UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
ENVIRONMENTAL SCIENCE CENTER
701 MAPES ROAD
FORT MEADE, MD 20755-5350

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SDMS DocID 2241139

DATE : October 22, 1999

SUBJECT: Region III Data QA Review

FROM : Fredrick Foreman
Region III ESAT RPO (3ES20)

TO : Michael Towle
Regional Project Manager (3HS31)

Attached is the inorganic data validation report for the 12th Street Landfill site (Case #: 27341; SDG#: MCWY47) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III ESD.

If you have any questions regarding this review, please call me at (410) 305-2629.

Attachment

cc: (b) (4) [redacted] Roy F. Weston, Delran, NJ
WA #: 0399302 TDF: #0968

OFFICE OF ANALYTICAL SERVICES AND QUALITY ASSURANCE

Lockheed Martin Environmental Services
US EPA Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Telephone 410-305-3037 Facsimile 410-305-3597

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LOCKHEED MARTIN

DATE: October 18, 1999

SUBJECT: Inorganic Data Validation (IM1 Level)
Site: 12th Street Landfill
Case: 27341 SDG: MCWY47

FROM: (b) (4) [redacted] MK
Data Reviewer

(b) (4) [redacted]
Senior Oversight Chemist

TO: Fredrick Foreman
ESAT Regional Project Officer

OVERVIEW

Case 27341, Sample Delivery Group (SDG) MCWY47, contained three(3)aqueous and eleven (11) soil samples analyzed for total metals and cyanide (CN^-) by Southwest Laboratory of Oklahoma, Incorporated (SWOK). The sample set included one (1)field blank, one(1) rinsate blank and one (1) field duplicate pair. Samples were analyzed according to Contract Laboratory Program (CLP) Statement of Work (SOW) ILM04.0 through Routine Analytical Services (RAS) program.

Samples MCWY47, MCWY48, MCYB96, MCYB97, MCYB98, MCYB99, MCYC00, MCYC02, MCYC05 and MCYC06 reported concentrations of lead (Pb) which exceeded the Ten Day Chemical Health Advisory Limit of 500 µg/Kg. Sample MCYC03 reported a concentration of lead (Pb) which exceeded the Ten Day Chemical Health Advisory Limit of 20.0 µg/L. The Regional Project Manager (RPM) was notified by facsimile.

SUMMARY

All samples were successfully analyzed for all Inorganic Target Analyte List (TAL) metals. Areas of concern with respect to data usability are listed below.

Validation of data was performed according to Innovative Approaches for Validation of Inorganic Data, Level IM1, which includes review of all Forms but excludes review of raw data.

Data for this DAS are impacted by outliers generated in laboratory and field blanks, matrix spike, laboratory duplicate, Laboratory Control Sample (LCS), ICP serial dilution and Contract Required Detection Limit (CRDL) standards analyses. Details regarding these outliers are discussed under "Minor Problems". Qualified analytical results for all samples are summarized on Data Summary Forms (DSFs).

MINOR PROBLEMS

Preparation (PB), Field (FB), Rinsate (RB) and Continuing Calibration Blanks (CCB) had reported results greater than Instrument Detection Limits (IDLs) for analytes listed below. Reported results in affected samples which are less than or equal to five times (≤5X) blank concentrations may be biased high and have been qualified "B" on DSFs.

Blank	Affected Analytes
PB	zinc (Zn)
FB	antimony (Sb), lead (Pb), sodium (Na)
CCB	antimony (Sb)

Continuing calibration blank had a negative value greater than the absolute value of the IDL for aluminum (Al), calcium (Ca), magnesium (mg), mercury (Hg) and cyanide (CN^-). Quantitation limits for these analytes in affected samples may be biased low and have been qualified "UL" on the DSFs.

CRDL standard recoveries were high (>110%) for selenium (Se), thallium (Tl) and zinc (Zn). High recovery may indicate positive biases for results detected near detection limits due to an unstable baseline. Reported results relative to these analytes in affected samples which are less than 2XCRDL may be biased high and have been qualified "K" on the DSFs unless superseded by "B".

CRDL standard recovery was low (<90%) for thallium (Tl). Low recovery may indicate negative bias for results detected near detection limits due to an unstable baseline. No positive results were reported. Quantitation limits for Tl in affected samples may be biased low and have been qualified "UL" on DSFs.

Spike recovery for soil matrix was low (<75%) for antimony (Sb), barium (Ba), chromium (Cr) and cyanide(CN^-). Spike recovery for water matrix was low for lead (Pb). Reported results and quantitation limits for these analytes may be biased low and have been qualified "L" and "UL", respectively, if not superseded by "B" or "J" on the DSFs.

Spike recovery for soil matrix was extremely low (<30%) for selenium. All affected samples had positive results reported. Results for this analyte in soil matrix may be biased extremely low and have been qualified "L" if not superseded by "J".

Spike recoveries for soil matrix were high for arsenic (As) and copper (Cu). Reported results for these analytes may be biased high and have been qualified "K" on the DSFs unless superseded by

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the "J" qualifier.

CRDL standard recovery was high (>110%) for Se while matrix spike recovery was low in samples MCWY47 and MCWY48, producing opposing bias effects for results detected near detection limits. Reported results which were less than 2XCRDL for Se in these samples are estimated and have been qualified "J" on the DSF.

The Relative Percent Differences (RPDs) for the laboratory duplicate analyses were outside control limits (35% RPD, ±2XCRDL) for barium (Ba), chromium (Cr), copper (Cu), iron (Fe), lead (Pb) and manganese (Mn), nickel (Ni) and selenium (Se) in soil matrix. Reported results for these analytes are estimated and have been qualified "J" on DSFs.

The Percent Difference (%D) for the ICP serial dilution analysis was outside control limits for sodium (Na) and zinc (Zn) in aqueous matrix. Reported results regarding these analytes are estimated and have been qualified "J" if not superseded by "B" on DSFs.

Laboratory Control Sample (LCS) results for sodium in soil matrix were outside upper control limit. The "K" qualifier for positive results was superseded by "B".

Sample coolers had interior temperatures of 8.5 °C when received by the laboratory. Cyanide (CN^-) samples require transport at 4.0 ± 2 °C. Results may be biased low due to elevated transport temperature. Results for cyanide (CN^-) were qualified "L"; quantitation limits were qualified "UL".

NOTES

Several samples required analysis at dilution to quantitate target analytes. Sample, dilution factor and target analytes are tabled below.

analyte	sample(dilution factor)			
Pb	MCYB96 (50X),	MCYB97 (20X),	MCYC06 (100X)	
Fe	MCYB98 (5X) ,	MCYC00 (5X),	MCYC02 (5X),	MCYC07 (10X)
Zn	MCYB96 (50X),	MCYC05 (5X),	MCYC06 (5X)	
Na	MCYC10 (25X)			

Results for field duplicate pair, MCYC00/MCYC02, were within laboratory control limits (35% RPD, ±2XCRDL) for all analytes.

Field blank was utilized to qualify data for both aqueous and soil samples.

The sample coolers had interior temperatures of 8.5°C when received by the laboratory. Due to thermostability of metals, no data were qualified based on the elevated sample cooler temperature.

Data for Case 27341, SDG MCWY47, were reviewed in accordance with EPA Region 3 Innovative approaches (Level IM1) for Validation of Inorganic Data, June 1995.

ATTACHMENTS

Appendix A GLOSSARY of Data Qualifier Codes
Appendix B Data Summary Forms
Appendix C Results Reported on Laboratory Form Is
Appendix D Support Documentation

DCN:27341inorpt

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Appendix A

Glossary of Data Qualifier Codes

GLOSSARY OF DATA QUALIFIER CODES

CODES RELATED TO IDENTIFICATION
(confidence concerning presence or absence of analytes):

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

CODES RELATED TO QUANTITATION
(can be used for both positive results and sample quantitation limits):

J = Analyte Present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

[] = Analyte present. As values approach the IDL the quantitation may not be accurate.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

Q = No analytical result.

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Appendix B

Data Summary Forms

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DATA SUMMARY FORM: I N O R G A N I C S

Site Name: 12TH STREET LANDFILL

WATER SAMPLES
(ug/L)

Case #: 27341 Sampling Date(s): 08/31/1999 - 09/01/1999

SDG #: MCWY47

+ Due to dilution, sample quantitation limit is affected.
See dilution table for specifics.

CRDL	ANALYTE	MCYC03		MCYC04		MCYC10															
	Dilution Factor	1.00		1.00		1.00 / 25.00															
	Location	TS-FB-01		TS-RB-01		TS-TP-03W															
		SAMPLE IS A FIELD BLANK		SAMPLE IS A RINSATE BLANK																	
200	Aluminum		UL		UL		UL														
60	Antimony	[3.2]	B			[4.1]	B														
10	*Arsenic					[5.2]															
200	Barium					[144]															
5	Beryllium																				
5	*Cadmium																				
5000	Calcium		UL		UL	319000															
10	*Chromium																				
50	Cobalt					[2.5]															
25	Copper																				
100	Iron					20800															
3	*Lead	40.4	L	10.4	L	5.3	B														
5000	Magnesium		UL		UL	74300															
15	Manganese					882															
0.2	Mercury				UL	[0.11]															
40	*Nickel					[18.3]															
5000	Potassium	[42.5]				22100															
5	Selenium					14.3															
10	Silver																				
5000	Sodium	[2880]	J	[2850]	J	679000 +	J														
10	Thallium		UL		UL		UL														
50	Vanadium																				
20	Zinc	[6.0]	B	[4.4]	B	75.5	J														
10	*Cyanide		UL		UL		UL														

CRDL = Contract Required Detection Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

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DATA SUMMARY FORM: I N O R G A N I C S

Site Name: 12TH STREET LANDFILL

SOIL SAMPLES
(mg/Kg)

Case #: 27341 Sampling Date(s): 08/31/1999 - 09/01/99

SDG #: MCWY47

+ Due to dilution, sample quantitation limit is affected.
See dilution table for specifics.

	Sample No.	MCWY47		MCWY48		MCYB96		MCYB97		MCYB98		MCYB99		MCYC00		MCYC02		MCYC05		MCYC06	
	Dilution Factor	1.00		1.00		1.00 / 50.00		1.00 / 20.00		1.00 / 5.00		1.00		1.00 / 5.00		1.00 / 5.00		1.00 / 5.00		1.00/5.00/100	
	% Solids	78.2		73.5		86.3		81.0		78.6		72.9		80.5		78.9		61.9		88.0	
	Location	TS-SED-02		TS-SED-01		TS-SS-01		TS-SS-02		TS-SS-03		TS-SS-04		TS-SS-05		TS-FD-01		TS-SB-01		TS-SB-02	
														DUPLICATE OF MCYC02		DUPLICATE OF MCYC00					
CRDL	ANALYTE																				
40	Aluminum	16100		13300		23700		13400		13300		14700		16300		15100		45100		25200	
12	Antimony	[0.86]	B	[6.6]	L	[1.2]	B	[2.4]	B	[4.9]	L	[2.0]	B	[4.5]	L	[3.0]	B	[5.1]	B	[2.7]	B
2	Arsenic	5.9	K	15.7	K	33.6	K	48.8	K	117	K	24.0	K	96.3	K	96.9	K	16.2	K	29.4	K
40	Barium	67.1	J	164	J	485	J	200	J	334	J	193	J	235	J	255	J	1810	J	196	J
1	Beryllium	[0.58]		[0.62]		[0.43]		[0.61]		[0.63]		[0.60]		[0.73]		[0.69]		[0.67]		[0.44]	
1	Cadmium	1.5		4.1		6.5		4.6		6.5		4.0		7.1		7.2		7.6		6.0	
1000	Calcium	1300		2770		12800		7190		6870		14800		14900		20600		22900		9910	
2	Chromium	36.1	J	68.6	J	288	J	160	J	172	J	71.9	J	336	J	461	J	158	J	187	J
10	Cobalt	[8.8]		[11.1]		19.3		52.7		86.3		14.8		86.7		92.7		[14.4]		21.1	
5	Copper	24.5	J	213	J	277	J	263	J	470	J	347	J	353	J	374	J	198	J	273	J
20	Iron	52800	J	40800	J	34000	J	59500	J	82300 +	J	51900	J	88800 +	J	80900 +	J	22300	J	58300	J
0.6	*Lead	1120	J	8370	J	206000 +	J	139000 +	J	7460	J	11100	J	4590	J	5630	J	7670	J	264000 +	J
1000	Magnesium	4050		3350		2920		3950		3420		3180		3930		4450		4060		2140	
3	Manganese	247	J	253	J	435	J	372	J	403	J	348	J	589	J	637	J	272	J	413	J
0.1	Mercury			[0.06]		0.15		0.14		0.23		0.17		0.27		0.34				0.19	
8	Nickel	18.6	J	38.3	J	42.6	J	33.7	J	40.3	J	51.8	J	36.3	J	38.1	J	30.1	J	36.3	J
1000	Potassium	2070		1330		[1130]		1800		1610		[1160]		1560		1460		[963]		[710]	
1	Selenium	[0.86]	J	2.6	J	5.0	J	7.2	J	9.2	J	5.4	J	13.2	J	16.3	J	4.6	J	3.3	J
2	Silver					[1.3]		[1.7]		[1.8]		[0.33]		[1.8]		[1.9]		[0.45]		[1.3]	
1000	Sodium	[780]	B	[1040]	B	[662]	B	[501]	B	[487]	B	[949]	B	[550]	B	[524]	B	1650	B	[608]	B
2	Thallium	5.2		3.8	K			4.3	K	8.5		4.7	K	8.0		6.6		[1.1]	K	[1.2]	K
10	Vanadium	56.0		35.9		39.6		39.6		47.7		43.3		53.0		52.1		60.3		32.1	
4	Zinc	153		1180		6120 +		1820		2280		2110		2310		2900		13000 +		5050 +	
1	Cyanide		UL		UL	[0.29]	L	[0.15]	L	[0.21]	L	[0.17]	L	[0.22]	L	[0.23]	L		UL	[0.17]	L

CRDL = Contract Required Detection Limit

*Action Level Exists

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DATA SUMMARY FORM: I N O R G A N I C S

Site Name: 12TH STREET LANDFILL

SOIL SAMPLES
(mg/Kg)

Case #: 27341 Sampling Date(s): 08/31/1999 - 09/01/1999

SDG #: MCWY47

+ Due to dilution, sample quantitation limit is affected.
See dilution table for specifics.

CRDL	ANALYTE											
	Sample No.	MCYC07										
	Dilution Factor	1.00 / 10.00										
	% Solids	70.0										
	Location	TS-SB-03										
40	Aluminum	5030										
12	Antimony	[14.3]	L									
2	Arsenic	27.8	K									
40	Barium	116	J									
1	Beryllium											
1	Cadmium	14.7										
1000	Calcium	8980										
2	Chromium	95.4	J									
10	Cobalt	53.5										
5	Copper	1590	J									
20	Iron	456000 +	J									
0.6	*Lead	148	J									
1000	Magnesium	1400										
3	Manganese	2810	J									
0.1	Mercury	[0.07]										
8	Nickel	111	J									
1000	Potassium	[396]										
1	Selenium	3.8	J									
2	Silver	[0.67]										
1000	Sodium	[612]	B									
2	Thallium	38.7										
10	Vanadium	21.0										
4	Zinc	1510										
1	Cyanide		UL									

CRDL = Contract Required Detection Limit

*Action Level Exists

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Appendix C

Results Reported on Laboratory Form Is

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. 10

MCYC03

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK Case No.: 27341 SAS No.: SDG No.: MCWY47

Matrix (soil/water): WATER Lab Sample ID: 40184.09

Level (low/med): LOW Date Received: 09/02/99

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9.0	U		P
7440-36-0	Antimony	3.2	B		P
7440-38-2	Arsenic	3.0	U		P
7440-39-3	Barium	1.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	1.0	U		P
7440-70-2	Calcium	8.0	U		P
7440-47-3	Chromium	1.0	U		P
7440-48-4	Cobalt	1.0	U		P
7440-50-8	Copper	1.0	U		P
7439-89-6	Iron	13.0	U		P
7439-92-1	Lead	40.4		N	P
7439-95-4	Magnesium	11.0	U		P
7439-96-5	Manganese	1.0	U		P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	1.0	U		P
7440-09-7	Potassium	42.5	B		P
7782-49-2	Selenium	3.0	U		P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	2880	B	E	P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.0	U		P
7440-66-6	Zinc	6.0	B	E	P
	Cyanide	2.0	U		CA

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. ORIGINAL 11

MCYC04

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK Case No.: 27341 SAS No.: SDG No.: MCWY47

Matrix (soil/water): WATER Lab Sample ID: 40184.10

Level (low/med): LOW Date Received: 09/02/99

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9.0	U		P
7440-36-0	Antimony	3.0	U		P
7440-38-2	Arsenic	3.0	U		P
7440-39-3	Barium	1.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	1.0	U		P
7440-70-2	Calcium	8.0	U		P
7440-47-3	Chromium	1.0	U		P
7440-48-4	Cobalt	1.0	U		P
7440-50-8	Copper	1.0	U		P
7439-89-6	Iron	13.0	U		P
7439-92-1	Lead	10.4		N	P
7439-95-4	Magnesium	11.0	U		P
7439-96-5	Manganese	1.0	U		P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	1.0	U		P
7440-09-7	Potassium	34.0	U		P
7782-49-2	Selenium	3.0	U		P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	2850	B	E	P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.0	U		P
7440-66-6	Zinc	4.4	B	E	P
	Cyanide	2.0	U		CA

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. 15

MCYC10

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK Case No.: 27341 SAS No.: SDG No.: MCWY47

Matrix (soil/water): WATER Lab Sample ID: 40184.14

Level (low/med): LOW Date Received: 09/02/99

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9.0	U		P
7440-36-0	Antimony	4.1	B		P
7440-38-2	Arsenic	5.2	B		P
7440-39-3	Barium	144	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	1.0	U		P
7440-70-2	Calcium	319000			P
7440-47-3	Chromium	1.0	U		P
7440-48-4	Cobalt	2.5	B		P
7440-50-8	Copper	1.0	U		P
7439-89-6	Iron	20800			P
7439-92-1	Lead	5.3		N	P
7439-95-4	Magnesium	74300			P
7439-96-5	Manganese	882			P
7439-97-6	Mercury	0.11	B		CV
7440-02-0	Nickel	18.3	B		P
7440-09-7	Potassium	22100			P
7782-49-2	Selenium	14.3			P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	679000		E	P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.0	U		P
7440-66-6	Zinc	75.5		E	P
	Cyanide	2.0	U		CA

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

ORIGINAL

MCWY47

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

Matrix (soil/water): SOIL_ Lab Sample ID: 40184.01

Level (low/med): LOW__ Date Received: 09/02/99

% Solids: _78.2

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	0.86	B	N	P
7440-38-2	Arsenic	5.9		N*	P
7440-39-3	Barium	67.1		N*	P
7440-41-7	Beryllium	0.58	B		P
7440-43-9	Cadmium	1.5			P
7440-70-2	Calcium	1300			P
7440-47-3	Chromium	36.1		N*	P
7440-48-4	Cobalt	8.8	B		P
7440-50-8	Copper	24.5		N*	P
7439-89-6	Iron	52800		*	P
7439-92-1	Lead	1120		*	P
7439-95-4	Magnesium	4050			P
7439-96-5	Manganese	247		*	P
7439-97-6	Mercury	0.05	U		CV
7440-02-0	Nickel	18.6		*	P
7440-09-7	Potassium	2070			P
7782-49-2	Selenium	0.86	B	N*	P
7440-22-4	Silver	0.25	U		P
7440-23-5	Sodium	780	B		P
7440-28-0	Thallium	5.2			P
7440-62-2	Vanadium	56.0			P
7440-66-6	Zinc	153			P
	Cyanide	0.13	U	N	CA

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MCWY48

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK Case No.: 27341 SAS No.: SDG No.: MCWY47

Matrix (soil/water): SOIL Lab Sample ID: 40184.02

Level (low/med): LOW Date Received: 09/02/99

% Solids: 73.5

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13300			P
7440-36-0	Antimony	6.6	B	N	P
7440-38-2	Arsenic	15.7		N*	P
7440-39-3	Barium	164		N*	P
7440-41-7	Beryllium	0.62	B		P
7440-43-9	Cadmium	4.1			P
7440-70-2	Calcium	2770			P
7440-47-3	Chromium	68.6		N*	P
7440-48-4	Cobalt	11.1	B		P
7440-50-8	Copper	213		N*	P
7439-89-6	Iron	40800		*	P
7439-92-1	Lead	8370		*	P
7439-95-4	Magnesium	3350			P
7439-96-5	Manganese	253		*	P
7439-97-6	Mercury	0.06	B		CV
7440-02-0	Nickel	38.3		*	P
7440-09-7	Potassium	1330			P
7782-49-2	Selenium	2.6		N*	P
7440-22-4	Silver	0.26	U		P
7440-23-5	Sodium	1040	B		P
7440-28-0	Thallium	3.8			P
7440-62-2	Vanadium	35.9			P
7440-66-6	Zinc	1180			P
	Cyanide	0.13	U	N	CA

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. ORIGINAL

MCYB96

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK Case No.: 27341 SAS No.: _____ SDG No.: MCWY47

Matrix (soil/water): SOIL Lab Sample ID: 40184.03

Level (low/med): LOW Date Received: 09/02/99

% Solids: 86.3

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	23700			P
7440-36-0	Antimony	1.2	B	N	P
7440-38-2	Arsenic	33.6		N*	P
7440-39-3	Barium	485		N*	P
7440-41-7	Beryllium	0.43	B		P
7440-43-9	Cadmium	6.5			P
7440-70-2	Calcium	12800			P
7440-47-3	Chromium	288		N*	P
7440-48-4	Cobalt	19.3			P
7440-50-8	Copper	277		N*	P
7439-89-6	Iron	34000		*	P
7439-92-1	Lead	206000		*	P
7439-95-4	Magnesium	2920			P
7439-96-5	Manganese	435		*	P
7439-97-6	Mercury	0.15			CV
7440-02-0	Nickel	42.6		*	P
7440-09-7	Potassium	1130	B		P
7782-49-2	Selenium	5.0		N*	P
7440-22-4	Silver	1.3	B		P
7440-23-5	Sodium	662	B		P
7440-28-0	Thallium	0.69	U		P
7440-62-2	Vanadium	39.6			P
7440-66-6	Zinc	6120			P
	Cyanide	0.29	B	N	CA

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. 5

MCYB97

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

Matrix (soil/water): SOIL_ Lab Sample ID: 40184.04

Level (low/med): LOW__ Date Received: 09/02/99

% Solids: _81.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13400			P
7440-36-0	Antimony	2.4	B	N	P
7440-38-2	Arsenic	48.8		N*	P
7440-39-3	Barium	200		N*	P
7440-41-7	Beryllium	0.61	B		P
7440-43-9	Cadmium	4.6			P
7440-70-2	Calcium	7190			P
7440-47-3	Chromium	160		N*	P
7440-48-4	Cobalt	52.7			P
7440-50-8	Copper	263		N*	P
7439-89-6	Iron	59500		*	P
7439-92-1	Lead	139000		*	P
7439-95-4	Magnesium	3950			P
7439-96-5	Manganese	372		*	P
7439-97-6	Mercury	0.14			CV
7440-02-0	Nickel	33.7		*	P
7440-09-7	Potassium	1800			P
7782-49-2	Selenium	7.2		N*	P
7440-22-4	Silver	1.7	B		P
7440-23-5	Sodium	501	B		P
7440-28-0	Thallium	4.3			P
7440-62-2	Vanadium	39.6			P
7440-66-6	Zinc	1820			P
	Cyanide	0.15	B	N	CA

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

ORIGINAL 6

EPA SAMPLE NO.

MCYB98

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK Case No.: 27341 SAS No.: SDG No.: MCWY47

Matrix (soil/water): SOIL Lab Sample ID: 40184.05

Level (low/med): LOW Date Received: 09/02/99

% Solids: 78.6

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13300			P
7440-36-0	Antimony	4.9	B	N	P
7440-38-2	Arsenic	117		N*	P
7440-39-3	Barium	334		N*	P
7440-41-7	Beryllium	0.63	B		P
7440-43-9	Cadmium	6.5			P
7440-70-2	Calcium	6870			P
7440-47-3	Chromium	172		N*	P
7440-48-4	Cobalt	86.3			P
7440-50-8	Copper	470		N*	P
7439-89-6	Iron	82300		*	P
7439-92-1	Lead	7460		*	P
7439-95-4	Magnesium	3420			P
7439-96-5	Manganese	403		*	P
7439-97-6	Mercury	0.23			CV
7440-02-0	Nickel	40.3		*	P
7440-09-7	Potassium	1610			P
7782-49-2	Selenium	9.2		N*	P
7440-22-4	Silver	1.8	B		P
7440-23-5	Sodium	487	B		P
7440-28-0	Thallium	8.5			P
7440-62-2	Vanadium	47.7			P
7440-66-6	Zinc	2280			P
	Cyanide	0.21	B	N	CA

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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EPA SAMPLE NO.

MCYB99

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK Case No.: 27341 SAS No.: SDG No.: MCWY47

Matrix (soil/water): SOIL Lab Sample ID: 40184.06

Level (low/med): LOW Date Received: 09/02/99

% Solids: 72.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14700			P
7440-36-0	Antimony	2.0	B	N	P
7440-38-2	Arsenic	24.0		N*	P
7440-39-3	Barium	193		N*	P
7440-41-7	Beryllium	0.60	B		P
7440-43-9	Cadmium	4.0			P
7440-70-2	Calcium	14800			P
7440-47-3	Chromium	71.9		N*	P
7440-48-4	Cobalt	14.8			P
7440-50-8	Copper	347		N*	P
7439-89-6	Iron	51900		*	P
7439-92-1	Lead	11100		*	P
7439-95-4	Magnesium	3180			P
7439-96-5	Manganese	348		*	P
7439-97-6	Mercury	0.17			CV
7440-02-0	Nickel	51.8		*	P
7440-09-7	Potassium	1160	B		P
7782-49-2	Selenium	5.4		N*	P
7440-22-4	Silver	0.33	B		P
7440-23-5	Sodium	949	B		P
7440-28-0	Thallium	4.7			P
7440-62-2	Vanadium	43.3			P
7440-66-6	Zinc	2110			P
	Cyanide	0.17	B	N	CA

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

ORIGINAL

EPA SAMPLE NO.

MCYC00

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK Case No.: 27341 SAS No.: SDG No.: MCWY47

Matrix (soil/water): SOIL Lab Sample ID: 40184.07

Level (low/med): LOW Date Received: 09/02/99

% Solids: 80.5

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16300			P
7440-36-0	Antimony	4.5	B	N	P
7440-38-2	Arsenic	96.3		N*	P
7440-39-3	Barium	235		N*	P
7440-41-7	Beryllium	0.73	B		P
7440-43-9	Cadmium	7.1			P
7440-70-2	Calcium	14900			P
7440-47-3	Chromium	336		N*	P
7440-48-4	Cobalt	86.7			P
7440-50-8	Copper	353		N*	P
7439-89-6	Iron	88800		*	P
7439-92-1	Lead	4590		*	P
7439-95-4	Magnesium	3930			P
7439-96-5	Manganese	589		*	P
7439-97-6	Mercury	0.27			CV
7440-02-0	Nickel	36.3		*	P
7440-09-7	Potassium	1560			P
7782-49-2	Selenium	13.2		N*	P
7440-22-4	Silver	1.8	B		P
7440-23-5	Sodium	550	B		P
7440-28-0	Thallium	8.0			P
7440-62-2	Vanadium	53.0			P
7440-66-6	Zinc	2310			P
	Cyanide	0.22	B	N	CA

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. 9

MCYC02

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK Case No.: 27341 SAS No.: SDG No.: MCWY47

Matrix (soil/water): SOIL Lab Sample ID: 40184.08

Level (low/med): LOW Date Received: 09/02/99

% Solids: 78.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15100			P
7440-36-0	Antimony	3.0	B	N	P
7440-38-2	Arsenic	96.9		N*	P
7440-39-3	Barium	255		N*	P
7440-41-7	Beryllium	0.69	B		P
7440-43-9	Cadmium	7.2			P
7440-70-2	Calcium	20600			P
7440-47-3	Chromium	461		N*	P
7440-48-4	Cobalt	92.7			P
7440-50-8	Copper	374		N*	P
7439-89-6	Iron	80900		*	P
7439-92-1	Lead	5630		*	P
7439-95-4	Magnesium	4450			P
7439-96-5	Manganese	637		*	P
7439-97-6	Mercury	0.34			CV
7440-02-0	Nickel	38.1		*	P
7440-09-7	Potassium	1460			P
7782-49-2	Selenium	16.3		N*	P
7440-22-4	Silver	1.9	B		P
7440-23-5	Sodium	524	B		P
7440-28-0	Thallium	6.6			P
7440-62-2	Vanadium	52.1			P
7440-66-6	Zinc	2900			P
	Cyanide	0.23	B	N	CA

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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ORIGINAL

EPA SAMPLE NO.

MCYC05

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK Case No.: 27341 SAS No.: SDG No.: MCWY47

Matrix (soil/water): SOIL Lab Sample ID: 40184.11

Level (low/med): LOW Date Received: 09/02/99

% Solids: 61.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	45100			P
7440-36-0	Antimony	5.1	B	N	P
7440-38-2	Arsenic	16.2		N*	P
7440-39-3	Barium	1810		N*	P
7440-41-7	Beryllium	0.67	B		P
7440-43-9	Cadmium	7.6			P
7440-70-2	Calcium	22900			P
7440-47-3	Chromium	158		N*	P
7440-48-4	Cobalt	14.4	B		P
7440-50-8	Copper	198		N*	P
7439-89-6	Iron	22300		*	P
7439-92-1	Lead	7670		*	P
7439-95-4	Magnesium	4060			P
7439-96-5	Manganese	272		*	P
7439-97-6	Mercury	0.08	U		CV
7440-02-0	Nickel	30.1		*	P
7440-09-7	Potassium	963	B		P
7782-49-2	Selenium	4.6		N*	P
7440-22-4	Silver	0.45	B		P
7440-23-5	Sodium	1650			P
7440-28-0	Thallium	1.1	B		P
7440-62-2	Vanadium	60.3			P
7440-66-6	Zinc	13000			P
	Cyanide	0.16	U	N	CA

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO. 13

MCYC06

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK Case No.: 27341 SAS No.: _____ SDG No.: MCWY47

Matrix (soil/water): SOIL Lab Sample ID: 40184.12

Level (low/med): LOW Date Received: 09/02/99

% 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	25200			P
7440-36-0	Antimony	2.7	B	N	P
7440-38-2	Arsenic	29.4		N*	P
7440-39-3	Barium	196		N*	P
7440-41-7	Beryllium	0.44	B		P
7440-43-9	Cadmium	6.0			P
7440-70-2	Calcium	9910			P
7440-47-3	Chromium	187		N*	P
7440-48-4	Cobalt	21.1			P
7440-50-8	Copper	273		N*	P
7439-89-6	Iron	58300		*	P
7439-92-1	Lead	264000		*	P
7439-95-4	Magnesium	2140			P
7439-96-5	Manganese	413		*	P
7439-97-6	Mercury	0.19			CV
7440-02-0	Nickel	36.3		*	P
7440-09-7	Potassium	710	B		P
7782-49-2	Selenium	3.3		N*	P
7440-22-4	Silver	1.3	B		P
7440-23-5	Sodium	608	B		P
7440-28-0	Thallium	1.2	B		P
7440-62-2	Vanadium	32.1			P
7440-66-6	Zinc	5050			P
	Cyanide	0.17	B	N	CA

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

ORIGINAL 14

EPA SAMPLE NO.

MCYC07

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK Case No.: 27341 SAS No.: SDG No.: MCWY47

Matrix (soil/water): SOIL Lab Sample ID: 40184.13

Level (low/med): LOW Date Received: 09/02/99

% Solids: 70.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5030			P
7440-36-0	Antimony	14.3	B	N	P
7440-38-2	Arsenic	27.8		N*	P
7440-39-3	Barium	116		N*	P
7440-41-7	Beryllium	0.28	U		P
7440-43-9	Cadmium	14.7			P
7440-70-2	Calcium	8980			P
7440-47-3	Chromium	95.4		N*	P
7440-48-4	Cobalt	53.5			P
7440-50-8	Copper	1590		N*	P
7439-89-6	Iron	456000		*	P
7439-92-1	Lead	148		*	P
7439-95-4	Magnesium	1400			P
7439-96-5	Manganese	2810		*	P
7439-97-6	Mercury	0.07	B		CV
7440-02-0	Nickel	111		*	P
7440-09-7	Potassium	396	B		P
7782-49-2	Selenium	3.8		N*	P
7440-22-4	Silver	0.67	B		P
7440-23-5	Sodium	612	B		P
7440-28-0	Thallium	38.7			P
7440-62-2	Vanadium	21.0			P
7440-66-6	Zinc	1510			P
	Cyanide	0.14	U	N	CA

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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Appendix D

Support Documentation

EPA United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

Case No.: 27341

1. Project Code: 5472	Account Code:	2. Region No.: 3	Sampling Co.: SATA/Weston	4. Date Shipped: 9-01-99	Carrier: Fed Ex
Regional Information		Sampler (Name): [redacted] (b) (4)		Airbill Number: 8132 3850 4283	
Non-Superfund Program		Sampler Signature:		5. Ship To: Southwest Labs of OK. 1700 West Albany, Ste. C Broken Arrow, OK 74012 ATTN: Harry Borg	
Site Name: 12th St. Landfill		3. Purpose* Lead: [X] SF [ ] PRP [ ] ST [ ] FED; Early Action: [ ] CLEM [ ] PA [X] REM [ ] RI [ ] SI [ ] ESI; Long-Term Action: [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD			
City, State: Wilmington, DE	Site Spill ID				

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaOH 4. H_2SO_4 5. $K_2CR_2O_7$ 6. Ice only 7. Other (specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) / Other:	B Conc.: Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 7) / Other:	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
MCWY48	5	Low	Grab	6		X	X					3-85434	TS-SED-01	8/31/99/0815	CWW62	MPM PMD	
MCWY47	5	low	Grab	6		X	X					3-85437	TS-SED-02	8/31/99/0825	CXJ67	MPM PMD	
MCYB96	5	low	Grab	6		X	X					3-85438	TS-SS-01	8/31/99/0855	CXJ68	MPM PMD	
MCYB97	5	low	Grab	6		X	X					3-85443	TS-SS-02	8/31/99/0900	CXJ69	MPM PMD	
MCYB98	5	low	Grab	6		X	X					3-85446	TS-SS-03	8/31/99/0910	CWW84	MPM PMD	
MCYB99	5	low	Grab	6		X	X					3-85449	TS-SS-04	8/31/99/0920	CWW85	MPM PMD	
MCYC00	5	low	Grab	6		X	X					3-85451	TS-SS-05	8/31/99/0930	CWW86	MPM PMD	
MCYC02	5	low	Grab	6		X	X					3-2236440	TS-FD-01	8/31/99/0000	CWW88	MPM PMD	D MCYC00
MCYC03	4	low	Grab	2		X						3-2236448	TS-FB-01	8/31/99/1530	CWW89	MPM PMD	B
MCYC03	4	low	Grab	3			X					3-2236449	TS-FB-01	8/31/99/1530	CWW89	MPM PMD	B

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
	1 of 2			

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[redacted] (b) (4)	9-1-99 / 1730				
[redacted] (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

DISTRIBUTION: Green - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-1 (2/98)

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-13 REV.

ORIGINAL

385558

EPA United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

Case No. 27341

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
5472		3	SATA/weston	9-01-99	Fed Ex.

Regional Information: (b) (4) [redacted]

Airbill Number: 8132 3850 4283

Non-Superfund Program

Sampler Signature: [signature]

Site Name: 12th St. Landfill

City, State: Wilm., DE

Site Spill ID

3. Purpose*
Lead: [X] SF; [ ] PRP; [ ] ST; [ ] FED
Early Action: [ ] CLEM; [ ] PA; [X] REM; [ ] RI; [ ] SI; [ ] ESI
Long-Term Action: [ ] FS; [ ] RD; [ ] RA; [ ] O&M; [ ] NPLD

5. Ship To
Southwest Labs of OK.
1700 West Albany, Ste. C
Broken Arrow, OK 74012
ATTN: Harry Borg

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 7) Other:	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
MCYC04	4	Low	Grab	2		X						3-2240353	TS-RB-01	8/31/99/1715	CWW90	MM AMD	B
MCYC04	4	low	Grab	3			X					3-2240354	TS-RB-01	8/31/99/1715	CWW90	MM AMD	B
MCYC05	5	low	Grab	6		X	X					3-2240357	TS-SB-01	8/31/99/1340	CWW91	MM AMD	
MCYC06	5	low	Grab	6		X	X					3-2240360	TS-SB-02	9/01/99/0850	CWW92	MM AMD	
MCYC10	2	low	Grab	2		X						3-2240380	TS-TP-03W	9/01/99/1120	CWW97	MM AMD	
MCYC10	2	low	Grab	3			X					3-2240381	TS-TP-03W	9/01/99/1120	CWW97	MM AMD	
MCYC07	5	low	grab	6		X	X					3-2240363	TS-SB-03	9/01/99/1340	CWW93	MM AMD	

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
Y	2 of 2	MCYC05	[signature]	

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
(b) (4) [redacted]	9-1-99 / 1730				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

A21-012-13 REV.

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EPA Form 9110-1 (2/98)

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

385559

PAGE 1 OF 1

EPA SAMPLE SHIPPING LOG

(1) (REQUIRED FOR ALL SAMPLES SENT THROUGH THE CONTRACT LAB PROGRAM)

PROJECT SITE NAME: 12th Street Landfill ; EPA PROJECT OFFICER: Mike Towle

RAS NO._____; DAS NO. 27341 ; TASK OR SET NO. 1

PROJECT SITE LEADER: [redacted] ; PHONE NO.(609) 461-4003

PROJECT SAMPLE COORDINATOR: [redacted] ; PHONE NO.(609) 461-4003

SAS REQUEST:(DETALIS REQUIRED)

QC SAMPLE INFO AND/OR COMMENTS	CONC. (low/ med/ high)	SAMPLE PHASE (aq/ sol)	TYPE OR REQUEST org, dio inor, SAS	SAMPLE TRAFFIC REPORT NUMBER	ORGANICS OR INORGANICS LAB NAME	DATE SHIPPED	DATA RECEIVED (XX OUT ITEMS NOT REQUESTED) VOA	BNA	PEST	TCDD	METALS	CN	LAB NAME	SAS REQUEST (itemize)	DATE SHIPPED	DATA REC'D
(2)	(3)	(4)	(5)	(6)	(7)	(8)	<——(9)——>				rec'd	TS	(11) 9-27-99	(12)	(13)	
	LOW	SOL	INO	MCWY48	SWOK	1-Sep-99	XX	XX	XX	XX	✓	✓	SDG MCWY47			
	LOW	SOL	INO	MCWY47	SWOK	1-Sep-99	XX	XX	XX	XX	✓	✓				
	LOW	SOL	INO	MCYB96	SWOK	1-Sep-99	XX	XX	XX	XX	✓	✓				
	LOW	SOL	INO	MCYB97	SWOK	1-Sep-99	XX	XX	XX	XX	✓	✓				
	LOW	SOL	INO	MCYB98	SWOK	1-Sep-99	XX	XX	XX	XX	✓	✓				
	LOW	SOL	INO	MCYB99	SWOK	1-Sep-99	XX	XX	XX	XX	✓	✓				
	LOW	SOL	INO	MCYC00	SWOK	1-Sep-99	XX	XX	XX	XX	✓	✓				
DUP MCYC00	LOW	SOL	INO	MCYC02	SWOK	1-Sep-99	XX	XX	XX	XX	✓	✓				
FIELD BLANK	LOW	AQ	INO	MCYC03	SWOK	1-Sep-99	XX	XX	XX	XX	✓	✓				
RINSATE BLANK	LOW	AQ	INO	MCYC04	SWOK	1-Sep-99	XX	XX	XX	XX	✓	✓				
	LOW	SOL	INO	MCYC05	SWOK	1-Sep-99	XX	XX	XX	XX	✓	✓				
	LOW	SOL	INO	MCYC06	SWOK	1-Sep-99	XX	XX	XX	XX	✓	✓				
	LOW	AQ	INO	MCYC10	SWOK	1-Sep-99	XX	XX	XX	XX	✓	✓				
	LOW	SOL	INO	MCYC07	SWOK	1-Sep-99	XX	XX	XX	XX	✓	✓				

FINAL SAMPLING: YES X ; NO _____; FINAL SHIPPING DATE: 1 September 1999

(14)

ORIGINAL

5 Underwood Court, Delran, New Jersey 08075-1229
609-461-4003 • 215-238-0338 • Fax 609-461-4916

SITE ASSESSMENT TECHNICAL ASSISTANCE

EPA CONTRACT 68-S5-3002

6 October 1999

MEMO TO FILE
CASE # 27341
12th STREET LANDFILL

RSCC
U.S. EPA Region III OAS/QA
Environmental Science Center
701 Mapes Road
Ft. Meade, MD 20755

Dear Mr. Kwedar:

This memo to file is written to correct the tag number on the Inorganic Traffic Report Chain of Custody Record for Sample MCYB96. The correct tag number is 3-85440. Please note these changes.

Please feel free to contact me at (215) 238-0338, Ext. 243 if you have any questions.

Very truly yours,

ROY F. WESTON, INC.

(b) (4) [redacted]

for sampler (b) (4) [redacted]

cc: SATA TDD Files
EPA OSC Mike Towle (3HS31)

OCT- 7-99 THU 1:43 PM WESTON-SATA FAX NO. 1609461480 P. 2

Contract Laboratory Analytical Services Support (CLASS) Record of Communication

Name: (b) (4) [redacted]

Date/Time of Contact: 09/03/1999 11:30 AM

Contact/Org./Phone # Dan Glenn/ Industrial Environmental Analysts, Inc.-New Jersey/ (973) 428-8181

Type of Inquiry: Analytical Issue

Contact Recv'd Via: ☑ Phone ☐ Fax ☐ Vmail ☐ Memo ☐ Other

Initiated By: ☐ EPA ☐ CLASS ☐ Engr. Contr. ☑ Lab ☐ Region ☐ SCC ☐ Other

Lab: IEANJ **Contract #:** **Case #:** 27341 **SDG:** **Region:** 3

SOW: **Affected Samples:** CWW97 **Invoice #:**

Discussion/Issue:

09/03/99 11:30 AM Dan Glenn, IEANJ, reported to CLASS the TR/COC did not designate a MS/MSD for water samples. They only received one ground water sample, CWW97.

09/03/99 11:45 AM CLASS relayed the above issue to John Kwedar, RSCC Region 3.

Resolution:

09/03/99 12:00 PM Per the Region, the lab should use sample CWW97 for the MS/MSD.

CLPAS Notification: Yes **Completed Date/Time:** 09/13/1999 2:30 PM

Related ROCs: **Date/Time:** **W.A.#:** ST&R

Distribution: ◉ Lab ◉ Region ◉ CLASS ○ AOC ○ Work Assign. Man.

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341 SAS No.: _____ SDG No.:MCWY47

SOW No.: ILM04

EPA Sample No.	Lab Sample ID
MCWY47	40184.01
MCWY48	40184.02
MCYB96	40184.03
MCYB97	40184.04
MCYB98	40184.05
MCYB99	40184.06
MCYC00	40184.07
MCYC02	40184.08
MCYC03	40184.09
MCYC04	40184.10
MCYC05	40184.11
MCYC05D	40184.11D
MCYC05S	40184.11S
MCYC06	40184.12
MCYC07	40184.13
MCYC10	40184.14
MCYC10D	40184.14D
MCYC10S	40184.14S

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES

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

Comments:

I certify that this data 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: _____ Name: (b) (4) [redacted]

Date: September 27, 1999 Title: Inorganic Program Manager

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
AMERICAN ANALYTICAL & TECHNICAL SERVICES, INC.
1700 West Albany / Broken Arrow, Oklahoma 74012 / Office (918) 251-2858 / Fax (918) 251-2599

ORIGINAL

SDG NARRATIVE

CONTRACT: 68-D5-0137 **DATE: September 24, 1999**
CASE: 27341 **SOW NO.: ILM04.0**
SDG: MCWY47 **EPISODE NO.: 40184**

INORGANIC METAL FRACTION:

11 soi and 3 water samplws plus 2 prep blanks, 2 lab controls, 2 matrix spikes, and 2 matrix duplicates were submitted for ICP, Hg, and CN analysis. No major problems occurred during the digestion or analyses of these samples. The cooler temperature at reciept was at 8.5 degrees Celsius. The sample's analyses were completed according to the following:

SWL SOP #	Method SOP is based
SWL-IN-200	ILM03.0/04.0 (ICP analysis)
SWL-IN-202	ILM03.0/04.0 (analysis of Hg by cold vapor)
SWL-IN-203	ILM03.0/04.0 (analysis by ICP)
SWL-IN-303	ILM03.0/04.0 (Cyanide)

Initial and Continuing Calibration Checks: No problems.

Initial and Continuing Calibration Blanks: The following elements showed low level concentrations below the Contract Required Detection Limit in the Calibration Blanks: Al, Sb, Ca, Mg, Pb, Zn, Tl, Hg. \\ No action required.

Linearity near the CRDL (CRA & CRI): The CRI standard was outside of our in-house warning limits of 70 - 130%R for the following elements: Hg, and Pb. \\ No action required.

Preparation Blanks: The following elements showed a low level concentrations below the Contract Required Detection Limit in the Preparation Balnk: Ca, Mg, Zn, CN.
All associated samples were flagged with a "N" on Form I's. No action Required.

Lab Control Spikes: No problems.

Matrix Spike: The following elements were outside the control limits of 75-125% recovery: As, Ba, Cr, Cu, Se, CN, Pb. +Sb
All associated samples were flagged with a "N" on Form I's. No action required.

Duplicate: The following elements were outside the control limits of 0-20% RPD: As, Ba, Cr, Cu, Fe, Pb, Mn, Ni, and Se.
All associated samples were flagged with a "*" on Form I's. No action required.

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
AMERICAN ANALYTICAL & TECHNICAL SERVICES, INC.
1700 West Albany / Broken Arrow, Oklahoma 74012 / Office (918) 251-2858 / Fax (918) 251-2599

Serial Dilution (ICP): The soil serial dilution was outhside the control limits of 10% for the following elements: Na, and Zn.
All associated samples were flagged with an "E" on Form I's. No action required.

Sincerely,

(b) (4)

[redacted]

Inorganic Program Manager

ORIGINAL

U.S. EPA - CLP

3
BLANKS

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

Preparation Blank Matrix (soil/water): SOIL_

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

Soil

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	-13.3	B	9.0	U	-13.0	B	-12.3	B	1.80	U	P
Antimony	4.7	B	4.5	B	3.7	B	3.4	B	0.60	U	P
Arsenic	3.0	U	3.0	U	3.0	U	3.0	U	0.60	U	P
Barium	1.0	U	1.0	U	1.0	U	1.0	U	0.20	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	0.20	U	P
Cadmium	1.0	U	1.0	U	1.0	U	1.0	U	0.20	U	P
Calcium	-16.5	B	-9.5	B	-16.3	B	-9.9	B	1.60	U	P
Chromium	1.0	U	1.0	U	1.0	U	1.0	U	0.20	U	P
Cobalt	1.0	U	1.0	U	1.0	U	1.0	U	0.20	U	P
Copper	1.0	U	1.0	U	1.0	U	1.0	U	0.20	U	P
Iron	13.0	U	13.0	U	13.0	U	13.0	U	2.60	U	P
Lead	1.0	U	1.0	U	1.0	B	1.0	U	0.20	U	P
Magnesium	-17.5	B	-15.5	B	-22.7	B	-23.2	B	2.20	U	P
Manganese	1.0	U	1.0	U	1.0	U	1.0	U	0.20	U	P
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.05	U	CV
Nickel	1.0	U	1.0	U	1.0	U	1.0	U	0.20	U	P
Potassium	34.0	U	34.0	U	34.0	U	34.0	U	6.80	U	P
Selenium	3.0	U	3.0	U	3.0	U	3.0	U	0.60	U	P
Silver	1.0	U	1.0	U	1.0	U	1.0	U	0.20	U	P
Sodium	16.0	U	16.0	U	16.0	U	16.0	U	3.20	U	P
Thallium	3.0	U	3.0	U	3.0	U	3.0	U	0.60	U	P
Vanadium	1.0	U	1.0	U	1.0	U	1.0	U	0.20	U	P
Zinc	1.0	U	1.0	U	1.0	U	1.0	U	0.20	U	P
Cyanide	2.0	U	2.0	U	2.0	U	2.0	U	0.10	U	CA

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

Preparation Blank Matrix (soil/water): WATER

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

Aqueous

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	-14.2	B	9.0	U	-9.6	B	9.0	U	9.00	U	P
Antimony	3.0	U	3.0	U	3.0	U	3.0	U	3.00	U	P
Arsenic	3.0	U	3.0	U	3.0	U	3.0	U	3.00	U	P
Barium	1.0	U	1.0	U	1.0	U	1.0	U	1.00	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	1.00	U	P
Cadmium	1.0	U	1.0	U	1.0	U	1.0	U	1.00	U	P
ılcium	-25.4	B	-21.4	B	-22.2	B	-11.5	B	9.24	B	P
ıromium	1.0	U	1.0	U	1.0	U	1.0	U	1.00	U	P
Cobalt	1.0	U	1.0	U	1.0	U	1.0	U	1.00	U	P
Copper	1.0	U	1.0	U	1.0	U	1.0	U	1.00	U	P
Iron	13.0	U	13.0	U	13.0	U	13.0	U	13.00	U	P
Lead	1.0	U	1.0	U	1.7	B	1.9	B	1.00	U	P
Magnesium	11.0	U	11.0	U	11.0	U	21.1	B	-19.09	B	P
Manganese	1.0	U	1.0	U	1.0	U	1.0	U	1.00	U	P
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.10	U	CV
Nickel	1.0	U	1.0	U	1.0	U	1.0	U	1.00	U	P
Potassium	34.0	U	34.0	U	34.0	U	34.0	U	34.00	U	P
Selenium	3.0	U	3.0	U	3.0	U	3.0	U	3.00	U	P
Silver	1.0	U	1.0	U	1.0	U	1.0	U	1.00	U	P
Sodium	16.0	U	16.0	U	16.0	U	16.0	U	16.00	U	P
Thallium	3.0	U	3.0	U	3.0	U	3.3	B	3.00	U	P
Vanadium	1.0	U	1.0	U	1.0	U	1.0	U	1.00	U	P
Zinc	-2.0	B	-1.8	B	-1.9	B	-1.8	B	1.24	B	P
Cyanide			2.0	U					-2.95	B	CA

ORIGINAL

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Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

Preparation Blank Matrix (soil/water): WATER

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

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	9.0	U	9.0	U	9.0	U	13.6	B			P
Antimony	3.0	U	3.0	U	3.0	U	3.0	U			P
Arsenic	3.0	U	3.0	U	3.0	U	3.0	U			P
Barium	1.0	U	1.0	U	1.0	U	1.0	U			P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U			P
Cadmium	1.0	U	1.0	U	1.0	U	1.0	U			P
Calcium	8.0	U	8.0	U	8.0	U	8.0	U			P
Chromium	1.0	U	1.0	U	1.0	U	1.0	U			P
Cobalt	1.0	U	1.0	U	1.0	U	1.0	U			P
Copper	1.0	U	1.0	U	1.0	U	1.0	U			P
Iron	13.0	U	13.0	U	13.0	U	13.0	U			P
Lead	1.0	U	1.0	U	1.0	U	1.0	U			P
Magnesium	11.0	U	11.0	U	11.0	U	11.0	U			P
Manganese	1.0	U	1.0	U	1.0	U	1.0	U			P
Mercury	-0.1	B	-0.1	B	-0.1	B	-0.1	B	0.10	U	CV
Nickel	1.0	U	1.0	U	1.0	U	1.0	U			P
Potassium	34.0	U	34.0	U	34.0	U	34.0	U			P
Selenium	3.0	U	3.0	U	3.0	U	3.0	U			P
Silver	1.0	U	1.0	U	1.0	U	1.0	U			P
Sodium	16.0	U	16.0	U	16.0	U	16.0	U			P
Thallium	3.0	U	3.0	U	3.0	U	3.0	U			P
Vanadium	1.0	U	1.0	U	1.0	U	1.0	U			P
Zinc	1.0	U	-1.4	B	-1.3	B	-1.1	B			P
Cyanide	2.0	U	2.0	U	2.0	U	2.0	U			CA

3
BLANKS

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

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 4	C	2 5	C	3 6	C	Prepa-ration Blank	C	M
Aluminum			10.3	B							P
Antimony			3.0	U							P
Arsenic			3.0	U							P
Barium			1.0	U							P
Beryllium			1.0	U							P
Cadmium			1.0	U							P
Calcium			8.0	U							P
Chromium			1.0	U							P
Cobalt			1.0	U							P
Copper			1.0	U							P
Iron			13.0	U							P
Lead			1.0	U							P
Magnesium			11.0	U							P
Manganese			1.0	U							P
Mercury			-0.1	B	-0.1	B	-0.1	B			CV
Nickel			1.0	U							P
Potassium			34.0	U							P
Selenium			3.0	U							P
Silver			1.0	U							P
Sodium			16.0	U							P
Thallium			3.0	U							P
Vanadium			1.0	U							P
Zinc			-1.3	B							P
Cyanide											NR

U.S. EPA - CLP

3
BLANKS

ORIGINAL

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Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

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 7	C	2 8	C	3 9	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
ılcium											NR
ıromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	1.0	U	1.0	U	1.3	B	1.0	U			P
Magnesium											NR
Manganese											NR
Mercury			-0.1	B	-0.1	B	-0.1	B			CV
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR

FORM III - IN

ILMO4.0

3
BLANKS

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

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 10	C	2 11	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury			-0.1	B	-0.1	B					CV
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR

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U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

AA CRDL Standard Source: PLASMACHEM__

ICP CRDL Standard Source: IN.VEN._____

Concentration Units: ug/L

Analyte	CRDL Standard for AA True	Found	%R	CRDL Standard for ICP True	Initial Found	%R	Final Found	%R
Aluminum								
Antimony				120.0	123.68	103.1	120.81	100.7
Arsenic				20.0	21.76	108.8	19.20	96.0
Barium								
Beryllium				10.0	10.17	101.7	9.90	99.0
Cadmium				10.0	10.28	102.8	9.83	98.3
Calcium								
Chromium				20.0	20.36	101.8	19.45	97.2
Cobalt				100.0	99.57	99.6	96.77	96.8
Copper				50.0	53.08	106.2	48.98	98.0
Iron								
Lead				6.0	6.23	103.8	5.90	98.3
Magnesium								
Manganese				30.0	30.23	100.8	29.41	98.0
Mercury	0.2	0.19	95.0					
Nickel				80.0	81.56	101.9	78.03	97.5
Potassium								
Selenium				10.0	10.13	101.3	9.92	99.2
Silver				20.0	20.47	102.3	20.02	100.1
Sodium								
Thallium				20.0	18.53	92.6	17.22	86.1
Vanadium				100.0	100.78	100.8	98.56	98.6
Zinc				40.0	47.91	119.8	40.27	100.7

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

AA CRDL Standard Source: PLASMACHEM__

ICP CRDL Standard Source: IN.VEN._____

Concentration Units: ug/L

Analyte	CRDL Standard for AA True	Found	%R	CRDL Standard for ICP Initial 2 True	Found	%R	Final 3 Found	%R
Aluminum								
Antimony				120.0	119.59	99.7	116.09	96.7
Arsenic				20.0	21.62	108.1	19.76	98.8
Barium								
Beryllium				10.0	10.06	100.6	9.87	98.7
Cadmium				10.0	10.29	102.9	9.95	99.5
Calcium								
Chromium				20.0	20.78	103.9	20.20	101.0
Cobalt				100.0	101.60	101.6	99.01	99.0
Copper				50.0	53.07	106.1	49.13	98.3
Iron								
Lead				6.0	5.31	88.5	6.79	113.2
Magnesium								
Manganese				30.0	30.36	101.2	29.64	98.8
Mercury	0.2	0.20	100.0					
Nickel				80.0	82.86	103.6	79.57	99.5
Potassium								
Selenium				10.0	9.90	99.0	11.63	116.3
Silver				20.0	20.44	102.2	19.80	99.0
Sodium								
Thallium				20.0	21.95	109.7	22.29	111.4
Vanadium				100.0	101.48	101.5	99.38	99.4
Zinc				40.0	46.33	115.8	40.73	101.8

U.S. EPA - CLP

ORIGINAL

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

AA CRDL Standard Source: PLASMACHEM__

ICP CRDL Standard Source: IN.VEN._____

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
					Initial 4		Final 5	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum								
Antimony				120.0	121.19	101.0	121.86	101.5
Arsenic				20.0	19.20	96.0	19.24	96.2
Barium								
Beryllium				10.0	10.03	100.3	9.94	99.4
Cadmium				10.0	10.25	102.5	10.26	102.6
Calcium								
Chromium				20.0	19.96	99.8	20.18	100.9
Cobalt				100.0	99.01	99.0	99.69	99.7
Copper				50.0	50.13	100.3	48.65	97.3
Iron								
Lead				6.0	4.85	80.8	4.93	82.2
Magnesium								
Manganese				30.0	29.95	99.8	29.95	99.8
Mercury	0.2	0.27	135.0					
Nickel				80.0	80.74	100.9	81.14	101.4
Potassium								
Selenium				10.0	10.00	100.0	9.91	99.1
Silver				20.0	19.94	99.7	20.00	100.0
Sodium								
Thallium				20.0	21.64	108.2	23.47	117.3
Vanadium				100.0	100.09	100.1	100.48	~~100.5~~
Zinc				40.0	42.35	105.9	42.17	105.4

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

AA CRDL Standard Source: PLASMACHEM__

ICP CRDL Standard Source: IN.VEN._____

Concentration Units: ug/L

Analyte	CRDL Standard for AA True	Found	%R	CRDL Standard for ICP True	Initial Found	%R	Final 6 Found	%R
Aluminum								
Antimony				120.0			118.74	98.9
Arsenic				20.0			19.69	98.4
Barium								
Beryllium				10.0			9.81	98.1
Cadmium				10.0			10.07	100.7
Calcium								
Chromium				20.0			19.88	99.4
Cobalt				100.0			97.38	97.4
Copper				50.0			48.28	96.6
Iron								
Lead				6.0			3.80	63.3
Magnesium								
Manganese				30.0			29.42	98.1
Mercury								
Nickel				80.0			78.38	98.0
Potassium								
Selenium				10.0			8.83	88.3
Silver				20.0			19.91	99.5
Sodium								
Thallium				20.0			21.19	105.9
Vanadium				100.0			98.56	98.6
Zinc				40.0			40.81	102.0

U.S. EPA - CLP

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2B
CRDL STANDARD FOR AA AND ICP

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

AA CRDL Standard Source: _____

ICP CRDL Standard Source: IN.VEN._____

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
					Initial		Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead				6.0	5.58	93.0	6.43	107.2
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								

FORM II (PART 2) - IN

ILM04.0

U.S. EPA - CLP

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5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MCYC05S

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

Matrix (soil/water): SOIL__ Level (low/med): LOW___

% Solids for Sample: _61.9

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	79.6420		5.0869	B	161.55	46.1	N	P
Arsenic	75-125	37.0963		16.2375		12.92	161.4	N	P
Barium	75-125	2091.8171		1810.2934		646.20	43.6	N	P
Beryllium	75-125	16.0226		0.6698	B	16.16	95.0		P
Cadmium	75-125	23.2772		7.5515		16.16	97.3		P
Calcium									NR
Chromium	75-125	191.7283		158.4048		64.62	51.6	N	P
Cobalt	75-125	176.4908		14.4129	B	161.55	100.3		P
Copper	75-125	370.9389		198.1561		80.78	213.9	N	P
Iron									NR
Lead		9840.3945		7666.6672		6.46	33649.0		P
Magnesium									NR
Manganese	75-125	450.7977		271.7218		161.55	110.8		P
Mercury	75-125	0.6442		0.0769	U	0.67	96.1		CV
Nickel	75-125	209.7115		30.1221		161.55	111.2		P
Potassium									NR
Selenium	75-125	4.8543		4.5926		3.23	8.1	N	P
Silver	75-125	17.5964		0.4540	B	16.16	106.1		P
Sodium									NR
Thallium	75-125	17.4998		1.1279	B	16.16	101.3		P
Vanadium	75-125	218.7593		60.2869		161.55	98.1		P
Zinc		11911.6591		13036.1228		161.55	-696.0		P
Cyanide	75-125	5.3777		0.1616	U	8.08	66.6	N	CA

Comments:

ORIGINAL

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U.S. EPA - CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MCYC05A

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK Case No.: 27341 SAS No.: SDG No.: MCWY47

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	Added (SA)	%R	Q	M
Aluminum									NR
Antimony		133.74		15.74	B	120.0	98.3		P
Arsenic		140.14		50.25		100.0	89.9		P
Barium		13833.67		5602.86		11000.0	74.8		P
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium		1373.29		490.26		980.0	90.1		P
Cobalt									NR
Copper		1617.24		613.29		1200.0	83.7		P
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium		38.68		14.21		30.0	81.6		P
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide		15.72		2.00	U	20.0	78.6		CA

Comments:

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MCYC10S

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

Matrix (soil/water): WATER_ Level (low/med): LOW___

% Solids for Sample: __0.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	1802.6050		9.0000	U	2000.00	90.1		P
Antimony	75-125	470.8730		4.0830	B	500.00	93.4		P
Arsenic	75-125	42.4070		5.1770	B	40.00	93.1		P
Barium	75-125	1880.9190		144.0800	B	2000.00	86.8		P
Beryllium	75-125	44.0940		1.0000	U	50.00	88.2		P
Cadmium	75-125	42.0920		1.0000	U	50.00	84.2		P
Calcium									NR
Chromium	75-125	172.4650		1.0000	U	200.00	86.2		P
Cobalt	75-125	429.6510		2.5210	B	500.00	85.4		P
Copper	75-125	213.3730		1.0000	U	250.00	85.3		P
Iron		21122.7780		20775.0120		1000.00	34.8		P
Lead	75-125	19.5000		5.3300		20.00	70.8	N	P
Magnesium									NR
Manganese	75-125	1290.1270		882.4900		500.00	81.5		P
Mercury	75-125	1.1500		0.1110	B	1.00	103.9		CV
Nickel	75-125	438.6130		18.2940	B	500.00	84.1		P
Potassium									NR
Selenium	75-125	24.5980		14.3180		10.00	102.8		P
Silver	75-125	48.3810		1.0000	U	50.00	96.8		P
Sodium									NR
Thallium	75-125	39.6740		3.0000	U	50.00	79.3		P
Vanadium	75-125	439.2590		1.0000	U	500.00	87.9		P
Zinc	75-125	525.3680		75.4590		500.00	90.0		P
Cyanide	75-125	80.2440		2.0000	U	100.00	80.2		CA

Comments:

U.S. EPA - CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

ORIGINAL 45

EPA SAMPLE NO.

MCYC10A

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK Case No.: 27341 SAS No.: SDG No.: MCWY47

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

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead		31.47		5.33		11.0	237.6		P
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO. 46

MCYC05D

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

Matrix (soil/water): SOIL_ Level (low/med): _LOW__

% Solids for Sample: _61.9 % Solids for Duplicate: __63.8

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		45056.3425		43966.4410		2.4		P
Antimony		5.0869	B	4.3509	B	15.6		P
Arsenic	3.2310	16.2375		12.6061		25.2	*	P
Barium		1810.2934		996.5015		58.0	*	P
Beryllium		0.6698	B	0.5441	B	20.7		P
Cadmium	1.6155	7.5515		7.8691		4.1		P
Calcium		22862.4892		21190.9189		7.6		P
Chromium		158.4048		80.7557		64.9	*	P
Cobalt	16.1551	14.4129	B	16.3034		12.3		P
Copper		198.1561		609.7690		101.9	*	P
Iron		22276.8756		32764.5612		38.1	*	P
Lead		7666.6672		3426.7273		76.4	*	P
Magnesium	1615.509	4056.7412		3840.9409		5.5		P
Manganese		271.7218		681.9871		86.0	*	P
Mercury		0.0769	U	0.0702	U			CV
Nickel	12.9241	30.1221		69.5312		79.1	*	P
Potassium		962.8291	B	856.4378	B	11.7		P
Selenium	1.6155	4.5926		0.9693	U	200.0	*	P
Silver		0.4540	B	0.3231	U	200.0		P
Sodium	1615.509	1651.7851		1469.8911	B	11.7		P
Thallium		1.1279	B	1.7880	B	45.3		P
Vanadium	16.1551	60.2869		52.1712		14.4		P
Zinc		13036.1228		11499.5170		12.5		P
Cyanide		0.1616	U	0.1616	U			CA

#2 CRDL

DJ
10/13/96

FORM VI - IN

ILMO4.0

U.S. EPA - CLP

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LABORATORY CONTROL SAMPLE

ORIGINAL

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

Solid LCS Source: EPA0287_____

Aqueous LCS Source: EPA0392_____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum	1956.0	2029.26	103.7	325.0	251.7		193.1	424.2	77.4
Antimony	970.0	966.83	99.7	211.0	205.7		129.4	297.2	97.5
Arsenic				917.0	934.3		613.6	1247.2	101.9
Barium	2009.0	1995.51	99.3	4.8	5.0	B	2.5	8.1	104.2
Beryllium	476.0	484.37	101.8	19.4	17.8		15.3	22.2	91.8
Cadmium				45.4	39.4		32.1	51.1	86.8
Calcium	50711.0	49337.01	97.3	196200.0	180211.4		142933.0	225376.0	91.9
Chromium	471.0	484.39	102.8	99.6	95.2		77.8	115.2	95.6
Cobalt	520.0	536.34	103.1	144.0	134.8		115.4	165.6	93.6
Copper	497.0	492.91	99.2	6910.0	6341.9		5727.3	7633.1	91.8
Iron	1985.0	1957.04	98.6	22430.0	19586.6		16831.3	25193.0	87.3
Lead				236.0	207.8		167.6	280.5	88.1
Magnesium	24588.0	25010.83	101.7	118100.0	102834.5		97493.0	128886.0	87.1
Manganese	491.0	491.81	100.2	208.0	194.1		167.9	234.4	93.3
Mercury				12.7	10.3		7.8	16.9	81.1
Nickel	497.0	492.73	99.1	60.9	53.9		43.5	70.1	88.5
Potassium	49603.0	49527.86	99.8	50.0	65.9	B	0.0	379.3	131.8
Selenium				39.2	38.8		17.6	56.4	99.0
Silver				22.2	20.9		13.2	28.5	94.1
Sodium	48786.0	46642.01	95.6	50.0	328.7	B	0.0	277.4	657.4
Thallium				39.0	36.1		24.6	51.6	92.6
Vanadium	492.0	498.78	101.4	65.8	64.0		53.0	78.6	97.3
Zinc	3012.0	3040.11	100.9	187.0	170.9		127.7	222.1	91.4
Cyanide				5.6	5.5		4.1	7.1	98.2

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LABORATORY CONTROL SAMPLE

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

Solid LCS Source: _____

Aqueous LCS Source: EPA0392_____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic	50.9	52.90	103.9						
Barium									
Beryllium									
Cadmium	99.7	102.65	103.0						
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	98.8	108.56	109.9						
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium	50.7	56.55	111.5						
Silver	103.1	103.94	100.8						
Sodium									
Thallium	98.9	106.99	108.2						
Vanadium									
Zinc									
Cyanide									

U.S. EPA - CLP

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ICP SERIAL DILUTION

EPA SAMPLE NO.

ORIGINAL 52

MCYC10L

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK Case No.: 27341 SAS No.: SDG No.: MCWY47

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

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	9.00	U	45.00	U			P
Antimony	4.08	B	20.29	B	397.3		P
Arsenic	5.18	B	15.00	U	100.0		P
Barium	144.08	B	153.66	B	6.6		P
Beryllium	1.00	U	5.00	U			P
Cadmium	1.00	U	5.00	U			P
Calcium	319027.44		349895.32		9.7		P
Chromium	1.00	U	5.00	U			P
Cobalt	2.52	B	5.00	U	100.0		P
Copper	1.00	U	5.00	U			P
Iron	20775.01		22647.06		9.0		P
Lead	5.33		13.42	B	151.8		P
Magnesium	74335.53		80323.98		8.1		P
Manganese	882.49		950.94		7.8		P
Mercury							NR
Nickel	18.29	B	21.91	B	19.8		P
Potassium	22059.85		20481.46	B	7.2		P
Selenium	14.32		15.00	U	100.0		P
Silver	1.00	U	5.00	U			P
Sodium	27171.89		33467.07		23.2	E	P
Thallium	3.00	U	15.00	U			P
Vanadium	1.00	U	5.00	U			P
Zinc	75.46		90.46	B	19.9	E	P

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ILMO4.0

10
Instrument Detection Limits (Quarterly)

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137
Lab Code: SWOK Case No.: 27341 SAS No.: SDG No.: MCWY47
ICP ID Number: TJA_ET2 Date: 07/06/99
Flame AA ID Number :
Furnace AA ID Number :

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.22		200	9.0	P
Antimony	217.58		60	3.0	P
Arsenic	189.04		10	3.0	P
Barium	493.41		200	1.0	P
Beryllium	313.04		5	1.0	P
Cadmium	226.50		5	1.0	P
Calcium	317.93		5000	8.0	P
Chromium	267.72		10	1.0	P
Cobalt	228.61		50	1.0	P
Copper	324.75		25	1.0	P
Iron	271.44		100	13.0	P
Lead	220.35		3	1.0	P
Magnesium	279.08		5000	11.0	P
Manganese	257.61		15	1.0	P
Mercury			0.2		NR
Nickel	231.60		40	1.0	P
Potassium	766.49		5000	34.0	P
Selenium	196.03		5	3.0	P
Silver	328.07		10	1.0	P
Sodium	588.99		5000	16.0	P
Thallium	190.68		10	3.0	P
Vanadium	292.40		50	1.0	P
Zinc	213.86		20	1.0	P
Cyanide			10		NR

Comments:

U.S. EPA - CLP

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Instrument Detection Limits (Quarterly)

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137
Lab Code: SWOK Case No.: 27341 SAS No.: SDG No.: MCWY47
ICP ID Number: Date: 07/08/99
Flame AA ID Number : PS200A
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	254.00		0.2	0.1	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
Cyanide			10		NR

Comments:

10
Instrument Detection Limits (Quarterly)

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137
Lab Code: SWOK Case No.: 27341 SAS No.: SDG No.: MCWY47
ICP ID Number: Date: 07/06/99
Flame AA ID Number : PS200B
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	254.00		0.2	0.1	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
Cyanide			10		NR

Comments:

U.S. EPA - CLP

ORIGINAL

10
Instrument Detection Limits (Quarterly)

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137
Lab Code: SWOK Case No.: 27341 SAS No.: SDG No.: MCWY47
ICP ID Number:
Date: 07/13/99
Flame AA ID Number : LACHAT
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			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
Cyanide	578.00		10	2.0	CA

Comments:

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ICP LINEAR RANGES (QUARTERLY)

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCWY47

ICP ID Number: TJA ET2_____ Date: 07/14/99

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	15.00	600000.0	P
Antimony	15.00	60000.0	P
Arsenic	15.00	30000.0	P
Barium	15.00	30000.0	P
Beryllium	15.00	2000.0	P
Cadmium	15.00	10000.0	P
Calcium	15.00	600000.0	P
Chromium	15.00	10000.0	P
Cobalt	15.00	60000.0	P
Copper	15.00	60000.0	P
Iron	15.00	300000.0	P
Lead	15.00	60000.0	P
Magnesium	15.00	600000.0	P
Manganese	15.00	30000.0	P
Mercury			NR
Nickel	15.00	60000.0	P
Potassium	15.00	30000.0	P
Selenium	15.00	60000.0	P
Silver	15.00	30000.0	P
Sodium	15.00	30000.0	P
Thallium	15.00	60000.0	P
Vanadium	15.00	60000.0	P
Zinc	15.00	10000.0	P

Comments:

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PREPARATION LOG

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Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.:_27341_ SAS No.: _____ SDG No.:MCWY47

Method: P_

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LCSW	09/09/99		100
LCSW	09/09/99		100
MCYC03	09/09/99		100
MCYC04	09/09/99		100
MCYC10	09/09/99		100
MCYC10D	09/09/99		100
MCYC10S	09/09/99		100
PBW	09/09/99		100

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PREPARATION LOG

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.:_27341_ SAS No.: _____ SDG No.:MCWY47

Method: P_

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LCSS	09/09/99	1.00	200
MCWY47	09/09/99	1.01	200
MCWY48	09/09/99	1.05	200
MCYB96	09/09/99	1.01	200
MCYB97	09/09/99	1.00	200
MCYB98	09/09/99	1.00	200
MCYB99	09/09/99	1.05	200
MCYC00	09/09/99	1.00	200
MCYC02	09/09/99	1.02	200
MCYC05	09/09/99	1.00	200
MCYC05D	09/09/99	1.00	200
MCYC05S	09/09/99	1.00	200
MCYC06	09/09/99	1.03	200
MCYC07	09/09/99	1.03	200
PBS	09/09/99	1.00	200

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PREPARATION LOG

ORIGINAL

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.:_27341_ SAS No.: _____ SDG No.:MCWY47

Method: CV

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LCSS	09/09/99	0.23	100
MCWY47	09/09/99	0.24	100
MCWY48	09/09/99	0.25	100
MCYB96	09/09/99	0.20	100
MCYB97	09/09/99	0.21	100
MCYB98	09/09/99	0.24	100
MCYB99	09/09/99	0.22	100
MCYC00	09/09/99	0.22	100
MCYC02	09/09/99	0.25	100
MCYC05	09/09/99	0.21	100
MCYC05D	09/09/99	0.23	100
MCYC05S	09/09/99	0.24	100
MCYC06	09/09/99	0.21	100
MCYC07	09/09/99	0.22	100
PBS	09/09/99	0.20	100

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PREPARATION LOG

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Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.:_27341_ SAS No.: _____ SDG No.:MCWY47

Method: CV

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
MCYC03	09/09/99		100
MCYC10	09/09/99		100
MCYC10D	09/09/99		100
MCYC10S	09/09/99		100
PBW	09/09/99		100

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PREPARATION LOG

ORIGINAL

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Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.:_27341_ SAS No.: _____ SDG No.:MCWY47

Method: CV

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
MCYC04	09/17/99		100
PBW	09/17/99		100

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PREPARATION LOG

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Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.:_27341_ SAS No.: _____ SDG No.:MCWY47

Method: CA

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LCSS	09/08/99	1.00	50
MCWY47	09/08/99	1.01	50
MCWY48	09/08/99	1.04	50
MCYB96	09/08/99	1.03	50
MCYB97	09/08/99	1.04	50
MCYB98	09/08/99	1.02	50
MCYB99	09/08/99	1.00	50
MCYC00	09/08/99	1.03	50
MCYC02	09/08/99	1.00	50
MCYC05	09/08/99	1.00	50
MCYC05D	09/08/99	1.00	50
MCYC05S	09/08/99	1.00	50
MCYC06	09/08/99	1.01	50
MCYC07	09/08/99	1.04	50
PBS	09/08/99	1.00	50

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PREPARATION LOG

ORIGINAL
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Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.:_27341_ SAS No.: _____ SDG No.:MCWY47

Method: CA

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
MCYC03	09/08/99		50
MCYC04	09/08/99		50
MCYC10	09/08/99		50
MCYC10D	09/08/99		50
MCYC10S	09/08/99		50
PBW	09/08/99		50

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ANALYSIS RUN LOG

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137 68

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.:MCWY47

Instrument ID Number: TJA ET2_____ Method: P_

Start Date: 09/14/99 End Date: 09/14/99

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
S0	1.00	1141		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
S	1.00	1146		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
ICV	1.00	1152		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	1157		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
CRI1	1.00	1203			X	X		X	X		X	X	X		X		X	_	X		X	X		X	X	X	_
ICSA	1.00	1208		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
ICSAB	1.00	1213		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	1219		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
CCB1	1.00	1224		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
PBW	1.00	1230		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
LCSW	1.00	1235		X	X	_	X	X	_	X	X	X	X	X	_	X	X	_	X		_	_	_	_	X	X	_
LCSW	2.00	1241		_	_	X	_	_	X	_	_	_	_	_	X	_	_	_	_	X			X		_	_	_
CSW	1.00	1246				X			X						X			_			X	X		X			_
CYC03	1.00	1252		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
MCYC04	1.00	1257		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
MCYC10	1.00	1303		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	_	X	X	X	_
MCYC10L	5.00	1308		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	_	X	X	X	_
ZZZZZZ	1.00	1320																									_
CCV	1.00	1326		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
CCB2	1.00	1331		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
MCYC10D	1.00	1337		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	_	X	X	X	_
MCYC10S	1.00	1342		X	X	X	X	X	X	_	X	X	X	X	X	_	X	_	X	_	X	X	_	X	X	X	_
MCYC10	25.00	1348		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	X	_	_	_	_
MCYC10D	25.00	1353		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	X	_	_	_	_
MCYC10L	125.00	1359		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	X	_	_	_	_
ZZZZZZ	1.00	1411		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
CRI2	1.00	1416		_	X	X	_	X	X	_	X	X	X	_	X	_	X	_	X	_	X	X	_	X	X	X	_
ICSA	1.00	1422		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
ICSAB	1.00	1435		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	1441		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
CCB3	1.00	1446		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
				_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
				_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_

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ANALYSIS RUN LOG

ORIGINAL 69

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.:MCWY47

Instrument ID Number: TJA ET2_____ Method: P_

Start Date: 09/14/99 End Date: 09/15/99

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
S0	1.00	2217		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
S	1.00	2222		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICV	1.00	2228		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	2233		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CRI1	1.00	2239			X	X		X	X		X	X	X		X		X		X		X	X		X	X	X	
ICSA	1.00	2244		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSAB	1.00	2250		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	2255		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB1	1.00	2301		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
PBS	1.00	2306		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	2312		X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
LCSS	5.00	2317								X																	
MCWY47	1.00	2323		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
MCWY48	1.00	2328		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
MCYB96	1.00	2333		X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X		
MCYB96	50.00	2339													X											X	
ZZZZZZ	1.00	2353																									
ZZZZZZ	1.00	0001																									
CCV	1.00	0007		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB2	1.00	0012		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
MCYB97	1.00	0017		X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X	X	
MCYB97	20.00	0023													X												
MCYB98	1.00	0028		X	X	X	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X	X	
MCYB98	5.00	0034												X													
MCYB99	1.00	0039		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ZZZZZZ	1.00	0054																									
CRI2	1.00	0107			X	X		X	X		X	X	X		X		X		X		X	X		X	X	X	
ICSA	1.00	0112		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
ICSAB	1.00	0118		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	0123		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
CCB3	1.00	0129		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	

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ANALYSIS RUN LOG

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Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.:MCWY47

Instrument ID Number: TJA ET2_____ Method: P_

Start Date: 09/15/99 End Date: 09/15/99

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
S0	1.00	0830		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
S	1.00	0835		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
ICV	1.00	0841		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	0846		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
CRI1	1.00	0852			X	X		X	X		X	X	X		X		X	_	X		X	X		X	X	X	_
ICSA	1.00	0857		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
ICSAB	1.00	0903		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	0908		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
CCB1	1.00	0914		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
MCYC00	1.00	0919		X	X	X	X	X	X	X	X	X	X		X	X	X	_	X	X	X	X	X	X	X	X	_
MCYC00	5.00	0925												X													_
MCYC02	1.00	0930		X	X	X	X	X	X	X	X	X	X		X	X	X	_	X	X	X	X	X	X	X	_	_
MCYC02	5.00	0936												X				_								X	_
MCYC06	1.00	0941		X	X	X	X	X	X	X	X	X	X	X	_	X	X	_	X	X	X	X	X	X	X		_
MCYC06	5.00	0947		_	_	_	_	_	_	_	_	_	_	_	X	_	_	_	_	_	_	_	_	_	_	X	_
MCYC06	100.00	0952		_	_	_	_	_	_	_	_	_	_	_	X	_	_	_	_	_	_	_	_	_	_	_	_
ZZZZZZ	1.00	1019		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
ZZZZZZ	1.00	1029		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
CCV	1.00	1034		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
CCB2	1.00	1040		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
MCYC07	1.00	1049		X	X	X	X	X	X	X	X	X	X		X	X	X	_	X	X	X	X	X	X	X	X	_
MCYC07	10.00	1056												X				_									_
MCYC05	1.00	1101		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	_	_
MCYC05D	1.00	1107		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	_	_
MCYC05S	1.00	1112			X	X	X	X	X		X	X	X		X		X	_	X		X	X		X	X	_	_
MCYC05L	5.00	1118		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	_	_
ZZZZZZ	1.00	1135		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
CRI2	1.00	1140			X	X		X	X		X	X	X		X		X	_	X		X	X		X	X	X	_
ICSA	1.00	1145		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
ICSAB	1.00	1151		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	1156		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
CCB3	1.00	1202		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
				_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_

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ANALYSIS RUN LOG

ORIGINAL

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Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.:MCWY47

Instrument ID Number: TJA ET2_____ Method: P_

Start Date: 09/15/99 End Date: 09/15/99

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
MCYC05A	1.00	1207		–	X	X	X	–	–	–	X	–	X	–	–	–	–	–	–	–	X	–	–	–	–	–	–
MCYC05	5.00	1213		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–
MCYC05D	5.00	1218		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–
MCYC05S	5.00	1224		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–
MCYC05L	25.00	1229		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–
ZZZZZZ	1.00	1246		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CRI3	1.00	1251		–	X	X	–	X	X	–	X	X	X	–	X	–	X	–	X	–	X	X	–	X	X	X	–
ICSA	1.00	1257		X	X	X	X	X	X	X	X	X	X	X	X	X	X	–	X	X	X	X	X	X	X	X	–
ICSAB	1.00	1302		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	1308		X	X	X	X	X	X	X	X	X	X	X	X	X	X	–	X	X	X	X	X	X	X	X	–
CCB4	1.00	1313		X	X	X	X	X	X	X	X	X	X	X	X	X	X	–	X	X	X	X	X	X	X	X	–
				–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
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ANALYSIS RUN LOG

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.: MCM247

Instrument ID Number: TJA ET2_____ Method: P_

Start Date: 09/15/99 End Date: 09/15/99

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
S0	1.00	1432													X												
S	1.00	1438													X												
ICV	1.00	1443													X												
ICB	1.00	1449													X												
CRI1	1.00	1454													X												
ICSA	1.00	1500													X												
ICSAB	1.00	1508													X												
CCV	1.00	1513													X												
CCB11	1.00	1519													X												
MCYC10A	1.00	1524													X												
ZZZZZZ	1.00	1530																									
ZZZZZZ	1.00	1535																									
ZZZZZ	1.00	1540																									
ZZZZZZ	1.00	1546																									
ZZZZZZ	1.00	1551																									
ZZZZZZ	1.00	1557																									
ZZZZZZ	1.00	1602																									
ZZZZZZ	1.00	1608																									
ZZZZZZ	1.00	1618																									
CCV	1.00	1623													X												
CCB12	1.00	1629													X												
ZZZZZZ	1.00	1634																									
ZZZZZZ	1.00	1640																									
ZZZZZZ	1.00	1650																									
CRI2	1.00	1655													X												
ICSA	1.00	1701													X												
ICSAB	1.00	1706													X												
CCV	1.00	1712													X												
CCB13	1.00	1717													X												

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ANALYSIS RUN LOG

ORIGINAL

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.:MCWY47

Instrument ID Number: PS200A_____ Method: CV

Start Date: 09/09/99 End Date: 09/09/99

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
S0	1.00	1110																X									
S0.2	1.00	1113																X									
S0.5	1.00	1115																X									
S1	1.00	1118																X									
S5	1.00	1121																X									
S10	1.00	1124																X									
ICV	1.00	1126																X									
ICB	1.00	1129																X									
CRA	1.00	1132																X									
CCV	1.00	1134																X									
CCB1	1.00	1137																X									
PBS	1.00	1150																X									
ISS	10.00	1152																X									
MCWY47	1.00	1155																X									
MCWY48	1.00	1158																X									
MCYB96	1.00	1200																X									
MCYB97	1.00	1203																X									
MCYB98	1.00	1206																X									
MCYB99	1.00	1208																X									
MCYC00	1.00	1211																X									
MCYC02	1.00	1214																X									
CCV	1.00	1216																X									
CCB2	1.00	1219																X									
MCYC05	1.00	1222																X									
MCYC05D	1.00	1224																X									
MCYC05S	1.00	1227																X									
MCYC06	1.00	1229																X									
MCYC07	1.00	1232																X									
ZZZZZZ	1.00	1235																									
CCV	1.00	1237																X									
CCB3	1.00	1240																X									

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ANALYSIS RUN LOG

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Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.:MCWY47

Instrument ID Number: PS200B_____ Method: CV

Start Date: 09/09/99 End Date: 09/09/99

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
S0	1.00	1258																X									
S0.2	1.00	1303																X									
S0.5	1.00	1305																X									
S1	1.00	1308																X									
S5	1.00	1311																X									
S10	1.00	1313																X									
ICV	1.00	1330																X									
ICB	1.00	1333																X									
CRA	1.00	1335																X									
CCV	1.00	1338																X									
CCB4	1.00	1341																X									
ZZZZZZ	1.00	1427																									
ZZZZZZ	1.00	1430																									
ZZZZZZ	1.00	1433																									
ZZZZZZ	1.00	1435																									
ZZZZZZ	1.00	1438																									
ZZZZZZ	1.00	1440																									
ZZZZZZ	1.00	1443																									
ZZZZZZ	1.00	1446																									
ZZZZZZ	1.00	1448																									
ZZZZZZ	1.00	1451																									
CCV	1.00	1454																X									
CCB5	1.00	1456																X									
ZZZZZZ	1.00	1459																									
ZZZZZZ	1.00	1502																									
ZZZZZZ	1.00	1504																									
PBW	1.00	1507																X									
MCYC03	1.00	1510																X									
MCYC10	1.00	1512																X									
MCYC10L	1.00	1515																X									
MCYC10D	1.00	1517																X									
MCYC10S	1.00	1520																X									

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ANALYSIS RUN LOG

ORIGINAL

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.:MCWY47

Instrument ID Number: PS200B_____ Method: CV

Start Date: 09/09/99 End Date: 09/09/99

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
ZZZZZZ	1.00	1523		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CCV	1.00	1525		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
CCB	1.00	1528		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–

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ANALYSIS RUN LOG

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Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.:MCWY47

Instrument ID Number: PS200B_____ Method: CV

Start Date: 09/17/99 End Date: 09/17/99

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
S0	1.00	1045		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
S0.2	1.00	1048		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
S0.5	1.00	1051		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
S1	1.00	1053		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
S5	1.00	1056		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
S10	1.00	1059		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
ICV	1.00	1109		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
ICB	1.00	1111		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
CRA	1.00	1114		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
CCV	1.00	1117		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
CCB	1.00	1119		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1128		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1131		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1134		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1136		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1139		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1141		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1144		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1147		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1149		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1152		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CCV	1.00	1155		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
CCB	1.00	1157		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1200		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1203		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1205		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1208		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1211		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1213		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1216		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1218		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1221		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

U.S. EPA - CLP

14
ANALYSIS RUN LOG

ORIGINAL
77

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.:MCWY47

Instrument ID Number: PS200B_____ Method: CV

Start Date: 09/17/99 End Date: 09/17/99

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
ZZZZZZ	1.00	1224		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CCV	1.00	1226		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
CCB 3	1.00	1229		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1232		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1234		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1237		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1240		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1242		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1245		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1248		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1250		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1253		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1256		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CCV	1.00	1258		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
CCB4	1.00	1301		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1304		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1306		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1309		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1312		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1314		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1317		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1320		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1322		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1325		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1328		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CCV	1.00	1330		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
CCB 5	1.00	1333		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1336		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1339		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1341		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1344		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1347		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

U.S. EPA - CLP

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ANALYSIS RUN LOG

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Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.:MCWY47

Instrument ID Number: PS200B_____ Method: CV

Start Date: 09/17/99 End Date: 09/17/99

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
ZZZZZZ	1.00	1349																									
ZZZZZZ	1.00	1352																									
CCV	1.00	1355																X									
CCB 6	1.00	1357																X									
ZZZZZZ	1.00	1403																									
ZZZZZZ	1.00	1406																									
ZZZZZZ	1.00	1408																									
ZZZZZZ	1.00	1411																									
ZZZZZZ	1.00	1414																									
ZZZZZZ	1.00	1416																									
ZZZZZZ	1.00	1419																									
ZZZZZZ	1.00	1422																									
ZZZZZZ	1.00	1425																									
ZZZZZZ	1.00	1427																									
CCV	1.00	1430																X									
CCB 7	1.00	1433																X									
ZZZZZZ	1.00	1435																									
CCV	1.00	1438																X									
CCB 8	1.00	1441																X									
ZZZZZZ	1.00	1449																									
ZZZZZZ	1.00	1452																									
ZZZZZZ	1.00	1454																									
ZZZZZZ	1.00	1457																									
ZZZZZZ	1.00	1500																									
ZZZZZZ	1.00	1506																									
CCV	1.00	1509																X									
CCB 9	1.00	1511																X									
ZZZZZZ	1.00	1551																									
ZZZZZZ	1.00	1554																									
ZZZZZZ	1.00	1556																									
ZZZZZZ	1.00	1559																									
ZZZZZZ	1.00	1602																									

U.S. EPA - CLP

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ANALYSIS RUN LOG

ORIGINAL

79

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.:MCWY47

Instrument ID Number: PS200B_____ Method: CV

Start Date: 09/17/99 End Date: 09/17/99

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
ZZZZZZ	1.00	1604		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1607		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1610		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1612		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
PBW	1.00	1615		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
CCV	1.00	1618		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
CCB10	1.00	1620		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1623		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1626		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1628		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1631		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1633		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
YC04	1.00	1636		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1639		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1641		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1644		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZZZZZZ	1.00	1647		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CCV	1.00	1649		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
CCB11	1.00	1652		–	–	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–
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FORM XIV - IN ILMO4.0

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137 80

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.:MCWY47

Instrument ID Number: LACHAT_____ Method: CA

Start Date: 09/09/99 End Date: 09/09/09

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
S200	1.00	1027																									X
S150	1.00	1028																									X
S100	1.00	1029																									X
S50	1.00	1030																									X
S10	1.00	1031																									X
S5	1.00	1032																									X
S0	1.00	1033																									X
ICV	1.00	1036																									X
ICB	1.00	1037																									X
CCV	1.00	1038																									X
CCB	1.00	1038																									X
PBS	1.00	1040																									X
LCSS	1.00	1041																									X
ZZZZZZ	1.00	1042																									X
MCWY47	1.00	1043																									X
MCWY48	1.00	1043																									X
MCYB96	1.00	1044																									X
CCV	1.00	1045																									X
CCB	1.00	1046																									X
MCYB97	1.00	1048																									X
MCYB98	1.00	1048																									X
MCYB99	1.00	1049																									X
MCYC00	1.00	1050																									X
MCYC02	1.00	1051																									X
MCYC05	1.00	1051																									X
MCYC05D	1.00	1052																									X
MCYC05S	1.00	1053																									X
CCV	1.00	1054																									X
CCB	1.00	1054																									X
MCYC06	1.00	1056																									X
MCYC07	1.00	1057																									X
CCV	1.00	1058																									X

FORM XIV - IN ILMO4.0

U.S. EPA - CLP

14
ANALYSIS RUN LOG

ORIGINAL

81

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.:MCWY47

Instrument ID Number: LACHAT_____ Method: CA

Start Date: 09/09/99 End Date: 09/09/09

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
CCB	1.00	1059																									X

FORM XIV - IN ILM04.0

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: SOUTHWEST_LAB_OF_OKLAHOMA Contract: 68-D5-0137

Lab Code: SWOK__ Case No.: 27341_ SAS No.: _____ SDG No.:MCWY47

Instrument ID Number: LACHAT_____ Method: CA

Start Date: 09/09/99 End Date: 09/09/99

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
S200	1.00	1330		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
S150	1.00	1331		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
S100	1.00	1332		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
S50	1.00	1333		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
S10	1.00	1334		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
S5	1.00	1335		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
S0	1.00	1336		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
ICV	1.00	1351		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
ICB	1.00	1352		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
CCV	1.00	1353		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
CCB	1.00	1353		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
PBW	1.00	1355		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
ZZZZZ	1.00	1356		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
CYC03	1.00	1357		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
MCYC04	1.00	1358		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
MCYC10	1.00	1358		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
MCYC10D	1.00	1359		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
CCV	1.00	1400		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
CCB	1.00	1401		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
MCYC10S	1.00	1403		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
MCYC05A	1.00	1403		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
CCV	1.00	1404		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
CCB	1.00	1405		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	X
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Lockheed Martin Environmental Services
US EPA Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Telephone 410-305-3037 Facsimile 410-305-3597

ORIGINAL

LOCKHEED MARTIN

Mr. Mike Towle, 3HS 31
USEPA Region 3
1650 Arch St.
Philadelphia, PA 19103

September 28, 1999

Dear Mr. Towle:

Enclosed, you will find the unvalidated Form I's and associated documents for the inorganic portion of case 27341, 12th St. LF site. If you have any questions or need additional information, please contact ESAT's RPO, Frederick Foreman at 410-305-2629.

Sincerely,

Judy Snyder

Judy Snyder
ESAT RSCC

cc: Fred Foreman, ESAT RPO
WA0399303

The attached analytical data documents have been discarded after receipt of validated data & Report.
JS.