



02231303

Form 19 # 1631638

NOAU # 200227108

REM # 4941

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)694-2100 Fax: (303)694-2109



RECEIVED

NOV 28 2012

OGCC

Location ID
335544

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.)

1. OGCC Operator Number: 10079	4. Contact Name: Cole Kilstrom	Checklist OGCC
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: 05-0451518100	OGCC Facility ID Number: 293960	Survey Plat
6. Well/Facility Name: Norcross	7. Well/Facility Number: AT	Directional Survey
8. Location (Ctr/Ctr, Sec, Twp, Rng, Meridian): NWSW 13 6S 93 W 6		Surface Equip Diagram
9. County: Garfield	10. Field Name: Mamm Creek	Technical Info Page
11. Federal, Indian or State Lease Number:		Other

General Notice

<input type="checkbox"/> CHANGE OF LOCATION: Attach New Survey Plat (a change of surface ctr/qtr is substantive and requires a new permit)																	
Change of Surface Footage from Exterior Section Lines:	<table border="1"> <tr><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td></tr> </table>																
Change of Surface Footage to Exterior Section Lines:																	
Change of Bottomhole Footage from Exterior Section Lines:																	
Change of Bottomhole Footage to Exterior Section Lines:																	
Bottomhole location Ctr/Ctr, 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																	
Method used Cementing tool setting/perf depth Cement volume Cement top Cement bottom Date	*submit ccl and cement job summaries																
<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"/> EAP Waste Disposal
	<input type="checkbox"/> Beneficial Reuse of EAP 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 Kilstrom
Print Name: Cole KilstromDate: 11/14/12 Email: CKilstrom@anteroresources.com
Title: EAU SpecialistOGCC Approved: [Signature]Title: Env. Sup. Date: 12/14/12

CONDITIONS OF APPROVAL, IF ANY:

See attached Comments

TECHNICAL INFORMATION PAGE



FOR OGCC USE ONLY

1. OGCC Operator Number: 10079 API Number: 05-045-15181-00
 2. Name of Operator: Antero Resources Piceance Corp. OGCC Facility ID # 293950
 3. Well/Facility Name: Norcross Well/Facility Number: A1
 4. Location (QtrQtr, Sec, Twp, Rng, Meridian): NWSW 13 6S 93W 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 Closure:

On September 24, 2009, an E&P waste spill occurred at the Norcross A Pad as a result of higher than anticipated subsurface pressure conditions. The higher pressure caused a hammer union on degasser equipment to fail, which resulted in the release. Under 20 bbls of atomized mud spilled, raising the concern of impacts to surface water at a nearby creek. Immediately following kill operations, the fitting was replaced, and the mud was left to stabilize to aid in removal, which took place October 19, 2009.

As a result of this spill, COGCC issued NOAV # 200227108, which required Antero to:

1. Provide written explanation of why the release was not reported verbally as required;
2. Provide written explanation of why a Form 19 was not submitted to the COGCC;
3. Submit written explanation of how reporting will occur in the future to avoid similar violations;
4. Resubmit a completed Form 19 for the subject release;
5. Describe measures taken to prevent the problem from reoccurring and future protection of Public Water Supply buffer zones and waters of the state;
6. Consult with, and mitigate impacts to surface owners and surface lessees including the Rifle Public Water Supply System; and,
7. Develop a Form 27.

On March 30, 2010, Antero submitted a Final Response to the COGCC. The response included the NOAV (attached hereto), signed by Kevin Kilstrom of Antero on March 30, 2010, signifying that the alleged violation had been corrected. The response also included:

1. A written explanation regarding Antero's verbal reporting on October 20, 2009 and not before;
2. A written explanation regarding Antero's initial understanding that a Form 19 was not required;
3. A written explanation of how Antero will conduct reporting in the future to avoid similar incidents;
4. A Form 19, superseding and replacing Antero's December 7, 2009 Form 19 submittal (Doc # 1631638);
5. A description of measures to be taken to prevent the problem from reoccurring and to protect the Public Water Supply buffer zones and waters of the state;
6. A description of Antero's response to concerns relating to surface water impacts and consultation;
7. A Form 27 submittal, document # 2608730. Remediation # 4941, as outlined on Form 27 # 2608730, stated that Antero performed confirmation sampling with compliant results on the surface water impacted, and that Antero excavated the impacted area, covering it with straw mats with seed mix.

Antero has performed and completed all requested corrective actions arising from Spill Report # 1631638 and NOAV # 200227108, and has completed Remediation # 4941. Therefore, Antero respectfully requests final COGCC closure of the matters addressed herein in accordance with COGCC Rules.

COA

Based on review of data presented, it appears that no further action is necessary at this time at this site. However, should future conditions at the site be discovered of contaminant concentrations in soils exceeding COGCC standards or if groundwater is found to be significantly impacted, COGCC may require that further investigation and/or remediation be conducted. ¶

March 30, 2010



Colorado Oil & Gas Conservation Commission
Attn: Ms. Linda Spry O'Rourke
Environmental Protection Specialist, Northwest Region
707 Wapiti Court
Rifle, CO 81650

Antero Resources
1625 17th Street
Denver, Colorado 80202
Office 303.357.7310
Fax 303.357.7315

RE: Response to Notice of Alleged Violation (Document Number 200227108)
Norcross A1 (API No. 05-045-15181-00)
Antero Resources Piceance Corporation (Antero)

Dear Ms. O'Rourke:

Please find attached Antero's signed response to the January 20, 2010 Notice of Alleged Violation issued for the Norcross A Pad. The NOAV was issued as a result of an incident that occurred on September 24, 2009 during drilling operations of the A1 well on this well pad.

The attachments to support the company's NOAV response include the following:

1. Attachment 1 – Signed NOAV and Company Comments,
2. Attachment 2 – Revised Form 19,
3. Attachment 3 – Signed Form 27,
4. Attachment 4 – LTE Remediation Summary Report,
5. Attachment 5 – Dry Creek Water Quality Data and Site Map,
6. Attachment 6 – Norcross A1 Drilling Mud Analytical Data.

Please contact me at your convenience with any questions or comments regarding the Norcross A Pad NOAV and the associated attachments.

Very truly yours,

Gerard G. Alberts
Manager, Environmental & Regulatory



State of Colorado
Oil and Gas Conservation Commission
1170 Lincoln Street, Suite 801, Denver, Colorado 80203 (303) 894-2100 Fax (303) 894-2109



FOR OGCC USE ONLY

12/7/2009

200227108

*** NOTICE OF ALLEGED VIOLATION ***

OGCC Operator Number: 10079
Name of Operator: ANTERO RESOURCES PICEANCE CORPORATION
Address: 1625 17TH ST STE 300 ATTN: TERRELL A DOBKINS
City: DENVER State: CO Zip: 80202
Company Representative: JERRY ALBERTS

Date Notice Issued:

1/20/2010

Well Name: NORCROSS Well Number: A1 Facility Number: 293850
Location (Ctr, Sec, Twp, Rng, Meridian): NWSW 13 6S 93W 6 County: GARFIELD
API Number: 05 045 15181 00 Lease Number:

COGCC Representative: SPRY OROURKE LINDA Phone Number: 970 625-2497

THE FOLLOWING ALLEGED VIOLATION WAS FOUND BY THE COGCC REPRESENTATIVE FOR THE SITE LISTED

Date of Alleged Violation: 9/24/2009 Approximate Time of Violation:
Description of Alleged Violation:
On 9/24/09, there was an unauthorized release of E&P waste from the above-referenced facility impacting Waters of the State in a tributary to Dry Creek, which is within the External Buffer Zone of the Rifle Public Water Supply. On 10/20/2009 Antero Resources verbally notified the COGCC of that release. Prior to 10/20/2009, Antero Resources had not notified the NRC, the COGCC, Public Water System, and the CDPE-WQCD as required. On 12/7/2009, Antero submitted an incomplete Form 19 (Spill/Release Report) to the COGCC.

Act, Order, Regulation, Permit Conditions Cited:

317B.f.(1).B, 317B.f.(1).C, 324.A.a, 324.A.b, 801.f, 806.a, 806.b.(3), 806.b.(4), 806.b.(5), 806.c, 806.e.(2), 907.a.(1), 907.a.(2), 910.b.(3).A, 910.b.(3).B, 910.b.(3).C

Abatement or Corrective Action Required to be Performed by Operator:

1. Provide written explanation of why the release was not reported verbally as required by Rule 317B.f.(1).B, Rule 806.b.(2), Rule 806.b.(3) and Rule 904.b.(4). 2. Provide written explanation of why Spill/Release Report (Form 19) was not Submitted to the COGCC as required by Rule 806.b.(5). 3. Submit written explanation of how reporting will occur in the future to avoid similar violations. 4. Resubmit a completed Form 19 for the subject release as required by Rule 806.b.5 and Rule 907.e.(2), including NRCS soil unit, resolution of invalid API number and of Ctr/Sec conflict with permit. 5. Describe measures taken to prevent the problem from reoccurring and future protection of Public Water Supply buffer zones and waters of the state. 6. Consult with, and mitigate impacts to surface owners and surface lessees including the Rifle Public Water Supply system. 7. Develop a Site Investigation & Remediation Work Plan (Form 27) as required by Rule 806.d in consultation with the COGCC.

Abatement or Corrective Action to be Completed by (date): 2/20/2010

* Proper and timely abatement does not necessarily preclude the assessment of penalties and an Order Finding Violation.

TO BE COMPLETED BY OPERATOR - When alleged violation is corrected, sign this notice and return to above address:

Company Representative Name: Kevin Kilstrom Title: VP Production
Signature: [Signature] Date: 3-30-2010
Company Comments: see attached "Company Comments"

*** THIS NOTICE CONSTITUTES A SEPARATE NOTICE OF ALLEGED VIOLATION FOR EACH VIOLATION LISTED ***

WARNING

Abatement and reporting time frames per Section of Alleged Violation begin upon receipt of this notice and return to above address. Each violation must be abated within the prescribed time frame of this notice, reported to the Colorado Oil and Gas Conservation Commission at the address above, and published no later than the next business day after the prescribed time for abatement. Should abatement or corrective action fail to occur, the Director may make application to the Commission for an Order Finding Violation. Proper and timely abatement does not necessarily preclude the assessment of penalties and an Order Finding Violation.

PENALTY PROPOSED BY THE DIRECTOR PER RULE 523

The Director may propose a penalty as listed in the table below, not to exceed a maximum of \$1,000.00 per day per violation. Such proposed penalty amount will be limited to \$10,000.00 per violation if the violation does not result in significant waste of oil and gas resources, damage to environmental rights, or a significant adverse impact on public health, safety, or welfare. Such proposed penalty amount may be increased if aggravating factors indicate the violation: was intentional or reckless; had, or threatened to have, a significant negative impact on public health, safety, or welfare; resulted in significant waste of oil and gas resources; had a significant negative impact on the immediate rights of other parties; resulted in, or threatened to result in, significant loss of damage to public or private property; involved environmental or modification upon the part of the violator; involved intentional false reporting or record keeping; resulted in economic benefit to the violator. Such proposed penalty amount may be decreased if mitigating factors indicate the violator: self-reported; promptly, effectively and proactively responded to the violations; cooperated with the Commission or other agencies with respect to the violations; could not reasonably control, or be responsible for, the cause of the violation; made a good faith effort to comply with applicable requirements prior to the Commission learning of the violation; had any economic benefit enhanced or eliminated due to the act of decreasing the violations; had demonstrated a history of compliance with Commission rules, regulations and orders. The Commission has final authority over the penalty amount assessed. The Commission or other agencies with respect to the violations; could not reasonably control, or be responsible for, the cause of the violation; made a good faith effort to comply with applicable requirements prior to the Commission learning of the violation; had any economic benefit enhanced or eliminated due to the act of decreasing the violations; had demonstrated a history of compliance with Commission rules, regulations, and orders. The Commission has final authority over the penalty amount assessed.

BASE FINE \$100.00 PER DAY PER VIOLATION: RULES 218, 219, 219.1, 219.2, 219.3, 219.4, 219.5, 219.6, 219.7, 219.8, 219.9, 219.10, 219.11, 219.12, 219.13, 219.14, 219.15, 219.16, 219.17, 219.18, 219.19, 219.20, 219.21, 219.22, 219.23, 219.24, 219.25, 219.26, 219.27, 219.28, 219.29, 219.30, 219.31, 219.32, 219.33, 219.34, 219.35, 219.36, 219.37, 219.38, 219.39, 219.40, 219.41, 219.42, 219.43, 219.44, 219.45, 219.46, 219.47, 219.48, 219.49, 219.50, 219.51, 219.52, 219.53, 219.54, 219.55, 219.56, 219.57, 219.58, 219.59, 219.60, 219.61, 219.62, 219.63, 219.64, 219.65, 219.66, 219.67, 219.68, 219.69, 219.70, 219.71, 219.72, 219.73, 219.74, 219.75, 219.76, 219.77, 219.78, 219.79, 219.80, 219.81, 219.82, 219.83, 219.84, 219.85, 219.86, 219.87, 219.88, 219.89, 219.90, 219.91, 219.92, 219.93, 219.94, 219.95, 219.96, 219.97, 219.98, 219.99, 220.00, 220.01, 220.02, 220.03, 220.04, 220.05, 220.06, 220.07, 220.08, 220.09, 220.10, 220.11, 220.12, 220.13, 220.14, 220.15, 220.16, 220.17, 220.18, 220.19, 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COMPANY COMMENTS:

Summary of Event: On September 21, 2010, during the drilling of a well at the Norcross A Pad, Antero unexpectedly experienced an upset situation, caused by encountering higher than anticipated subsurface pressure conditions. Encountering overpressured gas pockets or fractures when drilling is usually unpredictable and can cause violent kicks because of rapid gas expansion that occurs almost immediately. Because of the added stress arising from the unexpected pressure and well control activities, a hammer union on degasser equipment downstream of the choke manifold failed, resulted in the release, via mist or spray of atomized water-based bentonitic drilling mud. The cause of this event and the alleged violations were outside of Antero's reasonable control. During and Immediately after this force majeure event, Antero field personnel gave priority to maintaining control over the well to prevent and avert potential significant threats to health, safety, and the environment. Because of Antero's successful well control efforts, there was no significant waste of oil and gas resources or negative impacts on correlative rights of other parties; no loss of wildlife or wildlife resources; no significant loss or damage to public or private property; and no significant impacts to the environment, public health, safety or welfare.

Summary of Delineation and Reporting: Antero field personnel's initial estimates of the mud sprayed were less than 5 barrels, because the areal extent outside the pad was not readily observable due to steep terrain and vegetation. However, a narrow drainage leading to Dry Creek is located approximately 35 feet north of the pad. When subsequent investigation and delineation showed that the release likely included more than 5 barrels of mud because the airborne atomized water-based bentonitic drilling mud had landed outside the pad as well as within the pad boundary, Antero self-reported the release and cooperated fully with the Commission. In this situation, because the release consisted of a mist of drilling mud with such mud known to gel up quickly rather than flow or spread, the magnitude and extent of the release beyond the pad was not recognized initially, and delineated only as Antero undertook additional investigation, finding the release to be confined to an approximate 30 foot by 40 foot rectangle, including approximately 5 linear feet of the drainage.

Summary of Impacts: Even under a worst case scenario, the small amount of water-based bentonitic drilling mud released is not expected to cause any significant harm to public health, safety or the environment. By way of analogy, COGCC Rule 907.d.(3) allows onsite disposal of water-based bentonitic drilling fluids either in pits or as land application at the same approximate thickness as the maximum thickness of the released mud. Antero's remediation efforts included obtaining a soil sample from the base of the excavated released mud that confirmed that the released drilling mud remained on the surface, with no impacts to surface water or groundwater. Based on our analytical results, no constituents of concern were identified.

1. *Provide written explanation of why the release was not reported verbally as required by Rule 317B.f.(1).B., Rule 906.b.(2), Rule 906.b.(3) and Rule 904.b.(4).*

a. 317B.f.(1).B: As a threshold matter, Antero notes that Rule 317B.f.(1) requires Operators to utilize BMP to comply with this rule and the priority BMP in this situation was to maintain control over the well to ensure no significant impacts to safety, health, or the environment occurred. Antero then initiated emergency response procedures, beginning with the assessment that the incident did not result in any injuries or other impacts to people.

Antero then began assessing impacts to the environment. However, neither at the time of the incident nor immediately thereafter was the scope or extent of the release recognized or impacts or threats to a Public Water System identified. After being notified by LTE that mud was released outside of the pad perimeter, investigation and response actions were initiated and potential contaminants removed under the direction and stewardship of LTE. The potentially impacted stream was sampled on October 1, 2009 and the sample was collected downstream of the impacted area. Attached to this response is a map of the stream sample location and also the analytical results. Based on a full evaluation of these results, there were no observed impacts or threats to the Public Water System.

b. 906.b.(2): Antero continues to believe that Rule 906.b.(2) does not apply to this release because this Rule only applies to spills/releases which exceed twenty (20) barrels of an E&P waste. Antero's initial estimate was less than 5 barrels. Further investigation, delineation, and consultation with Antero's environmental consultant, showed the best estimate of the area and vertical impact of the release to be 40 feet by 30 feet by 1 inch thick, which results in a calculation of 17.8 barrels of mud, still less than the 20 barrel reporting threshold under this subsection. Nevertheless, the release was reported verbally to COGCC on October 20, 2009.

c. 906.b.(3): To date, neither Antero nor its consultants have identified any actual impacts to the downslope creek (waters of the state), nor to any residence or occupied structure, livestock or public byway from the release. Although while drilling fluid is pumped it can be thin and free-flowing, when the pumping stops, the static fluid builds a gel structure that resists flow. Therefore, there was a negligible risk that after landing, that the atomized drilling mud would flow downslope into the creek. Photographs and consultant notes confirm that once the atomized mud landed on the surface, it gelled up and did not flow further. Only after additional site visits and investigation into the scope of the release, did Antero discover some evidence that the atomized mud had reached the far side of the creek and Antero immediately made a verbal report as it appeared that there had been at least a threatened impact to the stream. Photographs taken as part of the post-event investigation show evidence only of small amounts of mud mist that landed on both sides of the stream, with heavy vegetation along or between the mud and stream likely preventing mud flow into the stream; however, Antero reported entry to the stream as a precaution.

d. 906.b.(4): Per our discussion for 906.b.(3), upon recognizing the full areal extent of the atomized water-based bentonitic drilling mud, the release was reported verbally to COGCC on October 20, 2009 and at a later date to the Environmental Release/Incident Report Hotline as a precautionary

measure. Antero believes that this was a unique event that will not occur again; however, in hindsight or if a similar force-majeure type condition arose in the future at this pad or a pad located proximate to surface water drainages, Antero would undertake to contact both the COGCC and the Environmental Release/Incident Report Hotline promptly upon achieving control of the well, as a precaution, and would reserve the right to update its initial report upon verifying key information.

2. Provide written explanation of why Spill/Release Report (Form 19) was not submitted to the COGCC as required by Rule 906.b.(5).

As described above, Antero's field personnel had originally thought that release affected only the pad area and that less than 5 barrels of mud had been released. Based on this initial information, the release was not a reportable spill under Rule 906.b.(5). However, between the date of release and the date COGCC was notified, as more information became available, Antero worked with its consultants to determine the magnitude and extent of the release, to better estimate the volume of the release, to perform initial mitigation, and to seek analytical information. Once Antero was able to delineate the release, Antero discovered it was, in fact, reportable and Antero did, in fact, report the release within ten days after discovery as required by Rule 906.b.(5).

3. Submit written explanation of how reporting will occur in the future to avoid similar violations.

In the unlikely event of any future release of atomized drilling mud, Antero personnel will undertake to investigate off-site impacts as thoroughly and completely as on-site impacts, including investigating the area between the pad and any surface water in the vicinity, and the immediate far side of any surface water in the vicinity. Through the process of working with its consultant to delineate the magnitude and extent of a drilling mud release in an area of steep slope, Antero personnel have gained experience needed to be able to make more accurate volume estimates, particularly in areas of steep terrain. Antero will continue to strive to improve reporting processes and relationships, particularly when there are consultants involved, to insure all personnel are aware of proper internal and external emergency response reporting procedures and these procedures will be reviewed and emphasized at each SPCC training session.

4. Resubmit a completed Form 19 for the subject release as required by Rule 906.b.5 and Rule 907.e.(2), including NRCS soil unit, resolution of invalid API number and of Qtr/Qtr conflict with permit.

Attached to and included within this response is a revised Form 19, to supersede and replace Antero's initial Form 19 submittal on December 7, 2009. The Qtr/Qtr on the Form 19 for this Norcross A Pad is correct. However, in researching this issue we discovered that the COGCC database that the Qtr/Qtr is the NWSW when in actuality it is the NESW. It appears that this was caused by a typo on a refilled

application for permit to drill. Antero's regulatory personnel contacted COGCC to correct this clerical error.

5. Describe measures taken to prevent the problem from reoccurring and future protection of Public Water Supply buffer zones and waters of the state.

Antero considers the problem to have been a unique force majeure event, arising from the convergence of two causes outside of Antero's reasonable control: i) unexpectedly encountering subsurface zones of over pressure with risks of loss of well control, arising from the unique subsurface geology encountered when drilling that specific well; and ii) subsequent equipment failure. Antero does not anticipate that this convergence of facts resulting in a force majeure situation would occur again; therefore, no preventative measures are identifiable or practicable. Nevertheless, Antero has undertaken improvements to its response procedures including emphasizing, as part of ongoing SPCC training, immediate implementation of emergency response procedures in the event of any spills or releases within buffer zones.

6. Consult with and mitigate impacts to surface owners and surface lessees including the Rifle Public Water Supply system.

Our response to the concern over potential impacts to surface water(s) is set forth above. Although in hindsight we recognize that some atomized mud may have impacted surface water during the upset, neither Antero nor its consultant ever observed any impacts to surface water. Therefore any consultation would have been based on speculative information, at best. If actual impacts had been identified Antero would have made proper consultations and would have undertaken mitigation.

In any event, the evidence suggests little or no mud mist entered the stream due to heavy vegetation blocking and thus protecting the stream. No constituents of concern were present in the water-based drilling mud according to analytical results and analytical results also support the conclusion of no impacts to surface water or groundwater.

7. Develop a Site Investigation & Remediation Work Plan (Form 27) as required by Rule 906 in consultation with COGCC.

Antero notes that Rule 906.d provides that the Director may require operators to submit a Form 27. Initially when Antero verbally notified Mr. Chesson of the COGCC, based on the information known and conveyed to him at that time, he advised that a Form 27 was likely not required. The NOAV requires a Form 27, likely because the extent of the release and potential impacts to surface water have been further delineated since our initial reporting. Therefore, Antero has developed a Form 27 Work Plan, attached to and made part of this response.

Entered OK ✓

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

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 100 bbls must be reported within ten days. Submit a Site Investigation and Remediation Workplan (Form 27) when requested by the Director.

FOR OGCC USE ONLY

Spill report taken by: _____

FACILITY ID: _____

OPERATOR INFORMATION

Name of Operator: <u>Antero Resources Piceance Corp.</u> OGCC Operator No: <u>10079</u>	Phone Numbers
Address: <u>1625 17th Street, Suite 300</u>	No: <u>303-357-7310</u>
City: <u>Denver</u> State: <u>CO</u> Zip: <u>80202</u>	Fax: <u>303-357-7315</u>
Contact Person: <u>Gerard G Alberts</u>	E-mail: <u>jalberts@anteroresources.com</u>

DESCRIPTION OF SPILL OR RELEASE

Date of Incident: <u>9-21-09</u> Facility Name & No.: <u>Norcross A Pad</u>	County: <u>Garfield</u>
Type of facility (well, tank battery, flow line, pit): <u>Well Pad</u>	QtrQtr: <u>NESW</u> Section: <u>13</u>
Well Name and Number: <u>Norcross A1</u>	Township: <u>6S</u> Range: <u>93W</u>
API Number: <u>05-045-15181</u>	Meridian: <u>6th</u>
Specify volume spilled and recovered (in bbls) for the following materials:	
Oil Spilled: <u>0</u> Oil recov'd: <u>0</u> Water <u>0</u> Water <u>0</u> Other spilled: <u>17.8</u> Other recovered: <u>17.8</u>	
Ground Water impacted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Surface Water impacted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Contained within berm? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Area and vertical extent of spill: <u>40 feet by 30 feet, 1 inch thick</u>
Current land use: <u>native scrub brush</u>	Weather conditions: <u>warm, clear</u>
Soil/geology description: <u>NRCS Soil Series 34; Ildefonso stony loam, 24 to 45 percent slopes</u>	
IF LESS THAN A MILE, report distance IN FEET to nearest: surface water: <u>35 ft</u> wetlands: <u>3378 ft</u> buildings: <u>563 ft</u>	
livestock: <u>2000 ft</u> water wells: <u>3918 ft</u> Depth to shallowest groundwater: <u>> 50 ft</u>	
Cause of spill (equipment failure, human error, etc.): <u>Equipment failure</u>	Detailed description of the spill/release incident:
<u>Compromised hammer union on degasser equipment downstream of choke manifold resulted in the release of atomized mud</u>	

CORRECTIVE ACTION

Describe immediate response (how stopped, contained and recovered): Immediately following kill operations the fitting was replaced, the mud was left to stabilize to aid in removal. About five feet of drainage impacted by mud flow. Release was cleaned up on 10/19/09

Describe any emergency pits constructed NA

How was the extent of contamination determined By LTE Environmental Stormwater Inspector, estimated impacted area and average thickness of drilling muds in the impacted area, [Antero internal estimate is 1.23 bbls based on ratio of mud to gas volumes]

Further remediation activities proposed (attach separate sheet if needed): None. Based on the analytical data, LT's investigation concluded that: all impacts associated with the drilling mud release have been removed from the surface; all of the constituents of concern were below COGCC standards with the exception of arsenic background levels, a very slight exceedance of pH; and that based on a confirming soil sample, groundwater was not impacted.

Describe measures taken to prevent problem from reoccurring: NA

OTHER NOTIFICATIONS

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

Date	Agency	Contact Person	Phone	Response
10/20/09	COGCC	Bob Chesson	303625-2497	Said that Form 27 follow-up not required

Spill/Release Tracking No.: _____

Entered
Approved OK ✓

FORM
27
Rev 8/99

State of Colorado
Oil and Gas Conservation Commission



FOR OGCC USE ONLY

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

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

OGCC Employee:

☐ Spill ☐ Complaint
☐ Inspection ☐ NOAV

Tracking No:

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

☒ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☐ Site/Facility Closure ☐ Other (describe):

OGCC Operator Number: 10079

Name of Operator: Antero Resources Piceance Corporation

Address: 1625 17th Street, Suite 300

City: Denver

State: CO Zip: 80202

Contact Name and Telephone:

Gerard G Alberts

No: 303-357-7310

Fax: 303-537-7315

API Number: 05-045-15181

County: Garfield

Facility Name: Norcross A Pad

Facility Number: 293950

Well Name: Norcross

Well Number: A1

Location: (QtrQtr, Sec, Twp, Rng, Meridian): NESW, 13, 6S, 93W, 6th

Latitude: Longitude:

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): Drilling mud

Site Conditions: Is location within a sensitive area (according to Rule 901a)? ☐ Y ☒ N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): native scrub brush

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: NRCS Soil Series 34 Ildefonso Stony Loam 24 to 45% slopes

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Small surface water creek running through

drainage approximately 35 feet north of the pad.

Description of Impact (if previously provided, refer to that form or document):

Impacted Media (check):

☒ Soils
☐ Vegetation
☐ Groundwater
☒ Surface Water

Extent of Impact:

30 feet by 40 feet by 1 inch avg. thickness

How Determined:

excavation and removal

approximately 5 linear feet (potentially)

visual inspection of creek

REMEDIALATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):

The Form 19 was submitted on 12/8/09 for the drilling mud release COGCC #1631638.

Immediately following kill operations the fitting was replaced, the mud was left to stabilize to aid in removal. Approximately five feet of drainage was potentially impacted by the mud flow. The drilling mud was excavated and removed on 10/19/09.

Describe how source is to be removed:

The drilling mud and surficial soils were excavated and stockpiled on the drill pad location. See attached Remediation Summary Report.

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:

The drilling mud was stockpiled on the drilling pad. After receipt of analytical results which indicate hydrocarbons were not present above COGCC standards in the drilling mud, Antero intended to use the stockpiles for drilling pad and lease road maintenance per COGCC Rule 907 d. (3) B. I. The de minimus amount of drilling mud that potentially entered the drainage is assumed to have quickly dissipated as evidenced by the lack of the drilling mud in the drainage.

Submit Page 2 with Page 1

FORM
27
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



Page 2

REMEDIATION WORKPLAN (Cont.)

Tracking Number: _____
Name of Operator: _____
OGCC Operator No: _____
Received Date: _____
Well Name & No: _____
Facility Name & No: _____

Page 2

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

Groundwater was not encountered during excavation activities. Analytical data and field observations indicate the drilling mud did not penetrate below the ground surface. A surface water confirmation sample was collected by Antero's consultant immediately downstream of the potential release location after the incident occurred. The analytical results indicate there were no impacts to the surface water segment. The surface water analytical report is attached.

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

The area of impact adjacent to the pad which was excavated to remove the surficial impact was covered with straw mats to prevent erosion and ensure sediment did not enter the drainage. Final reclamation will be conducted during reclamation of the well pad and surrounding berms when drilling operations have been completed.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required? ☐ Y ☒ N If yes, describe:

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

The drilling mud and soil stockpiles are located on the drilling pad. Because the mud/soil mixture is in compliance with COGCC standards, Antero will use the stockpiles to maintain drilling pads and lease roads. Analytical results for the drilling mud and soil mixture are also attached.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 9/21/09 Date Site Investigation Completed: 12/08/09 Date Remediation Plan Submitted: NA
Remediation Start Date: 10/19/09 Anticipated Completion Date: 10/19/09 Actual Completion Date: 10/19/09

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

Print Name: Gerard G Alberts

Signed:

Title: Environmental and Regulatory Manager

Date: 3-30-10

OGCC Approved: _____ Title: _____ Date: _____