

**DRAFT  
LETTER REPORT  
REDWOOD DUMP  
DATA VALIDATION  
INORGANIC VALIDATION  
EPA CASE #16324**

**OCTOBER 18, 1991**

**Prepared For**

**UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY  
DIVISION OF RESPONSE AND REMEDIATION  
SALT LAKE CITY, UTAH**

**Prepared By**

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## INTRODUCTION

This report summarizes the findings of Versar A & E, Inc., in the validation of Inorganic Analyses performed by EPA contracted laboratories. The validation process was completed by a Versar team following the Functional Guidelines used by the U.S. EPA Hazardous Site Evaluation Division.

Approximately ten percent of the reported test data within the sample groups was examined to check for accuracy. The limits of this data validation did not include cation - anion balances or statistical evaluation as prescribed by EPA. This limited scope of work was performed as directed by the Utah Division of Environmental Response and Remediation (UDERR).

Validation was performed on all samples within Case Number 16324. Included in this case were two Inorganic Sample Delivery Groups, SDG Number MHN 621 and MHN 632.

## SAMPLES ANALYZED

Inorganic Sample Delivery Group (SDG) Number MHN 621 and MHN 632 each contained 11 soil samples for full Inorganic validation. Samples included in the SDG included samples MHN 621 through MHN 642.

All samples from both Sample Delivery Groups were tested by Datachem Laboratories, Inc., of Salt Lake City, Utah. Sample data for this case was delivered to Versar A & E through the Utah Division of Environmental Response and Remediation (UDERR).

## STATEMENT OF WORK, FUNCTIONAL GUIDELINES

The testing laboratory followed the protocol in the U.S. EPA Statement of Work (SOW) dated 7/88 during the Inorganic testing. The validation team used the same SOW during the validation, and no problems were encountered. One item of interest with EPA Functional Guidelines was that the U.S. EPA Functional Guidelines for Evaluating Inorganics Analyses used by the validation team was dated 2/88 and was based on the 10/86 Low/Mod concentration SOW. Limits and criteria found in these guidelines were checked against corresponding limits and criteria in the 3/90 SOW to ensure proper validation of EPA limits and criteria. Any differences between the 2/88 Functional Guidelines and 7/88 SOW were corrected according to the 7/88 SOW criteria.

## EVALUATION CRITERIA

The evaluation of data was based on compliance of data with criteria given in the 7/88 SOW for the categories on the following page.

## Inorganic Analysis Criteria

- |                               |                                |
|-------------------------------|--------------------------------|
| 1. Holding Times              | 7. Matrix Spike Sample Results |
| 2. Calibration                | 8. Furnace Atomic Absorption   |
| 3. Blank Analyses             | 9. ICP Serial Dilution Results |
| 4. ICP Interference Check     | 10. Sample Result Verification |
| Sample Results                | 11. Field Duplicates           |
| 5. Lab Control Sample Results | 12. Overall Assessment of Data |
| 6. Duplicate Sample Results   |                                |

### GENERAL CASE ASSESSMENT

In most cases, the data contained in the validation complied with the EPA Functional Guidelines or qualified due to only minor problems (See Attachment I for a complete listing of regional data assessments and Attachment III for sample compound qualifications). Although most of the data was rated as acceptable, several problems were discovered.

For SDG Number MHN 621, several problems were found. No EPA Traffic Report was included in the data packet. According to receipt dates contained within available data, the laboratory performed all tests within holding time limits. Therefore, no data was qualified. Several elements were found in the blank at concentrations close to the samples. Beryllium, Cadmium, and Selenium were each qualified in several samples (see Problems and Actions section of this report for a detailed list of samples qualified). Potassium was qualified as estimated (J) in all samples because of similar concentrations to that of the ICP sample. All Mercury results were qualified as estimated (J) because reported values fell outside Field Duplicate control limits. The Matrix Spike Recoveries for Selenium, Antimony, Mercury, and Arsenic were less than the required 75-125%. These elements were qualified as estimated (J) or estimated/undetected (UJ) depending on the sample concentrations. Selenium for samples MHN 626 and 628 was qualified as J or UJ because Spike Recovery Results were outside prescribed limits.

For SDG Number MHN 632, several problems similar to SDG MHN 621 were found. Beryllium was found in the blank at concentrations similar to samples MHN 635 and MHN 640. Therefore, Beryllium was qualified as undetected (U) in these samples. The Matrix Spike Recoveries for Selenium, Mercury, and Thallium were less than the required 75-125%. These elements were qualified as estimated (J) or estimated/undetected (UJ) in all samples. Lead, Selenium, and Thallium were outside Post-Digestion Spike recovery limits. Therefore, these elements were qualified for samples related to these spikes (see Problems and Actions section of this report for a detailed list of samples qualified). The Percent Difference (%D) between the sample and the Serial Dilution was above the

limit for Barium in all samples. Therefore, Barium was qualified in all samples as estimated (J). No Traffic Report was included in the data packet, but it appeared that no Field Duplicates were a part of the testing.

**PROBLEMS AND ACTIONS**

**SDG/MATRIX:**  
MHN 621

**ANALYSIS:**  
INORGANIC

**SAMPLES VALIDATED:**  
MHN 621-631

Holding Times: No EPA Traffic Report was included in the data packet. According to receipt dates contained within available data, the laboratory performed all tests with holding time limits. Therefore, no data was qualified because of a lack of information concerning sampling dates. Pages 251-264 and 266-270 were missing from the data packet.

Blank Results: Several elements were found in the blank at concentrations close to the samples. The following is a list of elements qualified because of blank contamination:

<u>Element</u>	<u>Samples Qualified</u>	<u>Qualification</u>
Be	All Samples	U
Cd	All but 621	U
Se	MHN 627, 628	U

ICP Interference Check Sample (ICS): Potassium was qualified as estimated (J) in all samples because of similar concentrations to that of the ICP sample.

Duplicate Sample Results: All Mercury results were qualified as estimated (J) because reported values fell outside Field Duplicate control limits.

Matrix Spike and Matrix Spike Duplicate Results: The Matrix Spike Recoveries for Selenium, Antimony, Mercury, and Arsenic were less than the required 75-125%. These elements were qualified as estimated (J) or estimated/undetected (UJ) depending on the sample concentrations.

Furnace Atomic Absorption: Selenium for samples MHN 626 and 628 was qualified as J or UJ because Spike Recovery Results were outside prescribed limits.

Overall Assessment: The data was minimally qualified.

**SDG/MATRIX:**  
MHN 632

**ANALYSIS:**  
INORGANIC

**SAMPLES VALIDATION:**  
MHN 632-642

Blank Results: Beryllium was found in the blank at concentrations similar to samples MHN 635 and MHN 640. Therefore, Beryllium was qualified as undetected (U) in these samples (as per Functional Guidelines).

Matrix Spike and Matrix Spike Duplicate Results: The Matrix Spike Recoveries for Selenium, Mercury, and Thallium were less than the required 75-125%. These elements were qualified as estimated (J) or estimated/undetected (UJ) in all samples.

Furnace Atomic Absorption: The following table lists the elements, samples and qualifications made as a result of Post-Digestion Spikes being outside recovery limits.

<u>Element</u>	<u>Samples Qualified</u>	<u>Qualifications</u>
Pb	MHN 633-636, 638-642	J or UJ
Se	MHN 632-636, 638-641	J or UJ
Ti	All except 635, 636, 639	R

ICP Interference Check Sample (ICS): The Percent Difference (%D) between the sample and the Serial Dilution was above the limit for Barium in all samples. Therefore, Barium was qualified in all samples as estimated (J).

Field Duplicates: No Traffic Report was included in the data packet, but it appeared that no Field Duplicates were included.

Overall Assessment: The data was minimally qualified. The major qualifications were made because of poor Furnace Atomic Absorption performance.

**ATTACHMENT I**  
**DATA ASSESSMENT SUMMARIES**

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 16324

SITE REDWOOD DUMP

LABORATORY \_\_\_\_\_

NO. OF SAMPLES/ 11

MATRIX SOIL

SDG # MHN 621

REVIEWER (IF NOT ESD) \_\_\_\_\_

SOW # \_\_\_\_\_

REVIEWER'S NAME TYLER YORGASON

DPO: ACTION \_\_\_\_\_ FYI \_\_\_\_\_

COMPLETION DATE OCTOBER 17, 1991

DATA ASSESSMENT SUMMARY

	ICP	AA	Hg	CYANIDE
1. HOLDING TIMES	<u>O</u>	<u>O</u>	<u>O</u>	_____
2. CALIBRATIONS	<u>O</u>	<u>O</u>	<u>O</u>	_____
3. BLANKS	<u>O</u>	<u>O</u>	<u>O</u>	_____
4. ICS	<u>M</u>			
5. LCS	<u>O</u>	<u>O</u>		
6. DUPLICATE ANALYSIS	<u>O</u>	<u>O</u>	<u>M</u>	_____
7. MATRIX SPIKE	<u>M</u>	<u>M</u>	<u>O</u>	_____
8. MSA		<u>O</u>		
9. SERIAL DILUTION	<u>O</u>			
10. SAMPLE VERIFICATION	<u>O</u>	<u>O</u>	<u>O</u>	_____
11. OTHER QC	<u>O</u>	<u>O</u>	<u>O</u>	_____
12. OVERALL ASSESSMENT	<u>O</u>	<u>O</u>	<u>O</u>	_____

O = Data had no problems/or qualified due to minor problems.  
M = Data qualified due to major problems.  
Z = Data unacceptable.  
X = Problems, but do not affect data.

ACTION ITEMS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

AREAS OF CONCERN: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

NOTABLE PERFORMANCE: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 16324  
 LABORATORY \_\_\_\_\_  
 SDG # MHN 632  
 SOW # \_\_\_\_\_  
 DPO: ACTION \_\_\_\_\_ FYI \_\_\_\_\_

SITE REDWOOD DUMP  
 NO. OF SAMPLES/ 11  
 MATRIX SOIL  
 REVIEWER (IF NOT ESD) \_\_\_\_\_  
 REVIEWER'S NAME TYLER YORGASON  
 COMPLETION DATE OCTOBER 17, 1991

DATA ASSESSMENT SUMMARY

	ICP	AA	Hg	CYANIDE
1. HOLDING TIMES	<u>O</u>	<u>O</u>	<u>O</u>	_____
2. CALIBRATIONS	<u>O</u>	<u>O</u>	<u>O</u>	_____
3. BLANKS	<u>O</u>	<u>O</u>	<u>O</u>	_____
4. ICS	<u>O</u>			
5. LCS	<u>O</u>	<u>O</u>		
6. DUPLICATE ANALYSIS	<u>O</u>	<u>O</u>	<u>O</u>	_____
7. MATRIX SPIKE	<u>M</u>	<u>M</u>	<u>M</u>	_____
8. MSA		<u>O</u>		
9. SERIAL DILUTION	<u>O</u>			
10. SAMPLE VERIFICATION	<u>O</u>	<u>O</u>	<u>O</u>	_____
11. OTHER QC	<u>M</u>	<u>M</u>	<u>O</u>	_____
12. OVERALL ASSESSMENT	<u>O</u>	<u>O</u>	<u>O</u>	_____

O = Data had no problems/or qualified due to minor problems.  
 M = Data qualified due to major problems.  
 Z = Data unacceptable.  
 X = Problems, but do not affect data.

ACTION ITEMS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

AREAS OF CONCERN: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

NOTABLE PERFORMANCE: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**ATTACHMENT II**  
**DATA QUALIFICATION KEY**  
**& LIST OF ACRONYMS**

### DATA QUALIFICATION KEY

- A - Acceptable data.
- J - The associated numerical value is an estimated quantity.
- R - Reject data due to quality control criteria. The data is unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.
- U - The compound was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.
- UJ - The compound was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.

### INORGANIC ANALYSIS QUALIFIERS

C (concentration) qualifier - either B or U. B indicates that sample result is less than CRQL, but is greater than IDL. U indicates that sample result was below the IDL.

Q qualifier - Given in a column on Form I. Entered by the laboratory and indicates specific problems with quality control. Specific entries and meanings can be found on page B-20 of the 3/90 Inorganics Statement of Work.

M (method) qualifier - Given in a column on the right side of Form I. Indicates the analysis method used and reported on Form I. Specific entries and meanings can be found on page B-20 of the 3/90 Inorganics Statement of Work.

### ORGANIC ANALYSIS QUALIFIERS

- U - Indicates compound was analyzed for but not detected.
- J - Indicates an estimated value.
- N - Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds.
- P - This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X).

- C - This flag applies to pesticide results where the identification has been confirmed by GC/MS.
- B - This flag is used when the analyte is found in the associated blank as well as in the sample.
- E - This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
- D - This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- A - This flag indicates that a TIC is a suspected aldol-condensation product.
- X - Other specific laboratory defined qualifier.

LIST OF ACRONYMS

AA	Atomic Absorption
BNA	Base/Neutral/Acid Compounds - compounds analyzed by semivolatile technique
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
GC/MS	Gas Chromatograph/Mass Spectrometer
ICP	Inductively Coupled Plasma
ICS	Interference Check Sample
IDL	Instrument Detection Limit
Initial Calibration	The establishment of a calibration curve with the appropriate number of standards and concentration range. The calibration curve plots absorbance or emission versus concentration of standards.
IS	Internal Standards - Compounds added to every VOA and BNA standard, blank, matrix spike duplicate, and sample extract at a known concentration, prior to instrumental analysis. Internal standards are used as the basis for quantitation of the target compounds.
MS	Matrix Spike - introduction of a known concentration of analyte into a sample to provide information about the effect of the sample matrix on the digestion and measurement methodology.
MS/MSD	Matrix Spike/Matrix Spike Duplicate
m/z	The ratio of mass (m) to charge (z) of ions measured by GC/MS.
%D	Percent Difference
Pest	Pesticides
Post digestion Spike	The addition of a known amount of standard after digestion. (Also identified as analytical spike, or spike, for furnace analyses.)

QC Quality Control - Routine application of procedures for controlling the monitoring process.

RPD Relative Percent Difference (between matrix spike and matrix spike duplicate).

RRF Relative Response Factor

RRF Average Relative Response Factor

RRT Relative Retention Time (with relation to internal standard).

RSD Relative Standard Deviation

RT Retention Time

Serial Dilution A sample run at a specific dilution to determine whether any significant chemical or physical interferences exist due to sample matrix effects (ICP only).

SDG Sample Delivery Group - Defined by one of the following, whichever occurs first:

- Case of field samples
- Each 20 field samples within a Case
- Each 14-day calendar period during which field samples in a Case are received, beginning with receipt of the first sample in the SDG. (For VOA contracts, the calendar period is 7-day.)

SOW Statement of Work

SV Semivolatile analysis - Method based on analysis by GC/MS for BNA organic compounds.

TCL Target Compound List

TIC Tentatively Identified Compound - A compound not on the TCL.

VOA Volatile Organic Analysis - Method based on the purge and trap technique for organic compound analysis.

**ATTACHMENT III**  
**SAMPLE COMPOUND QUALIFICATIONS**

U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

MHN621

Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN621

Matrix (soil/water): SOIL

Lab Sample ID: CLP7293

Level (low/med): LOW

Date Received: 05/03/91

% Solids: 78.9

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	28.8	/	N	P	J
7440-38-2	Arsenic	21.2	/	NS	F	J
7440-39-3	Barium	534			P	
7440-41-7	Beryllium	1.2	/	B	P	U
7440-43-9	Cadmium	6.2			P	
7440-70-2	Calcium	33700			P	
7440-47-3	Chromium	56.7			P	
7440-48-4	Cobalt	14.5			P	
7440-50-8	Copper	375			P	
7439-89-6	Iron	104000			P	
7439-92-1	Lead	553			F	
7439-95-4	Magnesium	8360			P	
7439-96-5	Manganese	529			P	
7439-97-6	Mercury	0.41	/	N*	CV	J
7440-02-0	Nickel	72.7			P	
7440-09-7	Potassium	3200			P	
7782-49-2	Selenium	0.25	/	N	F	J
7440-22-4	Silver	2.0	B		P	
7440-23-5	Sodium	1040	B		P	
7440-28-0	Thallium	0.36	B		F	
7440-62-2	Vanadium	26.3			P	
7440-66-6	Zinc	2580			P	
	Cyanide				NR	

Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: YELLOW

Clarity After:

Artifacts:

Comments:

2



U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

MHN622

Lab Name: DATACHEM LABORATORIES Contract: 68-D0-0149  
 Lab Code: DATAC Case No.: 16324 SAS No.: SDG No.: MHN621  
 Matrix (soil/water): SOIL Lab Sample ID: CLP7294  
 Level (low/med): LOW Date Received: 05/03/91  
 % Solids: 72.5

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8250			P
7440-36-0	Antimony	6.6	U	N	P
7440-38-2	Arsenic	10.8	/	N	F
7440-39-3	Barium	198			P
7440-41-7	Beryllium	0.49	B		P
7440-43-9	Cadmium	3.3	/		P
7440-70-2	Calcium	36700			P
7440-47-3	Chromium	14.2			P
7440-48-4	Cobalt	4.1	B		P
7440-50-8	Copper	59.9			P
7439-89-6	Iron	9710			P
7439-92-1	Lead	219			F
7439-95-4	Magnesium	21100			P
7439-96-5	Manganese	250			P
7439-97-6	Mercury	0.14	U	N*	CV
7440-02-0	Nickel	9.1	B		P
7440-09-7	Potassium	3550			P
7782-49-2	Selenium	0.28	U	N	F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	836	B		P
7440-28-0	Thallium	0.32	B		F
7440-62-2	Vanadium	21.8			P
7440-66-6	Zinc	112			P
	Cyanide				NR

UJ  
J  
U  
U  
UJ  
UJ

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

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

MHN623

Lab Name: DATACHEM LABORATORIES

Contract: 68-DO-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN621

Matrix (soil/water): SOIL

Lab Sample ID: CLP7295

Level (low/med): LOW

Date Received: 05/03/91

→ Solids: 89.8

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	5650			P	
7440-36-0	Antimony	12.8	B	N	P	J
7440-38-2	Arsenic	3.3	/	N	F	J
7440-39-3	Barium	87.5			P	
7440-41-7	Beryllium	0.39	B		P	U
7440-43-9	Cadmium	0.68	B		P	U
7440-70-2	Calcium	61300			P	
7440-47-3	Chromium	14.6			P	
7440-48-4	Cobalt	4.3	B		P	
7440-50-8	Copper	17.9			P	
7439-89-6	Iron	8590			P	
7439-92-1	Lead	15.5			F	
7439-95-4	Magnesium	5270			P	
7439-96-5	Manganese	171			P	
7439-97-6	Mercury	0.11	U	N*	CV	UJ
7440-02-0	Nickel	7.4	B		P	
7440-09-7	Potassium	1580			P	
7782-49-2	Selenium	0.22	U	N	F	UJ
7440-22-4	Silver	0.89	U		P	
7440-23-5	Sodium	121	B		P	
7440-28-0	Thallium	0.22	U		F	
7440-62-2	Vanadium	15.6			P	
7440-66-6	Zinc	49.7			P	
	Cyanide				NR	

Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: COLORLESS

Clarity After:

Artifacts:

Comments:

4

U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

MHN624
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Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN621

Matrix (soil/water): SOIL

Lab Sample ID: CLP7296

Level (low/med): LOW

Date Received: 05/03/91

% Solids: 81.3

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9920			P
7440-36-0	Antimony	5.9	<input checked="" type="checkbox"/>	N	P
7440-38-2	Arsenic	9.4	<input checked="" type="checkbox"/>	N	F
7440-39-3	Barium	126			P
7440-41-7	Beryllium	0.58	<input checked="" type="checkbox"/>		P
7440-43-9	Cadmium	0.85	<input checked="" type="checkbox"/>		P
7440-70-2	Calcium	50700			P
7440-47-3	Chromium	16.5			P
7440-48-4	Cobalt	6.0	<input checked="" type="checkbox"/>		P
7440-50-8	Copper	47.5			P
7439-89-6	Iron	14800			P
7439-92-1	Lead	214		S	F
7439-95-4	Magnesium	12400			P
7439-96-5	Manganese	293			P
7439-97-6	Mercury	0.22	<input checked="" type="checkbox"/>	N*	CV
7440-02-0	Nickel	13.8			P
7440-09-7	Potassium	3290			P
7782-49-2	Selenium	0.25	<input checked="" type="checkbox"/>	N	F
7440-22-4	Silver	0.98	<input checked="" type="checkbox"/>		P
7440-23-5	Sodium	566	<input checked="" type="checkbox"/>		P
7440-28-0	Thallium	0.32	<input checked="" type="checkbox"/>		F
7440-62-2	Vanadium	24.1			P
7440-66-6	Zinc	103			P
	Cyanide				NR

UJ

U  
U

J

UJ

Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: COLORLESS

Clarity After:

Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

MHN625

Lab Name: DATACHEM LABORATORIES Contract: 68-D0-0149

Lab Code: DATAC Case No.: 16324 SAS No.: SDG No.: MHN621

Matrix (soil/water): SOIL Lab Sample ID: CLP7297

Level (low/med): LOW Date Received: 05/03/91

% Solids: 86.6

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8980			P
7440-36-0	Antimony	8.4	B	N	P
7440-38-2	Arsenic	8.8	/	N	F
7440-39-3	Barium	145			P
7440-41-7	Beryllium	0.82	B		P
7440-43-9	Cadmium	0.69	U		P
7440-70-2	Calcium	40300			P
7440-47-3	Chromium	12.4			P
7440-48-4	Cobalt	5.7	B		P
7440-50-8	Copper	22.0			P
7439-89-6	Iron	13800			P
7439-92-1	Lead	24.5		S	F
7439-95-4	Magnesium	9030			P
7439-96-5	Manganese	328			P
7439-97-6	Mercury	0.12	U	N*	CV
7440-02-0	Nickel	14.4			P
7440-09-7	Potassium	2860			P
7782-49-2	Selenium	0.23	U	N	F
7440-22-4	Silver	0.92	U		P
7440-23-5	Sodium	85.6	B		P
7440-28-0	Thallium	0.26	B		F
7440-62-2	Vanadium	17.6			P
7440-66-6	Zinc	55.2			P
	Cyanide				NR

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Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: COLORLESS

Clarity After:

Artifacts:

Comments:

6

U.S. EPA - CLP

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

MHN626

Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN621

Matrix (soil/water): SOIL

Lab Sample ID: CLP7298

Level (low/med): LOW

Date Received: 05/03/91

Solids: 87.6

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5590			P
7440-36-0	Antimony	30.0	N		P
7440-38-2	Arsenic	4.7	N		F
7440-39-3	Barium	61.6			P
7440-41-7	Beryllium	0.54	B		P
7440-43-9	Cadmium	0.84	B		P
7440-70-2	Calcium	292000			P
7440-47-3	Chromium	21.8			P
7440-48-4	Cobalt	1.5	B		P
7440-50-8	Copper	11.4			P
7439-89-6	Iron	9900			P
7439-92-1	Lead	15.5	S		F
7439-95-4	Magnesium	9770			P
7439-96-5	Manganese	117			P
7439-97-6	Mercury	0.11	N*		CV
7440-02-0	Nickel	11.7			P
7440-09-7	Potassium	1740			P
7782-49-2	Selenium	0.23	NW		F
7440-22-4	Silver	0.91	U		P
7440-23-5	Sodium	255	B		P
7440-28-0	Thallium	0.23	U		F
7440-62-2	Vanadium	44.8			P
7440-66-6	Zinc	28.9			P
	Cyanide				NR

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Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: COLORLESS

Clarity After:

Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

MHN627

Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN621

Matrix (soil/water): SOIL

Lab Sample ID: CLP7299

Level (low/med): LOW

Date Received: 05/03/91

% 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	6770			P
7440-36-0	Antimony	14.9	/N		P
7440-38-2	Arsenic	11.5	/NS		F
7440-39-3	Barium	263			P
7440-41-7	Beryllium	0.81	B		P
7440-43-9	Cadmium	1.3	/		P
7440-70-2	Calcium	57500			P
7440-47-3	Chromium	17.2			P
7440-48-4	Cobalt	4.4	B		P
7440-50-8	Copper	58.0			P
7439-89-6	Iron	12800			P
7439-92-1	Lead	268	S		F
7439-95-4	Magnesium	8430			P
7439-96-5	Manganese	246			P
7439-97-6	Mercury	0.22	/N*		CV
7440-02-0	Nickel	13.0			P
7440-09-7	Potassium	2270			P
7782-49-2	Selenium	0.26	B/N		F
7440-22-4	Silver	0.97	U		P
7440-23-5	Sodium	181	B		P
7440-28-0	Thallium	0.24	U		F
7440-62-2	Vanadium	18.0			P
7440-66-6	Zinc	207			P
	Cyanide				NR

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Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: COLORLESS

Clarity After:

Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

MHN628

Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN621

Matrix (soil/water): SOIL

Lab Sample ID: CLP7300

Level (low/med): LOW

Date Received: 05/03/91

% Solids: 74.5

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	23600			P	
7440-36-0	Antimony	15.9	B	N	P	J
7440-38-2	Arsenic	28.0		NS	F	J
7440-39-3	Barium	1760			P	
7440-41-7	Beryllium	1.5			P	u
7440-43-9	Cadmium	3.3			P	u
7440-70-2	Calcium	80200			P	
7440-47-3	Chromium	125			P	
7440-48-4	Cobalt	16.3			P	
7440-50-8	Copper	235			P	
7439-89-6	Iron	165000			P	
7439-92-1	Lead	2610			F	
7439-95-4	Magnesium	17200			P	
7439-96-5	Manganese	645			P	
7439-97-6	Mercury	0.77		N*	CV	J
7440-02-0	Nickel	52.5			P	
7440-09-7	Potassium	1560			P	
7782-49-2	Selenium	0.86	B	NW	F	u J
7440-22-4	Silver	1.4	B		P	
7440-23-5	Sodium	2910			P	
7440-28-0	Thallium	0.27	U		F	
7440-62-2	Vanadium	39.3			P	
7440-66-6	Zinc	1570			P	
	Cyanide				NR	

Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: YELLOW

Clarity After:

Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

MHN629

Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN621

Matrix (soil/water): SOIL

Lab Sample ID: CLP7301

Level (low/med): LOW

Date Received: 05/03/91

-% Solids: 77.3

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8070			P
7440-36-0	Antimony	11.9	<input checked="" type="checkbox"/>	N	P
7440-38-2	Arsenic	4.9	<input checked="" type="checkbox"/>	N	F
7440-39-3	Barium	230			P
7440-41-7	Beryllium	0.86	<input checked="" type="checkbox"/>		P
7440-43-9	Cadmium	1.1	<input checked="" type="checkbox"/>		P
7440-70-2	Calcium	79100			P
7440-47-3	Chromium	12.6			P
7440-48-4	Cobalt	5.8	B		P
7440-50-8	Copper	40.5			P
7439-89-6	Iron	21500			P
7439-92-1	Lead	68.2			F
7439-95-4	Magnesium	33000			P
7439-96-5	Manganese	261			P
7439-97-6	Mercury	0.15	<input checked="" type="checkbox"/>	N*	CV
7440-02-0	Nickel	10.9			P
7440-09-7	Potassium	2910			P
7782-49-2	Selenium	0.26	<input checked="" type="checkbox"/>	N	F
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	625	B		P
7440-28-0	Thallium	0.26	U		F
7440-62-2	Vanadium	18.8			P
7440-66-6	Zinc	222			P
	Cyanide				NR

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Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: COLORLESS

Clarity After:

Artifacts:

Comments:



U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

MHN630

Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN621

Matrix (soil/water): SOIL

Lab Sample ID: CLP7302

Level (low/med): LOW

Date Received: 05/03/91

☞ 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	1210			P	
7440-36-0	Antimony	12.4	B	N	P	J
7440-38-2	Arsenic	7.0	✓	N	F	J
7440-39-3	Barium	38.2	B		P	
7440-41-7	Beryllium	0.28	B		P	U
7440-43-9	Cadmium	0.69	U		P	UJ T4
7440-70-2	Calcium	107000			P	
7440-47-3	Chromium	2.5			P	
7440-48-4	Cobalt	1.7	B		P	
7440-50-8	Copper	5.6	B		P	
7439-89-6	Iron	4520			P	
7439-92-1	Lead	5.2			F	
7439-95-4	Magnesium	36800			P	
7439-96-5	Manganese	129			P	
7439-97-6	Mercury	0.11	U	N*	CV	UJ
7440-02-0	Nickel	7.2	B		P	
7440-09-7	Potassium	345	B		P	J
7782-49-2	Selenium	0.23	U	N	F	UJ
7440-22-4	Silver	0.92	U		P	
7440-23-5	Sodium	272	B		P	
7440-28-0	Thallium	0.23	U		F	
7440-62-2	Vanadium	7.0	B		P	
7440-66-6	Zinc	18.3			P	
	Cyanide				NR	

Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: COLORLESS

Clarity After:

Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

MHN631

Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN621

Matrix (soil/water): SOIL

Lab Sample ID: CLP7303

Level (low/med): LOW

Date Received: 05/03/91

% Solids: 70.4

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	13800			P	
7440-36-0	Antimony	45.8		N	P	J
7440-38-2	Arsenic	22.0		NS	F	J
7440-39-3	Barium	117			P	
7440-41-7	Beryllium	1.0	B		P	u
7440-43-9	Cadmium	0.85	U		P	
7440-70-2	Calcium	51400			P	
7440-47-3	Chromium	18.4			P	
7440-48-4	Cobalt	8.5	B		P	
7440-50-8	Copper	55.8			P	
7439-89-6	Iron	19000			P	
7439-92-1	Lead	23.8			F	
7439-95-4	Magnesium	16400			P	
7439-96-5	Manganese	345			P	
7439-97-6	Mercury	0.14	U	N*	CV	UJ
7440-02-0	Nickel	17.5			P	
7440-09-7	Potassium	5110			P	
7782-49-2	Selenium	0.28	U	N	F	UJ
7440-22-4	Silver	1.1	U		P	
7440-23-5	Sodium	3770			P	
7440-28-0	Thallium	0.31	B		F	
7440-62-2	Vanadium	29.1			P	
7440-66-6	Zinc	80.2			P	
	Cyanide				NR	

Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: COLORLESS

Clarity After:

Artifacts:

Comments:

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*Handwritten signature and date: 5/17/91*

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

MHN632
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Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN632

Matrix (soil/water): WATER

Lab Sample ID: CLP7304

Level (low/med): LOW

Date Received: 05/03/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	1380			P	
7440-36-0	Antimony	24.0	U		P	
7440-38-2	Arsenic	16.7			F	
7440-39-3	Barium	69.4	B	E	P	J
7440-41-7	Beryllium	1.0	U		P	
7440-43-9	Cadmium	3.0	U		P	
7440-70-2	Calcium	46500			P	
7440-47-3	Chromium	6.0	U		P	
7440-48-4	Cobalt	5.0	U		P	
7440-50-8	Copper	19.0	B		P	
7439-89-6	Iron	1460			P	
7439-92-1	Lead	23.6		S	F	
7439-95-4	Magnesium	16000			P	
7439-96-5	Manganese	33.0			P	
7439-97-6	Mercury	0.20	U	N	CV	UJ
7440-02-0	Nickel	12.0	U		P	
7440-09-7	Potassium	14400			P	
7782-49-2	Selenium	2.5	B	NW	F	J
7440-22-4	Silver	4.0	U		P	
7440-23-5	Sodium	112000			P	
7440-28-0	Thallium	10.0 <del>1.0</del>	U	NW	F	UJ
7440-62-2	Vanadium	6.8	B		P	
7440-66-6	Zinc	62.7			P	
	Cyanide				NR	

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

E - ICP SERIAL DILUTION IS OUTSIDE OF CONTROL LIMITS.

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

MHN633

Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN632

Matrix (soil/water): WATER

Lab Sample ID: CLP7305

Level (low/med): LOW

Date Received: 05/03/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	728			P	
7440-36-0	Antimony	25.0	B		P	
7440-38-2	Arsenic	53.4			F	
7440-39-3	Barium	72.7	B	E	P	J
7440-41-7	Beryllium	1.0	U		P	
7440-43-9	Cadmium	3.0	U		P	
7440-70-2	Calcium	56300			P	
7440-47-3	Chromium	6.0	U		P	
7440-48-4	Cobalt	5.0	U		P	
7440-50-8	Copper	14.7	B		P	
7439-89-6	Iron	1060			P	
7439-92-1	Lead	8.0		W	F	
7439-95-4	Magnesium	36500			P	
7439-96-5	Manganese	92.4			P	
7439-97-6	Mercury	0.20	U	N	CV	UJ
7440-02-0	Nickel	12.0	U		P	
7440-09-7	Potassium	37000			P	
7782-49-2	Selenium	3.0	B	NW	F	J
7440-22-4	Silver	4.0	U		P	
7440-23-5	Sodium	460000			P	
7440-28-0	Thallium	10.0	U	NW	F	UJ
7440-62-2	Vanadium	8.4	B		P	
7440-66-6	Zinc	53.9			P	
	Cyanide				NR	

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

E - ICP SERIAL DILUTION IS OUTSIDE OF CONTROL LIMITS.

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

MHN634

Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN632

Matrix (soil/water): WATER

Lab Sample ID: CLP7306

Level (low/med): LOW

Date Received: 05/03/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	666			P
7440-36-0	Antimony	24.0	U		P
7440-38-2	Arsenic	59.2			F
7440-39-3	Barium	76.6	B	E	P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	3.0	U		P
7440-70-2	Calcium	70800			P
7440-47-3	Chromium	6.0	U		P
7440-48-4	Cobalt	5.0	U		P
7440-50-8	Copper	24.3	B		P
7439-89-6	Iron	710			P
7439-92-1	Lead	4.8		W	F
7439-95-4	Magnesium	48200			P
7439-96-5	Manganese	98.5			P
7439-97-6	Mercury	0.20	N		CV
7440-02-0	Nickel	12.0	U		P
7440-09-7	Potassium	53900			P
7782-49-2	Selenium	2.5	B	NW	F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	598000			P
7440-28-0	Thallium	10.0	N	NW	F
7440-62-2	Vanadium	6.1	B		P
7440-66-6	Zinc	62.3			P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

E - ICP SERIAL DILUTION IS OUTSIDE OF CONTROL LIMITS.

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

MHN635

Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN632

Matrix (soil/water): WATER

Lab Sample ID: CLP7307

Level (low/med): LOW

Date Received: 05/03/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	1690	-		P	
7440-36-0	Antimony	24.0	U		P	
7440-38-2	Arsenic	186			F	
7440-39-3	Barium	103	<del>B</del>	E	P	J
7440-41-7	Beryllium	1.4	<del>B</del>		P	U
7440-43-9	Cadmium	3.0	U		P	
7440-70-2	Calcium	40900			P	
7440-47-3	Chromium	9.5	B		P	
7440-48-4	Cobalt	9.4	B		P	
7440-50-8	Copper	15.2	B		P	
7439-89-6	Iron	2870			P	
7439-92-1	Lead	4.6		W	F	
7439-95-4	Magnesium	157000			P	
7439-96-5	Manganese	780			P	
7439-97-6	Mercury	0.20	<del>U</del>	N	CV	UJ
7440-02-0	Nickel	26.9	B		P	
7440-09-7	Potassium	185000			P	
7782-49-2	Selenium	10.0	<del>U</del>	NW	F	UJ
7440-22-4	Silver	4.0	U		P	
7440-23-5	Sodium	6030000			P	
7440-28-0	Thallium	10.0	<del>U</del>	NW	F	R
7440-62-2	Vanadium	38.7	B		P	
7440-66-6	Zinc	26.9			P	
	Cyanide				NR	

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

E - ICP SERIAL DILUTION IS OUTSIDE OF CONTROL LIMITS.

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ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

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INORGANIC ANALYSIS DATA SHEET

MHN636

Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN632

Matrix (soil/water): WATER

Lab Sample ID: CLP7308

Level (low/med): LOW

Date Received: 05/03/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	234			P
7440-36-0	Antimony	24.0	U		P
7440-38-2	Arsenic	248			F
7440-39-3	Barium	29.9	B	E	P J
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	3.0	U		P
7440-70-2	Calcium	30600			P
7440-47-3	Chromium	10.0			P
7440-48-4	Cobalt	8.2	B		P
7440-50-8	Copper	96.1			P
7439-89-6	Iron	148			P
7439-92-1	Lead	1.0	U	W	F
7439-95-4	Magnesium	92900			P
7439-96-5	Manganese	97.7			P
7439-97-6	Mercury	0.20	U	N	CV UJ
7440-02-0	Nickel	40.0			P
7440-09-7	Potassium	157000			P
7782-49-2	Selenium	14.8	B	NW	F J
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	5420000			P
7440-28-0	Thallium	10.0	U	EN	F R
7440-62-2	Vanadium	78.3			P
7440-66-6	Zinc	29.8			P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

E - ICP SERIAL DILUTION IS OUTSIDE OF CONTROL LIMITS.

E - THALLIUM/FURNACE, SAMPLE INTERFERENCE PROBLEMS.

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

MHN637

Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN632

Matrix (soil/water): WATER

Lab Sample ID: CLP7309

Level (low/med): LOW

Date Received: 05/03/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	385			P
7440-36-0	Antimony	24.0	U		P
7440-38-2	Arsenic	40.8			F
7440-39-3	Barium	429	/	E	P J
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	3.0	U		P
7440-70-2	Calcium	59600			P
7440-47-3	Chromium	6.0	U		P
7440-48-4	Cobalt	5.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	1260			P
7439-92-1	Lead	9.7			F
7439-95-4	Magnesium	63200			P
7439-96-5	Manganese	538			P
7439-97-6	Mercury	0.20	U	N	CV UJ
7440-02-0	Nickel	15.9	B		P
7440-09-7	Potassium	70300			P
7782-49-2	Selenium	1.0	U	N	F UJ
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	202000			P
7440-28-0	Thallium	1.0	U	NW	F UJ
7440-62-2	Vanadium	4.6	B		P
7440-66-6	Zinc	16.4	B		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

E - ICP SERIAL DILUTION IS OUTSIDE OF CONTROL LIMITS.



ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

MHN638

Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN632

Matrix (soil/water): WATER

Lab Sample ID: CLP7310

Level (low/med): LOW

Date Received: 05/03/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	260			P
7440-36-0	Antimony	24.0	U		P
7440-38-2	Arsenic	314			F
7440-39-3	Barium	472	/	E	P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	3.0	U		P
7440-70-2	Calcium	13400			P
7440-47-3	Chromium	27.2			P
7440-48-4	Cobalt	17.3	B		P
7440-50-8	Copper	15.2	B		P
7439-89-6	Iron	2570			P
7439-92-1	Lead	4.8		W	F
7439-95-4	Magnesium	110000			P
7439-96-5	Manganese	350			P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	30.4	B		P
7440-09-7	Potassium	141000			P
7782-49-2	Selenium	1.0	U	NW	F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	495000			P
7440-28-0	Thallium	10.0	U	NW	F
7440-62-2	Vanadium	17.2	B		P
7440-66-6	Zinc	51.0			P
	Cyanide				NR

Color Before: YELLOW

Clarity Before: CLEAR

Texture:

Color After: YELLOW

Clarity After: CLEAR

Artifacts:

Comments:

E - ICP SERIAL DILUTION IS OUTSIDE OF CONTROL LIMITS.

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

MHN639

Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN632

Matrix (soil/water): WATER

Lab Sample ID: CLP7311

Level (low/med): LOW

Date Received: 05/03/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	560			P
7440-36-0	Antimony	24.0	U		P
7440-38-2	Arsenic	179			F
7440-39-3	Barium	81.7	B	E	P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	3.0	U		P
7440-70-2	Calcium	38800			P
7440-47-3	Chromium	6.0	U		P
7440-48-4	Cobalt	8.2	B		P
7440-50-8	Copper	5.4	B		P
7439-89-6	Iron	659			P
7439-92-1	Lead	1.1	B	W	F
7439-95-4	Magnesium	162000			P
7439-96-5	Manganese	775			P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	26.2	B		P
7440-09-7	Potassium	196000			P
7782-49-2	Selenium	10.0	U	NW	F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	6250000			P
7440-28-0	Thallium	10.0	U	EN	F
7440-62-2	Vanadium	37.4	B		P
7440-66-6	Zinc	19.7	B		P
	Cyanide				NR

J

UJ

UJ

R

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

E - ICP SERIAL DILUTION IS OUTSIDE OF CONTROL LIMITS.

E - THALLIUM/FURNACE, SAMPLE INTERFERENCE PROBLEMS.

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

MHN640

Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN632

Matrix (soil/water): WATER

Lab Sample ID: CLP7312

Level (low/med): LOW

Date Received: 05/03/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	251			P	
7440-36-0	Antimony	34.2	B		P	
7440-38-2	Arsenic	41.1			F	
7440-39-3	Barium	395	/	E	P	J
7440-41-7	Beryllium	2.3	B		P	U
7440-43-9	Cadmium	3.0	U		P	
7440-70-2	Calcium	55800			P	
7440-47-3	Chromium	6.0	U		P	
7440-48-4	Cobalt	5.0	U		P	
7440-50-8	Copper	6.7	B		P	
7439-89-6	Iron	1210			P	
7439-92-1	Lead	3.3			F	
7439-95-4	Magnesium	59900			P	
7439-96-5	Manganese	500			P	
7439-97-6	Mercury	0.20	U	N	CV	UJ
7440-02-0	Nickel	12.0	U		P	
7440-09-7	Potassium	67100			P	
7782-49-2	Selenium	1.0	U	NW	F	UJ
7440-22-4	Silver	4.0	U		P	
7440-23-5	Sodium	197000			P	
7440-28-0	Thallium	1.0	U	NW	F	UJ
7440-62-2	Vanadium	7.2	B		P	
7440-66-6	Zinc	19.0	B		P	
	Cyanide				NR	

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

E - ICP SERIAL DILUTION IS OUTSIDE OF CONTROL LIMITS.

12

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

MHN641

Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN632

Matrix (soil/water): WATER

Lab Sample ID: CLP7313

Level (low/med): LOW

Date Received: 05/03/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	104	B		P
7440-36-0	Antimony	24.0	U		P
7440-38-2	Arsenic	11.6			F
7440-39-3	Barium	37.7	B	E	P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	3.0	U		P
7440-70-2	Calcium	54600			P
7440-47-3	Chromium	6.0	U		P
7440-48-4	Cobalt	5.0	U		P
7440-50-8	Copper	21.9	B		P
7439-89-6	Iron	44.9	B		P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	101000			P
7439-96-5	Manganese	36.9			P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	12.0	U		P
7440-09-7	Potassium	39600			P
7782-49-2	Selenium	1.0	U	NW	F
7440-22-4	Silver	4.0	U		P
7440-23-5	Sodium	352000			P
7440-28-0	Thallium	1.0	U	NW	F
7440-62-2	Vanadium	8.1	B		P
7440-66-6	Zinc	33.0			P
	Cyanide				NR

J

UJ

UJ

UJ

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

E - ICP SERIAL DILUTION IS OUTSIDE OF CONTROL LIMITS.

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

MHN642

Lab Name: DATACHEM LABORATORIES

Contract: 68-D0-0149

Lab Code: DATAC

Case No.: 16324

SAS No.:

SDG No.: MHN632

Matrix (soil/water): WATER

Lab Sample ID: CLP7314

Level (low/med): LOW

Date Received: 05/03/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	108	B		P	
7440-36-0	Antimony	24.0	U		P	
7440-38-2	Arsenic	19.0			F	
7440-39-3	Barium	57.4	B	E	P	J
7440-41-7	Beryllium	1.0	U		P	
7440-43-9	Cadmium	3.0	U		P	
7440-70-2	Calcium	92300			P	
7440-47-3	Chromium	8.0	B		P	
7440-48-4	Cobalt	5.0	U		P	
7440-50-8	Copper	26.2			P	
7439-89-6	Iron	53.7	B		P	
7439-92-1	Lead	1.0	U	W	F	
7439-95-4	Magnesium	87300			P	
7439-96-5	Manganese	222			P	
7439-97-6	Mercury	0.20	B	N	CV	UJ
7440-02-0	Nickel	12.0	U		P	
7440-09-7	Potassium	57400			P	
7782-49-2	Selenium	7.1	B	N	F	J
7440-22-4	Silver	4.0	U		P	
7440-23-5	Sodium	362000			P	
7440-28-0	Thallium	1.0	B	NW	F	UJ
7440-62-2	Vanadium	10.4	B		P	
7440-66-6	Zinc	23.6			P	
	Cyanide				NR	

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

E - ICP SERIAL DILUTION IS OUTSIDE OF CONTROL LIMITS.