

Attachment
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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

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: 293950
Location (Qtr/Qtr, 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 CDPHE-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, 901.f, 906.a, 906.b.(3), 906.b.(4), 906.b.(5), 906.c, 906.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 906.b.(2), Rule 906.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 906.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 906.b.5 and Rule 907.e.(2), including NRCS soil unit, resolution of invalid API number and of Qtr/Qtr 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 906.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 for Notices of Alleged Violation begin upon receipt of the Notice or five days after the date it is mailed, whichever is earlier. Each violation must be abated within the prescribed time upon receipt of this Notice, reported to the Colorado Oil and Gas Conservation Commission at the address shown above, and postmarked 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 correlative 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 correlative rights of other parties; resulted in, or threatened to result in, significant loss or damage to public or private property; involved resistance or nondivulgence 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, promptly responded to the violation; cooperated with the Commission or other agencies with respect to the violation; 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 reduced or eliminated due to the cost of correcting the violation; has 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 violation; 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 reduced or eliminated due to the cost of correcting the violation; has demonstrated a history of compliance with Commission rules, regulations, and orders. The Commission has final authority over the penalty amount assessed.

BASE FINE \$250.00 PER DAY PER VIOLATION: RULES 210, 307, 311, 312, 313, 314A, 315, 465, 465, 803, 804
BASE FINE \$500.00 PER DAY PER VIOLATION: RULES 265, 308, 309, 310, 310A, 321, 322, 328, 329, 330, 331, 332, 401
BASE FINE \$750.00 PER DAY PER VIOLATION: RULES 605, 606A, 606B, 607
BASE FINE \$1,000.00 PER DAY PER VIOLATION: RULES 209, 301, 303, 305, 308, 316B, 317, 317A, 318, 319, 320, 323, 324, 325, 326, 327, 333, 404, 602, 603, 604, 703, 704, 705, 706, 707, 708, 709, 711, 802, 801, 802, 803, 804, 905, 906, 907, 908, 909, 910, 911, 912, 1002, 1003, 1004, 1101, 1102, 1103

In accordance with Rule 523.a.(4), fines for violations for which no base fine is listed shall be determined by the Commission at its discretion.

Signature of COGCC Representative:

Linda Spry Orourke

Date: 1/20/2010

Time: 12:08PM

Resolution Approved by:

Date:

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.