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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
CENTRAL REGIONAL LABORATORY
839 BESTGATE ROAD
ANNAPOLIS, MARYLAND 21401
(301) 266-9180

DATE : May 12, 1989

SUBJECT: Inorganic Data Validation for the Cryochem Site
Case 11350

FROM : Theresa A. Simpson TAS
Region III Acting ESAT DPO (3ES23)

TO : Chris Pilla
Regional Project Manager (3HW12)

THRU : Patricia J. Krantz TAS for
Chief, QA Section (3ES23)

Attached is the inorganic data review for the Cryochem Site (Case 11350) 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.

Attachment

cc: Mike Johnson, PRC

TID File: 03890214 Task 1554

Task #: 1554

DATA VALIDATION EVALUATION CHECKLIST

Case/SAS Number: 11350 Site Name: Cryochem
Assignment #: 0389021 Revision Number: 0 Analysis Type: INORGANIC
Reviewer: Milagros P. Jarrellana Contractor: ESAT SOW #: 7/87
Information request date: 3/31/89 Information received date: 4/25/89
Date submitted to EPA: 5/3/89
EPA DPO: Terry Simpson
EPA RPM: Chris Pilla
cc:

Number of hours spent on review: 15
Number of samples: 12

CRITERIA	YES	NO	COMMENTS
Format according to Region III protocol			
Clarity of report			
Qualifiers applied correctly			
Consistency between narrative, data summary form(s), and DPO report			
Error-free transcription			

EFFICIENCY OF CONTRACTOR	YES	NO	COMMENTS
Approval recommended for current submission			
Time spent on review is reasonable			

2/3

ESD OVERSIGHT

DATES	AFC/DPO	MONITOR/ EVALUATOR	ESAT
Received at EPA			
Oversight assigned			
Oversight rec'd by TM			
Oversight complete			
Feedback given			
Mailed to RPM			

Attachment(s), check if applicable: cover memo ____ phone log ____ comments ____

cc: Patricia J. Krantz

AR301088

revised 08/88

DATA REVIEW CHECKLIST

Case/SAS Number: 11350 Site Name: Cryochem
Task #: 1554 Analysis Type: Inorg.
TID #: 03890214 Preparer: Mila Javellana
Revision #: 0 Reviewer: Mahboobeh Mecanic
Date of Report: 5/2/89 Review #: 0

CRITERIA	YES	NO	COMMENTS
Is the report format according to Region III protocol?		✓	See p. 2
Is the report clear?	✓		
Are qualifiers applied correctly?		✓	See Table 1A
Is there consistency between narrative, data summary form(s), and DPO report?		✓	See data summary & Narrative
Are there transcription errors?	✓		data summary
Are there typos?	✓		

General Comments:

Reviewed and Approved by: M. Mecanic

Date: 5/2/89

GD:bjt
admin#4,datarevqc

AR301089

ESAT DATA VALIDATION EVALUATION CHECKLIST

Case/SAS Number: 11350 Site Name: Cryochem
TID #: 038902141 Analysis Type: Inorganic

Technical Quality _____

(1) WHO Julie Kriely (Chemtech) INFO. REQ. DATE 3/31/89 REASONABLE
WHY see phone log INFO. REC'D DATE 4/25/89 REQUEST (Y/N)_____
phone log ✓

(2) WHO_____ INFO. REQ. DATE_____ REASONABLE
WHY_____ INFO. REC'D DATE_____ REQUEST (Y/N)_____
phone log_____

(3) WHO_____ INFO. REQ. DATE_____ REASONABLE
WHY_____ INFO. REC'D DATE_____ REQUEST (Y/N)_____
phone log_____

(4) WHO_____ INFO. REQ. DATE_____ REASONABLE
WHY_____ INFO. REC'D DATE_____ REQUEST (Y/N)_____
phone log_____

TASK MONITOR
SIGNATURE _____ DATE _____

TOTAL INFO. DELAY DAYS _____

TOTAL OVERSIGHT DELAY DAYS _____

DAYS LATE _____

ACTUAL t.a.t. _____ Compliance with Schedule _____

Estimated hours for review: _____ Actual hours spent on review: _____ Compliance with Budget _____

Management (optional) _____

OPTIONAL COMMENTS RELATING TO SCORES:

SECTION CHIEF
SIGNATURE _____ DATE _____

AR301090

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
CENTRAL REGIONAL LABORATORY
839 BESTGATE ROAD
ANNAPOLIS, MARYLAND 21401
(301) 266-9180

DATE :

SUBJECT: Region III CLP Data QA Review

FROM : Patricia J. Krantz (3ES23)
Chief, Quality Assurance, Region III

TO : Carla Dempsey (OS-230)
QAO, AOB

Attached is a Region III CLP Data Review done by Weston reviewers under the ESAT contract:

Case No.: 11350

Sitename: Cryochem

Laboratory: Chemtech

Reviewer: Mila Javellana

Attachment

cc: EPA Site RPM
Gareth Pearson, EMSL-LV
Regional DPO: Lisa Vidulich Region II

ESAT PROJECT
2568A RIVA RD., SUITE 300
ANNAPOLIS, MD 21401
PHONE: (301) 266-9887

DATE: May 3, 1989

SUBJECT: Inorganic Data Validation, Case 11350
Site: Cryochem

FROM: Milagros P. Javellana
Senior Chemist

TO: Terry Simpson
Acting ESAT Deputy Project Officer

THRU: Charles Matkovich
ESAT Team Manager

OVERVIEW

The set of samples for Case 11350 contained four (4) aqueous and eight (8) soil samples, which were analyzed through the Contract Laboratory Program (CLP) Routine Analytical Services. The sample set contained one (1) aqueous field blank, one (1) aqueous and two (2) soil field duplicate pairs.

SUMMARY

All analytes were successfully analyzed in all samples.

Qualifiers were not applied to the results of the samples which had already been qualified "B", denoting blank contamination, in the data summary (Table 3). Areas of concern with respect to data usability are listed according to the seriousness of the problem. These include:

MINOR ISSUES

Several blanks had reported results for analytes that were > IDL. The reported results for the analytes in the affected samples which are <5X the blank concentration may be biased high and, therefore, have been qualified "B" as summarized in the following table:

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ANALYTE	SAMPLE TYPE	TYPE OF BLANK
Ca,Cu,Pb,Mg, Hg,K,Na	aqueous	field
Cu	soil	preparation

The percent difference (%D) of the serial dilution was greater than the 10% limit for the Zn analyte in the soil samples. Therefore, the reported results for the Zn analyte in the soil samples have been qualified, estimated, "J".

The aqueous matrix spike recovery was low for the Ag analyte. The quantitation limits for the Ag analyte in the aqueous samples may be biased low and, therefore, have been qualified "UL".

The soil matrix spike recovery was low for the Ag analyte. The quantitation limits and reported result for the Ag analyte in the soil samples may be biased low and, therefore, have been qualified "UL" and "L", respectively.

The soil matrix spike recoveries were high for the Cr and Mn analytes. The reported results for the Cr and Mn analytes in the soil samples may be biased high and, therefore, have been qualified "K".

Several aqueous and soil samples had low analytical spike recoveries for the As and Se analytes. The quantitation limits for these analytes may be biased low in the affected samples and, therefore, have been qualfied "UL".

Several analytical spike recoveries were high for the Pb analyte in the aqueous samples. The reported results for Pb in the affected samples may be biased high and, therefore, have been qualified "K".

The pH for all aqueous samples for CN^- analyses were below 12. The quantitation limits for CN^- in the aqueous samples may be biased low and, therefore, have been qualified "UL".

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NOTE

The data was reviewed according to the National Functional Guidelines for Evaluating Inorganic Analyses.

INFORMATION REGARDING REPORT CONTENT

Table 1A is a summary of qualifiers added to the laboratory's results during evaluation.

ATTACHMENTS

TABLE 1A	SUMMARY OF QUALIFIERS ON DATA SUMMARY AFTER DATA VALIDATION
TABLE 1B	CODES USED IN COMMENTS COLUMN
TABLE 2	GLOSSARY OF DATA QUALIFIER CODES
TABLE 3	DATA SUMMARY FORM
APPENDIX A	RESULTS REPORTED BY LABORATORY FORM I
APPENDIX B	DPO REPORT
APPENDIX C	SUPPORT DOCUMENTATION

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TABLE 1A

SUMMARY OF QUALIFIERS ON DATA SUMMARY
AFTER DATA VALIDATION

ANALYTE	SAMPLES AFFECTED	POSITIVE VALUES	NON-DETECTED VALUES	BIAS	COMMENTS*
As	MCBM50		UL	Low	A(58%)
Ca	MCBM50	B		High	B(3780 ppb)
Cr	All soil samples	K		High	C(171%)
Cu	MCBM54;MCBM61	B		High	D(3.2 ppm)
	All aqueous samples except MCBM53	B		High	B(34.8 ppb)
Pb	All aqueous samples except MCBM51 & MCBM53	B		High	B(3.8 ppb) E(255-279%)
	MCBM53	K		High	E(118%)
	MCBM51	B		High	B(3.8 ppb)
Mg	MCBM50	B		High	B(1150 ppb)
Mn	All soil samples	K		High	C(130%)
K	All aqueous samples except MCBM53	B		High	B(1600 ppb)
Hg	All aqueous samples except MCBM53	B		High	B(1.0 ppb)
Se	MCBM56;MCBM58		UL	Low	A(66&68%)
Na	MCBM50	B		High	B(1160 ppb)
Ag	All soil samples	L	UL	Low	F(55&73%)
	All aqueous samples		UL	Low	F(57%)
CN^-	All aqueous samples		UL	Low	G
Zn	All soil samples	J			H(10.1%)

* See explanation of comments in Table 1B.

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TABLE 1B

CODES USED IN COMMENTS COLUMN

A = Due to low analytical spike recoveries (% recoveries in parentheses) the quantitation limits may be biased low.

B = The field blank had a result >IDL (the result is in parentheses). The reported result was <5X the blank and my be biased high.

C = Due to a high matrix spike recoveries (% recoveries in parentheses), the reported results may be biased high.

D = The soil preparation blank had a result > IDL (the result in parentheses) and the reported results were <5X the blank. The reported results may be biased high.

E = Due to a high analytical spike recoveries (% recoveries in parentheses) the quantitation limits may be biased high.

F = Due to a low matrix spike recovery (% recovery in parentheses), the reported results and quantitation limits may be biased low.

G = The pH for aqueous samples for CN^- analyses were less than 12. The quantitation limits may be biased low.

H = The percent difference of the serial dilution is greater than the 10% limit. Therefore, the reported results for the analyte are estimated.

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TABLE 2

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

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.

Table 3

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

Site Name: Cryochem

WATER SAMPLES (ug/L)

Case #: 11350 Sampling Date(s): 1/31/89

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

CRDL	ANALYTE	MCBM50		MCBM51		MCBM52		MCBM53	
	Dilution Factor	1		1		1		1	
	Location	SW1-02		SW2-02 dup of MCBM52		SW2D-02 dup of MCBM51		FB Field Blank	
200	Aluminum	[136]		[170]					
60	Antimony								
10	*Arsenic		UL						
200	Barium								
5	Beryllium								
5	*Cadmium								
5000	Calcium	9210	B	34600		34600		[3780]	
10	*Chromium	39.6							
50	Cobalt								
25	Copper	46.3	B	52.2	B	66.7	B	3.8	
100	Iron	180		361		139			
5	*Lead	[4.6]	B	6.3	B	5.6	B	[3.8]	K
5000	Magnesium	[2510]	B	16700		17200		[1150]	
15	Manganese			35.7		21.6			
0.2	Mercury	1.8	B	1.4	B	1.2	B	1.0	
40	*Nickel								
5000	Potassium	[1900]	B	[2900]	B	[2700]	B	[1600]	
5	Selenium								
10	Silver		UL		UL		UL		UL
5000	Sodium	[4490]	B	6650		7470		[1160]	
10	Thallium								
50	Vanadium								
20	Zinc	21.40		85.4		55.4			
10	*Cyanide		UL		UL		UL		UL

CRDL - Contract Required Detection Limit *A[illegible] Level Exists SEE NARRATIVE FOR CO[illegible] DEFINITIONS

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Table 3

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

Site Name: Cryochem

SOIL SAMPLES (mg/Kg)

Case #: 11350 Sampling Date(s): 4/31/89

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

CRDL	ANALYTE	MCBM54		MCBM55		MCBM56		MCBM57		MCBM58		MCBM59		MCBM60		MCBM61	
								4		17		11		5			
	Dilution Factor	1		1		1		1		1		1		1		1	
	% Solids	72.2		75.4		58.4		66.4		71.2		56.4		87.8		84.2	
	Location	CC SB1-02		CC SB2-02 Dup of MCBM56		CC SB20-02 Dup of MCBM55		CC SB1-02 Dup of MCBM61		CC SS2-02		CC SS3-02		CC SS4-02		CC SD-02 Dup of MCBM57	
40	Aluminum	1250		5200		8390		21900		8020		18700		33300		11700	
12	Antimony																
2	Arsenic			3.10		3.5		36.6		9.3		48.0		24.6		29.5	
40	Barium	[20.6]		114		152		186		706		151		135.0		103	
1	Beryllium					[1.1]		3.4		[1.2]		[1.2]		1.4		2.1	
1	Cadmium					2.1				2.4				3.9			
1000	Calcium	2460		39800		61300		2680		9310		3320		3200		1940	
2	Chromium	4.7	K	64.5	K	338	K	20.0	K	164	K	21.8	K	43.0	K	15.0	K
10	Cobalt	[1.6]		[7.5]		[13.5]		[12.6]		[11.2]		22.6		13.7		[8.3]	
5	Copper	12.6	B	40.0		81.7		20.4		42.8		23.0		21.5		7.9	B
20	Iron	2670		10400		15400		20100		12300		20400		34100		13100	
1	*Lead	7.2		56.2		51.4		40.7		116		21.7		33.7		42.9	
1000	Magnesium	[453]		8620		14700		[446]		2690		3730		3350		[273]	
3	Manganese	90.0	K	253	K	301	K	2720	K	1130	K	860	K	640	K	1450	K
0.2	Mercury	0.93		0.86		1.5		0.90		0.70		1.2		0.91		0.95	
8	Nickel			60.0		307		22.3		107		18.9		20.1		12.4	
1000	Potassium	[426]		[345]		[1060]		[1020]		[1120]		[310]		[952]		[618]	
1	Selenium						UL				UL			[1.0]			
2	Silver		UL		UL	3.6	L		UL		UL		UL		UL		UL
1000	Sodium	1460		1480		1970		1630		1630		1800		1210		1280	
2	Thallium																
10	Vanadium			16.8		23.6		22.2		[11.5]		36.7		65.0		12.8	
4	Zinc	26.6	J	145	J	166	J	82.1	J	1990	J	57.8	J	123	J	50.1	J
2	Cyanide												Q		Q		

[ ] Required Detection Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

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APPENDIX A

RESULTS REPORTED BY LABORATORY

FORM I'S

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MCBM50

Lab Name: Chemtech Consulting Group Contract: 68-W8-0061

Lab Code: CHEM Case No.: 11350 SAS No.: SDG No.: MCBM50

Matrix (soil/water): WATER Lab Sample ID: 00092-01S

Level (low/med): LOW Date Received: 02/02/89

% Solids: 0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	136.00	B		P
7440-36-0	Antimony	40.00	U		P
7440-38-2	Arsenic	3.00	U	NW	F
7440-39-3	Barium	40.00	U		P
7440-41-7	Beryllium	2.00	U		P
7440-41-7	Cadmium	5.00	U		P
7440-70-2	Calcium	9210.00			P
7440-47-3	Chromium	39.60			P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	46.30			P
7439-89-6	Iron	180.00			P
7439-92-1	Lead	4.60	B	W	F
7439-95-4	Magnesium	2510.00	B		P
7439-96-5	Manganese	9.00	U		P
7439-97-6	Mercury	1.80			CV
7440-02-0	Nickel	8.00	U		P
7440-09-7	Potassium	1900.00	B		A
7782-49-2	Selenium	2.00	U	W	F
7440-22-4	Silver	7.00	U	N	P
7440-23-5	Sodium	4490.00	B		P
7440-28-0	Thallium	5.00	U		F
7440-62-2	Vanadium	12.00	U		P
7440-66-6	Zinc	21.40			P
	Cyanide	5.00	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MCBM51

Lab Name: Chemtech Consulting Group Contract: 68-W8-0061

Lab Code: CHEM Case No.: 11350 SAS No.: SDG No.: MCBM50

Matrix (soil/water): WATER Lab Sample ID: 00092-02S

Level (low/med): LOW Date Received: 02/02/89

% Solids: 0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	170.00	B		P
7440-36-0	Antimony	40.00	U		P
7440-38-2	Arsenic	3.00	U	N	F
7440-39-3	Barium	40.00	U		P
7440-41-7	Beryllium	2.00	U		P
7440-41-7	Cadmium	5.00	U		P
7440-70-2	Calcium	34600.00			P
7440-47-3	Chromium	5.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	52.20			P
7439-89-6	Iron	361.00			P
7439-92-1	Lead	6.30			F
7439-95-4	Magnesium	13700.00			P
7439-96-5	Manganese	35.70			P
7439-97-6	Mercury	1.40			CV
7440-02-0	Nickel	8.00	U		P
7440-09-7	Potassium	2900.00	B		A
7782-49-2	Selenium	2.00	U	W	F
7440-22-4	Silver	7.00	U	N	P
7440-23-5	Sodium	6650.00			P
7440-28-0	Thallium	5.00	U	W	F
7440-62-2	Vanadium	12.00	U		P
7440-66-6	Zinc	85.40			P
	Cyanide	5.00	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: ___

Comments:

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MCBM52

Name: Chemtech Consulting Group Contract: 68-W8-0061

Lab Code: CHEM Case No.: 11350 SAS No.: SDG No.: MCBM50

Matrix (soil/water): WATER Lab Sample ID: 00092-03S

Level (low/med): LOW Date Received: 02/02/89

% Solids: 0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	100.00	U		P
7440-36-0	Antimony	40.00	U		P
7440-38-2	Arsenic	3.00	U	N	F
7440-39-3	Barium	40.00	U		P
7440-41-7	Beryllium	2.00	U		P
7440-41-7	Cadmium	5.00	U		P
7440-70-2	Calcium	34600.00			P
7440-47-3	Chromium	5.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	66.70			P
7439-89-6	Iron	139.00			P
7439-92-1	Lead	5.60		W	F
7439-95-4	Magnesium	17200.00			P
7439-96-5	Manganese	21.60			P
7439-97-6	Mercury	1.20			CV
7440-02-0	Nickel	8.00	U		P
7440-09-7	Potassium	2700.00	B		A
7782-49-2	Selenium	2.00	U	W	F
7440-22-4	Silver	7.00	U	N	P
7440-23-5	Sodium	7470.00			P
7440-28-0	Thallium	5.00	U	W	F
7440-62-2	Vanadium	12.00	U		P
7440-66-6	Zinc	55.40			P
	Cyanide	5.00	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 7/87

AR301103

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MCBM53

Lab Name: Chemtech Consulting Group Contract: 68-W8-0061

Lab Code: CHEM Case No.: 11350 SAS No.: SDG No.: MCBM50

Matrix (soil/water): WATER Lab Sample ID: 00092-04S

Level (low/med): LOW Date Received: 02/02/89

% Solids: 0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	100.00	U		P
7440-36-0	Antimony	40.00	U		P
7440-38-2	Arsenic	3.00	U	N	F
7440-39-3	Barium	40.00	U		P
7440-41-7	Beryllium	2.00	U		P
7440-41-7	Cadmium	5.00	U		P
7440-70-2	Calcium	3780.00	B		P
7440-47-3	Chromium	5.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	34.80			P
7439-89-6	Iron	100.00	U		P
7439-92-1	Lead	3.80	B	W	F
7439-95-4	Magnesium	1150.00	B		P
7439-96-5	Manganese	9.00	U		P
7439-97-6	Mercury	1.00			CV
7440-02-0	Nickel	8.00	U		P
7440-09-7	Potassium	1600.00	B		A
7782-49-2	Selenium	2.00	U	W	F
7440-22-4	Silver	7.00	U	N	P
7440-23-5	Sodium	1160.00	B		P
7440-28-0	Thallium	5.00	U		F
7440-62-2	Vanadium	12.00	U		P
7440-66-6	Zinc	9.00	U		P
	Cyanide	5.00	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MCBM54

Lab Name: Chemtech Consulting Group Contract: 68-W8-0061

Lab Code: CHEM Case No.: 11350 SAS No.: SDG No.: MCBM50

Matrix (soil/water): SOIL Lab Sample ID: 00092-05S

Level (low/med): LOW Date Received: 02/02/89

% Solids: 75.2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1250.00		*r	P
7440-36-0	Antimony	10.60	U	N	P
7440-38-2	Arsenic	0.80	U	*W	F
7440-39-3	Barium	20.60	B		P
7440-41-7	Beryllium	0.53	U		P
7440-41-7	Cadmium	1.30	U	*r	P
7440-70-2	Calcium	2460.00		*r	P
7440-47-3	Chromium	4.70		N*r	P
7440-48-4	Cobalt	1.60	B		P
7440-50-8	Copper	12.60		*r	P
7439-89-6	Iron	2670.00		*r	P
7439-92-1	Lead	7.20			F
7439-95-4	Magnesium	453.00	B	*r	P
7439-96-5	Manganese	90.00		N*r	P
7439-97-6	Mercury	0.93			CV
7440-02-0	Nickel	2.10	U	*r	P
7440-09-7	Potassium	426.00	B		A
7782-49-2	Selenium	0.53	U	W	F
7440-22-4	Silver	1.90	U	N	P
7440-23-5	Sodium	1460.00			P
7440-28-0	Thallium	1.30	U	W	F
7440-62-2	Vanadium	3.20	U	r	P
7440-66-6	Zinc	26.60		N*E	P
	Cyanide	1.30	U		C

Color Before: GREY Clarity Before: Texture: COARSE

Color After: GREY Clarity After: Artifacts:

Comments:

FORM I - IN

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MCBM55

Lab Name: Chemtech Consulting Group Contract: 68-W8-0061

Lab Code: CHEM Case No.: 11350 SAS No.: SDG No.: MCBM50

Matrix (soil/water): SOIL Lab Sample ID: 00092-06S

Level (low/med): LOW Date Received: 02/02/89

% Solids: 75.4

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

CAS No.	Analyte	Concentration		C	Q	M
7429-90-5	Aluminum	5200.00	~~7070.00~~		~~*~~	P
7440-36-0	Antimony	10.60	~~14.40~~	U	N	P
7440-38-2	Arsenic	3.10	~~3.10~~		*S	F
7440-39-3	Barium	114.00	~~155.00~~			P
7440-41-7	Beryllium	0.53	~~0.72~~	U		P
7440-41-7	Cadmium	1.30	~~1.80~~	U	~~*~~	P
7440-70-2	Calcium	39800.00	~~54100.00~~		~~*~~	P
7440-47-3	Chromium	64.50	~~87.80~~		N	P
7440-48-4	Cobalt	7.50	~~10.20~~	B		P
7440-50-8	Copper	40.00	~~54.50~~		~~*~~	P
7439-89-6	Iron	10400.00	~~14200.00~~		~~*~~	P
7439-92-1	Lead	56.20	~~56.20~~			F
7439-95-4	Magnesium	8620.00	~~11700.00~~		~~*~~	P
7439-96-5	Manganese	253.00	~~345.00~~		N	P
7439-97-6	Mercury	0.86	~~0.86~~			CV
7440-02-0	Nickel	60.00	~~81.30~~		~~*~~	P
7440-09-7	Potassium	345.00	~~469.00~~	B		A
7782-49-2	Selenium	0.53	~~0.72~~	U	W	F
7440-22-4	Silver	1.90	~~2.50~~	U	N	P
7440-23-5	Sodium	1480.00	~~2020.00~~			P
7440-28-0	Thallium	1.30	~~1.30~~	U		F
7440-62-2	Vanadium	16.90	~~22.80~~			P
7440-66-6	Zinc	145.00	~~197.00~~		N E	P
	Cyanide	1.30	~~1.80~~	U		C

Color Before: GREY Clarity Before: _____ Texture: MEDIUM

Color After: GREY Clarity After: _____ Artifacts: ___

Comments:

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AR301106

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MCBM56

Name: Chemtech Consulting Group Contract: 68-W8-0061

Lab Code: CHEM Case No.: 11350 SAS No.: SDG No.: MCBM50

Matrix (soil/water): SOIL Lab Sample ID: 00092-07S

Level (low/med): LOW Date Received: 02/02/89

% Solids: 58.4

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8390.00		*r	P
7440-36-0	Antimony	13.70	U	N	P
7440-38-2	Arsenic	3.50		*S	F
7440-39-3	Barium	152.00			P
7440-41-7	Beryllium	1.10	B		P
7440-41-7	Cadmium	2.10		*r	P
7440-70-2	Calcium	61300.00		*r	P
7440-47-3	Chromium	338.00		N*r	P
7440-48-4	Cobalt	13.80	B		P
7440-50-8	Copper	81.70		*r	P
7439-89-6	Iron	15400.00		*r	P
7439-92-1	Lead	51.40			F
7439-95-4	Magnesium	14700.00		*r	P
7439-96-5	Manganese	301.00		N*r	P
7439-97-6	Mercury	1.50			CV
7440-02-0	Nickel	307.00		*r	P
7440-09-7	Potassium	1060.00	B		A
7782-49-2	Selenium	0.68	U	W	F
7440-22-4	Silver	3.60		N	P
7440-23-5	Sodium	1970.00			P
7440-28-0	Thallium	1.70	U	W	F
7440-62-2	Vanadium	23.60		r	P
7440-66-6	Zinc	766.00		N*E	P
	Cyanide	1.70	U		C

Color Before: GREY Clarity Before: _____ Texture: MEDIUM

Color After: GREY Clarity After: _____ Artifacts: ___

Comments:

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AR301107

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MCBM57

Lab Name: Chemtech Consulting Group Contract: 68-W8-0061

Lab Code: CHEM Case No.: 11350 SAS No.: SDG No.: MCBM50

Matrix (soil/water): SOIL Lab Sample ID: 00092-08S

Level (low/med): LOW Date Received: 02/02/89

% Solids: 66.4

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	21900.00		*+	P
7440-36-0	Antimony	12.00	U	N	P
7440-38-2	Arsenic	36.60		+* *	F
7440-39-3	Barium	186.00			P
7440-41-7	Beryllium	3.40			P
7440-41-7	Cadmium	1.50	U	*+	P
7440-70-2	Calcium	2680.00		*+	P
7440-47-3	Chromium	20.00		N*+	P
7440-48-4	Cobalt	12.60	B		P
7440-50-8	Copper	20.40		*+	P
7439-89-6	Iron	20100.00		*+	P
7439-92-1	Lead	40.70			F
7439-95-4	Magnesium	446.00	B	*+	P
7439-96-5	Manganese	2720.00		N*+	P
7439-97-6	Mercury	0.90			CV
7440-02-0	Nickel	22.30		*+	P
7440-09-7	Potassium	1020.00	B		A
7782-49-2	Selenium	0.60	U		F
7440-22-4	Silver	2.10	U	N	P
7440-23-5	Sodium	1630.00			P
7440-28-0	Thallium	1.50	U	W	F
7440-62-2	Vanadium	32.20		+	P
7440-66-6	Zinc	82.10		N*E	P
	Cyanide	1.50	U		C

Color Before: GREY Clarity Before: _____ Texture: MEDIUM

Color After: GREY Clarity After: _____ Artifacts: ___

Comments:

FORM I - IN 7/87

AR301108

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MCBM58

Lab Name: Chemtech Consulting Group Contract: 68-W8-0061

Lab Code: CHEM Case No.: 11350 SAS No.: SDG No.: MCBM50

Matrix (soil/water): SOIL Lab Sample ID: 00092-09S

Level (low/med): LOW Date Received: 02/02/89

% Solids: 71.2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8020.00		*g	P
7440-36-0	Antimony	11.20	U	N	P
7440-38-2	Arsenic	9.30		*S	F
7440-39-3	Barium	706.00			P
7440-41-7	Beryllium	1.20	B		P
7440-41-7	Cadmium	2.40		*g	P
7440-70-2	Calcium	9310.00		*g	P
7440-47-3	Chromium	164.00		N*g	P
7440-48-4	Cobalt	11.20	B		P
7440-50-8	Copper	42.80		*g	P
7439-89-6	Iron	12300.00		*g	P
7439-92-1	Lead	116.00			F
7439-95-4	Magnesium	2690.00		*g	P
7439-96-5	Manganese	1130.00		N*g	P
7439-97-6	Mercury	0.70			CV
7440-02-0	Nickel	107.00		*g	P
7440-09-7	Potassium	1120.00	B		A
7782-49-2	Selenium	0.56	U	W	F
7440-22-4	Silver	2.00	U	N	P
7440-23-5	Sodium	1630.00			P
7440-28-0	Thallium	1.40	U	W	F
7440-62-2	Vanadium	11.50	B		P
7440-66-6	Zinc	1990.00		N*E	P
	Cyanide	1.40	U		C

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: GREY Clarity After: Artifacts:

Comments:

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AR301109

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MCBM59

Lab Name: Chemtech Consulting Group Contract: 68-W8-0061

Lab Code: CHEM Case No.: 11350 SAS No.: SDG No.: MCBM50

Matrix (soil/water): SOIL Lab Sample ID: 00092-10S

Level (low/med): LOW Date Received: 02/02/89

% Solids: 56.4

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18700.00		*+	P
7440-36-0	Antimony	14.20	U	N	P
7440-38-2	Arsenic	48.00		*S	F
7440-39-3	Barium	151.00			P
7440-41-7	Beryllium	1.20	B		P
7440-41-7	Cadmium	1.80	U	*+	P
7440-70-2	Calcium	3320.00		*+	P
7440-47-3	Chromium	24.80		N*+	P
7440-48-4	Cobalt	22.60			P
7440-50-8	Copper	23.00		*+	P
7439-89-6	Iron	20400.00		*+	P
7439-92-1	Lead	21.70			F
7439-95-4	Magnesium	3730.00		*+	P
7439-96-5	Manganese	860.00		N*+	P
7439-97-6	Mercury	1.20			CV
7440-02-0	Nickel	18.90		*+	P
7440-09-7	Potassium	1310.00	B		A
7782-49-2	Selenium	0.71	U		F
7440-22-4	Silver	2.50	U	N	P
7440-23-5	Sodium	1800.00			P
7440-28-0	Thallium	1.80	U	W	F
7440-62-2	Vanadium	36.70			P
7440-66-6	Zinc	57.80		N*E	P
	Cyanide				NR

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: GREY Clarity After: _____ Artifacts: ___

Comments:

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AR301110

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MCBM60

Lab Name: Chemtech Consulting Group Contract: 68-W8-0061

Lab Code: CHEM Case No.: 11350 SAS No.: SDG No.: MCBM50

Matrix (soil/water): SOIL Lab Sample ID: 00092-11S

Level (low/med): LOW Date Received: 02/02/89

% Solids: 87.8

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	33300.00		*q	P
7440-36-0	Antimony	9.10	U	N	P
7440-38-2	Arsenic	24.60		*	F
7440-39-3	Barium	135.00			P
7440-41-7	Beryllium	1.40			P
7440-41-7	Cadmium	3.90		*q	P
7440-70-2	Calcium	3200.00		*q	P
7440-47-3	Chromium	43.00		N*q	P
7440-48-4	Cobalt	13.70			P
7440-50-8	Copper	21.50		*q	P
7439-89-6	Iron	34100.00		*q	P
7439-92-1	Lead	33.70			F
7439-95-4	Magnesium	3350.00		*q	P
7439-96-5	Manganese	640.00		N*r	P
7439-97-6	Mercury	0.91			CV
7440-02-0	Nickel	20.10		*q	P
7440-09-7	Potassium	752.00	B		A
7782-49-2	Selenium	1.00	B		F
7440-22-4	Silver	1.60	U	N	P
7440-23-5	Sodium	1210.00			P
7440-28-0	Thallium	1.10	U	W	F
7440-62-2	Vanadium	65.00			P
7440-66-6	Zinc	123.00		N*E	P
	Cyanide				NR

Color Before: GREY Clarity Before: ~~MEDIUM~~ Texture: MEDIUM

Color After: GREY Clarity After: _____ Artifacts: ___

Comments:

FORM I - IN 7/87

AR301111

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MCBM61

Lab Name: Chemtech Consulting Group Contract: 68-W8-0061

Lab Code: CHEM Case No.: 11350 SAS No.: SDG No.: MCBM50

Matrix (soil/water): SOIL Lab Sample ID: 00092-12S

Level (low/med): LOW Date Received: 02/02/89

% Solids: 84.2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11700.00		*,γ	P
7440-36-0	Antimony	9.50	U	N	P
7440-38-2	Arsenic	29.50		*	F
7440-39-3	Barium	103.00			P
7440-41-7	Beryllium	2.10			P
7440-41-7	Cadmium	1.20	U	*,γ	P
7440-70-2	Calcium	1940.00		*,γ	P
7440-47-3	Chromium	15.00		N*,γ	P
7440-48-4	Cobalt	8.30	B		P
7440-50-8	Copper	7.90		*,γ	P
7439-89-6	Iron	13100.00		*,γ	P
7439-92-1	Lead	42.90			F
7439-95-4	Magnesium	273.00	B	*,γ	P
7439-96-5	Manganese	1450.00		N*,γ	P
7439-97-6	Mercury	0.95			CV
7440-02-0	Nickel	12.90		*,γ	P
7440-09-7	Potassium	618.00	B		A
7782-49-2	Selenium	0.48	U		F
7440-22-4	Silver	1.70	U	N	P
7440-23-5	Sodium	1280.00			P
7440-28-0	Thallium	1.20	U		F
7440-62-2	Vanadium	17.80			P
7440-66-6	Zinc	50.10		N*,γ,E	P
	Cyanide	1.20	U		C

Color Before: GREY Clarity Before: _____ Texture: MEDIUM

Color After: GREY Clarity After: _____ Artifacts: ___

Comments:

FORM I - IN 7/87

AR301112

WESTON

APPENDIX B

DPO REPORT

INORGANIC DATA VALIDATION SUMMARY

Date Review Completed 4/1
Case No. 11350 SAS No.
Site Name Cryochem
Sample Nos. MCBM50 - 61

Contract Lab Chemtech
Contract No. 68-W8-0061
Lab DPO Lisa Tidwell
Reviewer Milagros P. Javellana
from Region 3 Phone (301) 266-9827
ESAT FTS

MATRIX	CONCENTRATION low	med	high	MATRIX RELATED COMMENTS
soil/sediment	8			
aqueous	4			
other				

ICP	OK	FYI	ACTION	COMMENTS
Holding Time	✓			
Calibration Blanks	✓			
Initial Calibration	✓			
Continuing Calibration	✓			
Preparation Blank		✓		Cu (3.2 ppm);
Interference Check Sample	✓			
Lab Control Sample	✓			
Lab Duplicate	✓			
Matrix Spike		✓		Cr (171%); Mn (130%); Ag (55, 57, 73%) **
Serial Dilution	✓			Zn (10.1%)

FURNACE	OK	FYI	ACTION	COMMENTS
Holding Time	✓			
Calibration Blanks	✓			
Initial Calibration	✓			
Continuing Calibration	✓			
Preparation Blank	✓			
Lab Control Sample	✓			
Lab Duplicate		✓		As (> ±CRDL)
Matrix Spike	✓			As (127%)
Duplicate Injections	✓			
Analytical Spike		✓		Pb (118-279%); Se (6.6, 68%; 152-173%) As (58%); Tl (117-181%)

MERCURY & CYANIDE ⊛	OK	FYI	ACTION	COMMENTS
Holding Time	✓			
Calibration Blank	✓			
Initial Calibration	✓			
Continuing Calibration	✓			
Preparation Blank	✓			
Lab Duplicate	✓			
Matrix Spike	✓			

REVIEWER'S COMMENTS:

⊛ The pH for aqueous samples for CN^- analyses were <12.

** Sb (147%);

*DOCUMENTATION ATTACHED (See following pages).

DPO ISSUES

1. The % solid for sample MCBM55 was calculated incorrectly. Results reported on the Form 1 and data reported in several QC forms had to be changed based on the correct % solids. See pages 4 and 5, Appendix C.

2. The pH for all aqueous samples for CN^- analyses were low (<12). The laboratory did not inform SMO of the problem. See page 6, Appendix C.

3. The qualifier "N" for the Zn analyte on the Form I is no longer necessary after corrections were made on the % solids, as described above. However, the laboratory failed to delete the "N" qualifier. See page 4, Appendix C for an example.

APPENDIX C

SUPPORT DOCUMENTATION

U.S. EPA

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MCBM55

Page #28

Contract: 68-W8-0061

hemtech Consulting Group

SDG No.: MCBM50

Case No.: 11350 SAS No.:

e: CHEM

Lab Sample ID: 00092-06S

(soil/water): SOIL

Date Received: 02/02/89

(low/med): LOW

is: 75.4

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2200.00 ~~7070.00~~		~~*~~	P
7440-36-0	Antimony	10.60 ~~24.40~~	U	N	P
7440-38-2	Arsenic	3.10 ~~3.10~~		*S	F
7440-39-3	Barium	114.00 ~~155.00~~			P
7440-41-7	Beryllium	0.53 ~~0.72~~	U		P
7440-41-7	Cadmium	1.30 ~~2.30~~	U	~~*~~	P
7440-70-2	Calcium	39800.00 ~~54200.00~~		~~*~~	P
7440-47-3	Chromium	64.50 ~~87.80~~		N	P
7440-48-4	Cobalt	7.50 ~~10.20~~	B		P
7440-50-8	Copper	40.00 ~~54.50~~		~~*~~	P
7439-89-6	Iron	10400.00 ~~14200.00~~		~~*~~	P
7439-92-1	Lead	56.20 ~~56.20~~			F
7439-95-4	Magnesium	8620.00 ~~11700.00~~		~~*~~	P
7439-96-5	Manganese	253.00 ~~345.00~~		N	P
7439-97-6	Mercury	0.86 ~~0.86~~			CV
7440-02-0	Nickel	~~64.~~60.00 ~~81.30~~		~~*~~	P
7440-09-7	Potassium	345.00 ~~469.00~~	B		A
7782-49-2	Selenium	0.53 ~~0.72~~	U	W	F
7440-22-4	Silver	1.90 ~~2.50~~	U	N	P
7440-23-5	Sodium	1480.00 ~~2020.00~~			P
7440-28-0	Thallium	1.30 ~~1.30~~	U		F
7440-62-2	Vanadium	16.80 ~~22.80~~			P
7440-66-6	Zinc	145.00 ~~197.00~~		N	P
	Cyanide	1.30 ~~1.30~~	U	E	C

Texture: MEDIUM

or Before: GREY

Clarity Before: _____

Artifacts: ____

or After: GREY

Clarity After: _____

ments:

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FORM I - IN

AR301117

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

MCBM55D

Chemtech Consulting Group Contract: 68-W8-0061

Lab Code: CHEM Case No.: 11350 SAS No.: SDG No.: MCBM50

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

Solids for Sample: 75.4 % Solids for Duplicate: 80.0

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum	17.31	~~7074.3682~~		4971.0000		34.9		P
Antimony	~~21.7~~	14.4404	U	10.0000	U			P
Arsenic	2.7	3.0760		7.0124		~~78~~.0	*	F
Barium	~~72.2~~	~~154.6065~~		108.4300		35.1		P
Beryllium	1.8	0.7220	U	0.5000	U			P
Cadmium	1.8	1.8051	U	1.8375		~~200~~.0		P
Calcium		~~54122.7437~~		37990.0000		35.0		P
Chromium		~~87.7053~~		62.5300		33.6		P
Cobalt	~~18.1~~	~~10.1077~~	B	6.5375	B	43.6		P
Copper	9.0	~~54.1535~~		36.4750		39.6		P
Iron		~~14150.2888~~		9946.7500		35.0		P
Lead		56.1671		52.2500		7.2		F
Magnesium	~~1805.1~~	~~11732.4910~~		8216.7500		35.2		P
Manganese		~~344.6715~~		239.8725		35.9		P
Mercury		0.8621		0.8125		5.9		CV
Nickel	~~14.4~~	~~81.3285~~		58.4725		32.7		P
Potassium	~~1805.1~~	469.3141	B	325.0000	B	36.3		A
Selenium	~~1.8~~	0.7220	U	0.5000	U			F
Silver	~~3.6~~	2.5271	U	1.7500	U			P
Sodium	~~1805.1~~	~~2015.6318~~		1400.8500		36.0		P
Thallium	2.7	1.3263	U	1.2500	U			F
Vanadium	~~18.1~~	~~82.8267~~		14.3925		45.3		P
Zinc		~~196.7978~~		140.3725		33.5		P
Cyanide	~~1.8~~	1.8051	U	1.2500	U			C

cut

±(2.7)

METHOD: DISTILLATION + COLORIMETRIC ANALYSIS
EPA CASE NO:
PERKIN ELMER LAMBDA1 =578.0 nm, 1 cm CELL
MODE: CONCENTRATION
QC NO: 61A-0092

case # 11350

CALIBRATION STDS	
CN- STDS mg/L	ABS Unit
Blank	0.00
0.01	0.014
0.10	0.080 (CON)
~~0.20~~ 0.50	0.504 (CON)
~~0.40~~ 0.90	1.093 (CON)

Distillation Date: 2/5/88
Analyzed Date: 2/7/88
Analyzed By: H.A.

SOIL: 5g to 250 ml
WATER: 250 ml

SAMPLE ID	Color Vol (ml)	Color Dil	CN- Dist Conc.	Dil Factor	CN- mg/L	CN- mg/Kg	pH	True Value	Comments
CCV	50	—	0.086		0.086			90 mg/l	10:15 A.M
CCB/PB		—	<0.01		<0.01		11.5		
MCAM-5D		—	<0.01		<0.01		11.5		
MCAM-51		—	<0.01		<0.01		11.5		
MCAM-51D		—	<0.01		<0.01				
MCAM51-5		—	0.089		0.089			0.10 mg/l	
MCAM52		—	<0.01		<0.01		11.5		
MCAM53		—	<0.01		<0.01		11.5		10:30 A.M
CCV		—	0.690		0.690			0.50 mg/l	
CCB		—	<0.01		<0.01				

In Reference to Case No(s): 11350

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM
Telephone Record Log

Task-1554
TID-0389 0226

Date of Call: 2/31/89

Laboratory Name: Chemtech

Lab Contact: Julie Kniesly

Region: 3

Regional Contact: Milagros P. Javellana

Call Initiated By: ___ Laboratory X Region

In reference to data for the following sample number(s):
MCBM54, MCBM55 affecting all solids duplicate samples.

Summary of Questions/Issues Discussed:

1. % solids for MCBM54 is 72.2% ≠ 75.2 To recalculate all metals + resubmit forms affected. Dupj 4/25/89 ok
2. p. 34 of the package - The control limit for duplicate sample are wrong (MCBM55D)
3. p. 607 - % solids for MCBM55 is 45.4% ≠ 55.4% To recalculate and change affected data + submit corresponding forms.

Summary of Resolution:

1. To make corrections. Dupj 4/25/89 → ignore issue.
2. To " "
3. This were corrected + resubmitted to SMO. But will copy you + send copy.

Signature Milagros P. Javellana Date 3/31/89

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

AR301120

CHEMTECH
CONSULTING GROUP, INC.
360 West 11th Street / New York, New York 10014 (212) 255-2100

APRIL 19, 1989

MILAGROS P. JAVELLANA,
c/o ROY F. WESTON, INC.
2568A RIVA RD.
SUITE 300
ANNAPOLIS, MD 21401

IN PREPAIRING TO RESPOND TO OUR TELEPHONE CONVERSATION TODAY, AND THE TELEPHONE RECORD LOG OF 3/31, I DISCOVERED THE FOLLOWING:

1) % SOLIDS FOR MCBM54 IS 75.2%, NOT 72.2%. THE % SOLIDS DATA SHEET WAS CALCULATED INCORRECTLY. PLEASE SEE THE CCS RESPONSE (BLUE COVER PAGE) PAGE 131. THUS, THE FORM I DATA FOR THIS SAMPLE IS CORRECT AS IS.

2) SEE p. 034 OF THE CCS RESPONSE FOR CORRECTED CONTROL LIMITS ON FORM VI, MCBM55D.

3) SEE p. 007 OF THE CCS RESPONSE FOR CORRECT % SOLIDS AND CORRECTED mg/kg CALCULATED RESULTS. (FORM I, MCBM 55).

Julia A Knisly
QUALITY CONTROL COORDINATOR

AR301121