START 9713512.2608

E0023

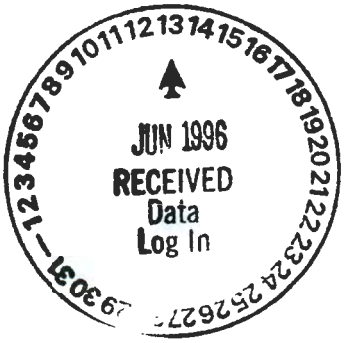
0046110

Transmittal Date 6-13-96

To Sample Management

From EAL

Data Package for
SAF B96-091
Batch 960404B



Diane H. Call

9713512.2609

April 23, 1996

TO: Dorman Blankenship, X8-29

INTRODUCTION:

The following samples were received at the EAL on April 4, 1996. Your sample numbers were assigned the following EAL numbers.

Customer Sample Number	EAL Number	Matrix Type
B0HCQ2	EAL02342/EAL02346	water
B0HCQ5	EAL02343/EAL02347	water
B0HCQ8	EAL02344/EAL02348	water
B0HCR0	EAL02345	water

The second set of EAL numbers for B0HCQ2, B0HCQ5, and B0HCQ8 are the sample numbers for the rad screen. The samples were assigned a batch number of 960404B. The corresponding Sampling Analysis Form (SAF) number was B96-091. EAL analyzed the samples in support of the 183-N Backwash Permit Sampling.

NOTABLE EVENTS:

Several events were encountered during analysis, which should be noted.

1. The concentration of total organic carbon (TOC) in all three samples was less than that of the quantitation limit.

2. On the evening of April 4, 1996, electrical problems occurred within the sample receipt trailer. The non-volatile refrigerator temperature reached 7° C by the morning of April 5, 1996. The refrigerator containing the volatile samples did not surpass 6° C. The problem was corrected and the samples were stored at 4±2° C for the remainder of analyses.

3. For the anion analysis, an unknown was found to be coeluting with nitrate. This phenomena was consistent with all three samples. The spike recovery for nitrate was high, but was still within acceptable limits. This unknown could be influencing the nitrate results by as much as 0.5 ppm. Phosphate was not detected in any of the samples.

4. The VOA sample chosen for QC did not contain any target analytes. Therefore, the relative percent difference was calculated using one of the surrogates.

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5. Metals were analyzed at a 1:20 dilution in order to bring calcium and sodium within the calibration range. As a result, detection limits for the other metals are higher than usual.

RESULTS:

A summary of results and associated quality control parameters is shown on spreadsheets included in this data package. All samples were analyzed in accordance with approved analytical methods and good laboratory practice. Please contact Stacey Bolling at 373-5433 or John McCluskey at 372-0642, if you have any questions.

Stacey D Bolling — Signature of Analyst — 4/26/96 — Date

John McCluskey — Signature of Analyst — 06/12/96 — Date

Diane K. Tabb — Signature of QA Coordinator — 6-13-96 — Date

Environmental Analytical Laboratory **ICP Metals**

Batch # 960404B Analyst: John McCluskey

Sample Results for Samples:

EAL02342 run at 1:20 dilution

CUSTOMER ID OR HEIS NUMBER	LABORATORY ID	ANALYTE	ICP RESULT	UNITS	DATE SAMPLED	INSTRUMENT SERIAL NUMBER	DATE ANALYZED	QUANTITATION LIMIT
B0HCQ2	EAL02342	Silver	460U	ug/L	04/04/96	1545	04/09/96	460
		Aluminum	2300U	ug/L	04/04/96	1545	04/09/96	2300
		Arsenic	560U	ug/L	04/04/96	1545	04/09/96	560
		Barium	47	ug/L	04/04/96	1545	04/09/96	24
		Beryllium	88U	ug/L	04/04/96	1545	04/09/96	88
		Calcium	22000	ug/L	04/04/96	1545	04/09/96	990
		Cadmium	54U	ug/L	04/04/96	1545	04/09/96	54
		Cobolt	150U	ug/L	04/04/96	1545	04/09/96	150
		Chromium	62U	ug/L	04/04/96	1545	04/09/96	62
		Copper	120U	ug/L	04/04/96	1545	04/09/96	120
		Iron	120U	ug/L	04/04/96	1545	04/09/96	120
		Mercury	280U	ug/L	04/04/96	1545	04/09/96	280
		Potassium	10000	ug/L	04/04/96	1545	04/09/96	10000
		Lithium	40U	ug/L	04/04/96	1545	04/09/96	40
		Magnesium	4600	ug/L	04/04/96	1545	04/09/96	160
		Manganese	12U	ug/L	04/04/96	1545	04/09/96	12
		Molybdenum	92U	ug/L	04/04/96	1545	04/09/96	92
		Sodium	17000U	ug/L	04/04/96	1545	04/09/96	17000
		Nickel	320U	ug/L	04/04/96	1545	04/09/96	320
		Potassium	690U	ug/L	04/04/96	1545	04/09/96	690
		Lead	260U	ug/L	04/04/96	1545	04/09/96	260
		Antimony	530U	ug/L	04/04/96	1545	04/09/96	530
		Selenium	580	ug/L	04/04/96	1545	04/09/96	500
		Silicon	NA	ug/L	04/04/96	1545	04/09/96	NA
		Strontium	91	ug/L	04/04/96	1545	04/09/96	14
		Thallium	820U	ug/L	04/04/96	1545	04/09/96	820
		Vanadium	200U	ug/L	04/04/96	1545	04/09/96	200
		Zinc	950	ug/L	04/04/96	1545	04/09/96	80

U = Not above the associated Quantitation Limit

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Environmental Analytical Laboratory **ICP Metals**

Batch # 960404B Analyst: John McCluskey

Sample Results for Samples:

EAL02343 run at 1:20 dilution

CUSTOMER ID OR HEIS NUMBER	LABORATORY ID	ANALYTE	ICP RESULT	UNITS	DATE SAMPLED	INSTRUMENT SERIAL NUMBER	DATE ANALYZED	QUANTITATION LIMIT
B0HCQ5	EAL02343	Silver	460U	ug/L	04/04/96	1545	04/09/96	460
		Aluminum	2300U	ug/L	04/04/96	1545	04/09/96	2300
		Arsenic	560U	ug/L	04/04/96	1545	04/09/96	560
		Barium	39	ug/L	04/04/96	1545	04/09/96	24
		Beryllium	88U	ug/L	04/04/96	1545	04/09/96	88
		Calcium	19000	ug/L	04/04/96	1545	04/09/96	990
		Cadmium	54U	ug/L	04/04/96	1545	04/09/96	54
		Cobolt	150U	ug/L	04/04/96	1545	04/09/96	150
		Chromium	62U	ug/L	04/04/96	1545	04/09/96	62
		Copper	120U	ug/L	04/04/96	1545	04/09/96	120
		Iron	120U	ug/L	04/04/96	1545	04/09/96	120
		Mercury	280U	ug/L	04/04/96	1545	04/09/96	280
		Potassium	10000U	ug/L	04/04/96	1545	04/09/96	10000
		Lithium	40U	ug/L	04/04/96	1545	04/09/96	40
		Magnesium	4400	ug/L	04/04/96	1545	04/09/96	160
		Manganese	12U	ug/L	04/04/96	1545	04/09/96	12
		Molybdenum	92U	ug/L	04/04/96	1545	04/09/96	92
		Sodium	17000U	ug/L	04/04/96	1545	04/09/96	17000
		Nickel	320U	ug/L	04/04/96	1545	04/09/96	320
		Potassium	690U	ug/L	04/04/96	1545	04/09/96	690
		Lead	260U	ug/L	04/04/96	1545	04/09/96	260
		Antimony	530U	ug/L	04/04/96	1545	04/09/96	530
		Selenium	500U	ug/L	04/04/96	1545	04/09/96	500
		Silicon	NA	ug/L	04/04/96	1545	04/09/96	NA
		Strontium	82	ug/L	04/04/96	1545	04/09/96	14
		Thallium	820U	ug/L	04/04/96	1545	04/09/96	820
		Vanadium	200U	ug/L	04/04/96	1545	04/09/96	200
		Zinc	106	ug/L	04/04/96	1545	04/09/96	80

U = Not above the associated Quantitation Limit

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Environmental Analytical Laboratory **ICP Metals**

Batch # 960404B Analyst: John McCluskey

Sample Results for Samples:

EAL02344 run at 1:20 dilution

CUSTOMER ID OR HEIS NUMBER	LABORATORY ID	ANALYTE	ICP RESULT	UNITS	DATE SAMPLED	INSTRUMENT SERIAL NUMBER	DATE ANALYZED	QUANTITATION LIMIT
B0HCQ8	EAL02344	Silver	460U	ug/L	04/04/96	1545	04/09/96	460
		Aluminum	2300U	ug/L	04/04/96	1545	04/09/96	2300
		Arsenic	560U	ug/L	04/04/96	1545	04/09/96	560
		Barium	30	ug/L	04/04/96	1545	04/09/96	24
		Beryllium	88U	ug/L	04/04/96	1545	04/09/96	88
		Calcium	20000	ug/L	04/04/96	1545	04/09/96	990
		Cadmium	54U	ug/L	04/04/96	1545	04/09/96	54
		Cobolt	150U	ug/L	04/04/96	1545	04/09/96	150
		Chromium	62U	ug/L	04/04/96	1545	04/09/96	62
		Copper	120U	ug/L	04/04/96	1545	04/09/96	120
		Iron	120U	ug/L	04/04/96	1545	04/09/96	120
		Mercury	280U	ug/L	04/04/96	1545	04/09/96	280
		Potassium	10000U	ug/L	04/04/96	1545	04/09/96	10000
		Lithium	40U	ug/L	04/04/96	1545	04/09/96	40
		Magnesium	4800	ug/L	04/04/96	1545	04/09/96	160
		Manganese	18	ug/L	04/04/96	1545	04/09/96	12
		Molybdenum	92U	ug/L	04/04/96	1545	04/09/96	92
		Sodium	17000U	ug/L	04/04/96	1545	04/09/96	17000
		Nickel	320U	ug/L	04/04/96	1545	04/09/96	320
		Potassium	690U	ug/L	04/04/96	1545	04/09/96	690
		Lead	260U	ug/L	04/04/96	1545	04/09/96	260
		Antimony	530U	ug/L	04/04/96	1545	04/09/96	530
		Selenium	500U	ug/L	04/04/96	1545	04/09/96	500
		Silicon	NA	ug/L	04/04/96	1545	04/09/96	NA
		Strontium	83	ug/L	04/04/96	1545	04/09/96	14
		Thallium	820U	ug/L	04/04/96	1545	04/09/96	820
		Vanadium	200U	ug/L	04/04/96	1545	04/09/96	200
		Zinc	120	ug/L	04/04/96	1545	04/09/96	80

U = Not above the associated Quantitation Limit

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Environmental Analytical Laboratory **ICP Metals**

Batch # 960404B

Quality Control Results for Samples: Analyst: John McCluskey

EAL02342-EAL02344 analyzed 04/09/96

Name of QC	HEIS #	EAL #	Analyte	Expected Result	Analytical Result
Method Blank	NA	NA	Silver	< 12ug/L for Water Matrix	12U
			Aluminum	< 63ug/L for Water Matrix	63U
			Arsenic	< 69ug/L for Water Matrix	69U
			Barium	< 3ug/L for Water Matrix	3U
			Beryllium	< 0.6ug/L for Water Matrix	0.6U
			Calcium	< 78ug/L for Water Matrix	78U
			Cadmium	< 9ug/L for Water Matrix	9U
			Cobolt	< 24ug/L for Water Matrix	24U
			Chromium	< 6ug/L for Water Matrix	6U
			Copper	< 6ug/L for Water Matrix	6U
			Iron	< 120ug/L for Water Matrix	120U
			Mercury	< 26ug/L for Water Matrix	26U
			Potassium	< 1100ug/L for Water Matrix	1100U
			Lithium	< 6ug/L for Water Matrix	6U
			Magnesium	< 33ug/L for Water Matrix	45ug/L
			Manganese	< 3ug/L for Water Matrix	3U
			Molybdenum	< 15ug/L for Water Matrix	15U
			Sodium	< 180ug/L for Water Matrix	180U
			Nickel	< 30ug/L for Water Matrix	30U
			Potassium	< 75ug/L for Water Matrix	75U
			Lead	< 21ug/L for Water Matrix	21U
			Antimony	< 60ug/L for Water Matrix	60U
			Selenium	< 130ug/L for Water Matrix	130U
			Silicon	not calculated	51ug/L
			Strontium	< 1.2ug/L for Water Matrix	1.2U
			Thallium	< 78ug/L for Water Matrix	78U
			Vanadium	< 9ug/L for Water Matrix	9U
			Zinc	< 9ug/L for Water Matrix	9U

U = Not above the associated Quantitation Limit **D:\MSOFFICE\EXCEL\183-N-1.XLS**

Environmental Analytical Laboratory **ICP Metals**

Batch # 960404B

Quality Control Results for Samples: Analyst: John McCluskey

EAL02342-EAL02344 analyzed 04/09/96

Name of QC	HEIS #	EAL #	Analyte	Expected Result	Analytical Result
EAL02342 Replicate (1:20 dilution)	B0HCQ2	EAL02342	Silver	16ug/L	12U
			Aluminum	63U	63U
			Arsenic	69U	69U
			Barium	47ug/L	38ug/L
			Beryllium	0.6U	0.6U
			Calcium	22000ug/L	19000ug/L
			Cadmium	39ug/L	16ug/L
			Cobolt	68ug/L	47ug/L
			Chromium	6U	6U
			Copper	6U	6U
			Iron	120U	120U
			Mercury	26U	26U
			Potassium	10000ug/L	5900ug/L
			Lithium	6U	6U
			Magnesium	4600ug/L	4400ug/L
			Manganese	5ug/L	3U
			Molybdenum	23ug/L	15U
			Sodium	4300ug/L	3100ug/L
			Nickel	43ug/L	49ug/L
			Potassium	200ug/L	75U
			Lead	21U	21U
			Antimony	450ug/L	160ug/L
			Selenium	580ug/L	304ug/L
			Silicon	2600ug/L	2400ug/L
			Strontium	91ug/L	85ug/L
			Thallium	420ug/L	217ug/L
			Vanadium	89ug/L	90ug/L
			Zinc	950ug/L	220ug/L

U = Not above the associated Quantitation Limit

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Environmental Analytical Laboratory **ICP Metals**

Batch # 960404B

Quality Control Results for Samples: Analyst: John McCluskey

EAL02342-EAL02344 analyzed 04/09/96

Name of QC	HEIS #	EAL #	Analyte	Expected Result	Analytical Result
LCS water (MW digested)	NA	60408LCS	Silver	40ug/L	37ug/L
			Aluminum	< 63ug/L for Water Matrix	63U
			Arsenic	230ug/L	226ug/L
			Barium	10ug/L	10ug/L
			Beryllium	< 0.6ug/L for Water Matrix	0.6U
			Calcium	< 78ug/L for Water Matrix	78U
			Cadmium	30ug/L	28ug/L
			Cobolt	< 24ug/L for Water Matrix	24U
			Chromium	20ug/L	20ug/L
			Copper	< 6ug/L for Water Matrix	6U
			Iron	< 120ug/L for Water Matrix	120U
			Mercury	90ug/L	87ug/L
			Potassium	< 1100ug/L for Water Matrix	1100U
			Lithium	< 6ug/L for Water Matrix	6U
			Magnesium	< 33ug/L for Water Matrix	33U
			Manganese	< 3ug/L for Water Matrix	3U
			Molybdenum	< 15ug/L for Water Matrix	15U
			Sodium	< 180ug/L for Water Matrix	180U
			Nickel	< 30ug/L for Water Matrix	30U
			Potassium	< 75ug/L for Water Matrix	75U
			Lead	70ug/L	67ug/L
			Antimony	< 60ug/L for Water Matrix	60U
			Selenium	440ug/L	430ug/L
			Silicon	not calculated	23ug/L
			Strontium	< 1.2ug/L for Water Matrix	1.2U
			Thallium	< 78ug/L for Water Matrix	78U
			Vanadium	< 9ug/L for Water Matrix	9U
			Zinc	< 9ug/L for Water Matrix	9U

U = Not above the associated Quantitation Limit **D:\MSOFFICE\EXCEL\183-N-1.XLS**

EAL
BATCH # 960404B
SAMPLE RESULTS

ANALYST SIGNATURE: Stacey D Bolling

CUSTOMER ID OR HEIS NUMBER	LABORATORY ID	ANALYTE	RESULT	UNITS	DATE PREPARED	INSTRUMENT SERIAL NUMBER	DATE ANALYZED	QUANTITATION LIMIT
B0HCQ2	EAL02342	Fluoride	0.15	ug/mL	4/5/96	14693	4/5/96	.030U
B0HCQ2	EAL02342	Chloride	12.6	ug/mL	4/5/96	14693	4/5/96	.021U
B0HCQ2	EAL02342	Nitrate-Nitrogen	0.23	ug/mL	4/5/96	14693	4/5/96	.007U
B0HCQ2	EAL02342	Phophate-Phosphorus	.020U	ug/mL	4/5/96	14693	4/5/96	.020U
B0HCQ2	EAL02342	Sulfate	16.5	ug/mL	4/5/96	14693	4/5/96	.039U
B0HCQ2	EAL02342	pH	7.60	pH	4/5/96	93A0164B	4/5/96	N/A
B0HCQ2	EAL02342	Conductivity	163	umhos/cm	4/5/96	C0008109	4/5/96	N/A
B0HCQ2	EAL02342	TOC	11.6U	ug/mL	4/5/96	CCE-9105	4/12/96	11.6U
B0HCQ5	EAL02343	Fluoride	0.20	ug/mL	4/5/96	14693	4/5/96	.030U
B0HCQ5	EAL02343	Chloride	12.3	ug/mL	4/5/96	14693	4/5/96	.021U
B0HCQ5	EAL02343	Nitrate-Nitrogen	0.25	ug/mL	4/5/96	14693	4/5/96	.007U
B0HCQ5	EAL02343	Phophate	.020U	ug/mL	4/5/96	14693	4/5/96	.020U
B0HCQ5	EAL02343	Sulfate	17.5	ug/mL	4/5/96	14693	4/5/96	.039U
B0HCQ5	EAL02343	pH	7.41	pH	4/5/96	93A0164B	4/5/96	N/A
B0HCQ5	EAL02343	Conductivity	161	umhos/cm	4/5/96	C0008109	4/5/96	N/A
B0HCQ5	EAL02343	TOC	11.6U	ug/mL	4/5/96	CCE-9105	4/12/96	11.6U

U = analyte was not detected above the associated quantitation limit

630009

4/12/96

EAL
BATCH # 960404B
SAMPLE RESULTS

ANALYST SIGNATURE: Stacy D Bolling

CUSTOMER ID OR HEIS NUMBER	LABORATORY ID	ANALYTE	RESULT	UNITS	DATE PREPARED	INSTRUMENT SERIAL NUMBER	DATE ANALYZED	QUANTITATION LIMIT
B0HCQ8	EAL02344	Fluoride	0.37	ug/mL	4/5/96	14693	4/5/96	.030U
B0HCQ8	EAL02344	Chloride	11.6	ug/mL	4/5/96	14693	4/5/96	.021U
B0HCQ8	EAL02344	Nitrate-Nitrogen	0.24	ug/mL	4/5/96	14693	4/5/96	.007U
B0HCQ8	EAL02344	Phophate	.020U	ug/mL	4/5/96	14693	4/5/96	.020U
B0HCQ8	EAL02344	Sulfate	40.0	ug/mL	4/5/96	14693	4/5/96	.039U
B0HCQ8	EAL02344	pH	6.77	pH	4/5/96	93A0164B	4/5/96	N/A
B0HCQ8	EAL02344	Conductivity	187	umhos/cm	4/5/96	C0008109	4/5/96	N/A
B0HCQ8	EAL02344	TOC	11.6U	ug/mL	4/5/96	CCE-9105	4/12/96	11.6U

U = analyte was not detected above the associated quantitation limit

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EAL

BATCH # 960404B
QUALITY CONTROL

ANALYST SIGNATURE: Stacy D Rolling

ANALYTE	SAMPLE USED FOR QC	LCS OR SPIKE RECOVERY	RELATIVE PERCENT DIFFERENCE BETWEEN DUPLICATES	METHOD BLANK CONCENTRATION
Fluoride	EAL02344	101%	0%	.030U
Chloride	EAL02344	97%	3%	.021U
Nitrate-Nitrogen	EAL02344	123%	0%	.007U
Phosphate	EAL02344	89%	N/A	.020U
Sulfate	EAL02344	92%	2%	.039U
pH	EAL02344	N/A	1%	N/A
Conductivity	EAL02344	N/A	2%	N/A
TOC	EAL02344	91%	N/A	11.6U

U = analyte was not detected above the associated quantitation limit

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VOA analyses

EAL BATCH # SAMPLE RESULTS 960404B

ANALYST SIGNATURE: John McClusky

CUSTOMER ID OR HEIS NUMBER	LABORATORY ID	ANALYTE	RESULT	UNITS	DATE PREPARED	INSTRUMENT SERIAL NUMBER	DATE ANALYZED	QUANTITATION LIMIT
BOHCQ2	EAL02342	acetone	53.8	ug/L	NA	336A50377	04/08/96	11.7
BOHCQ2	EAL02342	chloroform	32.5	ug/L	NA	336A50377	04/08/96	1.2
BOHCQ2	EAL02342	bromodichloromethane	1.7	ug/L	NA	336A50377	04/08/96	0.9
BOHCQ2	EAL02342	other volatiles	U	ug/L	NA	336A50377	04/08/96	various
BOHCQ5	EAL02343	acetone	11.7U	ug/L	NA	336A50377	04/08/96	11.7
BOHCQ5	EAL02343	chloroform	30.8	ug/L	NA	336A50377	04/08/96	1.2
BOHCQ5	EAL02343	bromodichloromethane	1.6	ug/L	NA	336A50377	04/08/96	0.9
BOHCQ5	EAL02343	other volatiles	U	ug/L	NA	336A50377	04/08/96	various
BOHCQ8	EAL02344	acetone	11.7U	ug/L	NA	336A50377	04/08/96	11.7
BOHCQ8	EAL02344	chloroform	12.2	ug/L	NA	336A50377	04/08/96	1.2
BOHCQ8	EAL02344	bromodichloromethane	0.9U	ug/L	NA	336A50377	04/08/96	0.9
BOHCQ8	EAL02344	other volatiles	U	ug/L	NA	336A50377	04/08/96	various
BOHCR0	EAL02345	acetone	11.7U	ug/L	NA	336A50377	04/08/96	11.7
BOHCR0	EAL02345	chloroform	1.2U	ug/L	NA	336A50377	04/08/96	1.2
BOHCR0	EAL02345	bromodichloromethane	0.9U	ug/L	NA	336A50377	04/08/96	0.9
BOHCR0	EAL02345	other volatiles	U	ug/L	NA	336A50377	04/08/96	various

U = not detected above the associated quantitation limit

000012

EAL
BATCH # 960404B
QUALITY CONTROL
for samples EAL02342-EAL02345

VOA analyses

analyst: John McCluskey

ANALYTE	SAMPLE USED FOR QC	SPIKE RECOVERY	RELATIVE PERCENT DIFFERENCE BETWEEN DUPLICATES	BLANK CONCENTRATION
4-bromofluorobenzene	EAL02345	100%	1%	50ug/L spike

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INORGANIC PEER REVIEW CHECKLIST

SAMPLE #: EAL2342-2344 DATE SAMPLED: 4/4/96 DATE ANALYZED: 4/12/96

PEER REVIEWER: John McCluskey SIGNATURE: John McCluskey DATE: 04/15/96

Total Carbon/Total Inorganic Carbon

Water samples were refrigerated to 4°C and acidified to pH <2	(Yes)	No
Holding time requirement was met: 28 days from date sampled	(Yes)	No
The calibration standard met acceptance criteria	(Yes)	No
LCS recovery and RPD calculations are correct, and the values were reported on the QC spreadsheet	(Yes)	No
Spike recovery met acceptance criteria	(Yes)	No
The reagent blank was analyzed and reported on the QC spreadsheet	(Yes)	No
Conversion to soil concentration was correct	Yes	(NA)

9713512.2623

INORGANIC PEER REVIEW CHECKLIST

SAMPLE #: EAL2342-234 DATE SAMPLED: 4/4/96 DATE ANALYZED: 4/5/96

PEER REVIEWER: John McCluskey SIGNATURE: John McCluskey DATE: 04/15/96

IC Anions and/or Cations

Water samples for sulfate and/or nitrate were refrigerated to 4°C	(Yes)	NA
Holding time requirement was met: 48 hours from date sampled for nitrate; 28 days for other ions	(Yes)	No
Date of multi-point calibration	04/05/96	–
The calibration check standard met acceptance criteria for each ion reported	(Yes)	No
The response for each ion reported in each sample was less than the response for that ion in the highest calibration standard	(Yes)	No
Spike recovery and RPD calculations are correct, and the values were reported on the QC spreadsheet	(Yes)	No
Spike recovery met acceptance criteria for each ion reported	(Yes)	No
The reagent blank was analyzed and reported on the QC spreadsheet	(Yes)	No
Conversion to soil concentration was correct	Yes	(NA)

9713512.2624

INORGANIC PEER REVIEW CHECKLIST

SAMPLE #: E4L02342-2344 DATE SAMPLED: 04/04/96 DATE ANALYZED: 04/09/96

PEER REVIEWER: Stacey Bolling SIGNATURE: Stacey Bolling DATE: 4/15/96

ICP Metals

Water samples were preserved with nitric acid to pH <2. Soil samples were refrigerated at 4°C.	(Yes)	No
Holding time requirement was met: 6 months from date sampled.	(Yes)	No
Date of multi-point calibration	4/9/96	–
The high calibration check standard was within 5% of expected value for each metal reported	(Yes)	No
The midpoint calibration check standard was within 10% of expected value for each metal reported	(Yes)	No
The response for each metal reported in each sample was less than the response for that metal in the highest calibration standard	(Yes)	No
The QC Standard (LCS) recovery and RPD calculations are correct, and the values were reported on the QC spreadsheet	(Yes)	No
The QC standard (LCS), at ≈10 x MDL, met acceptance criteria for each metal reported	(Yes)	No
The reagent blank was analyzed and reported on the QC spreadsheet for each metal reported	(Yes)	No
Conversion to soil concentration was correct	Yes	(NA)

9713512.2625

ORGANIC PEER REVIEW CHECKLIST

SAMPLE #: EAL02342 - 2345 DATE SAMPLED: 04/04/96 DATE ANALYZED: 04/08/96

PEER REVIEWER: Stacey Bolling SIGNATURE: Stacey D Bolling DATE: 4/15/96

VOAs

Samples were preserved with hydrochloric acid to pH< 2, and refrigerated at 4°C	(Yes)	No
Holding time requirement was met: 14 days from date sampled	(Yes)	No
Date of multi-point calibration	4/4/94	–
Date of tune corresponds to sample analysis date	(Yes)	No
The continuing calibration standard met acceptance criteria for each compound reported	(Yes)	No
The response for each compound reported in each sample was less than the response for that compound in the highest calibration standard	(Yes)	No
LCS recovery and RPD calculations are correct, and were reported on the QC spreadsheet	(Yes)	No
Surrogate recoveries met acceptance criteria in each sample	(Yes)	No
LCS recovery met acceptance criteria *	Yes	No
The method blank was analyzed and reported on the QC spreadsheet	(Yes)	No
Sample numbers selected for QEDIT to be performed by reviewer (a minimum of 20% of the samples or one per batch)	EAL2343	–
Differences between reviewer QEDIT and analyst QEDIT have been resolved	(Yes)	NA
Conversion to soil concentration was correct	Yes	(NA)

* LCS not yet in place: Daily calibration check was analyzed instead.

GROSS RADIONUCLIDE SCREENING SAMPLE ANALYSIS REPORT

Radiometric Laboratory
Environmental Analytical Laboratory
IT Hanford Co.

Customer ID:	BOHCQ2	Pass screen	(X)
EAL ID:	EAL02346	Fail screen	( )
		Other's at 50 pCi limit	
		Pass screen	(X)
		Fail screen	( )

0.1	Calculated Beta Total Activity (pCi/g)
0.0	Calculated Alpha Total Activity (pCi/g)
0.1	Calculated total activity pCi/g
8.4	Calculated total activity error
44.2	Calculated total activity MDA

Screen sample based on (x) 99-Tc or ( ) 90-Sr for beta activity.

The screening for other's is based on **50 pCi/g Beta** and Alpha, and **2 pCi/g Alpha**.

A passed for **Soils** indicates that the soil sample contained less than **200 pCi/g** total radioactivity of which less than **20 pCi/g** is from alpha emitting radionuclides. For conservatism, a failed screen may also have one or more of the following characteristics: The sum of the total gamma activity detected in the soil is above ***5 pCi/g***; Beta emission from the bulk sample is found above the natural Hanford soil background (corresponding to approximately ***5 pCi/g Sr-90 or 100 pCi/g Tc-99***); or Alpha emission from the bulk soil is found above the natural Hanford soil background (corresponding to approximately ***10 pCi/g*** Am-241). Naturally occuring radionuclides common to Hanford soil, tritium, and Carbon-14 are not included in the screening measurement.

L Duff by a ID — Radiological Analyst — 4-5-96 — Date

Albert I. Davis — Radiological Manager — 4-5-96 — Date

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GROSS RADIONUCLIDE SCREENING SAMPLE ANALYSIS REPORT

Radiometric Laboratory
Environmental Analytical Laboratory
IT Hanford Co.

Customer ID:	BOHCQ5	Pass screen	(X)
EAL ID:	EAL02347	Fail screen	( )

Other's at 50 pCi limit
Pass screen (X)
Fail screen ( )

0.2	Calculated Beta Total Activity (pCi/g)
0.1	Calculated Alpha Total Activity (pCi/g)
0.3	Calculated total activity pCi/g
19.6	Calculated total activity error
91.1	Calculated total activity MDA

Screen sample based on (x) 99-Tc or ( ) 90-Sr for beta activity.

The screening for other's is based on **50 pCi/g Beta** and Alpha, and **2 pCi/g Alpha.**

A passed for **Soils** indicates that the soil sample contained less than **200 pCi/g** total radioactivity of which less than **20 pCi/g** is from alpha emitting radionuclides. For conservatism, a failed screen may also have one or more of the following characteristics: The sum of the total gamma activity detected in the soil is above ***5 pCi/g***; Beta emission from the bulk sample is found above the natural Hanford soil background (corresponding to approximately ***5 pCi/g Sr-90 or 100 pCi/g Tc-99***); or Alpha emission from the bulk soil is found above the natural Hanford soil background (corresponding to approximately ***10 pCi/g*** Am-241). Naturally occuring radionuclides common to Hanford soil, tritium, and Carbon-14 are not included in the screening measurement.

J Duffy by ADD
Radiological Analyst

4-5-96
Date

Albert I. Davis
Radiological Manager

4-5-96
Date

GROSS RADIONUCLIDE SCREENING SAMPLE ANALYSIS REPORT

Radiometric Laboratory
Environmental Analytical Laboratory
IT Hanford Co.

Customer ID:	BOHCQ8	Pass screen	(X)
EAL ID:	EAL02348	Fail screen	( )
		Other's at 50 pCi limit	
		Pass screen	(X)
		Fail screen	( )

0.1	Calculated Beta Total Activity (pCi/g)
0.1	Calculated Alpha Total Activity (pCi/g)
0.2	Calculated total activity pCi/g
8.4	Calculated total activity error
43.7	Calculated total activity MDA

Screen sample based on (x) 99-Tc or ( ) 90-Sr for beta activity.

The screening for other's is based on **50 pCi/g Beta** and Alpha, and **2 pCi/g Alpha.**

A passed for **Soils** indicates that the soil sample contained less than **200 pCi/g** total radioactivity of which less than **20 pCi/g** is from alpha emitting radionuclides. For conservatism, a failed screen may also have one or more of the following characteristics: The sum of the total gamma activity detected in the soil is above ***5 pCi/g***; Beta emission from the bulk sample is found above the natural Hanford soil background (corresponding to approximately ***5 pCi/g Sr-90 or 100 pCi/g Tc-99***); or Alpha emission from the bulk soil is found above the natural Hanford soil background (corresponding to approximately ***10 pCi/g*** Am-241). Naturally occuring radionuclides common to Hanford soil, tritium, and Carbon-14 are not included in the screening measurement.

Radiological Analyst	4-5-96 Date	Albert I. Davis Radiological Manager	4-5-96 Date

000020

Bechtel Hanford, Inc. **CALCULATION SHEET**

Originator A I Davis **Date** 4-5-96 **Calc. No.** _____ **Rev. No.** _____
Project Bill Whitten Shipping **Job No.** _____ **Checked** _____ **Date** _____
Subject Samples to Quanterra. **Sheet No.** _____

1	Soil 100DR			Twst	Ct	wt gm	Bkg/t	99 tc std	PAFLD
2	BØH8W9	EAL 2335	B	306	9958	3.218	41349/260	11518/60	
3			α	205	44		50/250	3510/60	
4									
5	water.								
6	BØHCQ2	EAL Ø2346		806	4501	10.	41349/260	11518/60	UNFWH
7				205	8		50/250	3510/60	
8									
9	BØHCQ5	EAL Ø2347		704	4370	10.	50530/320	10319/60	
10				213	6		44/280	6611/90	
11									
12	BØHCQ8	EAL Ø2348		806	4310	10.	41349/260	11518/60	
13				205	7		50/250	3510/60	
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Bechtel Hanford, Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

960404B

Data Turnaround
■ Priority
☐ Normal

Collector: D Bowers/D St John	Company Contact: D. D. Blankenship	Telephone: (509) 373-5456
Project Designation: 183-N Backwash Permit Sampling	Sampling Location: 100 N	SAF No.: B96-091
Ice Chest No.	Field Logbook No.	Method of Shipment: Hand Delivered
Shipped To: EAL	Offsite Property No.: NA	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: Maintain samples between 2°C and 6°C.		

SAMPLE ANALYSIS	Preservation	Type of Container	No. of Container(s)	Volume	pH - D4980, Conductivity - 9050	IC Anions - 300.0	Total Carbon - 415.M	ICP Metals - 6010A (TAL)	VOA - 8260A (TCL)	Rad Screen				
	Cool 4°C	P/G	1	60mL										
	Cool 4°C	P/G	1	20mL										
	Cool 4°C	G	1	40mL										
	HNO3	P/G	1	500mL										
	HCl	Gs	3	40mL										
	Cool 4°C	P/G	1	1L										
	HCL	6s	4	40ml					VOA 8260A TCL					

Sample No.	Matrix*	Date Sampled	Time Sampled									
B0HCQ2	W	4-4-96	1012	X	X	X	X	X	X		IC, ICPMS	EAL Ø2342 EAL Ø2346
B0HCQ5	W	4-4-96	1012	X	X	X	X	~~X~~ 4-4-96	X	X		EAL Ø2343 EAL Ø2347
B0HCQ8	W	4-4-96	1051	X	X	X	X	X	X			EAL Ø2344 EAL Ø2348
B0HCR0	W	4/4/96	9:26					~~X~~ 4-4-96		X		EAL Ø2345

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Doug Bowers	Date/Time: 4-4-96/1350	Received By: David St John FTH	Date/Time: 4-4-96 1350
Relinquished By: David St John FTH	Date/Time: 4 4 96 1514	Received By: Al Davis	Date/Time: 4-4-96 1514
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS
Fax Rad Screen results to Bill Whitten at 376-8851.

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

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