



Encana Oil & Gas (USA) Inc.
370 17th Street, Suite 1700
Denver, CO 80202
Phone: (303) 623-2300
Fax: (303) 623-2400
www.encana.com

February 7, 2012

Remediation #6820

Mr. Bob Chesson
Department of Natural Resources
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, Colorado 80203-2136

RE: **Quarterly Groundwater Monitoring Report**
Miller 1, 2-17 Tank Battery
API 05-123-16647
SENE Section 17, T2N R67W 6PM
40.141161, -104.908313
Weld County, Colorado

Dear Mr. Chesson:

Attached is the Quarterly Groundwater Monitoring Report for the Miller 1, 2-17 Tank Battery. This report details the monitoring activities conducted at the site. Please contact the Encana Oil & Gas Environmental Department at (303) 774-3962 if you have any questions or require additional information.

Sincerely,

Matthew Harrison
Environmental Coordinator
Encana Oil & Gas (USA) Inc.

Attachments:

Miller 1,2-17 Tank Battery Groundwater Monitoring Report – January 2012



WELL INSTALLATION AND GROUNDWATER MONITORING REPORT JANUARY 2012

MILLER 1, 2-17 TANK BATTERY

On January 18, 2012, LT Environmental, Inc. (LTE), under the direction of Encana Oil & Gas (USA) Inc. (Encana), conducted groundwater monitoring activities at the Miller 1, 2-17 (API #05-123-16647) Tank Battery (Site). The Site is located at 40.141161/-104.908313, and the legal description is SENE 17-T2N-R67W 6PM. This constitutes the first post-remediation performance monitoring event at the Site. Site history and remediation activities have been described in preceding reports.

Monitoring wells MW01 through MW03 were installed on January 12, 2012, using a direct-push rig operated by High Plains Drilling of Denver, Colorado. A site map is presented as Figure 1. Groundwater level measurements were collected from the monitoring wells and are summarized in Table 1, and the boring logs are included as Appendix A.

Depth to groundwater, which ranged from 10.76 feet below ground surface (bgs) in MW03 to 11.27 feet bgs in MW02, was used to calculate well-specific purge volumes. Calculated depth to groundwater below ground surface (bgs) ranged from 7.81 feet bgs in MW03 to 9.27 feet bgs in MW01. Following developing and purging, samples were collected and then submitted to Summit Scientific of Golden, Colorado, for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by United States Environmental Protection Agency Method 8260B.

Groundwater analytical results, summarized in Table 1, indicate monitoring well MW03 exceeds the Colorado Department of Public Health and Environment-Water Quality Control Commission Regulation 41 (WQCC Reg 41) for benzene. Monitoring well MW03 exhibits a benzene concentration of 24 micrograms per liter ($\mu\text{g/L}$). The laboratory analytical report is included as Appendix B.

The January 2012 groundwater monitoring event constitutes the first post-remediation quarterly monitoring event at the Site. LTE recommends continued quarterly groundwater monitoring and natural attenuation at this Site until four consecutive quarters of groundwater analytical results exhibit concentrations in compliance with the WQCC Reg 41. The next scheduled sampling event is for April 2012.

FIGURE

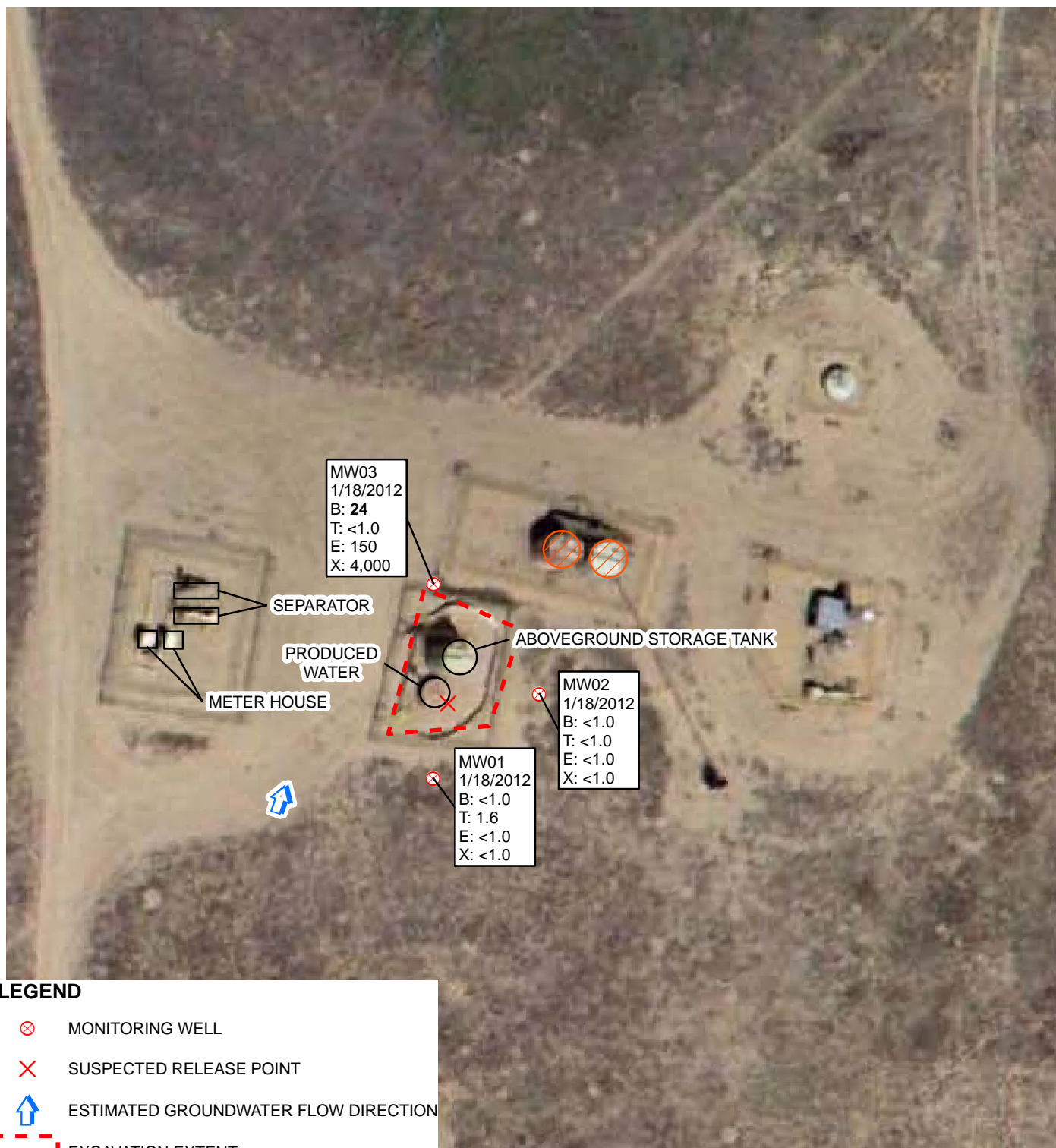


IMAGE COURTESY OF GOOGLE EARTH, 05/04/2011

LEGEND

- MONITORING WELL
- SUSPECTED RELEASE POINT
- ESTIMATED GROUNDWATER FLOW DIRECTION
- EXCAVATION EXTENT
- CURRENT INFRASTRUCTURE
- MACHII-ROSS INFRASTRUCTURE

SAMPLE ID
SAMPLE DATE
B: BENZENE
T: TOLUENE
E: ETHYLBENZENE
X: TOTAL XYLENES
ALL RESULTS ARE IN MICROGRAMS PER LITER (µg/L)
< : LESS THAN LABORATORY REPORTING LIMIT
BOLD INDICATES RESULT EXCEEDS APPLICABLE STANDARD

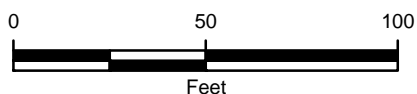


FIGURE 1
GROUNDWATER ANALYTICAL RESULTS
MILLER 1,2-17 TANK BATTERY
WELD COUNTY, COLORADO

ENCANA OIL & GAS (USA) INC.



TABLE

TABLE 1

**GROUNDWATER ANALYTICAL RESULTS
MILLER 1, 2-17 TANK BATTERY
WELD COUNTY, COLORADO
ENCANA OIL & GAS (USA) INC.**

Well Name	Date Sampled	Depth to Water (feet btoc)	Well Stick-Up Height (feet)	Calculated Depth to Water (feet bgs)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW01	1/18/2012	11.22	1.95	9.27	<1.0	1.6	<1.0	<1.0
MW02	1/18/2012	11.27	3.11	8.16	<1.0	<1.0	<1.0	<1.0
MW03	1/18/2012	10.76	2.95	7.81	24	<1.0	150	4,000
CDPHE WQCC Reg 41					5	560	700	10,000

NOTES:

btoc - below top of casing

bgs - below ground surface

µg/L- microgram per liter

< indicates result is less than the stated laboratory reporting limit

BOLD indicates result exceeds applicable standard

CDPHE WQCC Reg 41 - Colorado Department of Public Health and Environment-Water Quality Control Commission Regulation 41

Benzene, toluene, ethylbenzene, and total xylenes analyzed by EPA Method 8260B

APPENDIX A

BORING LOGS

Location Map: 		 Compliance <small>M</small> Engineering <small>M</small> Remediation LT Environmental, Inc. 4600 W. 60th Avenue Arvada, Colorado 80003	
BORING LOG/MONITORING WELL COMPLETION DIAGRAM			
Boring/Well Number: MW02		Project: Miller 1,2-17	
Date: 1/12/2012		Project Number: 033411100	
Logged By: D. Girtin		Drilled By: High Plains Drilling	
Elevation: NM	Detector: MiniRae 2000	Drilling Method: Direct Push	Sampling Method: Continuous
Gravel Pack: CSSI 10x20		Seal: Bentonite	Grout: N/A
Casing Type: Schedule 40 PVC		Diameter: 1" Length: 5'	Hole Diameter: 2.25" Depth to Liquid: -
Screen Type: Schedule 40 PVC		Slot: 0.01 Diameter: 1" Length: 8'	Total Depth: 12' Depth to Water: 8'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0				
	Moist	0.0			2	X	SC	0'-4' - Pothole, no recovery.	
					4			4.5'-5.5' - Brown clayey fine sand, moist, no staining, no odor.	
					6				
	Wet	0.0			8	X	SW	5.5'-10' - Brown fine sandy clay, moist (v. moist at 8'), low plasticity, no staining, no odor.	
					10			10'-12' - Brown fine sand, v. moist-wet, no staining, no odor.	
					12				
		0.0			14				
					16				
					18				
					20				
					22				
					24				
					26				
					28				
					30				

Location Map: 		 Compliance ^M Engineering ^M Remediation LT Environmental, Inc. 4600 W. 60th Avenue Arvada, Colorado 80003	
BORING LOG/MONITORING WELL COMPLETION DIAGRAM			
Boring/Well Number: MW03		Project: Miller 1,2-17	
Date: 1/12/2012		Project Number: 033411100	
Logged By: D. Girtin		Drilled By: High Plains Drilling	
Elevation: NM	Detector: MiniRae 2000	Drilling Method: Direct Push	Sampling Method: Continuous
Gravel Pack: CSSI 10x20		Seal: Bentonite	Grout: N/A
Casing Type: Schedule 40 PVC		Diameter: 1" Length: 5'	Hole Diameter: 2.25" Depth to Liquid: -
Screen Type: Schedule 40 PVC		Slot: 0.01 Diameter: 1" Length: 8'	Total Depth: 12' Depth to Water: 8'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0				
	Moist				2			0'-4' - Pothole, no recovery.	
				4		SC	4.5'-6' - Gray clayey fine sand, moist, staining, odor.		
				6			6'-8' - Gray clay, moist, medium plasticity, no staining, no odor.		
		474			8			8'-9' - Gray fine sand, very moist-wet, staining, odor.	
	Wet	1,552			10		SW		
		658			12		SC	9'-12' - Gray clayey fine sand, very moist, medium plasticity, no staining, no odor.	
		2.5			14				
					16				
					18				
					20				
					22				
					24				
					26				
					28				
					30				

APPENDIX B

LABORATORY ANALYTICAL REPORT

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

January 22, 2012

Daniel Burns
LT Environmental, Inc.
4600 West 60th Avenue
Arvada, CO 80003
RE: ENC - Miller 1,2-17

Enclosed are the results of analyses for samples received by Summit Scientific on 01/18/12 16:55. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury For Ben Shrewsbury
President / Laboratory Director



LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: ENC - Miller 1,2-17

Project Number: 0334-11100
Project Manager: Daniel Burns

Reported:
01/22/12 14:23

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	R201112-01	Water	01/18/12 14:25	01/18/12 16:55
MW02	R201112-02	Water	01/18/12 13:40	01/18/12 16:55
MW03	R201112-03	Water	01/18/12 14:05	01/18/12 16:55

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: ENC - Miller 1,2-17

Project Number: 0334-11100
Project Manager: Daniel Burns

Reported:
01/22/12 14:23

820112

Summit Scientific

5

74 | Corporate Circle Suite I ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-277-9531 Fax

Page / of

Client: LT Environmental, Inc.

Address: 4600 West 60th Avenue

City/State/Zip: Arvada, CO 80003

Phone: (303) 433-9788

Sampler Name: Brian

Project Manager: Daniel Bums

E-Mail: dburns@ltenv.com

Project Name: M: 65-12-17

Project Number: 03341130

2017-01-01

[illegible]

www.s2scientific.com

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: ENC - Miller 1,2-17

Project Number: 0334-11100
Project Manager: Daniel Burns

Reported:
01/22/12 14:23

MW01
R201112-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 01/18/12 14:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	2012005	01/20/12	01/21/12	EPA 8260B	
Toluene	1.6	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: 01/18/12 14:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		82.4 %	57.9-139		"	"	"	"	
Surrogate: Toluene-d8		95.9 %	83.1-115		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		89.3 %	80.8-120		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: ENC - Miller 1,2-17

Project Number: 0334-11100
Project Manager: Daniel Burns

Reported:
01/22/12 14:23

MW02
R201112-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/18/12 13:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	2012005	01/20/12	01/21/12	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **01/18/12 13:40**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		80.1 %		57.9-139		"	"	"	"	
Surrogate: Toluene-d8		96.4 %		83.1-115		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		89.1 %		80.8-120		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: ENC - Miller 1,2-17

Project Number: 0334-11100
Project Manager: Daniel Burns

Reported:
01/22/12 14:23

MW03
R201112-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/18/12 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	24	1.0	ug/l	1	2012005	01/20/12	01/21/12	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	150	1.0	"	"	"	"	"	"	
Xylenes (total)	4000	100	"	100	"	"	"	"	

Date Sampled: **01/18/12 14:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		82.9 %	57.9-139		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		102 %	83.1-115		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		85.3 %	80.8-120		"	"	"	"	

Summit Scientific

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: ENC - Miller 1,2-17

Project Number: 0334-11100
Project Manager: Daniel Burns

Reported:
01/22/12 14:23

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 2012005 - EPA 5030 Water MS

Blank (2012005-BLK1)

Prepared: 01/20/12 Analyzed: 01/21/12

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	11.2		"	13.2		84.6	57.9-139			
Surrogate: Toluene-d8	13.4		"	13.3		101	83.1-115			
Surrogate: 4-Bromofluorobenzene	12.1		"	13.3		90.5	80.8-120			

LCS (2012005-BS1)

Prepared: 01/20/12 Analyzed: 01/21/12

Benzene	25.0	1.0	ug/l	33.3		75.1	60.1-131		10.9	
Toluene	25.7	1.0	"	33.3		77.2	65.9-127		11.3	
Ethylbenzene	23.9	1.0	"	33.3		71.7	65.1-129		20	
m,p-Xylene	49.5	2.0	"	66.7		74.2	66.8-127		20	
o-Xylene	25.7	1.0	"	33.3		77.1	61.2-120		20	
Surrogate: 1,2-Dichloroethane-d4	11.0		"	13.2		83.1	57.9-139			
Surrogate: Toluene-d8	13.4		"	13.3		101	83.1-115			
Surrogate: 4-Bromofluorobenzene	11.9		"	13.3		89.3	80.8-120			

LCS Dup (2012005-BSD1)

Prepared: 01/20/12 Analyzed: 01/21/12

Benzene	25.2	1.0	ug/l	33.3		75.5	60.1-131	0.438	10.9	
Toluene	25.9	1.0	"	33.3		77.8	65.9-127	0.697	11.3	
Ethylbenzene	24.4	1.0	"	33.3		73.1	65.1-129	1.99	20	
m,p-Xylene	51.2	2.0	"	66.7		76.8	66.8-127	3.40	20	
o-Xylene	26.4	1.0	"	33.3		79.1	61.2-120	2.50	20	
Surrogate: 1,2-Dichloroethane-d4	10.8		"	13.2		81.4	57.9-139			
Surrogate: Toluene-d8	13.1		"	13.3		98.5	83.1-115			
Surrogate: 4-Bromofluorobenzene	11.9		"	13.3		89.0	80.8-120			

Summit Scientific

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: ENC - Miller 1,2-17

Project Number: 0334-11100
Project Manager: Daniel Burns

Reported:
01/22/12 14:23

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

Summit Scientific

A handwritten signature in black ink, appearing to be 'MSM'.

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