



02232254

Page 1

FORM  
4  
Rev 12/05

State of Colorado

Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 Phone: (303)894-2100 Fax: (303)894-2109



## SUNDRY NOTICE

Submit original plus one copy. This form is to be used for general, technical and environmental sundry information. For proposed or completed operations, describe in full on Technical Information Page (Page 2 of this form). Identify well or other facility by API Number or by OGCC Facility ID. Operator shall send an informational copy of all sundry notices for wells located in High Density Areas to the Local Government Designee (Rule 603b.)

RECEIVED

MAR - 1 2013

Complete the Attachment

OGCC

1. OGCC Operator Number: 10079	4. Contact Name: Cole Kilstrom	
2. Name of Operator: Antero Resources Piceance Corporation	Phone: 303-357-6709	
3. Address: 1625 17th St STE 300 ATTN: Cole Kilstrom	Fax: 303-357-7315	
City: Denver State: CO Zip: 80202		
5. API Number 05-045-06273	OGCC Facility ID Number 322442	Survey Plat
6. Well/Facility Name: Castle Springs W Pad	7. Well/Facility Number 1-10W	Directional Survey
8. Location (Qtr/Sec, Twp, Rng, Meridian): NESW 10 7S 91W 6		Surface Equip Diagram
9. County: Garfield	10. Field Name: Wildcat	Technical Info Page
11. Federal, Indian or State Lease Number: COC 66580		Other

## General Notice

<input type="checkbox"/> CHANGE OF LOCATION: Attach New Survey Plat (a change of surface qtr/qtr is substantive and requires a new permit)	
Change of Surface Footage from Exterior Section Lines:	<input type="checkbox"/> FNU/FSL <input type="checkbox"/> FEL/FWL
Change of Surface Footage to Exterior Section Lines:	<input type="checkbox"/>
Change of Bottomhole Footage from Exterior Section Lines:	<input type="checkbox"/>
Change of Bottomhole Footage to Exterior Section Lines:	<input type="checkbox"/> attach directional survey
Bottomhole location Qtr/Sec, Twp, Rng, Mer	
Latitude	Distance to nearest property line
Longitude	Distance to nearest bldg, public rd, utility or RR
Ground Elevation	Distance to nearest lease line
	Is location in a High Density Area (rule 603b)? Yes/No
	Distance to nearest well same formation
	Surface owner consultation date:
GPS DATA:	
Date of Measurement	PDOP Reading Instrument Operator's Name
<input type="checkbox"/> CHANGE SPACING UNIT	<input type="checkbox"/> Remove from surface bond
Formation Formation Code Spacing order number Unit Acreage Unit configuration	Signed surface use agreement attached
<input type="checkbox"/> CHANGE OF OPERATOR (prior to drilling):	<input type="checkbox"/> CHANGE WELL NAME
Effective Date:	From:
Plugging Bond: <input type="checkbox"/> Blanket <input type="checkbox"/> Individual	To:
	Effective Date:
<input type="checkbox"/> ABANDONED LOCATION:	<input type="checkbox"/> NOTICE OF CONTINUED SHUT IN STATUS
Was location ever built? <input type="checkbox"/> Yes <input type="checkbox"/> No	Date well shut in or temporarily abandoned:
Is site ready for inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No	Has Production Equipment been removed from site? <input type="checkbox"/> Yes <input type="checkbox"/> No
Date Ready for Inspection:	MIT required if shut in longer than two years. Date of last MIT
<input type="checkbox"/> SPUD DATE:	<input type="checkbox"/> REQUEST FOR CONFIDENTIAL STATUS (6 mos from date casing set)
<input type="checkbox"/> SUBSEQUENT REPORT OF STAGE, SQUEEZE OR REMEDIAL CEMENT WORK *submit cbl and cement job summaries	
Method used	Cementing tool setting/perf depth Cement volume Cement top Cement bottom Date
<input type="checkbox"/> RECLAMATION: Attach technical page describing final reclamation procedures per Rule 1004.	
Final reclamation will commence on approximately <input type="checkbox"/> Final reclamation is completed and site is ready for inspection.	

## Technical Engineering/Environmental Notice

<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Report of Work Done
Approximate Start Date:	Date Work Completed:
Details of work must be described in full on Technical Information Page (Page 2 must be submitted.)	
<input type="checkbox"/> Intent to Recomplete (submit form 2)	<input type="checkbox"/> Request to Vent or Flare
<input type="checkbox"/> Change Drilling Plans	<input type="checkbox"/> Repair Well
<input type="checkbox"/> Gross Interval Changed?	<input type="checkbox"/> Rule 502 variance requested
<input type="checkbox"/> Casing/Cementing Program Change	<input type="checkbox"/> Other:
<input type="checkbox"/> E&P Waste Disposal	<input type="checkbox"/> Beneficial Reuse of E&P Waste
<input checked="" type="checkbox"/> Status Update/Change of Remediation Plans	for Spills and Releases

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct and complete.

Signed: Cole KilstromDate: 2/28/2013 Email: ckilstrom@anteroresources.comPrint Name: Cole KilstromTitle: ENV SpecialistOGCC Approved: Carly KjaerTitle: FORDate: 03/06/2013

CONDITIONS OF APPROVAL, IF ANY:

Alex Fischer  
supervisor  
Western Region

TECHNICAL INFORMATION PAGE



FOR OGCC USE ONLY

1. OGCC Operator Number: 10079 API Number: 05-045-06273
2. Name of Operator: Antero Resources Piceance Corp. OGCC Facility ID # 322442
3. Well/Facility Name: Castle Springs W Pad Well/Facility Number: 1-10W
4. Location (QtrQtr, Sec, Twp, Rng, Meridian): NESW 10 7S 91W 6

This form is to be completed whenever a Sundry Notice is submitted requiring detailed report of work to be performed or completed. This form shall be transmitted within 30 days of work completed as a "subsequent" report and must accompany Form 4, page 1.

5. **DESCRIBE PROPOSED OR COMPLETED OPERATIONS**

Summary of Corrective Actions and Request for Spill Report Closure:

This Form 4 is being resubmitted with confirmation sampling conducted in October, 2008, attached hereto as Attachment 1. A field map and GIS map of sampling locations have also been added as Attachment 1-A.

On September 18, 2008, a center plunger on one of the injection pumps at Antero's Castle Springs Federal 1-10W well failed. As a result, produced water overflowed the drain in the pump house, spilling down the east side of the pad into an unnamed ephemeral drainage. Upon discovery, the pump was shut down.

COGCC Spill Report Form 19 # 1433928 stated that Antero would excavate all impacted soils and stockpile the fluids in lined containment on the well pad, ending in disposal.

On September 22, 2008, Antero dispatched a twelve man field crew to perform remediation. The crew remediated impacted areas in the drainage by hand and stockpiled the impacted soil on the location in a lined bermed containment area. Confirmation sampling was then conducted. The results of such sampling as well as a field map created at the time of sampling and a GIS map prepared from the field map are also included here for your review as Attachments 1 and 1-A. The excavated soil was disposed of at the Garfield County Landfill on October 3, 2008. Antero also transported clean road base for use on the pad on the return leg of this shipment. The haul ticket for this shipment is attached hereto as Attachment 2.

Because Antero has excavated and removed the impacted soils, and demonstrated compliance with COGCC Table 910-1 standards, Antero respectfully requests final COGCC closure of Spill Report # 1433928 in accordance with COGCC Rule 909 (e).

## **ATTACHMENT 1**



October 08, 2008

Mark Mumby  
HRL Compliance Solutions  
744 Horizon Ct. #140  
Grand Junction, CO 81506

Lab Work Order: 08-7334  
Client Project ID: Antero Resources Castle Sp

Dear Mark Mumby:

Enclosed are the analytical results for the samples shown in the Laboratory Work Order Summary. The invoice is included with this report or has been mailed to another party as indicated on the chain of custody.

The enclosed data for testing performed at Evergreen Analytical Laboratory (EAL) have been reviewed for quality assurance. A case narrative is included to describe any anomalies associated with the samples or data.

EAL will dispose of all samples one month from the date of this letter. If you want samples returned, please advise us by mail or fax as soon as possible.

A copy of this project report and supporting data will be retained for a period of five years unless we are otherwise advised by you. A document retrieval charge will apply.

Thank you for using the services of Evergreen Analytical. If you have any questions concerning the analytical data, please contact me. Please direct other questions to Client Services.

Sincerely,



Kaprie Hollman/Carl Smits  
Quality Assurance  
khollman@evergreenanalytical.com

## WORK ORDER Summary

Evergreen Analytical, Inc.

08-7334

Rpt To: Mark Mumby

HRL Compliance Solutions

744 Horizon Ct. #140

Grand Junction, CO 81506

(970) 243-3271

Fax To: Mark Mumby

Email To: mmumby@hrlcomp.com

FX: (970) 243-3280

9/25/2008 11:34:25 AM

Client Project ID: Antero Resources Castle Springs W Pa

QC Level: Level I

## Comments:

Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Test Code	Test Name	Hold	MS	Date Due	Hold Time
08-7334-01A	EXC 1	Soil	9/22/08 1345	9/25/08	TVH_S *	8015: TVH-Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	9/30/08	10/06/08
08-7334-01B	EXC 1	Soil	9/22/08 1345	9/25/08	TEH_S *	8015: TEH-Diesel	<input type="checkbox"/>	<input type="checkbox"/>	9/30/08	10/06/08
08-7334-01C	EXC 1	Soil	9/22/08 1345	9/25/08	6010_D *	6010: Dissolved Metals	<input type="checkbox"/>	<input type="checkbox"/>	10/09/08	3/21/09
08-7334-01C	EXC 1	Soil	9/22/08 1345	9/25/08	COND_S	Specific Conductance @ 25°C	<input type="checkbox"/>	<input type="checkbox"/>	10/09/08	10/20/08
08-7334-01C	EXC 1	Soil	9/22/08 1345	9/25/08	PH_S	9045C: pH	<input type="checkbox"/>	<input type="checkbox"/>	10/09/08	9/23/08
08-7334-01C	EXC 1	Soil	9/22/08 1345	9/25/08	SAR_S	Sodium Adsorption Ratio, Soil Leachate	<input type="checkbox"/>	<input type="checkbox"/>	10/09/08	3/21/09
08-7334-02A	EXC 2	Soil	9/22/08 1400	9/25/08	TVH_S *	8015: TVH-Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	9/30/08	10/06/08
08-7334-02B	EXC 2	Soil	9/22/08 1400	9/25/08	TEH_S *	8015: TEH-Diesel	<input type="checkbox"/>	<input type="checkbox"/>	9/30/08	10/06/08
08-7334-03A	Bkgd	Soil	9/22/08 1410	9/25/08	6010_D *	6010: Dissolved Metals	<input type="checkbox"/>	<input type="checkbox"/>	10/09/08	3/21/09
08-7334-03A	Bkgd	Soil	9/22/08 1410	9/25/08	COND_S	Specific Conductance @ 25°C	<input type="checkbox"/>	<input type="checkbox"/>	10/09/08	10/20/08
08-7334-03A	Bkgd	Soil	9/22/08 1410	9/25/08	PH_S	9045C: pH	<input type="checkbox"/>	<input type="checkbox"/>	10/09/08	9/23/08
08-7334-03A	Bkgd	Soil	9/22/08 1410	9/25/08	SAR_S	Sodium Adsorption Ratio, Soil Leachate	<input type="checkbox"/>	<input type="checkbox"/>	10/09/08	3/21/09

Definitions: \* - Test Code has a Select List





**Lab Order:** 08-7334

**Client Project ID** Antero Resources Castle Springs W Pad

**CASE NARRATIVE**

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**SAMPLE RECEIVING**

Custody seals were present and intact.

The temperature of the sample(s) upon arrival was 2.0 °C.

Sample(s) were received in good condition and in the proper container.

The pH samples were received out of holding time.

VOC sample(s) were received with no headspace present. JD

**QUALITY ASSURANCE (QA)**

Analyses performed on samples in this work order by EAL meet the requirements of the EAL Quality Assurance Program unless otherwise explained. Analyses of RCRA samples meet the requirements of NELAC and Utah Rule R444-14 unless otherwise explained. TP

**CLIENT SERVICES**

There are no anomalies to report. EKH

**GENERAL CHEMISTRY**

The pH samples were received and analyzed out of holding times (H). There are no other anomalies to report. TP

**METALS ANALYSIS**

There are no anomalies to report. MB

**GAS CHROMATOGRAPHY**

Method TVH\_S: The surrogate recovery for sample 08-7334-02A is above the QC limit due to coeluting interference. This does not affect the analysis of the target analytes, which elute before the interference. The surrogate recovery for the laboratory control spike (LCS) is above the QC limit; all spiked analyte recoveries are within QC limits, so the sample results are not affected. There are no other anomalies to report. VM

Method TEH\_S: There are no anomalies to report. MDS

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**Evergreen Analytical, Inc.**  
4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862  
(303) 425-6021

**Client Sample ID:** EXC 1  
**Client Project ID:** Antero Resources Castle Springs  
**Date Collected:** 9/22/08  
**Date Received:** 9/25/08

**Lab Work Order** 08-7334  
**Lab Sample ID:** 08-7334-01A  
**Sample Matrix:** Soil

**TOTAL VOLATILE HYDROCARBONS**

**Method:** SW8015B MOD

**Prep Method:** SW5035

**Date Prepared:** 9/25/08

**Lab File ID:** TVB20925\010F

**Dilution Factor:** 5

**Date Analyzed:** 9/25/08

**Method Blank:** MB2092508

Analytes	CAS Number	Result	LQL	Units
TVH-Gasoline	86290-81-5	U	1.0	mg/Kg
Surr: 1,2,4-Trichlorobenzene (S)	120-82-1	111	<b>QC Limits:</b> 60-140	%REC

VM

\_\_\_\_\_  
**Analyst**



\_\_\_\_\_  
**Approved**

**Notes:** Total Xylenes consist of three isomers, two of which co-elute. The Xylene RL is for a single peak. Confirmation analysis was not performed.

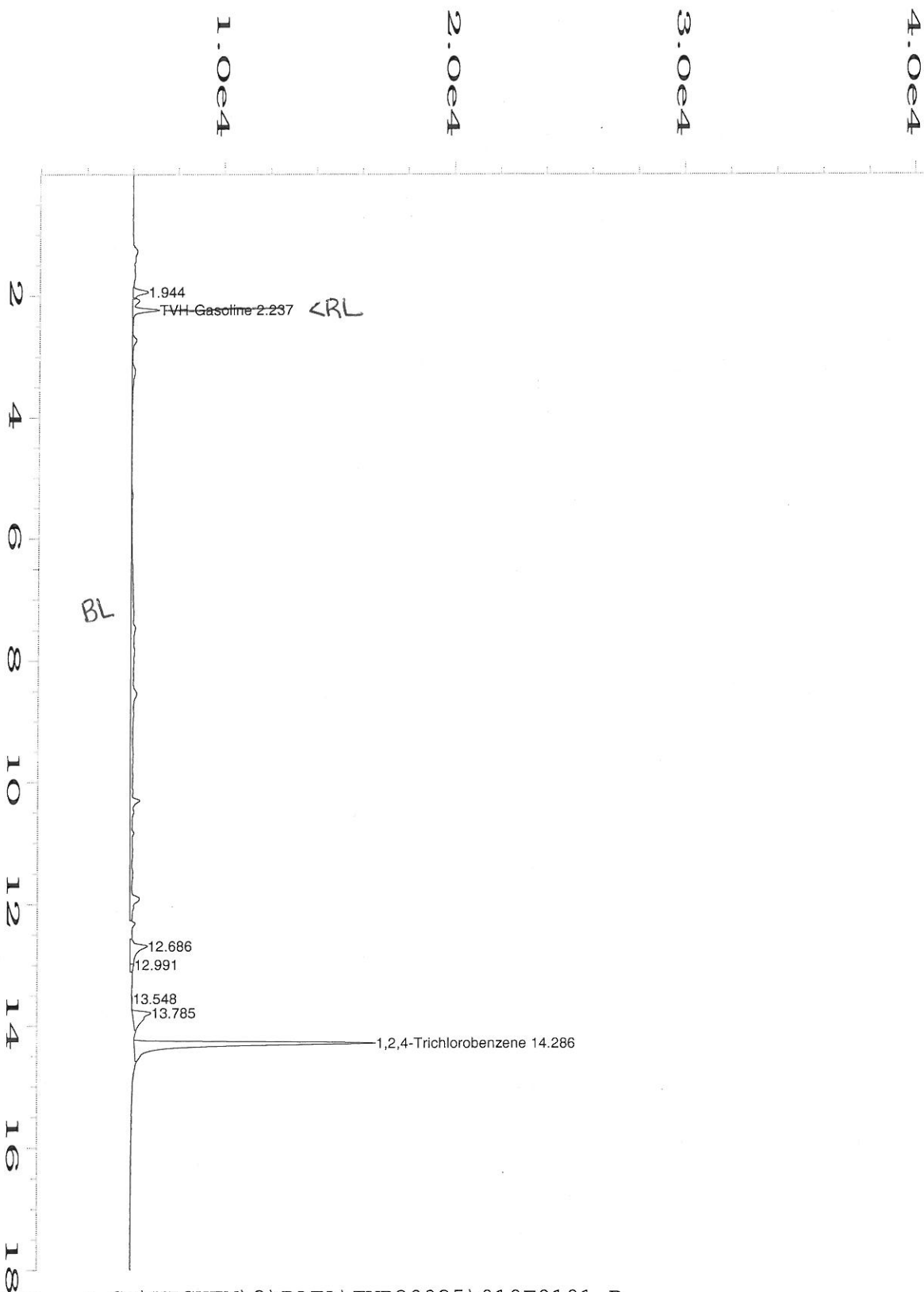
**Qualifiers:** B - Analyte detected in the associated Method Blank, value not subtracted from result  
E - Extrapolated value. Value exceeds calibration range  
H - Sample analysis exceeded analytical holding time  
J - Indicates an estimated value when the compound is detected, but is below the LQL  
S - Spike Recovery outside accepted limits  
U - Compound analyzed for but not detected  
X - See case narrative  
\* - Value exceeded the Maximum Contamination Level (MCL), TCLP limit, or if compound is undetected, LQL exceeds MCL.

**Definitions:** LQL - Lower Quantitation Limit  
Surr - Surrogate

Print Date: 9/26/08



user modified



Data File Name	: C:\HPCHEM\2\DATA\TVB20925\010F0101.D	Page Number	: 1
Operator	: Virginia Meyer	Vial Number	: 10
Instrument	: TVHBTEX2	Injection Number	: 1
Sample Name	: 08-7334-01A 5x	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	TW20916.MTH
Acquired on	: 25 Sep 08 05:57 PM	Analysis Method	: TW20916.MTH
Report Created on:	26 Sep 08 10:29 AM	Sample Amount	: 0
Last Recalib on	: 18 SEP 08 02:55 PM	ISTD Amount	:
Multiplier	: 1		

VM 9.26.08

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**Evergreen Analytical, Inc.**  
4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862  
(303) 425-6021

**Client Sample ID:** EXC 2  
**Client Project ID:** Antero Resources Castle Springs  
**Date Collected:** 9/22/08  
**Date Received:** 9/25/08

**Lab Work Order** 08-7334  
**Lab Sample ID:** 08-7334-02A  
**Sample Matrix:** Soil

**TOTAL VOLATILE HYDROCARBONS**

**Method:** SW8015B MOD

**Prep Method:** SW5035

**Date Prepared:** 9/25/08

**Lab File ID:** TVB20925\011F

**Dilution Factor:** 5

**Date Analyzed:** 9/25/08

**Method Blank:** MB2092508

Analytes	CAS Number	Result	LQL	Units
TVH-Gasoline	86290-81-5	22	1.0	mg/Kg
Surr: 1,2,4-Trichlorobenzene (S)	120-82-1	179 S	<b>QC Limits:</b> 60-140	%REC

VM

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**Analyst**



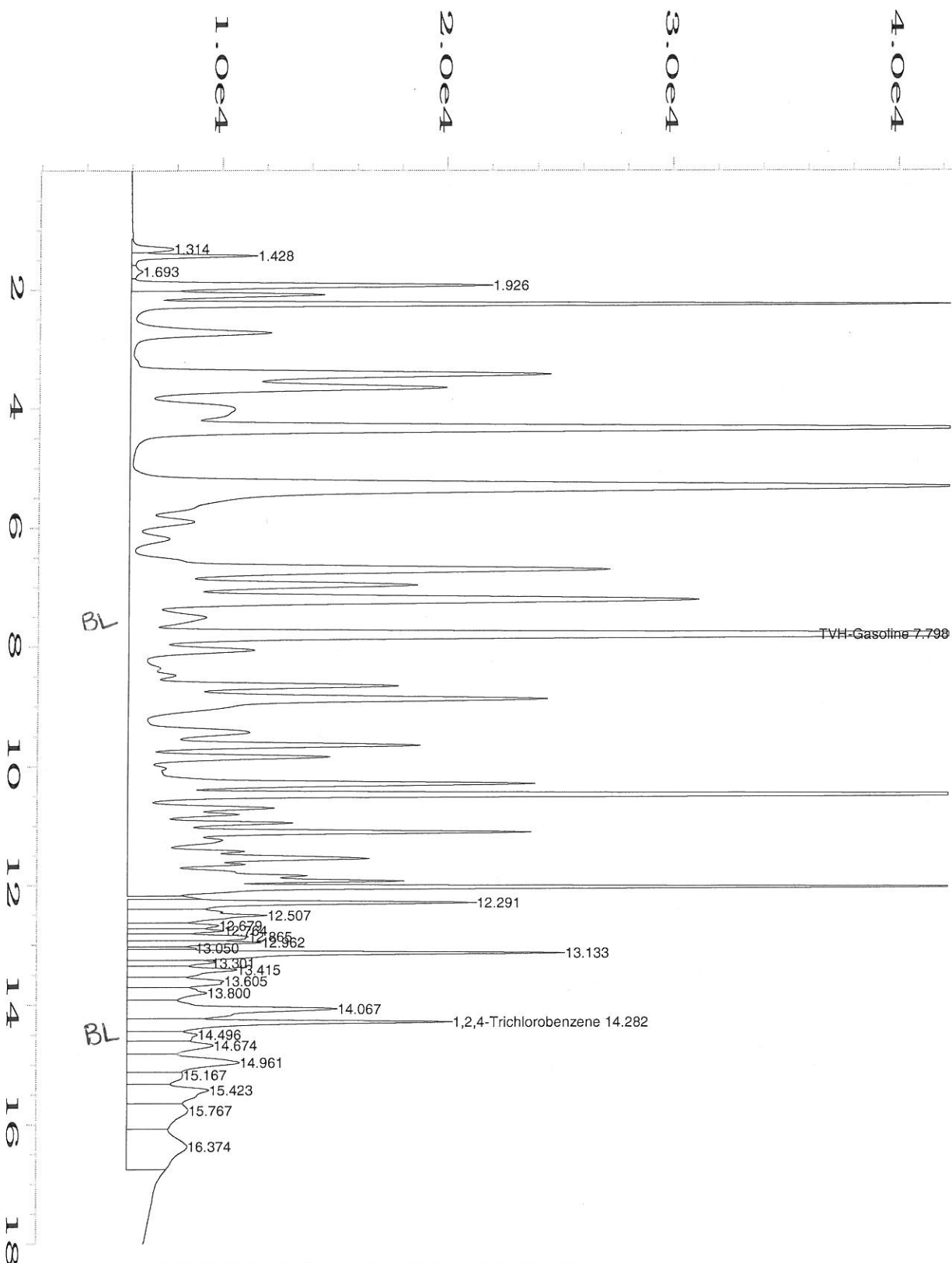
\_\_\_\_\_  
**Approved**

**Notes:** Total Xylenes consist of three isomers, two of which co-elute. The Xylene RL is for a single peak. Confirmation analysis was not performed.

**Qualifiers:** B - Analyte detected in the associated Method Blank, value not subtracted from result  
E - Extrapolated value. Value exceeds calibration range  
H - Sample analysis exceeded analytical holding time  
J - Indicates an estimated value when the compound is detected, but is below the LQL  
S - Spike Recovery outside accepted limits  
U - Compound analyzed for but not detected  
X - See case narrative  
\* - Value exceeded the Maximum Contamination Level (MCL), TCLP limit, or if compound is undetected, LQL exceeds MCL.

**Definitions:** LQL - Lower Quantitation Limit  
Surr - Surrogate

Print Date: 9/26/08



user modified

Data File Name : C:\HPCHEM\2\DATA\TVB20925\011F0101.D  
 Operator : Virginia Meyer  
 Instrument : TVHBTEX2  
 Sample Name : 08-7334-02A  
 Run Time Bar Code: 5X  
 Acquired on : 25 Sep 08 06:33 PM  
 Report Created on: 26 Sep 08 10:33 AM  
 Last Recalib on : 18 SEP 08 02:55 PM  
 Multiplier : 1

Page Number : 1  
 Vial Number : 11  
 Injection Number : 1  
 Sequence Line : 1  
 Instrument Method: TW20916.MTH  
 Analysis Method : TW20916.MTH  
 Sample Amount : 0  
 ISTD Amount :

VM 9.26.08

## Evergreen Analytical, Inc.

4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862  
(303) 425-6021

Lab Order: 08-7334

Client Project ID: Antero Resources Castle Springs W Pad

Matrix: Soil

Date Received: 9/25/08

Date Prepared: 9/29/08

Prep Batch ID: 16834

Units: mg/Kg

## Total Extractable Hydrocarbons

Diesel Fuel (No. 2)

Method: SW8015B Mod

Prep Method: SW3550B

Lab ID	Client Sample ID	File ID	Date Collected	Date Analyzed	DF	Surr REC	Sample Results	LQL
08-7334-01B	EXC 1	FID60929\055R	9/22/08	9/29/08	1	49%	U	14
08-7334-02B	EXC 2	FID60929\058R	9/22/08	9/29/08	1	54%	31	14
Surrogate QC Limits 39-130 %REC			Surr: TBB					

Analyst

Approved

Qualifiers: B - Analyte detected in the associated Method Blank, value not subtracted from result

E - Extrapolated value, Value exceeds calibration range

H - Sample analysis exceeded analytical holding time

J - Indicates an estimated value when the compound is detected, but is below the LQL

S - Spike Recovery outside accepted limits

U - Compound analyzed for but not detected

X - See case narrative

\* - Value exceeded the Maximum Contamination Level (MCL), TCLP limit, or if compound is undetected, LQL exceeds MCL.

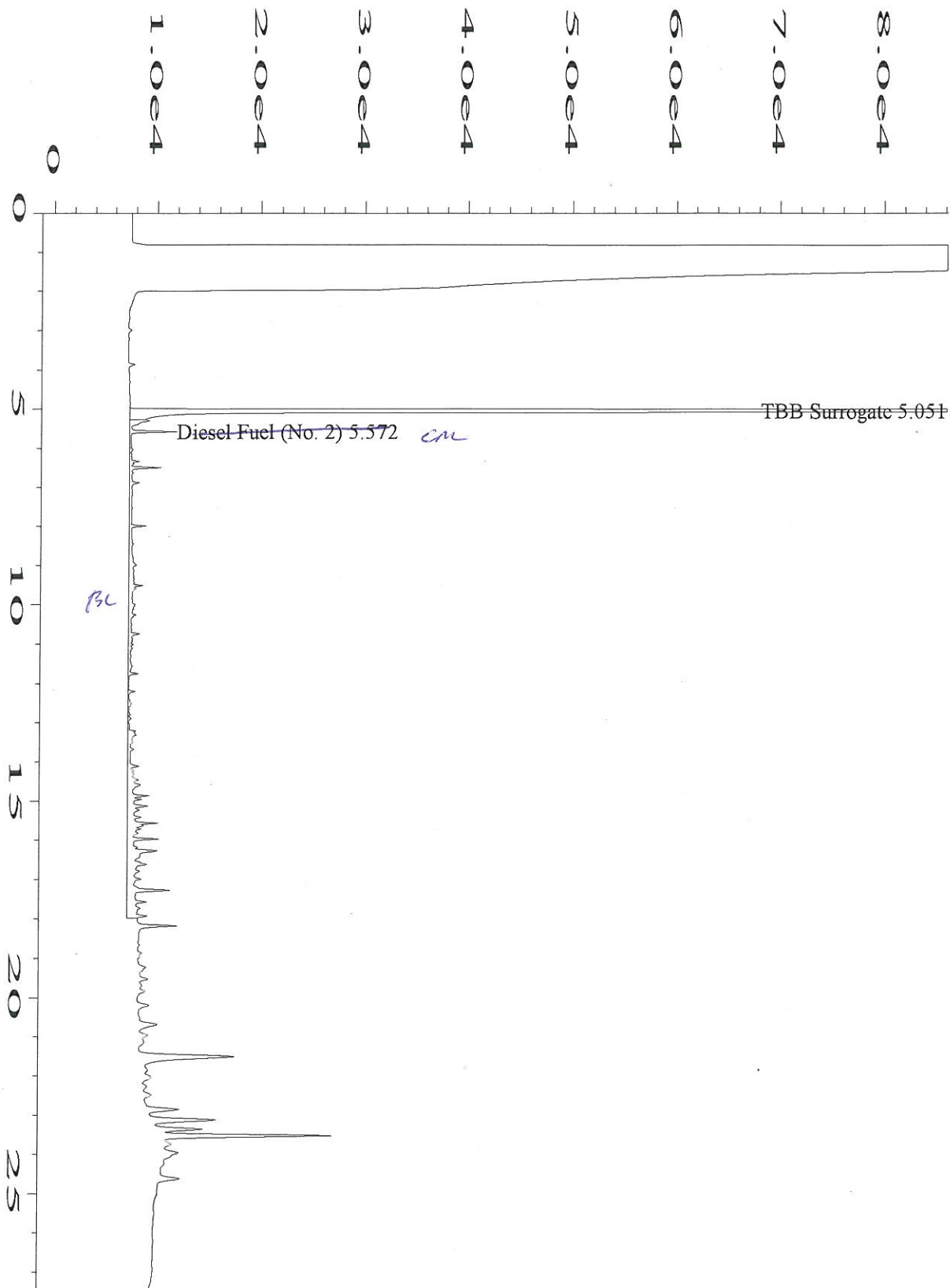
Definitions: DF - Dilution Factor

LQL - Lower Quantitation Limit

Surr - Surrogate

Print Date: 9/30/08

user modified



Data File Name : C:\HPCHEM\1\DATA\FID60929\055R0101.D

Operator : Marcus Stephenson

Page Number : 1

Instrument : FID6

Vial Number : 55

Sample Name : 08-7334-01B

Injection Number : 1

Run Time Bar Code:

Sequence Line : 1

Acquired on : 29 Sep 08 04:50 PM

Instrument Method: DUALFID.MTH

Report Created on: 30 Sep 08 08:27 AM

Analysis Method : DR0417.MTH

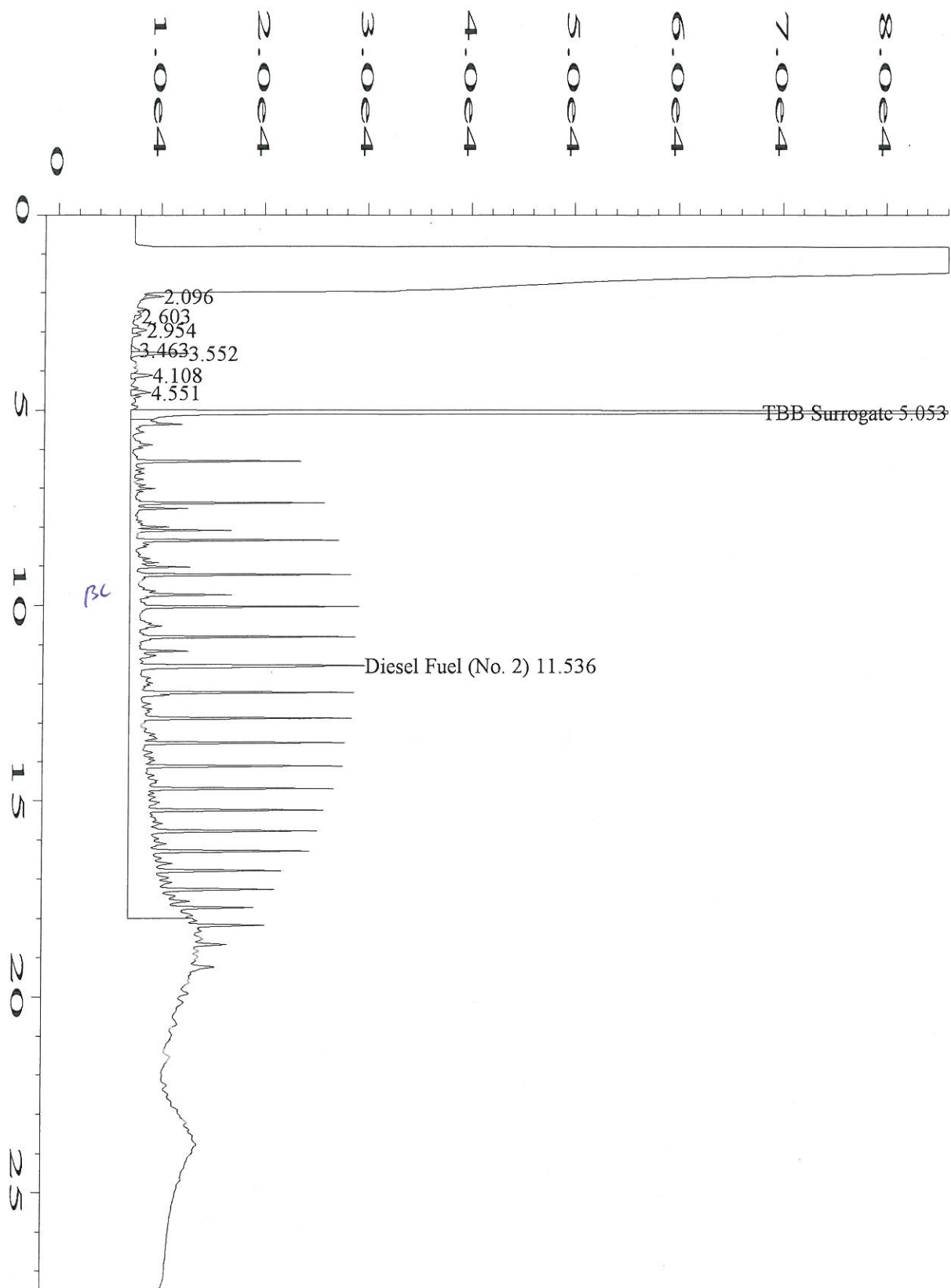
Last Recalib on : 18 APR 08 10:01 AM

Sample Amount : 0

Multiplier : 1

ISTD Amount :

12 MS 9-30-08



user modified

Data File Name	: C:\HPCHEM\1\DATA\FID60929\058R0101.D	Page Number	: 1
Operator	: Marcus Stephenson	Vial Number	: 58
Instrument	: FID6	Injection Number	: 1
Sample Name	: 08-7334-02B	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	DUALFID.MTH
Acquired on	: 29 Sep 08 06:30 PM	Analysis Method	: DR0417.MTH
Report Created on:	30 Sep 08 08:36 AM	Sample Amount	: 0
Last Recalib on	: 18 APR 08 10:01 AM	ISTD Amount	:
Multiplier	: 1		

11 MS 1-30-08

**Evergreen Analytical, Inc.**  
4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862  
(303) 425-6021

**Client Sample ID:** EXC 1  
**Client Project ID:** Antero Resources Castle Springs W Pad  
**Date Collected:** 9/22/08  
**Date Received:** 9/25/08

**Lab Work Order:** 08-7334  
**Lab Sample ID:** 08-7334-01  
**Sample Matrix:** Soil

**DISSOLVED METALS**

**Method:** SW6010B

**Prep Method:** E200.7/SW3010A

**Date Prepared:** 9/29/08  
**Date Analyzed:** 9/30/08

**Lab File ID:** 093008AM  
**Method Blank:** MB-16841

**Dilution Factor:** 1  
**Lab Fraction ID:** 08-7334-01C

Analytes	CAS Number	Result	LQL	Units
Calcium	7440-70-2	130	1.9	mg/L
Magnesium	7439-95-4	69	0.75	mg/L

**Date Prepared:** 9/29/08  
**Date Analyzed:** 10/2/08

**Lab File ID:** 100208AM  
**Method Blank:** MB-16841

**Dilution Factor:** 1  
**Lab Fraction ID:** 08-7334-01C

Analytes	CAS Number	Result	LQL	Units
Sodium	7440-23-5	1600	2.0	mg/L

**SODIUM ADSORPTION RATIO, SOIL**

**Method:** USDA

**Prep Method:**

**Date Prepared:** 9/29/08  
**Date Analyzed:** 9/30/08

**Dilution Factor:** 1  
**Lab Fraction ID:** 08-7334-01C

Analytes	CAS Number	Result	LQL	Units
Sodium-Adsorption-Ratio		28	0.10	ratio



**Analyst**



**Approved**

**Qualifiers:** B - Analyte detected in the associated Method Blank, value not subtracted from result  
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J - Indicates an estimated value when the compound is detected, but is below the LQL  
S - Spike Recovery outside accepted limits  
U - Compound analyzed for but not detected  
X - See case narrative  
\* - Value exceeded the Maximum Contamination Level (MCL), TCLP limit, or if compound is undetected, LQL exceeds MCL.

**Definitions:** NA - Not Applicable  
LQL - Lower Quantitation Limit  
Surr - Surrogate

Print Date: 10/6/08



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**Evergreen Analytical, Inc.**  
4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862  
(303) 425-6021

Client Sample ID: Bkgd  
Client Project ID: Antero Resources Castle Springs W Pad  
Date Collected: 9/22/08  
Date Received: 9/25/08

Lab Work Order 08-7334  
Lab Sample ID: 08-7334-03  
Sample Matrix: Soil

**DISSOLVED METALS**

Method: SW6010B

Prep Method: E200.7/SW3010A

Date Prepared: 9/29/08  
Date Analyzed: 9/30/08

Lab File ID: 093008AM  
Method Blank: MB-16841

Dilution Factor: 1  
Lab Fraction ID: 08-7334-03A

Analytes	CAS Number	Result	LQL	Units
Calcium	7440-70-2	110	1.9	mg/L
Magnesium	7439-95-4	9.7	0.75	mg/L

Date Prepared: 9/29/08  
Date Analyzed: 10/2/08

Lab File ID: 100208AM  
Method Blank: MB-16841

Dilution Factor: 1  
Lab Fraction ID: 08-7334-03A

Analytes	CAS Number	Result	LQL	Units
Sodium	7440-23-5	26	2.0	mg/L

**SODIUM ADSORPTION RATIO, SOIL**

Method: USDA

Prep Method:

Date Prepared: 9/29/08  
Date Analyzed: 9/30/08

Dilution Factor: 1  
Lab Fraction ID: 08-7334-03A

Analytes	CAS Number	Result	LQL	Units
Sodium-Adsorption-Ratio		0.64	0.10	ratio



Analyst



Approved

**Qualifiers:** B - Analyte detected in the associated Method Blank, value not subtracted from result  
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\* - Value exceeded the Maximum Contamination Level (MCL), TCLP limit, or if compound is undetected, LQL exceeds MCL.

**Definitions:** NA - Not Applicable  
LQL - Lower Quantitation Limit  
Surr - Surrogate

Print Date: 10/6/08

928  
1-1  
1-1

**Evergreen Analytical, Inc.**  
4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862  
(303) 425-6021

Client Sample ID: EXC 1  
Client Project ID: Antero Resources Castle Springs W Pad  
Date Collected: 9/22/08 1345  
Date Received: 9/25/08

Lab Work Order: 08-7334  
Lab Sample ID: 08-7334-01  
Sample Matrix: Soil

**SPECIFIC CONDUCTANCE @ 25°C**

Method: Dept of Ag.

Prep Method:

Comments: Method: US Dept. of Ag, Handbook #60, p89

Date Prepared: 10/2/08

Lab File ID: 102

Dilution Factor: 1

Date Analyzed: 10/2/08

Lab Fraction ID: 08-7334-01C

Analytes	CAS Number	Result	LQL	Units
Specific Conductance		8310	1.00	µmhos/cm

**PH**

Method: SW9045C

Prep Method:

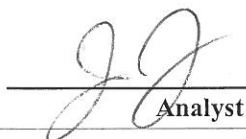
Date Prepared: 9/25/08

Dilution Factor: 1

Date Analyzed: 9/25/08 1205

Lab Fraction ID: 08-7334-01C

Analytes	CAS Number	Result	LQL	Units
pH		9.79 H	1.00	pH Units

  
\_\_\_\_\_  
Analyst

  
\_\_\_\_\_  
Approved

Qualifiers: B - Analyte detected in the associated Method Blank, value not subtracted from result  
E - Extrapolated value. Value exceeds calibration range  
H - Sample analysis exceeded analytical holding time  
J - Indicates an estimated value when the compound is detected, but is below the LQL  
S - Spike Recovery outside accepted limits  
U - Compound analyzed for but not detected  
X - See case narrative  
\* - Value exceeded the Maximum Contamination Level (MCL), TCLP limit, or if compound is undetected, LQL exceeds MCL.

Definitions: NA - Not Applicable  
LQL - Lower Quantitation Limit  
Surr - Surrogate

Print Date: 10/2/08

**Evergreen Analytical, Inc.**  
4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862  
(303) 425-6021

Client Sample ID: Bkgd  
Client Project ID: Antero Resources Castle Springs W Pad  
Date Collected: 9/22/08 1410  
Date Received: 9/25/08

Lab Work Order: 08-7334  
Lab Sample ID: 08-7334-03  
Sample Matrix: Soil

**SPECIFIC CONDUCTANCE @ 25°C**

Method: Dept of Ag.

Prep Method:

Comments: Method: US Dept. of Ag, Handbook #60, p89

Date Prepared: 10/2/08  
Date Analyzed: 10/2/08

Lab File ID: 103

Dilution Factor: 1  
Lab Fraction ID: 08-7334-03A

Analytes	CAS Number	Result	LQL	Units
Specific Conductance		650	1.00	µmhos/cm

**PH**

Method: SW9045C


Prep Method:

Date Prepared: 9/25/08  
Date Analyzed: 9/25/08 1205

Dilution Factor: 1  
Lab Fraction ID: 08-7334-03A

Analytes	CAS Number	Result	LQL	Units
pH		9.43 H	1.00	pH Units

  
\_\_\_\_\_  
Analyst

  
\_\_\_\_\_  
Approved

**Qualifiers:** B - Analyte detected in the associated Method Blank, value not subtracted from result  
E - Extrapolated value. Value exceeds calibration range  
H - Sample analysis exceeded analytical holding time  
J - Indicates an estimated value when the compound is detected, but is below the LQL  
S - Spike Recovery outside accepted limits  
U - Compound analyzed for but not detected  
X - See case narrative  
\* - Value exceeded the Maximum Contamination Level (MCL), TCLP limit, or if compound is undetected, LQL exceeds MCL.

**Definitions:** NA - Not Applicable  
LQL - Lower Quantitation Limit  
Surr - Surrogate

Print Date: 10/2/08

## **QUALITY ASSURANCE REPORTS**

**METHOD BLANKS (MB)**

**LABORATORY CONTROL SPIKES (LCS)**

**MATRIX SPIKES (MS/MSD)\***

**DUPLICATES (DUP)\***

\* For Metals or Wet Chemistry analyses: only included if requested.

Work Order: 08-7334  
Client Project ID: Antero Resources Castle Springs W Pad

# ANALYTICAL QC SUMMARY REPORT

BatchID: R42310

Sample ID: MB2092508	Sample Type: MBLK	TestCode: TVH_S	Run ID: TVHBTEx2_080925B	Prep Date: 9/25/08	Units: mg/Kg
Batch ID: R42310	TestNo: SW8015B Mo	FileID: TVB209251003F	Analysis Date: 9/25/08	SeqNo: 746200	
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
TVH-Gasoline	U	1.0			
Surr: 1,2,4-Trichlorobenzene (S)	682.8	0	500	0	137 60 140 0 0
Sample ID: LCS2092508	Sample Type: LCS	TestCode: TVH_S	Run ID: TVHBTEx2_080925B	Prep Date: 9/25/08	Units: mg/Kg
Batch ID: R42310	TestNo: SW8015B Mo	FileID: TVB209251004F	Analysis Date: 9/25/08	SeqNo: 746201	
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
TVH-Gasoline	9.2	1.0	11	0	83.6 70 130 0 0
Surr: 1,2,4-Trichlorobenzene (S)	895.1	0	500	0	179 60 140 0 0
Sample ID: 08-7294-01DMS	Sample Type: MS	TestCode: TVH_S	Run ID: TVHBTEx2_080925B	Prep Date: 9/25/08	Units: mg/Kg
Batch ID: R42310	TestNo: SW8015B Mo	FileID: TVB209251008F	Analysis Date: 9/25/08	SeqNo: 746204	
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
TVH-Gasoline	6.79	1.0	11	0	61.7 62 130 0 0
Surr: 1,2,4-Trichlorobenzene (S)	459.6	0	500	0	91.9 60 140 0 0
Sample ID: 08-7294-01DMSD	Sample Type: MSD	TestCode: TVH_S	Run ID: TVHBTEx2_080925B	Prep Date: 9/25/08	Units: mg/Kg
Batch ID: R42310	TestNo: SW8015B Mo	FileID: TVB209251009F	Analysis Date: 9/25/08	SeqNo: 746205	
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
TVH-Gasoline	6.955	1.0	11	0	63.2 62 130 6.79 2.40 30
Surr: 1,2,4-Trichlorobenzene (S)	443.2	0	500	0	88.6 60 140 0 0

Qualifiers: U - Not detected at or above the Reporting Limit  
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S - Spike Recovery outside acceptance limits  
E - Extrapolated value, value exceeds calibration range.  
R - RPD outside acceptance limits  
B - Analyte detected in the associated Method Blank  
H - Prep or analytical holding time exceeded  
X - See case narrative

Work Order: 08-7334  
Client Project ID: Antero Resources Castle Springs W Pad

# ANALYTICAL QC SUMMARY REPORT

BatchID: 16834

Sample ID: MB-16834	Sample Type: MBLK	TestCode: TEH_S	Run ID: FID6_080929A	Prep Date: 9/29/08	Units: mg/Kg
Batch ID: 16834	TestNo: SW8015B Mo	FileID: FID609291053R	Analysis Date: 9/29/08	SeqNo: 746918	
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Diesel Fuel (No. 2)	U	14			
Surr: TBB	40.59	0	66.67	0	60.9 39 130 0 0
Sample ID: LCS-16834	Sample Type: LCS	TestCode: TEH_S	Run ID: FID6_080929A	Prep Date: 9/29/08	Units: mg/Kg
Batch ID: 16834	TestNo: SW8015B Mo	FileID: FID609291054R	Analysis Date: 9/29/08	SeqNo: 746919	
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Diesel Fuel (No. 2)	568.6	14	666.7	0	85.3 70 130 0 0
Surr: TBB	43.05	0	66.67	0	64.6 42 130 0 0
Sample ID: 08-7334-01BMS	Sample Type: MS	TestCode: TEH_S	Run ID: FID6_080929A	Prep Date: 9/29/08	Units: mg/Kg
Client ID: EXC 1	Batch ID: 16834	TestNo: SW8015B Mo	FileID: FID609291056R	Analysis Date: 9/29/08	SeqNo: 746921
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Diesel Fuel (No. 2)	541.2	14	666.4	0	81.2 70 130 0 0
Surr: TBB	36.06	0	66.64	0	54.1 39 130 0 0
Sample ID: 08-7334-01BMSD	Sample Type: MSD	TestCode: TEH_S	Run ID: FID6_080929A	Prep Date: 9/29/08	Units: mg/Kg
Client ID: EXC 1	Batch ID: 16834	TestNo: SW8015B Mo	FileID: FID609291057R	Analysis Date: 9/29/08	SeqNo: 746922
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Diesel Fuel (No. 2)	587.7	14	663.4	0	88.6 70 130 541.2 8.25 30
Surr: TBB	38.08	0	66.34	0	57.4 39 130 0 0

Qualifiers: U - Not detected at or above the Reporting Limit  
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S - Spike Recovery outside acceptance limits  
E - Extrapolated value, value exceeds calibration range.  
R - RPD outside acceptance limits  
B - Analyte detected in the associated Method Blank  
H - Prep or analytical holding time exceeded  
X - See case narrative

Work Order: 08-7334  
 Client Project ID: Antero Resources Castle Springs W Pad

## ANALYTICAL QC SUMMARY REPORT

BatchID: 16841

Sample ID	MB-16841	Sample Type: MBLK	TestCode: 200.7_T	Run ID: ICP-OPTIMA 5300 DV_080930A	Prep Date: 9/29/2008	Units: mg/L				
	Batch ID: 16841		TestNo: E200.7, Rev.	FileID: 093008AM	Analysis Date: 9/30/2008	SeqNo: 747689				
Analyte		Result	LQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Calcium		0	0.387							
Magnesium		0	0.150							
Sample ID	MB-16841	Sample Type: MBLK	TestCode: 200.7_T	Run ID: ICP-OPTIMA 5300 DV_081002B	Prep Date: 9/29/2008	Units: mg/L				
	Batch ID: 16841		TestNo: E200.7, Rev.	FileID: 100208AM	Analysis Date: 10/2/2008	SeqNo: 749951				
Analyte		Result	LQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Sodium		U	0.400							
Sample ID	LCS-16841	Sample Type: LCS	TestCode: 200.7_T	Run ID: ICP-OPTIMA 5300 DV_080930A	Prep Date: 9/29/2008	Units: mg/L				
	Batch ID: 16841		TestNo: E200.7, Rev.	FileID: 093008AM	Analysis Date: 9/30/2008	SeqNo: 747690				
Analyte		Result	LQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Calcium		10.61	0.387	10	0	106	74	120	0	0
Magnesium		10.47	0.150	10	0	105	76.7	120	0	0
Sample ID	LCS-16841	Sample Type: LCS	TestCode: 200.7_T	Run ID: ICP-OPTIMA 5300 DV_081002B	Prep Date: 9/29/2008	Units: mg/L				
	Batch ID: 16841		TestNo: E200.7, Rev.	FileID: 100208AM	Analysis Date: 10/2/2008	SeqNo: 749952				
Analyte		Result	LQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Sodium		10.91	0.400	10	0.3347	109	80	120	0	0

## Qualifiers:

U - Not detected at or above the Reporting Limit  
 J - Analyte detected below quantitation limits  
 S - Spike Recovery outside acceptance limits  
 E - Extrapolated value, value exceeds calibration range.  
 R - RPD outside acceptance limits  
 B - Analyte detected in the associated Method Blank  
 H - Prep or analytical holding time exceeded  
 X - See case narrative



Evergreen Analytical, Inc.

Date: 02-Oct-08

Work Order: 08-7334  
 Client Project ID: Antero Resources Castle Springs W Pad

## ANALYTICAL QC SUMMARY REPORT

TestCode: COND\_S

Sample ID: LCS	SampleType: LCS	TestCode: COND_S	Run ID: COND_081002A	Prep Date: 10/2/08	Units: µmhos/cm
	Batch ID: R42430	TestNo: Dept of Ag.	FileID: 101	Analysis Date: 10/2/08	SeqNo: 749035
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Specific Conductance	9980	1.00	10040	0	99.4 90 110 0 0

## Qualifiers:

U - Not detected at or above the Reporting Limit  
 J - Analyte detected below quantitation limits  
 S - Spike Recovery outside acceptance limits  
 E - Extrapolated value, value exceeds calibration range.

R - RPD outside acceptance limits  
 B - Analyte detected in the associated Method Blank  
 H - Prep or analytical holding time exceeded  
 X - See case narrative

Work Order: 08-7334  
Client Project ID: Antero Resources Castle Springs W Pad

## ANALYTICAL QC SUMMARY REPORT

TestCode: PH\_S

Sample ID: LCS-R42280	SamplType: LCS	TestCode: PH_S	Run ID: PH_080925B	Prep Date: 9/25/08	Units: pH Units
Batch ID: R42280	TestNo: SW9045C	FileID:	Analysis Date: 9/25/08	SeqNo: 745603	
Analyte	Result	LQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
pH	8.02	1.00	8	0	100 99.3 100.7 0 0

## Qualifiers:

U - Not detected at or above the Reporting Limit  
J - Analyte detected below quantitation limits  
S - Spike Recovery outside acceptance limits  
E - Extrapolated value, value exceeds calibration range.

R - RPD outside acceptance limits  
B - Analyte detected in the associated Method Blank  
H - Prep or analytical holding time exceeded  
X - See case narrative

## **ATTACHMENT 1A**

Terminus

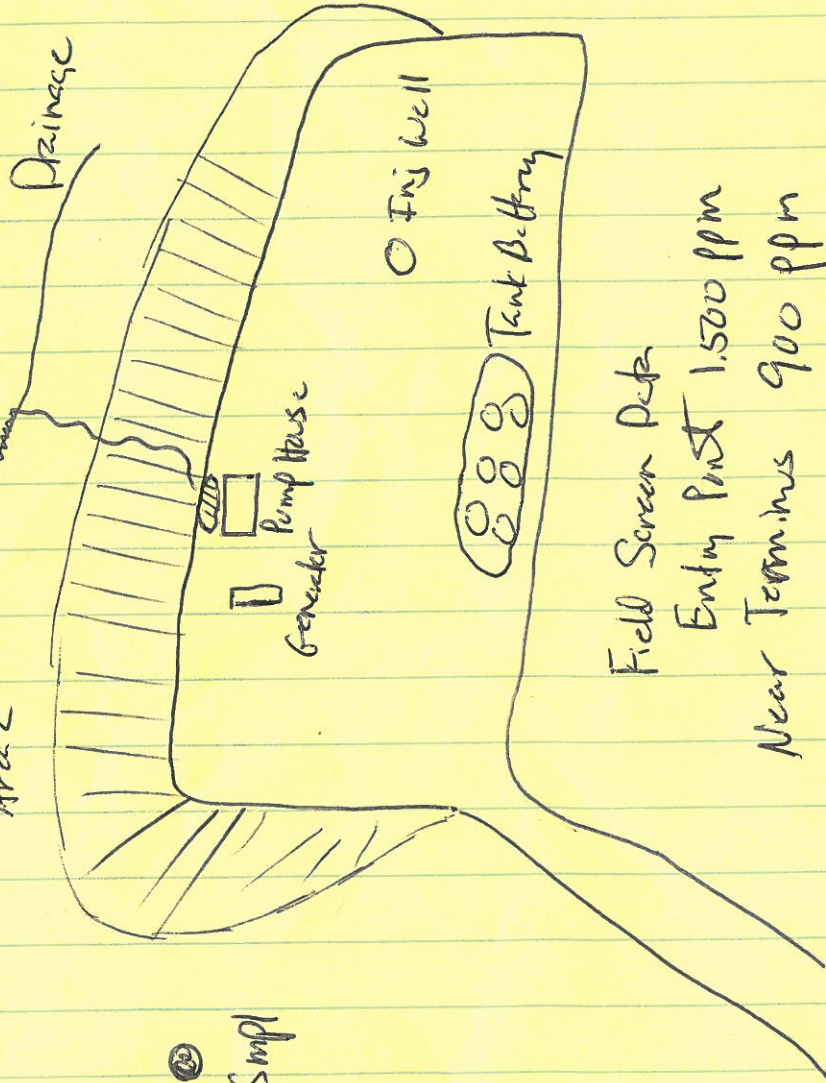
W Pad Release occurred 9/18/2008

Apr. 9/19/2008  
Rained 9/21, 22/2008

Impacted Area is Approx 1.5 feet wide on  
average  
Conf Smp1 pt 2  
Area 2  
Distance from entry point is Approx 200'

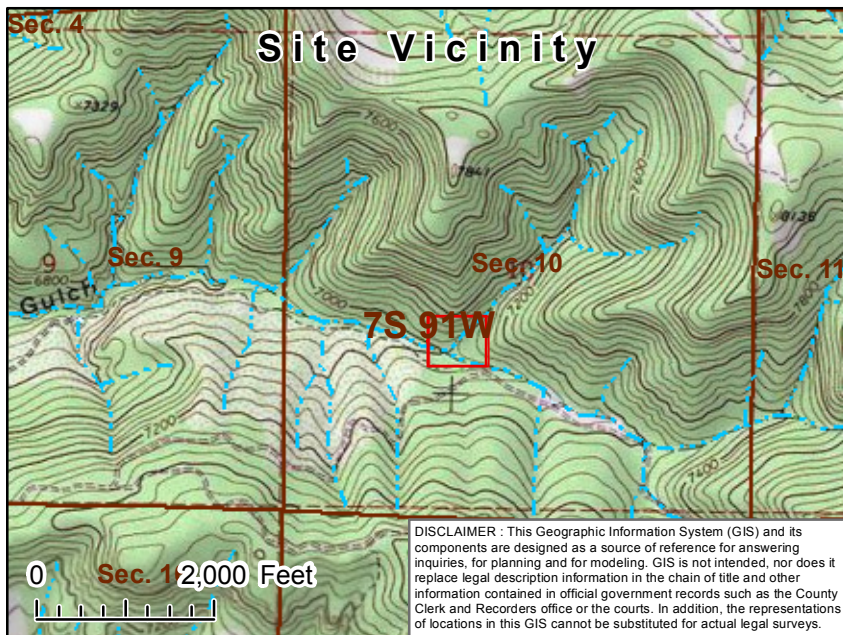
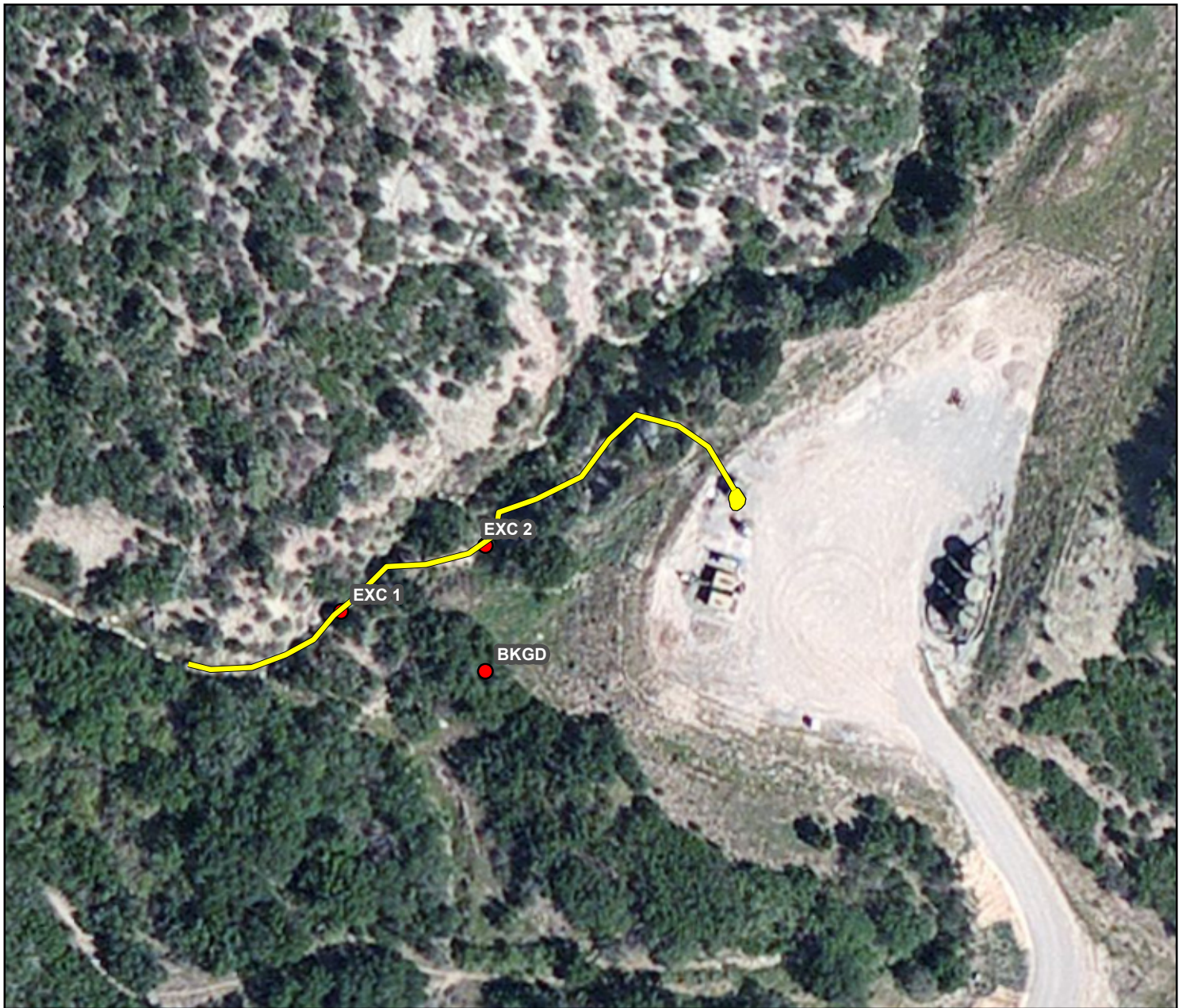
Area 1  
Conf Smp1 pt 1  
\*

Bkgd SRR Smp1



Field Screen Data  
Entry Point 1500 ppm  
Near Terminus 900 ppm

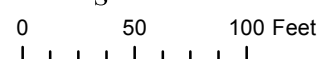
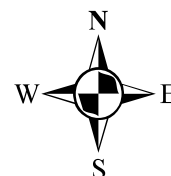




**Attachment A--Spill Location Map**  
**Location: Castle Springs W**  
**Antero Resources Piceance Corp.**

**Legend**

- |                   |                              |
|-------------------|------------------------------|
| ● Sample Location | <b>Hydrographic Features</b> |
| — Spill Area      | — Perennial Stream           |
| <b>PLSS</b>       | - - - Intermittent Stream    |
| ▭ Township        | - - - Ditch/Canal            |
| ▭ Section         |                              |



## **ATTACHMENT 2**

PLATE 1

# INVOICE

[illegible]

**Adams 5840**



## **PRIOR HISTORY**

FORM

19

Rev 6/99

# State of Colorado Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303)894-2100 Fax: (303)894-2109



FOR OGCC USE ONLY

## SPILL/RELEASE REPORT

This form is to be submitted by the party responsible for the oil and gas spill or release. Any spill or release which may impact waters of the State must be reported as soon as practicable; any spill over 20 bbls must be reported within 24 hours and all spills over five bbls must be reported within ten days. Submit a Site Investigation and Remediation Workplan (Form 27) when requested by the Director.

Spill report taken by:

FACILITY ID:

## OPERATOR INFORMATION

Name of Operator: Antero Resources Piceance Corporation OGCC Operator No: 10079Address: 1625 17th StreetCity: Denver State: CO Zip: 80202Contact Person: Gerard Alberts

### Phone Numbers

No: 303-357-7341Fax: 303-357-7315

E-Mail:

## DESCRIPTION OF SPILL OR RELEASE

Date of Incident: 9/18/2008 Facility Name & No.: Castle Springs W PadType of Facility (well, tank battery, flow line, pit): Well PadWell Name and Number: CSF #1-10WAPI Number: 05-04506273County: GarfieldQtrQtr: NESW Section: 10Township: 7S Range: 91WMeridian: 6th

Specify volume spilled and recovered (in bbls) for the following materials:

Oil spilled: 0.027 Bbls Oil recov'd: 0 Bbls Water spilled: ~30 Bbls Water recov'd: 0 Bbls Other spilled: \_\_\_\_\_ Other recov'd: \_\_\_\_\_Ground Water impacted? ☐ Yes ☒ NoSurface Water impacted? ☐ Yes ☒ NoContained within berm? ☐ Yes ☒ NoArea and vertical extent of spill: ~200' L x ~1'W x ~4" DeepCurrent land use: Open RangeWeather conditions: Clear, MildSoil/geology description: Potts Loam-Loam at the surface grading to areas of interbedded loam and clayey loam with depthIF LESS THAN A MILE, report distance IN FEET to nearest.... Surface water: ~4.5 miles wetlands: none buildings: noneLivestock: no water wells: ~1 mile Depth to shallowest ground water: >40 feetCause of spill (e.g., equipment failure, human error, etc.): Equipment Failure Detailed description of the spill/release incident:

See attached Sheet

## CORRECTIVE ACTION

Describe immediate response (how stopped, contained and recovered):

See attached Sheet

Describe any emergency pits constructed:

None

How was the extent of contamination determined:

field measurements, visual

Further remediation activities proposed (attach separate sheet if needed):

See Attached Sheet

Describe measures taken to prevent problem from reoccurring:

The injection pump will be repaired and the alarm system checked and repaired so that if pump problems occur in the future the pumps will shut down automatically to prevent any loss of fluids.

## OTHER NOTIFICATIONS

List the parties and agencies notified (County, BLM, EPA, DOT, Local Emergency Planning Coordinator or other).

Date	Agency	Contact	Phone	Response
9/19/2008	COGCC	Bob Chesson	303-894-2100	Verbal notification of the spill
9/26/2008	COGCC	Bob Chesson	303-894-2100	Will review the Form 19
9/26/2008	BLM	Allen Crockett	970-947-5210	Will review the NTL-3A



01433928

Spill/Release Tracking No: \_\_\_\_\_

#1433928



## **Description of Spill or Release for the Form 19**

### **Detailed Description of spill or release.**

The spill occurred at approximately 20:30 hrs on 9/18/2008. The center plunger on one of the injection well pumps failed. This allowed the produced water to leak out of the pump and run into the floor drain in the pump house. The sump outside the pump house filled to capacity then ran over the top and onto the ground. The produced water then ran off the east side of the pad down the hillside into an unnamed ephemeral drainage. An alarm system designed to shut the pumps down in situations as described above was not functioning properly at the time the pump failed.

## **Corrective Action for the Form 19**

### **Describe Immediate Response (how stopped, contained and recovered)**

The spill was discovered by a contract pumper who had scheduled work on the location. When he arrived at the pad he noticed that the pump plunger had failed and immediately shut the pump down and called an Antero supervisor. Some of the produced water was contained on the well pad itself with the remainder running off the pad as described above. None of the water was recovered.

### **Further Remediation Activities Proposed.**

Remediation is slated to commence once a field crew can be scheduled to the location. Impacted areas in the drainage will be remediated by hand and the impacted soil will be stockpiled on the location in a lined bermed containment area pending disposal options. A confirmation sample from the remediated areas will be sent for analysis to determine if TPH concentrations are below COGCC guidelines for sensitive areas. If the numbers are below COGCC guidelines, the remediated areas will be treated with a bio-remediation compound to assure further degradation of any remaining hydrocarbon impacts.