SMITH & LOWNEY, P.L.L.C.

2317 E. JOHN ST.

SEATTLE, WASHINGTON 98112 (206)860-2883, FAX (206)860-4187

FAX COVER SHEET

Including this cover sheet, this fax is

23 r

pages

Date:

2/14/02

Time:

8:05 p.m.

To:

PETER EGLICK, KEVIN STOCK HELSELL FETTERMAN LLP 206-340-0902

This document is from:

Rick Poulin

(206) 860-1394

Comments:

Here are the lab reports for the samples we took on Site Visit Day 2.

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11, February 2002

Richard A. Poulin Smith & Lowney, P.L.L.C. 2317 East John Street Seattle, WA 98112

RE: Case 2

Dear Mr. Poulin:

Please find enclosed a sample custody record (COC) and a set of analytical results for the above referenced project. Analytical Resources, Inc. accepted four water samples on 31, January 2002. Samples were received intact and there were no discrepancies between the container labels and the COC.

Analysis for the requested parameters proceeded without incident for metals and conventional's. The glycol's had a continuing calibration outside the acceptable control limits. The samples were re-analyzed outside the recommended holding time. The reanalysis data confirmed the original data. Both sets of data have been reported.

Quality control analysis results are included for your review.

Copies of the reports and all associated raw data will be kept on file at ARI. If you have any questions or require additional information, please contact your project manager.

Sincerely,

ANALYICAL RESOURCES, INC.

Client Services

400 Ninth Avenue North

Seattle, WA 98109

Project Manager: Susan Snyder

cc: file EB44

Chain of Custody Record & Laboratory Analysis Request



Analytical Resources, Incorporated Analytical Chemists and Consultants 400 Ninth Avenue North Seattle, WA 98109-4708 206-621-6490 206-621-7523 (fax)

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Sample No: Method Blank

Lab Sample ID: 020602MB

LIMS ID: 02-1274

Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.

Project: CASE

Date Sampled: NA

Date Received: NA

Data Release Authorized: No

Reported: 02/11/02

Conc/Dilution Factor: 1:1

Date Analyzed: 02/06/02

CAS Number	Analyte	mg/L
107-21-1	Ethylene Glycol	5.0 บั
57-55-6	Propylene Glycol	5.0 บ

Glycol Surrogate Recovery

Cyclohexanone

70.0%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- Indicates a value above the linear range of the detector. E Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- В Found in associated method blank
- Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.



Sample No: 010

Lab Sample ID: EB44A

LIMS ID: 02-1274 Matrix: Water QC Report No: EB44-Smith & Lowney, P.L.L.C.

Project: CASE

Date Sampled: 01/31/02 Date Received: 01/31/02

Data Release Authorized: NA Reported: 02/11/02

Date Analyzed: 02/06/02

Conc/Dilution Factor: 1:1

CAS Number	Analyte	mg/L	
		•	
107-21-1	Ethylene Glycol		5.0 U
57-55-6	Propylene Glycol		11

Glycol Surrogate Recovery

Cyclohexanone

120%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
 Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- Indicates a raised reporting limit due to matrix interferences.

 The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.



Sample No: 010

MATRIX SPIKE

Lab Sample ID: EB44A-MS

LIMS ID: 02-1274

Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.

Project: CASE

Date Sampled: 01/31/02

Date Received: 01/31/02

Data Release Authorized:

Reported: 02/11/02

Date Analyzed: 02/06/02

Conc/Dilution Factor: 1:1

Analyte CAS Number mg/L 107-21-1 Ethylene Glycol 57-55-6 Propylene Glycol

Glycol Surrogate Recovery

Cyclohexanone

76.0%

Data Qualifiers

- Indicates an estimated value when that result is less than the calculated detection limit.
- Indicates a value above the linear range of the detector. E Dilution Required
- Indicates no value reported due to saturation of the detector. S
- D Indicates the surrogate was diluted out.
- Indicates compound was analyzed for, but not detected at the given detection limit.
- В Pound in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.



Sample No: 010

SPIKE DUPLICATE

Lab Sample ID: EB44A-MSD

LIMS ID: 02-1274

Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.

Project: CASE

Date Sampled: 01/31/02

Date Received: 01/31/02

Data Release Authorized: N

Reported: 02/11/02

Date Analyzed: 02/06/02

Conc/Dilution Factor: 1:1

CAS Number Analyte mg/L 107-21-1 Ethylene Glycol 57-55-6 Propylene Glycol

Glycol Surrogate Recovery

Cyclohexanone

126%

Data Qualifiers

- Indicates an estimated value when that result is less than the calculated detection limit.
- Indicates a value above the linear range of the detector. Dilution Required
- S Indicates no value reported due to saturation of the detector.
 - D Indicates the surrogate was diluted out.
 - U Indicates compound was analyzed for, but not detected at the given detection limit.
 - Found in associated method blank В
 - Indicates compound was not analyzed.
 - NR Indicates no recovery due to interferences.
 - Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.



Lab Sample ID: EB44A LIMS ID: 02-1274 Matrix: Water

Sample No: 010

QC Report No: BB44-Smith & Lowney, P.L.L.C.

Project: CASE

Date Received: 01/31/02

Data Release Authorized: W

Reported: 02/11/02

MATRIX SPIKE/SPIKE DUPLICATE RECOVERY

Constituent	Sample Value	SPIKE FOUND	SPIKE ADDED	⁹ RECOVERY	RPD
MATRIX SPIKE					
Ethylene Glycol	< 5.0	46.0	50.0	92.0%	
Propylene Glycol	11.0	54.0	50.0	86.0%	
MATRIX SPIKE DUPLICAT	TE.				
Ethylene Clycol	< 5.0	66.0	50.0	132*	36*
Propylene Glycol	11.0	71.0	50.0	120%	33*

Values reported in parts per million (mg/L)

Glycol SPIKE CONTROL LIMITS Percent Recovery 30-160%

FORM-III



Lab Sample ID: EB44SB

LIMS ID: 02-1274 Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.

Project: CASE

Data Release Authorized: Neported: 02/11/02

LABORATORY CONTROL SAMPLE

CONSTITUENT	SPIKE	SPIKE ADDED	recovery
Ethylene Glycol	37.0	50.0	74.0%
Propylene Glycol	45.0	50.0	90.0%

GLYCOL SURROGATE RECOVERIES

Cyclohexanone

106 %

Values reported in parts per million (mg/L)

GLYCOL SPIKE CONTROL LIMITS GLYCOL SPIKE CONTROL LIMITS
Percent Recovery 30-160%

FORM-III



Sample No: Method Blank

Lab Sample ID: 020802MB

LIMS ID: 02-1690

QC Report No: EB44-Smith & Lowney, P.L.L.C.

Project: CASE

Matrix: Water

Date Sampled: NA

Date Received: NA

Data Release Authorized: Reported: 02/11/02

Date Analyzed: 02/08/02

Conc/Dilution Factor: 1:1

CAS Number	Analyte	mg/L
107-21-1	Ethylene Glycol	5.0 ປ
57-55-6	Propylene Glycol	5.0 บ

Glycol Surrogate Recovery

Cyclohexanone

132%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- Indicates a value above the linear range of the detector. Dilution Required
- s Indicates no value reported due to saturation of the detector.
- Ð Indicates the surrogate was diluted out.
- II Indicates compound was analyzed for, but not detected at the given detection limit.
- .B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.



Sample No: 010

Lab Sample ID: EB44A

LIMS ID: 02-1690

Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.

Project: CASE

Date Sampled: 01/31/02

Date Received: 01/31/02

Data Release Authorize

Reported: 02/11/02

Date Analyzed: 02/09/02

Conc/Dilution Factor: 1:1

CAS Number	Analyte	mg/L
107-21-1	Ethylene Glycol	5.0 U
57-55-6	Propylene Glycol	11

Glycol Surrogate Recovery

Cyclohexanone

80.0%

Data Qualifiers

- Indicates an estimated value when that result is less than the J calculated detection limit.
- E Indicates a value above the linear range of the detector. Dilution Required
- S Indicates no value reported due to saturation of the detector.
- . D Indicates the surrogate was diluted out.
 - Indicates compound was analyzed for, but not detected at the given detection limit.
- 1 B Found in associated method blank
 - AN Indicates compound was not analyzed.
 - NR Indicates no recovery due to interferences.
 - Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.



Sample No: 010

MATRIX SPIKE

Lab Sample ID: EB44A-MS

LIMS ID: 02-1690

Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.

Project: CASE

Date Sampled: 01/31/02 Date Received: 01/31/02

Data Release Authorized

Reported: 02/11/02

Date Analyzed: 02/09/02

Conc/Dilution Factor: 1:1

CAS Number	Analyte	mg/L
107-21-1	Ethylene Glycol	
57-55-6	Propylene Glycol	

Glycol Surrogate Recovery

Cyclohexanone

90.0%

Data Qualifiers

- Indicates an estimated value when that result is less than the calculated detection limit.
- Indicates a value above the linear range of the detector. Ε Dilution Required
- S Indicates no value reported due to saturation of the detector.
- Indicates the surrogate was diluted out. D
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- В Found in associated method blank
- AN Indicates compound was not analyzed.
 - Indicates no recovery due to interferences. NR
 - Indicates a raised reporting limit due to matrix interferences. Y The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.



Sample No: 010

SPIKE DUPLICATE

Lab Sample ID: EB44A-MSD

LIMS ID: 02-1690 Matrix: Water

QC Report No: BB44-Smith & Lowney, P.L.L.C.

Project: CASE

Date Sampled: 01/31/02

Date Received: 01/31/02

Data Release Authorized Reported: 02/11/02

Date Analyzed: 02/09/02

Conc/Dilution Factor: 1:1

CAS Number	Analyte	mg/L
107-21-1	Ethylene Glycol	
57-55-6	Propylene Glycol	

Glycol Surrogate Recovery

Cyclohexanone

90.0%

Data Qualifiers

- Indicates an estimated value when that result is less than the calculated detection limit.
- Indicates a value above the linear range of the detector. Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- Ū Indicates compound was analyzed for, but not detected at the given detection limit.
- : B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
 - Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.



Lab Sample ID: EB44A

LIMS ID: 02-1690 Matrix: Water

Sample No: 01:0

QC Report No: EB44-Smith & Lowney, P.L.L.C.

Project: CASE

Date Received: 01/31/02

Data Release Authorized

Reported: 02/11/02

MATRIX SPIKE/SPIKE DUPLICATE RECOVERY

CONSTITUENT	Sample Value	spike Found	SPIKE ADDED	% Recovery	RPD
MATRIX SPIKE					
Ethylene Glycol	< 5.0	62.0	50.0	124%	
Propylene Glycol	11.0	60.0	50.0	98.0%	
MATRIX SPIKE DUPLICA	TE		•		
Sthylene Glycol	< 5.0	47.0	50.0	94.0%	28%
Propylene Glycol	11.0	55.0	50.0	88.0%	11%

Values reported in parts per million (mg/L)

Glycol SPIKE CONTROL LIMITS Percent Recovery 30-160%

FORM-III



Lab Sample ID: EB44SB

LIMS ID: 02-1690

Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.

Project: CASE

Data Release Authorized Reported: 02/11/02

LABORATORY CONTROL SAMPLE

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% RECOVERY
Ethylene Glycol	47.0	50.0	94.0%
Propylene Glycol	48.0	50.0	96.0%

GLYCOL SURROGATE RECOVERIES

Cyclohexanone

76.0%

Values reported in parts per million (mg/L)

GLYCOL SPIKE CONTROL LIMITS Percent Recovery 30-160%

FORM-III



INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Sample No: Method Blank

Matrix: Water

Lab Sample ID: EB44MB

LIMS ID: 02-1276

QC Report No: EB44-Smith & Lowney, P.L.L.C.

Project: CASE

Date Sampled: NA

Date Received: NA

Data Release Authorized Reported: 02/07/02

· :	Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	/¥
	13		, , , , , , , , , , , , , , , , , , , ,					ug/L
		02/04/02	6010B	02/06/02	7440-70-2	Calcium	50	50 U
.*		02/04/02	200.8	02/05/02	7440-50-8	Copper	0.5	
	3010A	02/04/02	6010B	02/06/02	7439-95-4	• •	_	0.5 บ
					· · · · · · · · · · · · · · · · · · ·	Magnesium	50	50 T
	.⊿vv.8	02/04/02	200.8	02/05/02	7440-66-6	Zinc	4	4 U

U Analyte undetected at given RL

RL Reporting Limit



INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Sample No: 012

LIMS ID: 02-1276

Lab Sample ID: EB44C

QC Report No: EB44-Smith & Lowney, P.L.L.C.

Project: CASE

Matrix: Water

Date Sampled: 01/31/02

Date Received: 01/31/02

Data Release Authorized:

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	/- -
					, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	RU	ug/L
3010A	02/04/02	6010B	02/06/02	7440-70-2	Calcium	50	15,600
200.8	02/04/02	200.8	02/05/02	7440-50-8	Copper	0.5	41.1
3010A	02/04/02	6010B	02/06/02	7439-95-4	Magnesium	50	2,000
200.8	02/04/02	200.8	02/05/02	7440-66-6	Zinc	4	36
Calcu	lated Hard	ness (ma-F	aCO3/L):	47			

. U Analyte undetected at given RL

Reporting Limit

METALS ANALYSIS DATA SHEET TOTAL METALS



Sample No: 012

QC Report No: BB44-Smith & Lowney, P.L.L.C.

Project: CASE

Date Received: 01/31/02

Lab Sample ID: EB44LCS

LIMS ID: 02-1276

Matrix: Water

Data Release Authorized Reported: 02/07/02

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	. :	Spike ug/L	Spike Added	8	•
- Autolity Co		цул	Added	Recovery	
			, *		
Calcium		10100	10000	101%	
Copper	•	26.6	25.0	106%	
Magnesium		10200	10000	102%	
Zinc		81.0	80.0	101%	

'Q' codes:

N = control limit not met

Control Limits:

80-120%

FORM-VII



INORGANICE ANALYSIS DATA SHEET

DISSOLVED METALS

Sample No: Method Blank

Lab Sample ID: EB44MB

QC Report No: RB44-Smith & Lowney, P.L.L.C.

LIMS ID: 02-1275

Project: CASE

Matrix: Water

Date Sampled: NA Date Received: NA

Data Release Authorized A

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
	02/04/02	6010B	02/06/02	7440-70-2	Calcium	50	50 U
200.8	02/04/02	200.8	02/05/02	7440-50-8	Copper	0.5	0.5 U
	02/04/02	6010B .	02/06/02	7439-95-4	Magnesium	50	50 U
200.8	02/04/02	200.8	02/05/02	7440-66-6	Zinc	4	·4 U

U Analyte undetected at given RL

RL Reporting Limit

1 .



INORGANICS ANALYSIS DATA SHEET

Sample No: 011

DISSOLVED METALS

Lab Sample ID: EB44B

QC Report No: EB44-Smith & Lowney, P.L.L.C.

LIMS ID ... 02-1275

Matrix: Water

Project: CASE

Date Sampled: 01/31/02

Date Received: 01/31/02

Data Release Authorized Reported: 02/07/02

Prep	Prep	Analysis	Analysis	•			
Meth.	Date	Method	Date	CAS Number	Analyte	RL	ug/L
		•		,			
6010B	02/04/02	6010B	02/06/02	7440-70-2	Calcium	50	16,000
200.8	02/04/02	200.8	02/05/02	7440-50-8	Copper	0.5	35.4
6010B	02/04/02	6010B	02/06/02	7439-95-4	Magnesium	50	2,040
200.8	02/04/02	200.8	02/05/02	7440-66-6	Zinc	4	24

Analyte undetected at given RL U

Reporting Limit

METALS ANALYSIS DATA SHEET DIBSOLVED METALS

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: EB44LCS

LIMS ID: 02-1275

Matrix: Water

Sample No: 011

QC Report No: EB44-Smith & Lowney, P.L.L.C.

Project: CASE

Date Received: 01/31/02

Data Release Authorized Reported: 02/07/02

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Spike ug/L	Spike	% Recovery	0
			xecovery	¥
Calcium	10300	10000	103%	
Copper	24.0	25.0	96.0%	
Magnesium	10500	10000	1054	
Zinc	. 80	80.0	100%	

'Q' codes:

N = control limit not met

Control Limits:

80-120%

FORM-VII



QA Report - Method Blank Analysis

Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.

Project: CASE

Date Received: NA

Data Release Authorized:

Reported: 02/08/02 Dr. M.A. Perkins

METHOD BLANK RESULTS CONVENTIONALS

Analysis

Constituent Result 02/05/02 Total Suspended Solids mg/L 02052#1



Final Report

Laboratory Analysis of Conventional Parameters

Sample No: 013

Lab Sample ID: EB44D QC Report No: EB44-Smith & Lowney, P.L.L.C.

Project: CASE

Matrix: Water

LIMS ID: 02-1277

Data Release Authorized: WD Date Received: 01/31/02 Reported: 02/08/02 Dr. M.A. Perkins

	Analysis					
Analyte	Date & Batch	Method	RL	Units	Result	
Total Suspended Solids	02/05/02 02052#1	EPA 160.2	1.1	mg/L	3.3	

RL Analytical reporting limit Undetected at reported detection limit

Report for EB44 received 01/31/02