

Sound Analytical Services, Inc.

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 Pacific Hwy East • Tacoma, WA 98424

(206) 922-2310 • FAX (206) 922-5047

c-mail: SoundI.@aol.com



FAX TRANSMITTAL

Contact, Company, and Address:

Brent Firestone, Project Manager
Foss Environmental
7440 W. Marginal Way South
Seattle, WA 98108

Date: August 16, 1996

Phone Number: (206) 768-1433

Fax Number: (206) 767-3460 #22

Pages sent by fax: 4

Hard copy to follow: Yes

From: Laura Post

Message:

REPORT NO. 58588

Samples from Maralco site

SOUND ANALYTICAL SERVICES, INC.

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

TRANSMITTAL MEMORANDUM

DATE: August 15, 1996
TO: Brent Firestone
Foss Environmental
PROJECT: Maralco Site
REPORT NUMBER: 58588

Enclosed are the test results for three samples received at Sound Analytical Services on August 7, 1996.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (206) 922-2310.

Sincerely,


Darla Powell
Project Manager

DP:tm

SOUND ANALYTICAL SERVICES, INC.

Foss Environmental
 Project: Maralco Site
 Report No. 58588
 August 15, 1996

Lab Sample No. 58588-3

Client ID: MSMW #3

ICP Metals Per EPA Method 6010
 Date Analyzed: 8-13-96
 Units: mg/L

<u>Parameter</u>	<u>Result</u>	<u>PQL</u>
Aluminum	ND	0.20
Antimony	ND	0.30
Arsenic	ND	0.20
Barium	0.011	0.005
Beryllium	ND	0.005
Cadmium	ND	0.050
Calcium	67	0.50
Chromium	0.02	0.01
Cobalt	ND	0.05
Copper	ND	0.025
Iron	0.44	0.10
Lead	ND	0.05
Magnesium	24	0.10
Manganese	ND	0.015
Nickel	ND	0.04
Potassium	0.92	0.50
Selenium	ND	0.20
Silver	ND	0.01
Sodium	3.5	0.50
Thallium	ND	0.20
Vanadium	ND	0.05
Zinc	ND	0.02

Mercury By Cold Vapor AA Per EPA Method 7470
 Date Analyzed: 8-13-96
 Units: mg/L

<u>Parameter</u>	<u>Result</u>	<u>PQL</u>
Mercury	ND	0.0002

ND - Not Detected
 PQL - Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-3047

Report To: Foss Environmental

Date: August 15, 1996

Report On: Analysis of Liquid

Report No.: 58588

IDENTIFICATION:

Samples received on 08-07-96

Project: Maralco Site

P.O. No. 60,676

ANALYSIS:

Lab Sample No. 58588-1

Client ID: MSMW #4

ICP Metals Per EPA Method 6010

Date Analyzed: 8-13-96

Units: mg/L

<u>Parameter</u>	<u>Result</u>	<u>PQL</u>
Aluminum	ND	0.20
Antimony	ND	0.30
Arsenic	ND	0.20
Barium	0.007	0.005
Beryllium	ND	0.005
Cadmium	ND	0.050
Calcium	16	0.50
Chromium	ND	0.01
Cobalt	ND	0.05
Copper	ND	0.025
Iron	ND	0.10
Lead	ND	0.05
Magnesium	5.6	0.10
Manganese	ND	0.015
Nickel	ND	0.04
Potassium	1.4	0.50
Selenium	ND	0.20
Silver	ND	0.01
Sodium	3.3	0.50
Thallium	ND	0.20
Vanadium	ND	0.05
Zinc	ND	0.02

Mercury By Cold Vapor AA Per EPA Method 7470

Date Analyzed: 8-13-96

Units: mg/L

<u>Parameter</u>	<u>Result</u>	<u>PQL</u>
Mercury	ND	0.0002

ND - Not Detected

PQL - Practical Quantitation Limit

This report is issued solely for the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with industry acceptable practice. In no event shall Sound Analytical Services, Inc. or its employees be responsible for consequential or special damages in any kind or in any amount.

SOUND ANALYTICAL SERVICES, INC.

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Foss Environmental

Date: August 15, 1996

Report On: Analysis of Liquid

Report No.: 58588

IDENTIFICATION:

Samples received on 08-07-96

Project: Maralco Site

P.O. No. 60,676

ANALYSIS:

Lab Sample No. 58588-1

Client ID: MSMW #4

ICP Metals Per EPA Method 6010

Date Analyzed: 8-13-96

Units: mg/L

<u>Parameter</u>	<u>Result</u>	<u>PQL</u>
Aluminum	ND	0.20
Antimony	ND	0.30
Arsenic	ND	0.20
Barium	0.007	0.005
Beryllium	ND	0.005
Cadmium	ND	0.050
Calcium	16	0.50
Chromium	ND	0.01
Cobalt	ND	0.05
Copper	ND	0.025
Iron	ND	0.10
Lead	ND	0.05
Magnesium	5.6	0.10
Manganese	ND	0.015
Nickel	ND	0.04
Potassium	1.4	0.50
Selenium	ND	0.20
Silver	ND	0.01
Sodium	3.3	0.50
Thallium	ND	0.20
Vanadium	ND	0.05
Zinc	ND	0.02

Mercury By Cold Vapor AA Per EPA Method 7470

Date Analyzed: 8-13-96

Units: mg/L

<u>Parameter</u>	<u>Result</u>	<u>PQL</u>
Mercury	ND	0.0002

ND - Not Detected

PQL - Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

Foss Environmental
Project: Maralco Site
Report No. 58588
August 15, 1996

Lab Sample No. 58588-2

Client ID: MSMW #2

ICP Metals Per EPA Method 6010
Date Analyzed: 8-13-96
Units: mg/L

<u>Parameter</u>	<u>Result</u>	<u>POL</u>
Aluminum	2.0	0.20
Antimony	ND	0.30
Arsenic	ND	0.20
Barium	0.022	0.005
Beryllium	ND	0.005
Cadmium	ND	0.050
Calcium	58	0.50
Chromium	ND	0.01
Cobalt	ND	0.05
Copper	ND	0.025
Iron	0.69	0.10
Lead	ND	0.05
Magnesium	8.6	0.10
Manganese	ND	0.015
Nickel	ND	0.04
Potassium	1.5	0.50
Selenium	ND	0.20
Silver	ND	0.01
Sodium	3.2	0.50
Thallium	ND	0.20
Vanadium	ND	0.05
Zinc	ND	0.02

Mercury By Cold Vapor AA Per EPA Method 7470
Date Analyzed: 8-13-96
Units: mg/L

<u>Parameter</u>	<u>Result</u>	<u>POL</u>
Mercury	ND	0.0002

ND - Not Detected
POL - Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

Foss Environmental
Project: Maralco Site
Report No. 58588
August 15, 1996

Lab Sample No. 58588-3

Client ID: MSMW #3

ICP Metals Per EPA Method 6010
Date Analyzed: 8-13-96
Units: mg/L

<u>Parameter</u>	<u>Result</u>	<u>PQL</u>
Aluminum	ND	0.20
Antimony	ND	0.30
Arsenic	ND	0.20
Barium	0.011	0.005
Beryllium	ND	0.005
Cadmium	ND	0.050
Calcium	67	0.50
Chromium	0.02	0.01
Cobalt	ND	0.05
Copper	ND	0.025
Iron	0.44	0.10
Lead	ND	0.05
Magnesium	24	0.10
Manganese	ND	0.015
Nickel	ND	0.04
Potassium	0.92	0.50
Selenium	ND	0.20
Silver	ND	0.01
Sodium	3.5	0.50
Thallium	ND	0.20
Vanadium	ND	0.05
Zinc	ND	0.02

Mercury By Cold Vapor AA Per EPA Method 7470
Date Analyzed: 8-13-96
Units: mg/L

<u>Parameter</u>	<u>Result</u>	<u>PQL</u>
Mercury	ND	0.0002

ND - Not Detected
PQL - Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

QUALITY CONTROL REPORT

Total Metals

Client: Foss Environmental
Lab No: 58588q1
Units: mg/L

QC Batch No. T252
Date Analyzed: 8-13-96

METHOD BLANK

Parameter	Result	PQL
Aluminum	ND	0.20
Antimony	ND	0.30
Arsenic	ND	0.20
Barium	ND	0.005
Beryllium	ND	0.005
Cadmium	ND	0.050
Calcium	ND	0.50
Chromium	ND	0.01
Cobalt	ND	0.05
Copper	ND	0.025

ND - Not Detected

PQL - Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

Total Metals

Client: Foss Environmental
Lab No: 58588q1
Units: mg/L

QC Batch No. T252
Date Analyzed: 8-13-96

METHOD BLANK

Parameter	Result	PQL
Iron	ND	0.10
Lead	ND	0.05
Magnesium	ND	0.10
Manganese	ND	0.015
Nickel	ND	0.04
Potassium	ND	0.50
Selenium	ND	0.20
Silver	ND	0.01
Sodium	ND	0.50
Thallium	ND	0.20
Vanadium	ND	0.05
Zinc	ND	0.02

ND - Not Detected

PQL - Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

Total Metals

Client: Foss Environmental
Lab No: 58588q1
Units: mg/L

QC Batch No. T252
Date Analyzed: 8-13-96

DUPLICATE

Parameter	Sample Result	Duplicate Result	RPD	Flag
Aluminum	ND	ND	NC	
Antimony	ND	ND	NC	
Arsenic	ND	ND	NC	
Barium	0.007	0.007	0.0	
Beryllium	ND	ND	NC	
Cadmium	ND	ND	NC	
Chromium	ND	ND	NC	
Cobalt	ND	ND	NC	
Copper	ND	ND	NC	
Iron	ND	ND	NC	
Lead	ND	ND	NC	
Manganese	ND	ND	NC	
Nickel	ND	ND	NC	
Selenium	ND	ND	NC	
Silver	ND	ND	NC	
Thallium	ND	ND	NC	
Vanadium	ND	ND	NC	
Zinc	ND	ND	NC	

NC = Not Calculated

RPD = Relative Percent Difference

SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

Total Metals

Client: Foss Environmental
Lab No: 58588q1
Units: mg/L

QC Batch No. T252
Date Analyzed: 8-13-96

MATRIX SPIKE

Parameter	Sample Result	MS Result	MS Amount	%R	Flag
Aluminum	ND	3.8	4.0	95	
Antimony	ND	0.75	1.0	75	
Arsenic	ND	3.5	4.0	88	
Barium	0.007	3.6	4.0	90	
Beryllium	ND	0.087	0.10	87	
Cadmium	ND	0.094	0.10	94	
Chromium	ND	0.35	0.40	88	
Cobalt	ND	0.89	1.0	89	
Copper	ND	0.42	0.50	84	
Iron	ND	1.7	2.0	85	
Lead	ND	0.86	1.0	86	
Manganese	ND	0.89	1.0	89	
Nickel	ND	0.89	1.0	89	
Selenium	ND	3.8	4.0	95	
Silver	ND	0.08	0.10	80	
Thallium	ND	3.3	4.0	82	
Vanadium	ND	0.86	1.0	86	
Zinc	ND	0.84	1.0	84	

MS = Matrix Spike

%R = Percent Recovery

SOUND ANALYTICAL SERVICES, INC.

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

QUALITY CONTROL REPORT

Total Mercury

Client: Foss Environmental
 Lab No: 58588q2
 Units: mg/L

QC Batch No. T206
 Date Analyzed: 8-13-96

METHOD BLANK

Parameter	Result	PQL
Mercury	ND	0.0002

ND - Not Detected

PQL - Practical Quantitation Limit

DUPLICATE

Parameter	Sample Result	Duplicate Result	RPD
Mercury	ND	ND	NC

NC = Not Calculated

RPD = Relative Percent Difference

MATRIX SPIKE

Parameter	Sample Result	MS Result	MS Amount	%R	Flag
Mercury	ND	0.0020	0.0020	100	

MS = Matrix Spike

%R = Percent Recovery