2730-SCU-014
0044225

MAXWELL
S-CUBED Division

SORRENTO VALLEY OFFICE
3398 Carmel Mountain Road., San Diego, CA 92121-1095
P.O. Box 1620, La Jolla, CA 92038-1620

NARRATIVE

DATE: January 9, 1992
REFERENCE NO.: 32359-04, SDG 2730

METALS

The samples were analyzed according to the 2/88 CLP Inorganics Statement of Work and Method 6010. There were no difficulties with the analysis. Samples analyzed on the GFAA were diluted 1:3. There were significant levels of several analytes detected in the sample.

The quality control results were generally acceptable. Matrix spike recoveries for Sb, V, and Cd were outside quality control criteria. However, the post-digestion spike was within quality control criteria for these metals. Ti was not spiked in the matrix spike sample or in the LCS. The post-digestion spike was high at 166%. There were significant levels of Ti detected in the samples. There was no recovery of Se from the matrix spike sample because of the dilution performed on the GFAA. Duplicate values for several metals are out of quality control criteria due to the soil matrix. The recovery for Se from the LCS was slightly higher than the CLP quality control criteria but was within the RCRA criteria. The data was accepted since there was no Se detected in the sample.

JUN 1996
RECEIVED
EDMC

SAMPLE SUMMARY

S-Cubed Reference No. 32359-04, SDG No. 2730, Project Name: Site Wide Soil

Sample ID	S-Cubed Sample N	Date Receive	Sample Type	Analysis									
				A	B	C	D	E	F	G	H	I	J
BO1B71	2730-1	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B72	2730-2	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B73	2730-3	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B74	2730-4	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B75	2730-5	11/23/91	Soil	3	3	3	3	3	3	3	3	3	3
BO1B76	2730-6	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B77	2730-7	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B78	2730-8	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B82	2730-9	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1

Analysis Key:

A=Ti
B=Zr
C=ICPCLP-M
D=FURNCLP
E=HGCLP
F=ANIONS
G=N-NH3
H=ALK
I=Si
J=Mo

Westinghouse Hanford Company

Hanford Operations and Engineering Contractor for the US Department of Energy
P.O. Box 1970 Richland, Wa. 99352

NONCONFORMANCE REPORT

Page 1 of ____

No. B 06175

1. MFR/ORG: MAXWELL S-CUBED DIVISION

ITEM/MATERIAL NAME: ENVIR. SAMPLE

PART NO.: N/A

DRAWING/SPEC. NO.:

REV.: N/A

PROGRAM/PROJECT: SITE-WIDE Background

P.O./W.O. NO.:

UNUSUAL OCCURRENCE REPORT REQUIRED: ☒ YES ☒ NO

SYSTEM/END USE:

DATE: 01/28/92

2. DESCRIPTION OF NONCONFORMANCE

LABORATORY IS PERFORMING INORGANIC ANALYSIS (SOIL) WITHOUT UTILIZING A SOLID MATRIX LCS FOR CLP METALS ANALYSIS.

EXAMPLES: SDG #2630 & 2633

NOTE: THE LAB INDICATES THAT ALL METAL ANALYSIS (CLP) HAVE BEEN PERFORMED WITHOUT A SOIL LCS.

3. REQUIREMENT VIOLATED

"ONE SOLID LCS MUST BE PREPARED & ANALYZED FOR EVERY GROUP OF SOLID SAMPLES IN A SAMPLE DELIVERY GROUP....."

DOCUMENT	REV	ZONE/PARA
CLP. SOW INORGANICS	2/88	PART E, SECTION V, ITEM #8

M.A. Beck — ORIGINATOR
12500/05M — ORGANIZATION
01/28/92 — DATE

4. ASME CODE ITEM(s) ☐ NO ☐ YES. NOTIFY AUTHORIZED INSPECTOR.

WHC QAR

5. CAUSE OF NONCONFORMANCE

☐ PROCEDURES ☐ PERSONNEL ☐ MATERIALS
☐ EQUIPMENT ☒ OTHERS

REMARKS: See 8A

PR-07, EQ-001-002

6. CORRECTIVE ACTION TO ELIMINATE CAUSE

- S³ has obtained and is currently using a solid LCS sample for the QC requirement (see S³ letter to T. Washington 3/2)

INITIATION DATE ____ SERIAL NO. ____

RESPONSIBLE ORG. REP. ____ TITLE ____ DATE ____

7. RECOMMENDED DISPOSITION ☒ ACCEPT ☐ REJECT ☐ REPAIR ☐ REWORK ☐ OTHER

8A. DISPOSITION JUSTIFICATION AND INSTRUCTIONS

S³ did perform the LCS at the required frequency using an aqueous standard prior to receiving and testing the solid LCS. The aqueous LCS results were evaluated in the applicable data packages and performance was documented with the validation paperwork.

9. ADDITIONAL REVIEWS REQUIRED (WHC ONLY) ☐ YES ☒ NO

IF YES, IDENTIFY:

8B. SUPPLIER ENG. ____ SUPPLIER QA ____

10. DISPOSITION APPROVAL (WHC ONLY)

☒ APPROVED ☐ DISAPPROVED
☐ OTHER (SEE CONTINUATION SHEET)

J. Hoover — COGNIZANT ENGINEER — DATE 5/21/92

LW VANCE L.W. Vance — COGNIZANT QA ENGINEER — DATE 5/21/92

NA — AUTHORIZED INSPECTOR REVIEW — DATE

11. ADDITIONAL APPROVALS

NAME	TITLE	DATE	NAME	TITLE	DATE

12. DISPOSITION ACTION COMPLETE

L.W. Vance — NAME — DATE 5/21/92 — QTY. ACCEPT NA — QTY. REJ. NA

FOLLOW ON NCR

QA LOG NO. QA-92-013

The issuance and acceptance of this request in no way limits or affects the warranty provisions of the order. This request shall not establish a precedent or obligation to accept similar conditions in the future.

FOLLOW-UP LEVEL A ☐ B ☐ C ☐

7310-104 (8-87)

Westinghouse Hanford Company	CHAIN OF CUSTODY Priority Samples	Project 91-075

Custody Form Initiator: C. D. Kramer

Company Contact: Chris Kramer — Telephone: (509) 376-4186

Project Designation/Sampling Locations: Sitewide Background - Site #3 Wye Pit rerun — Collection Date: 11/20/91

Ice Chest No.: RM#87 — Field Logbook No.: WHC-N-438

Bill of Lading/Airbill No.: 247425287 T — Offsite Property No.: W92-0-0014 #7

Method of Shipment: Emery

Shipped to: S-Cubed San Diego, CA

Possible Sample Hazards/Remarks: None

Sample Identification

B01B71 (3) 120-ml jars
B01B72
B01B73
B01B74
B01B75
B01B76
B01B77
B01B78
B01B82 0 jars - Sample no. to be used for reporting additional prep blank. Blank generated at S-Cubed - not enclosed.

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
C. D. Kramer C. D. Kramer	[illegible]	11/23/91 12 noon
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90)

1d

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

Priority Samples Project 91-075

PART I: FIELD SECTION

Collector C. Kramer Date Sampled 11/20/91 Time 12-16:00 hours

Company Contact Chris Kramer Telephone (509) 376-4186

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B01B71	(3) 120-ml	Soil	See attached Tables A-1, A-2
B01B72			Each sample is to be analyzed
B01B73			for all analytes by the method
B01B74			shown except for fluoride.
B01B75			Fluoride may be done by
B01B76			ion chromatography.
B01B77			
B01B78			
B01B82	0 jars	None	Additional prep blank for all analyses. This sample number is to be used for reporting this request.

Field Information** Site #3, Wy Barricade rerun

Special Handling and/or Storage Sieve samples. Use the less-than 2 mm size fraction in analytical aliquots. Exclude stones, etc. larger than 2mm.

Possible Sample Hazards None

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required _____

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

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

A-6000-406 (05/90)

1e

SIGNATURE SECURITY
SATURDAY DELIVERY

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
Westinghouse Hanford Co		~~W91-0-0579~~ W92-0-0014 #1

PART I – TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
Env. Engineering	Technical Baseline	

The following items are to be shipped from [X] Contractor [ ] Vendor

Routing Emery [X] Contractor [ ] Vendor

Shipped to
S-Cubed
3398 Carmel Mt. Rd.
San Diego, CA 92121-1095

Off-site Custodian: John Dewald

Full Title: Project Coordinator

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 WEIGHT 35 lbs	Poly Ice Chest ~~(RM #A-1)~~ Glass jars of soil packed in vermiculite and blue ice. SAMPLE #'s - B01B71, B01B72, B01B73, B01B74, B01B75, B01B76, B01B77, B01B78, B01B82	

[ ] Classified [ ] Unclassified [ ] Shipped Under DOE Contract [ ] Shipped Under Contractor's Use Permit Contract

Necessity for the Off-Site Use of this Property

Program not available on site.

Bill of Lading# 247425287 T

CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.

RM Clearance for Public Release: [signature]	RM Survey No: 910770	Date: 11-22-91
Location of Property (Area & Bldg.): Background Site #3 Rerun	Contact: C. D. Kramer	Phone: 376-4186
Date Ready for Shipment: 11/22/91	Cost Code to be Charged: ~~EK16A~~/81223 PK1BB	Approximate Date This Property will be Returned
Originated By: C. D. Kramer C. D. Kramer 1pm	Date: 11/22/91	Authorized By: [signature] Date: 11/22/91
Signature and Name of Property Control	Custodian Date	Property Management Approval [signature] Date: 11/22/91

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
Mark W Bryant Date 11-22-91				

DISTRIBUTION

By Originator	Shipping Operation – Sign all Copies and Forward to:
White, Green, Yellow, Pink – Property Management Goldenrod – Retain	White – Property Management Yellow – Retain Green – Property Control Custodian (Issuing Office) Pink – Originator

54-3000-479 (09/89)

1F

METHOD OF PAYMENT

CASH ☐ G/C ☐ | FCCOD ☐

PPD ☒ COL ☐ OTH ☐ COMAT ☐

E Shipper's Account Number 8 9281585

EMERY WORLDWIDE

A CF Company

SERVICES

UNITED STATES / CANADA: Same Day ☐ AM ☐ Second Day ☒ PM ☐

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

Date: 11-22-91 | Origin: PSC | Shipment Number: 247425287 T

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

To:
JOHN DEWALD
S-CUBED
3398 CARMEL MT. ROAD
SAN DIEGO CA 92121-1095
Canada ☐
Hold for Pick Up ☐

2730
32359-04
Ex. Info 12 mo
11/23/91

Tariff Dest. | Gateway

$

EMERY WORLDWIDE will collect consignee's check made payable only to the shipper for the value of the goods in the amount shown above.

Customer's Reference Numbers: W81223 PK18B W92-0-0014#1 | 99352

E Consignee's Account Number

Description	Dimensions Pcs	L	W	H	Total Pieces	Total Weight (Lbs)
1 ICE CHEST SOIL SAMPLES W92-0-0014#1	1		16	17	1	35

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

Declared Value $

247425287 T

TODSR ☐ Haz Mat ☐ Edit ☐ A B C D E F G H I J K

1 2 3 4 5 6 7 8 9 0 1 2

SATURDAY DELIVERY
SIGNATURE SECURITY SERVICE

Shipper's Signature X

Envelope 9X12 ☐ Pack 12X15 ☐

International Shipments: Free Domestic ☐ | Commodity Code

Third party Account Number mandatory for Third party billing | E | Third Party Account Number

International Customs Value | International Insurance

Base Charge

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

SAN-5A

Terms and Conditions on Back

FORM 1 JAN. 1-46

19

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-1

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-1

Level (low/med): LOW Date Received: 11/23/91

% Solids: 92.8

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7540		*	P
7440-36-0	Antimony	6.0	U	N	P
7440-38-2	Arsenic	2.3	B		F
7440-39-3	Barium	74.1			P
7440-41-7	Beryllium	1.2			P
7440-43-9	Cadmium	0.32	U	N	P
7440-70-2	Calcium	9880			P
7440-47-3	Chromium	9.6		*	P
7440-48-4	Cobalt	12.7			P
7440-50-8	Copper	16.5			P
7439-89-6	Iron	26900		*	P
7439-92-1	Lead	5.7			F
7439-95-4	Magnesium	5150			P
7439-96-5	Manganese	327			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	12.3			P
7440-09-7	Potassium	1210			P
7782-49-2	Selenium	1.3	U	N	F
7440-22-4	Silver	1.1			P
7440-23-5	Sodium	338	B		P
7440-28-0	Thallium	0.97	U	W	F
7440-62-2	Vanadium	62.1		N*	P
7440-66-6	Zinc	53.1		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

B01B71

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-1

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-1

Level (low/med): LOW Date Received: 11/23/91

% Solids: 92.8

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

CAS No.	Analyte	Concentration	C	Q	M
7439-98-7	Molybdenu	1.5	U		P
7440-32-6	Titanium	1820		*	P
7440-67-7	Zirconium	23.2		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B71

FORM I - IN

7/88

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-2

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-2

Level (low/med): LOW Date Received: 11/23/91

% Solids: 92.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6310		*	P
7440-36-0	Antimony	6.0	U	N	P
7440-38-2	Arsenic	2.6	B		F
7440-39-3	Barium	78.3			P
7440-41-7	Beryllium	0.97			P
7440-43-9	Cadmium	0.32	U	N	P
7440-70-2	Calcium	7270			P
7440-47-3	Chromium	7.4		*	P
7440-48-4	Cobalt	10.6			P
7440-50-8	Copper	15.7			P
7439-89-6	Iron	22700		*	P
7439-92-1	Lead	7.5			F
7439-95-4	Magnesium	4500			P
7439-96-5	Manganese	282			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	10.7			P
7440-09-7	Potassium	974			P
7782-49-2	Selenium	1.3	U	N	F
7440-22-4	Silver	1.3			P
7440-23-5	Sodium	231	B		P
7440-28-0	Thallium	0.97	U	W	F
7440-62-2	Vanadium	43.3		N*	P
7440-66-6	Zinc	45.0		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B72

FORM I - IN

7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-2

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-2

Level (low/med): LOW Date Received: 11/23/91

% Solids: 92.7

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

CAS No.	Analyte	Concentration	C	Q	M
7439-98-7	Molybdenu	1.5	U		P
7440-32-6	Titanium	1330		*	P
7440-67-7	Zirconium	20.8		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B72

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U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-3

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-3

Level (low/med): LOW Date Received: 11/23/91

% Solids: 95.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5850		*	P
7440-36-0	Antimony	5.8	U	N	P
7440-38-2	Arsenic	1.9	B		F
7440-39-3	Barium	78.8			P
7440-41-7	Beryllium	1.3			P
7440-43-9	Cadmium	0.31	U	N	P
7440-70-2	Calcium	7600			P
7440-47-3	Chromium	6.5		*	P
7440-48-4	Cobalt	15.2			P
7440-50-8	Copper	14.7			P
7439-89-6	Iron	30800		*	P
7439-92-1	Lead	5.0			F
7439-95-4	Magnesium	5280			P
7439-96-5	Manganese	390			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	11.5			P
7440-09-7	Potassium	821			P
7782-49-2	Selenium	1.3	U	WN	F
7440-22-4	Silver	1.6			P
7440-23-5	Sodium	284	B		P
7440-28-0	Thallium	0.94	U	W	F
7440-62-2	Vanadium	78.9		N*	P
7440-66-6	Zinc	61.1		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B73

FORM I - IN

7/88

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-3

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL Lab Sample ID: 2730-3

Level (low/med): LOW Date Received: 11/23/91

% Solids: 95.9

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

CAS No.	Analyte	Concentration	C	Q	M
7439-98-7	Molybdenu	1.5	U		P
7440-32-6	Titanium	2430		*	P
7440-67-7	Zirconium	24.4		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B73

FORM I - IN

7/88

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-4

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL Lab Sample ID: 2730-4

Level (low/med): LOW Date Received: 11/23/91

% Solids: 97.1

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4190		*	P
7440-36-0	Antimony	5.8	U	N	P
7440-38-2	Arsenic	1.2	B		F
7440-39-3	Barium	63.1			P
7440-41-7	Beryllium	0.93			P
7440-43-9	Cadmium	0.31	U	N	P
7440-70-2	Calcium	6710			P
7440-47-3	Chromium	6.5		*	P
7440-48-4	Cobalt	11.2			P
7440-50-8	Copper	14.2			P
7439-89-6	Iron	22700		*	P
7439-92-1	Lead	3.3			F
7439-95-4	Magnesium	4030			P
7439-96-5	Manganese	285			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	9.6			P
7440-09-7	Potassium	633			P
7782-49-2	Selenium	1.2	U	WN	F
7440-22-4	Silver	1.0			P
7440-23-5	Sodium	202	B		P
7440-28-0	Thallium	0.93	U	W	F
7440-62-2	Vanadium	48.7		N*	P
7440-66-6	Zinc	48.6		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B74

FORM I - IN

7/88

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-4

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL Lab Sample ID: 2730-4

Level (low/med): LOW Date Received: 11/23/91

% Solids: 97.1

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

CAS No.	Analyte	Concentration	C	Q	M
7439-98-7	Molybdenu	1.4	U		P
7440-32-6	Titanium	1530		*	P
7440-67-7	Zirconium	19.9		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B74

FORM I - IN

7/88

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-5

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: _____ SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-5

Level (low/med): LOW Date Received: 11/23/91

% 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	6230		*	P
7440-36-0	Antimony	5.8	U	N	P
7440-38-2	Arsenic	1.6	B		F
7440-39-3	Barium	73.6			P
7440-41-7	Beryllium	1.2			P
7440-43-9	Cadmium	0.31	U	N	P
7440-70-2	Calcium	7560			P
7440-47-3	Chromium	11.1		*	P
7440-48-4	Cobalt	14.3			P
7440-50-8	Copper	14.2			P
7439-89-6	Iron	28800		*	P
7439-92-1	Lead	4.2			F
7439-95-4	Magnesium	4390			P
7439-96-5	Manganese	353			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	10.7			P
7440-09-7	Potassium	877			P
7782-49-2	Selenium	1.2	U	N	F
7440-22-4	Silver	1.5			P
7440-23-5	Sodium	361	B		P
7440-28-0	Thallium	0.93	U	W	F
7440-62-2	Vanadium	79.3		N*	P
7440-66-6	Zinc	57.2		*	P

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:
B01B75

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7/88

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-5

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-5

Level (low/med): LOW Date Received: 11/23/91

% Solids: 97.0

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

CAS No.	Analyte	Concentration	C	Q	M
7439-98-7	Molybdenu	1.4	U		P
7440-32-6	Titanium	2360		*	P
7440-67-7	Zirconium	25.1		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B75

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U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-6

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-6

Level (low/med): LOW Date Received: 11/23/91

% Solids: 91.5

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6480		*	P
7440-36-0	Antimony	6.1	U	N	P
7440-38-2	Arsenic	3.2	B		F
7440-39-3	Barium	81.4			P
7440-41-7	Beryllium	0.87			P
7440-43-9	Cadmium	0.33	U	N	P
7440-70-2	Calcium	8340			P
7440-47-3	Chromium	12.1		*	P
7440-48-4	Cobalt	10.5			P
7440-50-8	Copper	16.5			P
7439-89-6	Iron	20100		*	P
7439-92-1	Lead	6.6			F
7439-95-4	Magnesium	4780			P
7439-96-5	Manganese	318			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	13.9			P
7440-09-7	Potassium	1030			P
7782-49-2	Selenium	1.3	U	WN	F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	193	B		P
7440-28-0	Thallium	0.98	U	W	F
7440-62-2	Vanadium	34.2		N*	P
7440-66-6	Zinc	45.1		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B76

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U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-6

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL Lab Sample ID: 2730-6

Level (low/med): LOW Date Received: 11/23/91

% Solids: 91.5

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

CAS No.	Analyte	Concentration	C	Q	M
7439-98-7	Molybdenu	1.5	U		P
7440-32-6	Titanium	1060		*	P
7440-67-7	Zirconium	17.3		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B76

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U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-7

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-7

Level (low/med): LOW Date Received: 11/23/91

% Solids: 91.6

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9720		*	P
7440-36-0	Antimony	6.1	U	N	P
7440-38-2	Arsenic	5.9			F
7440-39-3	Barium	102			P
7440-41-7	Beryllium	1.2			P
7440-43-9	Cadmium	0.33	U	N	P
7440-70-2	Calcium	6520			P
7440-47-3	Chromium	12.2		*	P
7440-48-4	Cobalt	12.6			P
7440-50-8	Copper	21.1			P
7439-89-6	Iron	23800		*	P
7439-92-1	Lead	11.5			F
7439-95-4	Magnesium	6510			P
7439-96-5	Manganese	459			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	17.6			P
7440-09-7	Potassium	1760			P
7782-49-2	Selenium	1.3	U	WN	F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	165	B		P
7440-28-0	Thallium	0.98	U	W	F
7440-62-2	Vanadium	42.4		N*	P
7440-66-6	Zinc	57.1		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B77

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U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-7

Lab Name: S_CUBED_____ Contract: 32359-04__

Lab Code: S3____ Case No.: SITE_ SAS No.: _____ SDG No.: 2730__

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-7____

Level (low/med): LOW__ Date Received: 11/23/91

% Solids: _91.6

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

CAS No.	Analyte	Concentration	C	Q	M
7439-98-7	Molybdenu	1.5	U		P
7440-32-6	Titanium	1200		*	P
7440-67-7	Zirconium	20.6		*	P

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:
B01B77

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U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-8

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-8

Level (low/med): LOW Date Received: 11/23/91

% Solids: 95.8

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6670		*	P
7440-36-0	Antimony	5.8	U	N	P
7440-38-2	Arsenic	3.1	B		F
7440-39-3	Barium	80.3			P
7440-41-7	Beryllium	1.0			P
7440-43-9	Cadmium	0.31	U	N	P
7440-70-2	Calcium	7480			P
7440-47-3	Chromium	8.7		*	P
7440-48-4	Cobalt	11.1			P
7440-50-8	Copper	14.7			P
7439-89-6	Iron	23000		*	P
7439-92-1	Lead	5.8			F
7439-95-4	Magnesium	4690			P
7439-96-5	Manganese	330			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	11.2			P
7440-09-7	Potassium	1030			P
7782-49-2	Selenium	1.3	U	WN	F
7440-22-4	Silver	1.4			P
7440-23-5	Sodium	183	B		P
7440-28-0	Thallium	0.94	U	W	F
7440-62-2	Vanadium	50.2		N*	P
7440-66-6	Zinc	49.2		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B78

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7/88

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-8

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: _____ SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-8

Level (low/med): LOW Date Received: 11/23/91

% Solids: 95.8

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

CAS No.	Analyte	Concentration	C	Q	M
7439-98-7	Molybdenu	1.5	U		P
7440-32-6	Titanium	1570		*	P
7440-67-7	Zirconium	19.0		*	P

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:
B01B78

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U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-9

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-9

Level (low/med): LOW Date Received: 11/23/91

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7.2	U	*	P
7440-36-0	Antimony	5.6	U	N	P
7440-38-2	Arsenic	0.60	U		F
7440-39-3	Barium	4.1	U		P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	0.30	U	N	P
7440-70-2	Calcium	107	U		P
7440-47-3	Chromium	0.90	B	*	P
7440-48-4	Cobalt	1.6	U		P
7440-50-8	Copper	1.8	U		P
7439-89-6	Iron	10.9		*	P
7439-92-1	Lead	0.66	B	W	F
7439-95-4	Magnesium	249	U		P
7439-96-5	Manganese	0.60	U		P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	3.2	U		P
7440-09-7	Potassium	130	U		P
7782-49-2	Selenium	1.2	U	N	F
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	98.7	U		P
7440-28-0	Thallium	0.90	U	W	F
7440-62-2	Vanadium	2.0	U	N*	P
7440-66-6	Zinc	5.0	U	*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B82

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-9

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-9

Level (low/med): LOW Date Received: 11/23/91

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7439-98-7	Molybdenu	1.4	U		P
7440-32-6	Titanium	1.0	U	*	P
7440-67-7	Zirconium	10.0	U	*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B82

FORM I - IN

7/88

TRACE METAL ANALYSIS Element: Hg Date: 12-13-91 Analyst: LS/KP Wavelength: 253.7 nm

Analytical Technique: CVAAS Flame Type: ☐ Air ☐ N_2O Current: 4 mA Bandwidth: 1.0 nm

Reference Method (SW-846): 7471 Furnace Time (x 5 Sec.) ____ ____ ____ ____ ____

Program Temperature (°C) ____ ____ ____ ____ ____

Don't use K.P.

Standards	Absorbance	$\bar{x}$	LR Pairs
Matrix Blank	0	20	229
1	7		
~~5~~	~~48~~ (LW)		
7	78		
10	123		
Standard Matrix			

O_2 Background Correction ☐

High Voltage: 700

Energy: ____

Injection Volume: ____

Absorbance IDL: ____

ZHF: ____

Correlation Coefficient: 0.999

Concentration IDL: ____

Method Detection Limit: ____

( ) / ( ) x 100 = ____ % Rec.

( ) / ( )/2 x 100 = ____ RPD

( ) / ( ) x 100 = ____ % Rec. EPA QC

Sample	Absorbance	Avg. Absorb. (Blank Corrected)	Sample Preparation/ Spike	Reading Dilution	LR Result	Concentratic
ICV	66		5 ppb			
ICB	0					
PBS-1 ✓	0	PBS 12/11-1				
12-11-91 PBS-2	0	PBS 12/11-2				
PBS-3	0	PBS 12/12-3				
12-12-91 PBS-4	0	PBS 12/12-4				
2676-27	0					
2725-11	176	dilution	60 ml of 127 ml total		df =	~~2.2~~ 2.1
-12	0					
-12R	0					
✓ Std. -12S	9					
CCV-1	53		5 ppb			
CCB-1	0					
2725-21	124	dilution	60 ml of 128 ml total		df =	~~2.1~~
2720-4	36					
-4R	34					
-4S	48					
-5	77					
-6	76					
-7	10					
-8	0					
✓ Std. 2720-9	0					

Sample	Absorbance	Avg. Absorb. (Blank Corrected)	Sample Preparation/ Spike	Reading Dilution	LR Result	Concentrat
2720-10	26					
CCV-2	68		5ppb			
CCB-2	0					
2730-1	0					
-2	0					
-3	0					
-4	0					
-5	0					
-5R	0					
-5S	10					
-6	0					
-7	0					
-8	0					
CCV-3	53		5ppb			
CCB-3	0					
2730-9	0					
2731-1NH	10					
-2NH	14					
-4NH	0					
-5NH	100					
-6NH	0					
-7NH	0					
-8NH	0					
-9NH	0					
-10NH	0					
CCV-4	55		5ppb			
CCB-4	0					
2731-11NH	0					
-12NH	95					
-13NH	145					
-14NH	0					
-15NH	50					
-15NHR	49					
-15NHS	89					
-16NH	72					
-17NH	176					
-18NH	8					
CCV-5	68		5ppb			
CCB-5	0					

TRACE METAL ANALYSIS Element: _____ Date: _____ Analyst: _____ Wavelength _____ n

Analytical Technique: _____ Flame Type: ☐ Air ☐ N_2O Current _____ Bandwidth _____ n

Reference Method (SW-846) _____ Furnace Time (x 5 Sec.) _____ _____ _____ _____ _____

Program Temperature (°C) _____ _____ _____ _____ _____

Standards	Absorbance	$\bar{x}$	LR Pairs
Matrix Blank			
Standard Matrix			

D_2 Background Correction ☐

High Voltage _____

Energy _____

Injection Volume _____

Absorbance IDL _____

ZRF _____

Correlation Coefficient _____

Concentration IDL _____

Method Detection Limit _____

$\frac{(\quad)}{(\quad)} \times 100 =$ _____ % Rec.

$\frac{(\quad)}{(\quad)/2} \times 100 =$ _____ RPD

$\frac{(\quad)}{(\quad)} \times 100 =$ _____ % Rec. EPA QC

Sample	Absorbance	Avg. Absorb. (Blank Corrected)	Sample Preparation/ Spike	Reading Dilution	LR Result	Concentratic
2736-1NH	29					
-2NH	0					
-3NH	7					
-4NH	0					
-5NH	40					
-7NH	55					
-8NH	129					
2737-1	42					
-2	110					
-3	140					
✓ Std. CCV-6	68		5 ppb			
CCB-6	0					
2737-4	202					
-5	183					
-6	0					
-7	0					
-8	46					
-9	106					
-10	258		off scale			
-11	330		off scale			
-12	38					
✓ Std. -13	9					

Sample	Absorbance	Avg. Absorb. (Blank Corrected)	Sample Preparation/ Spike	Reading Dilution	LR Result	Concentration
CCV-7	64		5 ppb			
CCB-7	0					
2737-14	67					
-15	0					
-16	0					
-17	0					
-19	99					
-19R	111					
-19S	128					
CCV-8	57		5 ppb			
CCB-8	0					
~~2737-15~~	~~0~~					
~~-16~~	~~0~~					
~~-17~~	~~0~~					

K.P.

MAXWELL
S-CUBED Division

SORRENTO VALLEY OFFICE
3398 Carmel Mountain Road., San Diego, CA 92121-1095
P.O. Box 1620, La Jolla, CA 92038-1620

NARRATIVE

DATE: January 9, 1992
REFERENCE NO.: 32359-04, SDG 2730

SILICA

The samples were analyzed according to Method 370.1. An aliquot of each sample was leached into Type II water, resulting in a 5:1 dilution. The samples were very turbid, so the absorbance readings were high. There were significant levels of silica detected in samples 2730-1 through 2730-8.

The quality control results were acceptable.

ALKALINITY

The samples were analyzed according to Method 310.1. There were no difficulties with the analysis. An aliquot of each sample was leached into Type II water, resulting in a 5:1 dilution. There were significant levels of alkalinity detected in the samples.

The quality control results were acceptable.

AMMONIA

The samples were analyzed according to Method 350.3. An aliquot of each sample was leached into Type II water, resulting in a 5:1 dilution. There were no difficulties with the analysis. There was no ammonia detected in the samples.

The quality control results were acceptable.

ANIONS

The samples were analyzed according to Method 300.0. An aliquot of each sample was leached into Type II water, resulting in a 5:1 dilution. There were no difficulties with the analysis. There were moderate levels of F, Cl, NO_3, o-PO_4, and SO_4 detected in the samples.

The quality control results were acceptable. SR

1b

SILICA ANALYSIS

LAB:	S-CUBED	DATA REVIEWER: CN 12/23/91	
CLIENT:	WHC	PROJECT REVIEWER:	
CASE:	SITE WIDE SOIL	CHARGE NO:	32359-04
LOT #:	2730	DATE RECEIVED:	11/23/91
FILE#:	SI1123	DATE PREP:	12/17/91
DISK#:	SI1023	DATE ANALYZED:	12/17/91
METHOD:	370.1	MATRIX:	SOIL

RESULTS: UNIT AS MG/L, PPM

LAB ID	CONCENTRATION
2730 -1	454
2730 -2	583
2730 -3	211
2730 -4	69.8
2730 -5	74.5
2730 -6	112
2730 -7	66.3
2730 -8	69.5
2730 -9	< 5 **

COMMENTS:

Since the samples are very turbid, absorbance readings are high.

** Extra lab blank is calculated from:

$$\frac{\text{Methood Detection Limit (mg/L)} \times 0.045 \text{ L (Leaching Volume)}}{0.009 \text{ kg (Sample Weight)}}$$

ALKALINITY ANALYSIS

LAB:	S-CUBED	DATA REVIEWER:	an 12/23/91
CLIENT:	WHC	PROJECT REVIEWER:	
CASE:	SITE WIDE SOIL	CHARGE #:	32359-04
LOT #:	2730	DATE RECIEVED:	11/23/91
FILE #:	ALK1123	DATE PREP:	12/03/91
DISK #:	ALK1016	DATE ANALYZED:	12/03/91
METHOD NO.:	EPA 310.1	MATRIX:	SOIL

RESULTS: RESULTS AS DRY WEIGHT - MG/KG

LAB ID	CONCENTRATION
2730 -1	1200
2730 -2	1720
2730 -3	204
2730 -4	98.8
2730 -5	573
2730 -6	1310
2730 -7	1550
2730 -8	1970
2730 -9	< 5 **

COMMENTS: ** Extra lab blank is calculated from:

$$\frac{\text{Method Dection Limit (mg/L) X 0.025 L (Leaching Volume)}}{\text{0.005 kg (Sample Weight)}}$$

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AMMONIA ANALYSIS

LABORATORY:	S-CUBED	DATA REVIEWER:	an 12/23/91
CLIENT:	WHC	PROJECT REVIEWER:	
CASE:	SITE WIDE SOIL	CHARGE #:	32359-04
LOT #:	2730	DATE RECEIVED:	11/23/91
FILE#:	NH31123	DATE PREP:	11/17/91
DISK:	NH31024	DATE ANALYZED:	11/17/91
METHOD NO.	350.3	MATRIX:	SOIL

RESULTS: UNIT AS MG/KG DRY WEIGHT

LAB ID	CONCENTRATION
2730 -1	< 0.15
2730 -2	< 0.15
2730 -3	< 0.15
2730 -4	< 0.15
2730 -5	< 0.15
2730 -6	< 0.15
2730 -7	< 0.15
2730 -8	< 0.15
2730 -9	< 0.15

COMMENTS:

** Extra lab blank is calculated from:

$$\frac{\text{Method Detection Limit (mg/L) X 0.050 L (Leaching Volume)}}{\text{0.01 kg (Sample Weight)}}$$

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ANIONS ANALYSIS

LABORATORY:	S-CUBED	DATA REVIEWER:	ON 12/23/91
CLIENT:	WHC	PROJECT REVIEWER:	
CASE:	SITE WIDE SOIL	CHARGE #:	32359-04
LOT #:	2730	DATE RECEIVED:	11/23/91
FILE#:	ANI1123	DATE PREP:	12-13/16/18-91
DISK:	ANI1110	DATE ANALYZED:	12-13/16/18-91
METHOD NO.	300.0	MATRIX:	SOIL

RESULTS: UNIT AS MG/KG DRY WEIGHT

LAB ID	F	CL	NO2	NO3	O-PO4	SO4
2730 -1	3.46	8.22	< 0.2	53.1	0.94	5.58
2730 -2	1.76	7.05	< 0.2	48.8	1.03	7.25
2730 -3	3.04	4.89	< 0.2	8.00	< 0.5	1.12
2730 -4	0.34	4.86	< 0.2	10.5	< 0.5	1.95
2730 -5	0.66	2.80	< 0.2	3.22	< 0.5	0.97
2730 -6	1.15	3.16	< 0.2	3.05	0.97	2.12
2730 -7	1.03	3.49	< 0.2	2.00	1.05	2.10
2730 -8	1.33	2.63	< 0.2	1.94	< 0.5	1.91
** 2730 -9	< 0.1	< 0.1	< 0.2	< 0.5	< 0.5	< 0.5

COMMENTS:

** Extra lab blank is calculated from:

$$\frac{\text{Method Detection Limit (mg/L)} \times 0.045 \text{ L (Leaching Volume)}}{0.009 \text{ kg (Sample Weight)}}$$

14

OSM INORGANIC DATA ASSESSMENT

DATE 2-3-92

REVIEWED BY Ted Washington

LABORATORY Maxwell-S-cubed

CASE # Sitewide

SDG # 2730

SAMPLES/MATRIX B01B71 B01B72 B01B73
B01B74 B01B75 B01B76
B01B77 B01B78 B01B82

TXW 2-6-92

DATA ASSESSMENT SUMMARY

	ICP	AA	Hg	CN
1. Calibrations (Form II)	O	O	O	
2. Blanks (III)	X	O	O	
3. ICS (IV)	O			
4. Matrix Spike (V)	X	X	O	
5. Duplicate Analysis (VI)	X	O	O	
6. LCS (VII)	O	O		
7. Serial Dilution (IX)	O			
9 ~~8~~. GFAA		X		
8 ~~9~~. Holding Times (XIV)	O	O	O	
10. Other QC	O	O	O	

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: THE OVERALL DATA WAS ACCEPTABLE WITH ATTACHED QUALIFIERS.

NOTES: NO NOTES.

o Refer to the corresponding attachments for explanation of any problems.

WHC sample #'S (HEIS) on LOWER LEFT hand corner OF FORM I

ok to transmit

2/9/92

INORGANIC QC - Calibrations

Name Ted Washington Date 1-31-92

TXW 2-6-92

COMMENTS: - THE INITIAL CALIBRATION REQUIREMENTS WERE MET WITH EACH INSTRUMENT ANALYST'S (ICP, GFAA, and CV).
- THE ONLY ANALYTE OUT OF CONTROL IN THE CALIBRATION WAS CALCIUM IN THE FINAL CCV. NO WHC SAMPLE WAS AFFECTED BY THIS CCV THUS NOTHING WAS QUALIFIED.
- THE ICV WAS IN CONTROL AS WELL.

ACTION: NONE - NO ACTION WAS REQUIRED

sample #	constituent	value/qual	sample #	constituent	value/qual
N/A			N/A		

INORGANIC QC - Blanks

Name Ted WASHINGTON Date 1-31-92 TXW 2-6-92

COMMENTS: - THERE WAS ONLY ONE ANALYTE OUT OF CONTROL (ANTIMONY) IN ANY BLANK. IT WAS OUT OF CONTROL IN CCB 3 ONLY, THIS DOES AFFECT EVERY SAMPLE EXCEPT B01B71 AND B01B72. THE ANALYSIS METHOD AFFECTED WAS ICP.

- INITIAL CALIBRATION BLANKS AND PREPARATION BLANKS WERE ALL IN CONTROL.

ACTION: QUALIFIED ALL ANTIMONY ANALYTES IN SAMPLES BETWEEN CCB 2 AND CCB4 AS PER OSW GUIDELINES. THESE SAMPLES WERE ALL AFFECTED BY CCB3.

sample #	constituent	value/qual	sample #	constituent	value/qual
B01B73	ANTIMONY	~~UJ~~ acceptable JT 2/9			
B01B74					
B01B75					
B01B76					
B01B77					
B01B78					
B01B82					

INORGANIC QC - ICS

Name Ted Washington Date 1-31-92

TXW 2-6-92

COMMENTS: - The Icp Run Log showed that the minimum Interference check samples were run.
- The AB recoveries (%R) are within the control limits.
- There were no analytes present in the Icp results but not in the Ics solution

ACTION: none - no action required

sample #	constituent	value/qual	sample #	constituent	value/qual

INORGANIC QC - Matrix Spike

Name Ted Washington Date 1-31-92

2-6-92

COMMENTS: There is no way to determine if a field blank was used for the spiked sample. Several analytes were out of control (Antimony, selenium and vanadium). Cadmium was out of control but it had a %R >125 and ~~[illegible]~~ it was undetected thus it was acceptable.

There was only one matrix spike run therefore it's results affected all samples.

ICP and GFAA were affected.

ACTION: Antimony & vanadium were qualified in all samples as estimated (J, or UJ) as per USM guidelines. Selenium was found to have 0.0%R but there was not enough spike to judge the results. The conversion of selenium in the sample and spike (separately) to ug/L was a level to low to detect. All of the selenium samples were undected and left unqualific

sample #	constituent	value/qual
ALL samples	Antimony	UJ
ALL samples	Vanadium	J

sample #	constituent	value/qual
ALL samples	Selenium	U

INORGANIC QC - Duplicate Analysis

Name Ted Washington Date 1-31-92 TXW 2-6-92

COMMENTS: - There is no way to determine if a field blank was used for the duplicate sample analysis.
- Titanium was outside the control limits and also ~~and~~ was not acceptable through the provisional requirements; Al, Cr, Fe, V, Zn RPD's high
The requirements were ±35% for soils >5X CRDL, ±2X CRDL for soils <5X CRDL and no limits for soils <CRDL.

ACTION: Qualified titanium estimated (UJ or J) as per OSM guidelines.

sample #	constituent	value/qual
B01B82	Titanium	UJ
All other samples	Titanium	J

sample #	constituent	value/qual
all	Cr, Fe, V, Zn	J, UJ

INORGANIC QC - LCS

Name Ted Washington Date 1-31-92

TXW 2-6-92

COMMENTS: ALL LCS' WERE TESTED AS AQUEOUS SAMPLES AS OPPOSED TO SOLID LCS SAMPLES SINCE THEY WERE SOIL SAMPLES. THIS DOES NOT AUTOMATICALLY CREATE A NEED TO QUALIFY THE OTHER DATA, AS ALL AQUEOUS SAMPLE WERE IN ~~SPIKE~~ CONTROL.

ACTION: NONE - NO ACTIONS REQUIRED

sample #	constituent	value/qual	sample #	constituent	value/qual

INORGANIC QC - Serial Dilution

Name Ted Washington Date 1-31-92

TXW 2-6-92

COMMENTS: THE SERIAL DILUTIONS WERE ALL WITHIN THE CONTROL LIMITS OR PROVISIONAL REQUIREMENTS.

ACTION: NONE - NO ACTIONS REQUIRED.

sample #	constituent	value/qual	sample #	constituent	value/qual
N/A			N/A		

INORGANIC QC - Holding Times

Name Ted Washington Date 2-3-92

TXW 2-6-92

COMMENTS: - Samples were preserved with acid and peroxide which is within guidelines.
- Holding time requirements were met with all analytes

ACTION: none - no actions required

sample #	constituent	value/qual	sample #	constituent	value/qual
N/A			N/A		

INORGANIC QC - GFAA

Name Ted Washington Date ~~1-31-92~~ 2-3-92 TKW 2-6-92

COMMENTS: - THE GFAA duplicate injections were all within the control limits.

- There were several analytical spike recoveries that were out of control. There were four analytes ~~with~~ that need qualifying (Arsenic, Thallium, Lead and selenium).
- There were no MSA' run.

ACTION: All out of control analytes were qualified (UJ) or (J) as per OSM guidelines. When an MSA was required and not performed the analyte was automatically qualified (J) as directed by guidelines.

sample #	constituent	value/qual
B01B77	Arsenic	J
B01B71	Thallium	UJ
B01B72		
B01B73		
B01B74		
B01B76		
B01B77		
B01B78		
B01B82		
B01B71	Lead	J
B01B72		
B01B73		
B01B74		
B01B75		
B01B76		
B01B77		
B01B78		
B01B82		

sample #	constituent	value/qual
B01B73	Selenium	UJ
B01B74		
B01B76		
B01B77		
B01B78		

INORGANIC QC - other

TRW 2-6-92

Name Ted WASHINGTON Date 2-3-92

COMMENTS: THE OVERALL QC WAS QUITE ADEQUATE, WHEN IT WAS NOT IT WAS QUALIFIED AS PER OSM GUIDELINES.

ACTION: NONE - NO ACTION WAS REQUIRED

sample #	constituent	value/qual	sample #	constituent	value/qual
N/A			N/A		

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-1

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-1

Level (low/med): LOW Date Received: 11/23/91

% Solids: 92.8

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

TKD 2-6-92

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7540	J	*	P
7440-36-0	Antimony	6.0	U	UJ N	P
7440-38-2	Arsenic	2.3	B		F
7440-39-3	Barium	74.1			P
7440-41-7	Beryllium	1.2			P
7440-43-9	Cadmium	0.32	U	N	P
7440-70-2	Calcium	9880			P
7440-47-3	Chromium	9.6	J	*	P
7440-48-4	Cobalt	12.7			P
7440-50-8	Copper	16.5			P
7439-89-6	Iron	26900	J	*	P
7439-92-1	Lead	5.7		J	F
7439-95-4	Magnesium	5150			P
7439-96-5	Manganese	327			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	12.3			P
7440-09-7	Potassium	1210			P
7782-49-2	Selenium	1.3	UJ	N	F
7440-22-4	Silver	1.1			P
7440-23-5	Sodium	338	B		P
7440-28-0	Thallium	0.97	U	UJ W	F
7440-62-2	Vanadium	62.1		J N	P
7440-66-6	Zinc	53.1	J	*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

B01B71

FORM I - IN

7/88

002

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-1

Lab Name: S_CUBED_____ Contract: 32359-04__

Lab Code: S3____ Case No.: SITE_ SAS No.: _____ SDG No.: 2730__

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-1____

Level (low/med): LOW__ Date Received: 11/23/91

% Solids: _92.8

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

CAS No.	Analyte	Concentration	C	Q	M
7439-98-7	Molybdenu	1.5	U		P
7440-32-6	Titanium	1820		J *	P
7440-67-7	Zirconium	23.2		*	P

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:
B01B71

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U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-2

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-2

Level (low/med): LOW Date Received: 11/23/91

% Solids: 92.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6310	J	*	P
7440-36-0	Antimony	6.0	U	UJ N	P
7440-38-2	Arsenic	2.6	B		F
7440-39-3	Barium	78.3			P
7440-41-7	Beryllium	0.97			P
7440-43-9	Cadmium	0.32	U	N	P
7440-70-2	Calcium	7270			P
7440-47-3	Chromium	7.4	J	*	P
7440-48-4	Cobalt	10.6			P
7440-50-8	Copper	15.7			P
7439-89-6	Iron	22700	J	*	P
7439-92-1	Lead	7.5		J	F
7439-95-4	Magnesium	4500			P
7439-96-5	Manganese	282			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	10.7			P
7440-09-7	Potassium	974			P
7782-49-2	Selenium	1.3	UJ	N	F
7440-22-4	Silver	1.3			P
7440-23-5	Sodium	231	B		P
7440-28-0	Thallium	0.97	U	UJ W	F
7440-62-2	Vanadium	43.3		J N*	P
7440-66-6	Zinc	45.0	J	*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B72

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U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-2

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-2

Level (low/med): LOW Date Received: 11/23/91

% Solids: 92.7

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

CAS No.	Analyte	Concentration	C	Q	M
7439-98-7	Molybdenu	1.5	U		P
7440-32-6	Titanium	1330		J *	P
7440-67-7	Zirconium	20.8		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B72

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-3

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-3

Level (low/med): LOW Date Received: 11/23/91

% Solids: 95.9

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

TXD 2-6-92

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5850	J	*	P
7440-36-0	Antimony	5.8	~~U~~	UJ ~~N~~	P
7440-38-2	Arsenic	1.9	B		F
7440-39-3	Barium	78.8			P
7440-41-7	Beryllium	1.3			P
7440-43-9	Cadmium	0.31	U	N	P
7440-70-2	Calcium	7600			P
7440-47-3	Chromium	6.5	J	*	P
7440-48-4	Cobalt	15.2			P
7440-50-8	Copper	14.7			P
7439-89-6	Iron	30800	J	*	P
7439-92-1	Lead	5.0		J	F
7439-95-4	Magnesium	5280			P
7439-96-5	Manganese	390			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	11.5			P
7440-09-7	Potassium	821			P
7782-49-2	Selenium	1.3	~~U~~	UJ ~~WN~~	F
7440-22-4	Silver	1.6			P
7440-23-5	Sodium	284	B		P
7440-28-0	Thallium	0.94	~~U~~	UJ ~~W~~	F
7440-62-2	Vanadium	78.9		J ~~N*~~	P
7440-66-6	Zinc	61.1	J	*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

B01B73

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-3

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL Lab Sample ID: 2730-3

Level (low/med): LOW Date Received: 11/23/91

% Solids: 95.9

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

TW 2-6-92

CAS No.	Analyte	Concentration	C	Q	M
7439-98-7	Molybdenu	1.5	U		P
7440-32-6	Titanium	2430		J *	P
7440-67-7	Zirconium	24.4		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B73

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-4

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: _____ SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-4

Level (low/med): LOW Date Received: 11/23/91

% Solids: 97.1

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4190	~~J~~	*	P
7440-36-0	Antimony	5.8	~~U~~	UJ ~~N~~	P
7440-38-2	Arsenic	1.2	B		F
7440-39-3	Barium	63.1			P
7440-41-7	Beryllium	0.93			P
7440-43-9	Cadmium	0.31	U	N	P
7440-70-2	Calcium	6710			P
7440-47-3	Chromium	6.5	~~J~~	*	P
7440-48-4	Cobalt	11.2			P
7440-50-8	Copper	14.2			P
7439-89-6	Iron	22700	~~J~~	*	P
7439-92-1	Lead	3.3		J	F
7439-95-4	Magnesium	4030			P
7439-96-5	Manganese	285			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	9.6			P
7440-09-7	Potassium	633			P
7782-49-2	Selenium	1.2	~~U~~	UJ ~~WN~~	F
7440-22-4	Silver	1.0			P
7440-23-5	Sodium	202	B		P
7440-28-0	Thallium	0.93	~~U~~	UJ ~~W~~	F
7440-62-2	Vanadium	48.7		J ~~N*~~	P
7440-66-6	Zinc	48.6	~~J~~	*	P

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

B01B74

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-4

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-4

Level (low/med): LOW Date Received: 11/23/91

% Solids: 97.1

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

2-6-92

CAS No.	Analyte	Concentration	C	Q	M
7439-98-7	Molybdenu	1.4	U		P
7440-32-6	Titanium	1530		J *	P
7440-67-7	Zirconium	19.9		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

B01B74

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-5

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL Lab Sample ID: 2730-5

Level (low/med): LOW Date Received: 11/23/91

% Solids: 97.0

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

TXW 2-6-92

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6230	J	*	P
7440-36-0	Antimony	5.8	U	~~UJN~~	P
7440-38-2	Arsenic	1.6	B		F
7440-39-3	Barium	73.6			P
7440-41-7	Beryllium	1.2			P
7440-43-9	Cadmium	0.31	U	N	P
7440-70-2	Calcium	7560			P
7440-47-3	Chromium	11.1	J	*	P
7440-48-4	Cobalt	14.3			P
7440-50-8	Copper	14.2			P
7439-89-6	Iron	28800	J	*	P
7439-92-1	Lead	4.2		J	F
7439-95-4	Magnesium	4390			P
7439-96-5	Manganese	353			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	10.7			P
7440-09-7	Potassium	877			P
7782-49-2	Selenium	1.2	U	N	F
7440-22-4	Silver	1.5			P
7440-23-5	Sodium	361	B		P
7440-28-0	Thallium	0.93	U	W	F
7440-62-2	Vanadium	79.3		~~J N*~~	P
7440-66-6	Zinc	57.2	J	*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

B01B75

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-5

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-5

Level (low/med): LOW Date Received: 11/23/91

% Solids: 97.0

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

2-6-92

CAS No.	Analyte	Concentration	C	Q	M
7439-98-7	Molybdenu	1.4	U		P
7440-32-6	Titanium	2360		J*	P
7440-67-7	Zirconium	25.1		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B75

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-6

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-6

Level (low/med): LOW Date Received: 11/23/91

% Solids: 91.5

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6480	J	*	P
7440-36-0	Antimony	6.1	~~U~~	UJ ~~N~~	P
7440-38-2	Arsenic	3.2	B		F
7440-39-3	Barium	81.4			P
7440-41-7	Beryllium	0.87			P
7440-43-9	Cadmium	0.33	U	N	P
7440-70-2	Calcium	8340			P
7440-47-3	Chromium	12.1	J	*	P
7440-48-4	Cobalt	10.5			P
7440-50-8	Copper	16.5			P
7439-89-6	Iron	20100	J	*	P
7439-92-1	Lead	6.6		J	F
7439-95-4	Magnesium	4780			P
7439-96-5	Manganese	318			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	13.9			P
7440-09-7	Potassium	1030			P
7782-49-2	Selenium	1.3	~~U~~	UJ ~~WN~~	F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	193	B		P
7440-28-0	Thallium	0.98	~~U~~	UJ ~~W~~	F
7440-62-2	Vanadium	34.2		J ~~N*~~	P
7440-66-6	Zinc	45.1	J	*	P

TXW 2-6-92

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B76

FORM I - IN

7/88

U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-6

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-6

Level (low/med): LOW Date Received: 11/23/91

% Solids: 91.5

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

CAS No.	Analyte	Concentration	C	Q	M
7439-98-7	Molybdenu	1.5	U		P
7440-32-6	Titanium	1060		J	P
7440-67-7	Zirconium	17.3		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

B01B76

FORM I - IN

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-7

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: _____ SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-7

Level (low/med): LOW Date Received: 11/23/91

% Solids: 91.6

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

TXD 2-6-92

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9720	J	*	P
7440-36-0	Antimony	6.1	~~U~~	~~UJ N~~	P
7440-38-2	Arsenic	5.9		J	F
7440-39-3	Barium	102			P
7440-41-7	Beryllium	1.2			P
7440-43-9	Cadmium	0.33	U	N	P
7440-70-2	Calcium	6520			P
7440-47-3	Chromium	12.2	J	*	P
7440-48-4	Cobalt	12.6			P
7440-50-8	Copper	21.1			P
7439-89-6	Iron	23800	J	*	P
7439-92-1	Lead	11.5		J	F
7439-95-4	Magnesium	6510			P
7439-96-5	Manganese	459			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	17.6			P
7440-09-7	Potassium	1760			P
7782-49-2	Selenium	1.3	~~U~~	~~UJ WN~~	F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	165	B		P
7440-28-0	Thallium	0.98	~~U~~	~~UJ W~~	F
7440-62-2	Vanadium	42.4		J N*	P
7440-66-6	Zinc	57.1	J	*	P

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

B01B77

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7/88

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-7

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL Lab Sample ID: 2730-7

Level (low/med): LOW Date Received: 11/23/91

% Solids: 91.6

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

TRW 2-6-92

CAS No.	Analyte	Concentration	C	Q	M
7439-98-7	Molybdenu	1.5	U		P
7440-32-6	Titanium	1200		J *	P
7440-67-7	Zirconium	20.6		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B77

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U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-8

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL Lab Sample ID: 2730-8

Level (low/med): LOW Date Received: 11/23/91

% Solids: 95.8

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

TRW 2-6-92

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6670	J	*	P
7440-36-0	Antimony	5.8	~~U~~	UJ ~~N~~	P
7440-38-2	Arsenic	3.1	B		F
7440-39-3	Barium	80.3			P
7440-41-7	Beryllium	1.0			P
7440-43-9	Cadmium	0.31	U	N	P
7440-70-2	Calcium	7480			P
7440-47-3	Chromium	8.7	J	*	P
7440-48-4	Cobalt	11.1			P
7440-50-8	Copper	14.7			P
7439-89-6	Iron	23000	J	*	P
7439-92-1	Lead	5.8		J	F
7439-95-4	Magnesium	4690			P
7439-96-5	Manganese	330			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	11.2			P
7440-09-7	Potassium	1030			P
7782-49-2	Selenium	1.3	~~U~~	UJ ~~WN~~	F
7440-22-4	Silver	1.4			P
7440-23-5	Sodium	183	B		P
7440-28-0	Thallium	0.94	~~U~~	UJ ~~W~~	F
7440-62-2	Vanadium	50.2		J ~~N*~~	P
7440-66-6	Zinc	49.2	J	*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

B01B78

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U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-8

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-8

Level (low/med): LOW Date Received: 11/23/91

% Solids: 95.8

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

CAS No.	Analyte	Concentration	C	Q	M
7439-98-7	Molybdenu	1.5	U		P
7440-32-6	Titanium	1570		J *	P
7440-67-7	Zirconium	19.0		*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B78

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U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-9

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL Lab Sample ID: 2730-9

Level (low/med): LOW Date Received: 11/23/91

% Solids: 100.0

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

CW 2-6-92

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7.2	UJ	*	P
7440-36-0	Antimony	5.6	~~U~~	UJ ~~N~~	P
7440-38-2	Arsenic	0.60	U		F
7440-39-3	Barium	4.1	U		P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	0.30	U	N	P
7440-70-2	Calcium	107	U		P
7440-47-3	Chromium	0.90	~~B~~ J	*	P
7440-48-4	Cobalt	1.6	U		P
7440-50-8	Copper	1.8	U		P
7439-89-6	Iron	10.9	J	*	P
7439-92-1	Lead	0.66	~~B~~ J	~~W~~	F
7439-95-4	Magnesium	249	U		P
7439-96-5	Manganese	0.60	U		P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	3.2	U		P
7440-09-7	Potassium	130	U		P
7782-49-2	Selenium	1.2	U	N	F
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	98.7	U		P
7440-28-0	Thallium	0.90	~~U~~	UJ ~~W~~	F
7440-62-2	Vanadium	2.0	U	J ~~N*~~	P
7440-66-6	Zinc	5.0	UJ	*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

B01B82

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7/88

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

2730-9

Lab Name: S_CUBED Contract: 32359-04

Lab Code: S3 Case No.: SITE_ SAS No.: SDG No.: 2730

Matrix (soil/water): SOIL_ Lab Sample ID: 2730-9

Level (low/med): LOW Date Received: 11/23/91

% Solids: 100.0

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

THW 2-6-92

CAS No.	Analyte	Concentration	C	Q	M
7439-98-7	Molybdenu	1.4	U		P
7440-32-6	Titanium	1.0	~~U~~	UJ*	P
7440-67-7	Zirconium	10.0	U	*	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B01B82

FORM I - IN

7/88

SAMPLE SUMMARY

S-Cubed Reference No. 32359-04, SDG No. 2730, Project Name: Site Wide Soil

Sample ID	S-Cubed Sample N	Date Receive	Sample Type	Analysis									
				A	B	C	D	E	F	G	H	I	J
BO1B71	2730-1	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B72	2730-2	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B73	2730-3	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B74	2730-4	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B75	2730-5	11/23/91	Soil	3	3	3	3	3	3	3	3	3	3
BO1B76	2730-6	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B77	2730-7	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B78	2730-8	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B82	2730-9	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1

Analysis Key:

A=Ti
B=Zr
C=ICPCLP-M
D=FURNCLP
E=HGCLP
F=ANIONS
G=N-NH3
H=ALK
I=Si
J=Mo

OSM RCRA DATA ASSESSMENT

DATE 2/4/92 SAMPLES/MATRIX all soil B01B71 B01B73 B01B74 B01B75 B01B76 B01B77 B01B78 B01B82

REVIEWED BY Mark A. Beck

LABORATORY Maxwell-S-Cubed

CASE # Site Wide Soil

SDG # 2730

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	Silica by 370.1 Alkalinity by 310.1	Ammonia by 350.3	Anions by 300.0
1.	Holding Times	X	O	M
2.	Matrix Spike	O	O	O
3.	Duplicates	O	O	O
4.	Blanks	O	O	O
5.	Calibration/LCS	O	O	O
6.	Other	O	O	O
7.				
8.				
9.				
10.				

O = data had no problems
X = minor problems, data may be qualified
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: The data are acceptable with the attached qualifications.

NOTES: Anions includes: fluoride, chloride, nitrite, nitrate phosphate (as ortho-phosphate) and sulfate.

o Refer to the corresponding attachments for explanation of any problems.

Relationship between WHC and S-Cubed sample numbers can be found on attached "summary sheet".

RCRA QC

Name Mark A. Beck Date 2/4/92 MAB

QC Check: Holding Times

COMMENTS: Holding times were met for silica (28 days for SW-846), ammonia, fluoride, chloride and sulfate. Holding time requirement were not met for alkalinity, nitrite, nitrate or orthophosphate. Nitrite is most severely affected by not ~~meet~~ meeting holding time requirements, in the opinion of this review

ACTION: Qualify all alkalinity, nitrite, nitrate and orthophosphate results as estimated (uJ or J).

sample #	constituent	value/qual
all	nitrite NO_2^-	uJ
all except B01B82	nitrate	J
		uJ
B01B71 B01B72 B01B76 B01B77	ortho-phosphate HPO_4^{-2}	J

sample #	constituent	value/qual
B01B73 B01B74 ~~B01B75~~ B01B75 B01B78 B01B82	orthophosphate HPO_4^{-2}	uJ
all	alkalinity	J
except B01B82		uJ

___ of ___

RCRA QC

Name Mark A. Beck Date 2/4/92 mab.

QC Check: Matrix Spikes

COMMENTS: Matrix spikes for silica, alkalinity ammonia and all anions were within control limits.

ACTION: none - none required

sample #	constituent	value/qual	sample #	constituent	value/qual

___ of ___

RCRA QC

Name Mark A. Beck Date 2/4/92 MAB.

QC Check: Duplicates

COMMENTS: Duplicate analyses were performed appropriately, and all analysis types had duplicate analyses that met acceptance criteria.

ACTION: none - none needed

sample #	constituent	value/qual	sample #	constituent	value/qual

___ of ___

RCRA QC

Name Mark A. Beck Date 2/4/92 MAB.

QC Check: Blanks

COMMENTS: All analytes, and analysis types ~~for~~ had blanks that were free from contamination above the IDL. All blanks were clean.

ACTION: none - none required

sample #	constituent	value/qual	sample #	constituent	value/qual

____ of ____

RCRA QC

Name Mark A. Beck Date 2/4/92 m.d.y.

QC Check: Calibrations/LCS

COMMENTS: all setup calibrations were run appropriately. all ICV, CCV, and LCS had acceptable recoveries.

ACTION: none - none required

sample #	constituent	value/qual	sample #	constituent	value/qual

___ of ___

RCRA QC

Name Mark A. Beck Date 2/4/92 [illegible]

QC Check: Other

COMMENTS: none —

ACTION: none - none needed.

sample #	constituent	value/qual	sample #	constituent	value/qual

___ of ___

MAXWELL
S-CUBED Division

SORRENTO VALLEY OFFICE
3398 Carmel Mountain Road., San Diego, CA 92121-109
P.O. Box 1620, La Jolla, CA 92038-162

NARRATIVE

DATE: January 9, 1992
REFERENCE NO.: 32359-04, SDG 2730

SILICA

The samples were analyzed according to Method 370.1. An aliquot of each sample was leached into Type II water, resulting in a 5:1 dilution. The samples were very turbid, so the absorbance readings were high. There were significant levels of silica detected in samples 2730-1 through 2730-8.

The quality control results were acceptable.

ALKALINITY

The samples were analyzed according to Method 310.1. There were no difficulties with the analysis. An aliquot of each sample was leached into Type II water, resulting in a 5:1 dilution. There were significant levels of alkalinity detected in the samples.

The quality control results were acceptable.

AMMONIA

The samples were analyzed according to Method 350.3. An aliquot of each sample was leached into Type II water, resulting in a 5:1 dilution. There were no difficulties with the analysis. There was no ammonia detected in the samples.

The quality control results were acceptable.

ANIONS

The samples were analyzed according to Method 300.0. An aliquot of each sample was leached into Type II water, resulting in a 5:1 dilution. There were no difficulties with the analysis. There were moderate levels of F, Cl, NO_3, o-PO_4, and SO_4 detected in the samples.

The quality control results were acceptable. SF

Telephone (619) 453-0060 - FAX (619) 755-0474 - Division Office

SILICA ANALYSIS

LAB:	S-CUBED	DATA REVIEWER:	CN 12/23/91
CLIENT:	WHC	PROJECT REVIEWER:	
CASE:	SITE WIDE SOIL	CHARGE NO:	32359-04
LOT #:	2730	DATE RECEIVED:	11/23/91
FILE#:	SI1123	DATE PREP:	12/17/91
DISK#:	SI1023	DATE ANALYZED:	12/17/91
METHOD:	370.1	MATRIX:	SOIL

RESULTS: UNIT AS MG/L, PPM

LAB ID	CONCENTRATION
2730 -1	454
2730 -2	583
2730 -3	211
2730 -4	69.8
2730 -5	74.5
2730 -6	112
2730 -7	66.3
2730 -8	69.5
2730 -9	< 5 **

COMMENTS:

Since the samples are very turbid, absorbance readings are high.

** Extra lab blank is calculated from:

$$\frac{\text{Methood Detection Limit (mg/L)} \times 0.045 \text{ L (Leaching Volume)}}{0.009 \text{ kg (Sample Weight)}}$$

2/4/92
MAB

ALKALINITY ANALYSIS

LAB:	S-CUBED	DATA REVIEWER:	aN 12/23/91
CLIENT:	WHC	PROJECT REVIEWER:	
CASE:	SITE WIDE SOIL	CHARGE #:	32359-04
LOT #:	2730	DATE RECIEVED:	11/23/91
FILE #:	ALK1123	DATE PREP:	12/03/91
DISK #:	ALK1016	DATE ANALYZED:	12/03/91
METHOD NO.:	EPA 310.1	MATRIX:	SOIL

RESULTS: RESULTS AS DRY WEIGHT - MG/KG

LAB ID	CONCENTRATION
2730 -1	1200 J
2730 -2	1720
2730 -3	204
2730 -4	98.8
2730 -5	573
2730 -6	1310
2730 -7	1550
2730 -8	1970 J
2730 -9	< 5 ** aJ

COMMENTS: ** Extra lab blank is calculated from:

$$\frac{\text{Method Dection Limit (mg/L) X 0.025 L (Leaching Volume)}}{\text{0.005 kg (Sample Weight)}}$$

2/4/92
mab

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ANIONS ANALYSIS

LABORATORY:	S-CUBED	DATA REVIEWER:	AN 12/23/91
CLIENT:	WHC	PROJECT REVIEWER:	
CASE:	SITE WIDE SOIL	CHARGE #:	32359-04
LOT #:	2730	DATE RECEIVED:	11/23/91
FILE#:	ANI1123	DATE PREP:	12-13/16/18-91
DISK:	ANI1110	DATE ANALYZED:	12-13/16/18-91
METHOD NO.	300.0	MATRIX:	SOIL

RESULTS: UNIT AS MG/KG DRY WEIGHT

LAB ID	F	CL	NO2	NO3	O-PO4	SO4
2730 -1	3.46	8.22	< 0.2 UJ	53.1 J	0.94 J	5.58
2730 -2	1.76	7.05	< 0.2	48.8	1.03 J	7.25
2730 -3	3.04	4.89	< 0.2	8.00	< 0.5 UJ	1.12
2730 -4	0.34	4.86	< 0.2	10.5	< 0.5 UJ	1.95
2730 -5	0.66	2.80	< 0.2	3.22	< 0.5 UJ	0.97
2730 -6	1.15	3.16	< 0.2	3.05	0.97 J	2.12
2730 -7	1.03	3.49	< 0.2	2.00	1.05 J	2.10
2730 -8	1.33	2.63	< 0.2	1.94 J	< 0.5 UJ	1.91
** 2730 -9	< 0.1	< 0.1	< 0.2 UJ	< 0.5 UJ	< 0.5 UJ	< 0.5

COMMENTS:

** Extra lab blank is calculated from:

$$\frac{\text{Method Detection Limit (mg/L)} \times 0.045\ \text{L (Leaching Volume)}}{0.009\ \text{kg (Sample Weight)}}$$

2/4/92 17
MAB

AMMONIA ANALYSIS

LABORATORY:	S-CUBED	DATA REVIEWER:	an 12/23/91
CLIENT:	WHC	PROJECT REVIEWER:	
CASE:	SITE WIDE SOIL	CHARGE #:	32359-04
LOT #:	2730	DATE RECEIVED:	11/23/91
FILE#:	NH31123	DATE PREP:	11/17/91
DISK:	NH31024	DATE ANALYZED:	11/17/91
METHOD NO.	350.3	MATRIX:	SOIL

RESULTS: UNIT AS MG/KG DRY WEIGHT

LAB ID	CONCENTRATION
2730 -1	< 0.15
2730 -2	< 0.15
2730 -3	< 0.15
2730 -4	< 0.15
2730 -5	< 0.15
2730 -6	< 0.15
2730 -7	< 0.15
2730 -8	< 0.15
2730 -9	< 0.15

COMMENTS:

** Extra lab blank is calculated from:

$$\frac{\text{Method Detection Limit (mg/L) X 0.050 L (Leaching Volume)}}{\text{0.01 kg (Sample Weight)}}$$

2/4/92
mat

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SAMPLE SUMMARY

S-Cubed Reference No. 32359-04, SDG No. 2730, Project Name: Site Wide Soil

Sample ID	S-Cubed Sample N	Date Receive	Sample Type	Analysis									
				A	B	C	D	E	F	G	H	I	J
BO1B71	2730-1	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B72	2730-2	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B73	2730-3	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B74	2730-4	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B75	2730-5	11/23/91	Soil	3	3	3	3	3	3	3	3	3	3
BO1B76	2730-6	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B77	2730-7	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B78	2730-8	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1
BO1B82	2730-9	11/23/91	Soil	1	1	1	1	1	1	1	1	1	1

Analysis Key:

A=Ti
B=Zr
C=ICPCLP-M
D=FURNCLP
E=HGCLP
F=ANIONS
G=N-NH3
H=ALK
I=Si
J=Mo