ecology and environment, inc.
International Specialists in the Environment

2101 Fourth Avenue, Suite 1900, Seattle, WA 98121
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: January 21, 2004

TO: Renee Nordeen, Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-Chemist, E & E, Seattle, WA MW

SUBJ: **Inorganic Data Quality Summary Check, Gorst Creek-Bremerton Auto Wrecking Integrated Assessment, Bremerton, Washington**

REF: TDD: 03-07-0009 PAN: 001281.0291.01IA

The data quality assurance summary check of 20 soil/sediment samples collected from the Gorst Creek-Bremerton Auto Wrecking site in Bremerton, Washington, has been completed. Target Analyte List (TAL) metals analyses (EPA CLP SOW ILM04.1) were performed by the Chemtech Consulting Group of Mountainside, New Jersey.

The samples were numbered:

MJ2768	MJ2769	MJ2770	MJ2771	MJ2772
MJ2773	MJ2774	MJ2775	MJ2776	MJ2777
MJ2778	MJ2779	MJ2780	MJ2781	MJ2782
MJ2783	MJ2784	MJ2785	MJ2787	MJ27B1

The secondary reviewer added the (J) qualifier to sample results (B) that were only qualified based on concentration. The (JB) qualifiers were placed in the "Q" column of the Form I for clarity.

Sample results qualified (B) by the laboratory to indicate a result less than the contract required quantitation limit but greater than the instrument detection limit that also had additional data or bias qualifiers applied by the EPA validator were changed to (JB) by the secondary reviewer for clarity. All results qualified (B) by the laboratory are considered non-detect for Hazard Ranking System purposes.

No validation discrepancies were noted.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

January 15, 2004

Reply To
Attn. Of: **OEA-095**

MEMORANDUM

SUBJECT: Data Validation for Gorst Creek PA/SI, Case# 32364, SDG: MJ27B1, Inorganic Analyses

FROM: Donald Matheny, Senior Chemist
Technical Support Unit, OEA

TO: Joanne LaBaw, Site Assessment Manager
Office of Environmental Cleanup

CC: Bruce Woods, Region 10 CLP TPO

The data validation of inorganic analyses for the above sample set is complete. 20 soil/sediment samples were analyzed for metals by the Chemtech Consulting Group, Mountainside, New Jersey. Sample numbers for this delivery group are as follows:

MJ2768	MJ2769	MJ2770	MJ2771	MJ2772
MJ2773	MJ2774	MJ2775	MJ2776	MJ2777
MJ2778	MJ2779	MJ2780	MJ2781	MJ2782
MJ2783	MJ2784	MJ2785	MJ2787	MJ27B1

DATA QUALIFICATIONS

The following comments refer to Chemtech's performance in meeting quality control specifications outlined in the "CLP Statement of Work (CLP-SOW) for Inorganic Analysis, rev. ILM04.1", the "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA-540/R-94-013" and the judgement of the reviewer. The comments presented herein are based on the information provided for the review.

1.0 TIMELINESS - Acceptable

The holding time from the date of collection to the date of digestion and analyses were met for all metals (metals 180 days, mercury 28 days). Samples were collected on 11/10/03 thru 11/12/03. ICP-AES analysis was conducted on 11/24/03 and 11/25/03 and mercury on 12/1/03.

2.0 INSTRUMENT CALIBRATION/VERIFICTION - Acceptable

For ICP-AES analysis, instrument calibration was performed in accordance with method requirements. Recoveries for instrument verification standards (91-107%) met the frequency (10%) and recovery (90-110%) criteria.

For mercury analysis, the instrument was calibrated with a blank and five standards. The correlation coefficient (0.999) met the criterion ($\geq$ 0.995). Recoveries for verification standards (81-116%) met the frequency (10%) and recovery (80-120%) criteria.

Quantitation verification standards met both the frequency and recovery criteria for all analytes.

3.0 ICP-AES INTERFERENCE CHECK SAMPLE (ICS) - Acceptable

An ICS was analyzed at the beginning and end of each analytical run. ICS recoveries (81-116%) met the recovery criterion (80-120%) for all metals.

4.0 LABORATORY CONTROL SAMPLES (LCS) - Acceptable

All metals recoveries for the LCS were within the established control limits for soils.

5.0 BLANKS - Acceptable

Preparation and instrument control blanks were prepared and analyzed in accordance with method requirements. Blank results were either non-detected or below a factor that could impact analytical sample results for all elements.

6.0 MATRIX SPIKE ANALYSIS

A matrix spike analysis was performed for sample MJ27B1. Percent recoveries (78-117%) met the recovery criterion (75-125%) with the exception of manganese (129%) and silver (72%). Manganese values were qualified "J" with a high bias. Silver values were qualified "J" or "UJ" with a low bias.

7.0 DUPLICATE SAMPLE ANALYSIS - Acceptable

A duplicate sample analysis was performed for sample MJ27B1. Relative percent differences were within $\pm$ 35% or $\pm$ 2xCRDL.

8.0 ICP-AES SERIAL DILUTION

A five-fold serial dilution was performed for sample MJ27B1. Percent differences were within the control criterion (≤ 10%) with the exception of chromium (68%) and nickel (22%). Chromium and nickel values were qualified "J". Chromium values may be biased high whereas nickel values may be biased low.

9.0 ASSESSMENT SUMMARY

The following is a summary of qualified data: The (J) qualifier applied by the laboratory, represents results that are estimated. These values fall within a concentration range that is above the method detection limit but below the laboratory's quantitation limit. Manganese and silver values were qualified "J" or "UJ" due to non-compliant recoveries in the matrix spike. Manganese values may be biased high whereas silver values may be biased low. Chromium and nickel values were qualified "J" due to uncertainties associated with the serial dilution. Chromium values may be biased high whereas nickel values may be biased low.

DATA QUALIFIERS

U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

J - The associated value is an estimated quantity.

R - The data are unusable. The analyte may or may not be present in the sample.

UJ - The analyte was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

PROJECT SPECIFIC DATA QUALIFIERS:

L - Low bias.

H - High bias.

K - Unknown Bias.

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJ2768

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-04

Level (low/med):LOW Date Received: 11/15/03

% Solids: 77.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14600			P
7440-36-0	Antimony	2.4	U		P
7440-38-2	Arsenic	5.9			P
7440-39-3	Barium	96.7			P
7440-41-7	Beryllium	0.25		JB	P
7440-43-9	Cadmium	0.18	U		P
7440-70-2	Calcium	4600			P
7440-47-3	Chromium	33.8		JH	P
7440-48-4	Cobalt	12.2		JB	P
7440-50-8	Copper	23.4			P
7439-89-6	Iron	22700			P
7439-92-1	Lead	9.6			P
7439-95-4	Magnesium	5810			P
7439-96-5	Manganese	579		JH	P
7439-97-6	Mercury	0.12	U		CV
7440-02-0	Nickel	39.4		JL	P
7440-09-7	Potassium	661		JB	P
7782-49-2	Selenium	0.98	U		P
7440-22-4	Silver	0.36	U	UJL	P
7440-23-5	Sodium	235		JB	P
7440-28-0	Thallium	1.8	U		P
7440-62-2	Vanadium	52.1			P
7440-66-6	Zinc	58.1			P
	Cyanide				NR

DJH 1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJ2769

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-05

Level (low/med): LOW Date Received: 11/15/03

% Solids: 86.2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12500			P
7440-36-0	Antimony	2.1	U		P
7440-38-2	Arsenic	6.8			P
7440-39-3	Barium	118			P
7440-41-7	Beryllium	0.28		JB	P
7440-43-9	Cadmium	0.59		JB	P
7440-70-2	Calcium	9250			P
7440-47-3	Chromium	26.2		JH	P
7440-48-4	Cobalt	12.0			P
7440-50-8	Copper	26.1			P
7439-89-6	Iron	15900			P
7439-92-1	Lead	113			P
7439-95-4	Magnesium	4330			P
7439-96-5	Manganese	357		JH	P
7439-97-6	Mercury	0.26	U		CV
7440-02-0	Nickel	32.3		JL	P
7440-09-7	Potassium	384		JB	P
7782-49-2	Selenium	0.88	U		P
7440-22-4	Silver	0.32	U	UJL	P
7440-23-5	Sodium	135		JB	P
7440-28-0	Thallium	1.6	U		P
7440-62-2	Vanadium	36.6			P
7440-66-6	Zinc	112			P
	Cyanide				NR

DM 1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJ2770

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-06

Level (low/med): LOW Date Received: 11/15/03

% Solids: 86.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9710			P
7440-36-0	Antimony	3.5		JB	P
7440-38-2	Arsenic	16.0			P
7440-39-3	Barium	189			P
7440-41-7	Beryllium	0.40		JB	P
7440-43-9	Cadmium	0.24		JB	P
7440-70-2	Calcium	18300			P
7440-47-3	Chromium	20.2		JH	P
7440-48-4	Cobalt	8.3		JB	P
7440-50-8	Copper	44.2			P
7439-89-6	Iron	14100			P
7439-92-1	Lead	255			P
7439-95-4	Magnesium	4100			P
7439-96-5	Manganese	283		JH	P
7439-97-6	Mercury	0.28	U		CV
7440-02-0	Nickel	29.2		JL	P
7440-09-7	Potassium	580		JB	P
7782-49-2	Selenium	0.88	U		P
7440-22-4	Silver	0.32	U	JL	P
7440-23-5	Sodium	287		JB	P
7440-28-0	Thallium	1.6	U		P
7440-62-2	Vanadium	29.6			P
7440-66-6	Zinc	161			P
	Cyanide				NR

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Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJ2771

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-07

Level (low/med): LOW Date Received: 11/15/03

% Solids: 84.5

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9650			P
7440-36-0	Antimony	3.8		JB	P
7440-38-2	Arsenic	3.2			P
7440-39-3	Barium	63.7			P
7440-41-7	Beryllium	0.18		JB	P
7440-43-9	Cadmium	0.67		JB	P
7440-70-2	Calcium	8620			P
7440-47-3	Chromium	28.0		JH	P
7440-48-4	Cobalt	8.3		JB	P
7440-50-8	Copper	43.8			P
7439-89-6	Iron	16100			P
7439-92-1	Lead	57.4			P
7439-95-4	Magnesium	4190			P
7439-96-5	Manganese	314		JH	P
7439-97-6	Mercury	0.12	U		CV
7440-02-0	Nickel	34.1		JL	P
7440-09-7	Potassium	472		JB	P
7782-49-2	Selenium	0.88	U		P
7440-22-4	Silver	0.52		JL	P
7440-23-5	Sodium	186		JB	P
7440-28-0	Thallium	1.6	U		P
7440-62-2	Vanadium	36.2			P
7440-66-6	Zinc	134			P
	Cyanide				NR

JB

DM 1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJ2772

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-08

Level (low/med): LOW Date Received: 11/15/03

% Solids: 81.1

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12200			P
7440-36-0	Antimony	2.3	U		P
7440-38-2	Arsenic	3.5			P
7440-39-3	Barium	71.0			P
7440-41-7	Beryllium	0.22	B	JB	P
7440-43-9	Cadmium	0.31	B	JB	P
7440-70-2	Calcium	4390			P
7440-47-3	Chromium	31.9		JH	P
7440-48-4	Cobalt	9.9	B	JB	P
7440-50-8	Copper	20.0			P
7439-89-6	Iron	17300			P
7439-92-1	Lead	32.0			P
7439-95-4	Magnesium	5020			P
7439-96-5	Manganese	283		JH	P
7439-97-6	Mercury	0.12	U		CV
7440-02-0	Nickel	35.1		JL	P
7440-09-7	Potassium	615	B	JB	P
7782-49-2	Selenium	0.94	U		P
7440-22-4	Silver	0.35	U	UJL	P
7440-23-5	Sodium	156	B	JB	P
7440-28-0	Thallium	1.7	U		P
7440-62-2	Vanadium	45.4			P
7440-66-6	Zinc	90.2			P
	Cyanide				NR

DM 1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJ2773

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-09

Level (low/med): LOW Date Received: 11/15/03

% Solids: 79.4

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12300			P
7440-36-0	Antimony	2.3	U		P
7440-38-2	Arsenic	4.1			P
7440-39-3	Barium	80.5			P
7440-41-7	Beryllium	0.23	B	JB	P
7440-43-9	Cadmium	0.41	B	JB	P
7440-70-2	Calcium	4500			P
7440-47-3	Chromium	31.8		JH	P
7440-48-4	Cobalt	10.2		JB	P
7440-50-8	Copper	28.6			P
7439-89-6	Iron	17100			P
7439-92-1	Lead	48.5			P
7439-95-4	Magnesium	5220			P
7439-96-5	Manganese	285		JH	P
7439-97-6	Mercury	0.27	U		CV
7440-02-0	Nickel	37.2		JL	P
7440-09-7	Potassium	576	B	JB	P
7782-49-2	Selenium	0.94	U		P
7440-22-4	Silver	0.35	U	UJL	P
7440-23-5	Sodium	141	B	JB	P
7440-28-0	Thallium	1.7	U		P
7440-62-2	Vanadium	43.8			P
7440-66-6	Zinc	131			P
	Cyanide				NR

DM
1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJ2774

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-10

Level (low/med): LOW Date Received: 11/15/03

% Solids: 79.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10400			P
7440-36-0	Antimony	2.3	U		P
7440-38-2	Arsenic	1.8		JB	P
7440-39-3	Barium	125			P
7440-41-7	Beryllium	0.25		JB	P
7440-43-9	Cadmium	0.51		JB	P
7440-70-2	Calcium	4590			P
7440-47-3	Chromium	21.2		JH	P
7440-48-4	Cobalt	8.4		JB	P
7440-50-8	Copper	19.6			P
7439-89-6	Iron	14000			P
7439-92-1	Lead	202			P
7439-95-4	Magnesium	4050			P
7439-96-5	Manganese	183		JH	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	34.2		JL	P
7440-09-7	Potassium	433		JB	P
7782-49-2	Selenium	0.95	U		P
7440-22-4	Silver	0.35	U	UJL	P
7440-23-5	Sodium	118	U		P
7440-28-0	Thallium	1.7	U		P
7440-62-2	Vanadium	30.2			P
7440-66-6	Zinc	267			P
	Cyanide				NR

DM
1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJ2775

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-11

Level (low/med): LOW Date Received: 11/15/03

% Solids: 84.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12500			P
7440-36-0	Antimony	2.1	U		P
7440-38-2	Arsenic	2.8			P
7440-39-3	Barium	120			P
7440-41-7	Beryllium	0.23		JB	P
7440-43-9	Cadmium	0.46		JB	P
7440-70-2	Calcium	3860			P
7440-47-3	Chromium	23.0		JH	P
7440-48-4	Cobalt	9.1		JB	P
7440-50-8	Copper	24.2			P
7439-89-6	Iron	16200			P
7439-92-1	Lead	141			P
7439-95-4	Magnesium	4010			P
7439-96-5	Manganese	243		JH	P
7439-97-6	Mercury	1.1			CV
7440-02-0	Nickel	34.4		JL	P
7440-09-7	Potassium	423		JB	P
7782-49-2	Selenium	0.87	U		P
7440-22-4	Silver	0.32	U	UJL	P
7440-23-5	Sodium	108	U		P
7440-28-0	Thallium	1.6	U		P
7440-62-2	Vanadium	35.7			P
7440-66-6	Zinc	215			P
	Cyanide				NR

DM 1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJ2776

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-12

Level (low/med):LOW Date Received: 11/15/03

% Solids: 88.1

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14800			P
7440-36-0	Antimony	2.1	U		P
7440-38-2	Arsenic	2.6			P
7440-39-3	Barium	144			P
7440-41-7	Beryllium	0.24		JB	P
7440-43-9	Cadmium	0.40		JB	P
7440-70-2	Calcium	4230			P
7440-47-3	Chromium	24.5		JH	P
7440-48-4	Cobalt	9.9		JB	P
7440-50-8	Copper	21.1			P
7439-89-6	Iron	17100			P
7439-92-1	Lead	167			P
7439-95-4	Magnesium	4000			P
7439-96-5	Manganese	259		JH	P
7439-97-6	Mercury	0.22	U		CV
7440-02-0	Nickel	40.3		JL	P
7440-09-7	Potassium	453		JB	P
7782-49-2	Selenium	0.85	U		P
7440-22-4	Silver	0.31	U	UJL	P
7440-23-5	Sodium	240		JB	P
7440-28-0	Thallium	1.5	U		P
7440-62-2	Vanadium	37.9			P
7440-66-6	Zinc	279			P
	Cyanide				NR

DM
1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJ2777

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-13

Level (low/med): LOW Date Received: 11/15/03

% Solids: 85.3

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12400			P
7440-36-0	Antimony	2.1	U		P
7440-38-2	Arsenic	4.0			P
7440-39-3	Barium	82.5			P
7440-41-7	Beryllium	0.26		JB	P
7440-43-9	Cadmium	0.40		JB	P
7440-70-2	Calcium	6030			P
7440-47-3	Chromium	35.3		JH	P
7440-48-4	Cobalt	9.9		JB	P
7440-50-8	Copper	26.2			P
7439-89-6	Iron	18500			P
7439-92-1	Lead	121			P
7439-95-4	Magnesium	5110			P
7439-96-5	Manganese	297		JH	P
7439-97-6	Mercury	0.12	U		CV
7440-02-0	Nickel	37.9		JL	P
7440-09-7	Potassium	573		JB	P
7782-49-2	Selenium	0.87	U		P
7440-22-4	Silver	0.32	U	UJL	P
7440-23-5	Sodium	221		JB	P
7440-28-0	Thallium	1.6	U		P
7440-62-2	Vanadium	43.8			P
7440-66-6	Zinc	189			P
	Cyanide				NR

DM
1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJ2778

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-14

Level (low/med): LOW Date Received: 11/15/03

% Solids: 87.8

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10300			P
7440-36-0	Antimony	4.0	B	JB	P
7440-38-2	Arsenic	9.5			P
7440-39-3	Barium	95.8			P
7440-41-7	Beryllium	0.24	B	JB	P
7440-43-9	Cadmium	0.16	U		P
7440-70-2	Calcium	26400			P
7440-47-3	Chromium	20.7		JH	P
7440-48-4	Cobalt	7.1	B	JB	P
7440-50-8	Copper	23.4			P
7439-89-6	Iron	12200			P
7439-92-1	Lead	180			P
7439-95-4	Magnesium	4230			P
7439-96-5	Manganese	274		JH	P
7439-97-6	Mercury	0.50			CV
7440-02-0	Nickel	27.6		JL	P
7440-09-7	Potassium	382	B	JB	P
7782-49-2	Selenium	0.87	U		P
7440-22-4	Silver	0.32	U	UJL	P
7440-23-5	Sodium	177	B	JB	P
7440-28-0	Thallium	1.5	U		P
7440-62-2	Vanadium	29.5			P
7440-66-6	Zinc	110			P
	Cyanide				NR

DM
1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJ2779

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-15

Level (low/med):LOW Date Received: 11/15/03

% Solids: 87.1

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13700			P
7440-36-0	Antimony	2.5		JB	P
7440-38-2	Arsenic	6.6			P
7440-39-3	Barium	227			P
7440-41-7	Beryllium	0.28		JB	P
7440-43-9	Cadmium	0.33		JB	P
7440-70-2	Calcium	25300			P
7440-47-3	Chromium	23.5		JH	P
7440-48-4	Cobalt	8.3		JB	P
7440-50-8	Copper	25.5			P
7439-89-6	Iron	15200			P
7439-92-1	Lead	1100			P
7439-95-4	Magnesium	4410			P
7439-96-5	Manganese	262		JH	P
7439-97-6	Mercury	0.30	U		CV
7440-02-0	Nickel	32.5		JL	P
7440-09-7	Potassium	564		JB	P
7782-49-2	Selenium	0.87	U		P
7440-22-4	Silver	0.32	U	UJL	P
7440-23-5	Sodium	421		JB	P
7440-28-0	Thallium	1.6	U		P
7440-62-2	Vanadium	35.9			P
7440-66-6	Zinc	204			P
	Cyanide				NR

DM
1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJ2780

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-16

Level (low/med): LOW Date Received: 11/15/03

% Solids: 87.8

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11400			P
7440-36-0	Antimony	2.1		JB	P
7440-38-2	Arsenic	5.7			P
7440-39-3	Barium	76.4			P
7440-41-7	Beryllium	0.21		JB	P
7440-43-9	Cadmium	0.28		JB	P
7440-70-2	Calcium	7980			P
7440-47-3	Chromium	20.5		JH	P
7440-48-4	Cobalt	8.6		JB	P
7440-50-8	Copper	19.3			P
7439-89-6	Iron	14000			P
7439-92-1	Lead	185			P
7439-95-4	Magnesium	3930			P
7439-96-5	Manganese	214		JH	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	32.0		JL	P
7440-09-7	Potassium	504		JB	P
7782-49-2	Selenium	0.87	U		P
7440-22-4	Silver	0.32	U	JL	P
7440-23-5	Sodium	266		JB	P
7440-28-0	Thallium	1.5	U		P
7440-62-2	Vanadium	33.4			P
7440-66-6	Zinc	122			P
	Cyanide				NR

DM 1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJ2781

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-17

Level (low/med):LOW Date Received: 11/15/03

% Solids: 86.3

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12400			P
7440-36-0	Antimony	2.1	U		P
7440-38-2	Arsenic	1.3	U		P
7440-39-3	Barium	110			P
7440-41-7	Beryllium	0.23	B	JB	P
7440-43-9	Cadmium	0.20	B	JB	P
7440-70-2	Calcium	3120			P
7440-47-3	Chromium	22.3		JH	P
7440-48-4	Cobalt	9.7	B	JB	P
7440-50-8	Copper	21.7			P
7439-89-6	Iron	16700			P
7439-92-1	Lead	68.9			P
7439-95-4	Magnesium	3990			P
7439-96-5	Manganese	228		JH	P
7439-97-6	Mercury	0.13			CV
7440-02-0	Nickel	33.7		JL	P
7440-09-7	Potassium	515	B	JB	P
7782-49-2	Selenium	0.88	U		P
7440-22-4	Silver	5.0		JL	P
7440-23-5	Sodium	206	B	JB	P
7440-28-0	Thallium	1.6	U		P
7440-62-2	Vanadium	36.4			P
7440-66-6	Zinc	98.8			P
	Cyanide				NR

DM
1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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EPA SAMPLE NO.

MJ2782

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-18

Level (low/med): LOW Date Received: 11/15/03

% Solids: 76.8

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12900			P
7440-36-0	Antimony	2.3	U		P
7440-38-2	Arsenic	5.7			P
7440-39-3	Barium	137			P
7440-41-7	Beryllium	0.20		JB	P
7440-43-9	Cadmium	0.46		JB	P
7440-70-2	Calcium	10100			P
7440-47-3	Chromium	30.6		JH	P
7440-48-4	Cobalt	9.8		JB	P
7440-50-8	Copper	31.8			P
7439-89-6	Iron	23400			P
7439-92-1	Lead	149			P
7439-95-4	Magnesium	4020			P
7439-96-5	Manganese	299		JH	P
7439-97-6	Mercury	0.19	U		CV
7440-02-0	Nickel	33.8		JL	P
7440-09-7	Potassium	496		JB	P
7782-49-2	Selenium	0.96	U		P
7440-22-4	Silver	0.35	U	UJL	P
7440-23-5	Sodium	183		JB	P
7440-28-0	Thallium	1.7	U		P
7440-62-2	Vanadium	33.1			P
7440-66-6	Zinc	185			P
	Cyanide				NR

DM 1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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EPA SAMPLE NO.

MJ2783

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-19

Level (low/med): LOW Date Received: 11/15/03

% Solids: 80.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12400			P
7440-36-0	Antimony	2.5		JB	P
7440-38-2	Arsenic	7.6			P
7440-39-3	Barium	139			P
7440-41-7	Beryllium	0.23		JB	P
7440-43-9	Cadmium	1.6			P
7440-70-2	Calcium	4990			P
7440-47-3	Chromium	31.1		JH	P
7440-48-4	Cobalt	10.1		JB	P
7440-50-8	Copper	44.8			P
7439-89-6	Iron	17100			P
7439-92-1	Lead	278			P
7439-95-4	Magnesium	4690			P
7439-96-5	Manganese	291		JH	P
7439-97-6	Mercury	0.62			CV
7440-02-0	Nickel	35.8		JL	P
7440-09-7	Potassium	550		JB	P
7782-49-2	Selenium	0.92	U		P
7440-22-4	Silver	0.34	U	UJL	P
7440-23-5	Sodium	190		JB	P
7440-28-0	Thallium	1.6	U		P
7440-62-2	Vanadium	43.7			P
7440-66-6	Zinc	256			P
	Cyanide				NR

DM 1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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EPA SAMPLE NO.

MJ2784

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-20

Level (low/med):LOW Date Received: 11/15/03

% Solids: 85.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11500			P
7440-36-0	Antimony	2.3	B	JB	P
7440-38-2	Arsenic	5.7			P
7440-39-3	Barium	129			P
7440-41-7	Beryllium	0.26	B	JB	P
7440-43-9	Cadmium	0.20	B	JB	P
7440-70-2	Calcium	15300			P
7440-47-3	Chromium	21.6		JH	P
7440-48-4	Cobalt	7.9	B	JB	P
7440-50-8	Copper	21.0			P
7439-89-6	Iron	13700			P
7439-92-1	Lead	486			P
7439-95-4	Magnesium	4240			P
7439-96-5	Manganese	255		JH	P
7439-97-6	Mercury	0.22	U		CV
7440-02-0	Nickel	30.6		JL	P
7440-09-7	Potassium	453	B	JB	P
7782-49-2	Selenium	0.87	U		P
7440-22-4	Silver	0.32	U	UJL	P
7440-23-5	Sodium	257	B	JB	P
7440-28-0	Thallium	1.6	U		P
7440-62-2	Vanadium	34.5			P
7440-66-6	Zinc	137			P
	Cyanide				NR

DM
1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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EPA SAMPLE NO.

MJ2785

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-21

Level (low/med):LOW Date Received: 11/15/03

% Solids: 85.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9850			P
7440-36-0	Antimony	2.3		JB	P
7440-38-2	Arsenic	9.8			P
7440-39-3	Barium	102			P
7440-41-7	Beryllium	0.22		JB	P
7440-43-9	Cadmium	0.23		JB	P
7440-70-2	Calcium	18300			P
7440-47-3	Chromium	21.6		JH	P
7440-48-4	Cobalt	7.8		JB	P
7440-50-8	Copper	23.2			P
7439-89-6	Iron	13100			P
7439-92-1	Lead	289			P
7439-95-4	Magnesium	3480			P
7439-96-5	Manganese	245		JH	P
7439-97-6	Mercury	0.32	U		CV
7440-02-0	Nickel	29.2		JL	P
7440-09-7	Potassium	559		JB	P
7782-49-2	Selenium	0.89	U		P
7440-22-4	Silver	0.33	U	UJL	P
7440-23-5	Sodium	308		JB	P
7440-28-0	Thallium	1.6	U		P
7440-62-2	Vanadium	28.0			P
7440-66-6	Zinc	144			P
	Cyanide				NR

DM
1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJ2787

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-22

Level (low/med): LOW Date Received: 11/15/03

% Solids: 82.3

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	9.1		JB	P
7440-38-2	Arsenic	14.2			P
7440-39-3	Barium	127			P
7440-41-7	Beryllium	0.27		JB	P
7440-43-9	Cadmium	1.2			P
7440-70-2	Calcium	25500			P
7440-47-3	Chromium	23.7		JH	P
7440-48-4	Cobalt	8.8		JB	P
7440-50-8	Copper	39.8			P
7439-89-6	Iron	24100			P
7439-92-1	Lead	96.4			P
7439-95-4	Magnesium	3720			P
7439-96-5	Manganese	265		JH	P
7439-97-6	Mercury	0.16	U		CV
7440-02-0	Nickel	33.6		JL	P
7440-09-7	Potassium	626		JB	P
7782-49-2	Selenium	0.92	U		P
7440-22-4	Silver	0.34	U	UJL	P
7440-23-5	Sodium	511		JB	P
7440-28-0	Thallium	1.7	U		P
7440-62-2	Vanadium	29.1			P
7440-66-6	Zinc	982			P
	Cyanide				NR

DM 1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJ27B1

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 32364 SAS No.: SDG No.: MJ27B1

Matrix (soil/water): SOIL Lab Sample ID: R5087-01

Level (low/med): LOW Date Received: 11/15/03

% Solids: 94.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13700			P
7440-36-0	Antimony	2.0	U		P
7440-38-2	Arsenic	1.8	B	JB	P
7440-39-3	Barium	58.1			P
7440-41-7	Beryllium	0.21	B	JB	P
7440-43-9	Cadmium	2.0			P
7440-70-2	Calcium	2730			P
7440-47-3	Chromium	25.6		JH	P
7440-48-4	Cobalt	8.9	B	JB	P
7440-50-8	Copper	29.4			P
7439-89-6	Iron	17200			P
7439-92-1	Lead	81.8			P
7439-95-4	Magnesium	3840			P
7439-96-5	Manganese	304		JH	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	30.3		JL	P
7440-09-7	Potassium	345	B	JB	P
7782-49-2	Selenium	0.81	U		P
7440-22-4	Silver	0.30	U	JL	P
7440-23-5	Sodium	134	B	JB	P
7440-28-0	Thallium	1.4	U		P
7440-62-2	Vanadium	39.3			P
7440-66-6	Zinc	84.8			P
	Cyanide				NR

DM 1-15-04

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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