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BCOVB9-TMA-183

TMA 92

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WESTINGHOUSE HANFORD COMPANY

JUL 1992
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OSM DMO

Results of Analyses For:

METALS ANALYSIS

(TMA/Skinner Work Order S2-05-261)

TMA Master Work Order N1-12-087

July 2, 1992

NOV 1996
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EDMC

TMA 9713506.0466
Thermo Analytical Inc.

Skinner & Sherman Labs., Inc.
300 Second Avenue
Post Office Box 521
Waltham, MA 02254-0521
(617) 890-7200
FAX (617) 890-3883

June 30, 1992

TMA/NORCAL
2030 Wright Avenue
Richmond, CA 94804
Attention: Dan Stuermer

Quality Control Narrative

Scope
Sixteen (16) biota samples were submitted to TMA/Skinner & Sherman Laboratories, Inc. on May 27, 1992 from TMA/Norcal. The samples were analyzed for the USEPA CLP metals, excluding mercury. The analysis were performed under TMA/Skinner and Sherman work order S205261.

Methodology
The samples were prepared, analyzed and reported in accordance with the USEPA Contract Laboratory Program Statement of Work 7/88 (CLP SOW788).

Discussion
All quality control requirements were met for the samples with the following exceptions:

The antimony digestion spike recovery exceeded the control limit requirements.

Eight laboratory duplicates exceeded control limit requirements. This is almost certainly related to matrix interferences (e.g. iron).

Please feel free to call if there are any questions concerning this package.

Respectfully submitted,

TMA/SKINNER & SHERMAN LABORATORIES, INC.

David N. Peterson
Assistant Laboratory Manager

9713506.0467

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VB9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-01S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7370.00		*	P
7440-36-0	Antimony	3.20	U	N	P
7440-38-2	Arsenic	5.20		S*	F
7440-39-3	Barium	93.10			P
7440-41-7	Beryllium	0.34	B		P
7440-43-9	Cadmium	1.40			P
7440-70-2	Calcium	5110.00		*	P
7440-47-3	Chromium	24.20		*	P
7440-48-4	Cobalt	8.60	B		P
7440-50-8	Copper	28.70			P
7439-89-6	Iron	16100.00			P
7439-92-1	Lead	29.80		*	F
7439-95-4	Magnesium	4310.00		*	P
7439-96-5	Manganese	794.00		*	P
7439-97-6	Mercury				NR
7440-02-0	Nickel	21.70			P
7440-09-7	Potassium	942.00	B		P
7782-49-2	Selenium	4.00	U	W	F
7440-22-4	Silver	1.30	B		P
7440-23-5	Sodium	445.00	B		P
7440-28-0	Thallium	0.61	B		F
7440-62-2	Vanadium	32.20			P
7440-66-6	Zinc	233.00		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

9213506.0468

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VC0

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-02S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11500.00		*	P
7440-36-0	Antimony	6.60	B	N	P
7440-38-2	Arsenic	3.10		*	F
7440-39-3	Barium	129.00			P
7440-41-7	Beryllium	0.55	B		P
7440-43-9	Cadmium	2.40			P
7440-70-2	Calcium	9370.00		*	P
7440-47-3	Chromium	27.00		*	P
7440-48-4	Cobalt	11.50			P
7440-50-8	Copper	30.60			P
7439-89-6	Iron	21600.00			P
7439-92-1	Lead	21.60		*	F
7439-95-4	Magnesium	6680.00		*	P
7439-96-5	Manganese	870.00		*	P
7439-97-6	Mercury				NR
7440-02-0	Nickel	28.00			P
7440-09-7	Potassium	1490.00			P
7782-49-2	Selenium	4.00	U	W	F
7440-22-4	Silver	2.00			P
7440-23-5	Sodium	517.00	B		P
7440-28-0	Thallium	0.36	B		F
7440-62-2	Vanadium	45.40			P
7440-66-6	Zinc	344.00		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VC1

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-03S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12000.00		*	P
7440-36-0	Antimony	5.30	B	N	P
7440-38-2	Arsenic	8.90		S*	F
7440-39-3	Barium	151.00			P
7440-41-7	Beryllium	0.54	B		P
7440-43-9	Cadmium	2.50			P
7440-70-2	Calcium	7070.00		*	P
7440-47-3	Chromium	27.00		*	P
7440-48-4	Cobalt	10.90			P
7440-50-8	Copper	32.20			P
7439-89-6	Iron	19700.00			P
7439-92-1	Lead	36.10		*	F
7439-95-4	Magnesium	6830.00		*	P
7439-96-5	Manganese	1180.00		*	P
7439-97-6	Mercury				NR
7440-02-0	Nickel	32.60			P
7440-09-7	Potassium	1810.00			P
7782-49-2	Selenium	3.90	U	W	F
7440-22-4	Silver	2.00			P
7440-23-5	Sodium	290.00	B		P
7440-28-0	Thallium	0.72	B		F
7440-62-2	Vanadium	39.40			P
7440-66-6	Zinc	402.00		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

B00VC2

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-04S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7640.00		*	P
7440-36-0	Antimony	3.40	B	N	P
7440-38-2	Arsenic	7.90		*	F
7440-39-3	Barium	96.60			P
7440-41-7	Beryllium	0.41	B		P
7440-43-9	Cadmium	1.40			P
7440-70-2	Calcium	5950.00		*	P
7440-47-3	Chromium	29.70		*	P
7440-48-4	Cobalt	8.90	B		P
7440-50-8	Copper	19.30			P
7439-89-6	Iron	18100.00			P
7439-92-1	Lead	25.80		*	F
7439-95-4	Magnesium	4310.00		*	P
7439-96-5	Manganese	653.00		*	P
7439-97-6	Mercury				NR
7440-02-0	Nickel	17.10			P
7440-09-7	Potassium	1020.00			P
7782-49-2	Selenium	3.80	U		F
7440-22-4	Silver	1.40	B		P
7440-23-5	Sodium	284.00	B		P
7440-28-0	Thallium	0.47	B		F
7440-62-2	Vanadium	41.40			P
7440-66-6	Zinc	246.00		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VC3

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-05S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9160.00		*	P
7440-36-0	Antimony	3.10	U	N	P
7440-38-2	Arsenic	5.20		*	F
7440-39-3	Barium	116.00			P
7440-41-7	Beryllium	0.46	B		P
7440-43-9	Cadmium	1.60			P
7440-70-2	Calcium	5190.00		*	P
7440-47-3	Chromium	20.50		*	P
7440-48-4	Cobalt	9.50	B		P
7440-50-8	Copper	25.70			P
7439-89-6	Iron	18900.00			P
7439-92-1	Lead	30.60		*	F
7439-95-4	Magnesium	5120.00		*	P
7439-96-5	Manganese	752.00		*	P
7439-97-6	Mercury				NR
7440-02-0	Nickel	22.40			P
7440-09-7	Potassium	1140.00			P
7782-49-2	Selenium	3.80	U	W	F
7440-22-4	Silver	1.50	B		P
7440-23-5	Sodium	261.00	B		P
7440-28-0	Thallium	0.40	B		F
7440-62-2	Vanadium	41.80			P
7440-66-6	Zinc	288.00		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VC5

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-08S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7620.00		*	P
7440-36-0	Antimony	3.10	U	N	P
7440-38-2	Arsenic	5.30		+*	F
7440-39-3	Barium	83.80			P
7440-41-7	Beryllium	0.30	B		P
7440-43-9	Cadmium	1.80			P
7440-70-2	Calcium	5350.00		*	P
7440-47-3	Chromium	20.10		*	P
7440-48-4	Cobalt	6.90	B		P
7440-50-8	Copper	28.10			P
7439-89-6	Iron	14500.00			P
7439-92-1	Lead	23.60		*	F
7439-95-4	Magnesium	4260.00		*	P
7439-96-5	Manganese	515.00		*	P
7439-97-6	Mercury				NR
7440-02-0	Nickel	24.20			P
7440-09-7	Potassium	2210.00			P
7782-49-2	Selenium	0.77	U	W	F
7440-22-4	Silver	1.20	B		P
7440-23-5	Sodium	564.00	B		P
7440-28-0	Thallium	0.41	B		F
7440-62-2	Vanadium	27.00			P
7440-66-6	Zinc	274.00		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VC9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-14S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7860.00		*	P
7440-36-0	Antimony	3.10	U	N	P
7440-38-2	Arsenic	4.20		S*	F
7440-39-3	Barium	97.60			P
7440-41-7	Beryllium	0.32	B		P
7440-43-9	Cadmium	2.30			P
7440-70-2	Calcium	4670.00		*	P
7440-47-3	Chromium	21.40		*	P
7440-48-4	Cobalt	7.50	B		P
7440-50-8	Copper	34.10			P
7439-89-6	Iron	16100.00			P
7439-92-1	Lead	27.00		*	F
7439-95-4	Magnesium	4630.00		*	P
7439-96-5	Manganese	699.00		*	P
7439-97-6	Mercury				NR
7440-02-0	Nickel	37.80			P
7440-09-7	Potassium	2360.00			P
7782-49-2	Selenium	0.75	U	W	F
7440-22-4	Silver	1.60	B		P
7440-23-5	Sodium	565.00	B		P
7440-28-0	Thallium	0.43	B	W	F
7440-62-2	Vanadium	26.00			P
7440-66-6	Zinc	320.00		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9213506.0474

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VD1

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-06S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10100.00		*	P
7440-36-0	Antimony	3.00	U	N	P
7440-38-2	Arsenic	5.00		*	F
7440-39-3	Barium	104.00			P
7440-41-7	Beryllium	0.42	B		P
7440-43-9	Cadmium	2.00			P
7440-70-2	Calcium	5070.00		*	P
7440-47-3	Chromium	28.30		*	P
7440-48-4	Cobalt	9.10	B		P
7440-50-8	Copper	27.00			P
7439-89-6	Iron	17800.00			P
7439-92-1	Lead	29.60		*	F
7439-95-4	Magnesium	5610.00		*	P
7439-96-5	Manganese	728.00		*	P
7439-97-6	Mercury				NR
7440-02-0	Nickel	24.70			P
7440-09-7	Potassium	1590.00			P
7782-49-2	Selenium	3.90	U	W	F
7440-22-4	Silver	1.30	B		P
7440-23-5	Sodium	302.00	B		P
7440-28-0	Thallium	0.51	B		F
7440-62-2	Vanadium	40.20			P
7440-66-6	Zinc	290.00		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VD3

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-09S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13600.00		*	P
7440-36-0	Antimony	3.10	U	N	P
7440-38-2	Arsenic	5.60		*	F
7440-39-3	Barium	140.00			P
7440-41-7	Beryllium	0.55	B		P
7440-43-9	Cadmium	3.10			P
7440-70-2	Calcium	6520.00		*	P
7440-47-3	Chromium	34.10		*	P
7440-48-4	Cobalt	11.20			P
7440-50-8	Copper	34.30			P
7439-89-6	Iron	20400.00			P
7439-92-1	Lead	39.10		*	F
7439-95-4	Magnesium	7050.00		*	P
7439-96-5	Manganese	1040.00		*	P
7439-97-6	Mercury				NR
7440-02-0	Nickel	36.40			P
7440-09-7	Potassium	1990.00			P
7782-49-2	Selenium	0.77	U	MW	F
7440-22-4	Silver	1.90	B		P
7440-23-5	Sodium	339.00	B		P
7440-28-0	Thallium	0.61	B		F
7440-62-2	Vanadium	44.40			P
7440-66-6	Zinc	396.00		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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9713506.0476

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VD7

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-15S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11200.00		*	P
7440-36-0	Antimony	3.10	U	N	P
7440-38-2	Arsenic	4.90		*	F
7440-39-3	Barium	127.00			P
7440-41-7	Beryllium	0.49	B		P
7440-43-9	Cadmium	2.80			P
7440-70-2	Calcium	5810.00		*	P
7440-47-3	Chromium	29.90		*	P
7440-48-4	Cobalt	9.90			P
7440-50-8	Copper	29.70			P
7439-89-6	Iron	18600.00			P
7439-92-1	Lead	27.70		*	F
7439-95-4	Magnesium	6460.00		*	P
7439-96-5	Manganese	881.00		*	P
7439-97-6	Mercury				NR
7440-02-0	Nickel	27.40			P
7440-09-7	Potassium	1860.00			P
7782-49-2	Selenium	3.80	U	W	F
7440-22-4	Silver	1.50	B		P
7440-23-5	Sodium	296.00	B		P
7440-28-0	Thallium	0.55	B		F
7440-62-2	Vanadium	37.20			P
7440-66-6	Zinc	351.00		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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9213506.0977

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VD9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-07S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11600.00		*	P
7440-36-0	Antimony	3.60	B	N	P
7440-38-2	Arsenic	6.10		*	F
7440-39-3	Barium	101.00			P
7440-41-7	Beryllium	0.56	B		P
7440-43-9	Cadmium	2.10			P
7440-70-2	Calcium	9990.00		*	P
7440-47-3	Chromium	27.80		*	P
7440-48-4	Cobalt	8.60	B		P
7440-50-8	Copper	28.30			P
7439-89-6	Iron	17200.00			P
7439-92-1	Lead	32.00		*	F
7439-95-4	Magnesium	5490.00		*	P
7439-96-5	Manganese	681.00		*	P
7439-97-6	Mercury				NR
7440-02-0	Nickel	33.20			P
7440-09-7	Potassium	1770.00			P
7782-49-2	Selenium	0.78	U	W	F
7440-22-4	Silver	1.70	B		P
7440-23-5	Sodium	310.00	B		P
7440-28-0	Thallium	0.45	B		F
7440-62-2	Vanadium	39.00			P
7440-66-6	Zinc	289.00		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

9713506.0478

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

B00VF1

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-10S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10100.00		*	P
7440-36-0	Antimony	3.10	U	N	P
7440-38-2	Arsenic	4.80		*	F
7440-39-3	Barium	98.40			P
7440-41-7	Beryllium	0.47	B		P
7440-43-9	Cadmium	2.60			P
7440-70-2	Calcium	9840.00		*	P
7440-47-3	Chromium	21.90		*	P
7440-48-4	Cobalt	7.70	B		P
7440-50-8	Copper	27.30			P
7439-89-6	Iron	15100.00			P
7439-92-1	Lead	32.50		*	F
7439-95-4	Magnesium	5110.00		*	P
7439-96-5	Manganese	783.00		*	P
7439-97-6	Mercury				NR
7440-02-0	Nickel	27.10			P
7440-09-7	Potassium	1880.00			P
7782-49-2	Selenium	0.77	U	W	F
7440-22-4	Silver	1.40	B		P
7440-23-5	Sodium	261.00	B		P
7440-28-0	Thallium	0.47	B		F
7440-62-2	Vanadium	30.90			P
7440-66-6	Zinc	298.00		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9713506.0479

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VF3

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-12S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12200.00		*	P
7440-36-0	Antimony	3.00	U	N	P
7440-38-2	Arsenic	5.30		*	F
7440-39-3	Barium	112.00			P
7440-41-7	Beryllium	0.57	B		P
7440-43-9	Cadmium	3.40			P
7440-70-2	Calcium	10900.00		*	P
7440-47-3	Chromium	73.50		*	P
7440-48-4	Cobalt	9.50			P
7440-50-8	Copper	33.70			P
7439-89-6	Iron	19000.00			P
7439-92-1	Lead	40.40		*	F
7439-95-4	Magnesium	6030.00		*	P
7439-96-5	Manganese	798.00		*	P
7439-97-6	Mercury				NR
7440-02-0	Nickel	72.70			P
7440-09-7	Potassium	1920.00			P
7782-49-2	Selenium	0.75	U	W	F
7440-22-4	Silver	2.00			P
7440-23-5	Sodium	370.00	B		P
7440-28-0	Thallium	0.54	B		F
7440-62-2	Vanadium	37.40			P
7440-66-6	Zinc	374.00		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9713506.0480

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VF5

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-16S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9770.00		*	P
7440-36-0	Antimony	3.10	U	N	P
7440-38-2	Arsenic	4.40		*	F
7440-39-3	Barium	92.90			P
7440-41-7	Beryllium	0.50	B		P
7440-43-9	Cadmium	2.30			P
7440-70-2	Calcium	8410.00		*	P
7440-47-3	Chromium	24.20		*	P
7440-48-4	Cobalt	8.00	B		P
7440-50-8	Copper	26.00			P
7439-89-6	Iron	16100.00			P
7439-92-1	Lead	26.90		*	F
7439-95-4	Magnesium	5070.00		*	P
7439-96-5	Manganese	670.00		*	P
7439-97-6	Mercury				NR
7440-02-0	Nickel	31.60			P
7440-09-7	Potassium	1530.00			P
7782-49-2	Selenium	0.77	U	W	F
7440-22-4	Silver	1.40	B		P
7440-23-5	Sodium	339.00	B		P
7440-28-0	Thallium	0.38	B	W	F
7440-62-2	Vanadium	34.80			P
7440-66-6	Zinc	276.00		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9713506.0481

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VF7

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-11S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6850.00		*	P
7440-36-0	Antimony	3.00	U	N	P
7440-38-2	Arsenic	3.30		S*	F
7440-39-3	Barium	77.80			P
7440-41-7	Beryllium	0.24	B		P
7440-43-9	Cadmium	1.50			P
7440-70-2	Calcium	5660.00		*	P
7440-47-3	Chromium	21.70		*	P
7440-48-4	Cobalt	6.10	B		P
7440-50-8	Copper	23.70			P
7439-89-6	Iron	24100.00			P
7439-92-1	Lead	24.30		*	F
7439-95-4	Magnesium	4070.00		*	P
7439-96-5	Manganese	623.00		*	P
7439-97-6	Mercury				NR
7440-02-0	Nickel	38.50			P
7440-09-7	Potassium	2310.00			P
7782-49-2	Selenium	0.77	U	W	F
7440-22-4	Silver	2.30			P
7440-23-5	Sodium	525.00	B		P
7440-28-0	Thallium	0.38	B		F
7440-62-2	Vanadium	25.50			P
7440-66-6	Zinc	284.00		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9713506.0482

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VF9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-13S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5410.00		*	P
7440-36-0	Antimony	2.90	U	N	P
7440-38-2	Arsenic	2.80		*	F
7440-39-3	Barium	67.20			P
7440-41-7	Beryllium	0.21	B		P
7440-43-9	Cadmium	1.20			P
7440-70-2	Calcium	13700.00		*	P
7440-47-3	Chromium	24.70		*	P
7440-48-4	Cobalt	5.40	B		P
7440-50-8	Copper	23.70			P
7439-89-6	Iron	22400.00			P
7439-92-1	Lead	18.40		*	F
7439-95-4	Magnesium	3150.00		*	P
7439-96-5	Manganese	526.00		*	P
7439-97-6	Mercury				NR
7440-02-0	Nickel	104.00			P
7440-09-7	Potassium	1950.00			P
7782-49-2	Selenium	0.75	U	W	F
7440-22-4	Silver	2.00			P
7440-23-5	Sodium	533.00	B		P
7440-28-0	Thallium	0.37	B		F
7440-62-2	Vanadium	22.70			P
7440-66-6	Zinc	249.00		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9213506.0483

TMA
Thermo Analytical Inc.

TMA/Norcal
2030 Wright Avenue
P. O. Box 4040
Richmond, CA 94804-0040
(510) 235-2633 Fax No. (510) 235-0438

AUG 1992
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July 31, 1992

SENT BY FEDERAL EXPRESS

Ref. TMA/Norcal N1-12-164-7018

Mr. John Bourgeault
Westinghouse Hanford Company
2355 Stevens Drive
Richland, WA 99352

Dear Mr. Bourgeault:

Enclosed on the Summary Data Section, are the ^{90}Sr and gamma scan results for the samples from 100 Area Location, we received 10 December 1991. The QA/QC results are also given in the Summary Data Section.

Please call if you have any questions concerning this data.

Sincerely,

D. P. Kharkar

Dinkar P. Kharkar, Ph.D.
Manager, Nuclear Programs

Enclosures: Section 1 through 7
Appendices

9713506.0484

N112164-21

TMA NORCAL

REPORTING GROUP 7018

REPLICATE

B00VB9

SDG 7018
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

REPLICATE
Lab sample id N112164-21
Dept sample id 7018-021

ORIGINAL
Lab sample id N112164-01
Dept sample id 7018-001
Received

Client sample id B00VB9
Matrix BIOTA
Collected 09/10/91
Chain of custody id BNW #54139

PARAMETER	REPLICATE pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST	ORIGINAL pCi/G	2σ ERR (COUNT)	MDA pCi/G	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Strontium 90	0	1.5		2.0	U	Y	-0.32	1.9		U	-		
GAMMA SCAN ANALYTES													

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-REP
Version 2.14
Report date 07/31/92

9713506.0485

N112164-25

TMA NORCAL

REPORTING GROUP 7018

REPLICATE

B00VD7

SDG 7018
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

REPLICATE
Lab sample id N112164-25
Dept sample id 7018-025

ORIGINAL
Lab sample id N112164-15
Dept sample id 7018-015
Received

Client sample id B00VD7
Matrix BIOTA
Collected 09/10/91
Chain of custody id BNW #54139

PARAMETER	REPLICATE pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST	ORIGINAL pCi/G	2σ ERR (COUNT)	MDA pCi/G	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
GAMMA SCAN ANALYTES													
Potassium 40			25		U	GAM			24	U	-		
Chromium 51			8600		U	GAM			8000	U	-		
Cobalt 60			2.3		U	GAM			1.6	U	-		
Zinc 65			3.9		U	GAM			4.5	U	-		
Cesium 134			2.0		U	GAM			1.7	U	-		
Cesium 137			1.5		U	GAM			1.4	U	-		
Radium 226			1.8		U	GAM			2.4	U	-		
Thorium 228			3.7		U	GAM	2.1	1.5			55	217	
Thorium 232			5.8		U	GAM			5.4	U	-		

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-REP
Version 2.14
Report date 07/31/92

9713506.0486

N112164-26

TMA NORCAL

REPORTING GROUP 7018

REPLICATE

BOOVF5

SDG 7018
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

REPLICATE		ORIGINAL			
Lab sample id	N112164-26	Lab sample id	N112164-16	Client sample id	BOOVF5
Dept sample id	7018-026	Dept sample id	7018-016	Matrix	BIOTA
		Received		Collected	09/10/91
				Chain of custody id	BNW #54139

PARAMETER	REPLICATE pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST	ORIGINAL pCi/G	2σ ERR (COUNT)	MDA pCi/G	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
GAMMA SCAN ANALYTES													
Potassium 40	18	14				GAM			15	U	18	190	
Chromium 51			8700		U	GAM			7300	U	-		
Cobalt 60			1.9		U	GAM			1.5	U	-		
Zinc 65			7.0		U	GAM			4.7	U	-		
Cesium 134			1.4		U	GAM			1.5	U	-		
Cesium 137			1.4		U	GAM			1.2	U	-		
Radium 226			2.6		U	GAM			2.1	U	-		
Thorium 228			2.1		U	GAM			2.3	U	-		
Thorium 232			6.8		U	GAM			5.1	U	-		

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-REP
Version 2.14
Report date 07/31/92

9713506.0487

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-01

B00VB9

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-01	Client sample id	B00VB9
Dept sample id	7018-001	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	-0.32	1.9		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			72		U	GAM
Chromium 51	14392-02-0			19000		U	GAM
Cobalt 60	10198-40-0			4.6		U	GAM
Zinc 65	17982-39-3			17		U	GAM
Cesium 134	17967-70-9			5.1		U	GAM
Cesium 137	10045-97-3			3.5		U	GAM
Radium 226	13982-67-7			6.4		U	GAM
Thorium 228	14274-82-9			5.0		U	GAM
Thorium 232	7440-29-1			17		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0488

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-02

B00VC0

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-02	Client sample id	B00VC0
Dept sample id	7018-002	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	-0.13	0.85		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			52		U	GAM
Chromium 51	14392-02-0			15000		U	GAM
Cobalt 60	10198-40-0			3.4		U	GAM
Zinc 65	17982-39-3			15		U	GAM
Cesium 134	17967-70-9			3.6		U	GAM
Cesium 137	10045-97-3			3.1		U	GAM
Radium 226	13982-67-7			4.5		U	GAM
Thorium 228	14274-82-9			4.4		U	GAM
Thorium 232	7440-29-1			12		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0489

N112164-03

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

B00VC1

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-03	Client sample id	B00VC1
Dept sample id	7018-003	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	0.085	1.0		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			37		U	GAM
Chromium 51	14392-02-0			11000		U	GAM
Cobalt 60	10198-40-0			2.8		U	GAM
Zinc 65	17982-39-3			5.7		U	GAM
Cesium 134	17967-70-9			2.5		U	GAM
Cesium 137	10045-97-3			1.8		U	GAM
Radium 226	13982-67-7			4.0		U	GAM
Thorium 228	14274-82-9	2.4	2.3				GAM
Thorium 232	7440-29-1			7.8		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0490

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-11

B00VC2

SDG 7018
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N112164-11
Dept sample id 7018-011
Received

Client sample id B00VC2
Matrix BIOTA
Collected 09/10/91
Chain of custody id BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	0.89	1.2		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	18	6.9				GAM
Chromium 51	14392-02-0			4100		U	GAM
Cobalt 60	10198-40-0			1.1		U	GAM
Zinc 65	17982-39-3			2.1		U	GAM
Cesium 134	17967-70-9			0.66		U	GAM
Cesium 137	10045-97-3			0.75		U	GAM
Radium 226	13982-67-7			1.5		U	GAM
Thorium 228	14274-82-9	3.0	1.4				GAM
Thorium 232	7440-29-1			2.7		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.14
Report date 07/31/92

9713506.0491

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-04

B00VC3

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-04	Client sample id	B00VC3
Dept sample id	7018-004	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	0.081	0.21		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			23		U	GAM
Chromium 51	14392-02-0			5400		U	GAM
Cobalt 60	10198-40-0			1.6		U	GAM
Zinc 65	17982-39-3			6.3		U	GAM
Cesium 134	17967-70-9			1.5		U	GAM
Cesium 137	10045-97-3			1.1		U	GAM
Radium 226	13982-67-7	1.7	1.2				GAM
Thorium 228	14274-82-9	2.4	1.6				GAM
Thorium 232	7440-29-1			5.1		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0492

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-05

B00VC5

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-05	Client sample id	B00VC5
Dept sample id	7018-005	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	0.45	0.59		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			22		U	GAM
Chromium 51	14392-02-0			8100		U	GAM
Cobalt 60	10198-40-0			2.8		U	GAM
Zinc 65	17982-39-3			7.2		U	GAM
Cesium 134	17967-70-9			1.9		U	GAM
Cesium 137	10045-97-3			1.5		U	GAM
Radium 226	13982-67-7			2.7		U	GAM
Thorium 228	14274-82-9			3.0		U	GAM
Thorium 232	7440-29-1			5.8		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0493

N112164-09

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

B00VC9

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-09	Client sample id	B00VC9
Dept sample id	7018-009	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	0	1.9		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			55		U	GAM
Chromium 51	14392-02-0			17000		U	GAM
Cobalt 60	10198-40-0			5.0		U	GAM
Zinc 65	17982-39-3			22		U	GAM
Cesium 134	17967-70-9			3.3		U	GAM
Cesium 137	10045-97-3			2.5		U	GAM
Radium 226	13982-67-7			5.9		U	GAM
Thorium 228	14274-82-9	6.7	5.1				GAM
Thorium 232	7440-29-1			12		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0494

N112164-12

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

B00VD1

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-12	Client sample id	B00VD1
Dept sample id	7018-012	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	0.057	0.22		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			19		U	GAM
Chromium 51	14392-02-0			4800		U	GAM
Cobalt 60	10198-40-0			1.5		U	GAM
Zinc 65	17982-39-3			5.5		U	GAM
Cesium 134	17967-70-9			1.1		U	GAM
Cesium 137	10045-97-3			1.1		U	GAM
Radium 226	13982-67-7			1.9		U	GAM
Thorium 228	14274-82-9			2.2		U	GAM
Thorium 232	7440-29-1			4.5		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0495

N112164-06

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

B00VD3

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-06	Client sample id	B00VD3
Dept sample id	7018-006	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	1.3	2.3		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			54		U	GAM
Chromium 51	14392-02-0			16000		U	GAM
Cobalt 60	10198-40-0			4.2		U	GAM
Zinc 65	17982-39-3			12		U	GAM
Cesium 134	17967-70-9			4.2		U	GAM
Cesium 137	10045-97-3			2.8		U	GAM
Radium 226	13982-67-7			5.0		U	GAM
Thorium 228	14274-82-9			4.9		U	GAM
Thorium 232	7440-29-1			12		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0496

N112164-15

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

B00VD7

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-15	Client sample id	B00VD7
Dept sample id	7018-015	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	-0.88	1.8		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			24		U	GAM
Chromium 51	14392-02-0			8000		U	GAM
Cobalt 60	10198-40-0			1.6		U	GAM
Zinc 65	17982-39-3			4.5		U	GAM
Cesium 134	17967-70-9			1.7		U	GAM
Cesium 137	10045-97-3			1.4		U	GAM
Radium 226	13982-67-7			2.4		U	GAM
Thorium 228	14274-82-9	2.1	1.5				GAM
Thorium 232	7440-29-1			5.4		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0497

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-13

B00VD9

SDG 7018
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N112164-13
Dept sample id 7018-013
Received

Client sample id B00VD9
Matrix BIOTA
Collected 09/10/91
Chain of custody id BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	0.047	0.26		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			30		U	GAM
Chromium 51	14392-02-0			10000		U	GAM
Cobalt 60	10198-40-0			2.3		U	GAM
Zinc 65	17982-39-3			7.9		U	GAM
Cesium 134	17967-70-9			2.4		U	GAM
Cesium 137	10045-97-3			1.5		U	GAM
Radium 226	13982-67-7			3.1		U	GAM
Thorium 228	14274-82-9			2.7		U	GAM
Thorium 232	7440-29-1			7.4		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.14
Report date 07/31/92

9713506.0498

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-14

B00VF1

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-14	Client sample id	B00VF1
Dept sample id	7018-014	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	-0.13	0.30		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	32	15				GAM
Chromium 51	14392-02-0			5800		U	GAM
Cobalt 60	10198-40-0			2.3		U	GAM
Zinc 65	17982-39-3			5.3		U	GAM
Cesium 134	17967-70-9			1.5		U	GAM
Cesium 137	10045-97-3			1.1		U	GAM
Radium 226	13982-67-7	1.6	1.1				GAM
Thorium 228	14274-82-9			2.0		U	GAM
Thorium 232	7440-29-1			4.4		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0499

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-07

BOOVF3

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-07	Client sample id	BOOVF3
Dept sample id	7018-007	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	0.069	0.29		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			28		U	GAM
Chromium 51	14392-02-0			9800		U	GAM
Cobalt 60	10198-40-0	2.2	1.5				GAM
Zinc 65	17982-39-3			9.2		U	GAM
Cesium 134	17967-70-9			2.4		U	GAM
Cesium 137	10045-97-3			1.8		U	GAM
Radium 226	13982-67-7			3.1		U	GAM
Thorium 228	14274-82-9			3.7		U	GAM
Thorium 232	7440-29-1			7.9		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0500

N112164-16

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

B00VF5

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-16	Client sample id	B00VF5
Dept sample id	7018-016	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	-0.13	1.7		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			15		U	GAM
Chromium 51	14392-02-0			7300		U	GAM
Cobalt 60	10198-40-0			1.5		U	GAM
Zinc 65	17982-39-3			4.7		U	GAM
Cesium 134	17967-70-9			1.5		U	GAM
Cesium 137	10045-97-3			1.2		U	GAM
Radium 226	13982-67-7			2.1		U	GAM
Thorium 228	14274-82-9			2.3		U	GAM
Thorium 232	7440-29-1			5.1		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0501

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-10

B00VF7

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-10	Client sample id	B00VF7
Dept sample id	7018-010	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	0.57	0.28		2.0	J	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			23		U	GAM
Chromium 51	14392-02-0			8000		U	GAM
Cobalt 60	10198-40-0			1.9		U	GAM
Zinc 65	17982-39-3			7.1		U	GAM
Cesium 134	17967-70-9			1.6		U	GAM
Cesium 137	10045-97-3			1.4		U	GAM
Radium 226	13982-67-7			2.7		U	GAM
Thorium 228	14274-82-9			2.3		U	GAM
Thorium 232	7440-29-1			6.4		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0502

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-08

B00VF9

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-08	Client sample id	B00VF9
Dept sample id	7018-008	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	-0.12	0.39		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			31		U	GAM
Chromium 51	14392-02-0			9200		U	GAM
Cobalt 60	10198-40-0			2.2		U	GAM
Zinc 65	17982-39-3			8.7		U	GAM
Cesium 134	17967-70-9			2.4		U	GAM
Cesium 137	10045-97-3			1.6		U	GAM
Radium 226	13982-67-7			2.8		U	GAM
Thorium 228	14274-82-9			2.6		U	GAM
Thorium 232	7440-29-1			5.8		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

SDG 7018 Contact Dinkar P. Kharkar	Client Westinghouse Hanford Contract MBH-SVV-069262

CASE NARRATIVE

1.0 GENERAL

Biota samples from Location 100 Area (TMA/Norcal Group 7018) are reported herein. TMA/Norcal Group 7018 is comprised of the sixteen samples listed on the Chain-of-Custody documents and are identified as Samples 1 through 16.

1.1 CHAINS-OF-CUSTODY

This report includes data from the samples delivered under Chain-of-Custody documents Field Logbook No. BNW No. 54139.

1.2 SAMPLE VOLUME

A (4 - 20) gram of each sample was received for the analyses.

1.3 MISSING SAMPLES

All samples were accounted for and there was no damaged samples.

1.4 HOLDING TIMES

All collections were made on 10 September 1991 and all sample processing was initiated within 180 days of collection.

2.0 QUALITY CONTROL

The internal quality control consisted of one sample each of a laboratory control, a blank, and a replicate. All original analyses were performed with QC samples 7018-17, 19, 21, 23 through 26.

The QC samples were prepared and labelled by the quality control officer. Copies of The QC notebook pages are included in the data package.

2.1 LABORATORY CONTROL SAMPLES

The laboratory control sample results for ^{90}Sr and gamma scan were satisfactory. No abnormalities were encountered. There were within 3 σ control level.

2.2 BLANKS

MDA's for all the analyses meet the RDL requirements.

SDG 7018 Contact Dinkar P. Kharkar	Client Westinghouse Hanford Contract MBH-SVV-069262

CASE NARRATIVE

2.3 REPLICATES

Results were satisfactory for all replicate analyses.

3.0 ANALYTICAL NOTES

3.1 Strontium-90 Analyses: The average yield for sixteen analyses was 69%. The lowest yield was 53% and the highest was 79%.

3.2 Gamma Scan Analyses: All of the gamma scan results were MDA's except that positive ^{228}Th was found in sample numbers 3, 4, 9, 11, and 15, positive ^{226}Ra was found for sample numbers 4 and 14, positive ^{40}K for sample numbrs 11 and 14, and a positive ^{60}Co for sample number 7.

Westinghouse Hanford Company

9713506.0505

CHAIN OF CUSTODY

1 OF 1

Custody Form Initiator NA. CADORET

Company Contact NA CADORET

Telephone 376-8107

Project Designation/Sampling Locations 100 AREA BIOTA / 100-HR-3 + 100-NR-1

Collection Date 9-10/91

Ice Chest No. PNL-CEC-1

Field Logbook No. BNW #54139

Bill of Lading/Airbill No. 248521800

Offsite Property No. 92-282

Method of Shipment AIR

Shipped to TMA/NORCAL, RICHMOND, CA

Possible Sample Hazards/Remarks N/A.

Sample Identification

B00VB9	B00VF7
B00VC0	B00VF3
B00VC1	B00VF9
B00VC2	B00VC9
B00VC3	B00VD7
B00VD1	B00VF5
B00VD9	
B00VC5	
B00VD3	
B00VF1	

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
NA CADORET 12/6/91	Kermit Blum	12-10-91 1100
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

50

A-6000-407 (12/90)

9713506.0506

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

1 OF 1

PART I: FIELD SECTION

Collector NA CADORET Date Sampled 9-10/91 Time N/A hours

Company Contact NA CADORET Telephone (509) 376-8107

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B00VC2	1 - glass	Periphyton/dried	TAL metals, gamma spec, + SR90
B00VD1			
B00VD9			
B00VF1			
B00VD7			
B00VF5			
B00VB9	1 - glass	Periphyton	GAMMA SPEC + SR90 - THEN
B00VC0			TAL METALS IF SUFFICIENT
B00VC1			SAMPLE
B00VC3			
B00VC5		CADDIS FLY LARVAE; DRIED	
B00VD3		Periphyton	
B00VF3			
B00VF9		CADDIS FLY LARVAE	
B00VC9			
B00VF7		caddis fly larvae	

Field Information** 100-AREA BIOTA, 100-HR-3 + 100-NR-1

Special Handling and/or Storage N/A.

Possible Sample Hazards NONE DETECTED.

PART II: LABORATORY SECTION

Received by Kermit Blum Title Sample Control Supervisor Date 12-10-91

Analysis Required

*Indicate whether sample is soil, sludge, water, etc.

**Use back of page for additional information relative to sample location.

A-6000-406 (05/90)

51

OVERNIGHT DELIVERY 9713506.0507

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
PNL		92-282

PART I – TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
Environmental Sciences	Ecol. Resources & Assessment	Applied Ecology

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

Routing Air ☒ Contractor ☐ Vendor

Shipped to
TMA/NORCAL
2030 Wright Avenue
Richmond, CA 94804

Off-site Custodian
Robert Fox

Full Title
Project Coordinator

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 17½ lb. 18	#PNL-CEC-1 POOY COOLER. CONTAINS PERIPHYTON AND MACRO-INVERTEBRATE SAMPLES THAT ARE DOUBLE-BAGGED AND PACKED IN ~~VERMICULITE~~ BUBBLE WRAP. SAMPLES ARE NON HAZARDOUS. SAMPLE NUMBERS: B00VB9, B00VC0, B00VC1, B00VC2, B00VC3, B00VD1, B00VD9, B00VC5, B00VD3, B00VF1, B00VF7, B00VF3, B00VF9, B00VC9, B00VD7, B00VF5	NA

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

Necessity for the Off-Site Use of this Property

To support 100-HR-3 & 100-NR-1 Investigations.

BILL OF LADING # 248 521 800 T

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
M T Sawyer	910771	12/6/91

Location of Property (Area & Bldg.)	Contact	Phone
300 Area	NA Cadoret	6-8107

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
12-05-91	M63953 D7D83	12-20-91

Originated By	Date	Authorized By	Date
NA Cadoret	12-04-91	HE Westerdahl	12/5/91
Signature and Name of Property Control	Custodian Date	Property Management Approval	Date

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
Date 12-6-91				

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

5

54-3000-479 (09/89)

Overnight Delivery 9713506.0508

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
PNL		92-286

PART I – TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
Environmental Sciences	Ecol. Resources & Assessment	Applied ecology

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

Routing ☒ Contractor ☐ Vendor

Shipped to	Off-site Custodian
TMA/NORCAL 2030 Wright Avenue Richmond, CA 94804	Robert Fox
	Full Title: Project Coordinator

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
84 NC 12/9/91 CAB6 - 3216 CAB9 - 2616 CAD8 - 3316 CAD9 - 3316	Poly Coolers #CAB-6, CAB-7 and CAB-8 and CAB-9 Contains fresh frozen plant samples that are double-bagged and packed with wet ice and vermiculite. Samples are non hazardous. See ~~three~~ four attached sheets for sample numbers. NC 12/9/91	NA

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

Necessity for the Off-Site Use of this Property

To support 300-FF-5, Task 7 Investigations.

Bill of Lading # 248521798 8

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
Fred L De Coria	200464	Dec 9-1991

Location of Property (Area & Bldg.)	Contact	Phone
3000-LSL II	NA Cadoret	376-8107

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
12-09-91	Org. Code D7D83/PC 2FA	Coolers Only 12-30-91

Originated By	Date	Authorized By	Date
Relinquished by: NA Cadoret	12/9/91	HE Westerdahl	12/5/91

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
Date 12-9-91				

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

53

54-3000-479 (09/89)

PLEASE TYPE OR USE BALL POINT PEN. BEAR DOWN FIRMLY! KEEP MARKS WITHIN BOXES TO ASSURE ACCURACY

FORM OF PAYMENT

Check ☐ GBL ☐ FCCOD ☐

Bill to Shipper [XX] Bill to Consignee ☐ Third Party Billing ☐

EMERY WORLDWIDE — A CF Company

SERVICES

UNITED STATES / CANADA: Same Day ☐ AM [XX] PM ☐ Second Day ☐ Saturday Delivery ☐

INTERNATIONAL: Express ☐ Preferred ☐ Standard ☐ Business Documents ☐ Customs Clearance ☐ Delivery ☐

PULL FOR SHPT. NO. TAB

Shipper's Account Number: E 850282294

Date: 12-09-91 Origin: PSC Shipment Number: 248521798 8

From:
WESTINGHOUSE SHIPPING DEPT (509) 376-6665
US DEPARTMENT OF ENERGY C/O
BATTELLE NORTHWEST
BLDG 1163
2355 STEVENS DRIVE
RICHLAND WA Canada ☐

To:
ROBERT FOX
TMA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA Canada ☐
Hold for Pick Up ☐

Tariff Dest. | Gateway

Charges to Shipper $

EMERY WORLDWIDE will accept Consignee's check with all risks being assumed by Shipper, including but not limited to non-payment, fraud and misrepresentation.

Customer's Reference Numbers: D7D83 PC2FA PNL 92-286

Zip: 99352

Consignee's Account Number: E 94804

Description	Pcs.	L	W	H	Total Pieces	Total Weight (In Lbs.)
4 COOLERS #CAB-6,7,8,9, PLANT SAMPLES PNL 92-286	4				4	286

FOR INFORMATION OR RATES CALL 1-800 44 EMERY (1-800-443-6379)

Declared Value $

Remarks: OVERNIGHT DELIVERY

Shipper's Signature X J. Bennett 12/9/91

Zip Ship ☐
For shipments within the 50 United States Shipper has the option to check this box and, by checking, agrees that the Zip Ship conditions, described in the area to the right, apply.

Mark if Emery Packaging is used
Urgent Letter 9X12 [X] Urgent Pack 12X15 [X]

248521798 8

International Shipments: Free Domicile ☐ Commodity Code

Third Party Account Number mandatory for Third Party Billing. Third Party Account Number: E

International Customs Value | International Insurance

Base Charge

Total Transportation Charges

Other Charges/Advance at Origin ☐ OC/AO- $

1 OAK A

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54

FORM OF PAYMENT

Check ☐ GBL ☐ FCCOD ☐

Bill to Shipper ☐ Bill to Consignee ☐ Third Party Billing ☐

EMERY WORLDWIDE — A CF Company

SERVICES

UNITED STATES / CANADA: Same Day ☐; XX AM ☐ PM ☐; Second Day ☐ Saturday Delivery ☐

INTERNATIONAL: Express ☐ Business Documents ☐; Preferred ☐ Customs Clearance ☐; Standard ☐ Delivery ☐

PULL FOR SHPT. NO. TAB

Shipper's Account Number: E 850282294

Date: 12-06-91 | Origin: PSC | Shipment Number: 248521800 T

From:
WESTINGHOUSE SHIPPING DEPT (509) 376-6665
US DEPARTMENT OF ENERGY C/O
BATTELLE NORTHWEST
BLDG 1163
2355 STEVENS DRIVE
RICHLAND WA
Canada ☐

To:
ROBERT FOX
TMA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA
Hold for Pick Up ☐ Canada ☐

Tariff Dest. | Gateway

Check to Shipper $

EMERY WORLDWIDE will accept Consignee's check with all risks being assumed by Shipper, including but not limited to non-payment, fraud and misrepresentation.

Customer's Reference Numbers: D7D83 M63953 PNL 92-282 | Zip: 99352

E Consignee's Account Number | Zip: 94804

Description	Pcs.	L	W	H	Total Pieces	Total Weight (In Lbs.)
1 PNL-CEC-1 POLYCOOLER SAMPLES PNL 92-282	1	27	16	11	1	18

FOR INFORMATION OR RATES CALL 1-800 44 EMERY (1-800-443-6379)

Declared Value $

248521800T

Remarks: OVERNIGHT DELIVERY

Shipper's Signature X 12/4/91

Zip Ship ☐ For shipments within the 50 United States Shipper has the option to check this box and, by checking, agrees that the Zip Ship conditions, described in the area to the right, apply.

Mark if Emery Packaging is used: Urgent Letter 9X12 ☒; Urgent Pack 12X15 ☒

International Shipments: Free Domicile ☐; Commodity Code

Third Party Account Number mandatory for Third Party Billing. E Third Party Account Number

International Customs Value | International Insurance

Base Charge

Total Transportation Charges | Other Charges/Advance at Origin ☐ OC/AO- $

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FORM NO. 60001-4B

55

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VALIDATION SUMMARY

Validation Narrative - SDG: B00VB9

1. INTRODUCTION

This report presents the results of inorganic data validation on the following sample delivery group and sample numbers which were analyzed by the Thermo Analytical, Inc. - Richmond, CA laboratory. The HEIS sample numbers associated with this group by SDG are listed below:

Data Package ID	HEIS Sample Numbers		Matrix
SDG: B00VB9	B00VB9	B00VD3	Soil
	B00VC0	B00VD7	Soil
	B00VC1	B00VD9	Soil
	B00VC2	B00VF1	Soil
	B00VC3	B00VF3	Soil
	B00VC5	B00VF5	Soil
	B00VC9	B00VF7	Soil
	B00VD1	B00VF9	Soil

Sample identifications, locations and sample dates are provided in the tabular data summary sheets. Data validation was conducted in accordance with the Westinghouse Hanford Company statement of work (WHC 1991) and validation procedures (WHC 1992). The data validation procedure is a review of laboratory performance and implementation of applicable protocols. Subsequent technical data evaluation by project lead personnel should include a determination of the appropriateness of results from a standpoint of past history and present knowledge of the sample site.

2. DATA QUALITY OBJECTIVES

Completeness

The data package was complete for all requested analyses and met the data quality objectives of the work plan. Data quality objectives for the project specified the use of CLP methods for the TAL metals analytes.

Data Qualification

The data package contains antimony results which were qualified as rejected (R). The rest of the data is acceptable and useable given the attached qualifiers.

3. QUALIFIED DATA

This section presents a summary of the qualifications required based on validation of the subject data package (See Data Qualification Summary - Form B - 8).

3.1 Major Deficiencies

Matrix spike recoveries for antimony were out of control limits causing some results to be rejected.

3.2 Minor Deficiencies

The following qualifications were required as a result of the validation.

- Recommended holding times for all analyses and samples were exceeded. Thus, all results have been qualified as estimated (UJ for non-detects) except those which have been further qualified for various reasons as noted below.

- Aluminum, antimony, arsenic, calcium, iron, magnesium, manganese, and selenium were detected in the laboratory and/or preparation blanks above their IDL. Antimony was detected in various samples at concentrations less than five times the highest concentrations found in the blanks and have been qualified as non-detects (U).

- Matrix spike sample recovery of antimony exceeded control limits; it was low. Results have been qualified as rejected (R) when % recoveries were < 30 and concentrations were < IDL. Results have been qualified as estimated (J) when % recoveries < 30 and concentrations were > IDL.

- Duplicate analyses for calcium, lead and zinc were out of control limits. Results have been qualified as estimated.

- Analytical spike recovery of selenium and thallium exceeded control limits, therefore the results have been qualified as estimated (UJ for non-detects).

4. CONCLUSION

The results contained in this report are acceptable for use except for those which have been rejected.

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

PROJECT: 100 A BIOTA	REVIEWER: RCS	DATE: 11/19/92
LABORATORY: TMA	CASE: N1-12-087	SDG: B00VB9
SAMPLES/MATRIX: B00VB9, B00VC0, B00VC1, B00VC2, B00VC3, B00VC5, B00VC9, B00VD1, B00VD3, B00VD7, B00VD9, B00VF1, B00VF3, B00VF5, B00VF7, B00VF9		
ALL SOIL PERIPHYTON; CADDIS FLY LARVAE		

1. COMPLETENESS AND CONTRACT COMPLIANCE

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	✓	—	—
Cover Page	✓	—	—
Traffic Reports	✓	—	—
Sample Data			
Inorganic Analysis Data Sheets	✓	—	—
Standards Data			
Initial and Continuing Calibration Verification	✓	—	—
CRDL Standard for AA and ICP	✓	—	—
QC Summary			
Blanks	✓	—	—
ICP Interference Check Summary	✓	—	—
Spike Sample Recovery	✓	—	—
Post-Digestion Spike Sample Recovery	✓	—	—
Duplicate	✓	—	—
Laboratory Control Sample	✓	—	—
Standard Addition Results	✓	—	—
ICP Serial Dilutions	—	—	—
Instrument Detection Limits	✓	—	—
ICP Interelement Correction Factors	✓	—	—
ICP Linear Ranges	✓	—	—
Preparation Log	✓	—	—
Analysis Run Log	✓	—	—
Raw Data			
ICP Raw Data	✓	—	—
Furnace AA Raw Data	✓	—	—
Mercury Raw Data	—	—	✓
Cyanide Raw Data	—	—	✓
Additional Data			
Internal laboratory chain-of-custody	RCS 11/18 ✗	—	✓
Laboratory Sample Preparation Records	✓	—	—

Data Package Item	Present?: Yes	No	N/A
Percent Solids Analysis Records	✓		
Reduction Formulae		✓	
Instrument Run Logs	✓		
Chemist Notebook Pages		✓	

2. HOLDING TIMES

Have all samples been analyzed within holding times? Yes **(No)** N/A

ACTION: If any holding times have been exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used? **(Yes)** No N/A

Are the correlation coefficients ≥0.995? **(Yes)** No N/A

Was a midrange cyanide standard distilled? Yes No **(N/A)**

ACTION: Qualify all data as unusable if reported from an analysis in which an instrument was not calibrated or was calibrated with less than the minimum number of standards. Qualify associated sample results > IDL as estimated (J) and results < IDL as estimated (UJ), if the correlation coefficient is <0.995 or the laboratory did not distill the midrange cyanide standard.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Are ICV and CCV percent recoveries within control? **(Yes)** No N/A

Are there calculation errors? Yes **(No)** N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

5. ICP INTERFERENCE CHECK SAMPLE

Has an ICS sample been analyzed at the proper frequency? **(Yes)** No N/A

Are the AB solution %R values within control? **(Yes)** No N/A

Are there calculation errors? Yes **(No)** N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

* EVALUATION OF FALSE POSITIVES AND FALSE NEGATIVES SHOWED NO PROBLEMS.

6. LABORATORY BLANKS

Are target analytes present in the laboratory blanks? Yes No N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U). If analyte concentrations in the blank are >CRDL or below the negative CRDL, verify the laboratory has redigested and reanalyzed associated samples with analyte concentrations <10 times the blank concentration. If the laboratory has not redigested and reanalyzed the samples, note in the validation narrative.

7. FIELD BLANKS

Are target analytes present in the field blanks? Yes No N/A

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U). * No field blanks identified in data delivery groups.

8. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the control limits? Yes No N/A

ACTION: Qualify the affected sample data according to the following requirements:

If spike recovery is >125% and sample results are <IDL no qualification is required. If spike recovery is >125% or <75% qualify all positive results as estimated (J). If spike recovery is 30% to 74% qualify all nondetects as estimated (UJ). If spike recovery is <30%, reject all nondetects (R). If the field blank has been used for spike analysis, note in the validation narrative.

9. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the sample data according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or >120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS result is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

10. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample analyses in the data validation narrative.

* No performance audit samples were identified in the sample delivery group.

11. DUPLICATE SAMPLE ANALYSIS

Are RPD values acceptable? Yes No N/A

ACTION: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD results fall outside the appropriate control limits. If field blanks were used for laboratory duplicates, note in the validation narrative.

12. ICP SERIAL DILUTION

Are the serial dilution results acceptable? Yes No N/A

Is there evidence of negative interference? Yes No N/A

ACTION: Qualify the associated data as estimated (J) for those analytes in which the %D is outside the control limits. If evidence of negative interference is found, use professional judgment to qualify the data.

NEITHER WERE IDENTIFIED IN DATA DELIVERY GROUP

13. FIELD DUPLICATE SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

14. FIELD SPLIT SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

1516. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

40% RCS

Do all applicable analyses have duplicate injections? Yes No N/A

Are applicable duplicate injection RSD values within control? Yes ~~No~~ RCS N/A

If no, were samples rerun once as required? Yes RCS No N/A

HSA RCS 75% accuracy

Does the RSD for the rerun fall within the control limits? Yes No N/A

Were analytical spike recoveries within the control limits? Yes No N/A

If no, were MSA analyses performed when required? Yes No N/A

Are MSA correlation coefficients ≥0.995? RCS ~~Yes~~ No N/A

If no, was a second MSA analysis performed? Yes No ~~N/A~~ RCS

ACTION: If duplicate injections are outside the acceptance limits and the sample has not been reanalyzed or the reanalysis is outside the acceptance limits, qualify the associated data as estimated (J for detects and UJ for nondetects). If the analytical spike recovery is <40% qualify detects as estimated (J). If the analytical spike recovery is ≥10% but <40%, qualify all nondetects as estimated (UJ) and if the analytical spike recovery is <10%, reject all nondetects (R). If the sample absorbance is <50% of the analytical spike absorbance and the analytical spike recovery is <85% or >115%, qualify all results as estimated (J for detects and UJ for nondetects). If method of standard additions (MSA) was required but was not performed, the MSA samples were spiked incorrectly, or the MSA correllation coefficient was <0.995, qualify the associated detected results as estimated (J).

* MSA correllation coefficient for B00VC5 was < 0.995. Qualified results as J.

17. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly? Yes No N/A

Are results within the calibrated range of the instruments and within the linear range of the ICP? Yes No N/A

Are all detection limits below the CRQL? Yes No N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

18. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW? Yes No N/A

Were project specific data quality objectives met for this analysis? Yes No N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

HOLDING TIME SUMMARY - FORM B-1

SDG: B00VB9 REVIEWER: RC Smith DATE: 11/19/92 PAGE 1 OF 1

FIELD SAMPLE IDENT.	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
ALL	ICP METALS	9/10/92	6/23/92	6/24/92	287	288	J/UJ
ALL	AA METALS	9/10/91	6/23/92	6/24-26/92	287	290	J/UJ

COMMENTS: Recommended holding times for all metals were exceeded. Times were exceeded prior to shipment to lab. Lab received samples on 5/27/92.

ACTION: Qualify all results as estimated (J for detects, UJ for non-detects).

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CALIBRATION DATA SUMMARY - FORM B-2

SDG: B00VB9	REVIEWER: RC Smith	DATE: 11/20/92	PAGE 1 OF 1

INSTRUMENT:

CALIB. TYPE	CALIB. DATE	ANALYTE/COMPOUND	RF	RSD/%D/%R	SAMPLE(S) AFFECTED	QUALIFIER

COMMENTS: Instruments were calibrated as required. The necessary blanks and standards were used. All percent recoveries were within control limits.

ACTION: No action required.

9713506.0521

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: B00VB9 | REVIEWER: RC Smith | DATE: 11/20/92 | PAGE 1 OF 1

CALIB. TYPE/SAMPLE IDENT.	ANALYTE/COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLE(S) AFFECTED	QUALIFIER
PREP BLANK	ALUMINUM	5.246	B	NA	MG/KG	26.23	NA	NONE	
ICB	ANTIMONY	3.56	B	NA		17.8		B00VC0	u
								B00VC1	u
								B00VC2	u
		11/20/92 RCS						B00VD9	u
CCB2	ARSENIC	~~3.0~~ -6				3.0		NONE	
PREP BLANK	CALCIUM	9.778				48.89		NONE	
PREP BLANK	IRON	5.014				25.07		NONE	
CCB1	MAGNESIUM	6.12				30.6		NONE	
CCB2	MANGANESE	.5				2.5		NONE	
CCB2	SELENIUM	.96				4.8		NONE	

COMMENTS: Contaminants detected in blanks above their IDL: aluminum, antimony, arsenic, calcium, iron, magnesium, manganese, & selenium.

ACTION: Qualify all the above analytes > their IDL but less than 5 times the largest concentration in any blank as undetected.

9713506.0522

ACCURACY DATA SUMMARY - FORM B-4
MATRIX SPIKE RECOVERY AND LCS RECOVERY

SDG: B00VB9	REVIEWER: RC Smith	DATE: 11/20/92	PAGE 1 OF 1	
SAMPLE IDENT.	ANALYTE/COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER
LCS				

COMMENTS: All LCS results fell within the published control limits.

ACTION: No action necessary.

9713506.0523

ACCURACY DATA SUMMARY - FORM B-4
MATRIX SPIKE RECOVERY AND LCS RECOVERY

SDG: B00VB9	REVIEWER: RCSmith	DATE: 11/23/92	PAGE 1 OF 1	
SAMPLE IDENT.	**ANALYTE/COMPOUND**	**% RECOVERY**	**SAMPLE(S) AFFECTED**	**QUALIFIER**
MATRIX SPIKE	ANTIMONY	21.4	B00VB9	R
			B00VC0	J
			B00VC1	J
			B00VC2	J
			B00VC3	R
			B00VC5	R
			B00VC9	R
			B00VD1	R
			B00VD3	R
			B00VD7	R
			B00VD9	J
			B00VF1	R
			B00VF3	R
			B00VF5	R
			B00VF7	R
			B00VF9	R

COMMENTS: Antimony matrix spike recovery exceeded control limits

ACTION: Qualify all results < 30% and < IDL as rejected (R) and those > IDL as estimated (J).

9713506.0524

PRECISION DATA SUMMARY - FORM B-5

SDG: B00VB9	REVIEWER: RC Smith	DATE: 11/23/92		PAGE 1 OF 1	
ANALYTE/COMPOUND	SAMPLE IDENT.	SAMPLE IDENT.	RPD	SAMPLE(S) AFFECTED	QUALIFIER
CALCIUM	Duplicates		98.2	All	J
LEAD	↓		61.1	↓	↓
ZINC	↓		31.7	↓	↓

COMMENTS: Duplicate analytes for calcium, lead & zinc were out of limits.

ACTION: Qualify affected samples as estimated (J).

97135506.0525

PRECISION AND ACCURACY DATA SUMMARY - FORM B-6
GFAA ANALYTICAL SPIKE RECOVERY

SDG: B00VB9	REVIEWER: RC Smith	DATE: 11/23/92	PAGE 1 OF 1	
SAMPLE IDENT.	**ANALYTE/COMPOUND**	**% RECOVERY**	**SAMPLE(S) AFFECTED**	**QUALIFIER**
ANALYTICAL SPIKE	SELENIUM	76.1	B00VB9	UJ
		72.3	B00VC0	
		72.3	B00VD7	
		74.8	B00VD1	
		78.7	B00VC3	
		76.1	B00VC1	
		48.1	B00VF9	
		54.4	B00VF7	
		63.4	B00VD3	
		40.6	B00VD9	
		40.6	B00VF5	
		45.6	B00VC9	
		57	B00VF3	
		59.5	B00VF1	
		63.3	B00VC5	
	THALLIUM	83	B00VC9	J
		80.5	B00VF3	J

COMMENTS: ~~ARSENIC~~ RCS ~~ARSENIC~~ Percent recoveries for thallium & selenium were outside limits. ~~B00VC5~~

ACTION: All results ~~> 107 and <~~ < 85% and > IDL qualified as J.
All results < 85% and < IDL qualified as UJ.

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9713506.0527

CALCULATION SUMMARY - FORM B-7

SDG: 300VB9	REVIEWER: RCSmith	DATE: 11/24/92	PAGE 1 OF 1

COMMENTS:

ACTION:

9713506.0528

DATA QUALIFICATION SUMMARY - FORM B-8

SDG: B00VB9	REVIEWER: RCA	DATE: 11/24/92	PAGE 1 OF 2
ANALYTE/ COMPOUND	**QUALIFIER**	**SAMPLES AFFECTED**	**REASON**
ICP METALS	J/UJ	All	HOLDING TIMES EXCEEDED
AA METALS	J/UJ	All	↓
ANTIMONY ALUMINUM ICS	U	B00VC0	CONTAMINANTS IN BLANKS
↓	↓	B00VC1	
		B00VC2	
	↓	B00VD9	
	R	B00VB9	MATRIX SPIKE RECOVERY OUT OF LIMITS
	R	B00VC3	↓
	R	B00VC5	
	R	B00VC9	
	R	B00VD1	
	R	B00VD3	
	R	B00VD7	
	R	B00VF1	
	R	B00VF3	
	R	B00VF5	
	R	B00VF7	
↓	R	B00VF9	↓
CALCIUM	J	All	Duplicate RPD results OUTSIDE LIMITS
LEAD	J	All	↓
ZINC	J	All	↓
SELENIUM	UJ	B00VB9	ANALYTICAL SPIKES OUTSIDE LIMITS
↓	↓	B00VC0	↓
		B00VD7	
		B00VD1	
		B00VC3	
↓	↓	B00VC1	

9713506.0529

DATA QUALIFICATION SUMMARY - FORM B-8

SDG: B00VB9	REVIEWER: RCS	DATE: 11/24/92	PAGE 2 OF 2
ANALYTE/ COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
SELENIUM	UJ	B00VF9	ANALYTICAL SPIKE RECOVERY OUT OF LIMIT
		B00VF7	
		B00VD3	
		B00VD9	
		B00VF5	
		B00VC9	
		B00VF3	
		B00VF1	
		B00VC5	
THALLIUM	J	B00VC9	
		B00VF3	

9713506.0530

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VB9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-01S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	7370.00		*	P	J
7440-36-0	Antimony	3.20	U	N	P	R
7440-38-2	Arsenic	5.20		S*	F	J
7440-39-3	Barium	93.10			P	J
7440-41-7	Beryllium	0.34	B		P	J
7440-43-9	Cadmium	1.40			P	J
7440-70-2	Calcium	5110.00		*	P	J
7440-47-3	Chromium	24.20		*	P	J
7440-48-4	Cobalt	8.60	B		P	J
7440-50-8	Copper	28.70			P	J
7439-89-6	Iron	16100.00			P	J
7439-92-1	Lead	29.80		*	F	J
7439-95-4	Magnesium	4310.00		*	P	J
7439-96-5	Manganese	794.00		*	P	J
7439-97-6	Mercury				NR	
7440-02-0	Nickel	21.70			P	J
7440-09-7	Potassium	942.00	B		P	J
7782-49-2	Selenium	4.00	U	W	F	UJ
7440-22-4	Silver	1.30	B		P	J
7440-23-5	Sodium	445.00	B		P	J
7440-28-0	Thallium	0.61	B		F	J
7440-62-2	Vanadium	32.20			P	J
7440-66-6	Zinc	233.00		*	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9713506.0531

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VC0

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-02S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	11500.00		*	P	J
7440-36-0	Antimony	6.60	B	N	P	U
7440-38-2	Arsenic	3.10		*	F	J
7440-39-3	Barium	129.00			P	J
7440-41-7	Beryllium	0.55	B		P	J
7440-43-9	Cadmium	2.40			P	J
7440-70-2	Calcium	9370.00		*	P	J
7440-47-3	Chromium	27.00		*	P	J
7440-48-4	Cobalt	11.50			P	J
7440-50-8	Copper	30.60			P	J
7439-89-6	Iron	21600.00			P	J
7439-92-1	Lead	21.60		*	F	J
7439-95-4	Magnesium	6680.00		*	P	J
7439-96-5	Manganese	870.00		*	P	J
7439-97-6	Mercury				NR	
7440-02-0	Nickel	28.00			P	J
7440-09-7	Potassium	1490.00			P	J
7782-49-2	Selenium	4.00	UB	W	F	UJ
7440-22-4	Silver	2.00			P	J
7440-23-5	Sodium	517.00	B		P	J
7440-28-0	Thallium	0.36	B		F	J
7440-62-2	Vanadium	45.40			P	J
7440-66-6	Zinc	344.00		*	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9713506.0532

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VC1

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-03S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	12000.00		*	P	J
7440-36-0	Antimony	5.30	~~B~~	N	P	w
7440-38-2	Arsenic	8.90		S*	F	J
7440-39-3	Barium	151.00			P	J
7440-41-7	Beryllium	0.54	~~B~~		P	J
7440-43-9	Cadmium	2.50			P	J
7440-70-2	Calcium	7070.00		*	P	J
7440-47-3	Chromium	27.00		*	P	J
7440-48-4	Cobalt	10.90			P	J
7440-50-8	Copper	32.20			P	J
7439-89-6	Iron	19700.00			P	J
7439-92-1	Lead	36.10		*	F	J
7439-95-4	Magnesium	6830.00		*	P	J
7439-96-5	Manganese	1180.00		*	P	J
7439-97-6	Mercury				NR	~~J~~ RCS 11/24/92
7440-02-0	Nickel	32.60			P	J
7440-09-7	Potassium	1810.00			P	J
7782-49-2	Selenium	3.90	~~U~~	W	F	wJ
7440-22-4	Silver	2.00			P	J
7440-23-5	Sodium	290.00	~~B~~		P	J
7440-28-0	Thallium	0.72	~~B~~		F	J
7440-62-2	Vanadium	39.40			P	J
7440-66-6	Zinc	402.00		*	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9713506.0533

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

B00VC2

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-04S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	7640.00		*	P	J
7440-36-0	Antimony	3.40	B	N	P	U
7440-38-2	Arsenic	7.90		*	F	J
7440-39-3	Barium	96.60			P	J
7440-41-7	Beryllium	0.41	B		P	J
7440-43-9	Cadmium	1.40			P	J
7440-70-2	Calcium	5950.00		*	P	J
7440-47-3	Chromium	29.70		*	P	J
7440-48-4	Cobalt	8.90	B		P	J
7440-50-8	Copper	19.30			P	J
7439-89-6	Iron	18100.00			P	J
7439-92-1	Lead	25.80		*	F	J
7439-95-4	Magnesium	4310.00		*	P	J
7439-96-5	Manganese	653.00		*	P	J
7439-97-6	Mercury				NR	
7440-02-0	Nickel	17.10			P	J
7440-09-7	Potassium	1020.00			P	J
7782-49-2	Selenium	3.80	B		F	UJ
7440-22-4	Silver	1.40	B		P	J
7440-23-5	Sodium	284.00	B		P	J
7440-28-0	Thallium	0.47	B		F	J
7440-62-2	Vanadium	41.40			P	J
7440-66-6	Zinc	246.00		*	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9713506.0534

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VC3

ab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

ab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

atrix (soil/water): SOIL Lab Sample ID: 05261-05S

evel (low/med): LOW Date Received: 05/27/92

Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	9160.00		*	P	J
7440-36-0	Antimony	3.10	U	N	P	R
7440-38-2	Arsenic	5.20		*	F	J
7440-39-3	Barium	116.00			P	J
7440-41-7	Beryllium	0.46	B		P	J
7440-43-9	Cadmium	1.60			P	J
7440-70-2	Calcium	5190.00		*	P	J
7440-47-3	Chromium	20.50		*	P	J
7440-48-4	Cobalt	9.50	B		P	J
7440-50-8	Copper	25.70			P	J
7439-89-6	Iron	18900.00			P	J
7439-92-1	Lead	30.60		*	F	J
7439-95-4	Magnesium	5120.00		*	P	J
7439-96-5	Manganese	752.00		*	P	J
7439-97-6	Mercury				NR	
7440-02-0	Nickel	22.40			P	J
7440-09-7	Potassium	1140.00			P	J
7782-49-2	Selenium	3.80	U	W	F	UJ
7440-22-4	Silver	1.50	B		P	J
7440-23-5	Sodium	261.00	B		P	J
7440-28-0	Thallium	0.40	B		F	J
7440-62-2	Vanadium	41.80			P	J
7440-66-6	Zinc	288.00		*	P	J
	Cyanide				NR	

olor Before: BROWN Clarity Before: Texture: FINE

olor After: BROWN Clarity After: Artifacts:

omments:

FORM I - IN Rev.6/89

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WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VC5

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-08S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	7620.00		*	P	J
7440-36-0	Antimony	3.10	~~U~~	N	P	R
7440-38-2	Arsenic	5.30		+*	F	J
7440-39-3	Barium	83.80			P	J
7440-41-7	Beryllium	0.30	B		P	J
7440-43-9	Cadmium	1.80			P	J
7440-70-2	Calcium	5350.00		*	P	J
7440-47-3	Chromium	20.10		*	P	J
7440-48-4	Cobalt	6.90	B		P	J
7440-50-8	Copper	28.10			P	J
7439-89-6	Iron	14500.00			P	J
7439-92-1	Lead	23.60		*	F	J
7439-95-4	Magnesium	4260.00		*	P	J
7439-96-5	Manganese	515.00		*	P	J
7439-97-6	Mercury				NR	
7440-02-0	Nickel	24.20			P	J
7440-09-7	Potassium	2210.00			P	J
7782-49-2	Selenium	0.77	~~U~~	W	F	UJ
7440-22-4	Silver	1.20	B		P	J
7440-23-5	Sodium	564.00	B		P	J
7440-28-0	Thallium	0.41	B		F	J
7440-62-2	Vanadium	27.00			P	J
7440-66-6	Zinc	274.00		*	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9713506.0536

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VC9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-14S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	7860.00		*	P	J
7440-36-0	Antimony	3.10	U	N	P	R
7440-38-2	Arsenic	4.20		S*	F	J
7440-39-3	Barium	97.60			P	J
7440-41-7	Beryllium	0.32	B		P	J
7440-43-9	Cadmium	2.30			P	J
7440-70-2	Calcium	4670.00		*	P	J
7440-47-3	Chromium	21.40		*	P	J
7440-48-4	Cobalt	7.50	B		P	J
7440-50-8	Copper	34.10			P	J
7439-89-6	Iron	16100.00			P	J
7439-92-1	Lead	27.00		*	F	J
7439-95-4	Magnesium	4630.00		*	P	J
7439-96-5	Manganese	699.00		*	P	J
7439-97-6	Mercury				NR	
7440-02-0	Nickel	37.80			P	J
7440-09-7	Potassium	2360.00			P	J
7782-49-2	Selenium	0.75	U	W	F	UJ
7440-22-4	Silver	1.60	B		P	J
7440-23-5	Sodium	565.00	B		P	J
7440-28-0	Thallium	0.43	B	W	F	J
7440-62-2	Vanadium	26.00			P	J
7440-66-6	Zinc	320.00		*	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9713506.0537

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VD1

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-06S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	10100.00		*	P	J
7440-36-0	Antimony	3.00	U	N	P	R
7440-38-2	Arsenic	5.00		*	F	J
7440-39-3	Barium	104.00			P	J
7440-41-7	Beryllium	0.42	B		P	J
7440-43-9	Cadmium	2.00			P	J
7440-70-2	Calcium	5070.00		*	P	J
7440-47-3	Chromium	28.30		*	P	J
7440-48-4	Cobalt	9.10	B		P	J
7440-50-8	Copper	27.00			P	J
7439-89-6	Iron	17800.00			P	J
7439-92-1	Lead	29.60		*	F	J
7439-95-4	Magnesium	5610.00		*	P	J
7439-96-5	Manganese	728.00		*	P	J
7439-97-6	Mercury				NR	
7440-02-0	Nickel	24.70			P	J
7440-09-7	Potassium	1590.00			P	J
7782-49-2	Selenium	3.90	U	W	F	UJ
7440-22-4	Silver	1.30	B		P	J
7440-23-5	Sodium	302.00	B		P	J
7440-28-0	Thallium	0.51	B		F	J
7440-62-2	Vanadium	40.20			P	J
7440-66-6	Zinc	290.00		*	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9713506.0538

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VD3

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-09S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	13600.00		*	P	J
7440-36-0	Antimony	3.10	U	N	P	R
7440-38-2	Arsenic	5.60		*	F	J
7440-39-3	Barium	140.00			P	J
7440-41-7	Beryllium	0.55	B		P	J
7440-43-9	Cadmium	3.10			P	J
7440-70-2	Calcium	6520.00		*	P	J
7440-47-3	Chromium	34.10		*	P	J
7440-48-4	Cobalt	11.20			P	J
7440-50-8	Copper	34.30			P	J
7439-89-6	Iron	20400.00			P	J
7439-92-1	Lead	39.10		*	F	J
7439-95-4	Magnesium	7050.00		*	P	J
7439-96-5	Manganese	1040.00		*	P	J
7439-97-6	Mercury				NR	
7440-02-0	Nickel	36.40			P	J
7440-09-7	Potassium	1990.00			P	J
7782-49-2	Selenium	0.77	U	MW	F	UJ
7440-22-4	Silver	1.90	B		P	J
7440-23-5	Sodium	339.00	B		P	J
7440-28-0	Thallium	0.61	B		F	J
7440-62-2	Vanadium	44.40			P	J
7440-66-6	Zinc	396.00		*	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9713506.0539

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VD7

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-15S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	11200.00		*	P	J
7440-36-0	Antimony	3.10	U	N	P	R
7440-38-2	Arsenic	4.90		*	F	J
7440-39-3	Barium	127.00			P	J
7440-41-7	Beryllium	0.49	B		P	J
7440-43-9	Cadmium	2.80			P	J
7440-70-2	Calcium	5810.00		*	P	J
7440-47-3	Chromium	29.90		*	P	J
7440-48-4	Cobalt	9.90			P	J
7440-50-8	Copper	29.70			P	J
7439-89-6	Iron	18600.00			P	J
7439-92-1	Lead	27.70		*	F	J
7439-95-4	Magnesium	6460.00		*	P	J
7439-96-5	Manganese	881.00		*	P	J
7439-97-6	Mercury				NR	
7440-02-0	Nickel	27.40			P	J
7440-09-7	Potassium	1860.00			P	J
7782-49-2	Selenium	3.80	U	W	F	UJ
7440-22-4	Silver	1.50	B		P	J
7440-23-5	Sodium	296.00	B		P	J
7440-28-0	Thallium	0.55	B		F	J
7440-62-2	Vanadium	37.20			P	J
7440-66-6	Zinc	351.00		*	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

9713506.0540

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VD9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-07S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	11600.00		*	P	J
7440-36-0	Antimony	3.60	B	N	P	U
7440-38-2	Arsenic	6.10		*	F	J
7440-39-3	Barium	101.00			P	J
7440-41-7	Beryllium	0.56	B		P	J
7440-43-9	Cadmium	2.10			P	J
7440-70-2	Calcium	9990.00		*	P	J
7440-47-3	Chromium	27.80		*	P	J
7440-48-4	Cobalt	8.60	B		P	J
7440-50-8	Copper	28.30			P	J
7439-89-6	Iron	17200.00			P	J
7439-92-1	Lead	32.00		*	F	J
7439-95-4	Magnesium	5490.00		*	P	J
7439-96-5	Manganese	681.00		*	P	J
7439-97-6	Mercury				NR	
7440-02-0	Nickel	33.20			P	J
7440-09-7	Potassium	1770.00			P	J
7782-49-2	Selenium	0.78	U	W	F	UJ
7440-22-4	Silver	1.70	B		P	J
7440-23-5	Sodium	310.00	B		P	J
7440-28-0	Thallium	0.45	B		F	J
7440-62-2	Vanadium	39.00			P	J
7440-66-6	Zinc	289.00		*	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9713506.0541

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VF1

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-10S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	10100.00		*	P	J
7440-36-0	Antimony	3.10	U	N	P	R
7440-38-2	Arsenic	4.80		*	F	J
7440-39-3	Barium	98.40			P	J
7440-41-7	Beryllium	0.47	B		P	J
7440-43-9	Cadmium	2.60			P	J
7440-70-2	Calcium	9840.00		*	P	J
7440-47-3	Chromium	21.90		*	P	J
7440-48-4	Cobalt	7.70	B		P	J
7440-50-8	Copper	27.30			P	J
7439-89-6	Iron	15100.00			P	J
7439-92-1	Lead	32.50		*	F	J
7439-95-4	Magnesium	5110.00		*	P	J
7439-96-5	Manganese	783.00		*	P	J
7439-97-6	Mercury				NR	
7440-02-0	Nickel	27.10			P	J
7440-09-7	Potassium	1880.00			P	J
7782-49-2	Selenium	0.77	U	W	F	UJ
7440-22-4	Silver	1.40	B		P	J
7440-23-5	Sodium	261.00	B		P	J
7440-28-0	Thallium	0.47	B		F	J
7440-62-2	Vanadium	30.90			P	J
7440-66-6	Zinc	298.00		*	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9713506.0542

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VF3

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-12S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	12200.00		*	P	J
7440-36-0	Antimony	3.00	UJ	N	P	R
7440-38-2	Arsenic	5.30		*	F	J
7440-39-3	Barium	112.00			P	J
7440-41-7	Beryllium	0.57	B		P	J
7440-43-9	Cadmium	3.40			P	J
7440-70-2	Calcium	10900.00		*	P	J
7440-47-3	Chromium	73.50		*	P	J
7440-48-4	Cobalt	9.50			P	J
7440-50-8	Copper	33.70			P	J
7439-89-6	Iron	19000.00			P	J
7439-92-1	Lead	40.40		*	F	J
7439-95-4	Magnesium	6030.00		*	P	J
7439-96-5	Manganese	798.00		*	P	J
7439-97-6	Mercury				NR	
7440-02-0	Nickel	72.70			P	J
7440-09-7	Potassium	1920.00			P	J
7782-49-2	Selenium	0.75	UJ	W	F	UJ
7440-22-4	Silver	2.00			P	J
7440-23-5	Sodium	370.00	B		P	J
7440-28-0	Thallium	0.54	B		F	J
7440-62-2	Vanadium	37.40			P	J
7440-66-6	Zinc	374.00		*	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9713506.0543

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VF5

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00V89

Matrix (soil/water): SOIL Lab Sample ID: 05261-16S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	9770.00		*	P	J
7440-36-0	Antimony	3.10	~~U~~	N	P	R
7440-38-2	Arsenic	4.40		*	F	J
7440-39-3	Barium	92.90			P	J
7440-41-7	Beryllium	0.50	~~B~~		P	J
7440-43-9	Cadmium	2.30			P	J
7440-70-2	Calcium	8410.00		*	P	J
7440-47-3	Chromium	24.20		*	P	J
7440-48-4	Cobalt	8.00	~~B~~		P	J
7440-50-8	Copper	26.00			P	J
7439-89-6	Iron	16100.00			P	J
7439-92-1	Lead	26.90		*	F	J
7439-95-4	Magnesium	5070.00		*	P	J
7439-96-5	Manganese	670.00		*	P	J
7439-97-6	Mercury				NR	
7440-02-0	Nickel	31.60			P	J
7440-09-7	Potassium	1530.00			P	J
7782-49-2	Selenium	0.77	~~U~~	W	F	UJ
7440-22-4	Silver	1.40	~~B~~		P	J
7440-23-5	Sodium	339.00	~~B~~		P	J
7440-28-0	Thallium	0.38	~~B~~	W	F	J
7440-62-2	Vanadium	34.80			P	J
7440-66-6	Zinc	276.00		*	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9713506.0544

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VF7

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

Matrix (soil/water): SOIL Lab Sample ID: 05261-11S

Level (low/med): LOW Date Received: 05/27/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	6850.00		*	P	J
7440-36-0	Antimony	3.00	U	N	P	R
7440-38-2	Arsenic	3.30		S*	F	J
7440-39-3	Barium	77.80			P	J
7440-41-7	Beryllium	0.24	B		P	J
7440-43-9	Cadmium	1.50			P	J
7440-70-2	Calcium	5660.00		*	P	J
7440-47-3	Chromium	21.70		*	P	J
7440-48-4	Cobalt	6.10	B		P	J
7440-50-8	Copper	23.70			P	J
7439-89-6	Iron	24100.00			P	J
7439-92-1	Lead	24.30		*	F	J
7439-95-4	Magnesium	4070.00		*	P	J
7439-96-5	Manganese	623.00		*	P	J
7439-97-6	Mercury				NR	
7440-02-0	Nickel	38.50			P	J
7440-09-7	Potassium	2310.00			P	J
7782-49-2	Selenium	0.77	U	W	F	UJ
7440-22-4	Silver	2.30			P	J
7440-23-5	Sodium	525.00	B		P	J
7440-28-0	Thallium	0.38	B		F	J
7440-62-2	Vanadium	25.50			P	J
7440-66-6	Zinc	284.00		*	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

9713506.0545

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00VF9

ab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

ab Code: SKINER Case No.: N1-12-087SAS No.: SDG No.: B00VB9

atrix (soil/water): SOIL Lab Sample ID: 05261-13S

evel (low/med): LOW Date Received: 05/27/92

Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	5410.00		*	P	J
7440-36-0	Antimony	2.90	U	N	P	R
7440-38-2	Arsenic	2.80		*	F	J
7440-39-3	Barium	67.20			P	J
7440-41-7	Beryllium	0.21	B		P	J
7440-43-9	Cadmium	1.20			P	J
7440-70-2	Calcium	13700.00		*	P	J
7440-47-3	Chromium	24.70		*	P	J
7440-48-4	Cobalt	5.40	B		P	J
7440-50-8	Copper	23.70			P	J
7439-89-6	Iron	22400.00			P	J
7439-92-1	Lead	18.40		*	F	J
7439-95-4	Magnesium	3150.00		*	P	J
7439-96-5	Manganese	526.00		*	P	J
7439-97-6	Mercury				NR	
7440-02-0	Nickel	104.00			P	J
7440-09-7	Potassium	1950.00			P	J
7782-49-2	Selenium	0.75	UW	W	F	UJ
7440-22-4	Silver	2.00			P	J
7440-23-5	Sodium	533.00	B		P	J
7440-28-0	Thallium	0.37	B		F	J
7440-62-2	Vanadium	22.70			P	J
7440-66-6	Zinc	249.00		*	P	J
	Cyanide				NR	

olor Before: BROWN Clarity Before: Texture: FINE

olor After: BROWN Clarity After: Artifacts:

omments:

FORM I - IN Rev.6/89

9713506.0546

TMA NORCAL

REPORTING GROUP 7018

SDG 7018
Contact Dinkar Kharkar

WORK SUMMARY

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID / MATRIX / CUSTODY	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	METHOD	REFERENCE
BOOVB9	N112164-01	7018-001	GAM		06/10/92	Gamma Scan	
BIOTA	09/10/91	7018-001	Y			Strontium in Periphyton	HASL 300/SR-01,-02
BNW #54139							
BOOVC0	N112164-02	7018-002	GAM		06/10/92	Gamma Scan	
BIOTA	09/10/91	7018-002	Y			Strontium in Periphyton	HASL 300/SR-01,-02
BNW #54139							
BOOVC1	N112164-03	7018-003	GAM		06/14/92	Gamma Scan	
BIOTA	09/10/91	7018-003	Y			Strontium in Periphyton	HASL 300/SR-01,-02
BNW #54139							
BOOVC2	N112164-11	7018-011	GAM		06/14/92	Gamma Scan	
BIOTA	09/10/91	7018-011	Y			Strontium in Periphyton	HASL 300/SR-01,-02
BNW #54139							
BOOVC3	N112164-04	7018-004	GAM		06/10/92	Gamma Scan	
BIOTA	09/10/91	7018-004	Y			Strontium in Periphyton	HASL 300/SR-01,-02
BNW #54139							
BOOVC5	N112164-05	7018-005	GAM		06/14/92	Gamma Scan	
BIOTA	09/10/91	7018-005	Y			Strontium in Periphyton	HASL 300/SR-01,-02
BNW #54139							
BOOVC9	N112164-09	7018-009	GAM		06/14/92	Gamma Scan	
BIOTA	09/10/91	7018-009	Y			Strontium in Periphyton	HASL 300/SR-01,-02
BNW #54139							
BOOVD1	N112164-12	7018-012	GAM		06/17/92	Gamma Scan	
BIOTA	09/10/91	7018-012	Y			Strontium in Periphyton	HASL 300/SR-01,-02
BNW #54139							
BOOVD3	N112164-06	7018-006	GAM		06/14/92	Gamma Scan	
BIOTA	09/10/91	7018-006	Y			Strontium in Periphyton	HASL 300/SR-01,-02
BNW #54139							
BOOVD7	N112164-15	7018-015	GAM		06/18/92	Gamma Scan	
BIOTA	09/10/91	7018-015	Y			Strontium in Periphyton	HASL 300/SR-01,-02
BNW #54139							

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-CWS
Version 2.14
Report date 07/31/92

9713506.0547

TMA NORCAL

REPORTING GROUP 7018

SDG 7018
Contact Dinkar Kharkar

WORK SUMMARY, CONT.

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID / MATRIX / CUSTODY	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	METHOD	REFERENCE
BOOVD9	N112164-13	7018-013	GAM		06/17/92	Gamma Scan	
BIOTA	09/10/91	7018-013	Y			Strontium in Periphyton	HASL 300/SR-01,-02
BNW #54139							
BOOVF1	N112164-14	7018-014	GAM		06/18/92	Gamma Scan	
BIOTA	09/10/91	7018-014	Y			Strontium in Periphyton	HASL 300/SR-01,-02
BNW #54139							
BOOVF3	N112164-07	7018-007	GAM		06/14/92	Gamma Scan	
BIOTA	09/10/91	7018-007	Y			Strontium in Periphyton	HASL 300/SR-01,-02
BNW #54139							
BOOVF5	N112164-16	7018-016	GAM		06/18/92	Gamma Scan	
BIOTA	09/10/91	7018-016	Y			Strontium in Periphyton	HASL 300/SR-01,-02
BNW #54139							
BOOVF7	N112164-10	7018-010	GAM		06/14/92	Gamma Scan	
BIOTA	09/10/91	7018-010	Y			Strontium in Periphyton	HASL 300/SR-01,-02
BNW #54139							
BOOVF9	N112164-08	7018-008	GAM		06/14/92	Gamma Scan	
BIOTA	09/10/91	7018-008	Y			Strontium in Periphyton	HASL 300/SR-01,-02
BNW #54139							
Reagent Blank	N112164-19	7018-019	Y			Strontium in Periphyton	HASL 300/SR-01,-02
BIOTA							
Reagent Blank	N112164-24	7018-024	GAM		06/19/92	Gamma Scan	
BIOTA							
Lab Control Sample	N112164-17	7018-017	Y			Strontium in Periphyton	HASL 300/SR-01,-02
BIOTA							
Lab Control Sample	N112164-23	7018-023	GAM		06/19/92	Gamma Scan	
BIOTA							

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-CWS
Version 2.14
Report date 07/31/92

TMA NORCAL

REPORTING GROUP 7018

SDG 7018
Contact Dinkar Kharkar

WORK SUMMARY, CONT.

Client Westinghouse Hanford
Contract MBH-SVV-069262

CLIENT SAMPLE ID / MATRIX / CUSTODY	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	METHOD	REFERENCE
Replicate (N112164-01) BIOTA BNW #54139	N112164-21 09/10/91	7018-021	Y			Strontium in Periphyton	HASL 300/SR-01,-02
Replicate (N112164-15) BIOTA BNW #54139	N112164-25 09/10/91	7018-025	GAM		06/19/92	Gamma Scan	
Replicate (N112164-16) BIOTA BNW #54139	N112164-26 09/10/91	7018-026	GAM		06/19/92	Gamma Scan	

COUNTS OF TESTS BY SAMPLE TYPE

TEST	CLIENT	BLANK	LCS	REP	SPIKE	TOTALS
GAM	16	1	1	2		20
Y	16	1	1	1		19
TOTALS	32	2	2	3	0	39

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-CWS
Version 2.14
Report date 07/31/92

9713506.0549

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-01

B00VB9

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-01	Client sample id	B00VB9
Dept sample id	7018-001	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	-0.32	1.9		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			72		U	GAM
Chromium 51	14392-02-0			19000		U	GAM
Cobalt 60	10198-40-0			4.6		U	GAM
Zinc 65	17982-39-3			17		U	GAM
Cesium 134	17967-70-9			5.1		U	GAM
Cesium 137	10045-97-3			3.5		U	GAM
Radium 226	13982-67-7			6.4		U	GAM
Thorium 228	14274-82-9			5.0		U	GAM
Thorium 232	7440-29-1			17		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0550

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-02

B00VC0

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-02	Client sample id	B00VC0
Dept sample id	7018-002	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	-0.13	0.85		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			52		U	GAM
Chromium 51	14392-02-0			15000		U	GAM
Cobalt 60	10198-40-0			3.4		U	GAM
Zinc 65	17982-39-3			15		U	GAM
Cesium 134	17967-70-9			3.6		U	GAM
Cesium 137	10045-97-3			3.1		U	GAM
Radium 226	13982-67-7			4.5		U	GAM
Thorium 228	14274-82-9			4.4		U	GAM
Thorium 232	7440-29-1			12		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0551

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-03

B00VC1

SDG 7018
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N112164-03
Dept sample id 7018-003
Received

Client sample id B00VC1
Matrix BIOTA
Collected 09/10/91
Chain of custody id BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	0.085	1.0		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			37		U	GAM
Chromium 51	14392-02-0			11000		U	GAM
Cobalt 60	10198-40-0			2.8		U	GAM
Zinc 65	17982-39-3			5.7		U	GAM
Cesium 134	17967-70-9			2.5		U	GAM
Cesium 137	10045-97-3			1.8		U	GAM
Radium 226	13982-67-7			4.0		U	GAM
Thorium 228	14274-82-9	2.4	2.3				GAM
Thorium 232	7440-29-1			7.8		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.14
Report date 07/31/92

9713506.0552

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-11

B00VC2

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-11	Client sample id	B00VC2
Dept sample id	7018-011	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	0.89	1.2		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	18	6.9				GAM
Chromium 51	14392-02-0			4100		U	GAM
Cobalt 60	10198-40-0			1.1		U	GAM
Zinc 65	17982-39-3			2.1		U	GAM
Cesium 134	17967-70-9			0.66		U	GAM
Cesium 137	10045-97-3			0.75		U	GAM
Radium 226	13982-67-7			1.5		U	GAM
Thorium 228	14274-82-9	3.0	1.4				GAM
Thorium 232	7440-29-1			2.7		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0553

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-04

B00VC3

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-04	Client sample id	B00VC3
Dept sample id	7018-004	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	0.081	0.21		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			23		U	GAM
Chromium 51	14392-02-0			5400		U	GAM
Cobalt 60	10198-40-0			1.6		U	GAM
Zinc 65	17982-39-3			6.3		U	GAM
Cesium 134	17967-70-9			1.5		U	GAM
Cesium 137	10045-97-3			1.1		U	GAM
Radium 226	13982-67-7	1.7	1.2				GAM
Thorium 228	14274-82-9	2.4	1.6				GAM
Thorium 232	7440-29-1			5.1		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0554

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-05

B00VC5

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-05	Client sample id	B00VC5
Dept sample id	7018-005	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	0.45	0.59		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			22		U	GAM
Chromium 51	14392-02-0			8100		U	GAM
Cobalt 60	10198-40-0			2.8		U	GAM
Zinc 65	17982-39-3			7.2		U	GAM
Cesium 134	17967-70-9			1.9		U	GAM
Cesium 137	10045-97-3			1.5		U	GAM
Radium 226	13982-67-7			2.7		U	GAM
Thorium 228	14274-82-9			3.0		U	GAM
Thorium 232	7440-29-1			5.8		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-09

B00VC9

SDG 7018
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N112164-09
Dept sample id 7018-009
Received

Client sample id B00VC9
Matrix BIOTA
Collected 09/10/91
Chain of custody id BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	0	1.9		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			55		U	GAM
Chromium 51	14392-02-0			17000		U	GAM
Cobalt 60	10198-40-0			5.0		U	GAM
Zinc 65	17982-39-3			22		U	GAM
Cesium 134	17967-70-9			3.3		U	GAM
Cesium 137	10045-97-3			2.5		U	GAM
Radium 226	13982-67-7			5.9		U	GAM
Thorium 228	14274-82-9	6.7	5.1				GAM
Thorium 232	7440-29-1			12		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.14
Report date 07/31/92

9713506.0556

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-12

B00VD1

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-12	Client sample id	B00VD1
Dept sample id	7018-012	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	0.057	0.22		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			19		U	GAM
Chromium 51	14392-02-0			4800		U	GAM
Cobalt 60	10198-40-0			1.5		U	GAM
Zinc 65	17982-39-3			5.5		U	GAM
Cesium 134	17967-70-9			1.1		U	GAM
Cesium 137	10045-97-3			1.1		U	GAM
Radium 226	13982-67-7			1.9		U	GAM
Thorium 228	14274-82-9			2.2		U	GAM
Thorium 232	7440-29-1			4.5		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0557

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-06

B00VD3

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-06	Client sample id	B00VD3
Dept sample id	7018-006	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	1.3	2.3		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			54		U	GAM
Chromium 51	14392-02-0			16000		U	GAM
Cobalt 60	10198-40-0			4.2		U	GAM
Zinc 65	17982-39-3			12		U	GAM
Cesium 134	17967-70-9			4.2		U	GAM
Cesium 137	10045-97-3			2.8		U	GAM
Radium 226	13982-67-7			5.0		U	GAM
Thorium 228	14274-82-9			4.9		U	GAM
Thorium 232	7440-29-1			12		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

N112164-15

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

B00VD7

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-15	Client sample id	B00VD7
Dept sample id	7018-015	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	-0.88	1.8		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			24		U	GAM
Chromium 51	14392-02-0			8000		U	GAM
Cobalt 60	10198-40-0			1.6		U	GAM
Zinc 65	17982-39-3			4.5		U	GAM
Cesium 134	17967-70-9			1.7		U	GAM
Cesium 137	10045-97-3			1.4		U	GAM
Radium 226	13982-67-7			2.4		U	GAM
Thorium 228	14274-82-9	2.1	1.5				GAM
Thorium 232	7440-29-1			5.4		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0559

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REPORTING GROUP 7018

DATA SHEET

N112164-13

B00VD9

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-13	Client sample id	B00VD9
Dept sample id	7018-013	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	0.047	0.26		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			30		U	GAM
Chromium 51	14392-02-0			10000		U	GAM
Cobalt 60	10198-40-0			2.3		U	GAM
Zinc 65	17982-39-3			7.9		U	GAM
Cesium 134	17967-70-9			2.4		U	GAM
Cesium 137	10045-97-3			1.5		U	GAM
Radium 226	13982-67-7			3.1		U	GAM
Thorium 228	14274-82-9			2.7		U	GAM
Thorium 232	7440-29-1			7.4		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0560

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-14

B00VF1

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-14	Client sample id	B00VF1
Dept sample id	7018-014	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	-0.13	0.30		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	32	15				GAM
Chromium 51	14392-02-0			5800		U	GAM
Cobalt 60	10198-40-0			2.3		U	GAM
Zinc 65	17982-39-3			5.3		U	GAM
Cesium 134	17967-70-9			1.5		U	GAM
Cesium 137	10045-97-3			1.1		U	GAM
Radium 226	13982-67-7	1.6	1.1				GAM
Thorium 228	14274-82-9			2.0		U	GAM
Thorium 232	7440-29-1			4.4		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-07

B00VF3

SDG 7018
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N112164-07
Dept sample id 7018-007
Received
Client sample id B00VF3
Matrix BIOTA
Collected 09/10/91
Chain of custody id BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	0.069	0.29		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			28		U	GAM
Chromium 51	14392-02-0			9800		U	GAM
Cobalt 60	10198-40-0	2.2	1.5				GAM
Zinc 65	17982-39-3			9.2		U	GAM
Cesium 134	17967-70-9			2.4		U	GAM
Cesium 137	10045-97-3			1.8		U	GAM
Radium 226	13982-67-7			3.1		U	GAM
Thorium 228	14274-82-9			3.7		U	GAM
Thorium 232	7440-29-1			7.9		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.14
Report date 07/31/92

9713506.0562

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-16

B00VF5

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-16	Client sample id	B00VF5
Dept sample id	7018-016	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	-0.13	1.7		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			15		U	GAM
Chromium 51	14392-02-0			7300		U	GAM
Cobalt 60	10198-40-0			1.5		U	GAM
Zinc 65	17982-39-3			4.7		U	GAM
Cesium 134	17967-70-9			1.5		U	GAM
Cesium 137	10045-97-3			1.2		U	GAM
Radium 226	13982-67-7			2.1		U	GAM
Thorium 228	14274-82-9			2.3		U	GAM
Thorium 232	7440-29-1			5.1		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0563

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-10

B00VF7

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-10	Client sample id	B00VF7
Dept sample id	7018-010	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	0.57	0.28		2.0	J	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			23		U	GAM
Chromium 51	14392-02-0			8000		U	GAM
Cobalt 60	10198-40-0			1.9		U	GAM
Zinc 65	17982-39-3			7.1		U	GAM
Cesium 134	17967-70-9			1.6		U	GAM
Cesium 137	10045-97-3			1.4		U	GAM
Radium 226	13982-67-7			2.7		U	GAM
Thorium 228	14274-82-9			2.3		U	GAM
Thorium 232	7440-29-1			6.4		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92

9713506.0564

TMA NORCAL

REPORTING GROUP 7018

DATA SHEET

N112164-08

B00VF9

SDG	7018	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N112164-08	Client sample id	B00VF9
Dept sample id	7018-008	Matrix	BIOTA
Received		Collected	09/10/91
		Chain of custody id	BNW #54139

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Strontium 90	10098-97-2	-0.12	0.39		2.0	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2			31		U	GAM
Chromium 51	14392-02-0			9200		U	GAM
Cobalt 60	10198-40-0			2.2		U	GAM
Zinc 65	17982-39-3			8.7		U	GAM
Cesium 134	17967-70-9			2.4		U	GAM
Cesium 137	10045-97-3			1.6		U	GAM
Radium 226	13982-67-7			2.8		U	GAM
Thorium 228	14274-82-9			2.6		U	GAM
Thorium 232	7440-29-1			5.8		U	GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.14
Report date	07/31/92