START 9613445.2552

0044327

3260-Scr-062

MAXWELL
S-CUBED Division

NARRATIVE

October 7, 1992

Narrative Project:	Site Wide Soil IV
Reference No.:	32359-42
Client:	WHC
SDG No.:	3260

METALS

The samples were analyzed according to EPA Method 6010 and the 7000 series for the TCL metals list and Mo. No dilutions were required for analysis.

The quality control results were generally acceptable. Several MS recoveries and duplicate RPDs were outside established windows and are flagged. The soil LCS recoveries are within advisory ranges.

ANIONS

The samples were analyzed according to EPA Method 300.0. For soil, 10 gm of sample was leached into 50 mL of DI Type II water prior to analysis. The quality control results were generally acceptable. MS recovery for Cl was outside the control limits, this is possibly due to matrix interferences.

NO_2/NO_3

The samples were analyzed according to EPA Method 300.0 for NO_2/NO_3. Please see above anion narrative for additional notes.

FEB 1996 RECEIVED EDMC

SULFIDE

The samples were analyzed according to EPA Method 9030 for sulfide. For soil, 10 gm of sample was leached into 50 mL of DI Type II water prior to analysis. The quality control results were acceptable.

III

MAXWELL
S-CUBED Division

NARRATIVE

TOTAL ALKALINITY

The samples were analyzed according to EPA Method 310.1 for total alkalinity. There were no difficulties with the analyses. The quality control results were acceptable. %RPD and MS recovery were within the control limits.

TOTAL ORGANIC CARBON

The samples were analyzed according to EPA Method 9060 by combustion and then IR analysis. Prior to analysis, a sample aliquot was measured and phosphoric acid was added to the soil. The mixture was placed in an oven at 70 C for one hour, then removed, cooled, and ground to a fine powder texture. The sample then went through the combustion and IR analysis process. The quality control results were acceptable. %RPD was within the control limits.

TOTAL CARBON

The samples were analyzed according to EPA Method 9060 by combustion and then IR analysis. Prior to analysis, a sample aliquot was ground to a fine powder texture. The sample then went through the combustion and IR analysis process. The quality control results were acceptable. %RPD recovery was within the control limits.

John DeWald
Project Manager

enclosures

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9613445.2554

SDG Memo/Sample Summary

Client Name:	WESTINGHOUSE HANFORD CO.	**Date:**	25 Sep 1992
Project Name:	SITE WIDE IV	**Update No.:**	
SDG No.:	3260	**Work Order No.:**	32359-42
Project Manager:	J. DEWALD		
Mail Date:			

Client Samp No.	S-Cubed Samp No.	Date Rcvd	Date Samp	Matrix	ANIONS	FURN7000	HG7000	ICP6010	NO2/NO3	S	TALK	TC	TOC
B06JCZ	3260-01	8-28-1992	8-25-1992	SOIL	X	X	X	X	X	X	X	X	X
B06JCZMS	3260-01MS	8-28-1992	8-25-1992	SOIL	X	X	X	X	X	X	X	X	X
B06JCZREP	3260-01REP	8-28-1992	8-25-1992	SOIL	X	X	X	X	X	X	X	X	X

(X) = Non-Billable Sample

SC-10, Rev 8/92

II

9613445.2555

32259-V2 S3 Lot #3260

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator Bruce Bjornstad

Company Contact U.G. Lucas Telephone 376-2789

Project Designation/Sampling Locations Yakima Barricade Borehole 699-48-96 @ 569 Ft BLS Collection Date 8/25/92 0900

Ice Chest No. RM #33 Field Logbook No. EFL-1023

Bill of Lading/Airbill No. 2509870154 Offsite Property No. W92-0-0577 #33

Method of Shipment Emery

Shipped to S-Cubed San Diego, CA

Possible Sample Hazards/Remarks Cool 4°C

Sample Identification

B06JC2 - (1) 250 ml amber glass sample container

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
Bruce Bjornstad [signature]	C.D. Kramer [signature]	8/25/92 [illegible]
C D Kramer	Jonathan G. Lucas [signature]	8-25-92 1226
Jonathan G. Lucas [signature]	8/25/92 [signature] 11:00	

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

V

9613445.2556

32359-62

S³ Lot # 300

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector Bruce Bjornstad Date Sampled 8-25-92 Time 0900 hours

Company Contact J.G. Lucas Telephone (509) 376-2789

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B06JCZ	(1) 250 ml amber glass	Soil	ICP/AA metals (including Hg) - 6010, 7000 series, 7471
			Anions (SO_4, PO_4, Cl, NO_2, NO_3) - EPA 300.0 & 353.2
			Alkalinity - EPA 310.1
			Total Carbon - 9060 m
			Sulfide - 9030
			TOC - 9060

Field Information** —

Special Handling and/or Storage Cool 4°C

Possible Sample Hazards —

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.

VI

A-6000-406 (05/90)

MAXWELL
S-CUBED Division

Lot No. 3260

Sample Log-In Sheet
Revision No.: 0

Date Received: 8-28-1992 Date Sampled: 8-25-1992 Client Code: WHC DC No._____-__-___

Time Received: 11:00 Data Due Date: 9-17-1992 Report Mail Date: 9-25-1992

Received by (Sig): [signature] Custody Seals Present/Intact (Y) N Reporting Level: FULL CLP

Airbill No. 2509570154 Chain of Custody Present/Intact (Y) N Turnaround Required: 30 DAY

Charge No. 32359-42 Client Forms Present (Y) N Quality Control Reqd'd: Level 3 (RCRA)

Case No./Project Code: SITE WIDE IV SDG No.: 3260

S-Cubed Sample No.	Sample Identification	Samp. Type	No. Cont.	Samp Stor.	Samp Cond	%M	ANIONS	FURN7000	HG7000	ICP6010	NO2/NO3	S	SPH	TALK	TC	TOC	All Info Agree	Notes
3260-01	B06JCZ	SOIL	1	16	ok	X	X	X	X	X	X	X	X	X	X	X		
3260-01MS	B06JCZMS	SOIL	1	16	↓	X	X	X	X	X	X	X	X	X	X	X		
3260-01REP	B06JCZREP	SOIL	1	16	↓	X	X	X	X	X	X	X	X	X	X	X		

Container Types

Water _____

Soil _____

Soil = Soil/Sediment/Sludge
Water = Aqueous
NAL = Non-Aqueous Liquid
NSS = Non-Soil Solid

Water MS,MSD_____
Soil MS,MSD_____
SDG Complete (Y) N

Review JD 8/31

9613445.2557

9613446.2558

S - CUBED

Trace Inorganics Report

Client: WHC
Project: SITE WIDE IV
Sampling Date: 08-25-02

Analyst: CB
Review : CLN 9/10
Receipt. Date: 08-28-92

Analyte: S

S - CUBED Sample No.	MT	UN	Client Sample ID	Concentration	MDL
3260-01	S	A	B06JCZ	< MDL	6.65

Method Detection Limit: 1.000 mg/L
Preparation Method: 9030
Analytical Method: 9030
Preparation Date: 09-01-92
Analysis Date: 09-01-02

UN = Units = (A=mg/kg B=ug/L C=mg/L) MT = Matrix = (S=Soil W=Water

Comments: All QC data were acceptable. 10 gm of soil was leached into 50 mL DI type water prior to analysis

S - CUBED

Trace Inorganics

Laboratory Control Sample Summary

Client: WHC
Project: SITE WIDE IV

Units: mg/L Analyte: S

LCS ID	Control Limit	True Value	Value Found	% Recovery
LCS0901	80%-120%	40.00	41.0	102.5

Comments:

S - CUBED

Trace Inorganics

Laboratory Control Sample Summary

Client: WHC
Project: SITE WIDE IV

Units: mg/L Analyte: TALK

LCS ID	Control Limit	True Value	Value Found	% Recovery
LCS0904	80%-120%	40.00	40.0	100.0

Comments:

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3260-01

Lab Name: S_CUBED Contract: 32359-42

Lab Code: S3 Case No.: SWIV SAS No.: SDG No.: 3260

Matrix (soil/water): SOIL Lab Sample ID: 3260-01

Level (low/med): LOW Date Received: 08/28/92

% Solids: 75.2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16100		*	P
7440-36-0	Antimony	12.8	U	N	P
7440-38-2	Arsenic	3.7		N*	F
7440-39-3	Barium	147			P
7440-41-7	Beryllium	1.3			P
7440-43-9	Cadmium	0.80	U		P
7440-70-2	Calcium	8110			P
7440-47-3	Chromium	29.3		N	P
7440-48-4	Cobalt	12.0	B		P
7440-50-8	Copper	23.7			P
7439-89-6	Iron	68100			P
7439-92-1	Lead	11.8			F
7439-95-4	Magnesium	9970			P
7439-96-5	Manganese	487		N*	P
7439-97-6	Mercury	0.13	U	N	CV
7440-02-0	Nickel	26.1			P
7440-09-7	Potassium	2320			P
7782-49-2	Selenium	0.80	U	N	F
7440-22-4	Silver	4.0		N	P
7440-23-5	Sodium	159	B		P
7439-98-7	Molybdenu	2.7	U	N	P
7440-62-2	Vanadium	100		N*	P
7440-66-6	Zinc	77.1			P
7440-28-0	Thallium	0.80	U	N	F

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B06JCZ

FORM I - IN

7/88

ANIONS ANALYSIS

LABORATORY:	S-CUBED	DATA REVIEWER:	aN 7/29
CLIENT:	WHC	PROJECT REVIEWER:	
PROJECT:	SITE WIDE IV	CHARGE #:	32359-42
LOT #:	3260	DATE SAMPLED:	8-25-92
FILE #:	ANI3260S	DATE RECEIVED:	8-28-92
DISK #:	ANI0928	PREP DATE:	09-17-92
METHOD NO.:	300.0	DATE ANALYZED:	09-17-92
UNIT:	MG/KG	SAMPLE TYPE:	SOIL

LAB ID	F	BR	CL	NO2	NO3	PO4	SO4
3260-01	2.40	40.0	8.60	<.27	2.70	<.67	7.00

All QC requirement were within the control limit. 10 gm of soil sample was leached into 50 mL DI type water prior to analysis MS recovery for Cl was outside the limit range possibly due to matrix interferences.

ANIONS ANALYSIS BENCHSHEET

LABORATORY: S-CUBED
ANALYST: EA
CHARGE #: 32359-42

LOT #: 3260
FILE #: ANI3260S
DISK #: ANI0928

UNIT: MG/KG

SAMPLE TYPE: SOIL

FLUORIDE RESULTS

METHOD DET. LIMIT: 0.02 SPIKE: 0.5 PPM

LAB ID	% MOISTURE	SAMPLE ALIQUOT (GM)	SAMPLE VOL (ML)	DIL. FACTOR	CONC. FOUND MG/L	FINAL CONC. MG/KG	ANALYSIS DATE	PREP DATE	METHOD DET. MG/KG	%REC.	RPD
3260-01	24.83	10	50	1	0.36	2.39	09/17/92	09/17/92	0.13		
3260-01S	24.83	10	50	1	0.75	4.98	09/17/92	09/17/92	0.13	77.6	
3260-01R	24.83	10	50	1	0.38	2.52	09/17/92	09/17/92	0.13		5.14

CHLORIDE RESULTS

METHOD DET. LIMIT: 0.02 SPIKE: 0.5 PPM

LAB ID	% MOISTURE	SAMPLE ALIQUOT (GM)	SAMPLE VOL (ML)	DIL. FACTOR	CONC. FOUND MG/L	FINAL CONC. MG/KG	ANALYSIS DATE	PREP DATE	METHOD DET. MG/KG	%REC.	RPD
3260-01	24.83	10	50	1	1.29	8.58	09/17/92	09/17/92	0.13		
3260-01S	24.83	10	50	1	1.40	9.31	09/17/92	09/17/92	0.13	22.0	
3260-01R	24.83	10	50	1	1.26	8.38	09/17/92	09/17/92	0.13		2.35

ANIONS ANALYSIS BENCHSHEET

LABORATORY: S-CUBED
ANALYST: EA
CHARGE #: 32359-42

LOT #: 3260
FILE #: ANI3260S
DISK #: ANI0928

UNIT: MG/KG

SAMPLE TYPE: SOIL

NITRITE RESULTS

METHOD DET. LIMIT: 0.04 SPIKE: 1 PPM

LAB ID	% MOISTURE	SAMPLE ALIQUOT (GM)	SAMPLE VOL (ML)	DIL. FACTOR	CONC. FOUND MG/L	FINAL CONC. MG/KG	ANALYSIS DATE	PREP DATE	METHOD DET. MG/KG	%REC.	RPD
3260-01	24.83	10	50	1	<.04	<.27	09/17/92	09/17/92	0.27		
3260-01S	24.83	10	50	1	0.9	6.3	09/17/92	09/17/92	0.27	94.1	
3260-01R	24.83	10	50	1	<.04	<.27	09/17/92	09/17/92	0.27		0.00

BROMIDE RESULTS

METHOD DET. LIMIT: 0.1 SPIKE: 1 PPM

LAB ID	% MOISTURE	SAMPLE ALIQUOT (GM)	SAMPLE VOL (ML)	DIL. FACTOR	CONC. FOUND MG/L	FINAL CONC. MG/KG	ANALYSIS DATE	PREP DATE	METHOD DET. MG/KG	%REC.	RPD
3260-01	24.83	10	50	1	5.98	39.8	09/17/92	09/17/92	0.67		
3260-01S	24.83	10	50	1	7.06	47.0	09/17/92	09/17/92	0.67	108.0	
3260-01R	24.83	10	50	1	5.91	39.3	09/17/92	09/17/92	0.67		1.18

ANIONS ANALYSIS BENCHSHEET

LABORATORY: S-CUBED
ANALYST: KA
CHARGE #: 32359-42

LOT #: 3260
FILE #: ANI3260S
DISK #: ANI0928

UNIT: MG/KG

SAMPLE TYPE: SOIL

NITRATE RESULTS

METHOD DET. LIMIT: 0.1 SPIKE: 2 PPM

LAB ID	% MOISTURE	SAMPLE ALIQUOT (GM)	SAMPLE VOL (ML)	DIL. FACTOR	CONC. FOUND MG/L	FINAL CONC. MG/KG	ANALYSIS DATE	PREP DATE	METHOD DET. MG/KG	%REC.	RPD
3260-01	24.83	10	50	1	0.40	2.67	09/17/92	09/17/92	0.67		
3260-01S	24.83	10	50	1	2.6	17.2	09/17/92	09/17/92	0.67	109.5	
3260-01R	24.83	10	50	1	0.41	2.70	09/17/92	09/17/92	0.67		1.24

ORTHO-PHOSPHATE RESULTS

METHOD DET. LIMIT: 0.1 SPIKE: 5 PPM

LAB ID	% MOISTURE	SAMPLE ALIQUOT (GM)	SAMPLE VOL (ML)	DIL. FACTOR	CONC. FOUND MG/L	FINAL CONC. MG/KG	ANALYSIS DATE	PREP DATE	METHOD DET. MG/KG	%REC.	RPD
3260-01	24.83	10	50	1	<0.10	<.67	09/17/92	09/17/92	0.67		
3260-01S	24.83	10	50	1	4.7	32	09/17/92	09/17/92	0.67	94.8	
3260-01R	24.83	10	50	1	<0.10	<.67	09/17/92	09/17/92	0.67		0.00

ANIONS ANALYSIS BENCHSHEET

LABORATORY: S-CUBED
ANALYST: KA
CHARGE #: 32359-42

LOT #: 3260
FILE #: ANI3260S
DISK #: ANI0928

UNIT: MG/KG

SAMPLE TYPE: SOIL

SULFATE RESULTS

METHOD DET. LIMIT: 0.1 SPIKE: 2 PPM

LAB ID	% MOISTURE	SAMPLE ALIQUOT (GM)	SAMPLE VOL (ML)	DIL. FACTOR	CONC. FOUND MG/L	FINAL CONC. MG/KG	ANALYSIS DATE	PREP DATE	METHOD DET. MG/KG	%REC.	RPD
3260-01	24.83	10	50	1	1.05	6.98	09/17/92	09/17/92	0.67		
3260-01S	24.83	10	50	1	3.16	21.0	09/17/92	09/17/92	0.67	105.5	
3260-01R	24.83	10	50	1	1.06	7.05	09/17/92	09/17/92	0.67		0.95

MAXWELL
S-CUBED

					QC SUMMARY			
ANALYTE:	TC	CALIBRATION			CONC	OBSERVED	%REC.	ACCEPT.
METHOD REF.:	9060	STD 2000ppm	1979	M S	200	203.9	102	80-120
DATE:	9/9/92	STD 400ppm	402.4	L C S	2000	1981	99.1	80-120
ANALYST:	MM	STD 10ppm	10.05					
MATRIX:	Soil	CAL BLANK	0.115					

TOC CONC.=(TOC READING/2000)*(0.08mg/0.00001kg)*DIL.FACTOR
FINAL CONC.=TOC CONC./1-(%MOIST.*0.01)

SAMPLE ID. (S3)	TC READING	DIL. FACTOR	TOC CONC. (mg/kg)	%MOIS	FINAL CONC (mg/kg)	CLIENT SAMP.ID
EBS0909	3.4	1	3.4	0	0	
LCSS0909	1981	1	1981	0	1980	
3244-01	340.2	1	1360.8	4.23	1420	BO6JC1
3244-01REP	334.2	1	1336.8	4.23	1400	BO6JC1
3260-01	172.9	1	691.6	24.83	920	BO6JCZ
3260-01REP	166.3	1	665.2	24.83	880	BO6JCZ

MAXWELL
S-CUBED

					QC SUMMARY			
ANALYTE:	TOC	CALIBRATION			CONC	OBSERVED	%REC.	ACCEPT.
METHOD REF.:	9060	STD 2000ppm	1979	M S	200	203.9	102	80-120
DATE:	9/9/92	STD 400ppm	402.4	L C S	2000	1981	99.1	80-120
ANALYST:	MM	STD 10ppm	10.05					
MATRIX:	Soil	CAL BLANK	0.115					

TOC CONC.=(TOC READING/2000)*(0.08mg/0.00001kg)*DIL.FACTOR
FINAL CONC.=TOC CONC./1-(%MOIST.*0.01)

SAMPLE ID. (S3)	TOC READING	DIL. FACTOR	TOC CONC. (mg/kg)	%MOIS	FINAL CONC (mg/kg)	CLIENT SAMP.ID
EBS0909	3.4	1	3.4	0	3.4	
LCSS0909	1981	1	1981	0	1980	
3244-01	255.2	1	1021	4.23	1070	BO6JC1
3244-01REP	249.5	1	998	4.23	1040	BO6JC1
3260-1	54.6	1	218	24.83	290	BO6JCZ
3260-01REP	51.5	1	206	24.83	270	BO6JCZ

9613445.2569

S - CUBED

Trace Inorganics Report

Client: WHC
Project: SITE WIDE IV
Sampling Date: 08-25-02

Analyst: CB
Review : CLN 9/10
Receipt. Date: 08-28-92

Analyte: S

S - CUBED Sample No.	MT	UN	Client Sample ID	Concentration	MDL
3260-01	S	A	B06JCZ	< MDL	6.65

Method Detection Limit: 1.000 mg/L
Preparation Method: 9030
Analytical Method: 9030
Preparation Date: 09-01-92
Analysis Date: 09-01-02

UN = Units = (A=mg/kg B=ug/L C=mg/L) MT = Matrix = (S=Soil W=Water

Comments: All QC data were acceptable. 10 gm of soil was leached into 50 mL DI type water prior to analysis

9613445.2570

S - CUBED

Trace Inorganics Report

Client: WHC
Project: SITE WIDE IV
Sampling Date: 08-25-92

Analyst: EA
Review : cn 9/10
Receipt. Date: 08-28-92

Analyte: TALK

S - CUBED Sample No.	MT	UN	Client Sample ID	Concentration	MDL
3260-01	S	A	B06JCZ	306	133

Method Detection Limit: 20.000 mg/L
Preparation Method: 310.1
Analytical Method: 310.1
Preparation Date: 09-04-92
Analysis Date: 09-04-92

UN = Units = (A=mg/kg B=ug/L C=mg/L) MT = Matrix = (S=Soil W=Water

Comments: All QC data were acceptable RPD / MS ranges were within the control limits

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