906-06-9103-535-80A

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
EPA HOUSTON LABORATORY
10625 FALLSTONE ROAD
HOUSTON, TX 77099

RESUBMITTED DATA REVIEW REPORT

DATE: June 14, 1991 CASE #: 16177

SAS #: _____

TO: E. Sierra 6E-SH SDG #: MFN276

USEPA Region 6 SITE NAME: Gulf Stream Aerospace

FROM: Victor Chapman LAB NAME: Keystone
ESAT

EFFECTS OF RESUBMITTED INFORMATION ON THE ORIGINAL DATA:

1. The resubmitted information does not effect the data review.

2. "M" and "W" flag corrections were made.

961170

In Reference to Case No(s): 16177

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM
Telephone Record Log

Date of Call: 5-24-91

Laboratory Name: KEYSTONE LAB - HOUSTON
Lab Contact: MARY F CRUZ
Region: 6
Regional Contact: VICTOR CHAPMAN

Call Initiated By: ___ Laboratory ✓ Region

In reference to data for the following sample number(s):
MFN 276, MFN 277, MFN 278, MFN 279, MFN 280, MFN 281, MFN 282, MFN 283
MFN 284, MFN 809, MFN 812, MFN 813, MFN 814, MFN 815, MFN 816, MFN 817,
MFN 818, MFN 819, MFN 820

Summary of Questions/Issues Discussed:
1. All Se results on form 1 require "W" flag except MFN 279.
2. As in samples MFN 282 + MFN 817 require "W" flag.
3. As in sampled MFN 809 requires a "W" and "M" flag.
4. Tl in samples MFN 279 and MFN 813 require "W" flag.

Summary of Resolution:
1,2,3+4 See Revised Form 1's.

Mary F. Cruz
Signature

6-1-91
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

387

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN276

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446002

Level (low/med): LOW Date Received: 04/04/91

% Solids: 90.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8500.00			P
7440-36-0	Antimony	9.90	U	N	P
7440-38-2	Arsenic	3.00			F
7440-39-3	Barium	49.90			P
7440-41-7	Beryllium	0.44	B		P
7440-43-9	Cadmium	1.10	U		P
7440-70-2	Calcium	35400.00		*	P
7440-47-3	Chromium	10.20			P
7440-48-4	Cobalt	2.90	U		P
7440-50-8	Copper	16.90		*	P
7439-89-6	Iron	6160.00		*	P
7439-92-1	Lead	43.70		*	F
7439-95-4	Magnesium	8540.00			P
7439-96-5	Manganese	83.80		N*	P
7439-97-6	Mercury	0.11	U		CV
7439-02-0	Nickel	8.20	B		P
7440-09-7	Potassium	783.00	B		P
7782-49-2	Selenium	0.66	U	W	F
7440-22-4	Silver	1.10	U		P
7440-23-5	Sodium	100.00	B		P
7440-28-0	Thallium	0.44	U		F
7440-62-2	Vanadium	12.50			P
7440-66-6	Zinc	49.80		N*	P
	Cyanide	0.55	U		AS

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

FORM I - IN

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN277

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446003

Level (low/med): LOW Date Received: 04/04/91

% Solids: 89.5

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11100.00			P
7440-36-0	Antimony	10.10	U	N	P
7440-38-2	Arsenic	2.10	B		F
7440-39-3	Barium	82.90			P
7440-41-7	Beryllium	0.46	B		P
7440-43-9	Cadmium	1.10	U		P
7440-70-2	Calcium	4800.00		*	P
7440-47-3	Chromium	9.30			P
7440-48-4	Cobalt	2.90	U		P
7440-50-8	Copper	167.00		*	P
7439-89-6	Iron	5250.00		*	P
7439-92-1	Lead	12.80		*	F
7439-95-4	Magnesium	1370.00			P
7439-96-5	Manganese	60.60		N*	P
7439-97-6	Mercury	0.11	U		CV
7439-02-0	Nickel	8.00	B		P
7440-09-7	Potassium	518.00	B		P
7782-49-2	Selenium	0.67	U	W	F
7440-22-4	Silver	1.10	U		P
7440-23-5	Sodium	70.10	B		P
7440-28-0	Thallium	0.45	U		F
7440-62-2	Vanadium	9.60	B		P
7440-66-6	Zinc	60.40		N*	P
	Cyanide	0.56	U		AS

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

FORM I - IN

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN278

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446004

Level (low/med): LOW Date Received: 04/04/91

% Solids: 88.5

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18700.00			P
7440-36-0	Antimony	10.20	U	N	P
7440-38-2	Arsenic	3.90			F
7440-39-3	Barium	168.00			P
7440-41-7	Beryllium	0.83	B		P
7440-43-9	Cadmium	1.10	U		P
7440-70-2	Calcium	11000.00		*	P
7440-47-3	Chromium	20.90			P
7440-48-4	Cobalt	9.00	B		P
7440-50-8	Copper	11.90		*	P
7439-89-6	Iron	15900.00		*	P
7439-92-1	Lead	29.60		*	F
7439-95-4	Magnesium	3070.00			P
7439-96-5	Manganese	464.00		N*	P
7439-97-6	Mercury	0.11	U		CV
7439-02-0	Nickel	13.70			P
7440-09-7	Potassium	2510.00			P
7782-49-2	Selenium	0.68	U	W	F
7440-22-4	Silver	1.10	U		P
7440-23-5	Sodium	177.00	B		P
7440-28-0	Thallium	0.45	U		F
7440-62-2	Vanadium	31.70			P
7440-66-6	Zinc	54.10		N*	P
	Cyanide	0.56	U		AS

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

FORM I - IN

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN279

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446005

Level (low/med): LOW Date Received: 04/04/91

% Solids: 87.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	17000.00			P
7440-36-0	Antimony	10.30	U	N	P
7440-38-2	Arsenic	2.80			F
7440-39-3	Barium	117.00			P
7440-41-7	Beryllium	0.77	B		P
7440-43-9	Cadmium	1.10	U		P
7440-70-2	Calcium	12200.00		*	P
7440-47-3	Chromium	18.70			P
7440-48-4	Cobalt	3.90	B		P
7440-50-8	Copper	17.70		*	P
7439-89-6	Iron	9500.00		*	P
7439-92-1	Lead	297.00		*	F
7439-95-4	Magnesium	2770.00			P
7439-96-5	Manganese	76.20		N*	P
7439-97-6	Mercury	0.11	U		CV
7439-02-0	Nickel	9.50			P
7440-09-7	Potassium	1570.00			P
7782-49-2	Selenium	0.69	U	W	F
7440-22-4	Silver	1.10	U		P
7440-23-5	Sodium	113.00	B		P
7440-28-0	Thallium	0.46	U	W	F
7440-62-2	Vanadium	19.40			P
7440-66-6	Zinc	84.00		N*	P
	Cyanide	0.57	U		AS

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.

MFN280

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446006

Level (low/med): LOW Date Received: 04/04/91

% Solids: 88.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8010.00			P
7440-36-0	Antimony	10.10	U	N	P
7440-38-2	Arsenic	2.90			F
7440-39-3	Barium	67.80			P
7440-41-7	Beryllium	0.45	U		P
7440-43-9	Cadmium	1.10	U		P
7440-70-2	Calcium	23900.00		*	P
7440-47-3	Chromium	79.70			P
7440-48-4	Cobalt	2.90	U		P
7440-50-8	Copper	8.50		*	P
7439-89-6	Iron	7220.00		*	P
7439-92-1	Lead	29.80		S*	F
7439-95-4	Magnesium	1780.00			P
7439-96-5	Manganese	99.50		N*	P
7439-97-6	Mercury	0.11	U		CV
7439-02-0	Nickel	7.80	B		P
7440-09-7	Potassium	1150.00			P
7782-49-2	Selenium	0.68	U	W	F
7440-22-4	Silver	1.10	U		P
7440-23-5	Sodium	317.00	B		P
7440-28-0	Thallium	0.45	U		F
7440-62-2	Vanadium	14.40			P
7440-66-6	Zinc	99.50		N*	P
	Cyanide	0.56	U		AS

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.

MFN281

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446007

Level (low/med): LOW Date Received: 04/04/91

% 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	10100.00			P
7440-36-0	Antimony	10.40	U	N	P
7440-38-2	Arsenic	4.60			F
7440-39-3	Barium	75.80			P
7440-41-7	Beryllium	0.67	B		P
7440-43-9	Cadmium	1.20	U		P
7440-70-2	Calcium	6750.00		*	P
7440-47-3	Chromium	30.20			P
7440-48-4	Cobalt	3.70	B		P
7440-50-8	Copper	6.20		*	P
7439-89-6	Iron	9600.00		*	P
7439-92-1	Lead	12.40		*	F
7439-95-4	Magnesium	1550.00			P
7439-96-5	Manganese	123.00		N*	P
7439-97-6	Mercury	0.12	U		CV
7439-02-0	Nickel	11.50			P
7440-09-7	Potassium	978.00	B		P
7782-49-2	Selenium	0.69	U	W	F
7440-22-4	Silver	1.20	U		P
7440-23-5	Sodium	425.00	B		P
7440-28-0	Thallium	0.46	U		F
7440-62-2	Vanadium	17.00			P
7440-66-6	Zinc	25.80		N*	P
	Cyanide	0.58	U		AS

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.

MFN282

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446008

Level (low/med): LOW Date Received: 04/04/91

% Solids: 89.1

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15100.00			P
7440-36-0	Antimony	10.10	U	N	P
7440-38-2	Arsenic	1.50	B	W	F
7440-39-3	Barium	82.70			P
7440-41-7	Beryllium	0.75	B		P
7440-43-9	Cadmium	1.10	U		P
7440-70-2	Calcium	9960.00		*	P
7440-47-3	Chromium	15.80			P
7440-48-4	Cobalt	3.00	B		P
7440-50-8	Copper	14.40		*	P
7439-89-6	Iron	6920.00		*	P
7439-92-1	Lead	44.20		*	F
7439-95-4	Magnesium	2110.00			P
7439-96-5	Manganese	37.60		N*	P
7439-97-6	Mercury	0.11	U		CV
7439-02-0	Nickel	9.80			P
7440-09-7	Potassium	1270.00			P
7782-49-2	Selenium	0.67	U	W	F
7440-22-4	Silver	1.10	U		P
7440-23-5	Sodium	105.00	B		P
7440-28-0	Thallium	0.45	U		F
7440-62-2	Vanadium	11.00	B		P
7440-66-6	Zinc	67.50		N*	P
	Cyanide	0.56	U		AS

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.

MFN283

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446009

Level (low/med): LOW Date Received: 04/04/91

% Solids: 87.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3070.00			P
7440-36-0	Antimony	10.20	U	N	P
7440-38-2	Arsenic	2.70			F
7440-39-3	Barium	48.20			P
7440-41-7	Beryllium	0.46	U		P
7440-43-9	Cadmium	1.10	U		P
7440-70-2	Calcium	3190.00		*	P
7440-47-3	Chromium	4.50			P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	3.20	B	*	P
7439-89-6	Iron	4110.00		*	P
7439-92-1	Lead	7.10		*	F
7439-95-4	Magnesium	874.00	B		P
7439-96-5	Manganese	100.00		N*	P
7439-97-6	Mercury	0.11	U		CV
7439-02-0	Nickel	6.50	B		P
7440-09-7	Potassium	399.00	B		P
7782-49-2	Selenium	0.68	U	W	F
7440-22-4	Silver	1.10	U		P
7440-23-5	Sodium	56.90	U		P
7440-28-0	Thallium	0.46	U		F
7440-62-2	Vanadium	9.40	B		P
7440-66-6	Zinc	11.40		N*	P
	Cyanide	0.57	U		AS

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

FORM I - IN

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN284

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446010

Level (low/med): LOW Date Received: 04/04/91

% Solids: 61.3

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16200.00			P
7440-36-0	Antimony	14.70	U	N	P
7440-38-2	Arsenic	3.60			F
7440-39-3	Barium	44.50	B		P
7440-41-7	Beryllium	0.65	U		P
7440-43-9	Cadmium	14.60			P
7440-70-2	Calcium	43600.00		*	P
7440-47-3	Chromium	487.00			P
7440-48-4	Cobalt	4.20	U		P
7440-50-8	Copper	553.00		*	P
7439-89-6	Iron	7450.00		*	P
7439-92-1	Lead	284.00		*	F
7439-95-4	Magnesium	3920.00			P
7439-96-5	Manganese	146.00		N*	P
7439-97-6	Mercury	0.16	U		CV
7439-02-0	Nickel	13.00	B		P
7440-09-7	Potassium	470.00	B		P
7782-49-2	Selenium	0.98	U	W	F
7440-22-4	Silver	202.00			P
7440-23-5	Sodium	154.00	B		P
7440-28-0	Thallium	0.65	U		F
7440-62-2	Vanadium	13.40	B		P
7440-66-6	Zinc	958.00		N*	P
	Cyanide	0.82	U		AS

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.

MFN809

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446011

Level (low/med): LOW Date Received: 04/04/91

% Solids: 97.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4880.00			P
7440-36-0	Antimony	9.30	U	N	P
7440-38-2	Arsenic	2.20		W	F
7440-39-3	Barium	41.60			P
7440-41-7	Beryllium	0.41	U		P
7440-43-9	Cadmium	1.00	U		P
7440-70-2	Calcium	6350.00		*	P
7440-47-3	Chromium	6.70			P
7440-48-4	Cobalt	2.80	B		P
7440-50-8	Copper	3.80	B	*	P
7439-89-6	Iron	5180.00		*	P
7439-92-1	Lead	42.50		*	F
7439-95-4	Magnesium	3080.00			P
7439-96-5	Manganese	98.50		N*	P
7439-97-6	Mercury	0.10	U		CV
7439-02-0	Nickel	5.60	U		P
7440-09-7	Potassium	664.00	B		P
7782-49-2	Selenium	0.62	U	W	F
7440-22-4	Silver	1.00	U		P
7440-23-5	Sodium	51.50	U		P
7440-28-0	Thallium	0.41	U		F
7440-62-2	Vanadium	11.90			P
7440-66-6	Zinc	27.00		N*	P
	Cyanide	0.52	U		AS

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

FORM I - IN

3/90

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN812

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446012

Level (low/med): LOW Date Received: 04/04/91

% Solids: 93.5

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4400.00			P
7440-36-0	Antimony	9.60	U	N	P
7440-38-2	Arsenic	2.50			F
7440-39-3	Barium	51.60			P
7440-41-7	Beryllium	0.43	U		P
7440-43-9	Cadmium	1.10	U		P
7440-70-2	Calcium	1520.00		*	P
7440-47-3	Chromium	6.00			P
7440-48-4	Cobalt	2.80	U		P
7440-50-8	Copper	3.40	B	*	P
7439-89-6	Iron	5700.00		*	P
7439-92-1	Lead	6.90		*	F
7439-95-4	Magnesium	708.00	B		P
7439-96-5	Manganese	111.00		N*	P
7439-97-6	Mercury	0.11	U		CV
7439-02-0	Nickel	7.70	B		P
7440-09-7	Potassium	514.00	B		P
7782-49-2	Selenium	0.64	U	W	F
7440-22-4	Silver	1.10	U		P
7440-23-5	Sodium	53.50	U		P
7440-28-0	Thallium	0.43	U		F
7440-62-2	Vanadium	11.00			P
7440-66-6	Zinc	12.70		N*	P
	Cyanide	0.53	U		AS

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.

MFN813

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446013

Level (low/med): LOW Date Received: 04/04/91

% Solids: 68.3

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15900.00			P
7440-36-0	Antimony	13.20	U	N	P
7440-38-2	Arsenic	5.20			F
7440-39-3	Barium	192.00			P
7440-41-7	Beryllium	1.10	B		P
7440-43-9	Cadmium	1.50	U		P
7440-70-2	Calcium	6190.00		*	P
7440-47-3	Chromium	17.70			P
7440-48-4	Cobalt	7.40	B		P
7440-50-8	Copper	10.50		*	P
7439-89-6	Iron	14100.00		*	P
7439-92-1	Lead	48.20		*	F
7439-95-4	Magnesium	3130.00			P
7439-96-5	Manganese	201.00		N*	P
7439-97-6	Mercury	0.15	U		CV
7439-02-0	Nickel	14.60			P
7440-09-7	Potassium	1950.00			P
7782-49-2	Selenium	0.88	U	W	F
7440-22-4	Silver	1.50	U		P
7440-23-5	Sodium	127.00	B		P
7440-28-0	Thallium	0.59	U	W	F
7440-62-2	Vanadium	31.70			P
7440-66-6	Zinc	74.00		N*	P
	Cyanide	0.73	U		AS

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN814

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446014

Level (low/med): LOW Date Received: 04/04/91

% Solids: 82.4

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12500.00			P
7440-36-0	Antimony	10.90	U	N	P
7440-38-2	Arsenic	3.40		+	F
7440-39-3	Barium	89.80			P
7440-41-7	Beryllium	0.52	B		P
7440-43-9	Cadmium	1.20	U		P
7440-70-2	Calcium	8520.00		*	P
7440-47-3	Chromium	72.00			P
7440-48-4	Cobalt	4.20	B		P
7440-50-8	Copper	7.50		*	P
7439-89-6	Iron	10300.00		*	P
7439-92-1	Lead	18.40		*	F
7439-95-4	Magnesium	2720.00			P
7439-96-5	Manganese	144.00		N*	P
7439-97-6	Mercury	0.12	U		CV
7439-02-0	Nickel	7.80	B		P
7440-09-7	Potassium	1510.00			P
7782-49-2	Selenium	0.73	U	W	F
7440-22-4	Silver	1.20	U		P
7440-23-5	Sodium	98.70	B		P
7440-28-0	Thallium	0.49	U		F
7440-62-2	Vanadium	21.40			P
7440-66-6	Zinc	249.00		N*	P
	Cyanide	1.80			AS

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN815

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446015

Level (low/med): LOW Date Received: 04/04/91

% Solids: 80.4

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5630.00			P
7440-36-0	Antimony	11.20	U	N	P
7440-38-2	Arsenic	6.10		S	F
7440-39-3	Barium	81.30			P
7440-41-7	Beryllium	0.50	U		P
7440-43-9	Cadmium	1.20	U		P
7440-70-2	Calcium	11100.00		*	P
7440-47-3	Chromium	9.80			P
7440-48-4	Cobalt	4.70	B		P
7440-50-8	Copper	6.70		*	P
7439-89-6	Iron	7420.00		*	P
7439-92-1	Lead	20.20		*	F
7439-95-4	Magnesium	1210.00	B		P
7439-96-5	Manganese	222.00		N*	P
7439-97-6	Mercury	0.12	U		CV
7439-02-0	Nickel	6.70	U		P
7440-09-7	Potassium	705.00	B		P
7782-49-2	Selenium	0.75	U	W	F
7440-22-4	Silver	1.20	U		P
7440-23-5	Sodium	62.20	U		P
7440-28-0	Thallium	0.50	U		F
7440-62-2	Vanadium	17.00			P
7440-66-6	Zinc	43.80		N*	P
	Cyanide	0.62	U		AS

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

FORM I - IN

3/90

000019

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN816

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446016

Level (low/med): LOW Date Received: 04/04/91

% Solids: 84.6

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4290.00			P
7440-36-0	Antimony	10.60	U	N	P
7440-38-2	Arsenic	3.40			F
7440-39-3	Barium	51.90			P
7440-41-7	Beryllium	0.47	U		P
7440-43-9	Cadmium	1.20	U		P
7440-70-2	Calcium	4180.00		*	P
7440-47-3	Chromium	21.50			P
7440-48-4	Cobalt	3.10	U		P
7440-50-8	Copper	5.70	B	*	P
7439-89-6	Iron	5350.00		*	P
7439-92-1	Lead	22.00		*	F
7439-95-4	Magnesium	992.00	B		P
7439-96-5	Manganese	100.00		N*	P
7439-97-6	Mercury	0.12	U		CV
7439-02-0	Nickel	6.40	U		P
7440-09-7	Potassium	552.00	B		P
7782-49-2	Selenium	0.71	U	W	F
7440-22-4	Silver	1.20	U		P
7440-23-5	Sodium	59.10	U		P
7440-28-0	Thallium	0.47	U		F
7440-62-2	Vanadium	11.40	B		P
7440-66-6	Zinc	112.00		N*	P
	Cyanide	0.59	U		AS

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

FORM I - IN

3/90

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN817

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446017

Level (low/med): LOW Date Received: 04/04/91

% 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	7270.00			P
7440-36-0	Antimony	10.70	U	N	P
7440-38-2	Arsenic	1.60	B	W	F
7440-39-3	Barium	39.50	B		P
7440-41-7	Beryllium	0.47	U		P
7440-43-9	Cadmium	1.20	U		P
7440-70-2	Calcium	5270.00		*	P
7440-47-3	Chromium	14.40			P
7440-48-4	Cobalt	3.30	B		P
7440-50-8	Copper	4.60	B	*	P
7439-89-6	Iron	5680.00		*	P
7439-92-1	Lead	19.50		*	F
7439-95-4	Magnesium	1110.00	B		P
7439-96-5	Manganese	94.50		N*	P
7439-97-6	Mercury	0.12	U		CV
7439-02-0	Nickel	6.40	B		P
7440-09-7	Potassium	881.00	B		P
7782-49-2	Selenium	0.71	U	W	F
7440-22-4	Silver	1.20	U		P
7440-23-5	Sodium	59.20	U		P
7440-28-0	Thallium	0.47	U		F
7440-62-2	Vanadium	13.20			P
7440-66-6	Zinc	79.30		N*	P
	Cyanide	0.59	U		AS

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN818

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446018

Level (low/med): LOW Date Received: 04/04/91

% Solids: 68.6

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12400.00			P
7440-36-0	Antimony	13.10	U	N	P
7440-38-2	Arsenic	7.10		+	F
7440-39-3	Barium	98.20			P
7440-41-7	Beryllium	0.67	B		P
7440-43-9	Cadmium	1.60			P
7440-70-2	Calcium	24200.00		*	P
7440-47-3	Chromium	41.40			P
7440-48-4	Cobalt	5.50	B		P
7440-50-8	Copper	31.20		*	P
7439-89-6	Iron	11600.00		*	P
7439-92-1	Lead	170.00		*	F
7439-95-4	Magnesium	4460.00			P
7439-96-5	Manganese	292.00		N*	P
7439-97-6	Mercury	0.15	U		CV
7439-02-0	Nickel	10.50	B		P
7440-09-7	Potassium	1440.00	B		P
7782-49-2	Selenium	0.87	U	W	F
7440-22-4	Silver	1.50	U		P
7440-23-5	Sodium	90.20	B		P
7440-28-0	Thallium	0.58	U		F
7440-62-2	Vanadium	23.20			P
7440-66-6	Zinc	789.00		N*	P
	Cyanide	0.73	U		AS

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN819

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446019

Level (low/med): LOW Date Received: 04/04/91

% 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	4260.00			P
7440-36-0	Antimony	10.70	U	N	P
7440-38-2	Arsenic	2.60			F
7440-39-3	Barium	25.00	B		P
7440-41-7	Beryllium	0.47	U		P
7440-43-9	Cadmium	1.20	U		P
7440-70-2	Calcium	96800.00		*	P
7440-47-3	Chromium	17.60			P
7440-48-4	Cobalt	3.10	U		P
7440-50-8	Copper	128.00		*	P
7439-89-6	Iron	3600.00		*	P
7439-92-1	Lead	542.00		*	F
7439-95-4	Magnesium	4270.00			P
7439-96-5	Manganese	150.00		N*	P
7439-97-6	Mercury	0.12	U		CV
7439-02-0	Nickel	6.40	U		P
7440-09-7	Potassium	260.00	U		P
7782-49-2	Selenium	0.71	U	W	F
7440-22-4	Silver	1.20	U		P
7440-23-5	Sodium	59.20	U		P
7440-28-0	Thallium	0.47	U		F
7440-62-2	Vanadium	6.20	B		P
7440-66-6	Zinc	815.00		N*	P
	Cyanide	0.59	U		AS

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

FORM I - IN

3/90

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN820

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446020

Level (low/med): LOW Date Received: 04/04/91

% Solids: 88.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7540.00			P
7440-36-0	Antimony	10.20	U	N	P
7440-38-2	Arsenic	2.00	B		F
7440-39-3	Barium	76.20			P
7440-41-7	Beryllium	0.47	B		P
7440-43-9	Cadmium	1.10	U		P
7440-70-2	Calcium	3960.00		*	P
7440-47-3	Chromium	7.70			P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	13.00		*	P
7439-89-6	Iron	5290.00		*	P
7439-92-1	Lead	11.20		*	F
7439-95-4	Magnesium	1320.00			P
7439-96-5	Manganese	34.70		N*	P
7439-97-6	Mercury	0.11	U		CV
7439-02-0	Nickel	10.70			P
7440-09-7	Potassium	597.00	B		P
7782-49-2	Selenium	0.68	U	W	F
7440-22-4	Silver	1.10	U		P
7440-23-5	Sodium	66.80	B		P
7440-28-0	Thallium	0.45	U		F
7440-62-2	Vanadium	9.50	B		P
7440-66-6	Zinc	33.60		N*	P
	Cyanide	0.57	U		AS

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

387

KEYSTONE LAB-HOUSTON

LABORATORY: KEYSTONE - HOUSTON
DOC CONT. NO: 16177-06-33
LAB NO: H91-04.46
SDG NO: MFN 276
CONTRACT NO: 68-D0-0147

CASE 16177

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(4/24/91)

Keystone Lab-Houston

8300 Westpark Drive
Houston, Texas 77063-5821
(713) 266-6800

DOC CONTROL NO.: 16177-06 -33

CHECKLIST

✓ SECTION I

✓ Narrative
✓ Cover Page

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

SOW No.: 3/90

EPA Sample No.	Lab Sample ID.
MFN276	910446002
MFN277	910446003
MFN278	910446004
MFN279	910446005
MFN279D	910446021
MFN279S	910446022
MFN280	910446006
MFN281	910446007
MFN282	910446008
MFN283	910446009
MFN284	910446010
MFN809	910446011
MFN812	910446012
MFN813	910446013
MFN814	910446014
MFN815	910446015
MFN816	910446016
MFN817	910446017
MFN818	910446018
MFN819	910446019

Were ICP interelement corrections applied? Yes/No Yes
Were ICP background corrections applied? Yes/No Yes
If Yes-were data generated before application of background corrections? Yes/No No

Comments:

I certify that this package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Mary F. Cruz Name: MARY F. CRUZ

Date: 4-24-91 Title: CLP PROJECT MANAGER

COVER PAGE - IN

KEYSTONE D.C.# 16177-06- 2

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

SOW No.: 3/90

EPA Sample No.	Lab Sample ID.
MFN820	910446020

Were ICP interelement corrections applied? Yes/No Yes

Were ICP background corrections applied? Yes/No Yes

If Yes-were data generated before application of background corrections? Yes/No No

Comments:

I certify that this package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Mary F. Cruz Name: MARY F. CRUZ

Date: 4-24-91 Title: CLP PROJECT MANAGER

COVER PAGE - IN

NARRATIVE

LABORATORY: Keystone Lab-Houston
CASE: 16177
LAB NO: H91-04.46

DOC. CONTROL NO.: 16177-06 -33
SDG NO: MFN276
CONTRACT NO: 68-DO-0147

I. RECEIPT

A. DATE: 4-4-91
B. NO. OF SAMPLES: 19 + QC
C. SMO NUMBERS: see cover page
D. SAMPLE TYPE: SOIL
E. ANALYSIS REQUESTED: TOTAL METALS + CN-
F. SHIPPING PROBLEMS: NONE
G. DOCUMENTATION PROBLEMS: NONE
H. QC DISTRIBUTION:

LEVEL	MATRIX	METALS	CN
LOW	WATER		
	SOIL	✓	✓
MEDIUM	WATER		
	SOIL		

II. PREPARATION

A. ANALYTICAL LEVELS: Low

B. DIGESTION PROBLEMS: NONE

III. ANALYSIS

A. ANALYTICAL PROBLEMS: None

B. SPIKE RECOVERIES: Sb, Mn + Zn are outside control limits.

IV. OTHER PROBLEMS: Duplicate RPDs are outside control limits for Ca, Cu, Fe, Pb, Mn + Zn.

Mary F. Cruz
Project Manager

Keystone Lab-Houston

8300 Westpark Drive
Houston, Texas 77063-5821
(713) 266-6800

DOC CONTROL NO.: 16177-06 -33

CHECKLIST

✓ SECTION II

✓ Form I IADS
✓ QC Report Forms

KEYSTONE D.C.# 16177-06-3

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN276

ab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446002

Level (low/med): LOW Date Received: 04/04/91

% Solids: 90.9

P 91

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8500.00			P
7440-36-0	Antimony	9.90	U	N	P
7440-38-2	Arsenic	3.00			F
7440-39-3	Barium	49.90			P
7440-41-7	Beryllium	0.44	B		P
7440-43-9	Cadmium	1.10	U		P
7440-70-2	Calcium	35400.00		*	P
7440-47-3	Chromium	10.20			P
7440-48-4	Cobalt	2.90	U		P
7440-50-8	Copper	16.90		*	P
7439-89-6	Iron	6160.00		*	P
7439-92-1	Lead	43.70		*	F
7439-95-4	Magnesium	8540.00			P
7439-96-5	Manganese	83.80		N*	P
7439-97-6	Mercury	0.11	U		CV
7439-02-0	Nickel	8.20	B		P
7440-09-7	Potassium	783.00	B		P
7782-49-2	Selenium	0.66	U	W	F
7440-22-4	Silver	1.10	U		P
7440-23-5	Sodium	100.00	B		P
7440-28-0	Thallium	0.44	U		F
7440-62-2	Vanadium	12.50			P
7440-66-6	Zinc	49.80		N*	P
	Cyanide	0.55	U		AS

p169

110 2

131 2

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments: p.143 As = 13.7 x .2 / .909

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3/90

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN277

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446003

Level (low/med): LOW Date Received: 04/04/91

% Solids: 89.5 p 92

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11100.00			P
7440-36-0	Antimony	10.10	U	N	P
7440-38-2	Arsenic	2.10	B		F 104
7440-39-3	Barium	82.90			P
7440-41-7	Beryllium	0.46	B		P
7440-43-9	Cadmium	1.10	U		P
7440-70-2	Calcium	4800.00		*	P
7440-47-3	Chromium	9.30			P
7440-48-4	Cobalt	2.90	U		P
7440-50-8	Copper	167.00		*	P
7439-89-6	Iron	5250.00		*	P
7439-92-1	Lead	P 166 12.80		*	F
7439-95-4	Magnesium	1370.00			P
7439-96-5	Manganese	60.60		N*	P
7439-97-6	Mercury	0.11	U		CV
7439-02-0	Nickel	8.00	B		P
7440-09-7	Potassium	518.00	B		P
7782-49-2	Selenium	0.67	U		F 118 W
7440-22-4	Silver	1.10	U		P
7440-23-5	Sodium	70.10	B		P
7440-28-0	Thallium	0.45	U		F
7440-62-2	Vanadium	9.60	B		P
7440-66-6	Zinc	60.40		N*	P
	Cyanide	0.56	U		AS

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments: As = 9.6 x .2 / .845 = 2.145

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN278

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446004

Level (low/med): LOW Date Received: 04/04/91

% Solids: 88.5

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18700.00			P
7440-36-0	Antimony	10.20	U	N	P
7440-38-2	Arsenic	3.90			F
7440-39-3	Barium	168.00			P
7440-41-7	Beryllium	0.83	B		P
7440-43-9	Cadmium	1.10	U		P
7440-70-2	Calcium	11000.00		*	P
7440-47-3	Chromium	20.90			P
7440-48-4	Cobalt	9.00	B		P
7440-50-8	Copper	11.90		*	P
7439-89-6	Iron	15900.00		*	P
7439-92-1	Lead	29.60		*	F
7439-95-4	Magnesium	3070.00			P
7439-96-5	Manganese	464.00		N*	P
7439-97-6	Mercury	0.11	U		CV
7439-02-0	Nickel	13.70			P
7440-09-7	Potassium	2510.00			P
7782-49-2	Selenium	0.68	U		F
7440-22-4	Silver	1.10	U		P
7440-23-5	Sodium	177.00	B		P
7440-28-0	Thallium	0.45	U		F
7440-62-2	Vanadium	31.70			P
7440-66-6	Zinc	54.10		N*	P
	Cyanide	0.56	U		AS

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.

MFN279

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446005

Level (low/med): LOW Date Received: 04/04/91

% Solids: 87.0 p 96

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	17000.00			P
7440-36-0	Antimony	10.30	U	N	P
7440-38-2	Arsenic	2.80			F 104
7440-39-3	Barium	117.00			P
7440-41-7	Beryllium	0.77	B		P
7440-43-9	Cadmium	1.10	U		P
7440-70-2	Calcium	12200.00		*	P
7440-47-3	Chromium	18.70			P
7440-48-4	Cobalt	3.90	B		P
7440-50-8	Copper	17.70		*	P
7439-89-6	Iron	9500.00		*	P
7439-92-1	Lead	297.00		*	F
7439-95-4	Magnesium	2770.00			P
7439-96-5	Manganese	76.20		N*	P
7439-97-6	Mercury	0.11	U		CV
7439-02-0	Nickel	9.50			P
7440-09-7	Potassium	1570.00			P
7782-49-2	Selenium	0.69	U		F 104
7440-22-4	Silver	1.10	U		P
7440-23-5	Sodium	113.00	B		P
7440-28-0	Thallium	0.46	U		F
7440-62-2	Vanadium	19.40			P
7440-66-6	Zinc	84.00		N*	P
	Cyanide	0.57	U		AS

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.

MFN280

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446006

Level (low/med): LOW Date Received: 04/04/91

% Solids: 88.7

P97

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8010.00			P
7440-36-0	Antimony	10.10	U	N	P
7440-38-2	Arsenic	2.90			F
7440-39-3	Barium	67.80			P
7440-41-7	Beryllium	0.45	U		P
7440-43-9	Cadmium	1.10	U		P
7440-70-2	Calcium	23900.00		*	P
7440-47-3	Chromium	79.70			P
7440-48-4	Cobalt	2.90	U		P
7440-50-8	Copper	8.50		*	P
7439-89-6	Iron	7220.00		*	P
7439-92-1	Lead	P173 29.80		S*	F
7439-95-4	Magnesium	1780.00			P
7439-96-5	Manganese	99.50		N*	P
7439-97-6	Mercury	0.11	U		CV
7439-02-0	Nickel	7.80	B		P
7440-09-7	Potassium	1150.00			P
7782-49-2	Selenium	0.68	U		F
7440-22-4	Silver	1.10	U		P
7440-23-5	Sodium	317.00	B		P
7440-28-0	Thallium	0.45	U		F
7440-62-2	Vanadium	14.40			P
7440-66-6	Zinc	99.50		N*	P
	Cyanide	0.56	U		AS

110

146 W

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments: Pb = 132.1 x .2 / .887 = 29.7857

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN281

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446007

Level (low/med): LOW Date Received: 04/04/91

% Solids: 86.7 p 98

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10100.00			P
7440-36-0	Antimony	10.40	U	N	P
7440-38-2	Arsenic	4.60			F 102
7440-39-3	Barium	75.80			P
7440-41-7	Beryllium	0.67	B		P
7440-43-9	Cadmium	1.20	U		P
7440-70-2	Calcium	6750.00		*	P
7440-47-3	Chromium	30.20			P
7440-48-4	Cobalt	3.70	B		P
7440-50-8	Copper	6.20		*	P
7439-89-6	Iron	9600.00		*	P
7439-92-1	Lead	p 166 12.40		*	F
7439-95-4	Magnesium	1550.00			P
7439-96-5	Manganese	123.00		N*	P
7439-97-6	Mercury	0.12	U		CV
7439-02-0	Nickel	11.50			P
7440-09-7	Potassium	978.00	B		P
7782-49-2	Selenium	0.69	U		F 131 W
7440-22-4	Silver	1.20	U		P
7440-23-5	Sodium	425.00	B		P
7440-28-0	Thallium	0.46	U		F
7440-62-2	Vanadium	17.00			P
7440-66-6	Zinc	25.80		N*	P
	Cyanide	0.58	U		AS

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.

MFN282

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446008

Level (low/med): LOW Date Received: 04/04/91

% Solids: 89.1 99

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15100.00			P
7440-36-0	Antimony	10.10	U	N	P
7440-38-2	Arsenic	1.50	B		F
7440-39-3	Barium	82.70			P
7440-41-7	Beryllium	0.75	B		P
7440-43-9	Cadmium	1.10	U		P
7440-70-2	Calcium	9960.00		*	P
7440-47-3	Chromium	15.80			P
7440-48-4	Cobalt	3.00	B		P
7440-50-8	Copper	14.40		*	P
7439-89-6	Iron	6920.00		*	P
7439-92-1	Lead	44.20		*	F
7439-95-4	Magnesium	2110.00			P
7439-96-5	Manganese	37.60		N*	P
7439-97-6	Mercury	0.11	U		CV
7439-02-0	Nickel	9.80			P
7440-09-7	Potassium	1270.00			P
7782-49-2	Selenium	0.67	U		F
7440-22-4	Silver	1.10	U		P
7440-23-5	Sodium	105.00	B		P
7440-28-0	Thallium	0.45	U		F
7440-62-2	Vanadium	11.00	B		P
7440-66-6	Zinc	67.50		N*	P
	Cyanide	0.56	U		AS

1.19 W

1172 W

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.

MFN283

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446009

Level (low/med): LOW Date Received: 04/04/91

% Solids: 87.9 100

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3070.00			P
7440-36-0	Antimony	10.20	U	N	P
7440-38-2	Arsenic	2.70			F 115
7440-39-3	Barium	48.20			P
7440-41-7	Beryllium	0.46	U		P
7440-43-9	Cadmium	1.10	U		P
7440-70-2	Calcium	3190.00		*	P
7440-47-3	Chromium	4.50			P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	3.20	B	*	P
7439-89-6	Iron	4110.00		*	P
7439-92-1	Lead	p/67 7.10		*	F
7439-95-4	Magnesium	874.00	B		P
7439-96-5	Manganese	100.00		N*	P
7439-97-6	Mercury	0.11	U		CV
7439-02-0	Nickel	6.50	B		P
7440-09-7	Potassium	399.00	B		P
7782-49-2	Selenium	0.68	U		F 142 W
7440-22-4	Silver	1.10	U		P
7440-23-5	Sodium	56.90	U		P
7440-28-0	Thallium	0.46	U		F
7440-62-2	Vanadium	9.40	B		P
7440-66-6	Zinc	11.40		N*	P
	Cyanide	0.57	U		AS

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.

MFN284

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446010

Level (low/med): LOW Date Received: 04/04/91

% Solids: 61.3 101

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16200.00			P
7440-36-0	Antimony	14.70	U	N	P
7440-38-2	Arsenic	3.60			P
7440-39-3	Barium	44.50	B		P
7440-41-7	Beryllium	0.65	U		P
7440-43-9	Cadmium	14.60			P
7440-70-2	Calcium	43600.00		*	P
7440-47-3	Chromium	487.00			P
7440-48-4	Cobalt	4.20	U		P
7440-50-8	Copper	553.00		*	P
7439-89-6	Iron	7450.00		*	P
7439-92-1	Lead	284.00		*	F
7439-95-4	Magnesium	3920.00			P
7439-96-5	Manganese	146.00		N*	P
7439-97-6	Mercury	0.16	U		CV
7439-02-0	Nickel	13.00	B		P
7440-09-7	Potassium	470.00	B		P
7782-49-2	Selenium	0.98	U		F
7440-22-4	Silver	202.00			P
7440-23-5	Sodium	154.00	B		P
7440-28-0	Thallium	0.65	U		F
7440-62-2	Vanadium	13.40	B		P
7440-66-6	Zinc	958.00		N*	P
	Cyanide	0.82	U		AS

P170

108

154 Wy

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.

MFN809

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446011

Level (low/med): LOW Date Received: 04/04/91

% Solids: 97.0 p102

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4880.00			P
7440-36-0	Antimony	9.30	U	N	P
7440-38-2	Arsenic	2.20			F
7440-39-3	Barium	41.60			P
7440-41-7	Beryllium	0.41	U		P
7440-43-9	Cadmium	1.00	U		P
7440-70-2	Calcium	6350.00		*	P
7440-47-3	Chromium	6.70			P
7440-48-4	Cobalt	2.80	B		P
7440-50-8	Copper	3.80	B	*	P
7439-89-6	Iron	5180.00		*	P
7439-92-1	Lead	42.50		*	F
7439-95-4	Magnesium	3080.00			P
7439-96-5	Manganese	98.50		N*	P
7439-97-6	Mercury	0.10	U		CV
7439-02-0	Nickel	5.60	U		P
7440-09-7	Potassium	664.00	B		P
7782-49-2	Selenium	0.62	U		F
7440-22-4	Silver	1.00	U		P
7440-23-5	Sodium	51.50	U		P
7440-28-0	Thallium	0.41	U		F
7440-62-2	Vanadium	11.90			P
7440-66-6	Zinc	27.00		N*	P
	Cyanide	0.52	U		AS

P-170

116 W

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.

MFN812

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446012

Level (low/med): LOW Date Received: 04/04/91

% Solids: 93.5 p 103

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4400.00			P
7440-36-0	Antimony	9.60	U	N	P
7440-38-2	Arsenic	2.50			F
7440-39-3	Barium	51.60			P
7440-41-7	Beryllium	0.43	U		P
7440-43-9	Cadmium	1.10	U		P
7440-70-2	Calcium	1520.00		*	P
7440-47-3	Chromium	6.00			P
7440-48-4	Cobalt	2.80	U		P
7440-50-8	Copper	3.40	B	*	P
7439-89-6	Iron	5700.00		*	P
7439-92-1	Lead	6.90		*	F
7439-95-4	Magnesium	708.00	B		P
7439-96-5	Manganese	111.00		N*	P
7439-97-6	Mercury	0.11	U		CV
7439-02-0	Nickel	7.70	B		P
7440-09-7	Potassium	514.00	B		P
7782-49-2	Selenium	0.64	U		F
7440-22-4	Silver	1.10	U		P
7440-23-5	Sodium	53.50	U		P
7440-28-0	Thallium	0.43	U		F
7440-62-2	Vanadium	11.00			P
7440-66-6	Zinc	12.70		N*	P
	Cyanide	0.53	U		AS

114

146 W

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.

MFN813

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446013

Level (low/med): LOW Date Received: 04/04/91

% Solids: 68.3

P 10Y

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15900.00			P
7440-36-0	Antimony	13.20	U	N	P
7440-38-2	Arsenic	5.20			F
7440-39-3	Barium	192.00			P
7440-41-7	Beryllium	1.10	B		P
7440-43-9	Cadmium	1.50	U		P
7440-70-2	Calcium	6190.00		*	P
7440-47-3	Chromium	17.70			P
7440-48-4	Cobalt	7.40	B		P
7440-50-8	Copper	10.50		*	P
7439-89-6	Iron	14100.00		*	P
7439-92-1	Lead	p170 48.20		*	F
7439-95-4	Magnesium	3130.00			P
7439-96-5	Manganese	201.00		N*	P
7439-97-6	Mercury	0.15	U		CV
7439-02-0	Nickel	14.60			P
7440-09-7	Potassium	1950.00			P
7782-49-2	Selenium	0.88	U		F
7440-22-4	Silver	1.50	U		P
7440-23-5	Sodium	127.00	B		P
7440-28-0	Thallium	0.59	U		F
7440-62-2	Vanadium	31.70			P
7440-66-6	Zinc	74.00		N*	P
	Cyanide	0.73	U		AS

108

120 W

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.

MFN814

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446014

Level (low/med): LOW Date Received: 04/04/91

% Solids: 82.4 P107

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12500.00			P
7440-36-0	Antimony	10.90	U	N	P
7440-38-2	Arsenic	3.40		+	F
7440-39-3	Barium	89.80			P
7440-41-7	Beryllium	0.52	B		P
7440-43-9	Cadmium	1.20	U		P
7440-70-2	Calcium	8520.00		*	P
7440-47-3	Chromium	72.00			P
7440-48-4	Cobalt	4.20	B		P
7440-50-8	Copper	7.50		*	P
7439-89-6	Iron	10300.00		*	P
7439-92-1	Lead	18.40		*	F
7439-95-4	Magnesium	2720.00			P
7439-96-5	Manganese	144.00		N*	P
7439-97-6	Mercury	0.12	U		CV
7439-02-0	Nickel	7.80	B		P
7440-09-7	Potassium	1510.00			P
7782-49-2	Selenium	0.73	U		F
7440-22-4	Silver	1.20	U		P
7440-23-5	Sodium	98.70	B		P
7440-28-0	Thallium	0.49	U		F
7440-62-2	Vanadium	21.40			P
7440-66-6	Zinc	249.00		N*	P
	Cyanide	1.80			AS

122 W

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments: 13.9 x .2 / (.824) = 3.37

P 203 CN = 29.87 x .250 / (5.00 x .824) = 1.8125

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN815

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446015

Level (low/med): LOW Date Received: 04/04/91

% Solids: 80.4 P 108

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5630.00			P
7440-36-0	Antimony	11.20	U	N	P
7440-38-2	Arsenic	6.10		S	F
7440-39-3	Barium	81.30			P
7440-41-7	Beryllium	0.50	U		P
7440-43-9	Cadmium	1.20	U		P
7440-70-2	Calcium	11100.00		*	P
7440-47-3	Chromium	9.80			P
7440-48-4	Cobalt	4.70	B		P
7440-50-8	Copper	6.70		*	P
7439-89-6	Iron	7420.00		*	P
7439-92-1	Lead	20.20		*	F
7439-95-4	Magnesium	1210.00	B		P
7439-96-5	Manganese	222.00		N*	P
7439-97-6	Mercury	0.12	U		CV
7439-02-0	Nickel	6.70	U		P
7440-09-7	Potassium	705.00	B		P
7782-49-2	Selenium	0.75	U		F
7440-22-4	Silver	1.20	U		P
7440-23-5	Sodium	62.20	U		P
7440-28-0	Thallium	0.50	U		F
7440-62-2	Vanadium	17.00			P
7440-66-6	Zinc	43.80		N*	P
	Cyanide	0.62	U		AS

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132 W

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments: As= 24.6 x .2 / .804 = 6.119

FORM I - IN

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN816

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446016

Level (low/med): LOW Date Received: 04/04/91

% Solids: 84.6

p109

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4290.00			P
7440-36-0	Antimony	10.60	U	N	P
7440-38-2	Arsenic	3.40			P
7440-39-3	Barium	51.90			P
7440-41-7	Beryllium	0.47	U		P
7440-43-9	Cadmium	1.20	U		P
7440-70-2	Calcium	4180.00		*	P
7440-47-3	Chromium	21.50			P
7440-48-4	Cobalt	3.10	U		P
7440-50-8	Copper	5.70	B	*	P
7439-89-6	Iron	5350.00		*	P
7439-92-1	Lead	p170 22.00		*	F
7439-95-4	Magnesium	992.00	B		P
7439-96-5	Manganese	100.00		N*	P
7439-97-6	Mercury	0.12	U		CV
7439-02-0	Nickel	6.40	U		P
7440-09-7	Potassium	552.00	B		P
7782-49-2	Selenium	0.71	U		F
7440-22-4	Silver	1.20	U		P
7440-23-5	Sodium	59.10	U		P
7440-28-0	Thallium	0.47	U		F
7440-62-2	Vanadium	11.40	B		P
7440-66-6	Zinc	112.00		N*	P
	Cyanide	0.59	U		AS

1112

1B1 W

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

FORM I - IN

3/90

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN818

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446018

Level (low/med): LOW Date Received: 04/04/91

% Solids: 68.6

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12400.00			P
7440-36-0	Antimony	13.10	U	N	P
7440-38-2	Arsenic	7.10		+	F
7440-39-3	Barium	98.20			P
7440-41-7	Beryllium	0.67	B		P
7440-43-9	Cadmium	1.60			P
7440-70-2	Calcium	24200.00		*	P
7440-47-3	Chromium	41.40			P
7440-48-4	Cobalt	5.50	B		P
7440-50-8	Copper	31.20		*	P
7439-89-6	Iron	11600.00		*	P
7439-92-1	Lead	p170 170.00		*	F
7439-95-4	Magnesium	4460.00			P
7439-96-5	Manganese	292.00		N*	P
7439-97-6	Mercury	0.15	U		CV
7439-02-0	Nickel	10.50	B		P
7440-09-7	Potassium	1440.00	B		P
7782-49-2	Selenium	0.87	U		F
7440-22-4	Silver	1.50	U		P
7440-23-5	Sodium	90.20	B		P
7440-28-0	Thallium	0.58	U		F
7440-62-2	Vanadium	23.20			P
7440-66-6	Zinc	789.00		N*	P
	Cyanide	0.73	U		AS

139 W

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments: As = 24.3 x .2 / .686 = 7.08

FORM I - IN

3/90

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN819

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446019

Level (low/med): LOW Date Received: 04/04/91

% Solids: 84.5 p/12

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4260.00			P
7440-36-0	Antimony	10.70	U	N	P
7440-38-2	Arsenic	2.60			F
7440-39-3	Barium	25.00	B		P
7440-41-7	Beryllium	0.47	U		P
7440-43-9	Cadmium	1.20	U		P
7440-70-2	Calcium	96800.00		*	P
7440-47-3	Chromium	17.60			P
7440-48-4	Cobalt	3.10	U		P
7440-50-8	Copper	128.00		*	P
7439-89-6	Iron	3600.00		*	P
7439-92-1	Lead	p/11 542.00		*	F
7439-95-4	Magnesium	4270.00			P
7439-96-5	Manganese	150.00		N*	P
7439-97-6	Mercury	0.12	U		CV
7439-02-0	Nickel	6.40	U		P
7440-09-7	Potassium	260.00	U		P
7782-49-2	Selenium	0.71	U		F
7440-22-4	Silver	1.20	U		P
7440-23-5	Sodium	59.20	U		P
7440-28-0	Thallium	0.47	U		F
7440-62-2	Vanadium	6.20	B		P
7440-66-6	Zinc	815.00		N*	P
	Cyanide	0.59	U		AS

112

132 M

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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3/90

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN820

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446020

Level (low/med): LOW Date Received: 04/04/91

% Solids: 88.0 p 113

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7540.00			P
7440-36-0	Antimony	10.20	U	N	P
7440-38-2	Arsenic	2.00	B		F 109
7440-39-3	Barium	76.20			P
7440-41-7	Beryllium	0.47	B		P
7440-43-9	Cadmium	1.10	U		P
7440-70-2	Calcium	3960.00		*	P
7440-47-3	Chromium	7.70			P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	13.00		*	P
7439-89-6	Iron	5290.00		*	P
7439-92-1	Lead	p168 11.20		*	F
7439-95-4	Magnesium	1320.00			P
7439-96-5	Manganese	34.70		N*	P
7439-97-6	Mercury	0.11	U		CV
7439-02-0	Nickel	10.70			P
7440-09-7	Potassium	597.00	B		P
7782-49-2	Selenium	0.68	U		P 122 (M)
7440-22-4	Silver	1.10	U		P
7440-23-5	Sodium	66.80	B		P
7440-28-0	Thallium	0.45	U		F
7440-62-2	Vanadium	9.50	B		P
7440-66-6	Zinc	33.60		N*	P
	Cyanide	0.57	U		AS

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Intial Calibration Source: EPA-LV

Continuing Calibration Source: INORG-VENT

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Concentration Units: ug/L

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Analyte	Initial Calibration True	Initial Calibration Found	%R(1)	Continuing Calibration TRUE	Continuing Calibration FOUND	%R(1)	Continuing Calibration FOUND	%R(1)	M
Aluminum	2172.0	2022.15	93.1	5000.0	4887.99	97.8	4894.49	97.9	P
Antimony	978.0	998.88	102.1	5000.0	4915.09	98.3	4929.11	98.6	P
Arsenic	47.4	49.40	104.2	50.0	50.90	101.8	47.70	95.4	F
Barium	2041.0	1942.41	95.2	5000.0	4999.62	100.0	5007.42	100.1	P
Beryllium	510.0	483.06	94.7	5000.0	4904.35	98.1	4913.62	98.3	P
Cadmium	498.0	491.34	98.7	5000.0	5049.43	101.0	5025.37	100.5	P
Calcium	51519.0	50526.31	98.1	50000.0	50210.96	100.4	49968.52	99.9	P
Chromium	510.0	498.11	97.7	5000.0	4938.14	98.8	4922.56	98.5	P
Cobalt	520.0	494.31	95.1	5000.0	4839.92	96.8	4826.57	96.5	P
Copper	519.0	488.14	94.1	5000.0	4846.47	96.9	4870.68	97.4	P
Iron	2044.0	1933.13	94.6	5000.0	4913.89	98.3	4895.98	97.9	P
Lead	97.5	102.00	104.6	50.0	48.00	96.0	51.10	102.2	F
Magnesium	25745.0	25096.51	97.5	50000.0	50000.47	100.0	50144.18	100.3	P
Manganese	516.0	492.21	95.4	5000.0	4865.53	97.3	4857.62	97.2	P
Mercury	5.0	4.88	97.6	2.0	2.01	100.5	2.01	100.5	CV
Nickel	497.0	478.46	96.3	5000.0	4848.91	97.0	4792.97	95.9	P
Potassium	52068.0	49957.61	95.9	50000.0	49816.32	99.6	49806.91	99.6	P
Selenium	52.6	51.70	98.3	50.0	50.10	100.2	50.20	100.4	F
Silver	498.0	483.54	97.1	500.0	481.09	96.2	483.81	96.8	P
Sodium	51368.0	49700.54	96.8	50000.0	49844.50	99.7	50586.80	101.2	P
Thallium	97.0	105.80	109.1	50.0	49.00	98.0	47.60	95.2	F
Vanadium	507.0	476.88	94.1	5000.0	4878.30	97.6	4861.97	97.2	P
Zinc	3316.0	3199.76	96.5	5000.0	4907.97	98.2	4911.45	98.2	P
Cyanide	112.0	108.47	96.8	100.0	100.53	100.5	100.17	100.2	AS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Intial Calibration Source: EPA-LV

Continuing Calibration Source: INORG-VENT

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Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration TRUE	Continuing Calibration FOUND	Continuing Calibration %R(1)	Continuing Calibration FOUND	Continuing Calibration %R(1)	M
Aluminum				5000.0	4902.48	98.0	4838.47	96.8	P
Antimony				5000.0	4938.83	98.8	4870.94	97.4	P
Arsenic				50.0	50.80	101.6	51.20	102.4	F
Barium				5000.0	5001.58	100.0	4945.59	98.9	P
Beryllium				5000.0	4915.88	98.3	4873.28	97.5	P
Cadmium				5000.0	5047.86	101.0	5002.56	100.1	P
Calcium				50000.0	50255.83	100.5	50028.77	100.1	P
Chromium				5000.0	4937.64	98.8	4911.10	98.2	P
Cobalt				5000.0	4841.20	96.8	4815.53	96.3	P
Copper				5000.0	4854.15	97.1	4788.29	95.8	P
Iron				5000.0	4894.86	97.9	4871.16	97.4	P
Lead				50.0	48.50	97.0	49.90	99.8	F
Magnesium				50000.0	50068.10	100.1	49574.02	99.1	P
Manganese				5000.0	4870.71	97.4	4831.46	96.6	P
Mercury				2.0	2.01	100.5	2.01	100.5	CV
Nickel				5000.0	4833.92	96.7	4782.80	95.7	P
Potassium				50000.0	49872.84	99.7	49552.60	99.1	P
Selenium				50.0	52.70	105.4	51.30	102.6	F
Silver				500.0	483.81	96.8	477.01	95.4	P
Sodium				50000.0	50198.42	100.4	49633.37	99.3	P
Thallium				50.0	48.20	96.4	49.40	98.8	F
Vanadium				5000.0	4877.42	97.5	4844.22	96.9	P
Zinc				5000.0	4924.23	98.5	4875.00	97.5	P
Cyanide				100.0	100.29	100.3			AS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Intial Calibration Source: EPA-LV

Continuing Calibration Source: INORG-VENT

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration TRUE	Continuing Calibration FOUND	Continuing Calibration %R(1)	Continuing Calibration FOUND	Continuing Calibration %R(1)	M
Aluminum									NR
Antimony									NR
Arsenic				50.0	49.90	99.8	49.60	99.2	F
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead				50.0	50.20	100.4	50.60	101.2	F
Magnesium									NR
Manganese									NR
Mercury				2.0	2.01	100.5	2.01	100.5	CV
Nickel									NR
Potassium									NR
Selenium				50.0	47.30	94.6	47.30	94.6	F
Silver									NR
Sodium									NR
Thallium				50.0	47.40	94.8	50.20	100.4	F
Vanadium									NR
Zinc									NR
Cyanide									NR

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Intial Calibration Source: EPA-LV

Continuing Calibration Source: INORG-VENT

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration TRUE	Continuing Calibration FOUND	Continuing Calibration %R(1)	Continuing Calibration FOUND	Continuing Calibration %R(1)	M
Aluminum									NR
Antimony									NR
Arsenic				50.0	50.10	100.2	49.20	98.4	F
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead				50.0	49.00	98.0	50.00	100.0	F
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium				50.0	51.40	102.8			F
Silver									NR
Sodium									NR
Thallium				50.0	51.60	103.2			F
Vanadium									NR
Zinc									NR
Cyanide									NR

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

ab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Intial Calibration Source: EPA-LV

Continuing Calibration Source: INORG-VENT

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration TRUE	Continuing Calibration FOUND	Continuing Calibration %R(1)	Continuing Calibration FOUND	Continuing Calibration %R(1)	M
Aluminum									NR
Antimony									NR
Arsenic				50.0	49.30	98.6			F
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron					9		10		NR
Lead				50.0	49.70	99.4	48.40	96.8	F
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Intial Calibration Source: EPA-LV

Continuing Calibration Source: INORG-VENT

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration TRUE	Continuing Calibration FOUND	Continuing Calibration %R(1)	Continuing Calibration FOUND	Continuing Calibration %R(1)	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead				50.0	47.90	95.8	48.90	97.8	F
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Intial Calibration Source: EPA-LV

Continuing Calibration Source: INORG-VENT

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration TRUE	Continuing Calibration FOUND	Continuing Calibration %R(1)	Continuing Calibration FOUND	Continuing Calibration %R(1)	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron					13				NR
Lead				50.0	49.10	✓98.2			F
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

AA CRDL Standard Source: EMSL-LV

ICP CRDL Standard Source: EMSL-LV

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Concentration Units: ug/L

Analyte	CRDL Standard for AA True	Found	%R	CRDL Standard for ICP Initial True	Initial Found	Initial %R	Final Found	Final %R
Aluminum								
Antimony		P/VD		120.0	108.51	90.4	116.10	96.8
Arsenic	10.0	16.70	167.0					
Barium								
Beryllium				10.0	10.24	102.4	10.00	100.0
Cadmium				10.0	9.36	93.6	9.05	90.5
Calcium								
Chromium				20.0	19.04	95.2	19.30	96.5
Cobalt				100.0	98.21	98.2	98.76	98.8
Copper				50.0	53.18	106.4	50.12	100.2
Iron								
Lead	3.0	3.30	110.0					
Magnesium								
Manganese				30.0	30.72	102.4	30.11	100.4
Mercury								
Nickel				80.0	82.71	103.4	78.19	97.7
Potassium								
Selenium	5.0	7.80	156.0					
Silver				20.0	19.58	97.9	19.03	95.2
Sodium								
Thallium	10.0	8.60	86.0					
Vanadium				100.0	97.84	97.8	96.06	96.1
Zinc				40.0	42.32	105.8	42.48	106.2

U.S. EPA - CLP KEYSTONE D.C.# 16177-06- 6

3
BLANKS

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

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Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	47.0	U	47.0	U	47.0	U	47.0	U	9.400	U	P
Antimony	45.0	U	45.0	U	45.0	U	45.0	U	9.000	U	P
Arsenic	5.0	U	5.0	U	5.0	U	5.0	U	1.000	U	F
Barium	21.0	U	21.0	U	21.0	U	21.0	U	4.200	U	P
Beryllium	2.0	U	2.0	U	2.0	U	2.0	U	0.400	U	P
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	1.000	U	P
Calcium	150.0	U	150.0	U	150.0	U	150.0	U	30.000	U	P
hromium	4.0	U	4.0	U	4.0	U	4.0	U	0.800	U	P
obalt	13.0	U	13.0	U	13.0	U	13.0	U	2.600	U	P
Copper	9.0	U	14.9	B	10.7	B	9.9	B	1.800	U	P
Iron	30.0	U	30.0	U	30.0	U	30.0	U	6.000	U	P
Lead	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	F
Magnesium	210.0	U	210.0	U	210.0	U	210.0	U	42.000	U	P
Manganese	11.0	U	11.0	U	11.0	U	11.0	U	2.200	U	P
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.100	U	CV
Nickel	27.0	U	27.0	U	27.0	U	27.0	U	5.400	U	P
Potassium	1100.0	U	1100.0	U	1100.0	U	1100.0	U	220.000	U	P
Selenium	-3.8	B	3.0	U	3.0	U	3.0	U	-0.640	B	F
Silver	5.0	U	5.0	U	5.0	U	5.0	U	1.000	U	P
Sodium	250.0	U	250.0	U	250.0	U	250.0	U	50.000	U	P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U	0.400	U	F
Vanadium	8.0	U	8.0	U	8.0	U	8.0	U	1.600	U	P
Zinc	12.0	U	12.0	U	12.0	U	12.0	U	2.670	B	P
Cyanide	10.0	U	10.0	U	10.0	U	10.0	U	0.500	U	AS

U.S. EPA - CLP

3
BLANKS

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum			47.0	U							P
Antimony			45.0	U							P
Arsenic			5.0	U	5.0	U	5.0	U			F
Barium			21.0	U							P
Beryllium			2.0	U							P
Cadmium			5.0	U							P
Calcium			150.0	U							P
Chromium			4.0	U							P
Cobalt			13.0	U							P
Copper			9.2	B							P
Iron			30.0	U							P
Lead			1.0	U	1.0	U	1.0	U			F
Magnesium			210.0	U							P
Manganese			11.0	U							P
Mercury			0.2	U	0.2	U	0.2	U			CV
Nickel			27.0	U							P
Potassium			1100.0	U							P
Selenium			3.0	U	3.0	U	3.0	U			F
Silver			5.0	U							P
Sodium			250.0	U							P
Thallium			2.0	U	-2.2	B	2.0	U			F
Vanadium			8.0	U							P
Zinc			12.0	U							P
Cyanide											

U.S. EPA - CLP

3
BLANKS

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic			5.0	U	5.0	U	5.0	U			F
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead			1.0	U	-1.1	B	1.0	U			F
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium			3.0	U							F
Silver											
Sodium											
Thallium			2.0	U							F
Vanadium											
Zinc											
Cyanide											

U.S. EPA - CLP

3
BLANKS

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead			1.0	U	1.0	U	1.0	U			F
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

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3
BLANKS

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead			1.0	U							F
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

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ICP INTERFERENCE CHECK SAMPLE

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

ICP ID Number: TJA61 ICS Source: EPA-LV87

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Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	Final Found Sol. AB	%R
Aluminum	540055	536472	506575	505105.8	94.2	505506	496913.2	92.6
Antimony			-12	-19.9		11	-9.6	
Arsenic								
Barium		502	12	455.7	90.8	12	448.9	89.4
Beryllium		480	0	454.7	94.7	0	448.5	93.4
Cadmium		907	-5	903.0	99.6	-4	883.3	97.4
Calcium	494040	512228	493883	490252.9	95.7	494226	484698.3	94.6
Chromium	21	529	13	486.0	91.9	15	482.5	91.2
Cobalt		477	11	433.8	91.0	9	425.5	89.2
Copper		543	-9	474.3	87.4	-12	462.1	85.1
Iron	206236	199845	175276	174604.4	87.4	174226	171281.8	85.7
Lead								
Magnesium	531358	527530	503680	501513.3	95.1	504115	495211.4	93.9
Manganese	34	496	-28	404.0	81.4	-27	410.4	82.7
Mercury								
Nickel		940	19	833.9	88.7	14	814.7	86.7
Potassium			-895	-744.1		-867	-923.0	
Selenium								
Silver		960	-50	859.7	89.5	-52	850.1	88.6
Sodium			1667	1680.3		1675	1673.8	
Thallium								
Vanadium		509	36	472.3	92.8	38	465.7	91.5
Zinc	216	1208	221	1178.4	97.5	221	1162.4	96.2

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5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.
MFN279S

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix: SOIL Level (low/med): LOW

% Solids for Sample: 87.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M	
Aluminum									NR	
Antimony	75-125	74.8230		10.3448	U	114.94	65.1	N	P	UJ
Arsenic	75-125	13.7701		2.7586		9.20	119.7		F	
Barium	75-125	610.8759		116.8552		459.77	107.4		P	
Beryllium	75-125	12.6207		0.7747	B	11.49	103.1		P	
Cadmium	75-125	13.7471		1.1494	U	11.49	119.6		P	
Calcium									NR	
Chromium	75-125	67.1862		18.6575		45.98	105.5		P	
Cobalt	75-125	122.9425		3.8621	B	114.94	103.6		P	
Copper	75-125	82.3264		17.6989		57.47	112.5		P	
Iron									NR	
Lead		120.4598		296.5517		4.60	-3828.1		F	
Magnesium									NR	
Manganese	75-125	158.8184		76.1563		114.94	71.9	N	P	J
Mercury	75-125	p194 0.6034		0.1149	U	0.57	105.9		CV	
Nickel	75-125	126.7839		9.5356		114.94	102.0		P	
Potassium									NR	
Selenium	75-125	1.8621		0.6897	U	2.30	81.0		F	
Silver	75-125	9.6897		1.1494	U	11.49	84.3		P	
Sodium									NR	
Thallium	75-125	p189 12.7816		0.4598	U	11.49	111.2		F	
Vanadium	75-125	135.3793		19.4207		114.94	100.9		P	
Zinc	75-125	229.9058		83.9540		114.94	127.0	N	P	J
Cyanide	75-125	26.2149		0.5747	U	28.74	91.2		AS	

p. 203 456.1 x .25 / (5.00 x .87) = 26.2126

Comments:

U.S. EPA - CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.
MFN279A

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony		147.58		45.00	U	120.0	✓123.0		P
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese		991.11		331.28		670.0	98.5		P
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc		1051.18		365.20		740.0	92.7		P
Cyanide									NR

Comments:

KEYSTONE D.C.# 16177-06- 10

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DUPLICATES

EPA SAMPLE NO.
MFN279D

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 87.0 % Solids for Duplicate: 87.0

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		17004.9648		15602.1035		8.6		P
Antimony		10.3448	U	10.3448	U			P
Arsenic	2.3	2.7586		2.3218		17.2		F
Barium	46.0	116.8552		78.9080		38.8		P
Beryllium		0.7747	B	0.6276	B	21.0		P
Cadmium		1.1494	U	1.1494	U			P
Calcium		12191.7686		59293.2695		131.8	*	P J
Chromium		18.6575		20.5724		9.8		P
Cobalt	11-4	3.8621	B	2.9885	U	200.0		P
Copper	5.7	80.0046 17.6989		97.7035		~~138.2~~	*	P J
Iron		9497.1426		6192.8735		42.1	*	P J
Lead		296.5517		p171 211.4942		33.5	*	F OK
Magnesium	1149.4	2773.6667		3106.6345		11.3		P
Manganese		76.1563		59.3724		24.8	*	P OK
Mercury		0.1149	U	0.1149	U			CV
Nickel	9.2	9.5356		8.0414	B	17.0		P
Potassium	1149.4	1574.1379		844.4483	B	60.3		P
Selenium		0.6897	U	0.6897	U			F
Silver		1.1494	U	1.1494	U			P
Sodium		113.3816	B	103.7149	B	8.9		P
Thallium		0.4598	U	0.4598	U			F
Vanadium	11.5	19.4207		12.8046		41.1		P
Zinc		83.9540		260.7540		102.6	*	P J
Cyanide		0.5747	U	0.5747	U			AS

FORM VI - IN

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7

LABORATORY CONTROL SAMPLE

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Solid LCS Source: EPA0287

Aqueous LCS Source: EPA-LV

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Analyte	Aqueous (ug/L) True	Aqueous (ug/L) Found	Aqueous (ug/L) %R	Solid (mg/kg) True	Solid (mg/kg) Found	C	Solid (mg/kg) Limits		Solid (mg/kg) %R
Aluminum				325.0	254.2		225.0	424.0	78.2
Antimony				211.0	149.3		127.0	294.0	70.8
Arsenic	p141			917.0	842.0		635.0	1199.0	91.8
Barium				4.8	4.9	B	0.0	40.0	102.1
Beryllium				19.4	17.1		16.5	22.3	88.1
Cadmium				45.4	47.0		35.7	55.1	103.5
Calcium				196200.0	188121.2		166800.0	225600.0	95.9
Chromium				99.6	81.7		79.2	120.0	82.0
Cobalt				144.0	130.8		125.0	162.0	90.8
Copper				6910.0	6182.8		6006.0	7820.0	89.5
Iron				22430.0	18820.9		17770.0	27080.0	83.9
Lead				236.0	234.8		188.0	285.0	99.5
Magnesium				118100.0	112716.2		100400.0	129900.0	95.4
Manganese				208.0	183.0		177.0	239.0	88.0
Mercury	p192			12.7	12.6		8.5	17.0	99.2
Nickel				60.9	55.2		49.2	72.6	90.6
Potassium				50.0	220.0	U	0.0	1000.0	0.0
Selenium				39.2	45.3		19.1	59.4	115.6
Silver				22.2	19.5		15.5	29.0	87.8
Sodium				50.0	50.0	U	0.0	1000.0	0.0
Thallium	p187			39.0	30.2		24.6	53.5	77.4
Vanadium				65.8	63.3		51.7	79.9	96.2
Zinc				187.0	164.4		138.0	236.0	87.9
Cyanide				5.6	5.4		4.3	6.9	96.1

p 202 108.7 x .250 /(5.00 x 1.000) = 5.435

FORM VII - IN

3/90

KEYSTONE D.C.# 16177-06- 12

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STANDARD ADDITION RESULTS

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Concentration Units: ug/L

EPA Sample No.	An	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q
MFN814	AS	0.046	5.00	0.066	10.00	0.096	15.00	0.103	11.8	0.9769	+
MFN814	AS	0.043	5.00	0.055	10.00	0.075	15.00	0.087	13.9	0.9945	+
MFN815	AS	0.100	10.00	0.114	20.00	0.141	30.00	0.183	33.7	0.9752	+
MFN815	AS	0.073	10.00	0.102	20.00	0.136	30.00	0.161	24.6	0.9984	
MFN818	AS	0.099	10.00	0.112	20.00	0.147	30.00	0.179	33.8	0.9843	+
MFN818	AS	0.069	10.00	0.111	20.00	0.130	30.00	0.163	24.3	0.9904	+
MFN280	PB	0.165	10.00	0.245	20.00	0.309	30.00	0.361	132.1	0.9954	

FORM VIII - IN

3/90

U.S. EPA - CLP

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ICP SERIAL DILUTIONS

EPA SAMPLE NO.

MFN279L

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Level (low/med): LOW

P 96 φ 120

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	73971.59		78119.10		5.6		P
Antimony	45.00	U	225.00	U			P
Arsenic							NR
Barium	508.32		535.20	B	5.3		P
Beryllium	3.37	B	10.00	U	100.0		P
Cadmium	5.00	U	25.00	U			P
Calcium	53034.19		57451.40		8.3		P
Chromium	81.16		82.60		1.8		P
Cobalt	16.80	B	65.00	U	100.0		P
Copper	76.99		76.60	B	0.5		P
Iron	41312.57		44508.05		7.7		P
Lead							NR
Magnesium	12065.45		12849.75	B	6.5		P
Manganese	331.28		360.45		✓ 8.8		P
Mercury							NR
Nickel	41.48		135.00	U	100.0		P
Potassium	6847.50		7911.80	B	15.5		P
Selenium							NR
Silver	5.00	U	25.00	U			P
Sodium	493.21	B	1250.00	U	100.0		P
Thallium							NR
Vanadium	84.48		86.05	B	1.9		P
Zinc	365.20		412.40		12.9		P

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10

Instrument Detection Limits (Quarterly)

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

ICP ID Number: Date: 01/15/91

Flame AA ID Number:

Furnace AA ID Number: PE3030Z

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic			10		NR
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Calcium			5000		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Iron			100		NR
Lead			3		NR
Magnesium			5000		NR
Manganese			15		NR
Mercury			0.2		NR
Nickel			40		NR
Potassium			5000		NR
Selenium			5		NR
Silver			10		NR
Sodium			5000		NR
Thallium	276.80	BZ	10	2.0	F
Vanadium			50		NR
Zinc			20		NR

Comments:

FORM X - IN

U.S. EPA - CLP

10

Instrument Detection Limits (Quarterly)

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

ICP ID Number: TJA61 Date: 04/15/91

Flame AA ID Number:

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.20		200	47.0	P
Antimony	206.80		60	45.0	P
Arsenic			10		NR
Barium	493.40		200	21.0	P
Beryllium	313.00		5	2.0	P
Cadmium	228.80		5	5.0	P
Calcium	317.80		5000	150.0	P
Chromium	267.70		10	4.0	P
Cobalt	228.60		50	13.0	P
Copper	324.70		25	9.0	P
Iron	259.90		100	30.0	P
Lead			3		NR
Magnesium	279.00		5000	210.0	P
Manganese	257.60		15	11.0	P
Mercury			0.2		NR
Nickel	231.60		40	27.0	P
Potassium	766.40		5000	1100.0	P
Selenium			5		NR
Silver	328.00		10	5.0	P
Sodium	588.90		5000	250.0	P
Thallium			10		NR
Vanadium	292.40		50	8.0	P
Zinc	213.80		20	12.0	P

Comments:

FORM X - IN

U.S. EPA - CLP

10

Instrument Detection Limits (Quarterly)

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

ICP ID Number: Date: 01/15/91

Flame AA ID Number:

Furnace AA ID Number: PE560

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic			10		NR
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Calcium			5000		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Iron			100		NR
Lead	283.30	BD	3	1.0	F
Magnesium			5000		NR
Manganese			15		NR
Mercury			0.2		NR
Nickel			40		NR
Potassium			5000		NR
Selenium			5		NR
Silver			10		NR
Sodium			5000		NR
Thallium			10		NR
Vanadium			50		NR
Zinc			20		NR

Comments:

FORM X - IN

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

ICP ID Number: Date: 01/15/91

Flame AA ID Number: MAS50A

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic			10		NR
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Calcium			5000		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Iron			100		NR
Lead			3		NR
Magnesium			5000		NR
Manganese			15		NR
Mercury	253.70		0.2	0.2	CV
Nickel			40		NR
Potassium			5000		NR
Selenium			5		NR
Silver			10		NR
Sodium			5000		NR
Thallium			10		NR
Vanadium			50		NR
Zinc			20		NR

Comments:

FORM X - IN

U.S. EPA - CLP

10

Instrument Detection Limits (Quarterly)

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

ICP ID Number: Date: 01/15/91

Flame AA ID Number:

Furnace AA ID Number: TJASH21

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic	197.30	BS	10	5.0	F
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Calcium			5000		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Iron			100		NR
Lead			3		NR
Magnesium			5000		NR
Manganese			15		NR
Mercury			0.2		NR
Nickel			40		NR
Potassium			5000		NR
Selenium	196.00	BS	5	3.0	F
Silver			10		NR
Sodium			5000		NR
Thallium			10		NR
Vanadium			50		NR
Zinc			20		NR

Comments:

FORM X - IN

U.S. EPA - CLP

11A

ICP Interelement Correction Factors (Annually)

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

ICP ID Number: TJA61 Date: 01/10/91

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	CR
Aluminum	308.20	0.0000000	0.0031410	0.0000000	0.0000000	0.0000000
Antimony	206.80	0.0000000	0.0000000	0.0000000	0.0000000	-0.0022970
Arsenic		0.0012828	0.0000000	0.0051500	0.0000000	0.0013456
Barium	493.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	228.80	0.0000000	0.0000000	0.0000000	0.0000000	-0.0005931
Calcium	317.80	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.70	0.0000000	0.0000000	0.0002650	0.0000000	0.0000000
Cobalt	228.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.70	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Iron	259.90	0.0001904	0.0000000	0.0000000	0.0001934	0.0000000
Lead	220.30	0.0011876	0.0000000	0.0001753	0.0000000	-0.0015598
Magnesium	279.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.60	0.0000000	0.0000000	-0.0002248	0.0000000	0.0000000
Mercury	253.70					
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium		0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.00	0.0000000	0.0000000	-0.0000292	0.0000000	0.0000000
Sodium	588.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium		0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.40	0.0000000	0.0000000	0.0002310	0.0000000	0.0000000
Zinc	213.80	0.0000000	0.0000000	0.0001183	0.0000000	0.0000000

Comments:

FORM XI (PART 1) - IN

U.S. EPA - CLP

11B

ICP Interelement Correction Factors (Annually)

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

ICP ID Number: TJA61 Date: 01/10/91

Analyte	Wave-length (nm)	Interelement Correction Factors for: CU	NI	PB	V
Aluminum	308.20	0.0000000	0.0000000	0.0000000	0.0051722
Antimony	206.80	0.0000000	0.0000000	0.0006329	-0.0039757
Arsenic		0.0000000	0.0000000	0.0000000	0.0196100
Barium	493.40	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0015210
Cadmium	228.80	0.0000000	-0.0004175	0.0000000	0.0000000
Calcium	317.80	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.70	0.0030000	0.0032358	0.0000000	0.0031574
Cobalt	228.60	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.70	0.0000000	0.0000000	0.0000000	0.0000000
Iron	259.90	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.30	0.0000000	0.0000000	0.0000000	-0.0025818
Magnesium	279.00	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.60	0.0000000	0.0000000	0.0000000	0.0000000
Mercury	253.70				
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.40	0.0000000	0.0000000	0.0000000	0.0000000
Selenium		0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.00	0.0000000	0.0000000	0.0000000	0.0000000
Sodium	588.90	0.0000000	0.0000000	0.0000000	0.0000000
Thallium		0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.40	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	213.80	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

FORM XI (PART 2) - IN

U.S. EPA - CLP

12

ICP Linear Ranges (Quarterly)

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

ICP ID Number: TJA61 Date: 04/15/91

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Aluminum	5.00	1000000.0	
Antimony	5.00	100000.0	
Arsenic			NR
Barium	5.00	100000.0	
Beryllium	5.00	20000.0	
Cadmium	5.00	20000.0	
Calcium	5.00	1000000.0	
Chromium	5.00	100000.0	
Cobalt	5.00	100000.0	
Copper	5.00	100000.0	
Iron	5.00	500000.0	
Lead	5.00	20000.0	
Magnesium	5.00	1000000.0	
Manganese	5.00	100000.0	
Mercury			NR
Nickel	5.00	100000.0	
Potassium	5.00	1000000.0	
Selenium			NR
Silver	5.00	20000.0	
Sodium	5.00	1000000.0	
Thallium			NR
Vanadium	5.00	100000.0	
Zinc	5.00	50000.0	

Comments:

FORM XII - IN

U.S. EPA - CLP

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PREPARATION LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Method: P ✓

EPA Sample No.	Preparation Date	Weight (gram)	Volume (ml)
LCSS	04/09/91 ✓	1.00	200
MFN276	04/09/91	1.00	200
MFN277	04/09/91	1.00	200
MFN278	04/09/91	1.00	200
MFN279	04/09/91	1.00	200
MFN279D	04/09/91	1.00	200
MFN279S	04/09/91	1.00	200
MFN280	04/09/91	1.00	200
MFN281	04/09/91	1.00	200
MFN282	04/09/91	1.00	200
MFN283	04/09/91	1.00	200
MFN284	04/09/91	1.00	200
MFN809	04/09/91	1.00	200
MFN812	04/09/91	1.00	200
MFN813	04/09/91	1.00	200
MFN814	04/09/91	1.00	200
MFN815	04/09/91	1.00	200
MFN816	04/09/91	1.00	200
MFN817	04/09/91	1.00	200
MFN818	04/09/91	1.00	200
MFN819	04/09/91	1.00	200
MFN820	04/09/91	1.00	200
PBS	04/09/91	1.00	200

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Method: F

EPA Sample No.	Preparation Date	Weight (gram)	Volume (ml)
LCSS	04/09/91	1.00	200
MFN276	04/09/91	1.00	200
MFN277	04/09/91	1.00	200
MFN278	04/09/91	1.00	200
MFN279	04/09/91	1.00	200
MFN279D	04/09/91	1.00	200
MFN279S	04/09/91	1.00	200
MFN280	04/09/91	1.00	200
MFN281	04/09/91	1.00	200
MFN282	04/09/91	1.00	200
MFN283	04/09/91	1.00	200
MFN284	04/09/91	1.00	200
MFN809	04/09/91	1.00	200
MFN812	04/09/91	1.00	200
MFN813	04/09/91	1.00	200
MFN814	04/09/91	1.00	200
MFN815	04/09/91	1.00	200
MFN816	04/09/91	1.00	200
MFN817	04/09/91	1.00	200
MFN818	04/09/91	1.00	200
MFN819	04/09/91	1.00	200
MFN820	04/09/91	1.00	200
PBS	04/09/91	1.00	200

U.S. EPA - CLP

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PREPARATION LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Method: CV

Sampled	Shipped	Rec'd	EPA Sample No.	Preparation Date	Weight (gram)	Volume (ml)
			LCSSS	04/08/91	0.20	100
4/2	4/3	4/4	MFN276	04/08/91	0.20	100
			MFN277	04/08/91	0.20	100
			MFN278	04/08/91	0.20	100
			MFN279	04/08/91	0.20	100
			MFN279D	04/08/91	0.20	100
			MFN279S	04/08/91	0.20	100
			MFN280	04/08/91	0.20	100
			MFN281	04/08/91	0.20	100
			MFN282	04/08/91	0.20	100
			MFN283	04/08/91	0.20	100
4/3	4/3	4/4	MFN284	04/08/91	0.20	100
			MFN809	04/08/91	0.20	100
			MFN812	04/08/91	0.20	100
			MFN813	04/08/91	0.20	100
			MFN814	04/08/91	0.20	100
			MFN815	04/08/91	0.20	100
			MFN816	04/08/91	0.20	100
			MFN817	04/08/91	0.20	100
			MFN818	04/08/91	0.20	100
			MFN819	04/08/91	0.20	100
4/2	4/3	4/4	MFN820	04/08/91	0.20	100
			PBS	04/08/91	0.20	100

FORM XIII - IN 3/90

000054-A
J.A 4/24/91

U.S. EPA - CLP

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PREPARATION LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Method: AS

EPA Sample No.	Preparation Date	Weight (gram)	Volume (ml)
LCSS	04/12/91	5.00	250
MFN276	04/12/91	5.00	250
MFN277	04/12/91	5.00	250
MFN278	04/12/91	5.00	250
MFN279	04/12/91	5.00	250
MFN279D	04/12/91	5.00	250
MFN279S	04/12/91	5.00	250
MFN280	04/12/91	5.00	250
MFN281	04/12/91	5.00	250
MFN282	04/12/91	5.00	250
MFN283	04/12/91	5.00	250
MFN284	04/12/91	5.00	250
MFN809	04/12/91	5.00	250
MFN812	04/12/91	5.00	250
MFN813	04/12/91	5.00	250
MFN814	04/12/91	5.00	250
MFN815	04/12/91	5.00	250
MFN816	04/12/91	5.00	250
MFN817	04/12/91	5.00	250
MFN818	04/12/91	5.00	250
MFN819	04/12/91	5.00	250
MFN820	04/12/91	5.00	250
PBS	04/12/91	5.00	250

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ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: TJA61 Method: P

Start Date: 04/17/91 End date: 04/17/91

EPA Sample No.	D/F	Time	% R	ALL	SBS	ABA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
				Analytes																						
SO	1.00	1434		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
S1	1.00	1438				X		X		X											X					
S2	1.00	1442		X	X		X				X	X	X			X		X						X	X	
S3	1.00	1446							X					X				X			X					
ICV	1.00	1455		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
ICB	1.00	1458		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
ICSAI	1.00	1502		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
ICSABI	1.00	1507		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CRII	1.00	1511		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CRS	1.00	1515		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
LCSS	1.00	1519		X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
LCSS	5.00	1523							X																	
MFN276	1.00	1538		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MFN277	1.00	1542		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MFN278	1.00	1547		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CCV	1.00	1550		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CCB	1.00	1553		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MFN279	1.00	1557		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MFN280	1.00	1601		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MFN281	1.00	1605		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MFN282	1.00	1609		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MFN283	1.00	1613		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MFN284	1.00	1617		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MFN809	1.00	1622		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MFN812	1.00	1626		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MFN813	1.00	1630		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CCV	1.00	1633		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CCB	1.00	1636		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MFN814	1.00	1640		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MFN815	1.00	1644		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MFN816	1.00	1648		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MFN817	1.00	1652		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: TJA61 Method: P

Start Date: 04/17/91 End date: 04/17/91

EPA Sample No.	D/F	Time	% R	AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
MFN818	1.00	1656		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
MFN819	1.00	1700		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
MFN820	1.00	1704		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
MFN279D	1.00	1709		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
MFN279S	1.00	1713		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CCV	1.00	1716		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CCB	1.00	1719		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
MFN279A	1.00	1730			X												X										
MFN279A	1.00	1738																								X	
MFN279L	5.00	1742		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
ICSAF	1.00	1746		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
ICSABF	1.00	1750		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CRIF	1.00	1754		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CCV	1.00	1758		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CCB	1.00	1801		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	

U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: TJASH21 Method: F

Start Date: 04/10/91 End date: 04/10/91

EPA Sample No.	D/F	Time	% R	Analytes																								
				ALBS	ASA	BBE	BDA	CAR	COU	CFE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	0630			X																		
S50	1.00				X																		
S10	1.00				X																		
S20	1.00				X																		
S100	1.00				X																		
ICV	2.00				X																		
ICB	1.00				X																		
CRA	1.00				X																		
PBS	1.00				X																		
LCSA	1.00		102.0		X																		
LCSS	100.00				X																		
LCSSA	100.00		121.0		X																		
LCSS	3.00																						
LCSSA	3.00		86.0																				
CCV	1.00				X																		
CCB	1.00				X																		
CCV	1.00				X																		
CCB	1.00				X																		
MFN276	1.00				X																		
MFN276A	1.00		110.0		X																		
MFN277	1.00				X																		
MFN277A	1.00		104.0		X																		
MFN278	1.00				X																		
MFN278A	1.00		108.0		X																		
MFN279	1.00				X																		
MFN279A	1.00		104.0		X																		
MFN280	1.00				X																		
MFN280A	1.00		110.0		X																		
CCV	1.00				X																		
CCB	1.00				X																		
MFN281	1.00				X																		
MFN281A	1.00		102.0		X																		

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ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: TJASH21 Method: F

Start Date: 04/10/91 End date: 04/10/91

EPA Sample No.	D/F	Time	% R	Analytes																						
				ALB	SBS	ASA	BEB	CDA	CAR	CIO	CUU	FEE	PBB	MGN	MMN	HGI	NIK	SE	AG	NA	TL	VN	ZN	CN
MFN282	1.00				X																			
MFN282A	1.00		119.0		X																			
MFN283	1.00				X																			
MFN283A	1.00		115.0		X																			
MFN284	1.00				X																			
MFN284A	1.00		108.0		X																			
MFN809	1.00																							
MFN809A	1.00		103.0																					
CCV	1.00				X																			
CCB	1.00				X																			
MFN812	1.00				X																			
MFN812A	1.00		114.0		X																			
MFN813	1.00				X																			
MFN813A	1.00		108.0		X																			
MFN814	1.00				~~X~~																			
MFN814A	1.00		124.0		~~X~~																			
MFN815	1.00				X																			
MFN815A	1.00		120.0		X																			
MFN816	1.00				X																			
MFN816A	1.00		111.0		X																			
CCV	1.00				X																			
CCB	1.00				X																			
MFN817	1.00				X																			
MFN817A	1.00		128.0		X																			
MFN818	1.00				X																			
MFN818A	1.00		120.0		X																			
MFN819	1.00				X																			
MFN819A	1.00		112.0		X																			
MFN820	1.00				X																			
MFN820A	1.00		109.0		X																			
MFN279D	1.00				X																			
MFN279DA	1.00		110.0		X																			

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ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: TJASH21 Method: F

Start Date: 04/10/91 End date: 04/10/91

EPA Sample No.	D/F	Time	% R	Analytes																								
				ALB	SBS	ABA	BEB	CDC	CAC	CRC	COC	CUC	FEF	PBP	MGM	MNM	HGH	NIN	KK	SES	AGA	NAN	TLT	VV	ZN	CNC
CCV	1.00				X																					
CCB	1.00				X																					
MFN279S	1.00				X																					
MFN809	1.00				X																					
MFN809A	1.00		116.0		X																					
CCV	1.00				X																					
CCB	1.00				X																					
MFN8140	1.00																									
MFN8141	1.00																									
MFN8142	1.00																									
MFN8143	1.00																									
MFN8150	1.00																									
MFN8151	1.00																									
MFN8152	1.00																									
MFN8153	1.00																									
MFN8180	1.00																									
MFN8181	1.00																									
MFN8182	1.00																									
MFN8183	1.00																									
MFN8140	1.00				X																					
MFN8141	1.00				X																					
MFN8142	1.00				X																					
MFN8143	1.00				X																					
MFN8150	1.00				X																					
MFN8151	1.00				X																					
MFN8152	1.00				X																					
MFN8153	1.00				X																					
CCV	1.00				X																					
CCB	1.00				X																					
MFN8180	1.00				X																					
MFN8181	1.00				X																					
MFN8182	1.00				X																					

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ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: TJASH21 Method: F

Start Date: 04/10/91 End date: 04/10/91

EPA Sample No.	D/F	Time	% R	Analytes																								
				ALBS	ASA	BEB	CDA	CARO	CUE	FEB	PMG	MNG	HGI	NI	KS	SEG	AGA	NAL	TL	VZ	IN	CN
MFN8183	1.00				X																							
CCV	1.00				X																							
CCB	1.00	1035			X																							

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ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: PE560 Method: F

Start Date: 04/10/91 End date: 04/10/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				ALBS	ASAS	BAS	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
SO	1.00	0830												X												
S3	1.00													X												
S50	1.00													X												
S100	1.00													X												
ICV	2.00													X												
ICB	1.00													X												
CRA	1.00													X												
PBS	1.00													X												
PBSA	1.00		101.0											X												
CSS	20.00													X												
CSSA	20.00		97.0											X												
CCV	1.00													X												
CCB	1.00													X												
CCV	1.00													X												
CCB	1.00													X												
MFN276	1.00																									
MFN276A	1.00		0.0																							
MFN277	1.00													X												
MFN277A	1.00		107.5											X												
MFN278	1.00																									
MFN278A	1.00		0.0																							
MFN279	1.00																									
MFN279A	1.00		0.0																							
MFN280	1.00																									
MFN280A	1.00		84.5																							
CCV	1.00													X												
CCB	1.00													X												
MFN281	1.00													X												
MFN281A	1.00		93.5											X												
MFN282	1.00																									
MFN282A	1.00		0.0																							
MFN283	1.00													X												

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ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: PE560 Method: F

Start Date: 04/10/91 End date: 04/10/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				ALB	SBS	ASA	BAE	BED	CDA	CAR	CDU	CUE	FEB	PBG	MGN	MIN	HGI	NI	KS	SEG	AGA	NAL	TL	VI	ZIN	CIN
MFN283A	1.00		85.5											X													
MFN284	1.00																										
MFN284A	1.00		0.0																								
MFN809	1.00																										
MFN809A	1.00		0.0																								
CCV	1.00													X													
CCB	1.00													X													
MFN812	1.00													X													
MFN812A	1.00		93.5											X													
MFN813	1.00																										
MFN813A	1.00		0.0																								
MFN814	1.00													X													
MFN814A	1.00		90.0											X													
MFN815	1.00													X													
MFN815A	1.00		96.5											X													
MFN816	1.00																										
MFN816A	1.00		0.0																								
CCV	1.00													X													
CCB	1.00													X													
MFN817	1.00																										
MFN817A	1.00		0.0																								
MFN818	1.00																										
MFN818A	1.00		0.0																								
MFN819	1.00																										
MFN819A	1.00		0.0																								
MFN820	1.00													X													
MFN820A	1.00		109.0											X													
MFN279D	1.00																										
MFN279DA	1.00		0.0																								
CCV	1.00													X													
CCB	1.00													X													
MFN279S	1.00																										

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ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: PE560 Method: F

Start Date: 04/10/91 End date: 04/10/91

EPA Sample No.	D/F	Time	% R	Analytes																						
				ALBS	ASA	BBE	CDA	CRO	CUE	FEB	PMG	MN	HGI	KE	SEG	ANA	TL	VN	ZN	CN
CCV	1.00										X									
CCB	1.00										X									
MFN276	5.00										X									
MFN276A	5.00		85.0								X									
MFN278	5.00										X									
MFN278A	5.00		92.0								X									
MFN279	10.00																			
MFN279A	10.00		0.0																	
MFN282	5.00																			
MFN282A	5.00		0.0																	
MFN284	20.00										X									
MFN284A	20.00		90.5								X									
CCV	1.00										X									
CCB	1.00										X									
MFN809	5.00										X									
MFN809A	5.00		100.0								X									
MFN813	5.00										X									
MFN813A	5.00		86.5								X									
MFN816	5.00										X									
MFN816A	5.00		92.0								X									
MFN817	5.00										X									
MFN817A	5.00		97.0								X									
MFN818	20.00										X									
MFN818A	20.00		95.5								X									
CCV	1.00										X									
CCB	1.00										X									
MFN819	20.00																			
MFN819A	20.00		0.0																	
MFN279D	20.00										X									
MFN279DA	20.00		112.0								X									
MFN279S	20.00										X									
MFN279	20.00										X									

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ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: PE560 Method: F

Start Date: 04/10/91 End date: 04/10/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				ALBS	ASAS	BABE	BEDA	CACR	CODU	CUFE	FEPB	PBMG	MGMN	MNHG	HGNI	NIKS	KSEG	SEAG	AGAN	ANTL	TLVN	VNZN	ZNCN	CN
MFN279A	20.00		113.0									X													
MFN282	10.00											X													
MFN282A	10.00		115.0									X													
CCV	1.00											X													
CCB	1.00											X													
MFN819	50.00											X													
MFN819A	50.00		92.0									X													
CCV	1.00											X													
CCB	1.00											X													
CCV	1.00											X													
CCB	1.00											X													
MFN2800	5.00											X													
MFN2801	5.00											X													
MFN2802	5.00											X													
MFN2803	5.00											X													
CCV	1.00											X													
CCB	1.00	1741										X													

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ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: TJASH21 Method: F

Start Date: 04/10/91 End date: 04/10/91

EPA Sample No.	D/F	Time	% R	Analytes																								
				ALBS	ASAE	BBED	CDA	CARO	CUE	FEB	PMG	MNG	HGI	NI	KS	SE	AG	NA	TL	VZ	CN							
SO	1.00	0630														X												
SSO	1.00															X												
S5	1.00															X												
S10	1.00															X												
S100	1.00															X												
ICV	1.00															X												
ICB	1.00															X												
CRA	1.00															X												
PBS	1.00															X												
PBSA	1.00		101.0													X												
LCSS	100.00																											
LCSSA	100.00		121.0																									
LCSS	3.00															X												
LCSSA	3.00		86.0													X												
CCV	1.00															X												
CCB	1.00															X												
CCV	1.00															X												
CCB	1.00															X												
MFN276	1.00															X												
MFN276A	1.00		131.0													X												
MFN277	1.00															X												
MFN277A	1.00		118.0													X												
MFN278	1.00															X												
MFN278A	1.00		117.0													X												
MFN279	1.00															X												
MFN279A	1.00		104.0													X												
MFN280	1.00															X												
MFN280A	1.00		146.0													X												
CCV	1.00															X												
CCB	1.00															X												
MFN281	1.00															X												
MFN281A	1.00		131.0													X												

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ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: TJASH21 Method: F

Start Date: 04/10/91 End date: 04/10/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				ALBS	ASAB	BEDA	CDAR	CAOU	CUE	FEB	PBG	MGN	MNG	HGI	NI	KS	SEG	AGA	NAL	TL	VZ	ZN	CN
MFN282	1.00																X						
MFN282A	1.00		117.0														X						
MFN283	1.00																X						
MFN283A	1.00		142.0														X						
MFN284	1.00																X						
MFN284A	1.00		154.0														X						
MFN809	1.00																X						
MFN809A	1.00		144.0														X						
CCV	1.00																X						
CCB	1.00																X						
MFN812	1.00																X						
MFN812A	1.00		146.0														X						
MFN813	1.00																X						
MFN813A	1.00		120.0														X						
MFN814	1.00																X						
MFN814A	1.00		122.0														X						
MFN815	1.00																X						
MFN815A	1.00		132.0														X						
MFN816	1.00																X						
MFN816A	1.00		139.0														X						
CCV	1.00																X						
CCB	1.00																X						
MFN817	1.00																X						
MFN817A	1.00		132.0														X						
MFN818	1.00																X						
MFN818A	1.00		139.0														X						
MFN819	1.00																X						
MFN819A	1.00		132.0														X						
MFN820	1.00																X						
MFN820A	1.00		122.0														X						
MFN279D	1.00																X						
MFN279DA	1.00		117.0														X						

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ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: TJASH21 Method: F

Start Date: 04/10/91 End date: 04/10/91

EPA Sample No.	D/F	Time	% R	Analytes																								
				ALBS	ASBS	BAE	BCD	CAR	CCO	CCU	CFE	PB	MG	MN	HG	NI	KS	SE	AG	NA	TL	VN	ZN	CN
CCV	1.00																	X						
CCB	1.00																	X						
MFN279S	1.00																	X						
MFN809	1.00																							
MFN809A	1.00		116.0																					
CCV	1.00																	X						
CCB	1.00	0945																X						

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ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: PE3030Z Method: F

Start Date: 04/12/91 End date: 04/12/91

EPA Sample No.	D/F	Time	% R	Analytes																								
				ALB	SBS	ASA	BBE	CBD	CCA	CCR	COU	CUE	FEB	PBG	MGN	MMN	HGI	NIK	SSE	AGA	NAL	TLV	VZN	ZCN	CN			
S0	1.00	1200																						X			
S10	1.00																							X			
S25	1.00																							X			
S50	1.00																							X			
S100	1.00																							X			
ICV	2.00																							X			
ICB	1.00																							X			
CRA	1.00																							X			
PBS	1.00																							X			
BSA	1.00		97.0																					X			
CSS	3.00																							X			
LCSSA	3.00		99.5																					X			
CCV	1.00																							X			
CCB	1.00																							X			
CCV	1.00																							X			
CCB	1.00																							X			
MFN276	1.00																							X			
MFN276A	1.00		95.0																					X			
MFN277	1.00																							X			
MFN277A	1.00		94.0																					X			
MFN278	1.00																							X			
MFN278A	1.00		98.5																					X			
MFN279	1.00																							X			
MFN279A	1.00		79.5																					X			
MFN280	1.00																							X			
MFN280A	1.00		89.0																					X			
CCV	1.00																							X			
CCB	1.00																							X			
MFN281	1.00																							X			
MFN281A	1.00		95.0																					X			
MFN282	1.00																							X			
MFN282A	1.00		96.0																					X			

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ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: PE3030Z Method: F

Start Date: 04/12/91 End date: 04/12/91

EPA Sample No.	D/F	Time	% R	Analytes																								
				ALK	SBS	ASA	BEB	CDC	CAC	CRC	COC	CUC	FEE	PBF	MGM	MNM	HGH	NIN	KSK	SES	AGA	NAN	TLT	VZV	ZNZ	CNC
MFN283	1.00																						X			
MFN283A	1.00		101.5																				X			
MFN284	1.00																						X			
MFN284A	1.00		94.5																				X			
MFN809	1.00																						X			
MFN809A	1.00		96.0																				X			
CCV	1.00																						X			
CCB	1.00																						X			
MFN812	1.00																						X			
MFN812A	1.00		94.5																				X			
MFN813	1.00																						X			
MFN813A	1.00		125.5																				X			
MFN814	1.00																						X			
MFN814A	1.00		102.0																				X			
MFN815	1.00																						X			
MFN815A	1.00		96.0																				X			
MFN816	1.00																						X			
MFN816A	1.00		97.5																				X			
CCV	1.00																						X			
CCB	1.00																						X			
MFN817	1.00																						X			
MFN817A	1.00		87.5																				X			
MFN818	1.00																						X			
MFN818A	1.00		93.0																				X			
MFN819	1.00																						X			
MFN819A	1.00		92.5																				X			
MFN820	1.00																						X			
MFN820A	1.00		96.0																				X			
MFN279D	1.00																						X			
MFN279DA	1.00		85.0																				X			
CCV	1.00																						X			
CCB	1.00																						X			

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ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: PE3030Z Method: F

Start Date: 04/12/91 End date: 04/12/91

EPA Sample No.	D/F	Time	% R	Analytes																								
				ALK	BS	ASA	BBE	CDA	CAR	COU	CUE	FEB	PBG	MGN	MNG	HNI	KS	SEG	ANA	NTL	VZN	CN						
MFN279S	1.00																			X								
CCV	1.00																			X								
CCB	1.00	1730																		X								

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ANALYSIS RUN LOG

.ab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

.ab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: MAS50A Method: CV

Start Date: 04/08/91 End date: 04/08/91

EPA Sample No.	D/F	Time	% R	Analytes																								
				ALB	SBS	ASA	BBE	BCD	CCA	CCR	CCO	CCU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	1101															X										
S100	1.00	1102															X										
S200	1.00	1103															X										
S400	1.00	1104															X										
S600	1.00	1105															X										
ICV	2.00	1106															X										
ICB	1.00	1107															X										
PBW	1.00	1108																									
PBS	1.00	1109															X										
CSS	1.00	1110															X										
CCV	1.00	1111															X										
CCB	1.00	1112															X										
ZZZZZ		1113																									
ZZZZZ		1114																									
ZZZZZ		1115																									
ZZZZZ		1116																									
ZZZZZ		1117																									
ZZZZZ		1118																									
ZZZZZ		1119																									
ZZZZZ		1120																									
ZZZZZ		1121																									
ZZZZZ		1122																									
CCV	1.00	1123															X										
CCB	1.00	1124															X										
ZZZZZ		1125																									
ZZZZZ		1126																									
ZZZZZ		1127																									
ZZZZZ		1128																									
CCV	1.00	1129															X										
CCB	1.00	1130															X										
MFN276	1.00	1131															X										
MFN277	1.00	1132															X										

14

ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: MAS50A Method: CV

Start Date: 04/08/91 End date: 04/08/91

EPA Sample No.	D/F	Time	% R	Analytes																								
				ALB	SBS	ABA	BBE	CDA	CAR	CRO	CUU	FEB	PBG	MGN	MNG	HGI	NIK	SE	AG	NA	TL	VN	ZN	CN
MFN278	1.00	1133														X								
MFN279	1.00	1134														X								
MFN280	1.00	1135														X								
MFN281	1.00	1136														X								
MFN282	1.00	1137														X								
MFN283	1.00	1138														X								
MFN284	1.00	1139														X								
MFN809	1.00	1140														X								
CCV	1.00	1141														X								
CB	1.00	1142														X								
FN812	1.00	1143														X								
MFN813	1.00	1144														X								
MFN814	1.00	1145														X								
MFN815	1.00	1146														X								
MFN816	1.00	1147														X								
MFN817	1.00	1148														X								
MFN818	1.00	1149														X								
MFN819	1.00	1150														X								
MFN820	1.00	1151														X								
MFN279D	1.00	1152														X								
CCV	1.00	1153														X								
CCB	1.00	1154														X								
MFN279S	1.00	1155														X								
CCV	1.00	1156														X								
CCB	1.00	1157														X								

14

ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: TECHNICON Method: AS

Start Date: 04/13/91 End date: 04/13/91

EPA Sample No.	D/F	Time	% R	Analytes																								
				ALK	SB	ASA	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	AN	TL	V	ZN	CN
S0	1.00	1104																									X
S10	1.00																										X
S50	1.00																										X
S100	1.00																										X
S150	1.00																										X
S200	1.00																										X
ICV/LCS	1.00																										X
ICB/PBS	1.00																										X
MFN276	1.00																										X
FN277	1.00																										X
..FN278	1.00																										X
MFN279	1.00																										X
MFN280	1.00																										X
MFN281	1.00																										X
MFN282	1.00																										X
MFN283	1.00																										X
MFN284	1.00																										X
MFN809	1.00																										X
CCV	1.00																										X
CCB	1.00																										X
MFN812	1.00																										X
MFN813	1.00																										X
MFN814	1.00																										X
MFN815	1.00																										X
MFN816	1.00																										X
MFN817	1.00																										X
MFN818	1.00																										X
MFN819	1.00																										X
MFN820	1.00																										X
MFN279D	1.00																										X
CCV	1.00																										X
CCB	1.00																										X

14
ANALYSIS RUN LOG

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Instrument ID Number: TECHNICON Method: AS

Start Date: 04/13/91 End date: 04/13/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
MFN279S	1.00																										X
CCV	1.00																										X
CCB	1.00	1138																									X

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MFN817

Lab Name: KEYSTONE LAB-HOUSTON Contract: 68-D0-0147

Lab Code: KEYTX Case No.: 16177 SAS No.: SDG No.: MFN276

Matrix (soil/water): SOIL Lab Sample ID: 910446017

Level (low/med): LOW Date Received: 04/04/91

% Solids: 84.5 P110

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7270.00			P
7440-36-0	Antimony	10.70	U	N	P
7440-38-2	Arsenic	1.60	B		F 128 (W)
7440-39-3	Barium	39.50	B		P
7440-41-7	Beryllium	0.47	U		P
7440-43-9	Cadmium	1.20	U		P
7440-70-2	Calcium	5270.00		*	P
7440-47-3	Chromium	14.40			P
7440-48-4	Cobalt	3.30	B		P
7440-50-8	Copper	4.60	B	*	P
7439-89-6	Iron	5680.00		*	P
7439-92-1	Lead	19.50		*	F
7439-95-4	Magnesium	1110.00	B		P
7439-96-5	Manganese	94.50		N*	P
7439-97-6	Mercury	0.12	U		CV
7439-02-0	Nickel	6.40	B		P
7440-09-7	Potassium	881.00	B		P
7782-49-2	Selenium	0.71	U		F 132 (W)
7440-22-4	Silver	1.20	U		P
7440-23-5	Sodium	59.20	U		P
7440-28-0	Thallium	0.47	U		F
7440-62-2	Vanadium	13.20			P
7440-66-6	Zinc	79.30		N*	P
	Cyanide	0.59	U		AS

19170

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

FORM I - IN

3/90

U.S.E.P.A. CONTRACT LABORATORY PROGRAM

SAMPLE MANAGEMENT OFFICE

INORGANIC CONTRACT COMPLIANCE SCREENING SYSTEM

****

SCREENING PACKAGE
SUMMARY INFORMATION

SDG: MFN276
RESUBMITTED

CASE: 16177

LAB: KEYTX

CONTRACT: 68-D0-0147

REGION: 6

DRD: 05/09/91

FORMAT: A

SCREEN DATE:

MAIL DATE 1: MAY 1 4 1991

MAIL DATE 2:

SCREENER:

****

INORGANIC CONTRACT COMPLIANCE SCREENING SUMMARY

DEFECT COUNT BY SAMPLE AND FORM
RESUBMITTED

CASE: 16177 SAMPLES: 19 DATE MAILED:

LAB CODE: KEYTX CONTRACT: 68-D0-0147 SAS NO: SCREENER: DATE SCREENED:

SDG NUMBER: MFN276 REGION: 6 DATE RECEIVED: 05/09/91

SAMPLE NO.	A COVER PAGE	B FORM 1	CA FORM 2A	CB FORM 2B	D FORM 3	E FORM 4	FA FORM 5A	FB FORM 5B	G FORM 6	H FORM 7	I FORM 8	J FORM 9	L FORM 10	M FORM 11	N FORM 12	R FORM 13	RA FORM 14	MANUAL DEFECT
MFN276-S														2				
MFN276-1														2				
MFN277-1														2				
MFN278-1														2				
MFN279-1														2				
MFN279-8														2				
MFN279-9														2				
MFN280-1														2				
MFN281-1														2				
MFN282-1														2				
MFN283-1														2				
MFN284-1														2				
MFN809-1														2				
MFN812-1														2				
MFN813-1														2				
MFN814-1														2				
MFN815-1														2				
MFN816-1														2				
MFN817-1														2				
MFN818-1														2				

INORGANIC CONTRACT COMPLIANCE SCREENING SUMMARY

DEFECT COUNT BY SAMPLE AND FORM
RESUBMITTED

CASE: 16177 SAMPLES: 19 DATE MAILED:

LAB CODE: KEYTX CONTRACT: 68-D0-0147 SAS NO: SCREENER: DATE SCREENED:

SDG NUMBER: MFN276 REGION: 6 DATE RECEIVED: 05/09/91

SAMPLE NO.	A COVER PAGE	B FORM 1	CA FORM 2A	CB FORM 2B	D FORM 3	E FORM 4	FA FORM 5A	FB FORM 5B	G FORM 6	H FORM 7	I FORM 8	J FORM 9	L FORM 10	M FORM 11	N FORM 12	R FORM 13	RA FORM 14	MANUAL DEFECT
MFN819-1														2				
MFN820-1														2				

U.S.E.P.A. CONTRACT LABORATORY PROGRAM

SAMPLE MANAGEMENT OFFICE

INORGANIC CONTRACT COMPLIANCE SCREENING SYSTEM

STRUCTURAL DEFECT FREQUENCY REPORT

DEFECT CODE	NUMBER OF DEFECTS	PERCENT OF TOTAL DEFECTS	DEFECT MESSAGE
5020	1	100.00	MISSING HEADER RECORD
	=	======	
	1	100.00	

U.S.E.P.A. CONTRACT LABORATORY PROGRAM

SAMPLE MANAGEMENT OFFICE

INORGANIC CONTRACT COMPLIANCE SCREENING SYSTEM

```
*************************************************************
*************************************************************
*************************************************************
*************************************************************
*************************************************************
*************************************************************
*****                                                   *****
*****                                                   *****
*****     NO DEFECTS FOUND FOR STRUCTURAL REPORT #1     *****
*****           RECORDS WITH INVALID FIELDS             *****
*****                                                   *****
*************************************************************
*************************************************************
*************************************************************
*************************************************************
*************************************************************
*************************************************************
```

SAMPLE MANAGEMENT OFFICE

INORGANIC CONTRACT COMPLIANCE SCREENING SYSTEM

STRUCTURAL DEFECT FREQUENCY REPORT

STRUCTURAL DEFECT REPORT (#2)
RECORD TYPE AND SUFFIX DISCREPANCIES

FORM	SUFFIX	RECORD TYPE	ERROR	CURRENT VALUE	CORRECT VALUE
XI(1)	AB	D	MISSING HEADER RECORD		

U.S.E.P.A. CONTRACT LABORATORY PROGRAM

SAMPLE MANAGEMENT OFFICE

INORGANIC CONTRACT COMPLIANCE SCREENING SYSTEM

TECHNICAL DEFECT FREQUENCY REPORT

DEFECT CODE	NUMBER OF DEFECTS	PERCENT OF TOTAL DEFECTS	DEFECT MESSAGE
1402	1	50.00	DATE IS MISSING
1404	1	50.00	ICP ID NO. IS MISSING
	=	======	
	2	100.00	

U.S.E.P.A. CONTRACT LABORATORY PROGRAM

SAMPLE MANAGEMENT OFFICE

INORGANIC CONTRACT COMPLIANCE SCREENING SYSTEM

TEXTUAL DEFECT REPORT

```
*******************************
*  CRITERION M. FORM 11.      *
*******************************
```

Date is missing. (B35)

SUFFIX	ELEMENT	SAMPLE	METHOD	MATRIX	REPORTED VALUE	COMPARED VALUE
AB						MM/DD/YY

ERROR CODE : 1402

ICP ID Number is missing. (B35)

SUFFIX	ELEMENT	SAMPLE	METHOD	MATRIX	REPORTED VALUE	COMPARED VALUE
AB						

ERROR CODE : 1404

U.S. EPA - CLP

11A

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

LAB NAME: KEYSTONE LAB-HOUSTON CONTRACT: 68-D0-0147

LAB CODE: KEYTX CASE NO.: 16177 SAS NO.: SDG NO.: MFN276

ICP ID NUMBER: TJA61 DATE: 01/10/91

ANALYTE	WAVE-LENGTH (NM)	INTERELEMENT CORRECTION FACTORS FOR: AL	CA	FE	MG	CR
ALUMINUM						
ANTIMONY	206.80	0.0000000	0.0000000	0.0000000	0.0000000	-0.0022970
ARSENIC		0.0012828	0.0000000	0.0051500	0.0000000	0.0013456
BARIUM	493.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
BERYLLIUM	313.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
CADMIUM	228.80	0.0000000	0.0000000	0.0000000	0.0000000	-0.0005931
CALCIUM	317.80	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
CHROMIUM	267.70	0.0000000	0.0000000	0.0002650	0.0000000	0.0000000
COBALT	228.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
COPPER	324.70	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
IRON	259.90	0.0001904	0.0000000	0.0000000	0.0001934	0.0000000
LEAD	220.30	0.0011876	0.0000000	0.0001753	0.0000000	-0.0015598
MAGNESIUM	279.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
MANGANESE	257.60	0.0000000	0.0000000	-0.0002248	0.0000000	0.0000000
MERCURY	253.70					
NICKEL	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
POTASSIUM	766.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
SELENIUM		0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
SILVER	328.00	0.0000000	0.0000000	-0.0000292	0.0000000	0.0000000
SODIUM	588.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
THALLIUM		0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
VANADIUM	292.40	0.0000000	0.0000000	0.0002310	0.0000000	0.0000000
ZINC	213.80	0.0000000	0.0000000	0.0001183	0.0000000	0.0000000

COMMENTS:

U.S. EPA - CLP

11A

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

LAB NAME: KEYSTONE LAB-HOUSTON CONTRACT: 68-D0-0147

LAB CODE: KEYTX CASE NO.: 16177 SAS NO.: SDG NO.: MFN276

ICP ID NUMBER: DATE:

ANALYTE	WAVE-LENGTH (NM)	INTERELEMENT CORRECTION FACTORS FOR:				
ALUMINUM	308.20	0.0000000	0.0031410	0.0000000	0.0000000	0.0000000
ANTIMONY						
ARSENIC						
BARIUM						
BERYLLIUM						
CADMIUM						
CALCIUM						
CHROMIUM						
COBALT						
COPPER						
IRON						
LEAD						
MAGNESIUM						
MANGANESE						
MERCURY						
NICKEL						
POTASSIUM						
SELENIUM						
SILVER						
SODIUM						
THALLIUM						
VANADIUM						
ZINC						

COMMENTS:

U.S. EPA - CLP

11B
ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

LAB NAME: KEYSTONE LAB-HOUSTON CONTRACT: 68-D0-0147

LAB CODE: KEYTX CASE NO.: 16177 SAS NO.: SDG NO.: MFN276

ICP ID NUMBER: TJA61 DATE: 01/10/91

ANALYTE	WAVE-LENGTH (NM)	INTERELEMENT CORRECTION FACTORS FOR: CU	NI	PB	V
ALUMINUM	308.20	0.0000000	0.0000000	0.0000000	0.0051722
ANTIMONY	206.80	0.0000000	0.0000000	0.0006329	-0.0039757
ARSENIC		0.0000000	0.0000000	0.0000000	0.0196100
BARIUM	493.40	0.0000000	0.0000000	0.0000000	0.0000000
BERYLLIUM	313.00	0.0000000	0.0000000	0.0000000	0.0015210
CADMIUM	228.80	0.0000000	-0.0004175	0.0000000	0.0000000
CALCIUM	317.80	0.0000000	0.0000000	0.0000000	0.0000000
CHROMIUM	267.70	0.0030000	0.0032358	0.0000000	0.0031574
COBALT	228.60	0.0000000	0.0000000	0.0000000	0.0000000
COPPER	324.70	0.0000000	0.0000000	0.0000000	0.0000000
IRON	259.90	0.0000000	0.0000000	0.0000000	0.0000000
LEAD	220.30	0.0000000	0.0000000	0.0000000	-0.0025818
MAGNESIUM	279.00	0.0000000	0.0000000	0.0000000	0.0000000
MANGANESE	257.60	0.0000000	0.0000000	0.0000000	0.0000000
MERCURY	253.70				
NICKEL	231.60	0.0000000	0.0000000	0.0000000	0.0000000
POTASSIUM	766.40	0.0000000	0.0000000	0.0000000	0.0000000
SELENIUM		0.0000000	0.0000000	0.0000000	0.0000000
SILVER	328.00	0.0000000	0.0000000	0.0000000	0.0000000
SODIUM	588.90	0.0000000	0.0000000	0.0000000	0.0000000
THALLIUM		0.0000000	0.0000000	0.0000000	0.0000000
VANADIUM	292.40	0.0000000	0.0000000	0.0000000	0.0000000
ZINC	213.80	0.0000000	0.0000000	0.0000000	0.0000000

COMMENTS:

NO DEFECTS FOUND FOR MANUAL REPORT

U.S.E.P.A. - C.L.P.

S A M P L E M A N A G E M E N T O F F I C E

INORGANICS
RESOLUTION OF CONTRACT COMPLIANCE SCREENING (CCS) RESULTS

LABORATORY CODE : KEYTX CASE : 16177 SDG_NO.: MFN276

RECONCILED BY : RECONCILIATION DATE :

CRITERION	COMMENTS

P.O. BOX 818, ALEXANDRIA, VIRGINIA 22313. PHONE : (703) 684-5678/FTS-8-557-2490

387

Blanks

	ICB	CCB	PB
Copper		14.9B	
~~Lead~~		~~1.1B~~	
~~Selenium~~	~~3.8B~~		-.64B
Zinc			2.67B

Prep. dates checked

- All selenium detr. except 279 require a W flag (F14)
- As in MFN 282 + 817 require M flag (see F14)
- As in 809 requires a M flag (p147 + 154)
- Th in MFN 279 + MFN 813 should have W flag (79.52 + 125.52 see F14)

nalyte	Selenium	Arsenic		Lead	Thallium
IDL	3.0	5.0		1.0	2.0
CRDL	5	10		3.0	10
SA	10	20		20	
MFN					
276	131 W	110	110	0.0 X → 85	95.0
277	118 W	104	104	107.5	94.0
278	117 W	108	108	0.0 X → 92.0	98.5
279	104 OK		109	0.0 X → 0.0 X → 113	79.5 W
279D	117 W		110	0.0 X → 112.0	85.0 — OK no flag
80	146 W		110	84.5 → MSA 5	89.0
81	131 W		102	93.5	95.0
82	117 W	W	119	0.0 X → 0.0 X → 115	96.0
83	142 W		115	85.5	101.5
84	154 W		108	0.0 X → 90.5	94.5
09	DRR 144/116 W	HCV → M	116.5 ← 103	0.0 X → 100.0	96.0
12	146 W		114	93.5	94.5
13	120 W		108	0.0 X → 86.5	125.5 W
814	122 W	124 → MSA	+ 124	90.0	102
815	132 W	120 → MSA	120	96.5	96.0
816	139 W		111	0.0 X → 92.0	97.5
817	132 W		W 128	0.0 X → 92.0	87.5
818	139 W	120 → MSA	120	0.0 X → 95.5	93.0
819	132 W		112	0.0 X → 0.0 X → 92.0	92.5
820	122 W		109	109.0	96.0

23 W
76

The single result for arsenic in MPP 535 should be 1.87 mg/kg (p 132-133), not 1.20 mg/kg (~~page~~ p. 141).

63280

60,000 = (.0038)(X)

COMPLETE SAMPLE DELIVERY GROUP FILE (CSF)
EVIDENCE AUDIT CHECKLIST

Region 6 Audit No. _____

Lab Name: Keystone - Houston

EPA Lab Code: Keytx

Lab Location: Houston

Date CSF Received: 4/25/91 Box No. (s): 1

Routine Analytical Services (RAS) No: 16177

Special Analytical Services (SAS) No: —

Sample Delivery Group (SDG) No: MFN276

No. of Samples: 19/soil/sed Contract Type: Inorganic

Date of Audit: 5/20/91 Re-submitted CSF: Y (N) N

Auditor: Sylvia Gorostiza (Print Name) Auditor: _____ (Signature)

EVIDENCE AUDIT CHECKLIST:

	Yes	No	N/A
Custody Seals			
1. Custody seals present?	(✓)	( )*	( )
2. Custody seals intact?	(✓)	( )	( )
Form DC-2			
3. Form DC-2 present?	(✓)	( )*	( )
4. Numbering scheme on Form DC-2 accurate?	(✓)	( )	( )
5. Enclosed documents listed?	(✓)	( )	( )
6. Listed documents enclosed?	(✓)	( )*	( )

COMPLETE SAMPLE DELIVERY GROUP FILE (CSF)
EVIDENCE AUDIT CHECKLIST

Region 6 Audit No. _____

EVIDENCE AUDIT CHECKLIST:

	Yes	No	N/A
Form DC-1			
7. Form DC-1 present?	(✓)	( )*	( )
8. Form DC-1 complete?	(✓)	( )	( )
9. Form DC-1 accurate?	(✓)	( )	( )
Chain-of-Custody Record(s)			
10. Chain-of-custody record(s) present?	(✓)	( )*	( )
11. Chain-of-custody record(s) signed?	(✓)	( )*	( )
12. Chain-of-custody record(s) dated?	(✓)	( )*	( )
Traffic Reports			
13. Traffic report(s) or packing list(s) present?	(✓)	( )*	( )
14. Traffic report(s) or packing lists(s) signed?	(✓)	( )	( )
15. Traffic reports(s) or packing list(s) dated?	(✓)	( )	( )
Airbills			
16. Airbill present/airbill sticker identified?	(✓)	( )*	( )
17. Airbill signed?	(✓)	( )	( )
18. Airbill dated?	(✓)	( )	( )

COMPLETE SAMPLE DELIVERY GROUP FILE (CSF)
EVIDENCE AUDIT CHECKLIST

Region 6 Audit No. _____

EVIDENCE AUDIT CHECKLIST:

	Yes	No	N/A
Sample Tags			
19. Sample Tags present?	(✓)	( )	( )
20. Should sample tags be present?	( )*	( )	(✓)
Document Control			
21. Laboratory documents complete?	(✓)	( )	( )
22. Laboratory documents legible?	(✓)	( )*	( )
23A. Original documents included in CSF?	( )	( )	( )
DC-2	(✓)	( )	( )
DC-1	(✓)	( )	( )
EPA Chain-of-Custody Records	(✓)	( )	( )
Traffic Report/SAS Packing List	(✓)	( )	( )
Shipping Documents (e.g., airbills, hand-delivery of sample receipts)	(✓)	( )	( )
23B. If "NO", does the copy indicate where original documents are located?			
DC-2	( )	( )	(✓)
DC-1	( )	( )	(✓)
EPA Chain-of-Custody Records	( )	( )	(✓)
Traffic Report/SAS Packing List	( )	( )	(✓)
Shipping Documents	( )	( )	(✓)

* Requires the initiation of corrective action measures by Regional Evidence Auditors

COMPLETE SAMPLE DELIVERY GROUP FILE (CSF)
EVIDENCE AUDIT CHECKLIST

Region 6 Audit No. _____

EVIDENCE AUDIT CHECKLIST:

Document Control (continued)

24. Auditor Comments:

QUESTION NO.	COMMENTS

DO NOT WRITE IN BOX BELOW

Date Received by CEAT: ___/___/___ Date Entered: ___/___/___

Entered By: _____
(Print Name)

_____
(Signature)

Please copy this form, complete the Evidence Audit Checklist, an mail the original completed Evidence Audit Checklist to the:

Attn: CSF Evidence Audit Program
Contract Evidence Audit Team (CEAT-TechLaw)
12600 West Colfax Avenue, Suite C-310
Lakewood, CO 80215

ESAT FILE No. 387

Reviewer	VIC
Case	16177
SDG/Samples	MFN276/276-284, 809, 812-819, 820
Account #	1TGBDNC8
ID	22
SF	TGBU22
SOW	3/90
Date Rec'd at Log	4/25/91
Date Rec'd at ESAT	5/21/91
Date of Report	
Date of Package Return	
No. of Samples	19 Soil/Sediment
Concentration	LOW
Site	Gulf Stream Aerospace Corp.
Lab Name	Keystone
Phone/Fax	
Date of Contact	
Contact	
Contract No.	68-D0-0147
EPA User	E. Sierra 6E-SH
Resub Rec'd	
Resub Sent	

NOTES:

537-06-9103-535-80

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE ROAD
HOUSTON, TEXAS 77099

MEMORANDUM

Date: May 23, 1991

Subject: CLP Data Review

From: Mahmoud El-Feky, Acting TPO, Region 6

To: Michael Daggett, Chief, Organic Section, Houston Branch Region 6

Attached is the data review summary for Case # 16177
SDG # MFN276
Site Gulf Stream Aero

Data was found: (X) Provisional

( ) Unacceptable

Action required by TPO: ( ) Yes

(X) No

COMMENTS:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE ROAD
HOUSTON, TEXAS 77099
INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 16177
LABORATORY Keystone (TX)
CONTRACT # 68-D0-0147
SDG # MFN276
SOW# 7/88
TPO: ACTION ____ FYI X

SITE Gulf Stream Aerospace
NO. OF SAMPLES
MATRIX 19/soil & sediment
REVIEWER (IF NOT ESD) ESAT
REVIEWER'S NAME Victor Chapman
COMPLETION DATE May 23, 1991
ACCT # 1TGBDNC8 SF # TGBUZZ

SAMPLE NO.: MFN276, MFN277, MFN278, MFN279, MFN280, MFN281, MFN282, MFN283, MFN284, MFN809, MFN812, MFN813, MFN814, MFN815, MFN816, MFN817, MFN818, MFN819, MFN820

DATA ASSESSMENT SUMMARY

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

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.
N/A= Not applicable

ACTION ITEMS: Matrix spike recoveries were outside of limits; differences between duplicate results exceeded quality control limits; furnace atomic absorption analytical spike recoveries exceeded limits for 23 of 76 determinations; furnace atomic absorption duplicate injection readings had relative standard deviations above 20% two times; method of standard addition correlation coefficients below 0.995, and blank concentrations were above the instrument detection limits.

AREAS OF CONCERN:

NOTABLE PERFORMANCE: Mercury and cyanide results were acceptable.

INORGANIC QA REVIEW
CONTINUATION PAGE

Case 16177 SDG MFN276 Site Gulf Stream Aero Lab Keystone (TX)

COMMENTS:

Nineteen soil/sediment samples were analyzed at low concentrations for total metals and cyanide. The data package is provisional because: matrix spike recoveries were outside of limits; differences between duplicate results exceeded quality control limits; furnace atomic absorption analytical spike recoveries exceeded limits for 23 of 76 determinations; furnace atomic absorption duplicate injection readings had relative standard deviations above 20% two times; method of standard addition correlation coefficients below 0.995, and blank concentrations were above the instrument detection limits.

1. Holding Times

   All holding time criteria were met.

2. Calibrations

   All calibrations were acceptable.

3. Blanks

   A. Calibration Blanks

      The concentrations of copper in the calibration blanks were above the instrument detection limit (IDL) but less than the contract required detection limit (CRDL). Sample results greater than the IDL but less than five times the amount in any blank should be qualified as undetected (U).

   B. Preparation Blank

      The concentration of zinc in the preparation blank was above the instrument detection limit (IDL) but less than the contract required detection limit (CRDL). Sample results greater than the IDL but less than five times the amount in any blank should be qualified as undetected (U).

      The concentration of selenium in the preparation blank was above the negative IDL. False negatives are possible.

   C. All other blank results were acceptable.

4. ICS

   Interference check sample criteria were met.

5. LCS

All laboratory control sample results were acceptable.

6. Duplicate Analysis

A. The calcium, iron, and zinc results are qualified as estimated (J) due to duplicate result relative percent differences of 131.8%, 42.1%, and 102.6%, respectively.

B. The 80.0 mg/Kg difference between duplicate copper results exceeded the technical limit of 11.4 mg/Kg (twice the CRDL). The copper results are qualified as estimated (J).

C. All other duplicate results met technical quality control criteria.

7. Matrix Spike

A. Pre-digestion/Pre-distillation Matrix Spike Recovery

The antimony, manganese, and zinc sample results are qualified as estimated (J and UJ) due to pre-digestion matrix spike recoveries of 65.1%, 71.9%, and 127.0%, respectively. Matrix interference is suspected.

B. Furnace Atomic Absorption Quality Control

1. The arsenic results for MFN282 and MFN817 are qualified as estimated (J) due FAA analytical spike recoveries of 119% and 128%, respectively. Matrix interference is suspected.

2. The arsenic result for MFN809 is qualified as estimated (J) because the percent relative standard deviation for duplicate injections was above 20% two times and the FAA analytical spike recovery was 116.5%. Matrix interference is suspected.

3. The selenium results for MFN276, MFN277, MFN278, MFN280, MFN281, MFN282, MFN283, MFN284, MFN809, MFN812, MFN813, MFN814, MFN815, MFN816, MFN817, MFN818, MFN819, MFN820 (all except MFN279) are qualified as estimated (UJ) due to FAA analytical spike recoveries of 117% to 154%. Matrix interference is suspected.

4. The thallium results for MFN279 and MFN813 are qualified as estimated (UJ) due to FAA analytical spike recoveries of 79.5% and 125.5%, respectively. Matrix interference is suspected.

C. All other analytes had acceptable pre-digestion/pre-distillation matrix spike recoveries and FAA quality control.

8. MSA

The arsenic result for sample MFN814 is qualified as estimated (J) due to correlations coefficients of 0.9969 and 0.9945. Matrix interference is suspected.

The other method of standard addition results were acceptable.

9. Serial Dilutions

All serial dilution results met quality control criteria.

10. Sample Verification

A. All selenium results on Form 1 require a "W" flag except sample MFN297.

B. Arsenic in samples MFN282 and MFN817 require "W" flags on Form 1.

C. Arsenic in sample MFN809 requires a "M" flag on Form 1.

D. Thallium in samples MFN279 and MFN813 require "W" flags on Form 1.

11. Other QC

None

12. Overall Assessment

The data package is provisional for the following reasons:

A. Matrix spike recoveries were outside of limits.

B. Differences between duplicate results exceeded quality control limits.

C. Furnace atomic absorption analytical spike recoveries exceeded limits for 23 of 76 determinations.

D. Furnace atomic absorption duplicate injection readings had relative standard deviations above 20% two times.

E. Method of standard addition correlation coefficients below 0.995.

F. Blank concentrations were above the instrument detection limits.

G. The percent relative standard deviation for duplicate FAA injections was above 20% two times.

All other technical requirements were met.

In Reference to Case
16177 SDG MFN276
Page 1 of 1 pages

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone/FAX Record Log

Date of Call: May 24, 1991

Laboratory Name: Keystone Environmental

Lab Contact: Mary Cruz

Region: 6

Regional Contact: Victor Chapman (ESAT)

Call Initiated by: Region

In reference to data for the following sample numbers:

MFN276, MFN277, MFN278, MFN279, MFN280, MFN281, MFN282, MFN283, MFN284, MFN809, MFN812, MFN813, MFN814, MFN815, MFN816, MFN817, MFN818, MFN819, MFN820

Summary of Questions/Issues Discussed:

1. All selenium results on Form 1 require a "W" flag except sample MFN297.

2. Arsenic in samples MFN282 and MFN817 require "W" flags on Form 1.

3. Arsenic in sample MFN809 requires a "M" flag on Form 1.

4. Thallium in samples MFN279 and MFN813 require "W" flags on Form 1.

Summary of Resolutions:

Lab will look into items and will submit data within ten working days.

V. A. Chapman
Signature

5/24/91
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

ManTech Environmental Technology
ESAT Region 6

c/o US EPA 10625 Fallstone Rd, Houston, TX 77099 TEL:(713) 983-2125

FACSIMILE COVER SHEET

Please deliver the following pages to:

Name Mary Cruz

Firm Keystone Environmental

City Houston State Texas

Telephone (713) 266-6800 Ext. _____

Fax Telephone No. (713) 974-5491 Ext. _____

Sender:

Name Victor Chapman

Date May 24, 1991 Time _____

Total Number of pages including this Cover Sheet 2

If you do not receive all the pages or if any pages are unclear, please call: (713) 983-2125

MESSAGES: _____

Fax Model No. Panafax UF-620 Fax No. (713) 983-2248

COMPLETE SAMPLE DELIVERY GROUP FILE (CSF)
EVIDENCE AUDIT CHECKLIST

Region 6 Audit No. 16177 SDG MFN276

Lab Name: Keystone Lab

EPA Lab Code: KEYTX

Lab Location: Houston, Texas

Date CSF Received: 4/25/91 Box No. (s): 1

Routine Analytical Services (RAS) No: 16177

Special Analytical Services (SAS) No: _____

Sample Delivery Group (SDG) No: MFN276

No. of Samples: 19 Contract Type: Inorganic

Date of Audit: 5/20/91 Re-submitted CSF: Y/N? N

Auditor: Victor Chapman, Jr. (Print Name) Auditor: V. A. Chapman Jr. (Signature)

EVIDENCE AUDIT CHECKLIST:

	Yes	No	N/A
Custody Seals			
1. Custody seals present?	(X)	( )*	( )
2. Custody seals intact?	(X)	( )	( )
Form DC-2			
3. Form DC-2 present?	(X)	( )*	( )
4. Numbering scheme on Form DC-2 accurate?	(X)	( )	( )
5. Enclosed documents listed?	(X)	( )	( )
6. Listed documents enclosed?	(X)	( )*	( )

COMPLETE SAMPLE DELIVERY GROUP FILE (CSF)
EVIDENCE AUDIT CHECKLIST

Region 6 Audit No. 16177 SDG MFN276

EVIDENCE AUDIT CHECKLIST:

	Yes	No	N/A
Form DC-1			
7. Form DC-1 present?	(X)	( )*	( )
8. Form DC-1 complete?	(X)	( )	( )
9. Form DC-1 accurate?	(X)	( )	( )
Chain-of-Custody Record(s)			
10. Chain-of-custody record(s) present?	(X)	( )*	( )
11. Chain-of-custody record(s) signed?	(X)	( )*	( )
12. Chain-of-custody record(s) dated?	(X)	( )*	( )
Traffic Reports			
13. Traffic report(s) or packing list(s) present?	(X)	( )*	( )
14. Traffic report(s) or packing lists(s) signed?	(X)	( )	( )
15. Traffic reports(s) or packing list(s) dated?	(X)	( )	( )
Airbills			
16. Airbill present/airbill sticker identified?	(X)	( )*	( )
17. Airbill signed?	(X)	( )	( )
18. Airbill dated?	(X)	( )	( )

COMPLETE SAMPLE DELIVERY GROUP FILE (CSF)
EVIDENCE AUDIT CHECKLIST

Region 6 Audit No. 16177 SDG MFN276

EVIDENCE AUDIT CHECKLIST:

	Yes	No	N/A
Sample Tags			
19. Sample Tags present?	(X)	( )	( )
20. Should sample tags be present?	( )*	( )	(X)
Document Control			
21. Laboratory documents complete?	(X)	( )	( )
22. Laboratory documents legible?	(X)	( )*	( )
23A. Original documents included in CSF?	(X)	( )	( )
DC-2	(X)	( )	( )
DC-1	(X)	( )	( )
EPA Chain-of-Custody Records	(X)	( )	( )
Traffic Report/SAS Packing List	(X)	( )	( )
Shipping Documents (e.g., airbills, hand-delivery of sample receipts)	(X)	( )	( )
23B. If "NO", does the copy indicate where original documents are located?			
DC-2	( )	( )	(X)
DC-1	( )	( )	(X)
EPA Chain-of-Custody Records	( )	( )	(X)
Traffic Report/SAS Packing List	( )	( )	(X)
Shipping Documents	( )	( )	(X)

* Requires the initiation of corrective action measures by Regional Evidence Auditors

COMPLETE SAMPLE DELIVERY GROUP FILE (CSF)
EVIDENCE AUDIT CHECKLIST

Region 6 Audit No. 16177 SDG MFN276

EVIDENCE AUDIT CHECKLIST:

Document Control (continued)

24. Auditor Comments:

QUESTION NO.	COMMENTS

DO NOT WRITE IN BOX BELOW

Date Received by CEAT: __/__/__ Date Entered: __/__/__

Entered By: _____
(Print Name)

_____
(Signature)

Please copy this form, complete the Evidence Audit Checklist, an mail the original completed Evidence Audit Checklist to the:

Attn: CSF Evidence Audit Program
Contract Evidence Audit Team (CEAT-TechLaw)
12600 West Colfax Avenue, Suite C-310
Lakewood, CO 80215

IS THIS OK? — VIC

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE ROAD
HOUSTON, TEXAS 77099

MEMORANDUM

Date: May 23, 1991

Subject: CLP Data Review

From: Mahmoud El-Feky, Acting TPO, Region 6

To: Michael Daggett, Chief, Organic Section, Houston Branch Region 6

Attached is the data review summary for Case # 16177
SDG # MFN276
Site Gulf Stream Aero

Data was found: (X) Provisional

( ) Unacceptable

Action required by TPO: ( ) Yes

(X) No

COMMENTS:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE ROAD
HOUSTON, TEXAS 77099
INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 16177
LABORATORY Keystone (TX)
CONTRACT # 68-D0-0147
SDG # MFN276
SOW# 7/88
TPO: ACTION ____ FYI X

SITE Gulf Stream Aerospace
NO. OF SAMPLES
MATRIX 19/soil & sediment
REVIEWER (IF NOT ESD) ESAT
REVIEWER'S NAME Victor Chapman
COMPLETION DATE May 23, 1991
ACCT # 1TGBDNC8 SF # TGBUZZ

SAMPLE NO.: MFN276, MFN277, MFN278, MFN279, MFN280, MFN281, MFN282, MFN283, MFN284, MFN809, MFN812, MFN813, MFN814, MFN815, MFN816, MFN817, MFN818, MFN819, MFN820

DATA ASSESSMENT SUMMARY

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

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.
N/A= Not applicable

ACTION ITEMS: Matrix spike recoveries were outside of limits; differences between duplicate results exceeded quality control limits; furnace atomic absorption analytical spike recoveries exceeded limits for 23 of 76 determinations; furnace atomic absorption duplicate injection readings had relative standard deviations above 20% two times; method of standard addition correlation coefficients below 0.995, and blank concentrations were above the instrument detection limits.

AREAS OF CONCERN:

NOTABLE PERFORMANCE: Mercury and cyanide results were acceptable.

INORGANIC QA REVIEW
CONTINUATION PAGE

Case 16177 SDG MFN276 Site Gulf Stream Aero Lab Keystone (TX)

COMMENTS:

Nineteen soil/sediment samples were analyzed at low concentrations for total metals and cyanide. The data package is provisional because: matrix spike recoveries were outside of limits; differences between duplicate results exceeded quality control limits; furnace atomic absorption analytical spike recoveries exceeded limits for 23 of 76 determinations; furnace atomic absorption duplicate injection readings had relative standard deviations above 20% two times; method of standard addition correlation coefficients below 0.995, and blank concentrations were above the instrument detection limits.

1. Holding Times

   All holding time criteria were met.

2. Calibrations

   All calibrations were acceptable.

3. Blanks

   A. Calibration Blanks

      The concentrations of copper in the calibration blanks were above the instrument detection limit (IDL) but less than the contract required detection limit (CRDL). Sample results greater than the IDL but less than five times the amount in any blank should be qualified as undetected (U).

   B. Preparation Blank

      The concentration of zinc in the preparation blank was above the instrument detection limit (IDL) but less than the contract required detection limit (CRDL). Sample results greater than the IDL but less than five times the amount in any blank should be qualified as undetected (U).

      The concentration of selenium in the preparation blank ~~were~~ was above the negative IDL. False negatives are possible.

   C. All other blank results were acceptable.

4. ICS

   Interference check sample criteria were met.

5. LCS

All laboratory control sample results were acceptable.

6. Duplicate Analysis

A. The calcium, iron, and zinc results are qualified as estimated (J) due to duplicate result relative percent differences of 131.8%, 42.1%, and 102.6%, respectively.

B. The 80.0 mg/Kg difference between duplicate copper results exceeded the technical limit of 11.4 mg/Kg (twice the CRDL). The copper results are qualified as estimated (J).

C. All other duplicate results met technical quality control criteria.

7. Matrix Spike

A. Pre-digestion/Pre-distillation Matrix Spike Recovery

The antimony, manganese, and zinc sample results are qualified as estimated (J and UJ) due to pre-digestion matrix spike recoveries of 65.1%, 71.9%, and 127.0%, respectively. Matrix interference is suspected.

B. Furnace Atomic Absorption Quality Control

1. The arsenic results for MFN282 and MFN817 are qualified as estimated (J) due FAA analytical spike recoveries of 119% and 128%, respectively. Matrix interference is suspected.

2. The arsenic result for MFN809 is qualified as estimated (J) because the percent relative standard deviation for duplicate injections was above 20% two times and the FAA analytical spike recovery was 116.5%. Matrix interference is suspected.

3. The selenium results for MFN276, MFN277, MFN278, MFN280, MFN281, MFN282, MFN283, MFN284, MFN809, MFN812, MFN813, MFN814, MFN815, MFN816, MFN817, MFN818, MFN819, MFN820 (all except MFN279) are qualified as estimated (UJ) due to FAA analytical spike recoveries of 117% to 154%. Matrix interference is suspected.

4. The thallium results for MFN279 and MFN813 are qualified as estimated (UJ) due to FAA analytical spike recoveries of 79.5% and 125.5%, respectively. Matrix interference is suspected.

C. All other analytes had acceptable pre-digestion/pre-distillation matrix spike recoveries and FAA quality control.

8. MSA

The arsenic result for sample MFN814 is qualified as estimated (J) due to correlations coefficients of 0.9969 and 0.9945. Matrix interference is suspected.

The other method of standard addition results were acceptable.

9. Serial Dilutions

All serial dilution results met quality control criteria.

10. Sample Verification

A. All selenium results on Form 1 require a "W" flag except sample MFN297.

B. Arsenic in samples MFN282 and MFN817 require "W" flags on Form 1.

C. Arsenic in sample MFN809 requires a "M" flag on Form 1.

D. Thallium in samples MFN279 and MFN813 require "W" flags on Form 1.

11. Other QC

None

12. Overall Assessment

The data package is provisional for the following reasons:

A. Matrix spike recoveries were outside of limits.

B. Differences between duplicate results exceeded quality control limits.

C. Furnace atomic absorption analytical spike recoveries exceeded limits for 23 of 76 determinations.

D. Furnace atomic absorption duplicate injection readings had relative standard deviations above 20% two times.

E. Method of standard addition correlation coefficients below 0.995.

F. Blank concentrations were above the instrument detection limits.

G. The percent relative standard deviation for duplicate FAA injections was above 20% two times.

All other technical requirements were met.

In Reference to Case
16177 SDG MFN276
Page 1 of 1 pages

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone/FAX Record Log

Date of Call: May 24, 1991

Laboratory Name: Keystone Environmental

Lab Contact: Mary Cruz

Region: 6

Regional Contact: Victor Chapman (ESAT)

Call Initiated by: Region

In reference to data for the following sample numbers:

MFN276, MFN277, MFN278, MFN279, MFN280, MFN281, MFN282, MFN283, MFN284, MFN809, MFN812, MFN813, MFN814, MFN815, MFN816, MFN817, MFN818, MFN819, MFN820

Summary of Questions/Issues Discussed:

1. All selenium results on Form 1 require a "W" flag except sample MFN297.

2. Arsenic in samples MFN282 and MFN817 require "W" flags on Form 1.

3. Arsenic in sample MFN809 requires a "M" flag on Form 1.

4. Thallium in samples MFN279 and MFN813 require "W" flags on Form 1.

Summary of Resolutions:

Lab will look into items and will submit data within ten working days.

Signature _____ Date _____

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

ManTech Environmental Technology
ESAT Region 6

c/o US EPA 10625 Fallstone Rd, Houston, TX 77099 TEL:(713) 983-2125

FACSIMILE COVER SHEET

Please deliver the following pages to:

Name Mary Cruz

Firm Keystone Environmental

City Houston State Texas

Telephone (713) 266-6800 Ext. _____

Fax Telephone No. (713) 974-5491 Ext. _____

Sender:

Name Victor Chapman

Date May 24, 1991 Time _____

Total Number of pages including this Cover Sheet 2

If you do not receive all the pages or if any pages are unclear, please call: (713) 983-2125

MESSAGES: _____

Fax Model No. Panafax UF-620 Fax No. (713) 983-2248

COMPLETE SAMPLE DELIVERY GROUP FILE (CSF)
EVIDENCE AUDIT CHECKLIST

Region 6 Audit No. 16177 SDG MFN276

Lab Name: Keystone Lab

EPA Lab Code: KEYTX

Lab Location: Houston, Texas

Date CSF Received: 4/25/91 Box No. (s): 1

Routine Analytical Services (RAS) No: 16177

Special Analytical Services (SAS) No: _____

Sample Delivery Group (SDG) No: MFN276

No. of Samples: 19 Contract Type: Inorganic

Date of Audit: 5/20/91 Re-submitted CSF: Y/N? N

Auditor: Victor Chapman, Jr. (Print Name) Auditor: _____ (Signature)

EVIDENCE AUDIT CHECKLIST:

	Yes	No	N/A
Custody Seals			
1. Custody seals present?	(X)	( )*	( )
2. Custody seals intact?	(X)	( )	( )
Form DC-2			
3. Form DC-2 present?	(X)	( )*	( )
4. Numbering scheme on Form DC-2 accurate?	(X)	( )	( )
5. Enclosed documents listed?	(X)	( )	( )
6. Listed documents enclosed?	(X)	( )*	( )

COMPLETE SAMPLE DELIVERY GROUP FILE (CSF)
EVIDENCE AUDIT CHECKLIST

Region 6 Audit No. 16177 SDG MFN276

EVIDENCE AUDIT CHECKLIST:

	Yes	No	N/A
Form DC-1			
7. Form DC-1 present?	(X)	( )*	( )
8. Form DC-1 complete?	(X)	( )	( )
9. Form DC-1 accurate?	(X)	( )	( )
Chain-of-Custody Record(s)			
10. Chain-of-custody record(s) present?	(X)	( )*	( )
11. Chain-of-custody record(s) signed?	(X)	( )*	( )
12. Chain-of-custody record(s) dated?	(X)	( )*	( )
Traffic Reports			
13. Traffic report(s) or packing list(s) present?	(X)	( )*	( )
14. Traffic report(s) or packing lists(s) signed?	(X)	( )	( )
15. Traffic reports(s) or packing list(s) dated?	(X)	( )	( )
Airbills			
16. Airbill present/airbill sticker identified?	(X)	( )*	( )
17. Airbill signed?	(X)	( )	( )
18. Airbill dated?	(X)	( )	( )

COMPLETE SAMPLE DELIVERY GROUP FILE (CSF)
EVIDENCE AUDIT CHECKLIST

Region 6 Audit No. 16177 SDG MFN276

EVIDENCE AUDIT CHECKLIST:

	Yes	No	N/A
Sample Tags			
19. Sample Tags present?	(X)	( )	( )
20. Should sample tags be present?	( )*	( )	(X)
Document Control			
21. Laboratory documents complete?	(X)	( )	( )
22. Laboratory documents legible?	(X)	( )*	( )
23A. Original documents included in CSF?	(X)	( )	( )
DC-2	(X)	( )	( )
DC-1	(X)	( )	( )
EPA Chain-of-Custody Records	(X)	( )	( )
Traffic Report/SAS Packing List	(X)	( )	( )
Shipping Documents (e.g., airbills, hand-delivery of sample receipts)	(X)	( )	( )
23B. If "NO", does the copy indicate where original documents are located?			
DC-2	( )	( )	(X)
DC-1	( )	( )	(X)
EPA Chain-of-Custody Records	( )	( )	(X)
Traffic Report/SAS Packing List	( )	( )	(X)
Shipping Documents	( )	( )	(X)

* Requires the initiation of corrective action measures by Regional Evidence Auditors

COMPLETE SAMPLE DELIVERY GROUP FILE (CSF)
EVIDENCE AUDIT CHECKLIST

Region 6 Audit No. 16177 SDG MFN276

EVIDENCE AUDIT CHECKLIST:

Document Control (continued)

24. Auditor Comments:

QUESTION NO.	COMMENTS

DO NOT WRITE IN BOX BELOW

Date Received by CEAT: ___/___/___ Date Entered: ___/___/___

Entered By: _____
(Print Name)

_____
(Signature)

Please copy this form, complete the Evidence Audit Checklist, an mail the original completed Evidence Audit Checklist to the:

Attn: CSF Evidence Audit Program
Contract Evidence Audit Team (CEAT-TechLaw)
12600 West Colfax Avenue, Suite C-310
Lakewood, CO 80215

DRAFT

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE ROAD
HOUSTON, TEXAS 77099

MEMORANDUM

Date: May 23, 1991

Subject: CLP Data Review

From: Mahmoud El-Feky, Acting TPO, Region 6

To: Michael Daggett, Chief, Organic Section, Houston Branch
Region 6

Attached is the data review summary for Case # 16177
SDG # MFN276
Site Gulf Stream Aero

Data was found: (X) Provisional

( ) Unacceptable

Action required by TPO: ( ) Yes

(X) No

COMMENTS:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE ROAD
HOUSTON, TEXAS 77099
INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 16177
LABORATORY Keystone (TX)
CONTRACT # 68-D0-0147
SDG # MFN276
SOW# ~~7/88~~ 3/90
TPO: ACTION ____ FYI X

SITE Gulf Stream Aerospace
NO. OF SAMPLES
MATRIX 19/soil & sediment
REVIEWER (IF NOT ESD) ESAT
REVIEWER'S NAME Victor Chapman
COMPLETION DATE May 23, 1991
ACCT # 1TGBDNC8 SF # TGBUZZ

SAMPLE NO.: MFN276, MFN277, MFN278, MFN279, MFN280, MFN281, MFN282, MFN283, MFN284, MFN809, MFN812, MFN813, MFN814, MFN815, MFN816, MFN817, MFN818, MFN819, MFN820

DATA ASSESSMENT SUMMARY

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

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.
N/A= Not applicable

ACTION ITEMS: Matrix spike recoveries were outside of limits; differences between duplicate results exceeded quality control limits; furnace atomic absorption analytical spike recoveries exceeded limits for 23 of 76 determinations; furnace atomic absorption duplicate injection readings had relative standard deviations above 20% two times; method of standard addition correlation coefficients below 0.995, and blank concentrations were above the instrument detection limits.

AREAS OF CONCERN:

NOTABLE PERFORMANCE: Mercury and cyanide results were acceptable.

INORGANIC QA REVIEW
CONTINUATION PAGE

Case 16177 SDG MFN276 Site Gulf Stream Aero Lab Keystone (TX)

COMMENTS:

Nineteen soil/sediment samples were analyzed at low concentrations for total metals and cyanide. The data package is provisional because: matrix spike recoveries were outside of limits; differences between duplicate results exceeded quality control limits; furnace atomic absorption analytical spike recoveries exceeded limits for 23 of 76 determinations; furnace atomic absorption duplicate injection readings had relative standard deviations above 20% two times; method of standard addition correlation coefficients below 0.995, and blank concentrations were above the instrument detection limits.

1. Holding Times

All holding time criteria were met.

2. Calibrations

All calibrations were acceptable.

3. Blanks

A. Calibration Blanks

The concentrations of copper in the calibration blanks were above the instrument detection limit (IDL) but less than the contract required detection limit (CRDL). Sample results greater than the IDL but less than five times the amount in any blank should be qualified as undetected (U).

B. Preparation Blank

The concentration of zinc in the preparation blank was above the instrument detection limit (IDL) but less than the contract required detection limit (CRDL). Sample results greater than the IDL but less than five times the amount in any blank should be qualified as undetected (U).

The concentration of selenium in the preparation blank were above the negative IDL. False negatives are possible.

C. All other blank results were acceptable.

4. ICS

Interference check sample criteria were met.

5. LCS

All laboratory control sample results were acceptable.

6. Duplicate Analysis

A. The calcium, iron, and zinc results are qualified as estimated (J) due to duplicate result relative percent difference of 131.8%, 42.1%, and 102.6%, respectively.

B. The 80.0 mg/Kg difference between duplicate copper results exceeded the technical limit of 11.4 mg/Kg (twice the CRDL). The copper results are qualified as estimated (J).

C. All other duplicate results met technical quality control criteria.

7. Matrix Spike

A. Pre-digestion/Pre-distillation Matrix Spike Recovery

The antimony, manganese, and zinc results are qualified as estimated (J and UJ) due to pre-digestion matrix spike recoveries of 65.1%, 71.9%, and 127.0%, respectively. Matrix interference is suspected.

B. Furnace Atomic Absorption Quality Control

1. The arsenic results for MFN282 and MFN817 are qualified as estimated (J) due FAA analytical spike recoveries of 119% and 128%, respectively. Matrix interference is suspected.

2. The arsenic result for MFN809 is qualified as estimated (J) because the percent relative standard deviation for duplicate injections was above 20% two times and the FAA analytical spike recovery was 116.5%. Matrix interference is suspected.

3. The selenium results for MFN276, MFN277, MFN278, MFN280, MFN281, MFN282, MFN283, MFN284, MFN809, MFN812, MFN813, MFN814, MFN815, MFN816, MFN817, MFN818, MFN819, MFN820 (all except MFN279) are qualified as estimated (UJ) due to FAA analytical spike recoveries of 117% to 154%. Matrix interference is suspected.

4. The thallium results for MFN279 and MFN813 are qualified as estimated (UJ) due to FAA analytical spike recoveries of 79.5% and 125.5%, respectively. MIS

C. All other analytes had acceptable pre-digestion/pre-distillation matrix spike recoveries and FAA quality control.

8. MSA

The arsenic result for sample MFN814 is qualified as estimated (J) due to correlations coefficients of 0.9969 and 0.9945. Matrix interference is suspected.

The other method of standard addition results were acceptable.

9. Serial Dilutions

All serial dilution results met quality control criteria.

10. Sample Verification

A. All selenium results on Form 1 require a "W" flag except sample MFN297.

B. Arsenic in samples MFN282 and MFN817 require "W" flags on Form 1.

C. Arsenic in sample MFN809 requires a "M" flag on Form 1.

D. Thallium in samples MFN279 and MFN813 require "W" flags on Form 1.

11. Other QC

None

12. Overall Assessment

The data package is provisional for the following reasons:

A. Matrix spike recoveries were outside of limits.

B. Differences between duplicate results exceeded quality control limits.

C. Furnace atomic absorption analytical spike recoveries exceeded limits for 23 of 76 determinations.

D. Furnace atomic absorption duplicate injection readings had relative standard deviations above 20% two times.

E. Method of standard addition correlation coefficients below 0.995.

F. Blank concentrations were above the instrument detection limits.

All other technical requirements were met.

The percent relative stand-

In Reference to Case
16177 SDG MFN276
Page 1 of 1 pages

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone/FAX Record Log

Date of Call: May 24, 1991

Laboratory Name: Keystone Environmental

Lab Contact: Mary Cruz

Region: 6

Regional Contact: Victor Chapman (ESAT)

Call Initiated by: Region

In reference to data for the following sample numbers:

MFN276, MFN277, MFN278, MFN279, MFN280, MFN281, MFN282, MFN283, MFN284, MFN809, MFN812, MFN813, MFN814, MFN815, MFN816, MFN817, MFN818, MFN819, MFN820

Summary of Questions/Issues Discussed:

1. All selenium results on Form 1 require a "W" flag except sample MFN297.
2. Arsenic in samples MFN282 and MFN817 require "W" flags on Form 1.
3. Arsenic in sample MFN809 requires a "M" flag on Form 1.
4. Thallium in samples MFN279 and MFN813 require "W" flags on Form 1.

Summary of Resolutions:

Lab will look into items and will submit data within ten working days.

Signature _____ Date _____

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

ManTech Environmental Technology
ESAT Region 6

c/o US EPA 10625 Fallstone Rd, Houston, TX 77099 TEL:(713) 983-2125

FACSIMILE COVER SHEET

Please deliver the following pages to:

Name Mary Cruz

Firm Keystone Environmental

City Houston State Texas

Telephone (713) 266-6800 Ext. _____

Fax Telephone No. (713) 974-5491 Ext. _____

Sender:

Name Victor Chapman

Date May 24, 1991 Time _____

Total Number of pages including this Cover Sheet 2

If you do not receive all the pages or if any pages are unclear, please call: (713) 983-2125

MESSAGES: _____

Fax Model No. Panafax UF-620 Fax No. (713) 983-2248

COMPLETE SAMPLE DELIVERY GROUP FILE (CSF)
EVIDENCE AUDIT CHECKLIST

Region 6 Audit No. 16177 SDG MFN276

Lab Name: Keystone Lab

EPA Lab Code: KEYTX

Lab Location: Houston, Texas

Date CSF Received: 4/25/91 Box No. (s): 1

Routine Analytical Services (RAS) No: 16177

Special Analytical Services (SAS) No: _____

Sample Delivery Group (SDG) No: MFN276

No. of Samples: 19 Contract Type: Inorganic

Date of Audit: 5/20/91 Re-submitted CSF: Y/N? N

Auditor: Victor Chapman, Jr. (Print Name) Auditor: _____ (Signature)

EVIDENCE AUDIT CHECKLIST:

	Yes	No	N/A
Custody Seals			
1. Custody seals present?	(X)	( )*	( )
2. Custody seals intact?	(X)	( )	( )
Form DC-2			
3. Form DC-2 present?	(X)	( )*	( )
4. Numbering scheme on Form DC-2 accurate?	(X)	( )	( )
5. Enclosed documents listed?	(X)	( )	( )
6. Listed documents enclosed?	(X)	( )*	( )

COMPLETE SAMPLE DELIVERY GROUP FILE (CSF)
EVIDENCE AUDIT CHECKLIST

Region 6 Audit No. 16177 SDG MFN276

EVIDENCE AUDIT CHECKLIST:

	Yes	No	N/A
Form DC-1			
7. Form DC-1 present?	(X)	( )*	( )
8. Form DC-1 complete?	(X)	( )	( )
9. Form DC-1 accurate?	(X)	( )	( )
Chain-of-Custody Record(s)			
10. Chain-of-custody record(s) present?	(X)	( )*	( )
11. Chain-of-custody record(s) signed?	(X)	( )*	( )
12. Chain-of-custody record(s) dated?	(X)	( )*	( )
Traffic Reports			
13. Traffic report(s) or packing list(s) present?	(X)	( )*	( )
14. Traffic report(s) or packing lists(s) signed?	(X)	( )	( )
15. Traffic reports(s) or packing list(s) dated?	(X)	( )	( )
Airbills			
16. Airbill present/airbill sticker identified?	(X)	( )*	( )
17. Airbill signed?	(X)	( )	( )
18. Airbill dated?	(X)	( )	( )

COMPLETE SAMPLE DELIVERY GROUP FILE (CSF)
EVIDENCE AUDIT CHECKLIST

Region 6 Audit No. 16177 SDG MFN276

EVIDENCE AUDIT CHECKLIST:

	Yes	No	N/A
Sample Tags			
19. Sample Tags present?	(X)	( )	( )
20. Should sample tags be present?	( )*	( )	(X)
Document Control			
21. Laboratory documents complete?	(X)	( )	( )
22. Laboratory documents legible?	(X)	( )*	( )
23A. Original documents included in CSF?	(X)	( )	( )
DC-2	(X)	( )	( )
DC-1	(X)	( )	( )
EPA Chain-of-Custody Records	(X)	( )	( )
Traffic Report/SAS Packing List	(X)	( )	( )
Shipping Documents (e.g., airbills, hand-delivery of sample receipts)	(X)	( )	( )
23B. If "NO", does the copy indicate where original documents are located?			
DC-2	( )	( )	(X)
DC-1	( )	( )	(X)
EPA Chain-of-Custody Records	( )	( )	(X)
Traffic Report/SAS Packing List	( )	( )	(X)
Shipping Documents	( )	( )	(X)

* Requires the initiation of corrective action measures by Regional Evidence Auditors

COMPLETE SAMPLE DELIVERY GROUP FILE (CSF)
EVIDENCE AUDIT CHECKLIST

Region 6 Audit No. 16177 SDG MFN276

EVIDENCE AUDIT CHECKLIST:

Document Control (continued)

24. Auditor Comments:

QUESTION NO.	COMMENTS

DO NOT WRITE IN BOX BELOW

Date Received by CEAT: ___/___/___ Date Entered: ___/___/___

Entered By: _____
(Print Name)

_____
(Signature)

Please copy this form, complete the Evidence Audit Checklist, an mail the original completed Evidence Audit Checklist to the:

Attn: CSF Evidence Audit Program
Contract Evidence Audit Team (CEAT-TechLaw)
12600 West Colfax Avenue, Suite C-310
Lakewood, CO 80215

In Reference to Case
16177 SDG MFN276
Page 1 of 1 pages

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone/FAX Record Log

Date of Call: May 24, 1991

Laboratory Name: Keystone Environmental

Lab Contact: Mary Cruz

Region: 6

Regional Contact: Victor Chapman (ESAT)

Call Initiated by: Region

In reference to data for the following sample numbers:

MFN276, MFN277, MFN278, MFN279, MFN280, MFN281, MFN282, MFN283, MFN284, MFN809, MFN812, MFN813, MFN814, MFN815, MFN816, MFN817, MFN818, MFN819, MFN820

Summary of Questions/Issues Discussed:

1. All selenium results on Form 1 require a "W" flag except sample MFN297.

2. Arsenic in samples MFN282 and MFN817 require "W" flags on Form 1.

3. Arsenic in sample MFN809 requires a "M" flag on Form 1.

4. Thallium in samples MFN279 and MFN813 require "W" flags on Form 1.

Summary of Resolutions:

Lab will look into items and will submit data within ten working days.

V. A. Chapman
Signature

5/24/91
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

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DATA SUMMARY

Case No. 16177

Laboratory Keystone

Matrix soil

Units mg/Kg

EPA TR #	MFN276	MFN277	MFN278	MFN279	MFN280	MFN281	MFN282	MFN283	MFN284	MFN809	MFN812	MFN813	MFN814	COMMENTS
Lab I.D.	910446 002	910446 003	910446 004	910446 005	910446 006	910446 007	910446 008	910446 009	910446 010	910446 011	910446 012	910446 013	910446 014	
Aluminum	8500	11100	18700	17000	8010	10100	15100	3070	16200	4880	4400	15900	12500	
Antimony	N	N	N	N	N	N	N	N	N	N	N	N	N	
Arsenic	3	2.1B	3.9	2.8	2.9	4.6	1.5B	2.7	3.6	2.2	2.5	5.2	3.4 (+)	
Barium	49.9	82.9	168	117	67.8	75.8	82.7	48.2	44.5B	41.6	51.6	192	89.8	
Beryllium	.44B	.46B	.83B	.77B		.67B	.75B					1.1B	.52	
Cadmium									14.6					
Calcium	3540 *	4880 *	11000 *	12200 *	23900 *	6750 *	9960 *	3190 *	43600 *	6350 *	1520 *	6190 *	8520 *	
Chromium	10.7	9.3	20.9	18.7	79.7	30.2	15.8	4.5	487	6.7	6	17.7	72	
Cobalt			9B	3.9B		3.7B	3B			2.8B		7.4B	4.2B	
Copper	16.9 *	16.7 *	11.9 *	17.7 *	8.5 *	6.2 *	14.4 *	3.2B *	553 *	3.8B *	3.4B *	10.5 *	7.5 *	
Iron	6160 *	5250 *	15900 *	9500 *	7220 *	9650 *	6920 *	4110 *	7450 *	5180 *	5700 *	14160 *	10300 *	
Lead	62.7 *	12.8 *	29.6 *	29.7 *	29.85 *	12.4 *	44.2 *	7.1 *	284 *	42.5 *	6.9 *	48.2 *	18.4 *	
Magnesium	8540	1370	3070	2770	1780	1550	2110	874B	3920	3080	708B	3130	2720	
Manganese	83.8N *	60.6N *	464N *	76.2N *	99.5N *	123N *	37.6N *	100N *	146N *	98.5N *	111N *	201N *	144N *	
Mercury														
Nickel	8.2B	8B	13.7	9.5	7.8B	11.5	9.8	6.5B	13B		7.7B	14.6	7.8B	
Potassium	783B	518B	2510	1570	1150	978B	1270	399B	470B	664B	514B	1950	1510	
Selenium														
Silver									202					
Sodium	100B	70.1B	177B	113B	317B	425B	105B		154B			127B	98.7B	
Thallium														
Tin														
Vanadium	12.5	9.6B	31.7	19.4	14.4	17	11B	9.4B	13.4B	11.9	11	31.7	21.4	
Zinc	49.8N *	60.4N *	54.1N *	84N *	99.5N *	25.8N *	67.5N *	11.4N *	958N *	27N *	12.7N *	74N *	249N *	
Cyanide													1.8	
% Solids	90.9	89.5	88.5	87	88.7	86.7	89.1	87.9	61.3	97	93.5	68.3	82.4	

DATA SUMMARY

Case No. 16177

Laboratory Keystone

Matrix Soil

Units mg/kg

EPA TR #	MFN815	MFN816	MFN817	MFN818	MFN819	MFN820								COMMENTS
Lab I.D.	910446 015	910446 016	910446 017	910446 018	910446 019	910446 020								
Aluminum	5630	4290	7270	12400	4260	7540								
Antimony	N	N	N	N	N	N								
Arsenic	6.15	3.4	1.6B	7.1 (F)	2.6	2B								
Barium	81.3	51.9	39.5B	98.2	25B	76.2								
Beryllium				.67B		.47B								
Cadmium				1.6										
Calcium	11100*	4180*	5270*	24200*	96800*	3960*								
Chromium	9.8	21.5	14.4	41.4	17.6	7.7								
Cobalt	4.7B		3.3B	5.5B										
Copper	6.7*	5.7B*	4.6B*	31.2*	128*	13*								
Iron	7420*	5350*	5180*	11600*	8600*	5290*								
Lead	20.2*	22*	19.5*	170*	542*	11.2*								
Magnesium	1210B	992B	1110B	4460	4270	1320								
Manganese	222N*	100N*	94.5N*	292N*	150N*	34.7N*								
Mercury														
Nickel			6.4B	10.5B		10.7								
Potassium	705B	552B	881B	1440B		597B								
Selenium														
Silver														
Sodium				90.2B		66.8B								
Thallium														
Tin														
Vanadium	17	11.4B	13.2	23.2	6.2B	9.5B								
Zinc	43.8N*	112N*	79.3N*	789N*	815N*	33.6N*								
Cyanide														
% Solids	80.4	84.6	84.5	68.6	84.5	88								

U.S.E.P.A. CONTRACT LABORATORY PROGRAM

SAMPLE MANAGEMENT OFFICE

INORGANIC CONTRACT COMPLIANCE SCREENING SYSTEM

5-8-91

SCREENING PACKAGE
SUMMARY INFORMATION

SDG:	MFN276
CASE:	16177
LAB:	KEYTX
CONTRACT:	68-D0-0147
REGION:	6
DRD:	04/25/91
FORMAT:	A
SCREEN DATE:	05/02/91
MAIL DATE 1:	05/07/91
SCREENER:	AE

INORGANIC CONTRACT COMPLIANCE SCREENING SUMMARY

DEFECT COUNT BY SAMPLE AND FORM

CASE: 16177 SAMPLES: 19 DATE MAILED: 05/07/91

LAB CODE: KEYTX CONTRACT: 68-D0-0147 SAS NO: SCREENER: AE DATE SCREENED: 05/02/91

SDG NUMBER: MFN276 REGION: 6 DATE RECEIVED: 04/25/91

SAMPLE NO.	A COVER PAGE	B FORM 1	CA FORM 2A	CB FORM 2B	D FORM 3	E FORM 4	FA FORM 5A	FB FORM 5B	G FORM 6	H FORM 7	I FORM 8	J FORM 9	L FORM 10	M FORM 11	N FORM 12	R FORM 13	RA FORM 14	MANUAL DEFECT
MFN276-S																		
MFN276-1																		
MFN277-1																		
MFN278-1																		
MFN279-1																		
MFN279-8																		
MFN279-9																		
MFN280-1											1							
MFN281-1																		
MFN282-1																		
MFN283-1																		
MFN284-1																		
MFN809-1																		
MFN812-1																		
MFN813-1																		
MFN814-1																		
MFN815-1																		
MFN816-1																		
MFN817-1																		
MFN818-1																		

INORGANIC CONTRACT COMPLIANCE SCREENING SUMMARY

DEFECT COUNT BY SAMPLE AND FORM

CASE: 16177 SAMPLES: 19 DATE MAILED:

LAB CODE: KEYTX CONTRACT: 68-D0-0147 SAS NO: SCREENER: DATE SCREENED:

SDG NUMBER: MFN276 REGION: 6 DATE RECEIVED: 04/25/91

SAMPLE NO.	A COVER PAGE	B FORM 1	CA FORM 2A	CB FORM 2B	D FORM 3	E FORM 4	FA FORM 5A	FB FORM 5B	G FORM 6	H FORM 7	I FORM 8	J FORM 9	L FORM 10	M FORM 11	N FORM 12	R FORM 13	RA FORM 14	MANUAL DEFECT
MFN819-1																		
MFN820-1																		

U.S.E.P.A. CONTRACT LABORATORY PROGRAM

SAMPLE MANAGEMENT OFFICE

INORGANIC CONTRACT COMPLIANCE SCREENING SYSTEM

NO DEFECTS FOUND FOR STRUCTURAL REPORT #1
RECORDS WITH INVALID FIELDS

U.S.E.P.A. CONTRACT LABORATORY PROGRAM

SAMPLE MANAGEMENT OFFICE

INORGANIC CONTRACT COMPLIANCE SCREENING SYSTEM

NO DEFECTS FOUND FOR STRUCTURAL REPORT #2

U.S.E.P.A. CONTRACT LABORATORY PROGRAM

SAMPLE MANAGEMENT OFFICE

INORGANIC CONTRACT COMPLIANCE SCREENING SYSTEM

TECHNICAL DEFECT FREQUENCY REPORT

DEFECT CODE	NUMBER OF DEFECTS	PERCENT OF TOTAL DEFECTS	DEFECT MESSAGE
1133	1	100.00	INCORRECT FINAL CONCENTRATION VALUE
	*	======	
	1	100.00	

U.S.E.P.A. CONTRACT LABORATORY PROGRAM

SAMPLE MANAGEMENT OFFICE

INORGANIC CONTRACT COMPLIANCE SCREENING SYSTEM

TEXTUAL DEFECT REPORT

```
*******************************
* CRITERION I. FORM 8.        *
*******************************
```

Final concentration is incorrect. (B32)

SUFFIX	ELEMENT	SAMPLE	METHOD	MATRIX	REPORTED VALUE	COMPARED VALUE
	PB	MFN280			132.1	26.4

ERROR CODE : 1133

U.S. EPA - CLP

8
STANDARD ADDITION RESULTS

LAB NAME: KEYSTONE LAB-HOUSTON CONTRACT: 68-D0-0147

LAB CODE: KEYTX CASE NO.: 16177 SAS NO.: SDG NO.: MFN276

CONCENTRATION UNITS: UG/L

EPA SAMPLE NO.	AN	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	FINAL CONC.	R	Q
MFN814	AS	0.046	5.00	0.066	10.00	0.096	15.00	0.103	11.8	0.9769	+
MFN814	AS	0.043	5.00	0.055	10.00	0.075	15.00	0.087	13.9	0.9945	+
MFN815	AS	0.100	10.00	0.114	20.00	0.141	30.00	0.183	33.7	0.9752	+
MFN815	AS	0.073	10.00	0.102	20.00	0.136	30.00	0.161	24.6	0.9984	
MFN818	AS	0.099	10.00	0.112	20.00	0.147	30.00	0.179	33.8	0.9843	+
MFN818	AS	0.069	10.00	0.111	20.00	0.130	30.00	0.163	24.3	0.9904	+
MFN280	PB	0.165	10.00	0.245	20.00	0.309	30.00	0.361	132.1	0.9954	

NO DEFECTS FOUND FOR MANUAL REPORT

U.S.E.P.A. - C.L.P.

S A M P L E M A N A G E M E N T O F F I C E

INORGANICS
RESOLUTION OF CONTRACT COMPLIANCE SCREENING (CCS) RESULTS

LABORATORY CODE : KEYTX CASE : 16177 SDG_NO.: MFN276

RECONCILED BY : RECONCILIATION DATE :

CRITERION	COMMENTS

P.O. BOX 818, ALEXANDRIA, VIRGINIA 22313. PHONE : (703) 684-5678/FTS-8-557-2490

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*************************************************************
*************************************************************
*************************************************************
*************************************************************
*************************************************************
*****                                                   *****
*****     RESUBMITTED DATA RECEIVED AFTER 10 DAYS       *****
*****     RESOLUTION PERIOD. CCS WILL RETAIN THIS       *****
*****     DATA ON FILE, HOWEVER IT WILL NOT BE          *****
*****     SCREENED AS IT WILL NOT AFFECT PAYMENT.       *****
*****                                                   *****
*****                                                   *****
*****             REGION:  6                            *****
*****               LAB :  KEYTX                        *****
*****               CASE:  16177                        *****
*****               SOG :  MFN276                       *****
*****                                                   *****
*****                                                   *****
*****     10 DAY RESOLUTION PERIOD END:  05/19/91       *****
*****         RESUBMISSION RECEIVED:   06/04/91         *****
*****     RESUBMITTED DATA WAS  16  DAYS LATE           *****
*****                                                   *****
*****                                                   *****
*************************************************************
*************************************************************
*************************************************************
*************************************************************
*************************************************************
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