY6	40901503	Liquid	09/01/94
6012-003	B09VY8	40901505	Liquid	09/01/94
6012-004	B09VX3	40901502	Liquid	09/01/94
6012-005	B09VY7	40901504	Liquid	09/01/94
6012-006	B09VY9	40901506	Liquid	09/01/94

II. Analytical Results/ Methodology

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

Analyses requested: Metals by EPA CLP/90. Chloride, Nitrate, Nitrite and Sulfate by EPA method 300.0. Nitrate by EPA method 353.1. Total Dissolved Solids by EPA method 160.1. Total Organic Carbon by EPA method 415.1. Alkalinity by EPA method 310.1. Cyanide by EPA CLP/90.

III. Quality Control

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

IV. Definitions

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

QCBLK- Quality Control Blank, Method Blank
QCLCS- Quality Control Laboratory Control Sample, Blank Spike

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V. Comments

NO2, NO3, and Phosphate hold times were expired at receipt.

The matrix spike recovery for sample 5998-001 for barium was less than 75%. A post digestion spike was performed and was within limits.

Relative Percent Difference for Phosphate and Nitrite could not be calculated for sample 5998-001 due to the sample values being below the detection limits.

Samples 6012-001, 5991-002, 5998-001, -001Dup, and -001MS had a pH of 12 for the Cyanide analysis.

Relative Percent Difference for Cyanide could not be calculated for sample 5998-001 due to the sample values being below the detection limits.

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:\abbeydave\hanw0186.nar

9613490.0416

OFFICE OF SAMPLE MANAGEMENT

RECORD OF DISPOSITION

ROD-B94-037
Record of Disposition No.

DATE: 09/21/94	LABORATORY: Quanterra
PROJECT TITLE/NO.: 200-BP-5 Pump and Treat Groundwater/B94-034	NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS:

B09VX0, B09VX1, B09VX4, B09VX5

DESCRIPTION OF EVENT:

Times sampled recorded on Chain of Custodies are different than those recorded on the sample bottles.

DISPOSITION OF SAMPLES:

Per cc messsage from sampler, Kirby D Lee, the correct sample times are:
B09VX0, B09VX1 - 1127,
B0(VX4, B09VX5 - 1335.
Document in SDG file.

APPROVAL SIGNATURES:

R. C. Smith/ R Clayt Smith — 9/21/94
OSM Project Coordinator (Print/Sign Name) — Date

D. B. Erb/ D. B. Erb — 10/3/94
Technical Representative (Print/Sign Name) — Date

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

9613490.0417

Quanterra
Environmental Services

OCT 1994
RECEIVED
Data
Log In

October 18, 1994

Ms. Doris Ayers
International Technology Corporation
345 Hills Street
Richland, WA 99352

Dear Doris:

This letter is sent to inform you of an incorrect client ID number used in the chemical data package. The SDG number is W0186 and the SAF number is B94-034. The client ID is shown as B09VXZ in the package and the correct number should be B09VX2.

If you have any questions I can be reached at 375-3131.

Sincerely,

FOR

Jodie Carnes
Document Control Officer

9613490.0418

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BO9VX5

Lab Name: ITAS_ST._LOUIS Contract: 550.08

Lab Code: ITMO Case No.: SAS No.: SDG No.: W0186

Matrix (soil/water): WATER Lab Sample ID: 5998-010

Level (low/med): Date Received: 08/31/94

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	34.5	U		P
7440-36-0	Antimony	38.4	B		P
7440-38-2	Arsenic	38.0	U		P
7440-39-3	Barium	49.4	B		P
7440-41-7	Beryllium	0.63	B		P
7440-43-9	Cadmium	2.8	B		P
7440-70-2	Calcium	147000			P
7440-47-3	Chromium	3.0	U		P
7440-48-4	Cobalt	3.2	U		P
7440-50-8	Copper	22.0	B		P
7439-89-6	Iron	129			P
7439-92-1	Lead	26.3	U		P
7439-95-4	Magnesium	39900			P
7439-96-5	Manganese	5.4	B		P
7440-02-0	Nickel	11.4	U		P
7440-09-7	Potassium	10300			P
7782-49-2	Selenium	55.9	B		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	42500			P
7440-62-2	Vanadium	31.0	B		P
7440-66-6	Zinc	7.2	B		P
	Cyanide				NR
	Bismuth	123	B	N	P
7440-31-5	Tin	19.2	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BO9VX6

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.08____
Lab Code: ITMO___ Case No.:_____ SAS No.:_____ SDG No.: W0186_____
Matrix (soil/water): WATER Lab Sample ID: 5998-002
Level (low/med): _____ Date Received: 08/31/94
% Solids: __0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	34.5	U		P_
7440-36-0	Antimony_	30.5	U		P_
7440-38-2	Arsenic__	38.0	U		P_
7440-39-3	Barium___	34.6	B		P_
7440-41-7	Beryllium	0.46	B		P_
7440-43-9	Cadmium__	2.2	U		P_
7440-70-2	Calcium__	31300		E	P_
7440-47-3	Chromium_	4.3	B		P_
7440-48-4	Cobalt___	3.2	U		P_
7440-50-8	Copper___	9.0	B		P_
7439-89-6	Iron____	58.0	B		P_
7439-92-1	Lead____	26.3	U		P_
7439-95-4	Magnesium	9910		E	P_
7439-96-5	Manganese	3.5	B		P_
7440-02-0	Nickel___	11.4	U		P_
7440-09-7	Potassium	6140			P_
7782-49-2	Selenium_	40.2	B		P_
7440-22-4	Silver___	3.0	U		P_
7440-23-5	Sodium___	23800		E	P_
7440-62-2	Vanadium_	26.8	B		P_
7440-66-6	Zinc____	14.0	B	E	P_
	Cyanide__	0.30	U		AS
	Bismuth__	32.8	B		P_
7440-31-5	Tin_____	19.5	B		P_

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

Comments:

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09VX7

Lab Name: ITAS_ST._LOUIS Contract: 550.08

Lab Code: ITMO Case No.: SAS No.: SDG No.: W0186

Matrix (soil/water): WATER Lab Sample ID: 5998-007

Level (low/med): Date Received: 08/31/94

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	34.5	U		P
7440-36-0	Antimony	30.5	U		P
7440-38-2	Arsenic	38.0	U		P
7440-39-3	Barium	36.0	B		P
7440-41-7	Beryllium	0.62	B		P
7440-43-9	Cadmium	2.2	U		P
7440-70-2	Calcium	32200			P
7440-47-3	Chromium	3.0	U		P
7440-48-4	Cobalt	3.2	U		P
7440-50-8	Copper	11.8	B		P
7439-89-6	Iron	19.4	B		P
7439-92-1	Lead	26.3	U		P
7439-95-4	Magnesium	10500			P
7439-96-5	Manganese	3.1	B		P
7440-02-0	Nickel	11.4	U		P
7440-09-7	Potassium	4950	B		P
7782-49-2	Selenium	59.4	B		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	25300			P
7440-62-2	Vanadium	28.1	B		P
7440-66-6	Zinc	3.8	U		P
	Cyanide				NR
	Bismuth	73.3	B	N	P
7440-31-5	Tin	19.2	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09VX8

Lab Name: ITAS_ST._LOUIS Contract: 550.08

Lab Code: ITMO Case No.: SAS No.: SDG No.: W0186

Matrix (soil/water): WATER Lab Sample ID: 5998-001

Level (low/med): Date Received: 08/31/94

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	34.5	U		P
7440-36-0	Antimony	30.5	U		P
7440-38-2	Arsenic	38.0	U		P
7440-39-3	Barium	25.2	B		P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	2.2	U		P
7440-70-2	Calcium	30700		E	P
7440-47-3	Chromium	3.0	U		P
7440-48-4	Cobalt	3.2	U		P
7440-50-8	Copper	6.4	B		P
7439-89-6	Iron	89.9	B		P
7439-92-1	Lead	26.3	U		P
7439-95-4	Magnesium	9980		E	P
7439-96-5	Manganese	3.3	B		P
7440-02-0	Nickel	11.4	U		P
7440-09-7	Potassium	6810			P
7782-49-2	Selenium	36.8	B		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	23800		E	P
7440-62-2	Vanadium	23.0	B		P
7440-66-6	Zinc	288		E	P
	Cyanide	0.30	U		AS
	Bismuth	27.5	B		P
7440-31-5	Tin	19.2	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09VX9

Lab Name: ITAS_ST._LOUIS Contract: 550.08
Lab Code: ITMO Case No.: SAS No.: SDG No.: W0186
Matrix (soil/water): WATER Lab Sample ID: 5998-006
Level (low/med): Date Received: 08/31/94
% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	34.5	U		P
7440-36-0	Antimony	30.5	U		P
7440-38-2	Arsenic	38.0	U		P
7440-39-3	Barium	24.8	B		P
7440-41-7	Beryllium	0.62	B		P
7440-43-9	Cadmium	3.6	B		P
7440-70-2	Calcium	31000			P
7440-47-3	Chromium	3.0	U		P
7440-48-4	Cobalt	3.2	U		P
7440-50-8	Copper	12.0	B		P
7439-89-6	Iron	17.0	B		P
7439-92-1	Lead	26.3	U		P
7439-95-4	Magnesium	10300			P
7439-96-5	Manganese	3.3	B		P
7440-02-0	Nickel	11.4	U		P
7440-09-7	Potassium	6740			P
7782-49-2	Selenium	82.3	B		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	25700			P
7440-62-2	Vanadium	28.5	B		P
7440-66-6	Zinc	3.8	U		P
	Cyanide				NR
	Bismuth	46.3	B	N	P
7440-31-5	Tin	19.2	U		P

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

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BO9VY4

Lab Name: ITAS_ST._LOUIS Contract: 550.08
Lab Code: ITMO Case No.: SAS No.: SDG No.: W0186
Matrix (soil/water): WATER Lab Sample ID: 5998-004
Level (low/med): Date Received: 08/31/94
% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	34.5	U		P
7440-36-0	Antimony	30.5	U		P
7440-38-2	Arsenic	38.0	U		P
7440-39-3	Barium	1.6	B		P
7440-41-7	Beryllium	0.38	B		P
7440-43-9	Cadmium	2.2	U		P
7440-70-2	Calcium	494	B	E	P
7440-47-3	Chromium	8.3	B		P
7440-48-4	Cobalt	3.2	U		P
7440-50-8	Copper	12.3	B		P
7439-89-6	Iron	50.2	B		P
7439-92-1	Lead	26.3	U		P
7439-95-4	Magnesium	251	B	E	P
7439-96-5	Manganese	1.9	B		P
7440-02-0	Nickel	11.4	U		P
7440-09-7	Potassium	2720	U		P
7782-49-2	Selenium	36.7	U		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	333	B	E	P
7440-62-2	Vanadium	8.4	B		P
7440-66-6	Zinc	5.4	B	E	P
	Cyanide	0.72	B		AS
	Bismuth	21.4	U		P
7440-31-5	Tin	19.2	U		P

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

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BO9VY5

Lab Name: ITAS_ST._LOUIS Contract: 550.08

Lab Code: ITMO Case No.: SAS No.: SDG No.: W0186

Matrix (soil/water): WATER Lab Sample ID: 5998-009

Level (low/med): Date Received: 08/31/94

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	34.5	U		P
7440-36-0	Antimony	30.5	U		P
7440-38-2	Arsenic	38.0	U		P
7440-39-3	Barium	2.6	B		P
7440-41-7	Beryllium	0.54	B		P
7440-43-9	Cadmium	2.2	U		P
7440-70-2	Calcium	64.0	B		P
7440-47-3	Chromium	3.0	U		P
7440-48-4	Cobalt	3.2	U		P
7440-50-8	Copper	15.4	B		P
7439-89-6	Iron	18.6	B		P
7439-92-1	Lead	26.3	U		P
7439-95-4	Magnesium	237	B		P
7439-96-5	Manganese	1.8	B		P
7440-02-0	Nickel	11.4	U		P
7440-09-7	Potassium	2720	U		P
7782-49-2	Selenium	36.7	U		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	274	B		P
7440-62-2	Vanadium	10.5	B		P
7440-66-6	Zinc	3.8	U		P
	Cyanide				NR
	Bismuth	21.4	U	N	P
7440-31-5	Tin	19.2	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09VZ0

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.08____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0186_____
Matrix (soil/water): WATER Lab Sample ID: 5998-003
Level (low/med): _____ Date Received: 08/31/94
% Solids: __0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	34.5	U		P_
7440-36-0	Antimony_	30.5	U		P_
7440-38-2	Arsenic__	38.0	U		P_
7440-39-3	Barium___	34.0	B		P_
7440-41-7	Beryllium	0.38	B		P_
7440-43-9	Cadmium__	2.2	U		P_
7440-70-2	Calcium__	31300		E	P_
7440-47-3	Chromium_	3.1	B		P_
7440-48-4	Cobalt___	3.2	U		P_
7440-50-8	Copper___	10.8	B		P_
7439-89-6	Iron_____	75.7	B		P_
7439-92-1	Lead_____	26.3	U		P_
7439-95-4	Magnesium	9880		E	P_
7439-96-5	Manganese	4.1	B		P_
7440-02-0	Nickel___	11.4	U		P_
7440-09-7	Potassium	6190			P_
7782-49-2	Selenium_	36.7	U		P_
7440-22-4	Silver___	3.0	U		P_
7440-23-5	Sodium___	23900		E	P_
7440-62-2	Vanadium_	26.2	B		P_
7440-66-6	Zinc_____	12.7	B	E	P_
	Cyanide__	0.30	U		AS
	Bismuth__	26.7	B		P_
7440-31-5	Tin_____	19.2	U		P_

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

Comments:

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U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BO9VZ1

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.08____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0186_____
Matrix (soil/water): WATER Lab Sample ID: 5998-008
Level (low/med): _____ Date Received: 08/31/94
% Solids: __0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	34.5	U		P_
7440-36-0	Antimony_	30.5	U		P_
7440-38-2	Arsenic__	38.0	U		P_
7440-39-3	Barium___	35.2	B		P_
7440-41-7	Beryllium	0.62	B		P_
7440-43-9	Cadmium__	2.2	U		P_
7440-70-2	Calcium__	31200			P_
7440-47-3	Chromium_	3.0	U		P_
7440-48-4	Cobalt___	3.4	B		P_
7440-50-8	Copper___	11.3	B		P_
7439-89-6	Iron____	18.6	B		P_
7439-92-1	Lead____	26.3	U		P_
7439-95-4	Magnesium	10200			P_
7439-96-5	Manganese	3.3	B		P_
7440-02-0	Nickel___	11.4	U		P_
7440-09-7	Potassium	5080			P_
7782-49-2	Selenium_	36.7	U		P_
7440-22-4	Silver___	3.0	U		P_
7440-23-5	Sodium___	24500			P_
7440-62-2	Vanadium_	28.3	B		P_
7440-66-6	Zinc____	3.8	U		P_
	Cyanide__				NR
	Bismuth__	23.2	B	N	P_
7440-31-5	Tin_____	19.2	U		P_

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

Comments:

FORM I - IN

ILM03.0

9613490.0427

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09VXZ

Lab Name: ITAS_ST._LOUIS Contract: 550.08

Lab Code: ITMO Case No.: SAS No.: SDG No.: W0186

Matrix (soil/water): WATER Lab Sample ID: 6012-001

Level (low/med): Date Received: 09/01/94

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	34.5	U		P
7440-36-0	Antimony	30.5	U		P
7440-38-2	Arsenic	38.0	U		P
7440-39-3	Barium	32.5	B		P
7440-41-7	Beryllium	0.46	B		P
7440-43-9	Cadmium	2.2	U		P
7440-70-2	Calcium	39700		E	P
7440-47-3	Chromium	7.4	B		P
7440-48-4	Cobalt	3.2	U		P
7440-50-8	Copper	11.4	B		P
7439-89-6	Iron	143			P
7439-92-1	Lead	26.3	U		P
7439-95-4	Magnesium	12200		E	P
7439-96-5	Manganese	4.5	B		P
7440-02-0	Nickel	11.4	U		P
7440-09-7	Potassium	5470			P
7782-49-2	Selenium	40.2	B		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	35900		E	P
7440-62-2	Vanadium	30.5	B		P
7440-66-6	Zinc	14.2	B	E	P
	Cyanide	68.2			AS
	Bismuth	30.5	B		P
7440-31-5	Tin	19.2	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

ILM03.0

9613490.0428

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09VX0

Lab Name: ITAS_ST._LOUIS Contract: 550.08
Lab Code: ITMO Case No.: SAS No.: SDG No.: W0186
Matrix (soil/water): WATER Lab Sample ID: 5991-001
Level (low/med): Date Received: 08/30/94
% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	34.5	U		P
7440-36-0	Antimony	30.5	U		P
7440-38-2	Arsenic	38.0	U		P
7440-39-3	Barium	27.9	B		P
7440-41-7	Beryllium	0.69	B		P
7440-43-9	Cadmium	2.2	U		P
7440-70-2	Calcium	45500		E	P
7440-47-3	Chromium	14.0			P
7440-48-4	Cobalt	3.2	U		P
7440-50-8	Copper	16.3	B		P
7439-89-6	Iron	692			P
7439-92-1	Lead	26.3	U		P
7439-95-4	Magnesium	12600		E	P
7439-96-5	Manganese	17.5			P
7440-02-0	Nickel	11.4	U		P
7440-09-7	Potassium	6350			P
7782-49-2	Selenium	36.7	U		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	25000		E	P
7440-62-2	Vanadium	32.4	B		P
7440-66-6	Zinc	4.2	B	E	P
	Cyanide	24.6			AS
	Bismuth	21.4	U		P
7440-31-5	Tin	19.2	U		P

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

Comments:

FORM I - IN

ILM03.0

9613490.0429

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09VX1

Lab Name: ITAS_ST._LOUIS Contract: 550.08

Lab Code: ITMO Case No.: SAS No.: SDG No.: W0186

Matrix (soil/water): WATER Lab Sample ID: 5991-003

Level (low/med): Date Received: 08/30/94

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	34.5	U		P
7440-36-0	Antimony	30.5	U		P
7440-38-2	Arsenic	38.0	U		P
7440-39-3	Barium	30.3	B		P
7440-41-7	Beryllium	1.0	B		P
7440-43-9	Cadmium	2.2	U		P
7440-70-2	Calcium	51200			P
7440-47-3	Chromium	7.2	B		P
7440-48-4	Cobalt	3.2	U		P
7440-50-8	Copper	15.8	B		P
7439-89-6	Iron	46.8	B		P
7439-92-1	Lead	26.3	U		P
7439-95-4	Magnesium	14200			P
7439-96-5	Manganese	6.6	B		P
7440-02-0	Nickel	11.4	U		P
7440-09-7	Potassium	7010			P
7782-49-2	Selenium	36.7	U		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	27500			P
7440-62-2	Vanadium	35.9	B		P
7440-66-6	Zinc	3.8	U		P
	Cyanide				NR
	Bismuth	57.6	B	N	P
7440-31-5	Tin	19.2	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

ILM03.0

9613490.0430

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09VX3

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.08____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0186_____
Matrix (soil/water): WATER Lab Sample ID: 6012-004
Level (low/med): _____ Date Received: 09/01/94
% Solids: __0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	34.5	U		P
7440-36-0	Antimony_	30.5	U		P
7440-38-2	Arsenic__	38.0	U		P
7440-39-3	Barium___	34.2	B		P
7440-41-7	Beryllium	0.62	B		P
7440-43-9	Cadmium__	2.2	U		P
7440-70-2	Calcium__	42000			P
7440-47-3	Chromium_	4.2	B		P
7440-48-4	Cobalt___	3.2	U		P
7440-50-8	Copper___	14.5	B		P
7439-89-6	Iron_____	52.7	B		P
7439-92-1	Lead_____	26.3	U		P
7439-95-4	Magnesium	13200			P
7439-96-5	Manganese	3.9	B		P
7440-02-0	Nickel___	11.4	U		P
7440-09-7	Potassium	7450			P
7782-49-2	Selenium_	36.7	U		P
7440-22-4	Silver___	3.0	U		P
7440-23-5	Sodium___	39000			P
7440-62-2	Vanadium_	31.3	B		P
7440-66-6	Zinc_____	3.8	U		P
	Cyanide__				NR
	Bismuth__	87.1	B	N	P
7440-31-5	Tin_____	19.2	U		P

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

Comments:

FORM I - IN

ILM03.0

9613490.0431

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09VX4

Lab Name: ITAS_ST._LOUIS Contract: 550.08

Lab Code: ITMO Case No.: SAS No.: SDG No.: W0186

Matrix (soil/water): WATER Lab Sample ID: 5998-005

Level (low/med): Date Received: 08/31/94

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	34.5	U		P
7440-36-0	Antimony	30.5	U		P
7440-38-2	Arsenic	38.0	U		P
7440-39-3	Barium	45.6	B		P
7440-41-7	Beryllium	0.47	B		P
7440-43-9	Cadmium	6.7			P
7440-70-2	Calcium	139000		E	P
7440-47-3	Chromium	3.0	U		P
7440-48-4	Cobalt	3.2	U		P
7440-50-8	Copper	19.1	B		P
7439-89-6	Iron	197			P
7439-92-1	Lead	26.3	U		P
7439-95-4	Magnesium	36600		E	P
7439-96-5	Manganese	5.3	B		P
7440-02-0	Nickel	11.4	U		P
7440-09-7	Potassium	10300			P
7782-49-2	Selenium	52.7	B		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	39100		E	P
7440-62-2	Vanadium	30.0	B		P
7440-66-6	Zinc	426		E	P
	Cyanide	245			AS
	Bismuth	76.8	B		P
7440-31-5	Tin	19.2	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

ILM03.0

9613490.0432

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09VY2

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.08____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0186_____
Matrix (soil/water): WATER Lab Sample ID: 5991-002
Level (low/med): _____ Date Received: 08/30/94
% Solids: __0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	34.5	U		P
7440-36-0	Antimony_	30.5	U		P
7440-38-2	Arsenic__	38.0	U		P
7440-39-3	Barium___	40.0	B		P
7440-41-7	Beryllium	0.45	B		P
7440-43-9	Cadmium__	2.2	U		P
7440-70-2	Calcium__	32000		E	P
7440-47-3	Chromium_	12.0			P
7440-48-4	Cobalt___	3.2	U		P
7440-50-8	Copper___	11.7	B		P
7439-89-6	Iron_____	136			P
7439-92-1	Lead_____	26.3	U		P
7439-95-4	Magnesium	10100		E	P
7439-96-5	Manganese	4.1	B		P
7440-02-0	Nickel___	11.4	U		P
7440-09-7	Potassium	6410			P
7782-49-2	Selenium_	36.7	U		P
7440-22-4	Silver___	3.0	U		P
7440-23-5	Sodium___	22700		E	P
7440-62-2	Vanadium_	25.0	B		P
7440-66-6	Zinc_____	8.0	B	E	P
	Cyanide__	0.30	U		AS
	Bismuth__	21.4	U		P
7440-31-5	Tin_____	19.2	U		P

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

Comments:

FORM I - IN

ILM03.0

9613490.0433

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09VY3

Lab Name: ITAS_ST._LOUIS Contract: 550.08

Lab Code: ITMO Case No.: SAS No.: SDG No.: W0186

Matrix (soil/water): WATER Lab Sample ID: 5991-004

Level (low/med): Date Received: 08/30/94

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	34.5	U		P
7440-36-0	Antimony	30.5	U		P
7440-38-2	Arsenic	38.0	U		P
7440-39-3	Barium	44.4	B		P
7440-41-7	Beryllium	0.54	B		P
7440-43-9	Cadmium	2.2	U		P
7440-70-2	Calcium	34800			P
7440-47-3	Chromium	3.0	U		P
7440-48-4	Cobalt	3.2	U		P
7440-50-8	Copper	14.7	B		P
7439-89-6	Iron	35.2	B		P
7439-92-1	Lead	26.3	U		P
7439-95-4	Magnesium	11100			P
7439-96-5	Manganese	3.7	B		P
7440-02-0	Nickel	11.4	U		P
7440-09-7	Potassium	6170			P
7782-49-2	Selenium	36.7	U		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	24200			P
7440-62-2	Vanadium	29.6	B		P
7440-66-6	Zinc	3.8	U		P
	Cyanide				NR
	Bismuth	36.0	B	N	P
7440-31-5	Tin	19.2	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

ILM03.0

9613490.0434

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09VY6

Lab Name: ITAS_ST._LOUIS Contract: 550.08

Lab Code: ITMO Case No.: SAS No.: SDG No.: W0186

Matrix (soil/water): WATER Lab Sample ID: 6012-002

Level (low/med): Date Received: 09/01/94

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	34.5	U		P
7440-36-0	Antimony	30.5	U		P
7440-38-2	Arsenic	38.0	U		P
7440-39-3	Barium	1.3	B		P
7440-41-7	Beryllium	0.45	B		P
7440-43-9	Cadmium	2.2	U		P
7440-70-2	Calcium	165	B	E	P
7440-47-3	Chromium	3.0	U		P
7440-48-4	Cobalt	3.2	U		P
7440-50-8	Copper	11.2	B		P
7439-89-6	Iron	23.3	B		P
7439-92-1	Lead	26.3	U		P
7439-95-4	Magnesium	139	B	E	P
7439-96-5	Manganese	1.3	B		P
7440-02-0	Nickel	11.4	U		P
7440-09-7	Potassium	2720	U		P
7782-49-2	Selenium	36.7	U		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	298	B	E	P
7440-62-2	Vanadium	7.1	B		P
7440-66-6	Zinc	3.8	U	E	P
	Cyanide	2.8			AS
	Bismuth	21.4	U		P
7440-31-5	Tin	19.2	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09VY7

Lab Name: ITAS_ST._LOUIS Contract: 550.08
Lab Code: ITMO Case No.: SAS No.: SDG No.: W0186
Matrix (soil/water): WATER Lab Sample ID: 6012-005
Level (low/med): Date Received: 09/01/94
% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	34.5	U		P
7440-36-0	Antimony	30.5	U		P
7440-38-2	Arsenic	38.0	U		P
7440-39-3	Barium	2.4	B		P
7440-41-7	Beryllium	0.46	B		P
7440-43-9	Cadmium	2.2	U		P
7440-70-2	Calcium	80.0	B		P
7440-47-3	Chromium	3.0	U		P
7440-48-4	Cobalt	3.2	U		P
7440-50-8	Copper	14.2	B		P
7439-89-6	Iron	11.1	B		P
7439-92-1	Lead	26.3	U		P
7439-95-4	Magnesium	231	B		P
7439-96-5	Manganese	1.8	B		P
7440-02-0	Nickel	11.4	U		P
7440-09-7	Potassium	2720	U		P
7782-49-2	Selenium	36.7	U		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	330	B		P
7440-62-2	Vanadium	10.3	B		P
7440-66-6	Zinc	3.8	U		P
	Cyanide				NR
	Bismuth	21.4	U	N	P
7440-31-5	Tin	19.2	U		P

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

Comments:

FORM I - IN

ILM03.0

9613490.0436

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09VY8

Lab Name: ITAS_ST._LOUIS Contract: 550.08

Lab Code: ITMO Case No.: SAS No.: SDG No.: W0186

Matrix (soil/water): WATER Lab Sample ID: 6012-003

Level (low/med): Date Received: 09/01/94

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	34.5	U		P
7440-36-0	Antimony	30.5	U		P
7440-38-2	Arsenic	38.0	U		P
7440-39-3	Barium	0.86	B		P
7440-41-7	Beryllium	0.46	B		P
7440-43-9	Cadmium	2.2	U		P
7440-70-2	Calcium	61.9	B	E	P
7440-47-3	Chromium	3.0	U		P
7440-48-4	Cobalt	3.2	U		P
7440-50-8	Copper	12.3	B		P
7439-89-6	Iron	35.0	B		P
7439-92-1	Lead	26.3	U		P
7439-95-4	Magnesium	155	B	E	P
7439-96-5	Manganese	1.3	B		P
7440-02-0	Nickel	13.4	B		P
7440-09-7	Potassium	2720	U		P
7782-49-2	Selenium	36.7	U		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	253	B	E	P
7440-62-2	Vanadium	9.0	B		P
7440-66-6	Zinc	3.8	U	E	P
	Cyanide	0.30	U		AS
	Bismuth	21.4	U		P
7440-31-5	Tin	19.2	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

ILM03.0

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B09VY9

Lab Name: ITAS_ST._LOUIS_____ Contract: 550.08____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: W0186_____
Matrix (soil/water): WATER Lab Sample ID: 6012-006
Level (low/med): _____ Date Received: 09/01/94
% Solids: __0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	34.5	U		P_
7440-36-0	Antimony_	30.5	U		P_
7440-38-2	Arsenic__	38.0	U		P_
7440-39-3	Barium___	2.0	B		P_
7440-41-7	Beryllium	0.46	B		P_
7440-43-9	Cadmium__	2.2	U		P_
7440-70-2	Calcium__	42.5	B		P_
7440-47-3	Chromium_	3.0	U		P_
7440-48-4	Cobalt___	3.2	U		P_
7440-50-8	Copper___	13.6	B		P_
7439-89-6	Iron_____	10.2	B		P_
7439-92-1	Lead_____	26.3	U		P_
7439-95-4	Magnesium	229	B		P_
7439-96-5	Manganese	1.5	B		P_
7440-02-0	Nickel___	11.4	U		P_
7440-09-7	Potassium	2720	U		P_
7782-49-2	Selenium_	36.7	U		P_
7440-22-4	Silver___	3.0	U		P_
7440-23-5	Sodium___	278	B		P_
7440-62-2	Vanadium_	10.9	B		P_
7440-66-6	Zinc_____	3.8	U		P_
	Cyanide__				NR
	Bismuth__	31.8	B	N	P_
7440-31-5	Tin_____	19.2	U		P_

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

Comments:

FORM I - IN

ILM03.0

ITAS - ST. LOUIS
ALKALINITY

PREP DATE: 09-09-94
ANALYSIS DATE: 09-09-94
ANALYST: S. Pope
BATCH NO.: 45112

REVIEWED BY: J M Klegin / 09-29-94
REVIEWED BY:
METHOD: 310.1
PROJECT: 262.01 340.05 550.08

LAB ID	VOL/WT (ml/g)	Titrated VOL(ml)	SAMPLE pH	Solid Fraction	STD ACID BURET READING (ml) FINAL 4.5pH	FINAL 4.2pH	FINAL 8.3pH	INITIAL 4.5pH	INITIAL 4.2pH	INITIAL 8.3pH	NET 4.5pH	NET 4.2pH	NET 8.3pH	ALKALINITY (mg/L OR µg/g) Total at 4.5pH	Low at 4.2pH	Phenol 8.3pH	ALKALINITY Carb mg/L µg/g	Bicarb mg/L µg/g
~~IP0140-94~~ CAL BUFFER 4.0	—	—	4.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
~~IP0307-93~~ CAL BUFFER 12.0	—	—	12.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
~~IP0002-94~~ CHK BUFFER 7.0	—	—	7.05	—	—	—	—	—	—	—	—	—	—	—	vmc 09-29-94	—	—	—
~~IP0002-94~~ QC BLANK 45112-1	100	100	6.05	N/A	0.14	0.26	—	0	0	—	0.14	0.26	—	—	~~1~~ <1	—	—	—
vmc 09-29-94 ~~IP0382-94~~ IP0390-94 QC LCS 45112-1	20	20	11.27		17.35	—	—	0	—	—	17.35	—	—	~~868~~ 868	vmc 09-29-94	—	—	—
5982-001	100	100	6.73		4.20	—	—	0	—	—	4.20	—	—	42.0	—	—	0	42.0
-002	50	50	7.91		6.51	—	—	0	—	—	6.51	—	—	130.2	vmc 09-29-94	—	0	130.2
-003			7.27		3.68	—	—	0	—	—	3.68	—	—	73.6	—	—	0	73.6
-004			9.46		10.80	—	0.20	0	—	0	10.80	—	0.20	216.0	—	4.00	8.0	208.0
-005	100	100	6.41		3.71	—	—	0	—	—	3.71	—	—	37.1	—	—	0	37.1
-005 DUP			6.41		3.70	—	—	0	—	—	3.70	—	—	37.0	—	—	0	37.0
5995-001	50	50	8.03		9.40	—	—	0	—	—	9.40	—	—	188.0	—	—	0	188.0
-002			6.87		5.28	—	—	0	—	—	5.28	—	—	~~105.6~~ 106	vmc 09-29-94	—	0	~~105.6~~ 106
5991-001			8.21		4.92	—	—	0	—	—	4.92	—	—	98.4	—	—	—	vmc 09-29-94
-002			8.30		4.96	—	—	0	—	—	4.96	—	—	99.2	—	—	—	—
5970-005	20	20	7.21		9.80	—	—	0	—	—	9.80	—	—	499.0	—	—	—	—

Steven Pope 09-12-94

LCS True Value = 1000 mg/L
Percent Recovery = ~~867~~ 87 vmc 09-29-94
DUP RPD = ~~0.27~~ <1 vmc 09-29-94

Alkalinity mg/L or µg/g = ml Std Acid x Nstd Acid x 50,000 / ml or g of Titrated Sample x Solid Fraction

N Titrant = 0.02

Low Alkalinity mg/L or µg/g = (2B - C) x N x 50,000 / ml of Titrated Sample

where: B = ml of titrant to reach pH 4.5
C = ml of titrant from initial to pH 4.2
N = Normality of titrant

SL-91-INORG-0052, Rev. 1

0036

96159040.0036

ITAS - ST. LOUIS
ALKALINITY

PREP DATE: 09-12-94
ANALYSIS DATE: 09-12 94
ANALYST: S. Ruppe
BATCH NO.: 45279

REVIEWED BY: JM Kleman/04-29-94
REVIEWED BY:
METHOD: 310.1
PROJECT: 550.08 340.05

LAB ID	VOL/WT (ml/g)	Titrated VOL(ml)	SAMPLE pH	Solid Fraction	STD ACID BURET READING (ml) FINAL 4.5pH	FINAL 4.2pH	FINAL 8.3pH	INITIAL 4.5pH	INITIAL 4.2pH	INITIAL 8.3pH	NET 4.5pH	NET 4.2pH	NET 8.3pH	ALKALINITY (mg/L OR µg/g) Total at 4.5pH	Low at 4.2pH	Pheno 8.3pH	ALKALINITY Carb mg/L µg/g	Bicarb mg/L µg/g
CAL BUFFER 4.0	—	—	4.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CAL BUFFER 12.0	—	—	12.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CHK BUFFER 7.0	—	—	7.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
QC BLK 45279-1	100	100	5.93	N/A	0.13	0.24	—	0	0	—	~~0.B~~	0.24	—	—	<5	—	—	—
QC LCS 45279-1	20	20	11.20		18.76	—	—	0	—	—	18.76	—	—	938.0	—	—	—	—
5998-001	50	50	8.22		4.70	—	—	0	—	—	4.70	—	—	94.0	—	—	—	—
-001 DUP	50	50	8.23		4.73	—	—	0	—	—	4.73	—	—	94.6	—	—	—	—
-002	50	50	8.25		4.68	—	—	0	—	—	4.68	—	—	93.6	—	—	—	—
-003	50	50	8.35		4.79	—	0.10	0	—	0	4.79	—	0.10	95.8	—	2.09	—	—
-004	100	100	5.53		0.18	0.29	—	0	0	—	0.18	0.29	—	—	<1	—	—	—
-005	50	50	8.16		4.06	—	—	0	—	—	4.06	—	—	81.2	—	—	—	—
5993-001	50	50	8.87		4.21	—	0.38	0	—	0	4.21	—	0.38	84.2	—	7.60	—	—
-002	25	25	7.82		5.75	—	—	0	—	—	5.75	—	—	230	—	—	—	—
-003	25	25	7.50		7.80	—	—	0	—	—	7.80	—	—	312	—	—	—	—
-004	25	25	7.37		8.68	—	—	0	—	—	8.68	—	—	347	—	—	—	—
-005	25	25	7.68		6.48	—	—	0	—	—	6.48	—	—	259	—	—	—	—
-006	50	50	7.70		8.89	—	—	0	—	—	8.89	—	—	178	—	—	—	—
-007	25	25	7.50		7.73	—	—	0	—	—	7.73	—	—	309	—	—	—	—
-008	50	50	7.67		9.02	—	—	0	—	—	9.02	—	—	180	—	—	—	—
-009	25	25	7.59		4.60	—	—	0	—	—	4.60	—	—	184	—	—	—	—

LCS True Value = 1000 mg/L
Percent Recovery = ~~93.8~~ 94
DUP RPD = <1

Alkalinity mg/L or µg/g = ml Std Acid x Nstd Acid x 50,000 / ml or g of Titrated Sample x Solid Fraction

N Titrant = 0.02

Low Alkalinity mg/L or µg/g = (2B - C) x N x 50,000 / ml of Titrated Sample

where: B = ml of titrant to reach pH 4.5
C = ml of titrant from initial to pH 4.2
N = Normality of titrant

SL-91-INORG-0052, Rev. 1

00037

96134901.0439

ITAS - ST. LOUIS
ALKALINITY

PREP DATE: 09-12-94
ANALYSIS DATE: 09-12-94
ANALYST: S. Pope
BATCH NO.: 45279

REVIEWED BY: JM Klemm/09-29-94
REVIEWED BY:
METHOD: 310.1
PROJECT: 340.05 550.08

LAB ID	VOL/WT (ml/g)	Titrated VOL(ml)	SAMPLE pH	Solid Fraction	STD ACID BURET READING (ml) FINAL 4.5pH	FINAL 4.2pH	FINAL 8.3pH	INITIAL 4.5pH	INITIAL 4.2pH	INITIAL 8.3pH	NET 4.5pH	NET 4.2pH	NET 8.3pH	ALKALINITY (mg/L OR µg/g) Total at 4.5pH	Low at 4.2pH	Phenol 8.3pH	ALKALINITY Carb mg/L µg/g	Bicarb mg/L µg/g
CAL BUFFER 4.0	—	—	4.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CAL BUFFER 12.0	—	—	12.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CAL BUFFER 7.0	—	—	7.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5993-010	25	25	7.45	N/A	8.51	—	—	0	—	—	8.51	—	—	340	—	—	—	—
↓ -010DUP	25	25	7.48	↓	8.58	—	—	0	—	—	8.58	—	—	343	—	—	—	—
6012-001	25 50	50	8.30		4.91	—	—	0	—	—	4.91	—	—	98.2	—	—	—	—
↓ -002	100	100	5.89		0.23	0.39	—	0	0	—	0.23	0.39	—		<1	—	—	—
↓ -003	100	100	5.79	↓	0.18	0.28	—	0	0	—	0.18	0.28	—		<1	—	—	—

Steven Pope 09-12-94

LCS True Value = _____
Percent Recovery = _____
DUP RPD = <1 ✓

Alkalinity mg/L or µg/g = $\frac{\text{ml Std Acid x Nstd Acid x 50,000}}{\text{ml or g of Titrated Sample x Solid Fraction}}$

N Titrant = 0.02

Low Alkalinity mg/L or µg/g = $\frac{(2B - C) \times N \times 50,000}{\text{ml of Titrated Sample}}$ where: B = ml of titrant to reach pH 4.5
C = ml of titrant from initial to pH 4.2
N = Normality of titrant

SL-91-INORG-0052, Rev. 1

0038

0040-0043196

QUANTERRA ST. LOUIS

ANIONS BY I.C.

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

Project #: 262.01, 388.01, 550.08
Analyst: J. Flandreau
Reviewed By: R. Patterson 09-19-94
Reviewed By: R. Patterson 09-19-94
Page 1 of 2

Prep Date: 09-16-94
Analysis Date: 09-16-94
Loop Used: 50.2
Batch #: 45918
Method #: 300.0

	Standard Value	Sample ID	Standard ID	Solid Fract.	Dil.	Fl	Cl	SO_4	NO_3-N	OPO_4	NO_2-N	Br
1		QCBLK45918				<0.100	<0.250	<1.00	<0.020	<1.00	<0.020	<0.250
2	F 1 Cl 1 SO_4 1 NO_3 .08 NO_2 .04 Br 1	QCLCS45918	AL4261-94			0.950	0.920	3.68	0.077	3.63	0.075	0.975
3		6068-001			10000	—	—	—	—	—	2530	—
4		6122-001			Fl 20 Cl 1 SO_4 1 NO_3 20 NO_2 1 OP 1 Br 1	64.3	4.05	7.94	6.18	2.45	<0.020	<0.250
5		5982-001			Fl 1 Cl 5 SO_4 5	0.156	8.08	22.0	—	—	—	—
6		002			Fl 1 Cl 1 SO_4 1	0.540	1.89	13.3	—	—	—	
7		003			Fl 1 Cl 1 SO_4 2	0.280	2.34	19.3	—	—		
8		004			Fl 1 Cl 5 SO_4 5	0.382	5.16	82.9	—	—		
9		005			Fl 1 Cl 1 SO_4 5	0.123	3.45	31.7	—	—		—
10		dp 005			↓	0.123	3.39	31.6	—	—		—
11	F 2 Cl 20 SO_4 20	MS 005	AL4262-94		Fl 1 Cl 5 SO_4 5	2.02	23.9	52.7	—	—		
12		5995-001			Fl 1 Cl 5 SO_4 1	0.862	10.5	2.96	—	—		
13		002			Fl 1 Cl 5 SO_4 5	0.186	5.06	31.6	—	—	—	—
14		5991-001			Fl 1 Cl 5 SO_4 5 NO_3 100 NO_2 1 OP 1	0.566	7.00	44.5	12.0	<1.00	<0.020	—
15		002			Fl 1 Cl 10 SO_4 10 NO_3 10 NO_2 1 OP 1	0.375	19.0	33.4	2.21	<1.00	<0.020	—
16		5998-001			Fl 1 Cl 5 SO_4 5 NO_3 5 NO_2 1 OP 1	0.396	19.0	30.9	1.61	<1.00	<0.020	—

% Recovery

	Fl	Cl	SO_4	NO_3-N	OPO_4	NO_2-N	Br
LCS-1	95	92	92	96	91	94	98
LCS-2							
5982 MS	95	102	105	—	—	—	—
5998 MS	101	96	104	84	102	106	—
MS							

RPD

	Fl	Cl	SO_4	NO_3-N	OPO_4	NO_2-N	Br
5982 DUP	<1	2	<1	—	—	—	—
5998 DUP	<1	2	<1	<1	*	*	—
DUP							

* can't calculate

0039

QUANTERRA ST. LOUIS

ANIONS BY I.C.

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

Project #: 388.01 262.01, 550.08
Analyst: J. Flanchean
Reviewed By: R. Patterson / 09-19-94
Reviewed By: R. Patterson / 09-19-94
Page 2 of 2

Prep Date: 09-16-94
Analysis Date: 09-16-94
Loop Used: 50 ml
Batch #: 45918
Method #: 300.0

Standard Value	Sample ID	Standard ID	Solid Fract.	Dil.	Fl	Cl	SO_4	NO_3-N	OPO_4	NO_2-N	Br
	5798-001 DUP			Fl 1 NO3 5 Cl 5 NO2 1 SO4 5 OP 1	0.399	19.4	30.7	1.60	<1.00	<0.020	—
F 2 NO3 .450 Cl 20 NO3 .609 SO4 20 OP 2	MS 001	AL4263-94		Fl 1 NO3 10 Cl 10 NO2 5 SO4 5 OP 1	2.42	38.1	51.6	1.99	1.03	0.643	—
	002			Fl 10 NO3 10 Cl 10 NO2 1 SO4 10 OP 1	0.415	18.6	32.8	1.41	<1.00	<0.020	—
	003			Fl 1 NO3 10 Cl 10 NO2 1 SO4 1 OP 1	0.413	19.0	33.0	1.42	<1.00	<0.020	—
	004			Fl 1 NO3 1 Cl 1 NO2 1 SO4 1 OP 1	<0.100	<0.250	<1.00	~~<0.020~~ 0.021 09-19-94	<1.00	<0.020	—
	005			Fl 1 NO3 100 Cl 20 NO2 1 SO4 20 OP 1	0.213	51.0	292	40.1	<1.00	<0.020	—

J. Flanchean 09-18-94

0040

SL-94-INORG-0055

96134901.0002

Project #: 340.05, 550.08, 550.10, 550.12
Analyst: J. Flanagan
Reviewed By: [illegible] 09-28-94
Reviewed By:
Page 1 of 2

QUANTERRA ST. LOUIS

ANIONS BY I.C.

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

Prep Date: 09-19-94
Analysis Date: 09-19-94
Loop Used: 50 uL
Batch #: 463067
Method #: 300.0

	Standard Value	Sample ID	Standard ID	Solid Fract.	Dil.	Fl	Cl	SO_4	NO_3-N	OPO_4	NO_2-N	Br
1		QCBLK463067				<0.100	<0.250	<1.00	<0.020	<1.00	<0.020	<0.250
2	Fl 1 NO3 .58 Cl 1 NO2 .57 SO4 4 OPO4 1.1	QCLCS463067-1	AL4490-94			0.919	0.927	3.74 ~~3.738~~	0.081	3.67	0.077	0.982
3	↓	QCLCS463067-2	AL4491-94			0.908	0.932	3.73				0.973
4		5974-001			Br 10 SO4 2	—	—	~~27.9~~ 28.0 27.9	—	—	—	<2.50
5		DUP 001			Br 10 SO4 2	—	—	28.0	—	—	—	<2.50
6		5970-005			Fl 1 SO4 10 Cl 10 Br 1	<0.100	22.0	116	—	—	—	<0.250
7		6034-001			Fl 1 SO4 10 Cl 10 Br 1	0.183	10.6	73.9	—	—	—	<0.250
8		002			Fl 1 SO4 10 Cl 10 Br 1	0.185	10.6	76.0	—	—	—	<0.250
9		003			Fl 1 SO4 5 Cl 1 Br 1	0.471	4.00	31.9	—	—	—	<0.250
10		005			Fl SO4 10 Cl 10 Br 1	—	28.7	45.7	—	—	—	0.283
11		006			Fl SO4 25 Cl 5 Br 25	—	12.3	307	—	—	—	<0.625
12		6065-002			Fl 1 SO4 1 Cl 1 Br 1	0.216	1.76	<1.00	—	—	—	<0.250
13		003			Fl 1 SO4 10 Cl 20 Br 1	0.200	60.8	78.0	—	—	—	<0.250
14		004			Cl 10 Br 1	—	24.2	—	—	—	—	0.490
15		005			Cl 5 Br 1 SO4 100	—	13.1	747	—	—	—	<0.250
16		DUP 005			Cl 5 Br 1 SO4 100	—	13.1	753	—	—	—	<0.250

% Recovery

	Fl	Cl	SO_4	NO_3-N	OPO_4	NO_2-N	Br
LCS-1	92	93	94	101	92	96	98
LCS-2	91	93	93	—	—	—	97
6065 MS	—	105	0	—	—	—	108
6023 MS	96	98	88	0	90	104	—
6049 MS	93	103	90	0	92	105	—

RPD

	Fl	Cl	SO_4	NO_3-N	OPO_4	NO_2-N	Br
6065 DUP	—	<1	<1	—	—	—	*
6023 DUP	<1	<1	<1	4	*	*	—
6049 DUP	<1	<1	<1	<1	*	*	—
5974 DUP	—	—	<1	—	—	—	*

* Can't calculate.

0041

QUANTERRA ST. LOUIS

ANIONS BY I.C.

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

Project #: 3-10.05, 550.08, 550.10, 550.12
Analyst: J. Flanagan
Reviewed By: JM Plymale 09-28-94
Reviewed By:
Page 2 of 2

Prep Date: 09-19-94
Analysis Date: 09-19-94
Loop Used: 50 ul
Batch #: 46306
Method #: 300.0

	Standard Value	Sample ID	Standard ID	Solid Frect.	Dil.	Fl	Cl	SO_4	NO_3-N	OPO_4	NO_2-N	Br
17	Cl 20 Br 2 SO4 20	MS 6065-005	AL4492-94		Cl 10 Br 1 SO4 100	—	34.1	726	—	—	—	2.15
18		006			Cl 5 Br 1 SO4 100	—	13.7	757	—	—	—	<0.250
19		6012-001			Fl 1 NO3 100 Cl 5 NO2 1 SO4 5 OP 1	0.729	6.92	44.4	19.6	<1.00	<0.020	—
20		002			Fl 1 NO3 1 Cl 1 NO2 1 SO4 1 OP 1	<0.100	<0.250	<1.00	<0.020	<1.00	<0.020	—
21		003			Fl 1 NO3 1 Cl 1 NO2 1 SO4 1 OP 1	<0.100	<0.250	<1.00	<0.020	<1.00	<0.020	—
22		6023-001			Fl 1 NO3 500 Cl 5 NO2 1 SO4 5 OP 1	0.424	9.82	31.3	69.3	<1.00	<0.020	—
23		Dup 001 ~~002~~			↓	0.421	9.80	31.1	72.1	<1.00	<0.020	—
24	Fl 2 NO3 .452 Cl 20 NO2 .609 SO4 20 OP 2	MS 001	AL4493-94		Fl 1 NO3 500 Cl 10 NO2 10 SO4 10 OP 1	2.35	29.5	48.9	65.7	1.80	0.634	—
25		002			Fl 1 NO3 1 Cl 5 NO2 1 SO4 5 OP 1	0.447	2.71	36.3	<0.020	<1.00	<0.020	—
26		6049-001			Fl 1 NO3 500 Cl 5 NO2 1 SO4 5 OP 1	0.419	9.36	30.1	69.1	<1.00	<0.020	—
27		Dup 001			↓	0.420	9.42	30.3	69.2	<1.00	<0.020	—
28	Fl 2 NO3 .452 Cl 20 NO2 .609 SO4 20 OP 2	MS 001	AL4494-94		Fl 1 NO3 500 Cl 10 NO2 10 SO4 10 OP 1	2.27	29.9	48.2	67.6	1.84	0.639	—
29		5993-009			Fl 1 SO4 5 Cl 5 Br 1	0.274	14.9	67.2	—	—	—	<0.250
30		0010			Fl 1 SO4 5 Cl 81 Br 1	0.233	3.10	33.4	—	—	—	<0.250

JMP 09-25-94

J. Flanagan 09-23-94

0042

SL-94-INORG-0055

Total Dissolved Solids

Analyst S. Popp
Checked by R. Patterson
Method No. 160.1
Batch No. 44745

Prep/Analysis Date 09-02-94
Date 09-28-94
Oven No. 1
Oven No. 2

Project No. 55008 26201
Balance No. AE160-1
Drying Temp. 105°C
Drying Temp. 180°C

LAB ID	Crucible Number	Initial Wt. (gm)	Volume (ml)	Dried Wt. (gm)	Dissolved Solids mg/L
QC BLK 44745-1	1 09-02-94 SP	101.9114 ~~99.1973~~	100	101.9117	<5
IA0382-94 QCLCS 44745-1	7	106.2243		106.2568	325
5991-001	31	108.2724		108.3056	332
5991-002	18	SP 101.9114		~~101.~~ 99.2116	241
5995-002	33	108.4283		108.4526	243
5998-001	67	105.3428		105.3619	191
-001 DUP	48	107.9189		107.9389	200
-002	3	109.1128		109.1331	203
-003	0	105.3480		105.3693	213
-004	68	107.5302		107.5370	68
-005	69	106.6509		106.7394	885
5995-001	8	109.3815		109.4026	211

LCS True Value = 352 mg/L
LCS % recovery = 92
DUP RPD = 5

Steven Rose 09-06-94

$$\text{mg/L TOTAL DISSOLVED SOLIDS} = \frac{(\text{DRIED WT} - \text{INITIAL WT}) \times 10^6}{\text{mL SAMPLE}}$$

SL-91-INORG-0007

9410.0446 96134901

HAS ST. LOUIS

Total Dissolved Solids

Analyst: S. Popp
Checked by: R. Patterson
Method No.: 160.1
Batch No.: 44897

Prep & Analysis Date: 09-06-94
Date: 09-28-94
Oven No.: 1
Oven No.: 2

Project No.: 550.08 550.10
Balance No.: AE-160-1
Drying Temp.: 105
Drying Temp.: 180

LAB ID	Crucible Number	Initial Wt. (gm)	Volume (ml)	Dried Wt. (gm)	Dissolved Solids mg/L
QC BLANK 44897-1	47	107.6704	100	107.6708	<5
IP0382-94 QC LCS 44897-1	29	100.3132		100.3468	336
6012 -001	16	107.0125		107.0490	365
-002	1	112.9515		112.9589	74
-003	42	113.4923		113.5335	412
6023 -001	63	106.3220		106.4331	611
-001 DUP	4	111.6212		111.6819	607
-002	62	105.7096		105.7453	381

LCS true value = 352 mg/L
% Recovery = 95.4
Dup RPD = 0.66

Steven Bzzu 09-09-94

(DRIED WT - INITIAL WT) x 10^6

mg/L TOTAL DISSOLVED SOLIDS = ——————————

mL SAMPLE

SL-91-INORG-0007

0044

96135190.0496

ITAS - ST. LOUIS

TOC ANALYSIS

PREP DATE: 09-20-94
DATE OF ANALYSIS: 09-20-94
ANALYST: J. Flandreau
BATCH #: 46132

PAGE 1 OF 2

REVIEWED BY: JM Kly 09-28-94
REVIEWED BY:
METHOD #: 415.1
PROJECT #: 340.05, 550.08

LAB ID	STANDARD CONC.	VOLUME/ml WEIGHT USED	DILUTIONS	FRACTION SOLID	INSTRUMENT PRINTOUT PPM C	DRY WEIGHT CONC. PPM C	FINAL CONC (MG/L OR UG/G)
QCBLK46132-1		1000			0.242		<1.00
QCLCS46132-1	AL4486-94				59.75		59.8
QCLCS46132-2	AL4487-94				59.72		59.7
5970-005					5.404		5.40
006					12.83		12.8
007					0.434		<1.00
008					1.364		1.36
5991-001					0.672		<1.00
002					1.397		1.40
5974-001					0.612		<1.00
001Dup					0.85		<1.00
001MS	AL4488-94				51.08		51.1
002					0.67		<1.00
5998-001					0.636		<1.00
001Dup					0.764		<1.00
001MS	AL4489-94				52.03		52.0
002					0.689		<1.00
003					1.022		1.02

LCS True Value = 60mg/L MS True Value = 50mg/L MSD True Value = N/A
1 Percent Recovery = 100 5974 Percent Recovery = 102 Percent Recovery =
2 Percent Recovery = 100 5990 [illegible] 5974 RPD = [illegible] - No Data

0045

SL 91 INORG 0013 Rev 0

ITAS - ST. LOUIS

TOC ANALYSIS

PAGE 2 OF 2

PREP DATE: 09-20-94
DATE OF ANALYSIS: 09-20-94
ANALYST: J. Flandreau
BATCH #: 46132

REVIEWED BY: JM Klaczynski 09-28-94
REVIEWED BY:
METHOD #: 415.1
PROJECT #: 340.05, 550.08

LAB ID	STANDARD CONC.	VOLUME/ml WEIGHT USED	DILUTIONS	FRACTION SOLID	INSTRUMENT PRINTOUT PPM C	DRY WEIGHT CONC. PPM C	FINAL CONC (MG/L) OR UG/G)
5948-004		1000			0.32		<1.00
↓ 005		↓			0.882		<1.00

J. Flandreau 09-26-94

LCS True Value = _____ MS True Value = _____ MSD True Value = _____
Percent Recovery = _____ Percent Recovery = _____ Percent Recovery = _____
RPD =

SL-91-INORG-0013,Rev.0

0046

ITAS - ST. LOUIS

TOC ANALYSIS

PREP DATE: 09-21-94
DATE OF ANALYSIS: 09-21-94
ANALYST: J. Flandreau
BATCH #: 46463

PAGE 1 OF 2

REVIEWED BY: JM Klegis 09-24-94
REVIEWED BY:
METHOD #: 415.1
PROJECT #: 340.05, 262.01, 550.08

LAB ID	STANDARD CONC.	VOLUME/ml WEIGHT USED	DILUTIONS	FRACTION SOLID	INSTRUMENT PRINTOUT PPM C	DRY WEIGHT CONC. PPM C	FINAL CONC (MG/L OR UG/G)
QCBLK46463-1		1000			0.443		<1.00
QCLCS46463-1	AL4480-94				60.54		60.5
QCLCS46463-2	AL4481-94				60.19		60.2
5993-009					3.059		3.06
010					1.947		1.95
5995-001					5.292		5.29
6012-001					0.549		<1.00
002					0.536		<1.00
003					0.225		<1.00
6034-001					2.49		2.49
002					3.571		3.57
003					0.953		<1.00
005					6.816		6.82
006					6.402		6.40
6065-002					1.544		1.54
003					1.896		1.90
004					2.229		2.23
005					2.012		2.01

LCS True Value = 60mg/L
1 Percent Recovery = 101
2 Percent Recovery = 100

MS True Value = 50mg/L
Percent Recovery = 99

MSD True Value = N/A
Percent Recovery =
RPD = 27

SL-91-INORG-0013, Rev.0

0047

ITAS - ST. LOUIS

TOC ANALYSIS

PREP DATE: 09-21-94
DATE OF ANALYSIS: 09-21-94
ANALYST: J. Flandreau
BATCH #: 46463

PAGE 2 OF 2

REVIEWED BY: JM Klesyn 09-29-94
REVIEWED BY:
METHOD #: 415.1
PROJECT #: 340.05, 262.01, 550.08

LAB ID	STANDARD CONC.	VOLUME/ml WEIGHT USED	DILUTIONS	FRACTION SOLID	INSTRUMENT PRINTOUT PPM C	DRY WEIGHT CONC. PPM C	FINAL CONC (MG/L OR UG/G)
6065-005 Dup		1000			1.531		1.53
↓ 005 MS	AL4482-94	↓			51.37		51.4

J. Flandreau 09-26-94

LCS True Value = _____
Percent Recovery = _____

MS True Value = _____
Percent Recovery = _____

MSD True Value = _____
Percent Recovery = _____
RPD = _____

SL-91-INORG-0013, Rev.0

0048

9613490.0451

Quanterra
Environmental Services

Quanterra Incorporated
2800 George Washington Way
Richland, Washington 99352

509 375-3131 Telephone
509 375-5590 Fax

Analytical Data Package Prepared For

Westinghouse/Bechtel Hanford

Radiochemical Analysis By

Quanterra Environmental Services
Richland Laboratory

Sample Delivery Group Number: W0186

CLIENT ID NUMBER	QUANTERRA ID NUMBER
B09VX0	40870401
B09VY2	40870402
B09VX8	40872901
B09VX6	40872902
B09VZ0	40872903
B09VY4	40872904
B09VX4	40872905
B09VX2	40901601
B09VY6	40901602
B09VY8	40901603

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Quanterra Environmental Services

Quanterra Incorporated
2800 George Washington Way
Richland, Washington 99352

509 375-3131 Telephone
509 375-5590 Fax

CERTIFICATE OF ANALYSIS

Bechtel Hanford, Inc.
345 Hills
Richland, WA 99352

October 14, 1994

Attention: Joan Kessner

SAF Number	:	B94-034
Date SDG Closed	:	September 1, 1994
Number of Samples	:	Ten (10)
Sample Type	:	Water
SDG Number	:	W0186
Data Deliverable	:	Stand Alone

I. Introduction

On August 30, 31, and September 1, 1994, a total of ten water samples were received by the Quanterra Environmental Services Richland Laboratory (QTESRL) for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific IDs:

QTESRL ID	BHI ID	Matrix	Date of Receipt
40870401	B09VX0	Water	8/30/94
40870402	B09VY2	Water	8/30/94
40872901	B09VX8	Water	8/31/94
40872902	B09VX6	Water	8/31/94
40872903	B09VZ0	Water	8/31/94
40872904	B09VY4	Water	8/31/94
40872905	B09VX4	Water	8/31/94
40901601	B09VX2	Water	9/01/94
40901602	B09VY6	Water	9/01/94
40901603	B09VY8	Water	9/01/94

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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 by method ITAS-RD-3302
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
Gas Proportional Counting
Gross Alpha by method ITAS-RD-3222
Gross Beta by method ITAS-RD-3222
Strontium-90 by method ITAS-RD-3204
Liquid Scintillation Counting
Technetium-99 by method ITAS-IT-RS-0001

III. Quality Control

The analytical results for each analysis performed under SDG W0186 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate. Any exceptions have been noted in the "Comments" section.

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

IV. Comments

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

Alpha Spectroscopy

Americium-241 by method ITAS-RD-3302
The LCS, batch blank, sample and sample duplicate (duplicate of sample B09VY2) results are within contractual limits.

Plutonium-238, -239/40 by method ITAS-RD-3209
Sample B09VY2 had a smeared spectrum on the initial count, therefore, the sample, LCS, and batch blank were stripped from the disks, ether extracted, re-electrodeposited and recounted. The recounted results are within contractual requirements and reported. The LCS, batch blank, sample and sample duplicate (duplicate of sample B09VY2) results are within contractual limits.

Uranium-234, -235, -238 by method ITAS-RD-3234
Sample B09VX2 was not analyzed with the initial batch due to technician error. The sample was reanalyzed and the reanalysis set is within contractual requirements. Sample B09VX6 and the LCS had smeared spectrums. The sample and the LCS were removed from the discs, re-electrodeposited and recounted. The LCS was acceptable after the recount, however, it had been counted on an uncalibrated detector, therefore, it was recounted. The recount LCS U-235 recovery is 149% but is within three sigma of the expected and the data are accepted. The tracer yield for the recount of sample B09VX6 was 16.7% and the RDL was exceeded. The sample was recounted for 500 minutes and the results fell within contractual requirements, however, the associated blank for the set that was stripped from the discs and reanalyzed did not meet contractual requirements, therefore, the recount result for sample B09VX6 was rejected and the sample was reanalyzed. The reanalysis set is within contractual requirements and reported. The LCS, batch blank, sample and sample duplicate (duplicate of sample B09VY2) results are within contractual limits.

Gamma Spectroscopy

Gamma Scan by method ITAS-RD-3219
Cd-109 is detected in sample B09VX2. The Cd-109 result is not reported because it is a false positive. The LCS, batch blank, sample and sample duplicate (duplicate of sample B09VX2) results are within contractual limits.

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Gas Proportional Counting

Gross Alpha by method ITAS-RD-3222
Sample B09VX4 was recounted for 100 minutes. The contractual detection limit had not been met for the sample because the aliquot size had been reduced due to high dissolved solids. The recount result was within contractual requirements. The LCS, batch blank, sample and sample duplicate (duplicate of sample B09VX0) results are within contractual limits.

Gross Beta by method ITAS-RD-3222
The LCS, batch blank, sample and sample duplicate (duplicate of sample B09VX0) results are within contractual limits.

Strontium-90 by method ITAS-RD-3204
The LCS, batch blank, sample and sample duplicate (duplicate of sample B09VX4) results are within contractual requirements.

Liquid Scintillation Counting

Technetium-99 by method ITAS-IT-RS-0001
The matrix spike, LCS, batch blank, sample and sample duplicate (duplicate of sample B09VX4) results are within contractual requirements.

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

Reviewed and approved:

Suzanne Gaines

Suzanne Gaines
Project Manager

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0186
LAB SAMPLE ID:	40870401	MATRIX:	WATER
CLIENT ID:	B09VX0	DATE RECEIVED:	8/30/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	-4.10E-03	8.20E-03	8.23E-03	2.06E-01	pCi/L	70.90%	RD3302
PU-238	-7.66E-03	1.08E-02	1.09E-02	3.20E-01	pCi/L	54.40%	RD3209
PU239/40	-1.53E-02	1.53E-02	1.56E-02	3.67E-01	pCi/L	54.40%	RD3209
U-234	1.49E+00	6.94E-01	7.28E-01	4.25E-01	pCi/L	52.40%	RD3234
U-235	1.53E-01	2.26E-01	2.27E-01	3.20E-01	pCi/L	52.40%	RD3234
U-238DA	1.26E+00	6.37E-01	6.63E-01	3.64E-01	pCi/L	52.40%	RD3234
CO-58	8.32E-02	5.64E+00	5.64E+00	1.05E+01	pCi/L	N/A	RD3219
CO-60	9.02E+00	6.48E+00	6.54E+00	1.48E+01	pCi/L	N/A	RD3219
CS-137DA	-6.25E-02	3.98E+00	3.98E+00	7.43E+00	pCi/L	N/A	RD3219
EU-152	4.87E+00	1.05E+01	1.05E+01	1.98E+01	pCi/L	N/A	RD3219
EU-154	6.52E+00	6.52E+00	6.55E+00	1.96E+01	pCi/L	N/A	RD3219
EU-155	-1.53E+00	8.37E+00	8.37E+00	1.43E+01	pCi/L	N/A	RD3219
FE-59	5.98E+00	9.00E+00	9.02E+00	2.11E+01	pCi/L	N/A	RD3219
RU-106DA	-2.38E+01	4.57E+01	4.57E+01	7.31E+01	pCi/L	N/A	RD3219
ALPHA	1.35E+00	1.17E+00	1.18E+00	1.68E+00	pCi/L	100.00%	RD3214
BETA	1.73E+02	6.54E+00	1.39E+01	2.89E+00	pCi/L	100.00%	RD3214
STRONTIUM	4.62E+03	3.42E+01	1.22E+03	1.86E+00	pCi/L	100.00%	RD3204
TC-99	6.85E+02	4.88E+00	7.75E+01	2.14E+00	pCi/L	95.10%	ITAS-IT-RS-0001

Number of Results: 18

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0186
LAB SAMPLE ID:	40870402	MATRIX:	WATER
CLIENT ID:	B09VY2	DATE RECEIVED:	8/30/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	0.00E+00	0.00E+00	1.98E-01	1.78E-01	pCi/L	55.20%	RD3302
PU-238	1.16E+01	1.80E+00	2.74E+00	2.61E-01	pCi/L	59.90%	RD3209
PU239/40	-3.48E-03	6.95E-03	6.98E-03	2.61E-01	pCi/L	59.90%	RD3209
U-234	6.31E+00	1.43E+00	1.70E+00	4.54E-01	pCi/L	51.90%	RD3234
U-235	4.50E-01	3.95E-01	4.00E-01	4.54E-01	pCi/L	51.90%	RD3234
U-238DA	3.92E+00	1.13E+00	1.27E+00	3.67E-01	pCi/L	51.90%	RD3234
CO-58	4.28E-01	5.61E+00	5.61E+00	1.04E+01	pCi/L	N/A	RD3219
CO-60	1.45E+00	3.43E+00	3.43E+00	7.31E+00	pCi/L	N/A	RD3219
CS-137DA	2.08E+02	1.69E+01	2.68E+01	N/A	pCi/L	N/A	RD3219
EU-152	-6.18E+00	1.46E+01	1.46E+01	2.43E+01	pCi/L	N/A	RD3219
EU-154	9.25E-01	1.16E+01	1.16E+01	2.21E+01	pCi/L	N/A	RD3219
EU-155	3.82E+00	1.17E+01	1.17E+01	2.08E+01	pCi/L	N/A	RD3219
FE-59	1.02E+01	6.82E+00	6.90E+00	1.89E+01	pCi/L	N/A	RD3219
RU-106DA	1.24E+01	4.34E+01	4.34E+01	8.14E+01	pCi/L	N/A	RD3219
ALPHA	2.47E+01	5.59E+00	6.64E+00	3.04E+00	pCi/L	100.00%	RD3214
BETA	1.02E+04	1.35E+02	7.33E+02	1.60E+01	pCi/L	100.00%	RD3214
STRONTIUM	2.70E-01	2.24E-01	2.35E-01	7.61E-01	pCi/L	99.50%	RD3204
TC-99	2.67E+01	1.39E+00	6.54E+00	2.14E+00	pCi/L	95.10%	ITAS-IT-RS-0001

Number of Results: 18

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0186
LAB SAMPLE ID:	40872901	MATRIX:	WATER
CLIENT ID:	B09VX8	DATE RECEIVED:	8/31/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	1.07E+00	5.42E-01	5.74E-01	3.09E-01	pCi/L	53.60%	RD3302
PU-238	3.54E-01	2.89E-01	2.95E-01	3.27E-01	pCi/L	76.50%	RD3209
PU239/40	7.78E+01	4.12E+00	1.33E+01	2.97E-01	pCi/L	76.50%	RD3209
U-234	1.89E+00	9.41E-01	9.92E-01	8.04E-01	pCi/L	37.70%	RD3234
U-235	6.64E-02	2.25E-01	2.25E-01	6.25E-01	pCi/L	37.70%	RD3234
U-238DA	1.52E+00	8.28E-01	8.66E-01	5.52E-01	pCi/L	37.70%	RD3234
CO-58	-1.31E+00	4.66E+00	4.67E+00	8.04E+00	pCi/L	N/A	RD3219
CO-60	2.08E+00	3.85E+00	3.86E+00	8.92E+00	pCi/L	N/A	RD3219
CS-137DA	1.82E+03	5.40E+01	1.90E+02	N/A	pCi/L	N/A	RD3219
EU-152	6.16E+00	2.12E+01	2.12E+01	3.54E+01	pCi/L	N/A	RD3219
EU-154	8.03E-01	8.79E+00	8.79E+00	1.93E+01	pCi/L	N/A	RD3219
EU-155	-3.92E+00	2.02E+01	2.02E+01	3.27E+01	pCi/L	N/A	RD3219
FE-59	-1.87E+01	1.51E+01	1.53E+01	2.09E+01	pCi/L	N/A	RD3219
RU-106DA	-1.57E+01	6.60E+01	6.61E+01	1.09E+02	pCi/L	N/A	RD3219
ALPHA	8.17E+01	1.03E+01	1.54E+01	2.75E+00	pCi/L	100.00%	RD3214
BETA	1.78E+04	1.79E+02	1.28E+03	1.58E+01	pCi/L	100.00%	RD3214
STRONTIUM	9.11E+03	1.53E+02	2.39E+03	7.79E+00	pCi/L	99.60%	RD3204
TC-99	3.35E+01	1.44E+00	7.20E+00	2.14E+00	pCi/L	95.10%	ITAS-IT-RS-0001

Number of Results: 18

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0186
LAB SAMPLE ID:	40872902	MATRIX:	WATER
CLIENT ID:	B09VX6	DATE RECEIVED:	8/31/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	-4.93E-03	9.87E-03	9.90E-03	2.48E-01	pCi/L	58.90%	RD3302
PU-238	-6.00E-03	8.48E-03	8.54E-03	2.51E-01	pCi/L	69.50%	RD3209
PU239/40	1.08E-01	1.70E-01	1.71E-01	2.87E-01	pCi/L	69.50%	RD3209
U-234	1.37E+00	8.11E-01	8.67E-01	7.70E-01	pCi/L	37.10%	RD3234
U-235	-1.80E-02	2.54E-02	2.57E-02	5.12E-01	pCi/L	37.10%	RD3234
U-238DA	1.63E+00	8.70E-01	9.44E-01	6.65E-01	pCi/L	37.10%	RD3234
CO-58	-5.51E+00	6.40E+00	6.42E+00	9.62E+00	pCi/L	N/A	RD3219
CO-60	2.56E-01	5.18E+00	5.18E+00	9.88E+00	pCi/L	N/A	RD3219
CS-137DA	3.17E+01	7.73E+00	8.35E+00	N/A	pCi/L	N/A	RD3219
EU-152	-1.42E+01	1.13E+01	1.14E+01	1.74E+01	pCi/L	N/A	RD3219
EU-154	-4.62E-01	1.12E+01	1.12E+01	2.20E+01	pCi/L	N/A	RD3219
EU-155	1.54E+00	8.91E+00	8.91E+00	1.61E+01	pCi/L	N/A	RD3219
FE-59	7.47E-01	1.25E+01	1.25E+01	2.33E+01	pCi/L	N/A	RD3219
RU-106DA	-1.84E+01	4.16E+01	4.16E+01	7.04E+01	pCi/L	N/A	RD3219
ALPHA	2.59E+00	1.47E+00	1.51E+00	1.52E+00	pCi/L	100.00%	RD3214
BETA	3.58E+02	9.23E+00	2.69E+01	2.89E+00	pCi/L	100.00%	RD3214
STRONTIUM	1.63E+02	2.88E+00	4.30E+01	7.37E-01	pCi/L	100.00%	RD3204
TC-99	3.65E+01	1.48E+00	7.50E+00	2.14E+00	pCi/L	95.10%	ITAS-IT-RS-0001

Number of Results: 18

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0186
LAB SAMPLE ID:	40872903	MATRIX:	WATER
CLIENT ID:	B09VZ0	DATE RECEIVED:	8/31/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	0.00E+00	0.00E+00	1.51E-01	1.36E-01	pCi/L	72.20%	RD3302
PU-238	0.00E+00	1.31E-01	1.79E-01	4.40E-01	pCi/L	69.70%	RD3209
PU239/40	5.97E-02	1.20E-01	1.20E-01	1.62E-01	pCi/L	69.70%	RD3209
U-234	1.25E+00	9.82E-01	1.01E+00	9.24E-01	pCi/L	22.50%	RD3234
U-235	-1.48E-02	2.96E-02	2.98E-02	7.45E-01	pCi/L	22.50%	RD3234
U-238DA	1.28E+00	9.81E-01	1.02E+00	7.45E-01	pCi/L	22.50%	RD3234
CO-58	-6.95E+00	5.39E+00	5.43E+00	7.66E+00	pCi/L	N/A	RD3219
CO-60	-2.97E+00	3.57E+00	3.58E+00	5.52E+00	pCi/L	N/A	RD3219
CS-137DA	3.19E+01	7.65E+00	8.29E+00	N/A	pCi/L	N/A	RD3219
EU-152	3.42E+00	1.10E+01	1.10E+01	2.03E+01	pCi/L	N/A	RD3219
EU-154	7.23E+00	1.09E+01	1.09E+01	2.55E+01	pCi/L	N/A	RD3219
EU-155	-9.12E-02	8.62E+00	8.62E+00	1.52E+01	pCi/L	N/A	RD3219
FE-59	7.10E+00	9.13E+00	9.16E+00	2.05E+01	pCi/L	N/A	RD3219
RU-106DA	1.57E+01	3.75E+01	3.75E+01	7.43E+01	pCi/L	N/A	RD3219
ALPHA	1.93E+00	1.27E+00	1.29E+00	1.50E+00	pCi/L	100.00%	RD3214
BETA	3.41E+02	9.01E+00	2.57E+01	2.85E+00	pCi/L	100.00%	RD3214
STRONTIUM	1.64E+02	2.90E+00	4.30E+01	7.66E-01	pCi/L	99.10%	RD3204
TC-99	3.36E+01	1.42E+00	7.21E+00	2.14E+00	pCi/L	95.10%	ITAS-IT-RS-0001

Number of Results: 18

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0186
LAB SAMPLE ID:	40872904	MATRIX:	WATER
CLIENT ID:	B09VY4	DATE RECEIVED:	8/31/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	5.94E-02	1.30E-01	1.30E-01	2.60E-01	pCi/L	56.30%	RD3302
PU-238	5.58E-02	1.42E-01	1.43E-01	3.34E-01	pCi/L	59.80%	RD3209
PU239/40	5.58E-02	1.42E-01	1.43E-01	3.34E-01	pCi/L	59.80%	RD3209
U-234	1.38E-01	2.33E-01	2.34E-01	4.37E-01	pCi/L	50.90%	RD3234
U-235	-3.28E-02	2.93E-02	2.97E-02	4.63E-01	pCi/L	50.90%	RD3234
U-238DA	6.88E-02	1.65E-01	1.65E-01	3.74E-01	pCi/L	50.90%	RD3234
CO-58	-1.80E+00	5.25E+00	5.25E+00	9.33E+00	pCi/L	N/A	RD3219
CO-60	2.76E+00	2.47E+00	2.48E+00	7.23E+00	pCi/L	N/A	RD3219
CS-137DA	-1.32E+00	3.63E+00	3.64E+00	6.00E+00	pCi/L	N/A	RD3219
EU-152	-4.25E+00	1.04E+01	1.04E+01	1.71E+01	pCi/L	N/A	RD3219
EU-154	-2.98E+00	1.03E+01	1.03E+01	1.98E+01	pCi/L	N/A	RD3219
EU-155	1.81E+00	7.85E+00	7.85E+00	1.32E+01	pCi/L	N/A	RD3219
FE-59	-7.18E+00	1.12E+01	1.13E+01	1.81E+01	pCi/L	N/A	RD3219
RU-106DA	-1.38E+01	3.77E+01	3.77E+01	6.47E+01	pCi/L	N/A	RD3219
ALPHA	1.02E-01	3.64E-01	3.64E-01	9.44E-01	pCi/L	100.00%	RD3214
BETA	3.30E+00	1.42E+00	1.44E+00	2.58E+00	pCi/L	100.00%	RD3214
STRONTIUM	1.06E-01	2.15E-01	2.17E-01	7.91E-01	pCi/L	92.80%	RD3204
TC-99	8.64E-01	9.75E-01	4.25E+00	2.14E+00	pCi/L	95.10%	ITAS-IT-RS-0001

Number of Results: 18

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0186
LAB SAMPLE ID:	40872905	MATRIX:	WATER
CLIENT ID:	B09VX4	DATE RECEIVED:	8/31/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	-4.26E-03	8.52E-03	8.55E-03	2.14E-01	pCi/L	68.20%	RD3302
PU-238	0.00E+00	0.00E+00	1.74E-01	1.57E-01	pCi/L	72.00%	RD3209
PU239/40	1.16E-02	1.25E-01	1.25E-01	3.97E-01	pCi/L	72.00%	RD3209
U-234	2.44E+00	8.78E-01	9.44E-01	7.78E-01	pCi/L	58.00%	RD3234
U-235	2.88E-03	2.59E-01	2.59E-01	7.70E-01	pCi/L	58.00%	RD3234
U-238DA	1.23E+00	6.80E-01	7.03E-01	9.34E-01	pCi/L	58.00%	RD3234
CO-58	-2.12E+00	5.16E+00	5.16E+00	8.93E+00	pCi/L	N/A	RD3219
CO-60	5.87E+01	1.25E+01	1.38E+01	N/A	pCi/L	N/A	RD3219
CS-137DA	4.15E+00	4.56E+00	4.58E+00	9.15E+00	pCi/L	N/A	RD3219
EU-152	-2.99E-01	1.10E+01	1.10E+01	1.83E+01	pCi/L	N/A	RD3219
EU-154	-1.36E+01	1.57E+01	1.57E+01	2.42E+01	pCi/L	N/A	RD3219
EU-155	1.76E+00	8.44E+00	8.44E+00	1.53E+01	pCi/L	N/A	RD3219
FE-59	1.27E+01	1.16E+01	1.16E+01	2.58E+01	pCi/L	N/A	RD3219
RU-106DA	1.84E+01	4.18E+01	4.18E+01	7.84E+01	pCi/L	N/A	RD3219
ALPHA	7.62E+00	3.09E+00	3.31E+00	3.30E+00	pCi/L	100.00%	RD3214
BETA	6.80E+02	2.57E+01	5.44E+01	8.12E+00	pCi/L	100.00%	RD3214
STRONTIUM	8.20E-02	2.44E-01	2.45E-01	9.13E-01	pCi/L	77.50%	RD3204
TC-99	3.67E+03	1.11E+01	4.03E+02	2.14E+00	pCi/L	95.10%	ITAS-IT-RS-0001

Number of Results: 18

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0186
LAB SAMPLE ID:	40901601	MATRIX:	WATER
CLIENT ID:	B09VX2	DATE RECEIVED:	9/1/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	-4.27E-03	8.53E-03	8.56E-03	2.14E-01	pCi/L	68.10%	RD3302
PU-238	7.29E-02	1.46E-01	1.46E-01	1.97E-01	pCi/L	57.20%	RD3209
PU239/40	1.46E-01	2.06E-01	2.08E-01	1.97E-01	pCi/L	57.20%	RD3209
U-234	1.01E+00	7.13E-01	7.49E-01	7.03E-01	pCi/L	35.10%	RD3234
U-235	-6.64E-02	5.02E-02	5.24E-02	7.34E-01	pCi/L	35.10%	RD3234
U-238DA	8.21E-01	6.28E-01	6.55E-01	4.77E-01	pCi/L	35.10%	RD3234
CO-58	2.11E+00	5.30E+00	5.30E+00	1.05E+01	pCi/L	N/A	RD3219
CO-60	2.47E+01	8.28E+00	8.64E+00	2.01E+01	pCi/L	N/A	RD3219
CS-137DA	-5.05E+00	4.99E+00	5.01E+00	7.85E+00	pCi/L	N/A	RD3219
EU-152	6.50E+00	1.10E+01	1.10E+01	2.06E+01	pCi/L	N/A	RD3219
EU-154	9.63E+00	7.87E+00	7.92E+00	2.26E+01	pCi/L	N/A	RD3219
EU-155	1.06E+01	9.19E+00	9.25E+00	1.81E+01	pCi/L	N/A	RD3219
FE-59	-3.18E+00	1.45E+01	1.45E+01	2.40E+01	pCi/L	N/A	RD3219
RU-106DA	3.20E+01	4.02E+01	4.03E+01	8.20E+01	pCi/L	N/A	RD3219
ALPHA	2.91E+00	1.69E+00	1.72E+00	1.86E+00	pCi/L	100.00%	RD3214
BETA	3.99E+02	9.84E+00	2.98E+01	2.99E+00	pCi/L	100.00%	RD3214
STRONTIUM	1.52E-01	2.09E-01	2.13E-01	7.56E-01	pCi/L	100.00%	RD3204
TC-99	1.39E+03	6.86E+00	1.54E+02	2.14E+00	pCi/L	95.10%	ITAS-IT-RS-0001

Number of Results: 18

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0186
LAB SAMPLE ID:	40901602	MATRIX:	WATER
CLIENT ID:	B09VY6	DATE RECEIVED:	9/1/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	-1.20E-02	1.38E-02	1.40E-02	2.49E-01	pCi/L	72.90%	RD3302
PU-238	-1.15E-02	2.31E-02	2.31E-02	2.76E-01	pCi/L	72.30%	RD3209
PU239/40	0.00E+00	0.00E+00	1.73E-01	1.56E-01	pCi/L	72.30%	RD3209
U-234	8.83E-02	2.45E-01	2.45E-01	6.17E-01	pCi/L	49.10%	RD3234
U-235	-3.40E-02	3.04E-02	3.08E-02	4.80E-01	pCi/L	49.10%	RD3234
U-238DA	-2.72E-02	2.72E-02	2.75E-02	4.53E-01	pCi/L	49.10%	RD3234
CO-58	-6.31E-01	4.87E+00	4.87E+00	8.96E+00	pCi/L	N/A	RD3219
CO-60	-5.98E+00	4.77E+00	4.81E+00	6.72E+00	pCi/L	N/A	RD3219
CS-137DA	-4.41E+00	4.77E+00	4.79E+00	7.60E+00	pCi/L	N/A	RD3219
EU-152	9.87E+00	9.83E+00	9.88E+00	1.92E+01	pCi/L	N/A	RD3219
EU-154	2.08E+01	1.07E+01	1.09E+01	2.87E+01	pCi/L	N/A	RD3219
EU-155	4.91E+00	7.91E+00	7.93E+00	1.50E+01	pCi/L	N/A	RD3219
FE-59	3.69E+00	9.56E+00	9.56E+00	2.01E+01	pCi/L	N/A	RD3219
RU-106DA	-3.40E+01	3.41E+01	3.43E+01	5.35E+01	pCi/L	N/A	RD3219
ALPHA	-1.32E-01	7.30E-02	7.63E-02	8.11E-01	pCi/L	100.00%	RD3214
BETA	1.30E+00	1.30E+00	1.30E+00	2.66E+00	pCi/L	100.00%	RD3214
STRONTIUM	1.69E-01	2.16E-01	2.20E-01	7.68E-01	pCi/L	93.30%	RD3204
TC-99	9.40E-01	9.91E-01	4.25E+00	2.14E+00	pCi/L	95.10%	ITAS-IT-RS-0001

Number of Results: 18

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0186
LAB SAMPLE ID:	40901603	MATRIX:	WATER
CLIENT ID:	B09VY8	DATE RECEIVED:	9/1/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	8.84E-02	1.43E-01	1.44E-01	2.51E-01	pCi/L	72.30%	RD3302
PU-238	-2.62E-02	3.70E-02	3.73E-02	3.70E-01	pCi/L	63.80%	RD3209
PU239/40	-1.31E-02	2.61E-02	2.62E-02	3.13E-01	pCi/L	63.80%	RD3209
U-234	1.73E-01	2.32E-01	2.33E-01	3.76E-01	pCi/L	62.70%	RD3234
U-235	-2.13E-02	2.13E-02	2.15E-02	3.55E-01	pCi/L	62.70%	RD3234
U-238DA	1.06E-01	1.90E-01	1.90E-01	3.76E-01	pCi/L	62.70%	RD3234
CO-58	-6.65E+00	6.86E+00	6.90E+00	1.01E+01	pCi/L	N/A	RD3219
CO-60	8.91E-01	3.47E+00	3.47E+00	7.79E+00	pCi/L	N/A	RD3219
CS-137DA	3.28E+00	4.24E+00	4.25E+00	8.87E+00	pCi/L	N/A	RD3219
EU-152	3.42E+00	1.10E+01	1.10E+01	1.95E+01	pCi/L	N/A	RD3219
EU-154	-1.12E+01	1.47E+01	1.48E+01	2.39E+01	pCi/L	N/A	RD3219
EU-155	2.37E+00	8.16E+00	8.16E+00	1.48E+01	pCi/L	N/A	RD3219
FE-59	-5.10E+00	1.25E+01	1.25E+01	1.97E+01	pCi/L	N/A	RD3219
RU-106DA	-3.36E+01	4.43E+01	4.44E+01	6.48E+01	pCi/L	N/A	RD3219
ALPHA	7.20E-02	3.00E-01	3.00E-01	8.24E-01	pCi/L	100.00%	RD3214
BETA	3.13E+00	1.52E+00	1.54E+00	2.85E+00	pCi/L	100.00%	RD3214
STRONTIUM	4.08E-01	2.56E-01	2.76E-01	8.16E-01	pCi/L	90.00%	RD3204
TC-99	1.35E-01	9.67E-01	4.19E+00	2.14E+00	pCi/L	95.10%	ITAS-IT-RS-0001

Number of Results: 18

9613490.0466

INTERNATIONAL TECHNOLOGY CORPORATION

ITAS Data Review Checklist
RADIOCHEMISTRY

Work Order Nos: 409704

Lab Sample Numbers or SDG: W0186

Method/Test/Parameter: RD 3302 An

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

Comments on any "No" response:

Analyst: [illegible signature] Date: 9-29-94

Second Level Review: [illegible signature] Date: 10/13/94

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

OK to Report 9-29-94 [illegible]

9613490.0467

INTERNATIONAL TECHNOLOGY CORPORATION

ITAS Data Review Checklist
RADIOCHEMISTRY

Work Order Nos: 408704, 8729, 9016

Lab Sample Numbers or SDG: WO 186

Method/Test/Parameter: RD 3302 Pu

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

Comments on any "No" response:

Sample 870402 was removed from the tube, after extracted & reeluted. 870402 was then run with 35 g F0870402...

Analyst: M Kallay Date: 10-11-94

Second Level Review: Stephen J Rosenberg Date: 10-12-94

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

OK to Lufr 10-10-94 MMS
use removed for tube for 870402.

9613490.0468

INTERNATIONAL TECHNOLOGY CORPORATION

ITAS Data Review Checklist
RADIOCHEMISTRY

Work Order No(s): 409704, 409729, 409016

Lab Sample Numbers or SDG: W0196

Method/Test/Parameter: RD3234

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

Comments on any "No" response: Sample 40901601 and 40872902 were rerun. Samples 40872902 + L0872915 were removed from the ed disc, either extracted + reeded. 872915 was acceptable, 02 had a tr, id L103 and was rerun.

Analyst: M Kellogg

Date: 10-13-94

Second Level Review: Suzy Davies

Date: 10/13/94

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

0034

OK to transfer L0 870415 stripped for disc + reeded, transfer rerun 40901601 + QC, Rerun 40 872902 + QC and original 870418, 01, 02, F02, 872901, 03, 04, 05, 901602, 03

9613490.0469

INTERNATIONAL TECHNOLOGY CORPORATION

OH46 Rev 1017 0447

LOG #: RD-94-_____ page 1 of 2

ITAS-Richland
LABORATORY NONCONFORMANCE MEMO (NCM)

PROJECT ID (Name/Number): BHI W0186

NCM INITIATED BY (Name/Date): [illegible] 10-3-94

PARAMETER(S): Uro

SAMPLE NUMBER(S) AFFECTED: 40901601, LOB7041B, 15, 40872902

MATRIX:

AREA: ☐ SHIP/REC ☒ RADIOCHEM ☐ COUNTING ☐ BIOASSAY ☐ DATA VERIF ☐ REPORTING ☐ OTHER:

NONCONFORMANCE [check appropriate item(s)]:

1. ☐ Not enough sample received for proper analysis.
2. ☐ Holding time exceeded by _____ days due to:
   - 2.1. ☐ CATEGORY I: Out of Laboratory Control
     - ☐ Holding time expired at receipt.
   - 2.2. ☐ CATEGORY II: Laboratory Dependent
     - ☐ work backlog ☐ instrument failure
     - ☐ communication ☐ other (see #10)
   - 2.3. ☐ CATEGORY III: Laboratory Reruns
     - 2.3.1. ☐ *QA/QC:*
       - ☐ surrogates ☐ internal standards
       - ☐ spike recoveries ☐ blank contamination
     - 2.3.2. ☐ *CONFIRMATION:*
       - ☐ second column ☐ contamination check
       - ☐ other (see #10)
     - 2.3.3. ☐ *DILUTION:*
       - ☐ over calibration ☐ under calibration
       - ☐ other (see #10)
     - 2.3.4. ☐ *OTHER: (see #10)*
3. ☐ Sample lost during extraction/analysis; no re-prep or re-analysis possible.
4. ☐ QC data reported to client outside of:
   - ☐ method limits ☐ internal limits
   - ☐ QAPP limits ☐ contract limits
   - ☐ regulatory limits ☐ blank criteria
5. ☐ Incorrect procedure(s) used. (See #10)
6. ☐ Invalid instrument calibration. (See #10)
7. ☐ Incorrect/incomplete data reported to client. (See #10)
8. ☐ Reported detection limit(s) higher than:
   - ☐ method limits ☐ QAPP limits
   - ☐ contract limits ☐ other (see #10)

   Due to:
   - ☐ sample matrix ☐ insufficient sample
   - ☐ instrumentation ☐ other (see #10)
9. ☐ Other (specify): No sample to ct for 40901601
   Sm equal spectrum on 40870415, 40872902
   Ir xd on 872902 + BIK were < 30% after removing fin disc.
10. ☐ Comments/Explanation:

NOTIFICATION [check appropriate item(s)]:

1. ☐ Client notified by (name and date): _____
   - ☐ in writing ☐ by FAX
   - ☐ by phone ☐ Other (explain)
2. ☐ Client's name _____ and response:
   - ☐ process "as is" ☐ resample
   - ☐ on hold til ____ ☐ Other (explain)

PROJECT MANAGER (signature & date): Sergy Devines 10/13/94

FURTHER ACTION REQUIRED, SEE PAGE 2 OF 2

~~0446~~ 0447 RW 1017

IT CORPORATION LOG #: RD-94-_____ page 2 of 2

CORRECTIVE ACTION

☐ ROOT CAUSE: INITIALS/DATE MMM 10-3-94

No sample recieved in ctrm for 40901601, smeared spectrum on spike + 872902

☐ CORRECTIVE ACTION: INITIALS/DATE MMM 10-3-94

Rerun 901601 – rerun acceptable 10-6-94
Rerun QC + 872902 from disc, reed + rect. The spike was acceptable 872902 tr yd was 16.7% + MDA was not met, rected 500 mm + MDA was met. The BW tr recovery was 57.3%, after removing from disc + reeding it was 6.2%.

☐ RESPONSIBILITY FOR PERFORMING CORRECTIVE ACTION ASSIGNED TO: Rerun – rerun 872902 acceptable. 10-17 mm

☐ ACTIONS TO PREVENT RECURRENCE: INITIALS/DATE

FIRST LEVEL SUPERVISOR: M Kelly DATE: 10-3-94

RESPONSIBLE MANAGER: W Markell DATE: 10/17/94

QC REVIEW

☐ NONCONFORMANCE ☐ DEFICIENCY ☒ RERUN

☐ FURTHER ACTION REQUIRED:

ASSIGNED TO:

QC COORDINATOR: C Black DATE: 10-17-94

CORRECTIVE ACTION VERIFICATION

☒ VERIFIED ☐ CANNOT VERIFY (specify reason)

REASON:

0036

NCM CLOSURE

QC COORDINATOR: C Black DATE: 10-17-94

SIGNED ORIGINAL MUST BE RETAINED IN FILE: ☐ QUALITY/OPERATIONS FILE ☒ PROJECT FILE

9613490.0471

INTERNATIONAL TECHNOLOGY CORPORATION

ITAS Data Review Checklist
RADIOCHEMISTRY

Work Order No(s): 408704, 408729, 409016

Lab Sample Numbers or SDG: 1W0186

Method/Test/Parameter: Gamma RD3219

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

Comments on any "No" response: NCM - detects not reported

Analyst: Joel Kempema Date: 9-28-94

Second Level Review: Suzy Daines Date: 10/3/94

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

Transfer WHC "7" + Ru 106

9613490.0472

INTERNATIONAL TECHNOLOGY CORPORATION

1108

LOG #: RD-94-_____ page 1 of 2

ITAS-Richland
LABORATORY NONCONFORMANCE MEMO (NCM)

PROJECT ID (Name/Number): WHC W0186
NCM INITIATED BY (Name/Date): Joel T Kempema 9-28-94
PARAMETER(S): Gamma
SAMPLE NUMBER(S) AFFECTED: L0870415, 40901601, F0901601
MATRIX: Water

AREA: ☐ SHIP/REC ☒ RADIOCHEM ☐ COUNTING ☐ BIOASSAY
☐ DATA VERIF ☐ REPORTING ☐ OTHER:

NONCONFORMANCE [check appropriate item(s)]:

1. ☐ Not enough sample received for proper analysis.
2. ☐ Holding time exceeded by _____ days due to:
   - 2.1. ☐ CATEGORY I: Out of Laboratory Control
     - ☐ Holding time expired at receipt.
   - 2.2. ☐ CATEGORY II: Laboratory Dependent
     - ☐ work backlog ☐ instrument failure
     - ☐ communication ☐ other (see #10)
   - 2.3. ☐ CATEGORY III: Laboratory Reruns
     - 2.3.1. ☐ QA/QC:
       - ☐ surrogates ☐ internal standards
       - ☐ spike recoveries ☐ blank contamination
     - 2.3.2. ☐ CONFIRMATION:
       - ☐ second column ☐ contamination check
       - ☐ other (see #10)
     - 2.3.3. ☐ DILUTION:
       - ☐ over calibration ☐ under calibration
       - ☐ other (see #10)
     - 2.3.4. ☐ OTHER: (see #10)
3. ☐ Sample lost during extraction/analysis; no re-prep or re-analysis possible.
4. ☐ QC data reported to client outside of:
   - ☐ method limits ☐ internal limits
   - ☐ QAPP limits ☐ contract limits
   - ☐ regulatory limits ☐ blank criteria
5. ☐ Incorrect procedure(s) used. (See #10)
6. ☐ Invalid instrument calibration. (See #10)
7. ☐ Incorrect/incomplete data reported to client. (See #10)
8. ☐ Reported detection limit(s) higher than:
   - ☐ method limits ☐ QAPP limits
   - ☐ contract limits ☐ other (see #10)

   Due to:
   - ☐ sample matrix ☐ insufficient sample
   - ☐ instrumentation ☐ other (see #10)
9. ☒ Other (specify): Peaks detected not reported L0870415 - Co57 40901601 - Cd109 F0901601 - Pb212
10. ☐ Comments/Explanation:

NOTIFICATION [check appropriate item(s)]:

1. ☐ Client notified by (name and date):_____
   - ☐ in writing ☐ by FAX
   - ☐ by phone ☐ Other (explain)
2. ☐ Client's name _____ and response:
   - ☐ process "as is" ☐ resample
   - ☐ on hold til ____ ☐ Other (explain)

PROJECT MANAGER (signature & date): Gary Haines 10/13/94

FURTHER ACTION REQUIRED, SEE PAGE 2 OF 2

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1108

IT CORPORATION

LOG #: RD-94-_____ page 2 of 2

CORRECTIVE ACTION

☒ ROOT CAUSE: INITIALS/DATE TTK 9-28-94

1S - Co57 - interference from Eu 152 at 122KEV
01 - Cd 109 - known phantom in some spectra
01 dup - Pb212 - not a reportable natural isotope

☒ CORRECTIVE ACTION: INITIALS/DATE TTK 9-28-94

data Accepted

☐ RESPONSIBILITY FOR PERFORMING CORRECTIVE ACTION ASSIGNED TO:

☐ ACTIONS TO PREVENT RECURRENCE: INITIALS/DATE

FIRST LEVEL SUPERVISOR: [signature] DATE: 9-28-94

RESPONSIBLE MANAGER: [signature] DATE: 10/14/94

QC REVIEW

☐ NONCONFORMANCE ☒ DEFICIENCY ☐ RERUN

☐ FURTHER ACTION REQUIRED:

ASSIGNED TO:

QC COORDINATOR: [signature] DATE: 10/14/94

CORRECTIVE ACTION VERIFICATION

☒ VERIFIED ☐ CANNOT VERIFY (specify reason)

REASON:

NCM CLOSURE

QC COORDINATOR: [signature] DATE: 10/14/94

SIGNED ORIGINAL MUST BE RETAINED IN FILE: ☐ QUALITY/OPERATIONS FILE ☒ PROJECT FILE

0039

0039

9613490.0474

INTERNATIONAL TECHNOLOGY CORPORATION

ITAS Data Review Checklist
RADIOCHEMISTRY

Work Order No(s): 408704, 408729, 409016

Lab Sample Numbers or SDG: W0186

Method/Test/Parameter: ALPHA

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

Comments on any "No" response:

Analyst: [signature] Date: 9/22/99

Second Level Review: Sung Davies Date: 10/13/99

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

0040

transfer recount data. JR 9/22/99

9613490.0475

0438

INTERNATIONAL TECHNOLOGY CORPORATION

LOG #: RD-94-_____ page 1 of 2

ITAS-Richland
LABORATORY NONCONFORMANCE MEMO (NCM)

PROJECT ID (Name/Number): BHI W0186
NCM INITIATED BY (Name/Date): Julie Pleva
PARAMETER(S): Gross Alpha
SAMPLE NUMBER(S) AFFECTED: 40872905
MATRIX: water

AREA: ☐ SHIP/REC ☒ RADIOCHEM ☐ COUNTING ☐ BIOASSAY
☐ DATA VERIF ☐ REPORTING ☐ OTHER:

NONCONFORMANCE [check appropriate item(s)]:

1. ☐ Not enough sample received for proper analysis.
2. ☐ Holding time exceeded by _____ days due to:
   - 2.1. ☐ CATEGORY I: Out of Laboratory Control
     - ☐ Holding time expired at receipt.
   - 2.2. ☐ CATEGORY II: Laboratory Dependent
     - ☐ work backlog ☐ instrument failure
     - ☐ communication ☐ other (see #10)
   - 2.3. ☐ CATEGORY III: Laboratory Reruns
     - 2.3.1. ☐ QA/QC:
       - ☐ surrogates ☐ internal standards
       - ☐ spike recoveries ☐ blank contamination
     - 2.3.2. ☐ CONFIRMATION:
       - ☐ second column ☐ contamination check
       - ☐ other (see #10)
     - 2.3.3. ☐ DILUTION:
       - ☐ over calibration ☐ under calibration
       - ☐ other (see #10)
     - 2.3.4. ☐ OTHER: (see #10)
3. ☐ Sample lost during extraction/analysis: no re-prep or re-analysis possible.
4. ☐ QC data reported to client outside of:
   - ☐ method limits ☐ internal limits
   - ☐ QAPP limits ☐ contract limits
   - ☐ regulatory limits ☐ blank criteria
5. ☐ Incorrect procedure(s) used. (See #10)
6. ☐ Invalid instrument calibration. (See #10)
7. ☐ Incorrect/incomplete data reported to client. (See #10)
8. ☐ Reported detection limit(s) higher than:
   - ☐ method limits ☐ QAPP limits
   - ☐ contract limits ☐ other (see #10)

   Due to:
   - ☐ sample matrix ☐ insufficient sample
   - ☐ instrumentation ☐ other (see #10)
9. ☒ Other (specify): MDA ≈ CL [illegible] 9/22/94 recount
10. ☐ Comments/Explanation:

NOTIFICATION [check appropriate item(s)]:

1. ☐ Client notified by (name and date): _____
   - ☐ in writing ☐ by FAX
   - ☐ by phone ☐ Other (explain)
2. ☐ Client's name _____ and response:
   - ☐ process "as is" ☐ resample
   - ☐ on hold til ☐ Other (explain)

PROJECT MANAGER (signature & date): Sergy Gaines 10/13/94

FURTHER ACTION REQUIRED, SEE PAGE 2 OF 2

0041

IT CORPORATION

LOG #: RD-94-_____ page 2 of 2

CORRECTIVE ACTION

☒ ROOT CAUSE: INITIALS/DATE JP 9/22/94

reduced sample volume due to high dissolved solids.

☒ CORRECTIVE ACTION: INITIALS/DATE JP 9/22/94

recounted sample with increased count time. Data accepted with recount.

☐ RESPONSIBILITY FOR PERFORMING CORRECTIVE ACTION ASSIGNED TO:

☐ ACTIONS TO PREVENT RECURRENCE: INITIALS/DATE

FIRST LEVEL SUPERVISOR: JP DATE: 9/22/94

RESPONSIBLE MANAGER: DATE: 10/14/94

QC REVIEW

☐ NONCONFORMANCE ☐ DEFICIENCY ☒ RERUN

☐ FURTHER ACTION REQUIRED:

ASSIGNED TO

QC COORDINATOR: Jodie Cox DATE: 10/14/94

CORRECTIVE ACTION VERIFICATION

☒ VERIFIED ☐ CANNOT VERIFY (specify reason)

REASON:

NCM CLOSURE

QC COORDINATOR: Jodie Cox DATE: 10/14/94

SIGNED ORIGINAL MUST BE RETAINED IN FILE: ☐ QUALITY/OPERATIONS FILE ☒ PROJECT FILE

INTERNATIONAL TECHNOLOGY CORPORATION

ITAS Data Review Checklist
RADIOCHEMISTRY

Work Order No(s): 408704, 408729, 409016

Lab Sample Numbers or SDG: WC186

Method/Test/Parameter: BETA

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

Comments on any "No" response:

Analyst: [signature] Date: 9/9/94

Second Level Review: [signature] Date: 9/22/94

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

9613490.0478

INTERNATIONAL TECHNOLOGY CORPORATION

0971

LOG #: RD-94-_____ page 1 of 2

ITAS-Richland
LABORATORY NONCONFORMANCE MEMO (NCM)

PROJECT ID (Name/Number): 408704, 408729, 409016

NCM INITIATED BY (Name/Date): JULI PLEVA 9/19/94

PARAMETER(S): BETA

SAMPLE NUMBER(S) AFFECTED: 40870402, 40872901, 05

MATRIX: WATER BHI

AREA: ☐ SHIP/REC ☒ RADIOCHEM ☐ COUNTING ☐ BIOASSAY ☐ DATA VERIF ☐ REPORTING ☐ OTHER:

NONCONFORMANCE [check appropriate item(s)]:

1. ☐ Not enough sample received for proper analysis.
2. ☐ Holding time exceeded by _____ days due to:
   - 2.1. ☐ CATEGORY I: Out of Laboratory Control
     - ☐ Holding time expired at receipt.
   - 2.2. ☐ CATEGORY II: Laboratory Dependent
     - ☐ work backlog ☐ instrument failure
     - ☐ communication ☐ other (see #10)
   - 2.3. ☐ CATEGORY III: Laboratory Reruns
     - 2.3.1. ☐ *QA/QC:*
       - ☐ surrogates ☐ internal standards
       - ☐ spike recoveries ☐ blank contamination
     - 2.3.2. ☐ *CONFIRMATION:*
       - ☐ second column ☐ contamination check
       - ☐ other (see #10)
     - 2.3.3. ☐ *DILUTION:*
       - ☐ over calibration ☐ under calibration
       - ☐ other (see #10)
     - 2.3.4. ☐ *OTHER: (see #10)*
3. ☐ Sample lost during extraction/analysis; no re-prep or re-analysis possible.
4. ☐ QC data reported to client outside of:
   - ☐ method limits ☐ internal limits
   - ☐ QAPP limits ☐ contract limits
   - ☐ regulatory limits ☐ blank criteria
5. ☐ Incorrect procedure(s) used. (See #10)
6. ☐ Invalid instrument calibration. (See #10)
7. ☐ Incorrect/incomplete data reported to client. (See #10)
8. ☒ Reported detection limit(s) higher than:
   - ☐ method limits ☐ QAPP limits
   - ☒ contract limits ☐ other (see #10)
   - Due to:
     - ☒ sample matrix ☐ insufficient sample
     - ☐ instrumentation ☐ other (see #10)
9. ☐ Other (specify):
10. ☐ Comments/Explanation: Results are greater than achieved MDA's. OK to report SCE 9/22/94

NOTIFICATION [check appropriate item(s)]:

1. ☐ Client notified by (name and date): _____
   - ☐ in writing ☐ by FAX
   - ☐ by phone ☐ Other (explain)
2. ☐ Client's name _____ and response:
   - ☐ process "as is" ☐ resample
   - ☐ on hold til ____ ☐ Other (explain)

PROJECT MANAGER (signature & date): Sey Gaines 9/22/94

FURTHER ACTION REQUIRED, SEE PAGE 2 OF 2

9613490.0479

0971

IT CORPORATION LOG #: RD-94-_____ page 2 of 2

CORRECTIVE ACTION

☒ **ROOT CAUSE:** INITIALS/DATE 9/19/94

volume analyzed reduced due to high dissolved solids. This is done to stay on calibration curve.

☒ **CORRECTIVE ACTION:** INITIALS/DATE 9/19/94

data accepted

☐ RESPONSIBILITY FOR PERFORMING CORRECTIVE ACTION ASSIGNED TO:

☐ **ACTIONS TO PREVENT RECURRENCE:** INITIALS/DATE

FIRST LEVEL SUPERVISOR: DATE: 9/19/94

RESPONSIBLE MANAGER: W Markle DATE: 9/25/94

QC REVIEW

☐ NONCONFORMANCE ☒ DEFICIENCY ☐ RERUN

☐ FURTHER ACTION REQUIRED:

ASSIGNED TO:

QC COORDINATOR: C Black DATE: 9-26-94

CORRECTIVE ACTION VERIFICATION

☒ VERIFIED ☐ CANNOT VERIFY (specify reason)

REASON:

NCM CLOSURE

QC COORDINATOR: C Black DATE: 9-26-94

SIGNED ORIGINAL MUST BE RETAINED IN FILE: ☐ QUALITY/OPERATIONS FILE ☒ PROJECT FILE

0015

INTERNATIONAL TECHNOLOGY CORPORATION

ITAS Data Review Checklist
RADIOCHEMISTRY

Work Order No(s): 408729, 409016, 408704

Lab Sample Numbers or SDG: W0186

Method/Test/Parameter: Total SR

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

Comments on any "No" response:

Analyst: [illegible] Date: 9/21/94

Second Level Review: Suzy Davies Date: 9/22/94

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

INTERNATIONAL TECHNOLOGY CORPORATION

ITAS Data Review Checklist
RADIOCHEMISTRY

Work Order No(s): 408704, 409016, 408729

Lab Sample Numbers or SDG: WØ186

Method/Test/Parameter: Tc-99

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

Comments on any "No" response:

Analyst: [signature] Date: 10/5/94

Second Level Review: [signature] Date: 10/13/94

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

Quanterra September 06, 1994 09:53 am
Account: 10722 Project: 550.08 Quanterra-Richland QAS No. 690 Rev. 0
Master Sample Login: 5998

Project Manager: W. Price

Draft: Final: Entered and Reviewed by: M. Jackson PM Review: W. Price

Sample Header Template:

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

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
Data:								
5998-001	B09VX8	Water	30-AUG-94 12:15	31-AUG-94 11:00	05-OCT-94	FED-EX	1	Screening not Required
NOTE: RICHLAND ID 40872801 ; FOR METALS ANALYSIS TAL LIST PLUS AS, BI, PB, SE, SN								
1	AN - Amber Glass-500ml	ANIONS/300.0/Q4	P	COLD	N/A	N/A	T1C	(95467:100)
1		CL/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95467:100)
1		FL/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95467:100)
1		ICAP/CLP90/Q4	S	HNO3	28-SEP-94	27-FEB-95	T1C	(95466:100)
1		NO2/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95467:100)
1		NO3/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95467:100)
1		OPHOS/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95467:100)
1		SO4/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95467:100)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	28-SEP-94	13-SEP-94	T1C	(95468:100)
1	PN - Plastic-500ml	TDS/160.1/Q4	S	COLD	28-SEP-94	06-SEP-94	T1C	(95470:100)
1		TOC/415.1/Q4	S	H2SO4	28-SEP-94	27-SEP-94	T1C	(95471:100)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	28-SEP-94	13-SEP-94	T1C	(95469:100)
5998-001DUP	B09VX8	Water	30-AUG-94 12:15	31-AUG-94 11:00	05-OCT-94	FED-EX	1	Screening not Required
NOTE: RICHLAND ID 40872801 ; FOR METALS ANALYSIS TAL LIST PLUS AS, BI, PB, SE, SN								
1	AN - Amber Glass-500ml	ANIONS/300.0/Q4	P	COLD	N/A	N/A	T1C	(95467:100)
1		CL/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95467:100)
1		FL/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95467:100)
1		ICAP/CLP90/Q4	S	HNO3	03-OCT-94	27-FEB-95	T1C	(95466:100)
1		NO2/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95467:100)
1		NO3/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95467:100)
1		OPHOS/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95467:100)
1		SO4/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95467:100)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	28-SEP-94	13-SEP-94	T1C	(95468:100)
1	PN - Plastic-500ml	TDS/160.1/Q4	S	COLD	28-SEP-94	06-SEP-94	T1C	(95470:100)
1		TOC/415.1/Q4	S	H2SO4	28-SEP-94	27-SEP-94	T1C	(95471:100)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	28-SEP-94	13-SEP-94	T1C	(95469:100)
5998-001MS	B09VX8	Water	30-AUG-94 12:15	31-AUG-94 11:00	05-OCT-94	FED-EX	1	Screening not Required
NOTE: RICHLAND ID 40872801 ; FOR METALS ANALYSIS TAL LIST PLUS AS, BI, PB, SE, SN								
1	AN - Amber Glass-500ml	ANIONS/300.0/Q4	P	COLD	N/A	N/A	T1C	(95467:100)
1		CL/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95467:100)
1		FL/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95467:100)
1		ICAP/CLP90/Q4	S	HNO3	28-SEP-94	27-FEB-95	T1C	(95466:100)
1		NO2/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95467:100)
1		NO3/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95467:100)
1		OPHOS/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95467:100)
1		SO4/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95467:100)

3*=Sample has not been rad screened.

Quanterra September 06, 1994 09:53 am
Account: 10722 Project: 550.08 Quanterra-Richland QAS No. 690 Rev. 0
Master Sample Login: 5998

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	Rad Category / Site	Rad Sample No. / (Container Numbers:% Filled)
Comments / Data:								
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	28-SEP-94	13-SEP-94	T1C	(95468:100)
1	PN - Plastic-500ml	TOC/415.1/Q4	S	H2SO4	28-SEP-94	27-SEP-94	T1C	(95471:100)
5998-002	B09VX6	Water	30-AUG-94 10:27	31-AUG-94 11:00	05-OCT-94	FED-EX	1	Screening not Required
NOTE: RICHLAND ID 40872803 ; FOR METALS ANALYSIS TAL LIST PLUS AS, BI, PB, SE, SN								
1	AN - Amber Glass-500ml	ANIONS/300.0/Q4	P	COLD	N/A	N/A	T1C	(95480:100)
1		CL/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95480:100)
1		FL/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95480:100)
1		ICAP/CLP90/Q4	S	HNO3	28-SEP-94	27-FEB-95	T1C	(95479:100)
1		NO2/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95480:100)
1		NO3/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95480:100)
1		OPHOS/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95480:100)
1		SO4/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95480:100)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	28-SEP-94	13-SEP-94	T1C	(95481:100)
1	PN - Plastic-500ml	TDS/160.1/Q4	S	COLD	28-SEP-94	06-SEP-94	T1C	(95483:100)
1		TOC/415.1/Q4	S	H2SO4	28-SEP-94	27-SEP-94	T1C	(95484:100)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	28-SEP-94	13-SEP-94	T1C	(95482:100)
5998-003	B09VZ0	Water	30-AUG-94 10:27	31-AUG-94 11:00	05-OCT-94	FED-EX	1	Screening not Required
NOTE: RICHLAND ID 40872805 ; FOR METALS ANALYSIS TAL LIST PLUS AS, BI, PB, SE, SN								
1	AN - Amber Glas 500ml	ANIONS/300.0/Q4	P	COLD	N/A	N/A	T1C	(95486:100)
1		CL/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95486:100)
1		FL/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95486:100)
1		ICAP/CLP90/Q4	S	HNO3	28-SEP-94	27-FEB-95	T1C	(95485:100)
1		NO2/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95486:100)
1		NO3/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95486:100)
1		OPHOS/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95486:100)
1		SO4/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95486:100)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	28-SEP-94	13-SEP-94	T1C	(95487:100)
1	PN - Plastic-500ml	TDS/160.1/Q4	S	COLD	28-SEP-94	06-SEP-94	T1C	(95489:100)
1		TOC/415.1/Q4	S	H2SO4	28-SEP-94	27-SEP-94	T1C	(95490:100)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	28-SEP-94	13-SEP-94	T1C	(95488:100)
5998-004	B09VY4	Water	30-AUG-94 09:20	31-AUG-94 11:00	05-OCT-94	FED-EX	1	Screening not Required
NOTE: RICHLAND ID 40872807 ; FOR METALS ANALYSIS TAL LIST PLUS AS, BI, PB, SE, SN								
1	AN - Amber Glass-500ml	ANIONS/300.0/Q4	P	COLD	N/A	N/A	T1C	(95492:100)
1		CL/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95492:100)
1		FL/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95492:100)
1		ICAP/CLP90/Q4	S	HNO3	28-SEP-94	27-FEB-95	T1C	(95491:100)
1		NO2/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95492:100)
1		NO3/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95492:100)

3*=Sample has not been rad screened.

9613490.0483

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Quanterra September 06, 1994 09:53 am
Account: 10722 Project: 550.08 Quanterra-Richland QAS No. 690 Rev. 0
Master Sample Login: 5998

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.
Comments / Date:									
1		OPHOS/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95492:100)	
1		SO4/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95492:100)	
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	28-SEP-94	13-SEP-94	T1C	(95493:100)	
1	PN - Plastic-500ml	TDS/160.1/Q4	S	COLD	28-SEP-94	06-SEP-94	T1C	(95495:100)	
1		TOC/415.1/Q4	S	H2SO4	28-SEP-94	27-SEP-94	T1C	(95496:100)	
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	28-SEP-94	13-SEP-94	T1C	(95494:100)	
5998-005	B09VX4	Water	30-AUG-94 13:35		31-AUG-94 11:00	05-OCT-94	FED-EX	1	Screening not Required
NOTE: RICHLAND ID 40872809 ; FOR METALS ANALYSIS TAL LIST PLUS AS, BI, PB, SE, SN									
1	AN - Amber Glass-500ml	ANIONS/300.0/Q4	P	COLD	N/A	N/A	T1C	(95498:100)	
1		CL/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95498:100)	
1		FL/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95498:100)	
1		ICAP/CLP90/Q4	S	HNO3	28-SEP-94	27-FEB-95	T1C	(95497:100)	
1		NO2/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95498:100)	
1		NO3/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95498:100)	
1		OPHOS/300.0/Q4	C	COLD	28-SEP-94	01-SEP-94	T1C	(95498:100)	
1		SO4/300.0/Q4	C	COLD	28-SEP-94	27-SEP-94	T1C	(95498:100)	
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	28-SEP-94	13-SEP-94	T1C	(95499:100)	
1	PN - Plastic-500ml	TDS/160.1/Q4	S	COLD	28-SEP-94	06-SEP-94	T1C	(95501:100)	
1		TOC/415.1/Q4	S	H2SO4	28-SEP-94	27-SEP-94	T1C	(95502:100)	
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	28-SEP-94	13-SEP-94	T1C	(95500:100)	
5998-006	B09VX9	Water	30-AUG-94 12:15		31-AUG-94 11:00	05-OCT-94	FED-EX	1	Screening not Required
NOTE: RICHLAND ID 40872802 ; FOR METALS ANALYSIS TAL LIST PLUS AS, BI, PB, SE, SN									
1	AN - Amber Glass-500ml	ICAPD/CLP90/Q4	S	HNO3	28-SEP-94	27-FEB-95	T1C	(95503:100)	
5998-006DUP	B09VX9	Water	30-AUG-94 12:15		31-AUG-94 11:00	05-OCT-94	FED-EX	1	Screening not Required
NOTE: RICHLAND ID 40872802 ; FOR METALS ANALYSIS TAL LIST PLUS AS, BI, PB, SE, SN									
1	AN - Amber Glass-500ml	ICAPD/CLP90/Q4	S	HNO3	28-SEP-94	27-FEB-95	T1C	(95503:100)	
5998-006MS	B09VX9	Water	30-AUG-94 12:15		31-AUG-94 11:00	05-OCT-94	FED-EX	1	Screening not Required
NOTE: RICHLAND ID 40872802 ; FOR METALS ANALYSIS TAL LIST PLUS AS, BI, PB, SE, SN									
1	AN - Amber Glass-500ml	ICAPD/CLP90/Q4	S	HNO3	28-SEP-94	27-FEB-95	T1C	(95503:100)	
5998-007	B09VX7	Water	30-AUG-94 10:27		31-AUG-94 11:00	05-OCT-94	FED-EX	1	Screening not Required
NOTE: RICHLAND ID 40872804 ; FOR METALS ANALYSIS TAL LIST PLUS AS, BI, PB, SE, SN									
1	AN - Amber Glass-500ml	ICAPD/CLP90/Q4	S	HNO3	28-SEP-94	27-FEB-95	T1C	(95504:100)	

3*=Sample has not been rad screened.

Quanterra September 06, 1994 09:53 am
Account: 10722 Project: 550.08 Quanterra-Richland QAS No. 690 Rev. 0
Master Sample Login: 5998

Project Manager: W. ice

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.
5998-008	B09VZ1	Water	30-AUG-94 10:27	31-AUG-94 11:00	05-OCT-94	FED-EX	1	Screening not Required
NOTE: RICHLAND ID 40872806 ; FOR METALS ANALYSIS TAL LIST PLUS AS, BI, PB, SE, SN								
5998-009	B09VY5	Water	30-AUG-94 09:20	31-AUG-94 11:00	05-OCT-94	FED-EX	1	Screening not Required
NOTE: RICHLAND ID 40872808 ; FOR METALS ANALYSIS TAL LIST PLUS AS, BI, PB, SE, SN								
5998-010	B09VX5	Water	30-AUG-94 13:35	31-AUG-94 11:00	05-OCT-94	FED-EX	1	Screening not Required
NOTE: RICHLAND ID 40872810 ; FOR METALS ANALYSIS TAL LIST PLUS AS, BI, PB, SE, SN								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-500ml	ICAPD/CLP90/Q4	S	HNO3	28-SEP-94	27-FEB-95	T1C	(95505:100)
1	AN - Amber Glass-500ml	ICAPD/CLP90/Q4	S	HNO3	28-SEP-94	27-FEB-95	T1C	(95506:100)
1	AN - Amber Glass-500ml	ICAPD/CLP90/Q4	S	HNO3	28-SEP-94	27-FEB-95	T1C	(95507:100)

Data:

3*=Sample has not been rad screened.

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priority [X] Normal

Collector: Kirby Lee/Bill Whitten	Company Contact: David St. John/Parley Butcher	Telephone No.: 376-5376/376-4388
Project Designation: 200-BP-5 Pump and Treat Groundwater Sampling	Sampling Location: 200-BP-5	SAF No.: B94-034
Ice Chest No.: E12-1D	Field Logbook No.: EFL-1125	Method of Shipment: GSA Vehicle - Hand Delivered
Shipped To: Quanterra	Offsite Property No.: W94-0-0351-19	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks

Special Handling and/or Storage: Samples to be chilled to 4 degrees Celsius.

SAMPLE ANALYSIS: 405728

Preservative	HNO3	HNO3	Cool	NaOH	Cool	Cool	H2SO4	HNO3	HCL	Cool
Type of Container	G	G	G	P	P	P	P	P	P	G
No. of Container(s)	1	1	1	1	1	1	1	12	2	1
Volume	500 ml	500 ml.	500 ml.	1 Liter	250 ml.	500 ml.	500 ml.	1 Liter	1 Liter	40 ml.
	ICP Metals Filter TAL plus As Bi, Pb, Se, Sn	ICP Metals Unfilt. TAL Plus As Bi, Pb, Se, Sn	Anions F, Cl, SO4, PO4, NO2, NO3	Cyanide	Alkalinity	TDS	TOC	Total Alpha, Total Beta, Gamma Spec.* (below)	Tc-99	Activity Scan
Sample No.	Matrix*	Date Sampled	Time Sampled	A	B	C	D	E	F	
03 B09VX6	W	8/30/94	1027	X	X	X	X	X	X	X
04 B09VX7	W	8/30/94	1027	X	X	X	X	X	X	X
								408729	02	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Kirby Lee/Bill Whitten	8/30/94 1500	CA Simpson	8/30/94 1500
CA Simpson	8/31/94 1100	R. Boyd Brantom	8/31/94 1100

SPECIAL INSTRUCTIONS

Gamma Spec. (to include Co-60, Cs-137, Ru-106,) Am-241, Pu-239/240, U-235, U-238, Sr-90

Data Deliverable - Standalone

NOTE: NO [illegible] are being requested for information only. The TRC contractor acknowledges that the [illegible] billing [illegible] will not be met.

SDG W0486

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

LABORATORY SECTION: Received By | Title | Date/Time

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613490.0486

000013

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: [ ] Priority [X] Normal

Collector: Kirby Lee/Bill Whitten	Company Contact: David St. John/Parley Butcher	Telephone No.: 376-5376/376-4388
Project Designation: 200-BP-5 Pump and Treat Groundwater Sampling	Sampling Location: 200-BP-5	SAF No.: B94-034
Ice Chest No.: EL-1D	Field Logbook No.: EFL-1125	Method of Shipment: GSA Vehicle - Hand Delivered
Shipped To: Quanterra	Offsite Property No.: W44-0--0851-19	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks

Special Handling and/or Storage: Samples to be chilled to 4 degrees Celsius.

SAMPLE ANALYSIS: 408728

Sample No.	Matrix*	Date Sampled	Time Sampled	A	B	B	C	D	E	F							
Preservative				HNO3	HNO3	Cool	NaOH	Cool	Cool	H2SO4	HNO3	HCL	Cool				
Type of Container				G	G	G	P	P	P	P	P	P	G				
No. of Container(s)				1	1	1	1	1	1	1	12	2	1				
Volume				500 ml	500 ml.	500 ml.	1 Liter	250 ml.	500 ml.	500 ml.	1 Liter	1 Liter	40 ml.				
				ICP Metals Filter TAL plus As Bi, Pb, Se, Sn	ICP Metals Unfilt. TAL Plus As Bi, Pb, Se, Sn	Anions F, Cl, SO4, PO4, NO2, NO3	Cyanide	Alkalinity	TDS	TOC	Total Alpha, Total Beta, Gamma Spec.* (below)	Tc-99	Activity Scan				
d B09VX8	W	8-30-94	1215	~~X~~ DAS 8/30/94	X	X	X	X	X	X	X	X	X				
02 B09VX9	W	8-30-94	1215	X	~~X~~ DAS 8/30/94												
											408729	01					

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Kirby Lee / B. Whitten	Date/Time: 1500 8/30/94	Received By: [illegible]	Date/Time: 1500 8/30/94
Relinquished By: A.J. Simpson	Date/Time: 8/31/94 1100	Received By: R. Bayl Buerbaum	Date/Time: 8/31/94 1100
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS: SDG WC186

Gamma Spec. (to include Co-60, Cs-137, Ru-106,) Am-241, Pu-239/240, U-235, U-238, Sr-90

All of the above samples run through up-facing pump and treat sample port and tygon tubing due to system constraints. DAS 8/30/94

Data Delivery Timeline.

NE: No [illegible] were requested for information only. The EPA [illegible] acknowledges that the hold time will be missed.

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

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

0000014

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: ☐ Priority ☒ Normal

Collector: Kirby Lee/Bill Whitten	Company Contact: David St. John/Parley Butcher	Telephone No.: 376-5376/376-4388
Project Designation: 200-BP-5 Pump and Treat Groundwater Sampling	Sampling Location: 200-BP-5	SAF No.: 894-034
Ice Chest No.: CWS122	Field Logbook No.: EFL-1125	Method of Shipment: GSA Vehicle - Hand Delivered
Shipped To: Quanterra	Offsite Property No.: W44-C-C351-18	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks

Special Handling and/or Storage: Samples to be chilled to 4 degrees Celsius.

SAMPLE ANALYSIS: 408728

Sample No.	Matrix*	Date Sampled	Time Sampled	A (ICP Metals Filter TAL plus As Bi, Pb, Se, Sn)	B (ICP Metals Unfilt. TAL Plus As Bi, Pb, Se, Sn)	C (Anions F, Cl, SO4, PO4, NO2, NO3)	D (Cyanide)	E (Alkalinity)	F (TDS)	G (TOC)	H (Total Alpha, Total Beta, Gamma Spec.* (below))	I (Tc-99)	J (Activity Scan)
				Preservative	HNO3	HNO3	Cool	NaOH	Cool	Cool	H2SO4	HNO3	HCL	Cool
				Type of Container	G	G	G	P	P	P	P	P	P	G
				No. of Container(s)	1	1	1	1	1	1	1	12	2	1
				Volume	500 ml	500 ml.	500 ml.	1 Liter	250 ml.	500 ml.	500 ml.	1 Liter	1 Liter	40 ml.
05 B09VZ0	W	8/30/94	1027	X	X	X	X	X	X	X	X	X	X
04 B09VZ1	W	8/30/94	1027	X	X	X							
						BW 8/31/94							
											408729	03	

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	Kirby Lee/Bill Whitten	8/30/94 1500	Received By: Lil F / AG Simpson	8/30/94 1500
Relinquished By	AG Simpson	8/31/94 1100	Received By: R. Boyd Quanterra	8/31/94 1100
Relinquished By			Received By	
Relinquished By			Received By	

SPECIAL INSTRUCTIONS

Gamma Spec. (to include Co-60, Cs-137, Ru-106,) Am-241, Pu-239/240, U-235, U-238, Sr-90

Data Deliverable - Immediate.
No. No [illegible] are being requested for information only. The EPC contractor [illegible]

SDG W0186

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

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

000015

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Date Turnaround: ☐ Priority ☒ Normal

Collector: Kirby Lee/Bill Whitten	Company Contact: David St. John/Parley Butcher	Telephone No.: 376-5376/376-4388
Project Designation: 200-BP-5 Pump and Treat Groundwater Sampling	Sampling Location: 200-BP-5	SAF No.: B94-034
Ice Chest No.: 12 26	Field Logbook No.: EFL-1125	Method of Shipment: GSA Vehicle - Hand Delivered
Shipped To: Quanterra	Offsite Property No.: WGH-C-C851-9	Bill of Lading/Air Bill No.: NA

Possible Sample Hazards/Remarks

Special Handling and/or Storage: Samples to be chilled to 4 degrees Celsius.

SAMPLE ANALYSIS: 408728

Sample No.	Matrix*	Date Sampled	Time Sampled	A ICP Metals Filter TAL plus As Bi, Pb, Se, Sn	B ICP Metals Unfilt. TAL Plus As Bi, Pb, Se, Sn	C Anions F, Cl, SO4, PO4, NO2, NO3	D Cyanide	E Alkalinity	F TDS	TOC	Total Alpha, Total Beta, Gamma Spec.* (below)	Tc-99	Activity Scan
Preservative				HNO3	HNO3	Cool	NaOH	Cool	Cool	H2SO4	HNO3	HCL	Cool
Type of Container				G	G	G	P	P	P	P	P	P	G
No. of Container(s)				1	1	1	1	1	1	1	12	2	1
Volume				500 ml	500 ml.	500 ml.	1 Liter	250 ml.	500 ml.	500 ml.	1 Liter	1 Liter	40 ml.
07 B09VY4	W	8/30/94	0920	X	X	X	X	X	X	X	X	X	X
08 B09VY5	W	8/30/94	0920	X	X	3W							
											40872904		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Bill Whitten	Date/Time: 8/30/94 1500	Received By: AHI	Date/Time: 8/30/94 1500
Relinquished By: AG Sigman	Date/Time: 8/31/94 1100	Received By: R. Boyd Quanterra	Date/Time: 8/31/94 1100
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

Gamma Spec. (to include Co-60, Cs-137, Ru-106,) Am-241, Pu-239/240, U-235, U-238, Sr-90

Per Westinghouse-Richland Nos, Nos and TOC by EPA 300.00 are being requested for information only. The EPA contract holding time is 48 hours hold time w[illegible] for NO3. SDG W0186

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

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

G00016

G00016

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priority [X] Normal

Collector: Kirby Lee/Bill Whitten	Company Contact: David St. John/Parley Butcher	Telephone No.: 376-5376/376-4388
Project Designation: 200-BP-5 Pump and Treat Groundwater Sampling	Sampling Location: 200-BP-5	SAF No.: 894-034
Ice Chest No.: BHI-94	Field Logbook No.: EFL-1125	Method of Shipment: GSA Vehicle - Hand Delivered
Shipped To: Quanterra	Offsite Property No.: WGCL-C-C851-18	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		

Special Handling and/or Storage: Samples to be chilled to 4 degrees Celsius.

SAMPLE ANALYSIS: 408728

Preservative	HNO3	HNO3	Cool	NaOH	Cool	Cool	H2SO4	HNO3	HCL	Cool
Type of Container	G	G	G	P	P	P	P	P	P	G
No. of Container(s)	1	1	1	1	1	1	1	12	2	1
Volume	500 ml	500 ml.	500 ml.	1 Liter	250 ml.	500 ml.	500 ml.	1 Liter	1 Liter	40 ml.
	ICP Metals Filter TAL plus As Bi, Pb, Se, Sn	ICP Metals Unfilt. TAL Plus As Bi, Pb, Se, Sn	Anions F, Cl, SO4, PO4, NO2, NO3	Cyanide	Alk-alinity	TDS	TOC	Total Alpha, Total Beta, Gamma Spec.* (below)	Tc-99	Act-ivity Scan
	A	A	B	C	D	E	F			

	Sample No.	Matrix*	Date Sampled	Time Sampled	A	A	B	C	D	E	F			
09	B09VX4	W	8/30/94	1215	X	X	X	X	X	X	X	X	X	X
10	B09VX5	W	8/30/94	1335	X	X								
												40572905		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Kirby Lee/Bill Whitten	8/30/94 1500	BHI	8/30/94 1500
A Simpson	8/31/94 1100	R. Boyle Quanterra	8/31/94 1100

SPECIAL INSTRUCTIONS SDG W0186

Gamma Spec. (to include Co-60, Cs-137, Ru-106,) Am-241, Pu-239/240, U-235, U-238, Sr-90

All of the above samples run through up tubing pump and treat sample port and tygon tubing due to system constraints. DAS 8/31/94

Data Deliverable - Standard. The analysis for NO2, NO3 and TC are for information only. The PRC contractor acknowledges that the 48-hour hold time will not be met.

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

LABORATORY SECTION — Received By: ____ Title: ____ Date/Time: ____

FINAL SAMPLE DISPOSITION — Disposal Method: ____ Disposed By: ____ Date/Time: ____

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

000017

000017

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 481845
Page 1 of 3

Project Name/No. [1] B94-034
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] 8/32/94
Lab Destination [8] St Louis
Lab Contact [9]
Project Contact/Phone [12]
Carrier/Waybill No. [13]

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

White: To accompany samples. Yellow: Field copy

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Preservative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
40872801A	B09VX8 / H_2O	083094 1215 See WHC	Amber COC/SAR	500	HNO3 4°C	metals unfiltered See WHC COC/SAR	temp 4°C 1 100	1
B		"	"	"	cold	Anions		
C		"	Poly	1L	NaOH	Cyanide	0 100	12
D		"	"	250	—	ALK	1 100	
E		"	"	500	—	TDS		
F		"	"	"	H_2SO_4	TOC		
40872802A	B09VX9 / H_2O	"	Amber	"	HNO3	metals Filtered	0 100	1
40872803A	B09VX6 / H_2O	083094 1027	"	500	HNO3	metal Unfiltered	1 100	1

FOR LAB USE ONLY

FOR LAB USE ONLY

Special Instructions: [23]

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

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

Turnaround Time Required: [26]
Normal ☑ Rush ☐

QC Level: [27]
I. ☐ II. ☐ III. ☐ Project Specific (specify): SDG W0186

1. Relinquished by [28] (Signature/Affiliation) [signature]	Date: 8/31/94 Time: 1600	1. Received by [28] (Signature/Affiliation) Bol Cowan	Date: 09-01-94 Time: 0915
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]

*See back of form for special instructions.

100018

INTERNATIONAL TECHNOLOGY CORPORATION

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

Reference Document No.[30] 481845
Page 2 of 3

Project Name W0186 Project No. B94-034 Samples Shipment Date 8/31/94

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-servative[19]	Requested Testing Program[20]	Condition on Receipt[21]	Disposal[22] Record No.
40872803B	B09VX6 /H2O	083094 1027 See WHC	Amber COC/SAR	500	4°C Cold	Anions See WHC COC/SAR	Temp 0	100
C		"	Poly	1L	NAOH	cyanide	1	100 12
D		"	"	250	cold	Alk	0	100
E		"	"	500	Cold	TDS	0	100
F		"	"	"	H2SO4	TOC	1	100 1
40872804A	B09VX7	"	Amber	500	HNO3	Metals Filtered	0	100 1
40872805A	B09VZ0	1027 083094	Amber	500	HNO3	Metals unfiltered	1	100 1
B		"	"	"	—	Anions	1	100
C		"	Poly	1L	NAOH	cyanide	1	100 12
D		"	"	250	~~Alk~~	Alk	1	100
E		"	"	500	cold	TDS	1	100
F		"	"	"	H2SO4	TOC	1	100 1
40872806A	B09VZ1	1027 083094	Amber	500	HNO3	metals Filtered	0	100 1
40872807A	B09VY4	0920 083094	Amber	500	HNO3	metals unfiltered	10	100 1
3		"	"	"	—	Anions	0	100
C		"	Poly	1L	NAOH	cyanide	0	100 12
D		"	"	250	—	Alk	1	100
E		"	"	500	—	TDS	1	100
F		"	"	"	H2SO4	TOC	1	100 1
40872808A	B09VY5	"	Amber	500	HNO3	metals Filtered	1	100 1

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

100019

INTERNATIONAL TECHNOLOGY CORPORATION

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

Reference Document No.[30] 48/845

Page 3 of 3

Project Name W0186

Project No. B94-034

Samples Shipment Date 8/31/94

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.
40872809 A	B09VX4 / H_2O	08/30/94 1355 See WHC	Amber COC/SAR	500	4°C HNO3	metals unfiltered SEE WHC COC/SAR	Temp 0	090 DH 100 1
B		"	"	"	—	Anions	0	100
C		"	Poly	1L	NAOH	cyanide	1	100 12
D		"	"	250	—	Alk	1	100
E		"	"	500	—	TDS	1	100
F		"	"	500	H_2SO_4	TOC	0	100 1
40872810 A	B09VX5	"	Amber	500	HNO3	metals Filtered	1	100
8/31/94								

FOR LAB USE ONLY

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

9613190.0493

000020

083194D.WQ2

TENNELEC #2

SCREENING CALCULATION SPREADSHEET

Cust Code	Recieved Date		Screening Prep Date		Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	8/31/94		8/31		8/31	10	10	206	240

All are Cat. I.
JRn 31 Aug 94

Customer ID WHC/LQI	pH <2 Rcvd/Relq	Residue Wght mG	Vol. Anal. mG mL	Sample Size Gm L	SMPLE CNT DATA Hldr Num.	Total Counts Alpha	Total Counts Beta	Net Sample Counts/Minute Alpha	Net Sample Counts/Minute Beta	DPM / Aliqout Alpha	DPM / Aliqout Beta	uCi per Sample Alpha	uCi per Sample Beta	2 Sigma Error uCi per Sample Alpha	2 Sigma Error uCi per Sample Beta	uCi/(Gm or L) Alpha	uCi/(Gm or L) Beta	Category 1 Yes/No	Aliquot to Cat 1 Gm or L Alpha	Aliquot to Cat 1 Gm or L Beta
BO9VX4	LIQUID	0.0	10	1.0	14	1	21	0.06	1.24	1.48E-01	2.56E+00	6.7E-06	1.2E-04	2.5E-06	7.0E-06	6.7E+00	1.2E+02	Yes	1.5E+03	8.7E+02
X8 ✓	LIQUID	2.2	10	1.0	22	22	1261	2.16	127.24	1.94E+00	2.66E+02	8.8E-05	1.2E-02	1.6E-07	9.9E-07	8.8E+01	1.2E+04	Yes	1.1E+02	8.4E+00
X4 ✓	LIQUID	10.9	10	1.0	23	12	297	1.16	28.84	3.15E+00	6.06E+01	1.4E-04	2.7E-03	1.3E-07	6.3E-06	1.4E+02	2.7E+03	Yes	7.0E+01	3.7E+01
X6 ✓	LIQUID	1.5	10	1.0	24	5	44	0.46	3.54	1.47E+00	7.14E+00	6.6E-05	3.2E-04	7.5E-08	5.6E-07	6.6E+01	3.2E+02	Yes	1.5E+02	3.1E+02
ZO ✓	LIQUID	1.5	10	1.0	18	5	43	0.46	3.44	1.47E+00	6.93E+00	6.6E-05	3.1E-04	7.5E-08	5.3E-07	6.6E+01	3.1E+02	Yes	1.5E+02	3.2E+02
TOTAL uCi												3.7E-04	1.5E-02							

BO9VX4 (JRB) 8-31-94

0074

96153190.0994

SAMPLE STATUS REPORT FOR N 2309. RAD SCREEN 299E2823 TIME: 8/31/94 8:13
DISPATCHED: 8/26/94 11:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/30/94 15: 7

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

END OF REPORT

BO 9V X8
BO 9V X9

9613490.0496

SAMPLE STATUS REPORT FOR N 2308. RAD SCREEN 299E28-7 TIME: 8/31/94 8:13
DISPATCHED: 8/26/94 11:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/30/94 15: 7

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

END OF REPORT

B0 9VX6
B0 9VX7
B0 9VZ0
B0 9VZ1
B0 9VZ2
B0 9VZ3

9613490.0497

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2300 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 8/31/94 1100 Client Name BHC

Project/Client # B94-034 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) ER-1D

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: 44
8. Samples have: ____ tape ____ hazard labels
   ✓ custody seals ✓ appropriate sample labels
9. Samples are: ✓ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☑ No ☐

Sample temperature 3°C

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

Printed Name/Signature R. Boyd R. Boyd Date/Time 8/31/94 1100

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

SAMPLE STATUS REPORT FOR N 2:08. RAD SCREEN 299E28-7 TIME: 8/31/94 8:13
DISPATCHED: 8/26/94 11:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/30/94 15: 7

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

END OF REPORT

B0 9VX6
B0 9VX7
B0 9VZ0
B0 9VZ1
B0 9VZ2
B0 9VZ3

9613490.0499

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
1300 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 8/31/94 1100 Client Name BHC

Project/Client # B94-034 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) GW3 122

1. Condition of shipping container? OK
2. Custody Seals on cooler intact? Yes ☑ No ☐
3. Custody Seals dated and signed? Yes ☑ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☑ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☑
6. Each sample is in a plastic bag? Yes ☑ No ☐
7. Number of sample containers in cooler: 22
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): N/A
    Chain of Custody #'(s) _____
    Request for analysis #(s) _____
    Airbill # _____ Carrier _____
12. Have any anomalies been identified above? Yes ☐ No ☑
13. Memos have been initiated for all anomalies identified above? Yes ☐

Printed Name/Signature R. Boyd R. Boyd Date/Time 8/31/94 1100

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

SAMPLE STATUS REPORT FOR N 2311. RAD SCREEN EQUIPBLK TIME: 8/31/94 8:13
DISPATCHED: 8/26/94 11:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/30/94 15: 7

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

END OF REPORT

BO 9V Y4
BO 9V Y5

9613490.0501

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2300 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 8/31/94 1100 Client Name BHC

Project/Client # B94-034 Batch or Case #

Cooler ID (if noted on the outside of cooler) ER-36

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: 22
8. Samples have: ____ tape ____ hazard labels
   ✓ custody seals ✓ appropriate sample labels
9. Samples are: X in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☒ No ☐

Sample temperature 3°C

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

Printed Name/Signature R. Boyd R. Boyd Date/Time 8/31/94 1100

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

9613490.0502

08/31/94 07:30 ☎373 3176 222S 3B 002

SAMPLE STATUS REPORT FOR N 2306. RAD SCREEN 6995053A TIME: 8/31/94 8:13
DISPATCHED: 8/26/94 11:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/30/94 15: 7

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

END OF REPORT

B09VX4
B09VX5

9613490.0503

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER: 408728, 408729 DATE INITIATED: 8/31/94

INITIATED BY: R. Boyd

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 8/31/94 1100

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
B09VX4		

Samples were received with the following deficiencies:

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

NOTES: Sample Dates on Containers say 1335, COC has 1215 as time

SUPERVISOR REVIEW: _____

PROJECT MANAGER REVIEW: _____

TELEPHONED TO: _____ ON _____ BY _____

TELEFAXED TO: _____ ON _____ BY _____

SIGNED ORIGINAL MUST BE RETAINED IN WORK ORDER FILE

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

9613490.0504

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2300 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 8/31/94 1100 Client Name BHC

Project/Client # B94-034 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) BHF 94

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: 22
8. Samples have: ____ tape ____ hazard labels
   ✓ custody seals ✓ appropriate sample labels
9. Samples are: ✓ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☒ No ☐

Sample temperature 3°C

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

Printed Name/Signature R. Boyd R. Boyd Date/Time 8/31/94 1100

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

9613490.0505

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
BHI		51 · 19

PART I – TO BE COMPLETED BY ORIGINATOR

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

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

Routing ☒ Contractor ☐ Vendor

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

Off-site Custodian

Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
lbs.	Sample #: [illegible] Cooler ID: [illegible] Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
lbs	Sample #: [illegible] Cooler ID: [illegible] Polycooler with groundwater samples packed in wet ice and vermiculite	N/A

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

Necessity for the Off-Site Use of this Property

Sampling supports RI/FS work in the

Bill of lading # _____

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
Location of Property (Area & Bldg.)	Contact P. H. Butcher		Phone (509)376-4388
Date Ready for Shipment	Cost Code to be Charged 38410	Approximate Date This Property will be Returned	
Originated By	Date	Authorized By	Date
Signature and Name of Property Control	Custodian Date	Property Management Approval	Date 7/31/9

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
R. Bu[illegible]				
Date [illegible]				

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

S4-3000-479 (09/89

9613490.0506

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT)
BHI		W4[illegible] 0851 - 18

PART I - TO BE COMPLETED BY ORIGINATOR

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

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

Routing [ ] Prepaid [ ] Collect

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

Off-site Custodian

On-site Custodian Payroll No.

Qty.	Property No.	Description (include Manufacture Name, Model, Serial No.)	Acquisition Cost
1 lbs.		Sample #: [illegible] Cooler ID: [illegible] Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.		Sample #: [illegible] Cooler ID: [illegible] Polycooler with groundwater samples packed in wet ice and vermiculite	N/A

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

Necessity for the off-site use of this property

[ ] Required for Project Work. List Project No. [illegible]

[ ] Business Trip

[ ] Off-site Assignment

Bill of lading # [illegible]

[ ] Shipment to Subcontractor. List Subcontract No.

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

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

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

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
5/31/94	9B410/ PS1DC	NA

Originated By	Date	Authorized By	Date
[illegible] MIXSON		[illegible]	5/31/94

Property Representative Signature	Date	Property Management Approval	Date
		[illegible]	5/31/94

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature	Date

DISTRIBUTION (AFTER FINAL SIGNATURES)

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

R [illegible] 5/31/94

54-3000-479 (01/9

600034

TECHNOLOGY CORPORATION

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

COPIED TO: DK

DATE: 09-01-94

TIME: 1055

BY: B Cowan

Work Order No.: 5998

Condition Upon Receipt Variance Report
ITAS - St. Louis Laboratory

Client: Richland

Date: 09-01-94 0915

Project No: 550.08

Initiated by: Bob Cowan

Analysis Requested: Refer to RFA/COC

RFA/COC Numbers: 481845

Client Sample Numbers Affected: Entire Login

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

1. NA Not enough sample received for proper analysis.
   Received approximately: _____
2. ☐ Sample received broken/leaking.
3. ☑ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C
   - Record temperature: 1 cooler = 1, 1 cooler = 0
   - ☐ pH _____
   - ☐ other: _____
4. ☐ Sample received in improper container.
5. ☐ Sample received without proper paperwork. Explain: _____
6. ☐ Paperwork received without sample.
7. ☐ No sample ID on sample container.
8. ☐ Custody tape disturbed/broken/missing.
9. NA Sample splits performed by lab.
10. NA Volatile sample received with approximately _____ mm headspace.
11. ☐ Sample ID on container does not match sample ID on paperwork. Explain: _____
12. ☐ All coolers on airbill not received with shipment.
13. ☐ Other (explain below): Shipping containers not rad surveyed.

TB 8/1/94 3

Notes: _____

Corrective Action:

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

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

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

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

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

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

600035

Quanterra September 02, 1994 03:37 pm
Account: 10722 Project: 550.08 Quanterra-Richland QAS No. 702 Rev. 0
Master Sample Login: 6012

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.
6012-001	B09VXZ	Water	31-AUG-94 10:10	01-SEP-94 11:00	06-OCT-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40901501								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% F..led)
1	AN - Amber Glass-500ml	ANIONS/300.0/Q4	P	COLD	N/A	N/A	R15H	(95930:99)
1		CL/300.0/Q4	C	COLD	29-SEP-94	28-SEP-94	R15H	(95930:99)
1		FL/300.0/Q4	C	COLD	29-SEP-94	28-SEP-94	R15H	(95930:99)
1		ICAP/CLP90/Q4	S	HNO3	29-SEP-94	28-FEB-95	R15H	(95929:100)
1		NO2/300.0/Q4	C	COLD	29-SEP-94	02-SEP-94	R15H	(95930:99)
1		NO3/300.0/Q4	C	COLD	29-SEP-94	02-SEP-94	R15H	(95930:99)
1		OPHOS/300.0/Q4	C	COLD	29-SEP-94	02-SEP-94	R15H	(95930:99)
1		SO4/300.0/Q4	C	COLD	29-SEP-94	28-SEP-94	R15H	(95930:99)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	29-SEP-94	14-SEP-94	R15H	(95931:100)
1	PN - Plastic-500ml	TDS/160.1/Q4	S	COLD	29-SEP-94	07-SEP-94	R15H	(95933:100)
1		TOC/415.1/Q4	S	H2SO4	29-SEP-94	28-SEP-94	R15H	(95934:99)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	29-SEP-94	14-SEP-94	R15H	(95932:100)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
6012-002	B09VY6	Water	31-AUG-94 09:30	01-SEP-94 11:00	06-OCT-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40901503								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% F..led)
1	AN - Amber Glass-500ml	ANIONS/300.0/Q4	P	COLD	N/A	N/A	R15H	(95945:99)
1		CL/300.0/Q4	C	COLD	29-SEP-94	28-SEP-94	R15H	(95945:99)
1		FL/300.0/Q4	C	COLD	29-SEP-94	28-SEP-94	R15H	(95945:99)
1		ICAP/CLP90/Q4	S	HNO3	29-SEP-94	28-FEB-95	R15H	(95944:100)
1		NO2/300.0/Q4	C	COLD	29-SEP-94	02-SEP-94	R15H	(95945:99)
1		NO3/300.0/Q4	C	COLD	29-SEP-94	02-SEP-94	R15H	(95945:99)
1		OPHOS/300.0/Q4	C	COLD	29-SEP-94	02-SEP-94	R15H	(95945:99)
1		SO4/300.0/Q4	C	COLD	29-SEP-94	28-SEP-94	R15H	(95945:99)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	29-SEP-94	14-SEP-94	R15H	(95946:100)
1	PN - Plastic-500ml	TDS/160.1/Q4	S	COLD	29-SEP-94	07-SEP-94	R15H	(95948:100)
1		TOC/415.1/Q4	S	H2SO4	29-SEP-94	28-SEP-94	R15H	(95949:99)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	29-SEP-94	14-SEP-94	R15H	(95947:100)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
6012-003	B09VY8	Water	31-AUG-94 08:00	01-SEP-94 11:00	06-OCT-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40901505								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% F..led)
1	AN - Amber Glass-500ml	ANIONS/300.0/Q4	P	COLD	N/A	N/A	R15H	(95951:99)
1		CL/300.0/Q4	C	COLD	29-SEP-94	28-SEP-94	R15H	(95951:99)
1		FL/300.0/Q4	C	COLD	29-SEP-94	28-SEP-94	R15H	(95951:99)
1		ICAP/CLP90/Q4	S	HNO3	29-SEP-94	28-FEB-95	R15H	(95950:100)
1		NO2/300.0/Q4	C	COLD	29-SEP-94	02-SEP-94	R15H	(95951:99)
1		NO3/300.0/Q4	C	COLD	29-SEP-94	02-SEP-94	R15H	(95951:99)
1		OPHOS/300.0/Q4	C	COLD	29-SEP-94	02-SEP-94	R15H	(95951:99)
1		SO4/300.0/Q4	C	COLD	29-SEP-94	28-SEP-94	R15H	(95951:99)

3*=Sample has not been rad screened.

Quanterra September 02, 1994 03:37 pm
Account: 10722 Project: 550.08 Quanterra-Richland QAS No. 702 Rev. 0
Master Sample Login: 6012

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.
6012-004	B09VX3	Water	31-AUG-94 10:10	01-SEP-94 11:00	06-OCT-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40901502								
6012-005	B09VY7	Water	31-AUG-94 09:30	01-SEP-94 11:00	06-OCT-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40901504								
6012-006	B09VY9	Water	31-AUG-94 08:00	01-SEP-94 11:00	06-OCT-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40901506								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	29-SEP-94	14-SEP-94	R15H	(95952:100)
1	PN - Plastic-500ml	TDS/160.1/Q4	S	COLD	29-SEP-94	07-SEP-94	R15H	(95954:100)
1		TOC/415.1/Q4	S	H2SO4	29-SEP-94	28-SEP-94	R15H	(95955:99)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	29-SEP-94	14-SEP-94	R15H	(95953:100)
1	AN - Amber Glass-500ml	ICAPD/CLP90/Q4	S	HNO3	04-OCT-94	28-FEB-95	R15B	(95956:100)
1	AN - Amber Glass-500ml	ICAPD/CLP90/Q4	S	HNO3	04-OCT-94	28-FEB-95	R15B	(95959:100)
1	AN - Amber Glass-500ml	ICAPD/CLP90/Q4	S	HNO3	04-OCT-94	28-FEB-95	R15B	(95960:100)

3*=Sample has not been rad screened.

000037

9613490.0509

TECHNOLOGY CORPORATION

C.U.R. and C.O.C.
COPIED TO: D. K.
DATE: 09/02/94
TIME: 10:20
BY: 2m

Work Order No.: 6012

Condition Upon Receipt Variance Report
ITAS - St. Louis Laboratory

Client: Richland
Date: 09-02-94 09:10
Project No: 550.68
Initiated by: Zach Mitchell
Analysis Requested: Refer to RFA/COC
RFA/COC Numbers: 481847
Client Sample Numbers Affected: Entire Login

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

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

Notes: Note: COC not relinquished

Corrective Action:

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

☐ Sample(s) processed "as is". Comments: _____
☐ Sample(s) on hold until: _____ If released, notify: _____

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

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

Temp 6°C CUR#1121

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 481847
Page 1 of 2

Project Name/No. 1: B94-034
Sample Team Members 2:
Profit Center No. 3: 4632
Project Manager 4: Van Pettey
Purchase Order No. 6:
Required Report Date 11: 10/6/94

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

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

ONE CONTAINER PER LINE

Sample Number 14	Sample Description/Type 15	Date/Time Collected 16	Container Type 17	Sample Volume 18	Preservative 19	Requested Testing Program 20	Condition on Receipt 21 % Full	pH	Disposal Record No. 22
(1) 40901501A	B09VX2 / H_2O	8-31-94 1010 See WHC	500ml cool/SAR	Water	H2O3 4°C	metals See WHC cool/SAR	100	2	
B		8-31-94 10:10	500 mls Amber G.			Anions		7	
C		8-31-94 10:10	1 L Poly		NaOH	Cyanide		12	
D		8-31-94 10:10	250 mls Poly		9/1/94	ALK		7	
E		8/31/94 10:10	500 mls Poly		~~H2SO4~~	TDS		7	
F		8/31/94 10:10	500 mls Poly		H2SO4	TOC		3	
(4) 40901502A	B09VX3	8/31/94 1010	500 mls Amber G.		HNO3	Metals		2	
(2) 40901503A	B09VY6	8/31/94 09:30	500 mls Amber G.	✓	HNO3	Metals	✓	2	

FOR LAB USE ONLY

FOR LAB USE ONLY

Special Instructions: 23

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

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

Turnaround Time Required: 26
Normal ☑ Rush ☐

QC Level: 27
I. ☐ II. ☐ III. ☐ Project Specific (specify): SDG 40186

1. Relinquished by 28 (Signature/Affiliation) [signature]	Date: 9/1/94 Time: 1600	1. Received by 28 (Signature/Affiliation) [signature]	Date: 09-02-94 Time: 09:10
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation) [signature]	Date: 09-02-94 Time: 0900
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: 29

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

INTERNATIONAL TECHNOLOGY CORPORATION

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

Reference Document No.[30] 48/847

Project Name W0186 Project No. B94-034 Samples Shipment Date 9/1/94

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Amt/Type	Sample[18] Volume	Pre-servative[19]	Requested Testing Program[20]	% Full Condition on Receipt[21]	pH	Disposal[22] Record No.
(2) 40801503B	B09VY6	8-31-94 09:30 See WHC	500 mls Co/SAA	Water	4°C	Anions See WHC Co/SAA	100	6	
C		8/31/94 09:30	1L. Poly		NAOH	Cyanide		12	
D		8-31-94 09:30	250 mls Poly			AIK		6	
E		8-31-94 09:30	500 mls Poly			TDS		6	
F		8-31-94 09:30	500 mls Poly		H2SO4	TOC		3	
(5) 40901504A	B09VY7	8-31-94 09:30	500 mls Amb. G.		HNO3	Metals		3	
(3) 40901505A	B09VY8	8-31-94 08:00	500 mls Amb. G.		HNO3	Metals		2	
B		8-31-94 08:00	500 mls Amb G			Anions		6	
C		8-31-94 08:00	1 Lp Poly		NAOH	Cyanide		12	
D		8-31-94 08:00	250 mls Poly			AIK		6	
E		8-31-94 08:00	500 mls Poly			TDS		6	
F		8-31-94 0800	500 mls Poly		H2SO4	TOC		2	
(6) 40901506A	B09VY9	8-31-94 0800	500 mls Poly		HNO3	Metals	✓	2	
(5) 9/1/94									

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

9613490.0612

9613490.0513

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 9/1/94 1100 Client Name BHI

Project/Client # ~~EF~~ B94-034 Batch or Case # _____
CB 9-1-94

Cooler ID (if noted on the outside of cooler) EF-1D

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: 22
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): N/A
    Chain of Custody #'(s) _____
    Request for analysis #(s) _____
    Airbill # _____ Carrier _____
12. Have any anomalies been identified above? Yes ☐ No ☒
13. Memos have been initiated for all anomalies identified above? Yes ☐

Printed Name/Signature R. Boyd R. Boyd Date/Time 9/1/94 1100

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

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: Kirby Lee/Bill Whitten	Company Contact: David St. John/Parley Butcher	Telephone No.: 376-5376/376-4388
Project Designation: 200-BP-5 Pump and Treat Groundwater Sampling	Sampling Location: 200-BP-5	SAF No.: B94-034
Ice Chest No.: BH1-94	Field Logbook No.: EFL-1125	Method of Shipment: GSA Vehicle - Hand Delivered
Shipped To: Quenterra	Offsite Property No.: W44-0-0851-21	Bill of Lading/Air Bill No.: NA

Possible Sample Hazards/Remarks:

Special Handling and/or Storage: Samples to be chilled to 4 degrees Celsius.

Preservative	HNO3	HNO3	Cool	NaOH	Cool	Cool	H2SO4	HNO3	HCL	Cool
Type of Container	G	G	G	P	P	P	P	P	P	G
No. of Container(s)	1	1	1	1	1	1	1	12	2	1
Volume	500 ml	500 ml.	500 ml.	1 Liter	250 ml.	500 ml.	500 ml.	1 Liter	1 Liter	40 ml.
SAMPLE ANALYSIS 409015	ICP Metals Filter TAL plus As Bi, Pb, Se, Sn	ICP Metals Unfilt. TAL Plus As Bi, Pb, Se, Sn	Anions F, Cl, SO4, PO4, NO2, NO3	Cyanide	Alk-alinity	TDS	TOC	Total Alpha, Total Beta, Gamma Spec.* (below)	Tc-99	Act-ivity Scan
Sample No. / Matrix* / Date Sampled / Time Sampled	A	A	B	C	D	E	F			
B09VY6 03 / W / 08/31/94 / 0930	X	X	X	X	X	X	X	X	X	X
B09VY7 4 / W / 08/31/94 / 0930	X	X						409016006		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
[illegible]	8/31/94 1350	R J. [illegible]	8/31/94 1-5[illegible]
A Simpson	9/1/94 1100	R Boyd Quenterra	9/1/94 1100

SPECIAL INSTRUCTIONS

Gamma Spec. (to include Co-60, Cs-137, Ru-106,) Am-241, Pu-239/240, U-235, U-238, Sr-90

Data Deliverable - Standalone

NO_2, NO_3 and PO_4 by EPA 300.0 are being requested for information only. The EAC Contractor acknowledges that the 48-hour holding time not be met.

Matrix*: S = Soil; SE = Sediment; SO = Solid; SL = Sludge; W = Water; O = Oil; A = Air; DS = Drum Solids; DL = Drum Liquids; T = Tissue; WI = Wipe; - = Liquid; V = Vegetation; X = Other

LABORATORY SECTION — Received By: ____ Title: ____ Date/Time: ____ SDG W0186

FINAL SAMPLE DISPOSITION — Disposal Method: ____ Disposed By: ____ Date/Time: ____

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613490.0514

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: Kirby Lee/Bill Whitten	Company Contact: David St. John/Parley Butcher	Telephone No.: 376-5376/376-4388
Project Designation: 200-BP-5 Pump and Treat Groundwater Sampling	Sampling Location: 200-BP-5	SAF No.: B94-034
Ice Chest No.: ER-1D	Field Logbook No.: EFL-1125	Method of Shipment: GSA Vehicle - Hand Delivered
Shipped To: Quanterra	Offsite Property No.: W94-0-0851-22	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks

Special Handling and/or Storage: Samples to be chilled to 4 degrees Celsius.

Preservative	HNO3	HNO3	Cool	NaOH	Cool	Cool	H2SO4	HNO3	HCL	Cool						
Type of Container	G	G	G	P	P	P	P	P	P	G						
No. of Container(s)	1	1	1	1	1	1	1	12	2	1						
Volume	500 ml	500 ml.	500 ml.	1 Liter	250 ml.	500 ml.	500 ml.	1 Liter	1 Liter	40 ml.						
SAMPLE ANALYSIS	ICP Metals Filter TAL plus As Bi, Pb, Se, Sn	ICP Metals Unfilt. TAL Plus As Bi, Pb, Se, Sn	Anions F, Cl, SO4, PO4, NO2, NO3	Cyanide	Alk-alinity	TDS	TOC	Total Alpha, Total Beta, Gamma Spec.* (below)	Tc-99	Act-ivity Scan						
Sample No. / Matrix* / Date Sampled / Time Sampled	A	A	B	C	D	E	F									
B09VY8 05 / W / 08/31/94 / 0800	X (1GN)	X	X	X	X	X	X	X	X	X						
B09VY9 06 / W / 08/31/94 / 0800	X A	X (1GN)						40901603								

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
Kirby Lee	8/31/94 1350	C. Simpson	8/31/94 1350
Relinquished By	Date/Time	Received By	Date/Time
C. Simpson	9/1/94 1100	R. Boyd Quanterra	9-1-94 1100
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

Gamma Spec. (to include Co-60, Cs-137, Ru-106,) Am-241, Pu-239/240, U-235, U-238, Sr-90

Data Deliverable - Standalone

NO_2, NO_3, and PO_4 by EPA 300.0 are being requested for information only. The EPC contractor acknowledges that the 48-hour holding time will not be met.

Matrix*

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

LABORATORY SECTION	Received By	Title	Date/Time
			SDG W0180

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613490.0515

9613490.0516

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER: 409015 DATE INITIATED: 9/1/94

INITIATED BY: T Gilmore

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 9/1/94 1100

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
B09VX2		TOC
B09VY6		|
B09VY8		|

Samples were received with the following deficiencies:

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

NOTES: all samples (TOC) are in poly bottles - not glass

SUPERVISOR REVIEW: _____

PROJECT MANAGER REVIEW: _____

TELEPHONED TO: _____ ON _____ BY _____

TELEFAXED TO: _____ ON _____ BY _____

SIGNED ORIGINAL MUST BE RETAINED IN WORK ORDER FILE

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

090194A.WQ2

TENNELEC #2

SCREENING CALCULATION SPREADSHEET

all Cat I (R) 9/1/94

Cust Code	Recieved Date		Screening Prep Date		Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	9/1/94		9/1		9/1	10	10	237	240

Customer ID WHC/LIQ	pH <2 Rcvd/Reiq	Residue Wght mG	Vol. Anal. mG mL	Sample Size Gm L	SMPLE CNT DATA Hldr Num.	Total Counts Alpha	Beta	Net Sample Counts/Minute Alpha	Beta	DPM / Aliqout Alpha	Beta	uCi per Sample Alpha	Beta	2 Sigma Error uCi per Sample Alpha	Beta	pCi/(Gm or L) Alpha	Beta	Category 1 Yes/No	Aliquot to Cat 1 Gm or L Alpha	Beta
BC9VX2	LIQ	2.0	10	1.0	3	1	14	0.06	0.41	1.90E-01	8.29E-01	8.6E-06	3.7E-05	2.5E-06	4.0E-06	8.6E+00	3.7E+01	Yes	1.2E+03	2.7E+03
BOCVY6	LIQ	0.2	10	1.0	4	1	7	0.06	-0.29	2.17E-01	-6.4E-01	9.8E-06	-2.9E-05	2.5E-06	-3.3E-06	9.8E+00	-2.9E+01	Yes	1.0E+03	-3.5E+03
BOCVY6	LIQ	0.3	10	1.0	5	9	147	0.86	13.71	2.40E+00	2.82E+01	1.1E-04	1.3E-03	1.0E-07	2.6E-06	1.1E+02	1.3E+03	Yes	9.3E+01	7.9E+01
TOTAL uCi												1.3E-04	1.3E-03							

96134900.0517

000045

9815178.0518

SAMPLE STATUS REPORT FOR N 2307. RAD SCREEN 299E28-1 TIME: 8/31/94 19:26
DISPATCHED: 8/26/94 11:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/31/94 14:12

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

END OF REPORT

B0 9V Y 8
B0 9V Y 9

SAMPLE STATUS REPORT FOR N 2305. RAD SCREEN 6994957A TIME: 8/31/94 19:26
DISPATCHED: 8/26/94 11:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/31/94 14:12

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

END OF REPORT

B09VX2
B09VX3

9613490.0520

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

CB 9-1-94

Date/Time Received 8 9/1/94 1100 Client Name BHI

Project/Client # B94-034 Batch or Case # _____

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

1. Condition of shipping container? OK
2. Custody Seals on cooler intact? Yes ☒ No ☐
3. Custody Seals dated and signed? Yes ☒ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☒ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☒
6. Each sample is in a plastic bag? Yes ☒ No ☐
7. Number of sample containers in cooler: 22
8. Samples have: ____ tape ____ hazard labels
   X custody seals X appropriate sample labels
9. Samples are: X in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☒ No ☐

Sample temperature 3°C

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

Printed Name/Signature R. Boyd R. Boyd Date/Time 9/1/94 1100

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

SAMPLE STATUS REPORT FOR N 2312. RAD SCREEN FIELDBLK TIME: 8/31/94 19:26
DISPATCHED: 8/26/94 11:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/31/94 14:12

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

END OF REPORT

B09V46

B09V47

9613490.0522

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 9/1/94 1100 Client Name BHI

Project/Client # B94-034 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) BHI 94

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: 22
8. Samples have: ____ tape ____ hazard labels
   ✓ custody seals ✓ appropriate sample labels
9. Samples are: ✓ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☒ No ☐

Sample temperature 2°C

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

Printed Name/Signature R. Boyd R. Boyd Date/Time 9/1/94 1180

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

9613490.0523

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
BHI		W94-0-0851-21

PART I – TO BE COMPLETED BY ORIGINATOR

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

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

Routing ☒ Contractor ☐ Vendor

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

Off-site Custodian

Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 lbs	Sample #: B09VY6 B09VY7 Cooler ID: BHI-94 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.	Sample #: B09VX2 B09VX3 Cooler ID: GWS122 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A

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

Necessity for the Off-Site Use of this Property
Sampling supports RI/FS work in the 200 area.

RECEIVED
SEP 1 1994
PROPERTY RECORDS

Bill of lading # N/A

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
C. Bley	181413	9-1-94

Location of Property (Area & Bldg.)	Contact	Phone
200 BP-5 Pump & Treat	P. H. Butcher	(509) 376-4388

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
9/1/94	8B410 / PS1DC	N/A

Originated By	Date	Authorized By	Date
AA SIMPSON		AA Simpson	9/1/94

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		J. Hankel	9/1/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
R. Boyd Quanterra				
Date 9-1-94 1100				

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

600051 54-3000-479 (09/89)

9613490.0524

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT
BHI		W94-0-0851-22

PART I - TO BE COMPLETED BY ORIGINATOR

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

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

Routing [ ] Prepaid [ ] Collect

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

Off-site Custodian

On-site Custodian Payroll No.

Qty.	Property No.	Description (include Manufacture Name, Model, Serial No.)	Acquisition Cost
1		Sample #: B09VV8 B09VV9 Cooler ID: ER-1D Polycooler with groundwater samples packed in wet ice and	N/A
1 lbs.		Sample #: Cooler ID: ~~Polycooler with groundwater samples packed in wet ice and~~ vermiculite	N/A

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

Necessity for the off-site use of this property

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

[ ] Business Trip

[ ] Off-site Assignment

Bill of lading # NA

[ ] Shipment to Subcontractor. List Subcontract No.

[ ] Other (Please specify)

RECEIVED
SEP 1 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
C. Brey	181413	9-1-94

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

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
9/1/94	8B410 / P51DC	NA

Originated By	Date	Authorized By	Date
AJ SIMPSON		AJ Simpson	9/1/94
Property Representative Signature	**Date**	**Property Management Approval**	**Date**
		JP Hankel	9/1/94

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature	Date

DISTRIBUTION (AFTER FINAL SIGNATURES)

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

R. Boyd Quanterra 9-1-94 1100

54-3000-479 (01/94)

000052

Quanterra September 01, 1994 04:48 pm
Account: Project: QAS No. 690 Rev. 0
Master Sample Login: 5991

Project Manager:

Draft: Final: Entered and Reviewed by: Bob Caverot PM Review: David Jones

Sample Header Template:

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
5991-001	B09VX0	Water	29-AUG-94 11:20	30-AUG-94 10:40	04-OCT-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40870301 METALS ANALYSIS INCLUDE TAL LIST PLUS AS,BI,PB,SE,SN								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-500ml	ANIONS/300.0/Q4	P	COLD	N/A	N/A	S4F	(95100:99)
1		CL/300.0/Q4	C	COLD	27-SEP-94	26-SEP-94	S4F	(95100:99)
1		FL/300.0/Q4	C	COLD	27-SEP-94	26-SEP-94	S4F	(95100:99)
1		ICAP/CLP90/Q4	S	HNO3	27-SEP-94	26-FEB-95	S4F	(95096:100)
1		NO2/300.0/Q4	C	COLD	27-SEP-94	31-AUG-94	S4F	(95100:99)
1		NO3/300.0/Q4	C	COLD	27-SEP-94	31-AUG-94	S4F	(95100:99)
1		OPHOS/300.0/Q4	C	COLD	27-SEP-94	31-AUG-94	S4F	(95100:99)
1		SO4/300.0/Q4	C	COLD	27-SEP-94	26-SEP-94	S4F	(95100:99)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	27-SEP-94	12-SEP-94	S4F	(95101:100)
1	PN - Plastic-500ml	TDS/160.1/Q4	S	COLD	27-SEP-94	05-SEP-94	S4F	(95103:100)
1		TOC/415.1/Q4	S	H2SO4	27-SEP-94	26-SEP-94	S4F	(95104:99)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	27-SEP-94	12-SEP-94	S4F	(95102:100)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
5991-002	B09VY2	Water	29-AUG-94 10:03	30-AUG-94 10:40	04-OCT-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40870303 METALS ANALYSIS INCLUDE TAL LIST PLUS AS,BI,PB,SE,SN								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-500ml	ANIONS/300.0/Q4	P	COLD	N/A	N/A	S4F	(95107:99)
1		CL/300.0/Q4	C	COLD	27-SEP-94	26-SEP-94	S4F	(95107:99)
1		FL/300.0/Q4	C	COLD	27-SEP-94	26-SEP-94	S4F	(95107:99)
1		ICAP/CLP90/Q4	S	HNO3	27-SEP-94	26-FEB-95	S4F	(95106:100)
1		NO2/300.0/Q4	C	COLD	27-SEP-94	31-AUG-94	S4F	(95107:99)
1		NO3/300.0/Q4	C	COLD	27-SEP-94	31-AUG-94	S4F	(95107:99)
1		OPHOS/300.0/Q4	C	COLD	27-SEP-94	31-AUG-94	S4F	(95107:99)
1		SO4/300.0/Q4	C	COLD	27-SEP-94	26-SEP-94	S4F	(95107:99)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	27-SEP-94	12-SEP-94	S4F	(95108:100)
1	PN - Plastic-500ml	TDS/160.1/Q4	S	COLD	27-SEP-94	05-SEP-94	S4F	(95110:100)
1		TOC/415.1/Q4	S	H2SO4	27-SEP-94	26-SEP-94	S4F	(95111:99)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	27-SEP-94	12-SEP-94	S4F	(95109:100)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
5991-003	B09VX1	Water	29-AUG-94 11:20	30-AUG-94 10:40	04-OCT-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40870302 METALS ANALYSIS INCLUDE TAL LIST PLUS AS,BI,PB,SE,SN								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-500ml	ICAPD/CLP90/Q4	S	HNO3	27-SEP-94	26-FEB-95	S4F	(95113:100)

Sample No. / Comments	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
5991-004	B09VY3	Water	29-AUG-94 10:03	30-AUG-94 10:40	04-OCT-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40870304 METALS ANALYSIS INCLUDE TAL LIST PLUS AS,BI,PB,SE,SN								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-500ml	ICAPD/CLP90/Q4	S	HNO3	27-SEP-94	26-FEB-95	S4F	(95114:100)

Data:

3*=Sample has not been rad screened.

9413490.0525

000058A

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 481842
Page 1 of 2

Project Name/No. 1 B94-034
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 8/30/94
Lab Destination 8 St Louis
Lab Contact 9
Project Contact/Phone 12
Carrier/Waybill No. 13

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

ONE CONTAINER PER LINE

Sample Number 14	Sample Description/Type 15	Date/Time Collected 16	Container Type 17	Sample Volume 18	Preservative 19	Requested Testing Program 20	Condition on Receipt 21	Disposal Record No. 22
40870301A	B09VX0 / H_2O	08/29/94 1120 See WHL	Amber LOCKSAR	500	HNO_3 4°C	metals See WHL LOCKSAR	temp 30 1 100	OH 1
B		"	"	"	cold	Anions	1 100	
C		"	Poly	1L	NaOH	Cyanide	1 100	12
D		"	"	250	cold	ALK	1 100	
E		"	"	500	"	TDS	1 100	
F		"	"	500	H_2SO_4	TOC	1 100	
40870302A	B09VX1 / H_2O	"	Amber	500	HNO_3	Metals (Filtered)	1 100	1
40870303A	B09VY2 / H_2O	082994 10:03	Amber	500	HNO_3	metals	1 100	1

FOR LAB USE ONLY

FOR LAB USE ONLY

Special Instructions: 23

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

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

Turnaround Time Required: 26
Normal ☑ Rush ☐

QC Level: 27
I. ☐ II. ☐ III. ☐ Project Specific (specify): SDG W0186

1. Relinquished by 28 (Signature/Affiliation) [signature]	Date: 8/30/94 Time: 1600	1. Received by 28 (Signature/Affiliation) [signature]	Date: 08/31/94 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

White: To accompany samples
Yellow: Field copy

*See back of form for special instructions.

000052B

INTERNATIONAL TECHNOLOGY CORPORATION

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

Reference Document No.[30] 48/842

Project Name SDG-W0186 Project No. B94-034 Samples Shipment Date 8/30/94

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.
40870303B	B09VY2/H_2O	8/29/94 1003 See WHC	Amber COC/SAR	500	4°C cold	Amber See WHC COC/SAR	Temp °C 1 100	pH
C		"	Poly	1L	NAOH	cyanide	1 100	12
D		"	Poly	250	cold	ALK	1 100	
E		"	Poly	500	"	TDS	1 100	
F			Poly	500	H_2SO_4	TOC	1 100	1
40870304A	B09VY3	"	Amber	500	HNO_3	metal (Filtered)	1 100	1
8/30/94								

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

00005 2C

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1

Data Turnaround: [ ] Priority [X] Normal

Collector: Kirby Lee/Bill Whitten	Company Contact: David St. John/Parley Butcher	Telephone No.: 376-5376/376-4388
Project Designation: 200-BP-5 Pump and Treat Groundwater Sampling	Sampling Location: 200-BP-5	SAF No.: B94-034
Ice Chest No.: BHI-94	Field Logbook No.: EFL-1125	Method of Shipment: GSA Vehicle - Hand Delivered
Shipped To: Quanterra	Offsite Property No.: W94-0-0851-16	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks

Special Handling and/or Storage: Samples to be chilled to 4 degrees Celsius.

Preservative	HNO3	HNO3	Cool	NaOH	Cool	Cool	H2SO4	HNO3	HCL	Cool
Type of Container	G	G	G	P	P	P	P	P	P	G
No. of Container(s)	1	1	1	1	1	1	1	12	2	1
Volume	500 ml	500 ml.	500 ml.	1 Liter	250 ml.	500 ml.	500 ml.	1 Liter	1 Liter	40 ml.
SAMPLE ANALYSIS 408703	A ICP Metals Filter TAL plus As Bi, Pb, Se, Sn	ICP Metals Unfilt. TAL Plus As Bi, Pb, Se, Sn	Anions F, Cl, SO4, PO4, NO2, NO3 B	Cyanide C	Alkalinity D	TDS E	TOC F	Total Alpha, Total Beta, Gamma Spec.* (below)	Tc-99 40870401	Activity Scan

Sample No.	Matrix*	Date Sampled	Time Sampled	A														
B09VX0 01	W	8/29/94	1127	X		X	X	X	X	X	X	X	X					
B09VX1 02	W	8/29/94	1127		A X													

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
[signature] B. Whitten	8/29/94 1300	AJ Simpson	8/29/94 1300
AJ Simpson	8/30/94 1040	A Bond Quanterra	8/30/94 1040

SPECIAL INSTRUCTIONS

Gamma Spec. (to include Co-60, Cs-137, Ru-106,) Am-241, Pu-239/240, U-235, U-238, Sr-90

SDG W0186

Data Deliverable - Standalone.

Analysis for NO_2, NO_3 and PO_4 by FDI 300.00 are being requested for information only. The ERC contractor acknowledges that the 48-hour holding time will not be met.

Matrix*

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

LABORATORY SECTION: Received By | Title | Date/Time

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

DISTRIBUTION: Original- Sample Yellow - Sampler

000050

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: Kirby Lee/Bill Whitten	Company Contact: David St. John/Parley Butcher	Telephone No.: 376-5376/376-4388
Project Designation: 200-BP-5 Pump and Treat Groundwater Sampling	Sampling Location: 200-BP-5	SAF No.: B94-034
Ice Chest No.: GWS 122	Field Logbook No.: EFL-1125	Method of Shipment: GSA Vehicle - Hand Delivered
Shipped To: Quanterra	Offsite Property No.: W94-0-0851-16	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks

Special Handling and/or Storage: Samples to be chilled to 4 degrees Celsius.

SAMPLE ANALYSIS: 408703

Sample No.	Matrix*	Date Sampled	Time Sampled	ICP Metals Filter TAL plus As Bi, Pb, Se, Sn (A)	ICP Metals Unfilt. TAL Plus As Bi, Pb, Se, Sn	Anions F, Cl, SO4, PO4, NO2, NO3 (B)	Cyanide (C)	Alk-alinity (D)	TDS (E)	TOC (F)	Total Alpha, Total Beta, Gamma Spec.* (below)	Tc-99	Act-ivity Scan
Preservative				HNO3	HNO3	Cool	NaOH	Cool	Cool	H2SO4	HNO3	HCL	Cool
Type of Container				G	G	G	P	P	P	P	P	P	G
No. of Container(s)				1	1	1	1	1	1	1	12	2	1
Volume				500 ml	500 ml.	500 ml.	1 Liter	250 ml.	500 ml.	500 ml.	1 Liter	1 Liter	40 ml.
B09VY2 03	W	8/29/94	1003	X		X	X	X	X	X	X	X	X
B09VY3 04	W	8/29/94	1003		X (A)								

408702

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Bill Whitten	Date/Time: 8/29/94 1300	Received By: A J Simpson	Date/Time: 8/29/94 1300
Relinquished By: A J Simpson	Date/Time: 8/30/94 1040	Received By: G Boyd Quanterra	Date/Time: 8/30/94 1040
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

SPECIAL INSTRUCTIONS

Gamma Spec. (to include Co-60, Cs-137, Ru-106,) Am-241, Pu-239/240, U-235, U-238, Sr-90 SDG W0186

Data Deliverable - Tier 1 level.

Analysis for NO3, NO2 and PO4 by EPA 300.0 are being requested for information only. The EPC contractor acknowledges that the 48-hour holding time will not be met.

Matrix*

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

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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9413100.0820

0005032E

083094D.WQ2

TENNELEC #2
WHC

SCREENING CALCULATION SPREADSHEET

Correct. JRN 30 Aug 94

Cust Code	Recieved Date		Screening Prep Date		Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC/LIQ	8/30/94		8/30		8/30	10	7	226	240

Customer ID	pH <2 Rcvd/Reiq	Residue Wght mG	Vol. Anal. mG	mL	Sample Size Gm	L	SMPLE CNT DATA Hldr Num.	Total Counts Alpha	Beta	Net Sample Counts/Minute Alpha	Beta	DPM / Aliqout Alpha	Beta	uCi per Sample Alpha	Beta	2 Sigma Error uCi per Sample Alpha	Beta	pCi/(Gm or L) Alpha	Beta	Category 1 Yes/No	Aliquot to Cat 1 Gm or L Alpha	Beta
BO9VXO	LIQUID	3.1	10		1.0		98	11	79	1.07	6.95	3.56E+00	1.39E+01	1.6E-04	6.3E-04	1.2E-07	1.6E-07	1.6E+02	6.3E+02	Yes	6.2E+01	1.6E+02
BO9VY2	LIQUID	2.6	10		1.0		99	16	645	1.77	63.55	3.47E+00	1.32E+02	1.6E-04	6.0E-03	1.5E-07	6.4E-07	1.6E+02	6.0E+03	Yes	6.4E+01	1.7E+01
TOTAL uCi														3.2E-04	6.6E-03							

9613490.0530

00052F

9613490.0531

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER: 408703, 408704 DATE INITIATED: 8/30/94

INITIATED BY: R Boyd

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 8/30/94 1040

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
B09VX0		
B09VX1		

Samples were received with the following deficiencies:

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

NOTES: Sample time on bottles read 1120 Sample time on COC reads 1127

SUPERVISOR REVIEW: _____

PROJECT MANAGER REVIEW: _____

TELEPHONED TO: _____ ON _____ BY _____

TELEFAXED TO: _____ ON _____ BY _____

SIGNED ORIGINAL MUST BE RETAINED IN WORK ORDER FILE

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

000052G

9613490.0532

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 8/30/94 1040 Client Name WHC

Project/Client # 894-034 Batch or Case # _____

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

1. Condition of shipping container? OK
2. Custody Seals on cooler intact? Yes ☒ No ☐
3. Custody Seals dated and signed? Yes ☒ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☒ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☒
6. Each sample is in a plastic bag? Yes ☒ No ☐
7. Number of sample containers in cooler: 22
8. Samples have: ____ tape ____ hazard labels
   ✓ custody seals ✓ appropriate sample labels
9. Samples are: ✓ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☒ No ☐

Sample temperature 3°C

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

Printed Name/Signature R. Boyd R. Boyd Date/Time 8/30/94 1040

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

000052H

9613490.0533

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 8/30/94 1040 Client Name WHC

Project/Client # B94-034 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) BKII 94

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: 22
8. Samples have: ____ tape ____ hazard labels
   ✓ custody seals ✓ appropriate sample labels
9. Samples are: ✓ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☒ No ☐

Sample temperature 2°C

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

Printed Name/Signature R. Boyd R. Boyd Date/Time 8/30/94 1040

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

000052I

SAMPLE STATUS REPORT FOR N 2303. RAD SCREEN 299E33-7 TIME: 8/29/94 21:16
DISPATCHED: 8/26/94 11:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/29/94 13:39

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

END OF REPORT

AJS 8/31/94
BO ~~B~~ 9VXO
BO 9VX1

000052J

SAMPLE STATUS REPORT FOR N 2310. RAD SCREEN 299E2825 TIME: 8/29/94 21:16
DISPATCHED: 8/26/94 11:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/29/94 13:39

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

END OF REPORT

AJS 8/30/94
BO B

B09VY2
B09VY3

9613490.0536

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
BHI		W94-0-0851-16

PART I – TO BE COMPLETED BY ORIGINATOR

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

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

Routing ☒ Contractor ☐ Vendor

Shipped to	Off-site Custodian
Quanterra (IT) 2800 George Washington Way Richland, WA 99352	
	Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 lbs.	Sample #: B09VX0 B09VX1 Cooler ID; BHI-94 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.	Sample #: B09VY2 B09VY3 Cooler ID: GWS 122 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A

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

Necessity for the Off-Site Use of this Property

Sampling supports RI/FS work in the 200 area.

RECEIVED

AUG 30 1994

PROPERTY RECORDS

Bill of lading # NA

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
C. Drew	181405	8-30-94

Location of Property (Area & Bldg.)	Contact	Phone
200-BP-5 Pump & Treat	P. H. Butcher	(509) 376-4388

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
8/30/94	8B410 / PSIDC	NA

Originated By	Date	Authorized By	Date
AJ SIMPSON		AJ Simpson	8/30/94

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		JP Hankel	8/30/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No	Date Issued	Purchase Order No.	Date Issued
R. Boyd Quentena				
Date 8/30/94 1040				

DISTRIBUTION

000052L

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

TECHNOLOGY CORPORATION

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

COPIED TO: DK

DATE: 083194

TIME: 1315

BY: Bob Cowart

Work Order No.: 5591

Condition Upon Receipt Variance Report
ITAS - St. Louis Laboratory

Client: Richland

Date: 08 31 94 0900

Project No: 550.08

Initiated by: Bob Cowart

Analysis Requested: Refer to RFA/COC

RFA/COC Numbers: 481842

Client Sample Numbers Affected: Entire Login

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

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

Notes: _____

Corrective Action:

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

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

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

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

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

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

000052M

Quanterra September 02, 1994 03:37 pm
Account: 10722 Project: 550.08 Quanterra-Richland QAS No. 702 Rev. 0
Master Sample Login: 4012

Project Manager: W. Price

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

Sample Header Template:

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

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
Date:								

6012-001 B09VX2 Water 31-AUG-94 10:10 01-SEP-94 11:00 06-OCT-94 FED-EX 1 Screening not Required
QUANTERRA RICHLAND I.D. 40901501

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-500ml	ANIONS/300.0/Q4	P	COLD	N/A	N/A	R15H	(95930:99)
1		CL/300.0/Q4	C	COLD	29-SEP-94	28-SEP-94	R15H	(95930:99)
1		FL/300.0/Q4	C	COLD	29-SEP-94	28-SEP-94	R15H	(95930:99)
1		ICAP/CLP90/Q4	S	HNO3	29-SEP-94	28-FEB-95	R15H	(95929:100)
1		NO2/300.0/Q4	C	COLD	29-SEP-94	02-SEP-94	R15H	(95930:99)
1		NO3/300.0/Q4	C	COLD	29-SEP-94	02-SEP-94	R15H	(95930:99)
1		OPHOS/300.0/Q4	C	COLD	29-SEP-94	02-SEP-94	R15H	(95930:99)
1		SO4/300.0/Q4	C	COLD	29-SEP-94	28-SEP-94	R15H	(95930:99)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	29-SEP-94	14-SEP-94	R15H	(95931:100)
1	PN - Plastic-500ml	TDS/160.1/Q4	S	COLD	29-SEP-94	07-SEP-94	R15H	(95933:100)
1		TOC/415.1/Q4	S	H2SO4	29-SEP-94	28-SEP-94	R15H	(95934:99)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	29-SEP-94	14-SEP-94	R15H	(95932:100)

6012-002 B09VY6 Water 31-AUG-94 09:30 01-SEP-94 11:00 06-OCT-94 FED-EX 1 Screening not Required
QUANTERRA RICHLAND I.D. 40901503

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-500ml	ANIONS/300.0/Q4	P	COLD	N/A	N/A	R15H	(95945:99)
1		CL/300.0/Q4	C	COLD	29-SEP-94	28-SEP-94	R15H	(95945:99)
1		FL/300.0/Q4	C	COLD	29-SEP-94	28-SEP-94	R15H	(95945:99)
1		ICAP/CLP90/Q4	S	HNO3	29-SEP-94	28-FEB-95	R15H	(95944:100)
1		NO2/300.0/Q4	C	COLD	29-SEP-94	02-SEP-94	R15H	(95945:99)
1		NO3/300.0/Q4	C	COLD	29-SEP-94	02-SEP-94	R15H	(95945:99)
1		OPHOS/300.0/Q4	C	COLD	29-SEP-94	02-SEP-94	R15H	(95945:99)
1		SO4/300.0/Q4	C	COLD	29-SEP-94	28-SEP-94	R15H	(95945:99)
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	29-SEP-94	14-SEP-94	R15H	(95946:100)
1	PN - Plastic-500ml	TDS/160.1/Q4	S	COLD	29-SEP-94	07-SEP-94	R15H	(95948:100)
1		TOC/415.1/Q4	S	H2SO4	29-SEP-94	28-SEP-94	R15H	(95949:99)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	29-SEP-94	14-SEP-94	R15H	(95947:100)

6012-003 B09VY8 Water 31-AUG-94 08:00 01-SEP-94 11:00 06-OCT-94 FED-EX 1 Screening not Required
QUANTERRA RICHLAND I.D. 40901505

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
1	AN - Amber Glass-500ml	ANIONS/300.0/Q4	P	COLD	N/A	N/A	R15H	(95951:99)
1		CL/300.0/Q4	C	COLD	29-SEP-94	28-SEP-94	R15H	(95951:99)
1		FL/300.0/Q4	C	COLD	29-SEP-94	28-SEP-94	R15H	(95951:99)
1		ICAP/CLP90/Q4	S	HNO3	29-SEP-94	28-FEB-95	R15H	(95950:100)
1		NO2/300.0/Q4	C	COLD	29-SEP-94	02-SEP-94	R15H	(95951:99)
1		NO3/300.0/Q4	C	COLD	29-SEP-94	02-SEP-94	R15H	(95951:99)
1		OPHOS/300.0/Q4	C	COLD	29-SEP-94	02-SEP-94	R15H	(95951:99)
1		SO4/300.0/Q4	C	COLD	29-SEP-94	28-SEP-94	R15H	(95951:99)

3*=Sample has not been rad screened.

0000052
9613490.0538

Quanterra September 02, 1994 03:37 pm
Account: 10722 Project: 550.08 Quanterra-Richland QAS No. 702 Rev. 0
Master Sample Login: 6012

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.
6012-004	B09VX3	Water	31-AUG-94 10:10	01-SEP-94 11:00	06-OCT-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40901502								
6012-005	B09VY7	Water	31-AUG-94 09:30	01-SEP-94 11:00	06-OCT-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40901504								
6012-006	B09VY9	Water	31-AUG-94 08:00	01-SEP-94 11:00	06-OCT-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40901506								

#	Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
Date:								
1	PN - Plastic-1L	CN/CLP/Q4	S	NAOH	29-SEP-94	14-SEP-94	R15H	(95952:100)
1	PN - Plastic-500ml	TDS/160.1/Q4	S	COLD	29-SEP-94	07-SEP-94	R15H	(95954:100)
1		TOC/415.1/Q4	S	H2SO4	29-SEP-94	28-SEP-94	R15H	(95955:99)
1	PN - Plastic-250ml	ALK/310.1/Q4	S	COLD	29-SEP-94	14-SEP-94	R15H	(95953:100)
1	AN - Amber Glass-500ml	ICAPD/CLP90/Q4	S	HNO3	04-OCT-94	28-FEB-95	R15B	(95956:100)
1	AN - Amber Glass-500ml	ICAPD/CLP90/Q4	S	HNO3	04-OCT-94	28-FEB-95	R15B	(95959:100)
1	AN - Amber Glass-500ml	ICAPD/CLP90/Q4	S	HNO3	04-OCT-94	28-FEB-95	R15B	(95960:100)

3*=Sample has not been rad screened.

9613490.0539

000053

TECHNOLOGY CORPORATION

C.U.R. and C.O.C.
COPIED TO: D. K.
DATE: 09/02/94
TIME: 10:20
BY: Jm

Work Order No.: 6012

Condition Upon Receipt Variance Report
ITAS - St. Louis Laboratory

Client: Richland
Date: 09-02-94 09:10
Project No: 550.68
Initiated by: Joel Mitchell
Analysis Requested: Refer to RFA/COC
RFA/COC Numbers: 481847
Client Sample Numbers Affected: Entire Login

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

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

Notes: Note: COC not relinquished

Corrective Action:

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

☐ Sample(s) processed "as is". Comments: _____
☐ Sample(s) on hold until: _____ If released, notify: _____

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

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

000052F

Temp 6°C CUR#1121

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 481847
Page 1 of 2

Project Name/No. 1: B94-034
Sample Team Members 2:
Profit Center No. 3: 4632
Project Manager 4: Van Pettey
Purchase Order No. 6:
Required Report Date 11: 10/6/94

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

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

ONE CONTAINER PER LINE

Sample Number 14	Sample Description/Type 15	Date/Time Collected 16	Container Type 17	Sample Volume 18	Preservative 19	Requested Testing Program 20	% Full	Condition on Receipt 21	pH	Disposal Record No. 22
(1) 40901501A	B09VX2 / H_2O	8-31-94 1010 See WHC	500ml 2 cool/SAR	Water	HgO_3 4°C	metals See WHC cool/SAR	100		2	
B		8-31-94 10:10	500 mls Amber G.			Anions				
C		8-31-94 10:10	1 L Poly		NaOH	Cyanide			12	
D		8-31-94 10:10	250 mls Poly		9/1/94	ALK			7	
E		8/31/94 10:10	500 mls Poly		H_2SO_4	TDS			7	
F		8/31/94 10:10	500 mls Poly		H_2SO_4	TOC			2	
(4) 40901502A	B09VX3	8/31/94 1010	500 mls Amber G.		HNO_3	Metals			2	
(2) 40901503A	B09VY6	8/31/94 09:30	500 mls Amber G.		HNO_3	Metals			2	

FOR LAB USE ONLY

FOR LAB USE ONLY

Special Instructions: 23

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

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

Turnaround Time Required: 26
Normal ☑ Rush ☐

QC Level: 27
I. ☐ II. ☐ III. ☐ Project Specific (specify): SDG 40186

1. Relinquished by 28 (Signature/Affiliation) [signature]	Date: 9/1/94 Time: 1600	1. Received by 28 (Signature/Affiliation) Fred Mitchell	Date: 09-02-94 Time: 09:10
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation) Bob Cowan	Date: 09-02-94 Time: 0900
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: 29

Desoodd

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] 48/847

Project Name W0186 Project No. B94-034 Samples Shipment Date 9/1/94

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Amt/Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	pH	Disposal[22] Record No.
(2) 40801503B	B09VY6	8-31-94 09:30 See WHC	500 mls 2oz/SAR	Water	4°C	Anions See WHC 2oz/SAR	100	6	
C		8/31/94 09:30	1 L. Poly		NAOH	Cyanide		12	
D		8-31-94 09:30	250 mls Poly			AIK		6	
E		8-31-94 09:30	500 mls Poly			TDS		6	
F		8-31-94 09:30	500 mls Poly		H2SO4	TOC		3	
(5) 40901504A	B09VY7	8-31-94 09:30	500 mls Amb. G.		HNO3	metals		3	
(1) 40901505A	B09VY8	8-31-94 08:00	500 mls Amb. G.		HNO3	metals		2	
B		8-31-94 08:00	500 mls Amb G			Anions		6	
C		8-31-94 08:00	1 Lp Poly		NAOH	Cyanide		12	
D		8-31-94 08:00	250 mls Poly			AIK		6	
E		8-31-94 08:00	500 mls Poly			TDS		6	
F		8-31-94 0800	500 mls Poly		H2SO4	TOC		2	
(6) 40901506A	B09VY9	8-31-94 0800	500 mls poly		HNO3	Metals		2	
(5) 9/1/94									

White: To accompany samples • Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

000058R

9613490.0543

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 9/1/94 1100 Client Name BHI

Project/Client # ~~EF~~ B94-034 (B 9-1-94) Batch or Case # _____

Cooler ID (if noted on the outside of cooler) EF-1D

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: 22
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): N/A
    Chain of Custody #'(s) _____
    Request for analysis #(s) _____
    Airbill # _____ Carrier _____
12. Have any anomalies been identified above? Yes ☐ No ☒
13. Memos have been initiated for all anomalies identified above? Yes ☐

Printed Name/Signature R. Boyd R. Boyd Date/Time 9/1/94 1100

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

0000525

9613490.0544

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER: 409015 DATE INITIATED: 9/1/94

INITIATED BY: TGilmore

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 9/1/94 1100

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
B09VX2		TOC
B09VY6		|
B09VY8		|

Samples were received with the following deficiencies:

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

NOTES: all samples (TOC) are in poly bottles - not glass

SUPERVISOR REVIEW: _____

PROJECT MANAGER REVIEW: _____

TELEPHONED TO: _____ ON _____ BY _____

TELEFAXED TO: _____ ON _____ BY _____

SIGNED ORIGINAL MUST BE RETAINED IN WORK ORDER FILE

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

000052V

090194A.WQ2

TENNELEC #2

SCREENING CALCULATION SPREADSHEET

all Cat I (R3) 9/1/94

Cust Code	Recieved Date		Screening Prep Date		Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	9/1/94		9/1		9/1	10	10	237	240

Customer ID WHC/LIQ	pH <2 Rcvd/Reiq	Residue Wght mG	Vol. Anal. mG mL	Sample Size Gm L	SMPLE CNT DATA Hldr Num.	Total Counts Alpha	Beta	Net Sample Counts/Minute Alpha	Beta	DPM / Aliqout Alpha	Beta	uCi per Sample Alpha	Beta	2 Sigma Error uCi per Sample Alpha	Beta	pCi/(Gm or L) Alpha	Beta	Category 1 Yes/No	Aliquot to Cat 1 Gm or L Alpha	Beta
BO9VX2	LIQ	2.0	10	1.0	3	1	14	0.06	0.41	1.90E-01	8.29E-01	8.6E-06	3.7E-05	2.5E-06	4.0E-06	8.6E+00	3.7E+01	Yes	1.2E+03	2.7E+03
BOCVY6	LIQ	0.2	10	1.0	4	1	7	0.06	-0.29	2.17E-01	-6.4E-01	9.8E-06	-2.9E-05	2.5E-06	-3.3E-06	9.8E+00	-2.9E+01	Yes	1.0E+03	-3.5E+03
BOCVY8	LIQ	0.3	10	1.0	5	9	147	0.86	13.71	2.40E+00	2.62E+01	1.1E-04	1.3E-03	1.0E-07	2.6E-06	1.1E+02	1.3E+03	Yes	9.3E+01	7.9E+01
TOTAL uCi												1.3E-04	1.3E-03							

9613490.0545

M250520

SAMPLE STATUS REPORT FOR N 2307. RAD SCREEN 299E28-1 TIME: 8/31/94 19:
DISPATCHED: 8/26/94 11:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/31/94 14:12

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHAR CODE
****	********	**********	***	***	****
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	J12U

END OF REPORT

BO 9VY8
BO 9VY9

000052X

SAMPLE STATUS REPORT FOR N 2305. RAD SCREEN 6994957A TIME: 8/31/94 19:
DISPATCHED: 8/26/94 11:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/31/94 14:12

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHAR COD
****	********	**********	***	***	****
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	J12U

END OF REPORT

B09VX2
B09VX3

9613490.0548

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 8 9/1/94 1100 Client Name BHI

Project/Client # B94-034 Batch or Case #

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

1. Condition of shipping container? OK
2. Custody Seals on cooler intact? Yes ☒ No ☐
3. Custody Seals dated and signed? Yes ☒ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☒ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☒
6. Each sample is in a plastic bag? Yes ☒ No ☐
7. Number of sample containers in cooler: 22
8. Samples have: ____ tape ____ hazard labels
   X custody seals X appropriate sample labels
9. Samples are: X in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☒ No ☐

Sample temperature 3°C

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

Printed Name/Signature R. Boyd R. Boyd Date/Time 9/1/94 1100

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

0000527

SAMPLE STATUS REPORT FOR N 2312. RAD SCREEN FIELDBLK TIME: 8/31/94 19:2
DISPATCHED: 8/26/94 11:10 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/31/94 14:12

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARC CODI
****	********	**********	***	***	****
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	J12U

END OF REPORT

B09UY6

B09UY7

000052AA

9613490.0550

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 9/1/94 1100 Client Name BHI

Project/Client # B94-034 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) BHI 94

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: 22
8. Samples have: ____ tape ____ hazard labels
   ✓ custody seals ✓ appropriate sample labels
9. Samples are: ✓ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☒ No ☐

Sample temperature 2°C

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

Printed Name/Signature R. Boyd R. Boyd Date/Time 9/1/94 1180

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

000052BB

9613490.0551

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMEI
BHI		W94-0-0851-21

PART I – TO BE COMPLETED BY ORIGINATOR

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

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

Routing ☒ Contractor ☐ Vendor

Shipped to

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

Off-site Custodian

Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 lbs	Sample #: B09VY6 B09VY7 Cooler ID: BHI-94 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.	Sample #: B09VX2 B09VX3 Cooler ID: GW5122 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A

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

Necessity for the Off-Site Use of this Property

Sampling supports RI/FS work in the 200 area.

RECEIVED

SEP 1 1994

PROPERTY RECORDS

Bill of lading # N/A

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
C. Bley	781413	9-1-94

Location of Property (Area & Bldg.)	Contact	Phone
200 BP-5 Pump & Treat	P. H. Butcher	(509) 376-438

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
9/1/94	8B410 / PS1DC	NA

Originated By	Date	Authorized By	Date
AA SIMPSON		AA Simpson	9/1/94

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		J. Hankel	9/1/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
R. Boyd Quanterra Date 9-1-94 1100				

DISTRIBUTION 00005200

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

9613490.0552

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEM
BHI		W94-0-0851-22

PART I - TO BE COMPLETED BY ORIGINATOR

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

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

Routing [ ] Prepaid [ ] Collect

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

Off-site Custodian

On-site Custodian Payroll N

Qty.	Property No.	Description (Include Manufacture Name, Model, Serial No.)	Acquisition C
1		Sample #: B09VV8 B09VV9 Cooler ID: ER-1D Polycooler with groundwater samples packed in wet ice and	N/A
1 lbs.		Sample #: Cooler ID: ~~Polycooler with groundwater samples packed in wet ice and~~ vermiculite	N/A

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

Necessity for the off-site use of this property
- [ ] Required for Project Work. List Project No. 200 BP-5 PUMP & TREAT
- [ ] Business Trip
- [ ] Off-site Assignment
- [ ] Shipment to Subcontractor. List Subcontract No.
- [ ] Other (Please specify)

Bill of lading # NA

RECEIVED
SEP 1 1994
PROPERTY RECORDS

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

RM Clearance for Public Release	RM Survey No.	Date
C. Brey	181413	9-1-94

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

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
9/1/94	8B410 / P51DC	NA

Originated By	Date	Authorized By	Date
AJ SIMPSON		AJ Simpson	9/1/94
Property Representative Signature	**Date**	**Property Management Approval**	**Date**
		J J Hankel	9/1/9

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature	Date

DISTRIBUTION (AFTER FINAL SIGNATURES) 00005 2DI

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

R. Boyd Quanterra 9-1-94 1100

54-3000-479 (01/

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [ ] Priorty [X] Normal

Collector: Kirby Lee/Bill Whitten	Company Contact: David St. John/Parley Butcher	Telephone No.: 376-5376/376-4388
Project Designation: 200-BP-5 Pump and Treat Groundwater Sampling	Sampling Location: 200-BP-5	SAF No.: B94-034
Ice Chest No.: GWS 122	Field Logbook No.: EFL-1125	Method of Shipment: GSA Vehicle - Hand Delivered
Shipped To: Quanterra	Offsite Property No.: N94 0-0851-21	Bill of Lading/Air Bill No.:

Possible Sample Hazards/Remarks:

Special Handling and/or Storage: Samples to be chilled to 4 degrees Celsius.

SAMPLE ANALYSIS: 409015

Preservative	HNO3	HNO3	Cool	NaOH	Cool	Cool	H2SO4	HNO3	HCL	Cool
Type of Container	G	G	G	P	P	P	P	P	P	G
No. of Container(s)	1	1	1	1	1	1	1	12	2	1
Volume	500 ml	500 ml.	500 ml.	1 Liter	250 ml.	500 ml.	500 ml.	1 Liter	1 Liter	40 ml.
	ICP Metals Filter TAL plus As Bi, Pb, Se, Sn	ICP Metals Unfilt. TAL Plus As Bi, Pb, Se, Sn	Anions F, Cl, SO4, PO4, NO2, NO3	Cyanide	Alk-alinity	TDS	TOC	Total Alpha, Total Beta, Gamma Spec.* (below)	Tc-99	Act-ivity Scan
	A	A	B	C	D	E	F			

Sample No.	Matrix*	Date Sampled	Time Sampled	A	A	B	C	D	E	F			
B09VX2 01	W	08/31/94	1010	X	X	X	X	X	X	X	X	X	X
B09VX3 2	W	08/31/94	1010	X	X								

409015

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[illegible]	8/31/94 1350	AJ Simpson	8/31/94 1350
Relinquished By	Date/Time	Received By	Date/Time
AJ Simpson	9/1/94 1100	A. Brad Quintana	9/1/94 1100
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

Gamma Spec. (to include Co-60, Cs-137, Ru-106,) Am-241, Pu-239/240, U-235, U-238, Sr-90

Data Deliverable - Standalone

NO_2, NO_3, and PO_4 by EPA 300.0 are being requested for information only. The EPC contractor acknowledges that the 48-hour holding time will not be met

Matrix*

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

LABORATORY SECTION	Received By	Title	Date/Time

SDG-W0786

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

0075

0000520E

9613490.0553