(510) 657-7633

FAX: (510) \$57-8010

February 2, 1994

42080 OSGOOD ROAD

Mr. Steve Inn Alameda County Water District PO Box 5110 Fremont, CA 94537

RE: Quarterly Monitoring Report - 4th Quarter 1993

FREMONT, CALIFORNIA 94539

6000 S Corporation 6000 Stevenson Blvd. Fremont, CA 94538

Dear Mr. Inn:

In accordance with Section 13267(b) of the California Water Code, 6000 S Corporation is hereby reporting on actions taken during the period of July 1, 1993 thru September 30, 1993 regarding environmental issues at the 6000 Stevenson Blvd. site.

As reported in our Quarterly Reports for 1992 and 1993, three environmental concerns remained on the site, which included:

- o Foundry Sand
- o Contaminated Soil (California Oil Recyclers)
- o Installation of additional Ground Water Monitoring Wells

Issue One - Foundry Sand

All of the Foundry Sand has been removed from the site by the generator, American Brass & Iron. The material was removed under the authority of the Honorable William Dunbar, Judge of the Superior Court, in Alameda County Superior Court Action No. H151806-5, dated February 28, 1992, and identified as Interlocutory Judgement And Order For Abatement Of Private Nuisance.

Additional soils and sands have been tested and have been submitted directly to the Alameda Co. Health Dept. and Alameda County Water District (attention Ms. Duerig). I am advised by Mr. Robertson, Hazard Specialist for American Brass & Iron, that they are awaiting final acceptance of these tests.

6000 S Corporation is in receipt of a letter authored by Mr. Inn, to Mr. Robinson of American Brass and Iron, and to Dale Sobek of 6000 S Corporation. The original purpose for this extensive testing was to satisfy the agencies that the foundry sands that have been removed did not contaminate the site soils with metal contaminants. The test results proved that and has been confirmed by Alameda County Water District, so further reports will not discuss this issue. (A copy of the January 26, 1994 letter is attached to this report for reference).

Issue Two - Contaminated Soil

As indicated in our July 15, 1993 report, 6000 S Corporation did proceed to test stockpiled soil stored on site. A final report prepared by Clark and Witham Inc. was submitted to:

Mike Halliwell, A.C.W.D. Ms. Julie Belomy, City of Fremont Eddie So, C.R.W.Q.C.B.

Bechtel Corporation, under contract with the E.P.A., has been on site to perform testing in September 1993. Results were received January 17, 1994. A complete copy of the Bechtel Report is enclosed as Attachment 2. We would welcome comments from the Agency on this report.

On December 17, 1993, the Agency submitted a status report to 6000 S Corporation. 6000 S Corporation has referred this status report to our test agency director, Mr. Craig Hertz, Vice President, All Environmental, Inc., along with the Bechtel Test results. The comments and recommendations from All Environmental will be included in our next quarterly report.

Issue Three - Installation of Ground Water Monitoring Well

The following tests have been conducted at the 6000 Stevenson Site in 1993:

<u>APRIL 1993</u> - A new monitoring well M5 was installed, inspected and accepted by the Agency. Testing of the water was done at that time and tests were submitted by Clark & Witham.

SEPTEMBER 1993 - Bechtel, under direction of the U.S. Environmental Protection Agency, did extensive soils and monitoring well testing. The results are presented in Attachment 2 previously referred to in this report.

<u>DECEMBER 1993</u> - 6000 S Corporation employed All Environmental Inc. to do quarterly monitoring well water tests for the fourth quarter of 1993 and for four quarters of 1994.

The first tests by All Environmental were run the first week in January 1994. Their test results will be submitted with the next quarterly report.

6000 S Corporation is continuing to aerate the stockpiled soils and plan to retest this in early summer following termination of the rains and first growth of new vegetation. If possible, disposal of this soil could best and most safely be used in a controlled area on site as a "protected fill", a mixed compacted fill, or as a contaminated-free fill under a new building or road bed that may be installed.

Monitoring well testing will continue through 1994 until the testing contract with All Environmental is fulfilled. At the end of 1994, we will have eight (8) quarters of testing. Test results at this point will become statistically significant and hopefully a final determination can be made to conclude the environmental issue at 6000 Stevenson Blvd.

If there are any questions concerning this report, or if further information is required on any matters reviewed, please contact me at (510) 657-7633.

Sincerely,

Dale W. Sobek President

DWS:s Enclosure (2)

cc: Ms. J. Belomy, C.O.F.

Mr. R. Hiett, R.W.Q.C.B. Mr. S. Seery, A.C.D.E.W.

Mr. Larry E. Lulofs, Esq.

Mr. Rob Wilson, City of Fremont



DIRECTORS

CARL H. STRANDBERG

President

JOSEPH G. DAMAS, JR.
CLARK W. REDEKER
TIM ROLLISSON
PHILLIP J. UTIC

P.O. BOX 5110 • 43885 SOUTH GRIMMER BOULEVARD, FREMONT, CALIFORNIA 94537
PHONE (510) 659-1970 FAX (510) 770-1793

OFFICERS

JAMES D. BEARD

General Manager

RONALD PINO

Treasurer

MARVELL L. HERREN District Secretary

January 26, 1994

Dale Sobek 6000S Corporation 42080 Osgood Road, No. 5 Fremont, California 94539

Dave Robinson
Environmental Engineering Manager
American Brass & Iron Foundry
7825 San Leandro Street
Oakland, California 94621

INVESTIGATION OF RESIDUAL FOUNDRY SAND METALS AT 6000 S CORPORATION, 6000 STEVENSON BOULEVARD, FREMONT

Alameda County Water District (ACWD) thanks American Brass & Iron Foundry for the December 10, 1993 Letter Report on Shallow Soil Sampling at 6000 Stevenson Boulevard, Fremont, California, prepared by Clark & Witham. This report documents recent investigation of lead and other metals within a limited area in which foundry sands were stockpiled. Based on the results of the investigation, we concur that lead and other analyzed metals, which may have been constituents of the foundry sands, do not appear to be present in native soil at levels requiring further investigation and/or cleanup.

Please be advised that this finding is limited to the specific issue of metals at the location of the former foundry sand stockpile which was identified in Clark & Witham's report. Other issues indicated in previous ACWD and Regional Water Quality Control Board (RWQCB) correspondence to 6000 S Corporation still need to be addressed. If conditions change or a water quality threat associated with the former foundry sand stockpile is discovered at the site, additional investigation and/or cleanup could be required.

If you have any questions regarding this matter, please contact Mike Halliwell at 510-659-1970, Extension 412.

STEVEN D. INN

Groundwater Resources Supervisor

SDI:MH:cs

cc: Eddy So, Regional Water Quality Control Board Julie Belomy, City of Fremont

Bechtel

50 Beale Street San Francisco, CA 94105-1895 Mailing address: P.O. Box 193965 San Francisco, CA 94119-3965

January 14, 1994

Dale Sobek 6000 S Corporation 42080 Osgood Road # 5 Fremont, CA 94539

Dear Mr. Sobek:

Enclosed are copies of the analytical data resulting from the U.S. EPA investigation at the Sobex, Inc. site in Fremont, California. Please feel free to review the document. Thank you for your cooperation during the investigation.

Sincerely,

Thomas Genolio

Site Leader

DATE:	9-23-93	FAXT	RANSMISSION	
То	Name: Ur. Dale	s. Sobex		
	Organization: 60	100 S. Corp		•
	Mail Stop:			4
	FAX No.:	Area Code	Number 657 - 807	0
٠	Verification No.:	Area Code	Number	
From	Name:	Uchal E.B	ellet	
			75 Hawthorne S	Operations, HWMD, \$Fund
	Division / Branch (ms	nil stop): H-8	-1	
	Phone No.:	Area Code 415	Number 744- 2403	
	Fax No.:	Area Code 415	Number	744 - 1916
Pages	(including cover)	3		•
Subject	Sampling			·
Note	Here is a Map program. Call m	of the Sampli te if you have q	OBTHONS.	and a table of the Samphing
		•	Than	E Bellt
	<u> </u>	the state of the s		Shelin requirement quirily - contract of \$12700

•

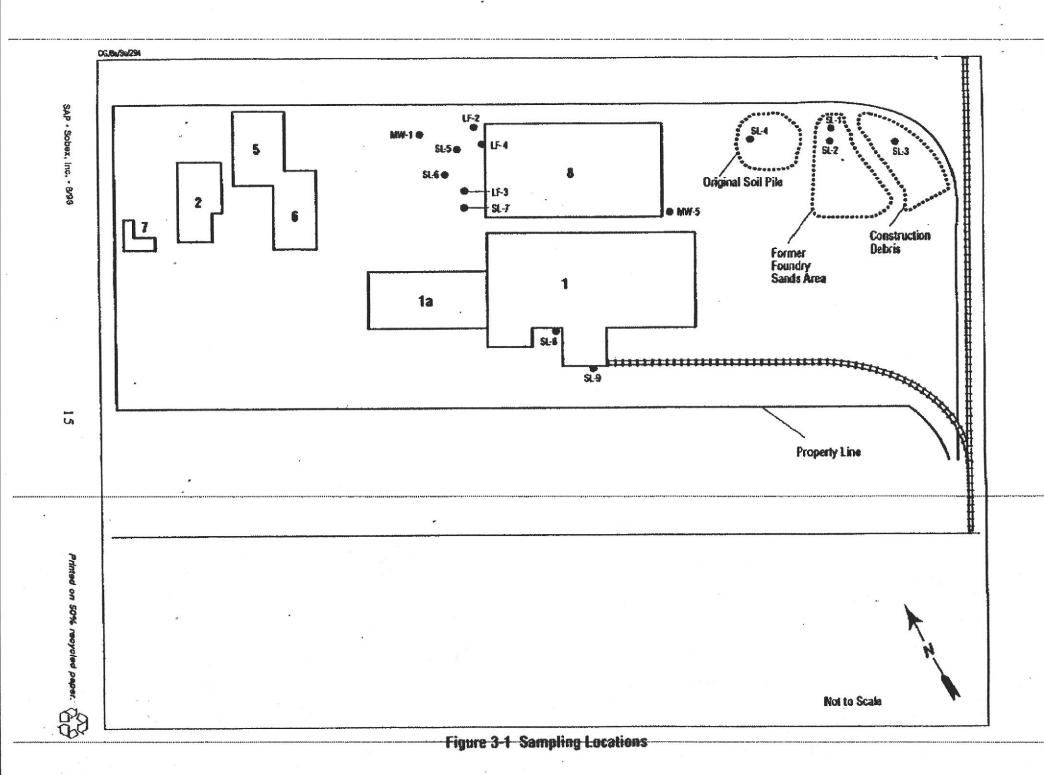


Table 3-1
SUMMARY OF SAMPLING AND ANALYSIS PROGRAM
SOILS

Potential Source of Contamination	Sample Location	Sample Depth (ft)	Number of Samples	Analytical Parameters
Former Foundry Sands Area	SL-1, SL-2	0-0.5	2	RAS Metals
Construction Debris	SL-3	2	1	RAS Metals RAS PCBs
Soil Pile	SL-4	2	ı	RAS Metals
Buildings 3 and 4 Area	SL-5, SL-6, SL-7	6, 8	6	RAS Metals RAS Volatile Organic
	SL-10 (Dup)	6		Compounds
. *	SL-11 (Dup)	6	1	RAS PCBs
Area South of Building 1	SL-8, SL-9		2	RAS Metals RAS PCBs
Background Areas	BS-1	0-0.5, 2, 6, 8	4	RAS Metals RAS Volatile Organic Compounds RAS PCBs



ICF TECHNOLOGY INCORPORATED

MEMORANDUM

TO:

Michael Bellot

Site Assessment Manager

Site Evaluation and Grants Section, H-8-1

THROUGH:

Richard Bauer AM

Environmental Scientist

Quality Assurance Management Section (QAMS), P-3-2

FROM:

Margie D. Weiner Man)

Senior Data Review Oversight Chemist

Environmental Services Assistance Team (ESAT)

DATE:

November 17, 1993

SUBJECT:

Review of Analytical Data

Attached are comments resulting from ESAT Region IX review of the following analytical data:

SITE:

Sobex

EPA SSI NO.:

5U

CERCLIS ID NO.:

CAD982399784 20813 Memo #04

CASE/SAS NO.: SDG NO.:

YP091

LABORATORY:

Analytical Resources, Inc. (ARI)

ANALYSIS:

RAS Pesticides/PCBs

SAMPLE NO.:

1 Water Sample (YP091)

COLLECTION DATE:

September 27, 1993

REVIEWER:

Margaret L. May

ESAT/ICF Technology, Inc.

If there are any questions, please contact Margie D. Weiner (ESAT/ICF) at (415) 882-3061, or Richard Bauer (QAMS/EPA) at (415) 744-1499.

Attachment

cc: Bruce Woods, TPO USEPA Region X

TPO: [X]FYI []Attention

[]Action

SAMPLING ISSUES: []Yes

[X]No

Data Validation Report

Case No.: 20813 Memo #04

Site: Sobex

Laboratory: Analytical Resources, Inc. (ARI)

Reviewer: Margaret L. May, ESAT/ICF Technology, Inc.

Date: November 17, 1993

Case Summary

SAMPLE INFORMATION:

PEST Sample Number: YP091

Concentration and Matrix: Low Level Water

Analysis: RAS Pesticides/PCBs

SOW: 3/90

Collection Date: September 27, 1993 Sample Receipt Date: September 28, 1993 Extraction Date: September 30, 1993

Analysis Date: October 11, 1993

FIELD QC:

Trip Blanks (TB): None
Field Blanks (FB): None
Equipment Blanks (EB): YP091
Background Samples (BG): None
Field Duplicates (D1): None

METHOD BLANK AND ASSOCIATED SAMPLES:

PBLK1W: YP091, SB and SBD (*See Additional Comments)

TABLES:

1A: Analytical Results with Qualifications

1B: Data Qualifiers

TPO ACTION:

METHOD NON-COMPLIANCE: None.

SAMPLING ISSUES: None.

OTHER: None.

TPO ATTENTION:

METHOD NON-COMPLIANCE: None.

SAMPLING ISSUES: None.

OTHER: None.

SB - Spike Blank; SBD - Spike Blank Duplicate ESAT-OA-9A-9312/20813M04.RPT

ADDITIONAL COMMENTS:

*Since sample YPO91 is an equipment blank, it would not be appropriate to perform matrix spike/matrix spike duplicate analysis on this sample. In any case, sufficient volume was not sent to the laboratory. The laboratory performed a blank spike and a blank spike duplicate in order to demonstrate precision and accuracy. Also, a matrix spike and a matrix spike duplicate, YPO88MS and YPO88MSD, are included for the water samples in Case 20813 Memo #03, SDG YPO68.

All method requirements specified in the EPA Contract Laboratory Organics Statement of Work, OLMO1.1 - OLMO1.9, have been met.

This report was prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," December, 1990 (6/91 Revision).

II. Validation Summary

PEST Acceptable/Comment

HOLDING TIMES	[YES]	[]
GC PERFORMANCE	[YES]	[]
CALIBRATIONS	[YES]	[]
FIELD QC	[YES]	[]
LABORATORY BLANKS	[YES]	[]
SURROGATES	[YES]	[]
SPIKE/DUPLICATES	[YES]	[]
INTERNAL STANDARDS	[N/A]	[]
COMPOUND IDENTIFICATION	[YES]	[]
COMPOUND QUANTITATION	[YES]	[]
SYSTEM PERFORMANCE	[YES]	[]

N/A = Not Applicable

III. Overall Assessment of Data

All method requirements specified in the EPA Contract Laboratory Organic Statement of Work, OLMO1.1 - OLMO1.9, have been met.

ANALYTICAL RESULTS

TABLE 1A

Case No.: 20813 Memo #04

Site:

Sobex

Analytical Resources, Inc. (ARI)

Reviewer: Margaret L. May, ESAT/ICF Technology, Inc.

Date:

Lab.:

November 17, 1993

Analysis Type:

Low Level Water Sample

for RAS Pesticides/PCBs

Concentration in ug/L

Station Location Sample I.D. Date of Collection	MW-1 YPO9 09/27	1 E	3	PBLK Metho		ınk	CRO	QL						·			Boult Val Co			1	
Pesticide/PCB Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
alpha-BHC	0.05 L	J		0.05 L	ı		0.05			CONTROL NO NO NO NO						- 13. A - 5. A -			er Desk faklistikset		
beta-BHC	0.05 (1		0.05 (ı		0.05										00.3				
delta-BHC	0.05 (J		0.05 (J		0.05		CO 400 A C A							and the same				. Note	
gamma-BHC (Lindane)	0.05 1	J		0.05 T	1		0.05								1862						
Heptachlor	0.05 U	J		0.05 1	3		0.05			A A D. CANDON S			100000-0-00001000000			and the second second					. 100
Aldrin	0.05 1	J		0.05 T	J		0.05								243						
Heptachlor epoxide	0.05 (J		0.05 (וו	l	0.05			- 5055-6599505		ļ	1	1	1.50.25					1.	
Endosulfan I	0.05 1	J		0.05 (J		0.1			300000000000000000000000000000000000000										100	1.0
Dieldrin	0.1 (J		0.1 (J		0.1		s	Park Subject Services	1		CONTRACTOR	558				74			
4,4'-DDE	0.1 1]	1003	0.1	J		0.1					2.5						15.57			
Endrin	0.1 \	J		0.1 1	J		0.1		w i v											1	
Endosulfan II	0.1 1	J		0.1			0.1											14.81.			
4,4'-DDD	0.1	J		0.1	200,000		0.1							8.		20.5					•
Endosulfan sulfate	0.1	U		0.1	J	100000	0.1			Apart of a constant		100	5030					0.06		1. 30	1.18
4,4'-DDT	0.1	U		0.1	12 . 12.5		0.1		Lata as	9.30 (108)10	State of the		US13 10500000				- 8.	i i de la composition della co	lancet perce		
Mathoxychlor	0.5	U		0.5	J		0.5							132				1.5 (6. 8	Killin S. A	13	i div
Endrin ketone	0.1	U	0 0 0	0.1			0.1	80 98 8	182 BOX	tura initia de la con-			No. of March			1. St. 11. 509 21		Section 1	li de la		
Endrin aldehyde	0.1	u		0.1			0.1						100000000000000000000000000000000000000		2000					100	
alpha-Chlordane	0.05	12 1,		0.05	11. 10.00	1 3000000	0.05		100,000	out: Suc 10 05			1800 To 1800 F 300	1	11.00	I service a		l - sites	Large St.		
gamma-Chlordane	0.05			0.05			0.05			2,130,41110					1 410000				1 2 m 1 m 1		
Toxaphene	5			5			5	ara atau i		and makes					, A 15.			- 1			
Aroclor-1016		U		1			1		1000							Townson's					i line i
Aroclor-1221	2	11.		2	1000 0000	20 3000000	2						3 t. 0000000000	. 15876	10000.00			10000	most person a		
Aroclor-1232	1			1			1														
Aroclor-1242	1	U		1			1		at an institute							1.00		200			
Aroclor-1248	1	U		l l	U		i		131		4.										1
Aroclor-1254	1	U		. 1			1		1												
Aroclor-1260	1	U		1	U		1		1	1.18											

Val-Validity Refer to Data Qualifiers in Table 1B

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limits

NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

TABLE 1B DATA QUALIFIERS

The definitions of the following qualifiers are prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," December, 1990 (6/91 Revision).

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

- The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
- NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ORGANIC REGIONAL DATA ASSESSMENT

Case No. 20813 Memo #04	LABORATORY ARI	
SDG NO. YP091	SITE NAME Sobex	
SOW3/90	_ REVIEW COMPLETION DA	TE <u>November 17, 1993</u>
REVIEWER [] ESD [X] ESAT	REVIEWER'S NAME Mar	garet L. May
NO. OF SAMPLES1 WATER	SOIL	OTHER
	VOA BNA	PEST OTHER
1. HOLDING TIMES		
2. GC PERFORMANCE		0
3. INITIAL CALIBRATIONS		_ 0
4. CONTINUING CALIBRATIONS		
5. FIELD QC		0
6. LABORATORY BLANKS		_ 0
7. SURROGATES		_ 0
8. SPIKE/DUPLICATES		0
9. REGIONAL QC		<u>N/A</u>
10. INTERNAL STANDARDS		N/A
11. COMPOUND IDENTIFICATION		_ 0
12. COMPOUND QUANTITATION		
13. SYSTEM PERFORMANCE		
14. OVERALL ASSESSMENT		
	-b effort data quali	f try

TPO ACTION: None.

TPO ATTENTION: None.

AREAS OF CONCERN: None.

O = No problems or minor problems that affect data quality.

X = No more than about 5% of the data points have limitations on data quality. Samples are either qualified as estimates or rejected.

M = More than about 5% of the data points are qualified as estimates.

Z = More than about 5% of the data points have been rejected.

N/A - Not Applicable



ICF TECHNOLOGY INCORPORATED

MEMORANDUM

TO:

Mike Bellot

Site Assessment Manager

Site Evaluation & Grants Section, H-8-1

THROUGH:

Richard Bauer

Environmental Scientist

Quality Assurance Management Section (QAMS), P-3-2

FROM:

Margie D. Weiner Man)

Senior Data Review Oversight Chemist

Environmental Services Assistance Team (ESAT)

DATE:

November 16, 1993

SUBJECT:

Review of Analytical Data

Attached are comments resulting from ESAT Region IX review of the following analytical data:

SITE:

Sobex

EPA SSI NO.:

CERCLIS I.D. NO.: CAD982399784

CASE/SAS NO.:

20813 Memo #02

SDG NO.:

MYM454

LABORATORY:

Southwest Labs of Oklahoma (SWOK)

ANALYSIS:

Ras Total Metals

SAMPLE NO.:

17 Soil Samples (See Case Summary)

COLLECTION DATE:

September 21 through 24, 1993

REVIEWER:

Karen Pettit, ESAT/ICF

If there are any questions, please contact Margie D. Weiner (ESAT/ICF) at (415) 882-3061, or Richard Bauer (QAMS/EPA) at (415) 744-1499.

Attachment

cc: Ray Flores, TPO USEPA Region VI Steve Remaley, USEPA Region IX

TPO: | FYI

[X]Attention

[X]Action

SAMPLING ISSUES: [X]Yes

ESAT-QA-9A-9304/20813M02.RPT

Data Validation Report

Case No.: 20813 Memo #02

Site: Sobex

Laboratory: Southwest Labs of Oklahoma (SWOK)

Reviewer: Karen Pettit, ESAT/ICF

Date: November 16, 1993.

I. Case Summary

SAMPLE INFORMATION: SAMPLE #: MYM454 through MYM457 and MYM462 through MYM474

COLLECTION DATE: September 21, 23, and 24, 1993

SAMPLE RECEIPT DATE: September 23 and 25, 1993

CONCENTRATION & MATRIX: 17 Low Concentration Soil Samples

FIELD QC: Field Blanks (FB): None

Equipment Blanks (EB): MYM458* and MYM476* (* See Additional Comments)

Background Samples (BG): None

Duplicates (D1): MYM462 and MYM463

(D2): MYM467 and MYM468

LABORATORY QC: Matrix Spike: MYM464

Duplicates: MYM464

ICP Serial Dilution: MYM464

ANALYSIS: Ras Total Metals

Sample Preparation Analysis
Analyte and Digestion Date Date

ICP Metals September 29, 1993 September 30 through

October 5, 1993

Mercury September 29, 1993 September 29, 1993

Percent Solids Not Applicable September 29, 1993

TPO ACTION:

METHOD NON-COMPLIANCE: A contract required detection limit (CRDL) standard was not analyzed during the analysis of the samples for mercury. Therefore, the linearity near the CRDL for mercury could not be verified. The effect on the quality of the data is unknown. However, the laboratory did use a standard at the CRDL in the calibration of the instrument.

SAMPLING ISSUES: None.

OTHER: None.

TPO ATTENTION:

METHOD NON-COMPLIANCE: None.

SAMPLING ISSUES: The reported results of 0.27 μ g/L (0.14 mg/Kg) in equipment blank sample MYM458 and 0.23 μ g/L (0.12 mg/Kg) in equipment blank MYM476 for mercury exceeds the contract required detection limit (CRDL) of 0.20 μ g/L (0.10 mg/Kg).

OTHER: There was no case narrative to explain the analytical conditions for arsenic, lead, selenium, and thallium. The laboratory, when contacted, verified that a Thermo Jarrel Ash ICAP61E Trace Analyzer was used to determine the above analytes.

Although the Statement of Work (SOW) specifies that an Interference Check Sample (ICS) be run and reported by the laboratory for each instrument operated, the interferents (aluminum, calcium, iron, and magnesium) were not reported for the ICP Interference Check Samples (ICS) run on the Trace Analyzer. When the laboratory was questioned about this practice, the validator was told that the laboratory only reports the analytes of interest on Form IV. They assumed that the ICS interferents run on the Trace Analyzer were not analytes of interest since those results from the Trace Analyzer were not reported on Form I.

ADDITIONAL COMMENTS:

Analytical results for equipment blank samples MYM458 and MYM476 can be found in the validation report for Case 20813 Memo #01.

The laboratory analyzed all of the samples for arsenic, lead, selenium, and thallium by Thermo Jarrell Ash ICAP61E Trace Analyzer according to Method 200.7 in the EPA Contract Laboratory Program (CLP) Inorganic Statement Of Work (SOW). The instrument detection limits (IDLs) for arsenic, lead, selenium, and thallium were at or below the RAS contract required detection limits (CRDL) specified for these analytes in the SOW.

In the analysis of the laboratory control sample (LCS), the true value of potassium in the LCS was 50.0 mg/Kg, while the method detection limit (MDL) and CRDL were 159 mg/Kg and 1000 mg/Kg, respectively. Since the true value for potassium in the LCS was less than the MDL, the result obtained for potassium was reported as non-detected.

According to the SOW, the spike sample analysis is designed to provide information about the effect of the sample matrix on the digestion and measurement methodology. The SOW further specifies that samples be spiked at concentrations appropriate to the analytical method used. There have been no spike concentration levels established for the ICAP61E Trace Analyzer. Consequently, the laboratory spiked the QC sample to be analyzed for arsenic, lead, selenium, and thallium at ICP/AA levels. This practice is within the contractual specifications. However, since the IDLs and CRDLs for arsenic, lead, selenium, and thallium as well as the expected analyte concentrations in the samples are low, it is more appropriate to use the lower concentration GFAA

spike levels which are consistent with the expected analyte concentration.

The analytical results with qualifications are listed in Table 1A. The definitions of the data qualifiers used in Table 1A are listed in Table 1B. This report was prepared in accordance with the EPA Contract Laboratory Program Inorganic Statement of Work (ILMO2.0), and the EPA Draft Document "Laboratory Data Validation Functional Guidelines For Evaluating Inorganic Analyses," October, 1989.

II. Validation Summary

The data were evaluated based on the following parameters:

Parameter	<u>Acceptable</u>	Comment
1. Data Completeness	No	D
Sample Preservation and Holding Times	Yes	
Calibration	Yes	
a. Initial Calibration Verification		
 b. Continuing Calibration Verificati 	on	
 c. Calibration Blank 		
4. Blanks	No	В
 a. Laboratory Preparation Blank 		
b. Field Blank		
c. Equipment Blank	77	
ICP Interference Check Sample Analysis		
6. Laboratory Control Sample Analysis	Yes	С
7. Spiked Sample Analysis	No	C
8. Laboratory Duplicate Sample Analysis	Yes	. 17
9. Field Duplicate Sample Analysis	No	E
10. GFAA QC Analysis	N/A	
a. Duplicate Injections		
b. Analytical Spikes		
c. Method of Standard Addition	37	
11. ICP Serial Dilution Analysis	Yes	Α.
12. Sample Quantitation	Yes	A
13. Sample Result Verification	Yes	

N/A = Not Applicable

III. Validity and Comments

- A. The following results are estimated and are flagged "J" in Table 1A.
 - All results above the method detection limit but below the contract required detection limit (denoted with an "L" qualifier)

Results above the method detection limit (MDL) but below the contract required detection limit (CRDL) are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

- B. The following results are estimated because of equipment blank contamination. The results are flagged "J" in Table 1A.
 - Mercury in samples MYM454 and MYM455

An equipment blank is reagent water that has been collected as a sample using decontaminated sampling equipment. The intent of an equipment blank is to monitor for contamination introduced by the sampling activity, although any laboratory introduced contamination will also be present.

The reported result of 0.27 $\mu g/L$ (0.14 mg/Kg) for mercury in equipment blank sample MYM458 exceeds the CRDL of 0.20 $\mu g/L$ (0.10 mg/Kg). Detected results are considered estimated unless the concentration in the sample exceeds ten times the amount in the associated equipment blank. The results reported for mercury in the samples listed above are considered uncertain due to equipment blank contamination. In addition, the reported result of 0.23 $\mu g/L$ (0.12 mg/Kg) for mercury in equipment blank MYM476 exceeds the CRDL of 0.20 $\mu g/L$ (0.10 mg/Kg). However, all of the associated sample results were less than the IDL and were not estimated. Analytical results for equipment blank samples MYM458 and MYM476 can be found in the validation report for Case 20813 Memo #01.

- C. The following results are estimated because of matrix spike recovery results outside method QC limits. The results are flagged "J" in Table 1A.
 - Antimony, cadmium, chromium, and vanadium in all of the samples

The matrix spike sample analysis provides information about the effect of the sample matrix on the digestion and measurement methodology. The matrix spike recovery results for antimony, cadmium, chromium, and vanadium in QC sample MYM464 did not meet the 75-125% criteria for accuracy. The percent recovery and possible percent bias for each analyte is presented below and is based on an ideal recovery of 100%.

2.4	MYM464	MYM464
<u>Analyte</u>	% Recovery	% Bias
Antimony	17.3	-82.7
Cadmium	72.9	-27.1
Chromium	49.5	-50.5
Vanadium	73.8	-26.2

Results above the MDL are considered quantitatively uncertain. The results reported for antimony, cadmium, chromium, and vanadium in all of the samples may be biased low, and where non-detected, false negatives may exist.

According to the SOW (ILMO2.0), when the pre-digestion spike recovery results for ICP analytes (except silver) fall outside the control limits of 75-125%, a post-digestion spike must be performed for those elements that do not meet the specified criteria. Post-

digestion spike recovery results of 68.1% for antimony, 76.9% for cadmium, 84.7% for chromium, and 75.1% for vanadium were obtained in QC sample MYM464. Since the post-digestion spike recovery for cadmium, chromium, and vanadium was acceptable, the low predigestion spike recovery results obtained for cadmium (72.9%), chromium (49.5%), and vanadium (73.8%) may indicate poor laboratory technique, sample nonhomogeneity, or matrix effects which may interfere with accurate analysis, depressing the analytical result. Since both the post and pre-digestion spikes for antimony did not meet the QC criteria, matrix effects may be present in the sample digestate which may depress the analyte signal during analysis.

- D. A CRDL standard was not analyzed during the analysis of the samples for mercury. Therefore, the linearity near the CRDL for mercury could not be verified. The effect on the quality of the data is unknown. According to the SOW (ILMO2.0), in order to verify linearity near the CRDL, the laboratory must analyze an AA standard at the CRDL or the IDL, whichever is greater, at the beginning of each sample analysis run, but not before the initial calibration verification (ICV). However, the laboratory did use a standard at the CRDL in the calibration of the instrument.
- E. Relative percent differences (RPDs) of 88.4 for arsenic, 43.1 for copper, 46.8 for iron, and 39.5 for nickel were obtained in the analysis of field duplicate pair samples MYM467 and MYM468. The analysis of field duplicate samples is a measure of both field and analytical precision. The results are expected to vary more than laboratory duplicates (35 RPD or ±2xCRDL criteria for precision) since sampling variability is included in the measurement. The imprecision in the results of the analysis of the field duplicate pair may be due to the sample matrix, sample nonhomogeneity, poor sampling or laboratory technique, or method defects. The effect on the quality of the data is not known.

Case No.: 20813 Memo #02

Site: Sobex

Lab.: Southwest Labs of Oklahoma, Inc. (SWOK) Reviewer: Karen Pettit, ESAT/ICF Technology, Inc.

November 16, 1993 Date:

Analysis Type:

Low Concentration Soil Samples

for RAS Total Metals

Concentration in mg/Kg

Station Location Sample I.D. Date of Collection	SL-1 MYM4 • 09/21/9			SL-2 MYM455 09/21/93		SL-3 MYM456 09/21/93		SL-4 MYM45 09/21/93	0.00		SL-5.1 MYM46 09/23/93	_	1	SL-10 MYM463 D1 09/23/93			SL-5.2 · MYM464 09/23/93			
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val (Com	Result V	al Com
Aluminum	23300			22400			21100			18100			24100			22300			19700	
Antimony	22.4	ī	c	21.0	J	С	23.8	J	c	45.7	J	С	24.7	J	С	25.2	J	c l	19.5 J	c
Arsenic	7.1	d.	Ĭ	4.8		Ĭ	5.4		.	5.4	Į.		7.6	1800		7.3	200	10000	6.9	e (1988)
Barium	354	200	**********	303	ide0380	1000000000	301	1000		178		1000000	220	2000		220		252.55	182	
Beryllium	1.4	54 Jaki		1.4			0.69 L	J	A	0.52 L	r	A	0.76 L	T	Α	0.71 L	1	A.	0.62 L J	A
Cadmium	2.7			3.4	T	С	0.43 U		C	7.8	ī	c	0.46 U	ī	C	0.45 U	1	C	0.44 U J	C
	81700	\ '		85300	ľ		25300		Ĭ	8670	ľ		6130			5300			5400	ľ
Calcium	1			57.1		c	23300 84.2	1	c	98.4		c	89.2	1	С	88.6		c	82.7 J	C
Chromium	64.9	J	C		J			1	Line in		,		13.4	,		13.8			13.1	
Cobalt	8.3	LIJ	A	4.5 L	, ,	A	14.1			10.7 L 46.0	,	A	33.8	1116	100.00%	33.2			29.3	
Copper	81.6			80.6			51.6								100	28300		1.5	25500	
Iron	21600			20200	100		27400	i katiki	1.750.00	28700			28600	2.7		8.2			6.9	
Lead	822	a de da	I descri	1110	100	.	200	4.4	1.33%	6560			9.0	1	100,000	Marie Total Control				100
Magnesium	19600			18600		Interest	13300			9420			15100	100		15200	8,5	1000	14300	
Manganese	3490			3090		A - 33 - 43 - 4	661	: beside	1 2000	479		l	473		2000	463		4287	491	3.61
Mercury	0.24	J	BD	0.27	J	BD	0.11 U	J	D	0.11 U	1	D	0.11 U		D	0.11 U		D	0.11 U	D
Nickel	34.3			22.9			77.5		100000000	66.6			104	l	1.12000	105			100	
Potassium	1880			1940			2350			2070			2680			2360		100	2520	
Selenium	1.1			1.5			0.94 I	.]	Α	1.7		1	0.91 U	J		0.91 U			0.88 U	
Silver	1.0	L J	A	1.5 1	J	A	0.67 I	, J	A	0.67 (1	18.33	0.68 U	I		0.68 U		Ú.	0.66 U	
Sodium	1650			1730			1740			1040 L	J	A	1050 L	J	A	1030 L	J .	A	591 L J	A
Thellium	1.4	U		1.4 1	J		1.5 (J		1.6 L	1		1.6 U	J		1.6 U			1.5 U	
Vanadium	40.8	J	C	24.9	J	С	59.2	J	c	51.1	J	C	57.0	J	C	54.4	J	С	50.3 J	c
Zinc	679			731			532			48600			63.1			58.4			53.5	
Percent Solids	99.4	%		99.4	1/4		92.5 9	/6		89.2 %	6		87.6 %			88.2 %			91.1 %	

N/A-Not Applicable

Val-Validity Refer to Data Qualifiers in Table 1B

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils.

D1, D2, etc.-Field Duplicate Pairs FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background CRDL-Contract Required Detection Limit

Case No.: 20813 Memo #02

Site:

Sobex -

Lab.:

Southwest Labs of Oklahoma, Inc. (SWOK) Reviewer: Karen Pettit, ESAT/ICF Technology, Inc.

Date:

November 16, 1993

Analysis Type:

Low Concentration Soil Samples

for RAS Total Metals

Concentration in mg/Kg

Station Location Sample I.D. Date of Collection Parameter	SL-6.1 MYM44 09/23/93			SL-6.2 MYM46 09/23/93			SL-12 MYM46 09/24/93	3324 - 30-5)2	SL-13 MYM4 09/24/9		02	SL-8 MYM4 09/23/9	3		SL-9 MYM47 09/23/93	3		BS-1.1 MYM47 09/23/93		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	25800			18600			18600			21900			22700			17400			20000		
Antimony	25.1	J	С	21.6	J	С	24.3	J	С	34.7	J	С	23.9	J	С	23.5	J	С	24.9	J	С
Arsenic	6.4			6.9			3.6		E	9.3		E	5,9			5.0			4.9		
Barium	244	1		145			191			243			281			274			257		
Beryllium	0.77 L	. 1	A	0.48 L	J	A	0.69 L	J	A	0.71 [A	0.68	L	A	0.56 L	J	A	0.60 L	J	A
Cadmium	0.46 L	1	С	0.50 U	1	С	0.85 L	J	AC	1.6	J	С	0.49	IJ	C	0.49 U	J	C	0.48 U	J	C
Calcium	11100			4670			14300			11600			4920			5220			3410		
Chromium	95.9	J	C	89.6	J	С	80.7	J	С	110	J	C	83.4	J	C	71.9	1	C	78.2	J	c
Cobalt	13.8			11.8 L	1	A	11.3		1	14.4			21.1			15.1		10000	14.5	1.11	
Copper	33.7		AATTS CLOS	29.1			38.0		E	58.9		E	31.0			32.8			27.5		
Iron	29600			26900			22900		E	36900		E	26900		100000	25300			26300		
Lead	9.6			6.4			403			345			8.0			13.0			9.3		
Magnesium	16400			14700			10700			13000			10400			11900			10600		
Manganese	479			501			682			611			566			507			523		
Mercury	0.11 (J	D	0.12 U	ı	D	0.11 U	J 💮	D	0.12		D	0.12	u	D	0.12 L	1	D	0.12 U		D
Nickel	108			101			62.0		E	92.5		E	94.0			89.4			89.2		
Potassium	2940			2090			2030			2480			1970			1760			1900	180	18886
Selenium	0.92 (J		1.0 U	J		0.89 L]		1.2			1.7			0.98 L	J		1.0 L	J	A
Silver	0.69 1	J		0.75 1.	1		0.67 L	J		0.74	L J	A	0.74	U		0.74 L	J		0.72 U		
Sodium	2030			791 L	J	A	1720			1940			843	LJ	A	1020 I	J	A	2450		
Thallium	1.61	U		1.7 L	1		1.6 L	1		1.6	U		1.7	U		1.7 t	J		1.7 U		
Vanadium	60.9	J	C	48.6	J	С	48.1	J	c	61.3	J	C	57.8	J	С	45.4	J	C	48.7	J	С
Zinc	65.8			53.0			1420			1820			47.7			60.0			50.3		
Percent Solids	87.4	%		80.0 %	6		89.5 %	6		89.3	%		81.4	%		81.3 9	6		83.7 %		

N/A-Not Applicable

Val-Validity Refer to Data Qualifiers in Table 1B

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils.

D1, D2, etc.-Field Duplicate Pairs FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background CRDL-Contract Required Detection Limit

Case No.: 20813 Memo #02

Site:

Sobex

Lab.: Southwest Labs of Oklahoma, Inc. (SWOK)

Reviewer: Karen Pettit, ESAT/ICF Technology, Inc.

Date:

November 16, 1993

Analysis Type:

Low Concentration Soil Samples

for RAS Total Metals

Concentration in mg/Kg

Station Location Sample I.D. Date of Collection	BS-1.2 MYM47 09/23/93	0.000		BS-1.3 MYM47 09/23/93			BS-1.4 MYM47 09/23/93			Lab Bla	nk	_	MDL			CRDL		,		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val Com
Aluminum	24400			17600			14200			6.2 U			6.2			40.0		- Jacob.		
Antimony	30.9	I	С	23.7	J	c	24.4	J	С	3.8 U		>0000000000000000000000000000000000000	3.8	in office	Def Scanners	12.0	1 de la constante de la consta			
Arsenic	8.3	1	l	7.3			6.3	 	Ū	0.60 U	100,000		0,60			2.0				
Barium	310	1	000000000000000000000000000000000000000	179	300000		150	T***		1.2 U			1.2			40.0			ter ex or district comm	
Beryllium	0.74 L	1	A	0.53 L	1	A	0.55 L	1	A	0.20 U	100.00		0.20			1.0				
Cadmium	0.46 U		С	0.46 U	100000000	С	0.46 U		С	0.40 U			0.40			1.0				
Calcium	12500			8340			8350			40.0 U	1.130.00		40.0			1000			30 - 1 - Ma	
Chromium	93.6	J	С	74.9	J	С	64.7	J	С	0.80 U		ranno.	0.80			2.0	1			
Cobalt	14.8			13,3			12.5			1.0 U			1.0			10.0		100		
Copper	35.0			33.1			31.8			1.8 L	J	Α	0.60			5.0				
Iron	30300			26800			25600			1.6 U		3200	1.6			20.0				
Lead	9.1			8.1			8.1			0.60 U	J		0.60			0.60				
Magnesium	20100			14300			13100			22.8 U	J	3 V 3 V 7	22.8			1000				
Manganese	463			457			401			0.40 U	J		0.40			3.0				
Mercury	0.12 L	ı	D	0.11 L	ı	D	0.12 L	1	D	0.10 U	1		0.10			0.10				
Nickel	104			100			92.7			4.2 U	J		4.2			8.0				
Potassium	2560			1890			1470			159 U	ı 💮		159			1000				
Selenium	0.92 L	ו		0.91 L	1		0.92 L	J		0.80 U	J		0.80			1.0				
Silver	0.69 t	1		0.69 L	J		0.69 L	J .		0.60 T	J		0,60			2.0				
Sodium	2660			630 I	, J	A	437 L	J	A	36.6 U	J		36.6			1000				
Thallium	1.6 U	J		1.6 1	1		1.6 L	J		1.4 t	J .	1	1.4			2.0				
Vanadium	58.6	J	C	43.8	J	C	36.5	J	C	1.2 L	J		1.2			10.0				
Zinc	57.9			56.1			55.3			1.4 L)		1.4		10.00	4.0				
Percent Solids	86.7.9	16		87.5 9	6		86.9 %	4		N/A			N/A			N/A				

N/A-Not Applicable

Val-Validity Refer to Data Qualifiers in Table 1B

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils.

D1, D2, etc.-Field Duplicate Pairs FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background CRDL-Contract Required Detection Limit

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR INORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared in accordance with the EPA draft document, "Laboratory Data Validation Functional Guidelines For Evaluating Inorganic Analyses," October, 1989.

NO QUALIFIER indicates that the data are acceptable both qualitatively and quantitatively.

- U The analyte was analyzed for but was not detected above the level of the reported value. The reported value is the Instrument Detection Limit (IDL) for waters and the Method Detection Limit (MDL) for soils for all the analytes except Cyanide (CN) and Mercury (Hg). For CN and Hg, the reported value is the Contract Required Detection Limit (CRDL).
- L The analyte was analyzed for but results fell between the IDL for waters or the MDL for soils and the CRDL. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
- J The analyte was analyzed for and was positively identified, but the reported numerical value may not be consistent with the amount actually present in the environmental sample.
- R The analyte was analyzed for, but the presence <u>or</u> absence of the analyte has not been verified. Resampling and reanalysis are necessary to confirm or deny the presence of the analyte.
- UJ A combination of the "U" and the "J" qualifier. The analyte was analyzed for but was not detected above the reported value. The reported value may not accurately or precisely represent the sample IDL or MDL.

INORGANIC REGIONAL DATA ASSESSMENT

CASE	NO.	20813 Memo #02	LABORA	TORY _	SWOK		
SDG		MYM454					
SOW	NO.	ILM02.0	REVIEV	J COMPL	ETION DATE	Novem	ber 16, 1993
REVI	EWER	[] ESD [X] ESAT	REVIEW	JER'S N	AME <u>Karen</u>	Pettit	
NO.	OF SAI	MPLES WATER17_	SOIL	***	OTHER		
				ICP	GFAA	Hg	Cyanide
1.	PRESE	RVATION AND HOLDING TIMES				0	
2.	CALIB	RATION		0		0	
3.	BLANK	S				M	
4.	ICP I	NTERFERENCE CHECK SAMPLE	(ICS)	0			
5.	LABOR	ATORY CONTROL SAMPLE (LCS)	0		0	
6.	DUPLI	CATE ANALYSIS		0		0	
7.	MATRI	X SPIKE ANALYSIS		M		0	
8.	METHO	D OF STANDARD ADDITION (MS	SA)		·		
9.	ICP S	ERIAL DILUTION		0			
10.	SAMPL	E QUANTITATION		0			
11.	SAMPL	E VERIFICATION		0		0	
12.	GFAA .	ANALYTICAL SPIKE					
13.	OVERA	LL ASSESSMENT		M		<u>M</u>	

O = No problems or minor problems that affect data quality.

X = No more than about 5% of the data points have limitations on data quality. Data points are either qualified as estimates or rejected.

M - More than about 5% of the data points are qualified as estimates.

Z - More than about 5% of the data points have been rejected.

N/A = Not Applicable.

TPO: []FYI

[X]Attention [X]

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. <u>20</u>	813 Memo	#02	LABORATO	ORY _S	WOK					_
SDG NO. MY	M454		SITE NAM	1E <u>s</u>	obex					
SOW NOIL	M02,0		REVIEW C	COMPLE	TION	DATE	November	16.	1993	_
REVIEWER [] ESD	[X] ESAT	REVIEWER	R'S NA	ME K	aren	Pettit			_
NO. OF SAMPL	ES	WATER17_	SOIL _		OTHER	l				

TPO ACTION: A contract required detection limit (CRDL) standard was not analyzed during the analysis of the samples for mercury. Therefore, the linearity near the CRDL for mercury could not be verified. The effect on the quality of the data is unknown. However, the laboratory did use a standard at the CRDL in the calibration of the instrument.

TPO ATTENTION: There was no case narrative to explain the analytical conditions for arsenic, lead, selenium, and thallium. The laboratory, when contacted, verified that a Thermo Jarrel Ash ICAP61E Trace Analyzer was used to determine the above analytes.

The reported results of 0.27 μ g/L (0.14 mg/Kg) in equipment blank sample MYM458 and 0.23 μ g/L (0.12 mg/Kg) in equipment blank MYM476 for mercury exceeds the CRDL of 0.20 μ g/L (0.10 mg/Kg).

Although the Statement of Work (SOW) specifies that an Interference Check Sample (ICS) be run and reported for each instrument operated, the interferents (aluminum, calcium, iron, and magnesium) were not reported by the laboratory for the ICP Interference Check Samples (ICS) run on the Trace Analyzer. When the laboratory was questioned about this practice, the validator was told that the laboratory only reports the analytes of interest on Form IV. They assumed that the ICS interferents run on the Trace Analyzer were not analytes of interest since those results from the Trace Analyzer were not reported on Form I.

AREAS OF CONCERN: According to the SOW, the spike sample analysis is designed to provide information about the effect of the sample matrix on the digestion and measurement methodology. The SOW further specifies that samples be spiked at concentrations appropriate to the analytical method used. There have been no spike concentration levels established for the ICAP61E Trace Analyzer. Consequently, the laboratory spiked the QC sample to be analyzed for arsenic, lead, selenium, and thallium at ICP/AA levels. This practice is within the contractual specifications. However, since the MDLs and CRDLs for arsenic, lead, selenium, and thallium as well as the expected analyte concentrations in the samples are low, it is more appropriate to use the lower concentration GFAA spike levels which are consistent with the expected analyte concentration.

In Reference to Case No(s).:

20813 Memo #01 and Memo #02

Contract Laboratory Program REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone Record Log

Date of Call:	November 3 and 4, 1993	
Laboratory Name:	SWOK	
Lab Contact:	Jason Ruckman	
Region:	,	
Regional Contact:	Karen Pettit	
Call Initiated By:	Laboratory X Region	
e to data for the f IYM458 and SDG MYM45	following sample number(s):	

Summary of Questions/Issues Discussed:

- There was no case narrative to explain the analytical conditions for arsenic, lead, selenium, and thallium. Please verify the type of ICP instrument used to analyze arsenic, lead, selenium and thallium.
- 2. Why were the interferents not reported for the Interference Check Samples (ICS) run on the Trace Analyzer?

Summary of Resolution:

- A Thermo Jarrel Ash ICAP61E Trace Analyzer was used.
- 2. The laboratory only reports the analytes of interest on Form IV. They assumed that the ICS interferents run on the Trace Analyzer were not analytes of interest since those results from the Trace Analyzer were not reported on Form I.

Faren Fettit

11 15 93 Date

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



ICF TECHNOLOGY INCORPORATED

133

MEMORANDUM

TO:

Michael Bellot

Site Assessment Manager

Site Evaluation and Grants Section, H-8-1

THROUGH:

Richard Bauer 2/3

Environmental Scientist

Quality Assurance Management Section (QAMS), P-3-2

FROM:

Margie D. Weiner MSN

Senior Data Review Oversight Chemist

Environmental Services Assistance Team (ESAT)

DATE:

November 17, 1993

SUBJECT:

Review of Analytical Data

Attached are comments resulting from ESAT Region IX review of the following analytical data:

SITE:

Sobex

EPA SSI NO.:

511

CERCLIS ID NO.:

CAD982399784

CASE/SAS NO.:

20813 Memo #03

SDG NO.:

YP068

LABORATORY:

Analytical Resources, Inc. (ARI)

ANALYSIS:

RAS Volatiles and RAS Pesticides/PCBs

SAMPLE NO.:

11 Soil and 9 Water Samples (see Case Summary)

COLLECTION DATE:

September 21, 23, 24, and 27, 1993

REVIEWER:

Adriane G.L. Scheele and Margaret L. May

ESAT/ICF Technology, Inc.

If there are any questions, please contact Margie D. Weiner (ESAT/ICF) at (415) 882-3061, or Richard Bauer (QAMS/EPA) at (415) 744-1499.

Attachment

cc: Bruce Woods, TPO USEPA Region X Steve Remaley, USEPA Region IX

TPO: []FYI [X]Attention []Action

SAMPLING ISSUES: [X]Yes []No

Data Validation Report

Case No.: 20813 Memo #03

Site: Sobex

Laboratory: Analytical Resources, Inc. (ARI)

Reviewer: Adriane G.L. Scheele and Margaret L. May,

ESAT/ICF Technology, Inc.

Date:

November 17, 1993

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers: Soil: YP073, YP074, YP075, YP076, YP077,

YP083, and YP084 Water: YP086

PEST Sample Numbers: Soil: YP068, YP073 through YP077, and YP080

through YP084

Water: YP069 through YP072 and YP086 through

YP090

Concentration and Matrix: Low Level Soil and Water

Analysis: RAS Volatiles and RAS Pesticides/PCBs

SOW: 3/90

Collection Date: September 21, 23, 24, and 27, 1993

Sample Receipt Date: September 22, 24, 25, and 28, 1993

Extraction Date: September 24 and 28 and October 3, 1993

Analysis Date: September 27 and 30 and October 8, 9, 12, and 13, 1993

FIELD QC:

Trip Blanks (TB): None Field Blanks (FB): None

Equipment Blanks (EB): YP069, YP086, and YP089

Background Samples (BG): None

Field Duplicates (D1): YP070 and YP071

(D2): YP073 and YP074

METHOD BLANKS AND ASSOCIATED SAMPLES:

VBLK1: YP073, YP074, YP075, YP075MS, YP075MSD,

YP076, YP077, YP083, and YP084

VBLK2: YP086, YP086MS, and YP086MSD

PBLK1W: YP069 and YP072

PBLK2W: YP070, YP071, YP086, YP087, YP088, YP088MS,

YP088MSD, YP089, and YP090

PBLK1S: YP068, YP073, YP074, YP075, YP075MS,

YP075MSD, YP076, YP077, and YP080 through

YP084

TABLES:

1A: Analytical Results with Qualifications

1B: Data Qualifiers

MS - Matrix Spike; MSD - Matrix Spike Duplicate ESAT-QA-9A-9308/20813M03.RPT

TPO ACTION:

METHOD NON-COMPLIANCE: None.

SAMPLING ISSUES: None.

OTHER: None.

TPO ATTENTION:

METHOD NON-COMPLIANCE: Sample YPO68 was received at the laboratory on September 22, 1993 and extracted 11 days later on October 3, 1993. The extraction exceeded the 10 day contractual holding time by 1 day.

SAMPLING ISSUES: Although the bottles were labelled correctly, the sampler misidentified sample YPO87 as YPO78 on the Organic Traffic Report/Chain of Custody.

OTHER: The quantitation limits for two volatile target analytes were qualified as estimated due to calibration problems.

ADDITIONAL COMMENTS:

In the volatiles analyses, no Tentatively Identified Compounds (TICs) were detected in any of the samples analyzed.

This report was prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," December, 1990 (6/91 Revision).

DECT

II. Validation Summary

	VOA	L	PESI	
Acc	eptable.	/Comment	Acceptable/	Comment
HOLDING TIMES GC/MS TUNE/GC PERFORMANCE	[YES]	[]	[YES] [YES]	[]
CALIBRATIONS	[NO]	[B]	[YES]	[]
FIELD QC	[YES]	[]	[YES]	[]
LABORATORY BLANKS	[YES]	[]	[YES]	[]
SURROGATES	[YES]	[]	[YES]	[]
MATRIX SPIKE/DUPLICATES	[YES]	[]	[YES]	[]
INTERNAL STANDARDS	[YES]	[]	[N/A]	[]
COMPOUND IDENTIFICATION	[YES]	[]	[YES]	[]
COMPOUND QUANTITATION	[YES]	[]	[YES]	[A,C]
SYSTEM PERFORMANCE	[YES]	[]	[YES]	[]

N/A - Not Applicable

. III. Validity and Comments

- A. The following results are estimated and flagged "J" in Table 1A:
 - All results below the Contract Required Quantitation Limits (denoted with an "L" qualifier)

Results below the Contract Required Quantitation Limits (CRQL) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

- B. Due to large percent Differences (%Ds) in the volatile Continuing Calibrations, the quantitation limits for the following analytes are estimated (J) (see Table 1A):
 - Chloromethane in samples YP073 through YP077, YP083 and YP084 and method blank VBLK1
 - Acetone in sample YP086 and method blank VBLK2

The Continuing Calibration checks the instrument performance daily and produces the Relative Response Factors for each target analyte that are used for quantitation.

Percent Differences of 52.1 and 40.9 were observed for chloromethane and acetone, respectively, in the Continuing Calibrations performed September 27 and 30, 1993. These values exceed the $<\pm25\%$ QC advisory validation criterion.

C. Sample YP068 has slightly raised quantitation limits for aldrin and 4,4'-DDE due to interferences from Aroclor-1254 that preclude confident quantitation at lower limits. (See Table 1A.)

for RAS Volatiles

Analysis Type: Low Level Soil Samples

ANALYTICAL RESULTS TABLE 1A

Case No.: 20813 Memo #03

Site: Sobex

Analytical Resources, Inc. (ARI)

Reviewer: Adriane G.L. Scheele, ESAT/ICF Technology, Inc.

November 17, 1993

Concentration in ug/Kg

Station Location	SL	-5.1		SI	-10		SL-	-5.2	SL-	6.1			SL-6.	2	
Sample I.D.	(20)	2073 E)2	5500	P074 E)2	00000	075	YP	076		,	YP07	7	
Date of Collection		/23/93	-		/23/93	s-a,53		23/93	09/	23/93			9/23		
Volatile Compound	Result		Com	Result	Val	Com	Result	Val Con	Result	Val	Com	Result	9	Val	Con
Chloromethane		U J	В		U J	В	11	U J	B 11	U J	В	1	1 U	J	I
Bromomethane	sow become on poore.	U		11	U		11	a decide de la compa	11	U		1	1 U		
Vinyl chloride	11	U		11	U		11	U	11	U		1	1 U		
Chloroethane:	11	U		11	U		11	ט	11	U		1	ı u		
Methylene chloride	11	U		11	U		11	ט	11	U		- 1	1 U		
Acetone	11	U		11	U		11	u	11	U		1	1 U		
Carbon disulfide	11	U		11	U		11	U	11	U		1	1 U		
1,1-Dichloroethene	11	ט		11	U .		11	U	11			1	I U		
1,1-Dichloroethane	11	U	<u>.</u>	11	U		11	U	11	U		1	1 U		
1,2-Dichloroethene (total)	11	U		11	U		11	U	11	U		1	I U		
Chloroform	11	U		11	U		11	U	11	U	,	40.00	1 U		
1,2-Dichloroethane	11	บ		- 11	U		11	U	11	U		1	I U		
2-Butanone	11	U		11	U		11	U	11		district	100	1 U	k	
1,1,1-Trichloroethane	11	U		11	U		11	U	11	U			ΙU	1	
Carbon tetrachloride	11	U		11	U		11	U	11	U		2	1 U	1 1	
Bromodichloromethane	11	บ		11	U		11	ט	11			1	1 U		
1,2-Dichloropropane	11	U		11	U		11	U	11	and because to		1	1 U		
cis-1,3-Dichloropropene	11	U		11	U		11	U	11				1 U	1	
Trichloroethene	11	U		11	U		11	U	- 11	221 00000000	were to		1 U		
Dibromochloromethane	11	U		- 11	U		- 11	The second second	11	U		100	1 U		
1,1,2-Trichloroethane	11	U	<u></u>	11	U	10 x 20 x	11	U	11	200 100 100 1	Maria and		1 U	1 1	
Benzene	11	U		11	υ		11	ט	11				1 U	1	
trans-1,3-Dichloropropene	11	U		11	U		11	U	11		601011000 V		1 U	1 1	
Bromoform	11	U		11	U		11	U	11				1 U	1 1	
4-Methyl-2-pentanone	11	U		11	U		11	The state of the s	11	to boson t		6	ΙU	1 1	
2-Hexanone	11	U		11	U		11	1	11	U			I U	1 1	
Tetrachloroethene	11	U	1	11	U		11	in the common the reserve	11	and the second second	er er e	record	1 U	1 1	
1,1,2,2-Tetrachloroethane	11	υ		11	U		11	U	11	U			I U		
Toluene	14			19			35		74		PSS Laboral		3		
Chlorobenzene	11	υ		11	U		11	U	11				I U	1 1	
Ethylbenzene	11	U			U		11		11				1 U	1 1	
Styrene	11	ט		11	U		11	ט	11			2	1 U	1 1	
Xylene (total)	11	U		11	U		11	U	11	U	Marco -	1	I U		
				L			an to the second		100 \$ 0.00 Ngwol na 6010						
							1000								
					1			L	an kata a mananan		86 i				
									en germen som som		gyatywa at				
												,			
Percent Solids	- 00	%		88	%	1	89	0/4	88	%		9	3 %		

Val-Validity Refer to Data Qualifiers in Table 1B

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

CRQL-Contract Required Quantitation Limits

N/A-Not Applicable

BG-Background Sample

Case No.: 20813 Memo #03

Site: Sobex

Analytical Resources, Inc. (ARI)

Analysis Type:

Low Level Soil Samples

for RAS Volatiles

Reviewer: Adriane G.L. Scheele, ESAT/ICF Technology, Inc.

Date:

Lab.:

November 17, 1993

Concentration in ug/Kg

Station Location Sample I.D. Date of Collection	YP	-1.3 083 23/93	¥	YP	BS-1.4 YP084 09/23/93				Blan Kl	k	CF	RQL			
Volatile Compound	Result		Com	Result		Com	Resu	dt	Val	Com	Result	Val	Com	Result	Val Cor
Chloromethane	11		В	11		В	-	10 L	_	В	10				
Bromomethane	11	15 died		11	U			10 (,		10				
Vinyl chloride	11			11				10 L	J		10				
Chloroethane	11	u		11	U			10 L	,		10				
Methylene chloride	11	U		11	U			10 U	J		10		L		
Acetone	11	U		11	U			10 L	1		10				
Carbon disulfide	.11	U		11	U			10 L	J	<u> </u>	10				
1,1-Dichloroethene	11	U		11	U			10 L	1		10				
1,1-Dichloroethane	11	U		11	U			10 L	J		10			Sec. Control with	
1,2-Dichloroethene (total)	11	U		11	Ü			10 L			10				
Chloroform	11	U		11	U			10 L	ı	10.000.000	10	800 8 00 001	MAN 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	an harana	
1,2-Dichloroethane	11.	U		11	U			10 L	I		10				
2-Butanone	11	U		11	U			10 L	J	*ACTUBOONS	10			200000000000000000000000000000000000000	
1,1,1-Trichloroethane	11	U		11	U			IO L	J		10				
Carbon tetrachloride	11	U		11	U			10 L	J		10				
Bromodichloromethane	- 11	υ		11	U			10 L			10				
1,2-Dichloropropane	11	U		11	U			10 L	J		10				
cis-1,3-Dichloropropene	11	U		11	U			10 L	J		10				
Trichloroethene	11	U		11	U	L	ļ	10 L	J	l	10			4460 (1.000°C)	
Dibromochloromethane	11	U		11	υ			10 (J		10				
1,1,2-Trichloroethane	11	U		11	U			10 L	ı	450000000000	10	500 800 000		www.	
Benzene:	11	U		11	υ			10 t	J		10				
trans-1,3-Dichloropropene	11	U		11	U			10 L	1		10				
Bromoform	11	U		11	υ			10 t	3		10				
4-Methyl-2-pentanone	11	U		11	U			10 U	1	41111411141	10				
2-Hexanone	11	บ		11	U			10 L	J		10				
Tetrachloroethene	11	U		11	U			10 U			10		X 000000000	201.7	
1,1,2,2-Tetrachloroethane	11	ט		11	U			10 t	J		10				
Toluene	110			90				10 U	J	worm need a	10				54
Chlorobenzene	11	υ		11	U			10 (J		10				
Ethylbenzene	11			11				10 U	S. LOOLEGE		10	550 k 000000	Location		
Styrene	11	U		11	U			IO U	J		10				
Xylene (total)	11	U		11	U			10 L	J		10		L		
										ACCUMANA NO					
								outernamers			0.00.0000000000000000000000000000000000		la service de		
	,														
										ļ			000000000		
													2000000000	41.	
Percent Solids	87	92		96	%	1	1	N/A	1000		N/A	-1			

Val-Validity Refer to Data Qualifiers in Table 1B

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

CRQL-Contract Required Quantitation Limits N/A-Not Applicable BG-Background Sample

Case No.: 20813 Memo #03

Site:

Sobex

Analytical Resources, Inc. (ARI)

Analysis Type:

Low Level Water Sample

for RAS Volatiles

Lab.:

Reviewer: Adriane G.L. Scheele, ESAT/ICF Technology, Inc.

Date:

November 17, 1993

Concentration in ug/L

Station Location Sample I.D. Date of Collection Volatile Compound	YF	W-8 2086 E /23/93	В	Method VBI		ık	CI	RQL						
	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val Com	Result	Val	Com
Chloromethane	10	U		10 (J		10							
Bromomethane	10	U		10 (10		1000					
Vinyl chloride	10	U		10 (< 0.0000000		10		1	 				
Chloroethane	10	U		10 1	J		10		1.55					
Methylene chloride	10	U		10 (ן		10		1					
Acetone	10	U 1	В	10 1		В	10							
Carbon disulfide	10	U		10 1	J		10			A		B0000000000000000000000000000000000000		
1,1-Dichloroethene	10	U		10 1	J		10							
1,1-Dichloroethane	10	U		10 1	וט		10			AND THE SERVICES			e de la company	
1,2-Dichloroethene (total)	10	υ		10 1	U		10							
Chloroform	10	U	1	10 1	U		10					******	. l	
1,2-Dichloroethane	10	U		10	U		10							1
2-Butanone	10	U		10	U		10		1			2 1 2000 - 1 - 100 100 100		l.
I, I, I-Trichloroethane	10	U		10	U .		10							
Carbon tetrachloride	10	U		10	U		10					L		
Bromodichloromethane	10	U		10	u .		10							ļ
1,2-Dichloropropane	10	U		10	U		10							
cis-1,3-Dichloropropene	10	U		10	U		10							
Trichloroethene	10	U		10	U		10				ee -	L		
Dibromochloromethane	10	U		10	U		10							1
1,1,2-Trichloroethane	10	U		10	U		10							
Benzene	200000000000000000000000000000000000000	U		10	U		10							
trans-1,3-Dichloropropene		U		10	U		10				-			
Bromoform	and the second second	U		10	υ		10		1					
4-Methyl-2-pentanone		U		10			10							
2-Hexanone		U		10	ALC: COLOR		10							
Tetrachloroethene	nearchaeannananan e	U		10			10							
1,1,2,2-Tetrachioroethane		שו		10			10							
Toluene		U		10			10							
Chlorobenzene	Contract Con	U		10			10							
Ethylbenzene		U	1	10			10							
Styrene		U		10	20.00		10							
Xylene (total)		U	*********	10			10							
Aylelle (wast)														
	2,6,0,4000000000000000000000000000000000	*******												
							1							
			AL PRODUCTION	Taran con control				1000						
														-
			1				*	1						-
					1									
•	900			- 5 0 - 30 - 1000 - 10 / 5	este f e				1 200	S. Parameter S. Market				
		eres	9 (3883)					10		r k ra estás				

Val-Validity Refer to Data Qualifiers in Table 1B

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

CRQL-Contract Required Quantitation Limits N/A-Not Applicable **BG-Background Sample**

20813 Memo #03 Case No.:

Sobex Site:

Analytical Resources, Inc. (ARI) Lab.:

Reviewer: Margaret L. May, ESAT/ICF Technology, Inc.

Date:

November 17, 1993

Analysis Type: Low Level Soil Samples

for RAS Pesticides/PCBs

Concentration in ug/Kg

Station Location	SL-3	SL-5.1 YP073 D2 09/23/93			SL-10		SL-5.:	00000		SL-6.			SL-			SL-8						
Sample I.D.	YP068 09/21/93				YP074 D2 09/23/93			YP075 09/23/93			YP076 09/23/93			YPO			YP080					
Date of Collection														09/23/93			09/23/93 Result Val Com					
Pesticide/PCB Compound	Result	Val	Com	Result	Val	Com	Result	1	Com		Val	Com			Com	Result	_	Com	Result		Val	Com
alpha-BHC	2 U	J		2 U	ן	1200 E N 1200	2 U	1000	1100000000	2 U	38.77	323.5	2 U	100.00	20258v	2	5555	1,34,30	Continue to a	2 U		i idise
beta-BHC	2 t	3		2 l	J		2 U			2 U	1	30.000	2 U			2			C. Stationard	2 U		
delta-BHC	2 L	ון		2 (J		2 U	10000000		2 U	1000		2 U		- 35.5	2			attended of	2 U		
gamma-BHC (Lindane)	2 1	J		2 1	J		2 U			2 U		0000000	2 U	1 1		2				2 U		
Heptachlor	21	J		2 (ן ונ		2 U	150,000	M 5 100 0 K 0 C L	2 U		Contract.	2 U	1 1	19419356	2	100000	n disease	A 186 A	2 U		red the
Aldrin	31	ון	C	2 (L		2 U			2 U			2 U			2	120 March 1981	199, 478		2 U		2586
Heptachlor epoxide	2 [J	ļ	2 (24 200	50000000	2 U	100000	0.000.000.0	2 U	3550	GRADEL:	2 U	1.44		2		380	100.00	2 U	959	
Endosulfan I	2 (J		2 (J		2 U			2 U			2 Ü		30,000,00	2				2 U		NEWWE
Dieldrin	3 (J		3 1	U	0.45.4500	3 U	100000		4 U	22.00		4 U	1333	-(5,5,5,5	3				4 U		1.1
4,4'-DDE	41	J	C	3 1	U		3 U			4 U			4 U			3				4 U		
Endrin	3 (J		3 1	ט		3 U	· · · · ·		4 U	1000		4 U	1	Alleria.	3				4 U	201	
Endosulfan II	3 1	J		3 1	U		3 L	J		4 U			4 U			3		A30	381 385	4 U	600	12350
4,4'-DDD	3 1	U		3 1	U		3 (1.77	2.100/00	4 U	1000		4 U	Sec. 1	especial.	3	100			4 U		
Endosulfan sulfate	3 1	U		3	U		3 U	J		4 U		3000	4 U	1	88888		U	1.00	1.45.353	4 U		
4,4'-DDT	3 1	U		3	U	100000000	3 L	Non-Sederal	Lanchaston	4 U	1	1	4 U	10000	100000	3		1.75		4 U		16.50
Methoxychlor	15	U		17	U		16 (J .		18 U		A November	18 U		33830	17		1960	124 12	18 U	1200	4866
Endrin ketone	3	U		3	U	0.00000	3 (1	day 1.51	4 U		40.70.70%	4 U		13881	the second second second	U	1		4 U	178.	12,535
Endrin aldehyde	3	U	100000	3	U	1.3388	3 [J	Like Services	4 U			4 U				U	- Lews to	No. 30	4 U		centre.
alpha-Chlordane	2	บ		2			2 (e leman		2 U			2 U	1000	194690.	The state of the state of	U	1.3-3-2	i instal	2 U	Salar	. Nasar
gamma-Chlordane	2	U		2	u		2 [2 U			2 U				U	17.00	110,000	2 U	200	ille in
Toxaphene	150	U		170	U		160 U	J		180 L	1000		180 U	4 18515	1.84.44	170			A solution (A)	80 U		
Aroclor-1016	30	U		33	U		31 [ון		35 L			36 L			33	2000			35 U		
Aroclor-1221	60	U		66	U		64 (J	1	71 U	ı		73 L	1		67	0.000		1	71 U	2	1.00
Aroclor-1232	30	U		33	U		31 1	U		35 L	J .		36 L	J		33				35 U		1
Aroclor-1242	. 30	U		33	U		31 1	U		35 U	J		36 L	J		33				35 U	10.19	55
Aroclor-1248	30	u		33	U		31	U		35 l	J		36 U	J		33	. 200		1	35 U		
Aroclor-1254	100			33	2000000		31	U		35 L	ال		12 1	.]	A	33	U		1	35 U		
Aroclor-1260	25	L.	J A	33	U	1	31	u		35 T	1		36 U			1000	U	3.0	1	35 U	322	1
Percent Solids	92			89			89	%		91 9	6		2, etcField			94	%			81 %		_

Val-Validity Refer to Data Qualifiers in Table 1B

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limits

N/A-Not Applicable

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

ANALYTICAL RESULTS TABLE 1A

Case No.: 20813 Memo #03

Site: Sobex

Lab.: Analytical Resources, Inc. (ARI)

Reviewer: Margaret L. May, ESAT/ICF Technology, Inc.

Date: November 17, 1993

Analysis Type: Low Level Soil Samples

for RAS Pesticides/PCBs

Concentration in ug/Kg

Station Location	SL-9 YP0			BS-1. YP08			BS-1 YP08			-	-1.4 084		Method PBL		ık	CF	QL			
Sample I.D.	09/2			09/23			09/23				23/93								2	
Date of Collection		-	Com		7	Com	Result	7	Com	Result	-	l Com	Result	Val	Com	Result	Val	Com	Result	Val Com
Pesticide/PCB Compound	Result	_	Com		-	COM	2 U	-	Com		U	Com	2 L	-		2	-			
alpha-BHC	2 l	0.0000000000000000000000000000000000000	10000000	2 U	200000	100000	2 U	1000	(3888)	A Charles College . "C	บ		2 L			2				
beta-BHC	2 l			2 U 2 U		100000000	2 U		5360 (GC V)		U	i. Makanda	2 L		1.000	2		0000 10	1,000,000,000	
delta-BHC	2 [· A		 A province de constant de contraction de contraction	bestes:	380888	2 U				บ		2 L	1000	Land.	2	1.			1 1 1 1 1 1 1 1
gamma-BHC (Lindane)	2 1			2 U	-		2 U				U		2 1			2		1		
Heptachlor	2 l	or transfer	1.0000000	2 U		F.6558259	Contraction of the Contraction o	1400	lasses:	JURISTON STOLEN	บ		2 1	1	100	2				
Aldrin	2 (2 U		100000000000000000000000000000000000000	2 U						2 1		28, 39,	2			1 - 41100001-	
Heptachlor epoxide	2 โ	S		2 U	1.77.77	122333	2 L	1. 1. 1.		1.0	U	S. Paul	2 (1	1946	2		100		. 4. 4. 4. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.
Endosulfan I	2 1			2 U		1.3388	2 L	1	135330		U		3 1	24	line in	3				
Dieldrin	3 1	IJ		3 U	1 - 00 -	1963336	3 L	10. 1.	Revision 1	A STORY OF ST	U	il a	1 - 1775 - NOSTON	- 1 1211 -	1000	3	-			
4,4'-DDE	12			3 U	0.5		3 L			The second second	U		3 (100000		-			
Endrin	3 1	U		3 U			3 L	1			U		3 (0.11		3				
Endosulfan II	3 1	U	1.2	3 U	J .	33.52	3 t		1.500	AND DESCRIPTION	U		3 (3			ros acción	
4,4'-DDD	10			3 U	1		3 1			1	U		3 (- I		3				
Endosulfan sulfate	3	U		3 U	J	100	3 (Bo 10 500 1	U		3 (100	3	1			
4,4'-DDT	3	U		3 U	J		3 (Manager Control	U		3 (3				
Methoxychlor	17	υ		15 L	J .		15 U				U		17 1			17			100	
Endrin ketone	3	U		3 [J	Lance	3 [N. 3020-00A	1. 254 - 2727 5	U	91	3 1	1 1		3				
Endrin aldehyde	3	U		3 1	J		3 (J		3	U		3 1			3		Caroles.	350 000000	
alpha-Chlordane	2			2 1	J		2 (J			U		2 1	20 1 10 10		2		100130		a las lare
gamma-Chlordane	2	U		21	اد		2 1	J		2	U		2 1	U		2				
Тохарнене	170	U		150 U	J		150 1	J		170	U		170	U		170				
Aroclor-1016	34	υ		30 T	J		30 1	Ų		34	U		33 1	U		33			1.27	
Aroclor-1221	69			61 U	J		60 1	U		69	U		67	U		67				
Aroclor-1232	34	13 11 6 W		30 T	U		30 1	u		34	U		33	U		33		H.		
Aroclor-1242	34			30 (1		30	U		34	U		33	U		33				
Aroclor-1248	34	100		30 1	U		30	U		34	U		33	U		33				
Aroclor-1254	34	-0.00	1	30 1		T.	30				U		33	U		33				
Aroclor-1260	34			30 1	- 1		30			34	U		33	U		33				
Percent Solids	77			87			87		100	The second second	7 %		N/A			N/A				

Val-Validity Refer to Data Qualifiers in Table 1B

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limits

N/A-Not Applicable

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

ANALYTICAL RESULTS

TABLE 1A

Case No.: 20813 Memo #03

Site: Sobex

Analytical Resources, Inc. (ARI) Lab.:

Reviewer: Margaret L. May, ESAT/ICF Technology, Inc.

November 17, 1993 Date:

Analysis Type: Low Level Water Samples

for RAS Pesticides/PCBs

Concentration in ug/L

Station Location Sample I.D.	SL-2 YP06	69 E	В	LF-3 YP07		1	MW-	l Di	ı	LF-4 YP0	72		MW-1	6 EB		MW YP0	87		7-00-00	-2 088 27/93	
Date of Collection	09/21	4-		09/24	T	ı	09/24			09/2		Ι.	09/23			09/2		la		-	
Pesticide/PCB Compound	Result	Val	Com	Result	-	Com		Val	Com	Result	-	Com		Val C	om	Result		Com	Result		d Com
alpha-BHC	0.05 U	200000	100000000000	0.05 U	A College		0.05 U	2253	0.6688888	0.05 L	t block	irukas.	0.05 U		atile l	0.05 L	1 1 1		0.05	****	3 (A) (A)
beta-BHC	0.05 U			0.05 U			0.05 U			0.05 L			0.05 U			0.05 L			0.05		
delta-BHC	0.05 U			0.05 U	10000	0.0000000000000000000000000000000000000	0.05 U		40040000000	0.05 L	4.55		0.05 U		a te	0.05 L		88600000	0.05	200	
gamma-BHC (Lindane)	0.05 U			0.05 U			0.05 U			0.05 L		0.000	0.05 U			0,05 L			0.05		
Heptachlor	0.05 U			0.05 L	1		0.05 U		2020-624	0.05 L	1500		0.05 U			0.05 L	1	start.	0.05		
Aldrin	0.05 U	ı		0.05 L			0.05 U			0.05 L		0.0000 0.0000	0.05 U			0.05 L					
Heptachlor epoxide	0.05 U	ı		0.05 L			0.05 U			0.05 L	J		0.05 U		08.00	0.05 L	1		0.05	2 1 1 1	
Endosulfan I	0.05 U			0.05 L			0.05 U			0.05 L	J		0.05 U		17.	0.05 t		1,15	0.05		
Dieldrin	0.1 U	ſ		0.1 L	1		0.1 U			0.1 U	1		0.1 U		S	0.1 U	100		0.1		
4,4'-DDE	0.1 U		1	0.1 L	ı		0.1 U			0,1 t	J		0.1 U			0.1 L	J		0,1	252 4 81	7.8
Endrin	0.1 U	1		0.1 L	J		0.1 U			0.1 U	J		0.1 U			0.1 L	J		0.1	U	
Endosulfan II	0.1 L	1		0.1 L	,	19.35	0.1 U		Adam	0,1 1	J		0.1 U			0.1 l		12 E	0.1		
4,4'-DDD	0.1 L	ı	220 300	0.1 L)		0.1 U			0.1 U	J		0.1 U			0.1 t	J		0.1	U	
Endosulfan sulfate	0.1 L)		0.1 U	ıl .		0.1 U			0.1 (J		0.1 U			0.1 (J		0.1		
4,4'-DDT	0.1 L	J		0.1 (J		0.1 U			0.1 (J		0.1 U			0.1 (J		0.1	U	
Methoxychlor	0.5 l	J .		0.5 1	1		0.5 U			0.5 (J		0.5 U			0.5 T	1		0.5	U	
Endrin ketone	0.1 U			0.1 1	J		0.1 U			0.1 (J		0.1 U			0.1 U	J		0.1	U	
Endrin aldehyde	0.1 U	J		0.1 1	1		0.1 U			0.1 1	J		0.1 U			0.1 [J	12712	0.1	U	
alpha-Chlordane	0.05 L			0.05 T	1		0.05 U			0.05 (J		0.05 U			0.05 (ו		0.05	U	
gamma-Chlordane	0.05 1	ار		0.05 t]		0.05 L			0.05 1	Ú.	100	0.05 U			0.05 1	J	1	0.05	U	
Toxaphene	5 L			5 1			5 L	11/0000000		5 1	U		5 U			5 1	J	ř.	5	U	
Aroclor-1016	11	ال		1.1	J		1 L	ı		1.1	Ų		1 U			11	J		1	U	
Aroclor-1221	2 (2 1			2 L			2 1	U	1000000	2 U			2 1	U		2	U	
Aroclor-1232	11			1.1	10 00000		it	1		11	U		1 0			1.1	וו		1	U	
Aroclor-1242	11		1 1 1 1 1 1 1 1 1 1 1 1	11			11			11			1 U			1 1	U			U	
Aroclor-1248	la (ii	1.0	1139		1 100		11	1.000		1	u		1 U			1 1	ט		l i	U	
Aroclor-1254	11	200		1 1			11		ľ	1			1 U			1 1			1	U	
Aroclor-1260	1			1			11			1			1 U	1		1			1	U	

Val-Validity Refer to Data Qualifiers in Table 1B

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limits

N/A-Not Applicable

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

ANALYTICAL RESULTS

TABLE 1A

Case No.: 20813 Memo #03

Site: Sobex

Analytical Resources, Inc. (ARI) Lab.:

Reviewer: Margaret L. May, ESAT/ICF Technology, Inc.

November 17, 1993 Date:

Analysis Type: Low Level Water Samples

for RAS Pesticides/PCBs

Concentration in ug/L

Station Location Sample I.D. Date of Collection	MW YP0 09/2	89 E	3	MW- YP09 09/2	90		Method PBL			Method PBLI			CRO	QL							
Pesticide/PCB Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
alpha-BHC	0.05 U	J		0.05 U	J		0.05 U	I		0.05 U			0.05								
beta-BHC	0.05 l	ונ		0.05 L	J.		0.05 U	1		0.05 U			0.05								
delta-BHC	0.05 l	J		0.05 L	J		0.05 U	J		0.05 U			0.05								
gamma-BHC (Lindane)	0.05 L	ון		0.05 L	ıl 💮		0.05 L	1		0.05 U			0,05							0.5	
Heptachlor	0.05 T	J		0.05 L	J		0.05 U	1		0.05 U			0.05								
Aldrin	0.05 T	J		0.05 L	J		0.05 L	1		0.05 U			0.05								
Heptachlor epoxide	0.05 (J		0.05 L	J		0.05 U]		0.05 U			0.05								
Endosulfan I	0.05 1	1		0.05 L	ı		0.05 L	1		0.05 U			0.05				-			M. S.	186.3
Dieldrin	0.1 [J		0.1 L	ı		0.1 U	J		0.1 U	1		0.1								
4,4'-DDE	0.1 (J	100000	0.1 L	J 💮		0.1 U	J		0.1 U		18.3	0.1	0.1							1.45
Endrin	0.1 T	J		0.1 U	J	.,	0.1 U	0.00		0.1 U	1		0.1								
Endosulfan II	0.1 1	J		0.1 ₹	J	29920	0.1 L	J	138612	0.1 U	2000	100.00	0.1		187		1			10	
4,4'-DDD	0.1 \	IJ		0.1 [J		0.1 L			0.1 U	90103		0.1			1000000			1222		
Endosulfan sulfate	0.1 1	J		0.1 1			0.1 L		1.65254	0.1 U			0.1						3.003.3		4000
4,4'-DDT	0.1	U		0.1 L	A. B. (1950)	41100000	0.1 L	504110-011	M. D. C. T. C.	0.1 U	di reservo	L. Sarrie	0.1	ļ.,				Selection.	in Balkarap Agerbase	1	
Methoxychlor	0.5 1	u .		0.5 (0.5 L			0.5 U		1000000	0.5					A.A.			1.000
Endrin ketone	0.1	U	till the second	0.1 U			0.1 (0.00		0.1 U			0.1	1		100		l			
Endrin aldehyde	0.1	וין	80.000	0.1 (J		0.1 t	J		0.1 U			0.1						- 200		10000
alpha-Chlordane	0.05	ט		0.05 (J	ļ	0.05 U	· warn	1	0.05 U			0.05								
gamma-Chlordane	0.05	U .		0.05 (J		0,05 I	J		0.05 U	1		0.05								12000
Toxaphene	5	ט		5 (200		5 L	0.00000		5 U	1000		5						550000.500.50.70		
Aroclor-1016	1	U 🗀		1.1	J		11			1 U			1								
Aroclor-1221	2	U		2 (J		2 (J	ļ	2 U	J		2								
Aroclor-1232	1	u		1.1	J		1.1	J		1 0	J		1		10000						
Aroclor-1242	1	U		1.0	J		1 (J		1 U	J		1		1	- X					
Aroclor-1248	1	U		1.1	J		1 1	J		1 L	J		1							1	
Aroclor-1254	1	U		11	U		1 0	J		11	J		1	1.							
Aroclor-1260	1	U		1.1	U		3 1 T	J	1	1.1	J		1					n. I	af a		

Val-Validity Refer to Data Qualifiers in Table 1B

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limits

N/A-Not Applicable

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

TABLE 1B DATA QUALIFIERS

The definitions of the following qualifiers are prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," December, 1990 (6/91 Revision).

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
- NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

TPO:	٢]FYI	[X]	Attention
TIO.	L	1	[42]	TICCCIIC TO

[]Action

ORGANIC REGIONAL DATA ASSESSMENT

Case	No. 20813 Memo #03	LABO	RATORY	ARI				
SDG N	TO. YP068	SITE	NAME	Sobe	ex			
SOW	3/90	REVI	EW COMP	LETION	DATE	Novem	oer 17, 1	993
REVIE	EWER [] ESD [X] ESAT	REVI	EWERS'	_			. Scheele t L. May	
NO. O	F SAMPLES9 WATER	11	SOIL		_ отн	ER		
			VOA	BNA	P	EST	OTHER	
1. H	OLDING TIMES					0		
2. G	GC-MS TUNE/GC PERFORMANCE		0	disable recover		0		
3. I	NITIAL CALIBRATIONS		0	-		0		
4. C	CONTINUING CALIBRATIONS		<u> X</u>			0		
5. F	FIELD QC					0		
6. I	ABORATORY BLANKS					0		
7. S	SURROGATES		0			0		
8. M	MATRIX SPIKE/DUPLICATES		0			0		
9. R	REGIONAL QC		N/A			N/A		
10. I	INTERNAL STANDARDS		0		_	N/A		
11. 0	COMPOUND IDENTIFICATION		0	-		0		
12. 0	COMPOUND QUANTITATION		0	-		0		
13. S	SYSTEM PERFORMANCE		0	-		0		
14. 0	OVERALL ASSESSMENT		X			0		

O = No problems or minor problems that affect data quality.

X = No more than about 5% of the data points have limitations on data quality. Data points are either qualified as estimates or rejected.

M = More than about 5% of the data points are qualified as estimates.

Z - More than about 5% of the data points have been rejected.

N/A - Not Applicable

TPO:	[]FYI	[X]Attention	[]Action
------	---	------	--------------	---	---------

Region <u>IX</u>

ORGANIC REGIONAL DATA ASSESSMENT

Case No.	20813 Memo #03	LABORATORY _	ARI
SDG NO.	YP068	SITE NAME	Sobex
sow	3/90	REVIEW COMPLET	CION DATE November 17, 1993
REVIEWER	[] ESD [X] ESAT	REVIEWERS' NAM	ES <u>Adriane G.L. Scheele</u> and Margaret L. May
NO. OF SA	MPLES 9 WATER 1	1 SOIL	OTHER

TPO ACTION: None.

TPO ATTENTION: (1) Sample YP068 was received at the laboratory on September 22, 1993 and extracted 11 days later on October 3, 1993. The extraction exceeded the 10 day contractual holding time by 1 day. (2) Although the bottles were labelled correctly, the sampler misidentified sample YP087 as YP078 on the Organic Traffic Report/Chain of Custody. (3) The quantitation limits for two volatile target analytes were qualified as estimated due to calibration problems.

AREAS OF CONCERN: None.



ICF TECHNOLOGY INCORPORATED

MEMORANDUM

TO:

Mike Bellot

Site Assessment Manager

Site Evaluation & Grants Section, H-8-1

THROUGH:

Richard Bauer AT

Environmental Scientist

Quality Assurance Management Section (QAMS), P-3-2

FROM:

Margie D. Weiner/1/2011)

Senior Data Review Oversight Chemist

Environmental Services Assistance Team (ESAT)

DATE:

November 8, 1993

SUBJECT:

Review of Analytical Data

Attached are comments resulting from ESAT Region IX review of the following analytical data:

SITE:

Sobex

EPA SSI NO.:

5U

CERCLIS I.D. NO.: CAD982399784 CASE/SAS NO.:

20813 Memo #01

SDG NO.:

MYM458

LABORATORY:

Southwest Labs of Oklahoma (SWOK)

ANALYSIS:

RAS Total Metals

SAMPLE NO.:

16 Water Samples (See Case Summary)

COLLECTION DATE:

September 21 through 27, 1993

REVIEWER:

Karen Pettit, ESAT/ICF

If there are any questions, please contact Margie D. Weiner (ESAT/ICF) at (415) 882-3061, or Richard Bauer (QAMS/EPA) at (415) 744-1499.

Attachment

cc: Ray Flores, TPO USEPA Region VI

Steve Remaley, USEPA Region IX

TPO: []FYI

[X]Attention

[X]Action

SAMPLING ISSUES: [X]Yes

Data Validation Report

Case No.:

20813 Memo #01

Site:

Sobex

Laboratory: Southwest Labs of Oklahoma (SWOK)

Reviewer:

Karen Pettit, ESAT/ICF

Date:

November 8, 1993

I. Case Summary

SAMPLE INFORMATION:

SAMPLE #: MYM458 through MYM461 and MYM476 through

MYM487

COLLECTION DATE:

September 21 through 27, 1993

SAMPLE RECEIPT DATE: September 23 through 28, 1993

CONCENTRATION & MATRIX:

13 Low Concentration Groundwater and 3 Low

Concentration Rinsate Samples

FIELD QC:

Field Blanks (FB):

None

Equipment Blanks (EB): MYM458*, MYM476*, and MYM482 (See Additional

Comments)

Background Samples (BG):

None

Duplicates (D1): MYM459 and MYM460

(D2): MYM483 and MYM484

LABORATORY QC:

Matrix Spike: MYM481

Duplicates: MYM480

ICP Serial Dilution: MYM480

ANALYSIS: RAS Total Metals

Sample Preparation

Analysis

Analyte

and Digestion Date

Date

ICP Metals

October 2, 1993

October 4 and 5, 1993

Mercury

October 5, 1993

October 5, 1993

TPO ACTION:

METHOD NON-COMPLIANCE: A contract required detection limit (CRDL) standard was not analyzed during the analysis of the samples for mercury. Therefore, the linearity near the CRDL for mercury could not be verified. The effect on the quality of the data is unknown. However, the laboratory did use a standard at the CRDL in the calibration of the instrument.

SAMPLING ISSUES: None.

The results for silver in all of the samples are rejected OTHER: because of matrix spike recovery results outside method QC limits. results reported for silver in all of the samples were below the

instrument detection limit (IDL) and are considered unacceptable as less than 30% of the matrix spike was recovered.

TPO ATTENTION:

METHOD NON-COMPLIANCE: None.

SAMPLING ISSUES: An equipment blank is reagent water that has been collected as a sample using decontaminated sampling equipment. The purpose of an equipment blank is to monitor for contamination introduced by the sampling activity. The reported result of 0.27 μ g/L for mercury in equipment blank sample MYM458 and 0.23 μ g/L for mercury in equipment blank sample MYM476 exceeds the contract required detection limit (CRDL) of 0.20 μ g/L. Samples associated with equipment blanks MYM458 and MYM476 in Case 20813 Memo #02 may be affected.

OTHER: There was no case narrative to explain the analytical conditions for arsenic, lead, selenium, and thallium. The laboratory, when contacted, verified that a Thermo Jarrel Ash ICAP61E Trace Analyzer was used.

Although the Statement of Work (SOW) specifies that an Interference Check Sample (ICS) be run and reported for each instrument operated, the interferents were not reported for the Interference Check Samples (ICS) run on the Trace Analyzer. When the laboratory was questioned about this practice, the validator was told that the laboratory only reports the analytes of interest on Form IV. They assumed that the ICS interferents run on the Trace Analyzer were not analytes of interest since those results from the Trace Analyzer were not reported on Form I.

ADDITIONAL COMMENTS:

For analytical results associated with equipment blank samples MYM458 and MYM476 see the validation report for Case 20813 Memo #02.

The sampler designated two samples for lab QC, MYM480 and MYM481. The laboratory performed the matrix spike on MYM481 and the laboratory duplicate and the ICP serial dilution on the other designated sample, MYM480.

The laboratory analyzed all of the samples for arsenic, lead, selenium, and thallium by Thermo Jarrell Ash ICAP61E Trace Analyzer according to Method 200.7 in the EPA Contract Laboratory Program (CLP) Inorganic Statement Of Work (SOW). The instrument detection limits (IDL) for arsenic, lead, selenium, and thallium were at or below the RAS contract required detection limits (CRDL) specified for these analytes in the Statement of Work (SOW).

According to the SOW, the spike sample analysis is designed to provide information about the effect of the sample matrix on the digestion and measurement methodology. The SOW further specifies that samples be spiked at concentrations appropriate to the analytical method used. There have been no spike concentration levels established for the ICAP61E Trace Analyzer. Consequently, the laboratory spiked the QC

sample to be analyzed for arsenic, lead, selenium, and thallium at ICP/AA levels. This practice is within the contractual specifications. However, since the IDLs and CRDLs for arsenic, lead, selenium, and thallium as well as the expected analyte concentrations in the water samples are low, it is more appropriate to use the lower concentration GFAA spike levels which are consistent with the expected analyte concentration.

The analytical results with qualifications are listed in Table 1A. The definitions of the data qualifiers used in Table 1A are listed in Table 1B. This report was prepared in accordance with the EPA Contract Laboratory Program Inorganic Statement of Work (ILMO2.1), and the EPA Draft Document "Laboratory Data Validation Functional Guidelines For Evaluating Inorganic Analyses," October, 1989.

II. Validation Summary

The data were evaluated based on the following parameters:

Parameter	<u>Acceptable</u>	Comment
1. Data Completeness	No	С
2. Sample Preservation and Holding Times	Yes	
Calibration	Yes	
 Initial Calibration Verification 		
 b. Continuing Calibration Verificatio 	n	
c. Calibration Blank		
4. Blanks	Yes	
 Laboratory Preparation Blank 		
b. Field Blank		
c. Equipment Blank		
5. ICP Interference Check Sample Analysis	Yes	
6. Laboratory Control Sample Analysis	Yes	
7. Spiked Sample Analysis	No	A
8. Laboratory Duplicate Sample Analysis	Yes	
9. Field Duplicate Sample Analysis	No	D
10. GFAA QC Analysis	N/A	
a. Duplicate Injections		
b. Analytical Spikes		
c. Method of Standard Addition		
11. ICP Serial Dilution Analysis	Yes	
12. Sample Quantitation	Yes	В
13. Sample Result Verification	Yes	

N/A = Not Applicable

III. Validity and Comments

- A. The following results are rejected because of matrix spike recovery results outside method QC limits. The results are flagged "R" in Table 1A.
 - · Silver in all of the samples

Matrix spike sample analysis provides information about the effect of the sample matrix on sample preparation and measurement. The matrix spike recovery result for silver in QC sample MYM481 did not meet the 75-125% criteria for accuracy. The percent recovery and possible percent bias for silver is presented below and is based on an ideal recovery of 100%.

	MYM481	MYM481
Analyte	% Recovery	% Bias
Silver	28.5	-71.5

The results reported for silver in all of the samples were below the instrument detection limit (IDL) and are considered unacceptable as less than 30% of the matrix spike was recovered. The low matrix spike recovery indicates an analytical deficiency and false negatives may exist.

- B. The following results are estimated and are flagged "J" in Table 1A.
 - All results above the instrument detection limit but below the contract required detection limit (denoted with an "L" qualifier)

Results above the instrument detection limit (IDL) but below the contract required detection limit (CRDL) are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

C. A contract required detection limit (CRDL) standard was not analyzed during the analysis of the samples for mercury. Therefore, the linearity near the CRDL for mercury could not be verified. The effect on the quality of the data is unknown. According to the SOW (ILMO2.1), in order to verify linearity near the CRDL, the laboratory must analyze an AA standard at the CRDL or the IDL, whichever is greater, at the beginning of each sample analysis run, but not before the initial calibration verification (ICV). However, the laboratory did use a standard at the CRDL in the calibration of the instrument.

D. In the analysis of the field duplicate pairs, the following relative percent differences (RPDs) were obtained for the analytes listed below.

	MYM459	D1	MYM483	D2
	MYM460	D1	MYM484	D2
<u>Analyte</u>	RPD		RPD	
Iron	107			
Lead	200		200	
Thallium	200			

The analysis of field duplicate samples is a measure of both field and analytical precision. The results are expected to vary more than laboratory duplicates (± 20 RPD or $\pm CRDL$ criteria for precision) since sampling variability is included in the measurement. The imprecision in the results of the analysis of the field duplicate pair may be due to the sample matrix, high levels of solids in the sample, poor sampling or laboratory technique, or method defects. The effect on the quality of the data is not known.

Lead was present in sample MYM460 at a concentration of 3.7 μ g/L and in sample MYM484 at 4.6 μ g/L, while in the duplicate analysis, lead was not detected at the IDL of 3.0 μ g/L. Thallium was present in sample MYM459 at a concentration of 10.2 μ g/L, while in the duplicate analysis, thallium was not detected at the IDL of 7.0 μ g/L.

ANALYTICAL RESULTS TABLE 1A

Case No.: 20813 Memo #01

Site:

Sobex

Lab.: Southwest Labs of Oklahoma (SWOK)

Reviewer:

Karen Pettit, ESAT/ICF Technology, Inc.

Date:

November 8, 1993

Analysis Type:

Low Concentration Water Samples

for RAS Total Metals

Concentration in ug/L

Station Location Sample I.D. Date of Collection	SL-2 MYM-)3		LF-3 MYM45 09/24/93	3		MW-6 MYM4 09/24/9	3		LF-4 MYM4 09/24/9:	3		MW-8 MYM4' 09/23/93	3		LF-4F MYM47 09/24/93			MW-1 MYM478 09/24/93	
Parameter	Result	Va	Com	Result	Val	Com	Result	Val	Com	Result	Val	l Com	Result	Val	Com	Result	Val	Com	Result V	al Con
Aluminum	57,3	LJ	В	46.6 L	J	В	35.0 U	ı		5240			69.6 L	J	В	35.0 ป			35.0 U	
Antimony	19.0	U		19.0 U			19.0 U	J		19.0 L	J		19.0 U	1		19.0 U			19.0 U	
Arsenic	3.0	u		302			286			11.6			3.0 U			3.0 U			3.8 L J	В
Barium	6.0	U		376			338			392			6.0 U			83.1 L	J	В	246	
Beryllium	1.0	U		1.0 U			1.0 U	I		1.0 L	ı	120	1.0 U			1.0 U			1.0 U	
Cadmium	2.0	U		2.0 U			2.0 U	J		2.0 L	1		2.0 U	ſ		2.0 U			2.0 U	
Calcium	220	L J	В	115000			121000			130000			191 L	J	В	103000			94800	
Chromium	3.0	U		3.0 U			3.0 U	J		15.5			3.0 U	r		3.0 U			3.3 L J	В
Cobalt	5.0	U		5.0 U			5.0 U	J .		29.3 L	J	В	5.0 U			5.0 U			5.0 U	
Copper	2.0	U		2.0 U	ı	l	2.0 U	J		52.4			2.0 U			2.0 U			2.0 U	
Iron	13.4	LJ	В	3320	11.20	D	1010	1	D	9610	133		15.8 L	J	В	39.1 L	J	В	72.1 L J	В
Lead	3.0	U		3.0 U	J	D	3.7		D	19.0			3.0 U	ı		3.0 U			3.0 U	
Magnesium	94.0	u		72000			76100			65500			94.0 U			59400			78300	
Manganese	1.0	U		7520			7520	١	l	2610			2.3 L	J	В	506			127	
Mercury	0.27		c	0.20 U	ı	C	0.20 L	J	c	0.20 L	J	C	0.23		c	0.20 U		c	0.30	C
Nickel	11.0	U		22.2 L	J	В	11.0 L	J		67.8			11.0 U			12.3 L	J	В	11.0 U	
Potassium	427	u		1590 L	J	В	1550 L	J	В	2210 L	, J	В	427 U			1660 L	J	В	1890 L J	В
Selenium	4.0	U		4.0 U	J		4.0 L	J		7.3			4.0 U			5.2			4.0 U	
Silver	2.0	UR	A	2.0 L	J R	A	2.0 €	J R	A	2.0 €	J R	A	2.0 U	R	A	2.0 U	R	A	2.0 U R	R A
Sodium	687	LJ	В	153000			144000			112000			764 L	J	В	115000			146000	
Thallium	7.0	U		10.2		D	7.0 L	J	D	7.2 1		В	7.0 U	ı 🏻		7.0 U			7.0 U	
Vanadium	3.0			4.6 L	J	В	4.9 I	J	В	33.5 1		В	3.0 U			3.0 U	1		3.0 U	1 200000
Zinc	6.1	LJ	В	8.2 L	1	В	9.2 I	J	В	52.5			3.0 U		100	3.0 U		1	3.0 U	
4 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4																			-	
				Jan 1994		1000	to resident and	. 100	1280			Jacob	1000000000000	1	1	1. 25 - 50 - 50 20.			Service A	

Val-Validity Refer to Data Qualifiers in Table 1B Com.-Comments Refer to the Corresponding Section in the Narrative for each letter. IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils. D1, D2, etc.-Field Duplicate Pairs FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS TABLE 1A

Case No.:

20813 Memo #01

Site:

Sobex

Southwest Labs of Oklahoma (SWOK)

Reviewer: Karen Pettit, ESAT/ICF Technology, Inc.

Date:

Lab.:

November 8, 1993

Analysis Type:

Low Concentration Water Samples

for RAS Total Metals

Concentration in ug/L

Station Location Sample I.D. Date of Collection	· MYM4	MW-1F MYM479 09/24/93			30 3		LF-2F MYM48 09/27/93			MW-11 MYM48 09/24/93		В	LF-3F MYM48 09/24/93	3 D2	Ł	MW-6F MYM48 09/24/93	4 D	2	MW-5 MYM48 09/27/93	185)3		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	
Aluminum	35,0 1			38.6 L	,	В	45.3 L	1	В	77,4 L	l T	В	35.0 U	200		58.6 L	1	В	3320		13,41	
Asuminum Antimony	19.0 (19.0 U	1	*******	19.0 U			19.0 U		**	19.0 U	X X 200		19.0 U	7	M	19.0 U	1		
Production from Schools Authorised Medical	4.0 1	00 1 300000	В	3.0 U	Section 1	333333	3.0 U	200000		3.0 U	100000	1000000	330			392	18	1990	3.7 L	1.600	В	
Arsenic Barium	251	# # X		80.4 L	T.	В	75.7 L	1	В	6.0 U	10000000	1000000	363	A.IX	000000000	365	1	78-8-12	105 L		В	
44 CM 150 CALLS & La NACIONATA	1.0 1	,		1.0 U		Š	1.0 U	i		1.0 U	100		1.0 U			1.0 U			1.0 U	1.00	1	
Beryllium				2.0 U	0.000	000,000,000	2.0 U	100000	000,000000	2.0 U		1535858	2.0 U	- 00000	-0.400,00	2.0 U			2.0 U		1	
Cadmium	2.0 1	"		400400000000000000000000000000000000000		W. 3354	78900			273 L		D	113000			115000	报	98.24	68200			
Calcium	97200	1.**		85000 3.0 U			78900 3.0 U			3.0 U		В	3.0 U		A.244	3.0 U	15		29.3		1	
Chromium	3.2	1	В	No particle Reserve	1	33.833	9 00000 600 600 Y	100000	100000	of all full of the following	1	100,000				5.0 U	1		5.0 U			
Cobalt	5.0			5,0 U		- Control	5,0 U 2.0 U		1 000000	5.0 U		100000	5.0 U 2.0 U			2.0 U	383.	10000000000000000000000000000000000000	2.0 U	1	1	
Copper	2.0	10 Lane		2.0 U	1.50	-33.365	ext. docut, for do prouve	1.:00	,	2.0 U	1	D	3680	23	868.	4250	1.0		4920		1.3	
Iron	36.1		В	137			38.6 L	1	B	8.5 L		В	1	200	K.A.L.	4.6	1	D		1.30	1	
Lead	3.0	U	500000	3.0 U	1	1000000	3.0 U		1	3.0 U	21	0000000	3.0 U		D	inda a vivi fividay		שו	8.2		1000	
Magnesium	79300	å: listo		49800		1 660000	46200			94.0 U		10.55	71000		50.000000	72400		30000	45500		0.6%	
Manganese	87.9	5 J. 6		773		290.0	683	1000	С	1.0 U	1000	200	7670	100	_	8450			396			
Mercury	0.29		C	0.20 L		C	0.20 U	335555	C	0.20 U		С	0.20 U		C	0.20 U	1350	C	0.20 U		C	
Nickel	11.0	1.32.5	4,33,3	11.0 L			11.0 U	10000	VA.244	11.0 U		1383	19.3 L		В	20.1 L	J	В	31.7 L	100	В	
Potassium	1720		В	1790 I		В	1760 L		В	427 U		1,000	1350 L	1	В	1020 L	1	В	2280 L	13	В	
Selenium	4.0	5.1	- 20015915	4.0 U		455 35356	4.0 U	40.00		4.0 U	10000		4.0 U		.040.140	4.0 U	1	10.5%	9.7			
Silver	2.0	UR	A	2.0 L	JR	A	2.0 U	R	A	2.0 L	R	A	2.0 U	R	A	2.0 U	R	A	2.0 U	IR	A	
Sodium	145000			132000			129000	1	1	954 L	J	В	150000		. 10 / 1200 / 1	140000			81100			
Thallium	7.0	U		7.0 1	J	1	7.0 L	1		7.0 L	1		7.0 U			7.1 L	1	В	7.0 U	J 🔅		
Vanadium	3.9	LJ	В	3.0 L	ונ		3.3 L	. J	В	3.0 L	1		3.0 U			3.0 U	1		13.2 L	1	В	
Zinc	3.0	U		3.0 l	J		3.0 L	1		3.4 L	. 1	В	3.0 U			8.3 L	1	В	20.7		-	
	, los os los recessos.	1.	1000.00	War da A. Lan	1	1	k substituents state		1	2000 (03003000)			SOME STAND AND ALL			A. S.		1	N			

Val-Validity Refer to Data Qualifiers in Table 1B Com.-Comments Refer to the Corresponding Section in the Narrative for each letter. IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils. D1, D2, etc.-Field Duplicate Pairs FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background CRDL-Contract Required Detection Limit

Page 3 of 3

ANALYTICAL RESULTS
TABLE 1A

Case No.: 20813 Memo #01

Site: Sobex

Lab.: Southwest Labs of Oklahoma (SWOK)

Reviewer: Karen Pettit, ESAT/ICF Technology, Inc.

Date: November 8, 1993

Analysis Type:

Low Concentration Water Samples

for RAS Total Metals

Concentration in ug/L

Parameter	Result	3			YM48 /27/93			Lab Bla	nk		IDL			CRDL						e.	
	Account	Val	Com	Resul	t	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val Cor
	73.8					•	D.	260 1			35.0	1	Cellist.	200					-339	l Lidaci GRata vers	
Aluminum	0.0000000000000000000000000000000000000		В		108 L		В	35.0 U	100 MAGNETS			1000		200 60.0		30.000 c			1.081.1		
Antimony	19.0	0.00000		0.0000000000000000000000000000000000000	9.0 U	00000	i odalisti o	19.0 U	A 20174	******	19.0		13841191	Approximate and the		i dia ika	Silena marinesa		idistar)	1888 L-888 (US-88	1.00
Arsenic	3.0	200			3.0 U	100000000000000000000000000000000000000		3.0 U			3.0	1		10.0	1000	\$100 kg		1000	XXXXX		
Barium	41.9	4 1 4 4 4 4 5	В	CO. CONTRACTOR	6.0 U	100	E-98393	6.0 U	S. 1000. A		6.0			200	A THE	* (A. 2000)			This is	i dag ili seggiye des	
Beryllium	1.0	SALE STATES			1.0 U			1.0 U			1.0	1000		5.0							
Cadmium	2.0	U	200.00	100 CANDON	2.0 U			2.0 U	. 00000	N. Street e	2.0		100000	5.0		S08050.1				Tall to David a la	
Calcium	50400		0.00		351 L		В	154 L	II.		154			5000							
Chromium	16.2				3.0 U			3.0 U	1		3.0			10.0							
Cobalt	5.0	U			5.0 U		1.05	5.0 1.	1		5.0		17 16	50.0		200		1	20.00	derwicht.	
Copper	2.0	u			2.0 U			2.0 L	וו		2.0			25.0							
Iron	51.0	LJ	В	1	5.8 L	J	В	5.0 L	1		5.0		e jacon	100							
Lead	3.0	U			3.0 U			3.0 L	J		3.0			3.0							
Magnesium	39700			9	4.0 U			94.0 L	J		94.0			5000							
Manganese	. 82.1				2.0 L		В	1.0 L	J		1.0			15.0							
Mercury	0.34		С	C) 20 U		C	0.20 L	J	1000	0.20	1		0.20							
Nickel	11.0	U	300000		11.0 U		*********	11.0 U			11.0	1		40.0		20000		" "		1 or 1 out 1985 NO	
Potassium	2090		В		427 U	1	0.000	427 L	1. 200.0		427			5000							
Selenium	8.2	** * · ·	1		4.0 U		1.1.2.4.4.4	4.0 L		100.00	4.0		200.8%	5.0							
Silver	A STATE OF THE PARTY.	UR	A	and the second section of	2.0 U	10000	A	2.0 1	Sc 10000		The second second second second	1.200		10.0					, 10/10	una diwasi bi	100
Sodium	75500	W K	(A.	The state of the s	240 L		В	216 U	200	1-12-1-12	216	1000		5000	SP ~ 8500	14,000,000				VF MORAL (M.) 440.	
Thallium	7.0		13000	A 50 10 10 100	7.0 U	Land .		7.0 L	27 md 24 de		7.0	100		10.0							
Vanadium			408888		3.0 U		P 1/8500.85	3.0 t			3.0	100	1.883.32	50.0	381 3683	18800		380 -	1000	May viteras, si Atil	
	3.0		1.60	W. N. S. S. S.		1	1000	- Section 1874. 1	100	9 × 3 .	A second of the		100			194,					
Zinc	3.0	U :			3.0 U	1	1 10000	3.0 t	4		3.0		13.00	20.0		1.2	201				
								l agreement		281	1.5.5.005.005.005.00	1	Jan S. R.		in land						

Val-Validity Refer to Data Qualifiers in Table 1B

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils.

D1, D2, etc.-Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background
CRDL-Contract Required Detection Limit

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR INORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared in accordance with the EPA draft document, "Laboratory Data Validation Functional Guidelines For Evaluating Inorganic Analyses," October, 1989.

NO QUALIFIER indicates that the data are acceptable both qualitatively and quantitatively.

- The analyte was analyzed for but was not detected above the level of the reported value. The reported value is the Instrument Detection Limit (IDL) for waters and the Method Detection Limit (MDL) for soils for all the analytes except Cyanide (CN) and Mercury (Hg). For CN and Hg, the reported value is the Contract Required Detection Limit (CRDL).
- L The analyte was analyzed for but results fell between the IDL for waters or the MDL for soils and the CRDL. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
- J The analyte was analyzed for and was positively identified, but the reported numerical value may not be consistent with the amount actually present in the environmental sample.
- R The analyte was analyzed for, but the presence or absence of the analyte has not been verified. Resampling and reanalysis are necessary to confirm or deny the presence of the analyte.
- UJ A combination of the "U" and the "J" qualifier. The analyte was analyzed for but was not detected above the reported value. The reported value may not accurately or precisely represent the sample IDL or MDL.

INORGANIC REGIONAL DATA ASSESSMENT

LABOR	ATORY _	SWOK			
SITE	NAME _	Sobex	· ·		
REVIE	W COMPL	ETION DATE	Nove	mber 8, 19	93
REVIE	WER'S N	AME <u>Kare</u>	n Pettit		19
SOIL		OTHER			
	ICP	GFAA	Hg	Cyanide	
,	0		0		
	0		0		
	0		0		
(ICS)	0				
5)	0		0		
	0		0		
	_Z		0		
ISA)					
	0				
	0	-	0		
	0		00		
	<u>Z</u>		0		
	REVIE REVIE	SITE NAME REVIEW COMPL REVIEWER'S N SOIL ICP O O O (ICS) O O Z ISA) O O O O O O O O O O O O O O O O O O O	REVIEWER'S NAMEKares	SITE NAME	SITE NAME Sobex REVIEW COMPLETION DATE November 8, 19 REVIEWER'S NAME Karen Pettit SOIL

^{0 -} No problems or minor problems that affect data quality.

X = No more than about 5% of the data points have limitations on data quality. Data points are either qualified as estimates or rejected.

M = More than about 5% of the data points are qualified as estimates.

Z - More than about 5% of the data points have been rejected.

N/A - Not Applicable.

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 20813 Memo #01	LABORATORY <u>SWOK</u>
SDG NO. MYM458	SITE NAME Sobex
SOW NO. ILMO2.1	REVIEW COMPLETION DATE November 8, 1993
REVIEWER [] ESD [X] ESAT	REVIEWER'S NAME Karen Pettit
NO. OF SAMPLES16_ WATER	SOIL OTHER

TPO ACTION: A contract required detection limit (CRDL) standard was not analyzed during the analysis of the samples for mercury. Therefore, the linearity near the CRDL for mercury could not be verified. The effect on the quality of the data is unknown. However, the laboratory did use a standard at the CRDL in the calibration of the instrument.

The results for silver in all of the samples are rejected because of matrix spike recovery results outside method QC limits. The results reported for silver in all of the samples were below the instrument detection limit (IDL) and are considered unacceptable as less than 30% of the matrix spike was recovered.

TPO ATTENTION: An equipment blank is reagent water that has been collected as a sample using decontaminated sampling equipment. The purpose of an equipment blank is to monitor for contamination introduced by the sampling activity. The reported result of 0.27 μ g/L for mercury in equipment blank sample MYM458 and 0.23 μ g/L for mercury in equipment blank sample MYM476 exceeds the contract required detection limit (CRDL) of 0.20 μ g/L. The samples associated with MYM458 and MYM476 in Case 20813 Memo #02 may be affected.

There was no case narrative to explain the analytical conditions for arsenic, lead, selenium, and thallium. The laboratory, when contacted, verified that a Thermo Jarrel Ash ICAP61E Trace Analyzer was used.

Although the Statement of Work (SOW) specifies that an Interference Check Sample (ICS) be run and reported for each instrument operated, the interferents were not reported for the Interference Check Samples (ICS) run on the Trace Analyzer. When the laboratory was questioned about this practice, the validator was told that the laboratory only reports the results for the analytes of interest on Form IV. They assumed that the ICS interferents run on the Trace Analyzer were not analytes of interest since those results from the Trace Analyzer were not reported on Form I.

AREAS OF CONCERN: An initial CRI standard recovery of 108.8% and a high final CRI standard recovery of 152.8% for lead were reported for the analyses in this SDG. While there are no criteria established for CRDL standard recoveries, high recoveries may indicate high bias for sample results near the CRDL.

PO: []FYI	[X]Attention	[X]Action	Region <u>IX</u>

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 20813 Memo #01	_ LABORATORY _SWOK
SDG NO. MYM458	_ SITE NAMESobex
SOW NO. ILMO2.1	REVIEW COMPLETION DATE November 8, 1993
REVIEWER [] ESD [X] ESAT	REVIEWER'S NAME Karen Pettit
NO. OF SAMPLES16_ WATER	_ SOIL OTHER

AREAS OF CONCERN: (cont.) According to the Inorganic Statement of Work (SOW), an Interference Check Sample (ICS) is run for each ICP instrument used. The check sample is run to verify interelement and background correction factors for each element analyzed. An ICS analysis consists of consecutively analyzing an interferent solution (A) and a solution (AB) containing interferents plus analytes for all wavelengths to be analyzed. The results for lead were reported on Form IV for the October 5, 1993 analytical run, but no results for the interferents were reported from that run.

According to the SOW, the spike sample analysis is designed to provide information about the effect of the sample matrix on the digestion and measurement methodology. The SOW further specifies that samples be spiked at concentrations appropriate to the analytical method used. There have been no spike concentration levels established for the ICAP61E Trace Analyzer. Consequently, the laboratory spiked the QC sample to be analyzed for arsenic, lead, selenium, and thallium at ICP/AA levels. This practice is within the contractual specifications. However, since the IDLs and CRDLs for arsenic, lead, selenium, and thallium as well as the expected analyte concentrations in the water samples are low, it is more appropriate to use the lower concentration GFAA spike levels which are consistent with the expected analyte content.

In Reference to Case No(s).: 20813 Memo #01

Contract Laboratory Program REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone Record Log

Date of Call:	November 3 and 4, 1993	
Laboratory Name:	SWOK	
Lab Contact:	Jason Ruckman	
Region:	IX	
Regional Contact:	Karen Pettit	
Call Initiated By:	Laboratory X Region	
	Collowing sample number(s): ad MYM476 through MYM487	

Summary of Questions/Issues Discussed:

- 1. There was no case narrative to explain the analytical conditions for arsenic, lead, selenium, and thallium. Please verify the type of ICP instrument used to analyze arsenic, lead, selenium and thallium.
- Why were the interferents not reported for the Interference Check Samples (ICS) run on the Trace Analyzer?

Summary of Resolution:

- A Thermo Jarrel Ash ICAP61E Trace Analyzer was used.
- The laboratory only reports the analytes of interest on Form IV.
 They assumed that the ICS interferents run on the Trace Analyzer were not analytes of interest since those results from the Trace Analyzer were not reported on Form I.

Signature

Dáté

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