

FORM
2A
Rev
04/01

State of Colorado
Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801, Denver, Colorado 80205 Phone: (303) 894-2100 Fax: (303) 894-2109



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Document Number:
400098244

Oil and Gas Location Assessment

New Location Amend Existing Location Location#: _____

Submit original plus one copy. This form is to be submitted to the COGCC prior to any ground disturbance activity associated with oil and gas development operations. This Assessment may be approved as a standalone application or submitted as an informational report accompanying an Application for Permit-To-Drill, Form 2. Approval of this Assessment will allow for the construction of the below specified location; however, it does not supersede any land use rules applied by the local land use authority. This form may serve as notice to land owners and other interested parties, please see the COGCC web site at <http://colorado.gov/cogcc/> for all accompanying information pertinent to this Oil and Gas Location Assessment.

Location ID:
422301
Expiration Date:
03/24/2014

This location assessment is included as part of a permit application.

1. CONSULTATION

- This location is included in a Comprehensive Drilling Plan. CDP # _____
- This location is in a sensitive wildlife habitat area.
- This location is in a wildlife restricted surface occupancy area.
- This location includes a Rule 306.d.(1)A.ii. variance request.

2. Operator

Operator Number: 10079
Name: ANTERO RESOURCES PICEANCE CORPORATION
Address: 1625 17TH ST STE 300
City: DENVER State: CO Zip: 80202

3. Contact Information

Name: Hannah Knopping
Phone: (303) 357-6412
Fax: (303) 357-7315
email: hknopping@anteroresources.com

4. Location Identification:

Name: Speakman Number: A Pad
County: GARFIELD
QuarterQuarter: NESW Section: 24 Township: 7S Range: 96W Meridian: 6 Ground Elevation: 5182
Define a single point as a location reference for the facility location. This point should be used as the point of measurement in the drawings to be submitted with this application. When the location is to be used as a well site then the point shall be a well location.
Footage at surface: 1931 feet FSL, from North or South section line, and 1971 feet FWL, from East or West section line.
Latitude: 39.420918 Longitude: -108.060333 PDOP Reading: 2.4 Date of Measurement: 08/05/2010
Instrument Operator's Name: Scott E. Aibner

5. Facilities (Indicate the number of each type of oil and gas facility planned on location):

Special Purpose Pits: <input type="checkbox"/>	Drilling Pits: <input type="checkbox"/>	Wells: <input type="checkbox" value="14"/>	Production Pits: <input type="checkbox"/>	Dehydrator Units: <input type="checkbox"/>
Condensate Tanks: <input type="checkbox" value="2"/>	Water Tanks: <input type="checkbox" value="4"/>	Separators: <input type="checkbox" value="16"/>	Electric Motors: <input type="checkbox"/>	Multi-Well Pits: <input type="checkbox"/>
Gas or Diesel Motors: <input type="checkbox"/>	Cavity Pumps: <input type="checkbox"/>	LACT Unit: <input type="checkbox"/>	Pump Jacks: <input type="checkbox"/>	Pigging Station: <input type="checkbox" value="1"/>
Electric Generators: <input type="checkbox"/>	Gas Pipeline: <input type="checkbox" value="1"/>	Oil Pipeline: <input type="checkbox" value="1"/>	Water Pipeline: <input type="checkbox" value="1"/>	Flare: <input type="checkbox" value="1"/>
Gas Compressors: <input type="checkbox"/>	VOC Combustor: <input type="checkbox" value="1"/>	Oil Tanks: <input type="checkbox"/>	Fuel Tanks: <input type="checkbox"/>	

Other: Note: Gas, oil and water pipelines are planned to be constructed along the proposed access road; See attached List of Facilities for details.

6. Construction:

Date planned to commence construction: 03/01/2011 Size of disturbed area during construction in acres: 4.04
Estimated date that interim reclamation will begin: 09/01/2011 Size of location after interim reclamation in acres: 2.00
Estimated post-construction ground elevation: 5182 Will a closed loop system be used for drilling fluids: Yes [X]
Will salt sections be encountered during drilling: Yes [] No [X] Is H2S anticipated? Yes [] No [X]
Will salt (>15,000 ppm TDS Cl) or oil based muds be used: Yes [] No [X]
Mud disposal: Offsite [] Onsite [X] Method: Land Farming [] Land Spreading [] Disposal Facility []
Other: Onsite if meet Tbl 910

7. Surface Owner:

Name: Phone:
Address: Fax:
Address: Email:
City: State: Zip: Date of Rule 306 surface owner consultation: 04/02/2010
Surface Owner: [X] Fee [] State [] Federal [] Indian
Mineral Owner: [X] Fee [] State [] Federal [] Indian
The surface owner is: [] the mineral owner [] committed to an oil and gas lease
[] is the executer of the oil and gas lease [] the applicant
The right to construct the location is granted by: [] oil and gas lease [X] Surface Use Agreement [] Right of Way
[] applicant is owner
Surface damage assurance if no agreement is in place: [] \$2000 [] \$5000 [] Blanket Surety ID

8. Reclamation Financial Assurance:

[X] Well Surety ID: 20040071 [] Gas Facility Surety ID: [] Waste Mgnt. Surety ID:

9. Cultural:

Is the location in a high density area (Rule 603.b.): Yes [] No [X]
Distance, in feet, to nearest building: 400 , public road: 276 , above ground utilit: 239
, railroad: 4250 , property line: 276

10. Current Land Use (Check all that apply):

Crop Land: [] Irrigated [] Dry land [] Improved Pasture [] Hay Meadow [] CRP
Non-Crop Land: [X] Rangeland [] Timber [] Recreational [] Other (describe):
Subdivided: [] Industrial [] Commercial [] Residential

11. Future Land Use (Check all that apply):

Crop Land: [] Irrigated [] Dry land [] Improved Pasture [] Hay Meadow [] CRP
Non-Crop Land: [X] Rangeland [] Timber [] Recreational [] Other (describe):
Subdivided: [] Industrial [] Commercial [] Residential

12. Soils:

List all soil map units that occur within the proposed location. Attach the National Resource Conservation Service (NRCS) report showing the "Map Unit Description" report listing the soil typical vertical profile. This data is to used when segregating topsoil.

The required information can be obtained from the NRCS web site at <http://soildatamart.nrcs.usda.gov/> or from the COGCC web site GIS Online map page found at <http://colorado.gov/cogcc>. Instructions are provided within the COGCC web site help section.

NRCS Map Unit Name: 56: Potts loam, 6 to 12 percent slopes

NRCS Map Unit Name: 58: Potts-Ildefonso, 12 to 25 percent slopes

NRCS Map Unit Name: _____

13. Plant Community:

Complete this section only if any portion of the disturbed area of the location's current land use is on non-crop land.

Are noxious weeds present: Yes No

Plant species from: NRCS or, field observation Date of observation: 09/12/2010

List individual species: See attached NRCS Rangeland Productivity and Plant Composition report

Check all plant communities that exist in the disturbed area.

- Disturbed Grassland (Cactus, Yucca, Cheatgrass, Rye)
- Native Grassland (Bluestem, Grama, Wheatgrass, Buffalograss, Fescue, Oatgrass, Brome)
- Shrub Land (Mahogany, Oak, Sage, Serviceberry, Chokecherry)
- Plains Riparian (Cottonwood, Willow, Aspen, Maple, Poplar, Russian Olive, Tamarisk)
- Mountain Riparian (Cottonwood, Willow, Blue Spruce)
- Forest Land (Spruce, Fir, Ponderosa Pine, Lodgepole Pine, Juniper, Pinyon, Aspen)
- Wetlands Aquatic (Bullrush, Sedge, Cattail, Arrowhead)
- Alpine (above timberline)
- Other (describe): _____

14. Water Resources:

Rule 901.e. may require a sensitive area determination be performed. If this determination is performed the data is to be submitted with the Form 2A.

Is this a sensitive area: No Yes Was a Rule 901.e. Sensitive Areas Determination performed: No Yes

Distance (in feet) to nearest surface water: 130, water well: 790, depth to ground water: 43

Is the location in a riparian area: No Yes Was an Army Corps of Engineers Section 404 permit filed No Yes

Is the location within a Rule 317B Surface Water Suppl Area buffer zone:

No 0-300 ft. zone 301-500 ft. zone 501-2640 ft. zone

If the location is within a Rule 317B Surface Water Supply Area buffer have all public water supply systems within 15 miles been notified: No Yes

15. Comments:

#1 Consultation: Since this location is in a "Sensitive Wildlife Habitat Area" and is subject to the Wildlife Mitigation Plan that Antero negotiated with CDOW (see attached Proposed BMP list which includes summary of WMP). #4- The proposed BAT 12B-24-07-96 well location was used as the reference point for well distance measurements. #6: The disturbed area acre amounts include the access road. #14 The depth to ground water was determined by using static water level data of nearest active water well (Permit#274330/Receipt#9502816). Distance to nearest surface water was given for a perennial stream found on topo map (see attached Hydrology Map). Our reference area is undisturbed ground immediately adjacent and to the west of the well pad, as shown in the "West" location photo.

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

Signed: _____ Date: 11/05/2010 Email: hknopping@anteroresources.com

Print Name: Hannah Knopping Title: Permit Representative

Based on the information provided herein, this Application for Permit-to-Drill complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved:

David G. Neslin

Director of COGCC

Date: 3/25/2011

CONDITIONS OF APPROVAL, IF ANY:

All representations, stipulations and conditions of approval stated in this Form 2A for this location shall constitute representations, stipulations and conditions of approval for any and all subsequent operations on the location unless this Form 2A is modified by Sundry Notice, Form 4 or an Amended Form 2A.

SENSITIVE AREA (CLOSE PROXIMITY TO SURFACE WATER AND DOMESTIC WATER WELL) COAs:

Location is in a sensitive area because of its proximity to surface water; therefore, operator must ensure 110 percent secondary containment for any volume of fluids contained at well site during drilling and completion operations; including, but not limited to, construction of a berm or diversion dike, diversion/collection trenches within and/or outside of berms/dikes, site grading, or other comparable measures (i.e., BMPs associated with stormwater management) sufficiently protective of nearby surface water.

Location is in a sensitive area because of proximity to a domestic water well and potential for shallow groundwater; therefore either a lined drilling pit or closed loop system (which Antero has already indicated on the Form 2A) must be implemented.

Location is in a sensitive area because of proximity to a domestic water well and potential for shallow groundwater; therefore production pits must be lined.

RESIDENTIAL COAs:

COA R1 - Operator will implement sufficient public notification of proposed oil and gas activities, including: (1) provide 30 day advance notice and community awareness to neighborhood that the monthly Battlement Mesa Oil and Gas Committee meetings will be the forum for communications regarding schedule and activities; (2) schedule changes will be communicated to the community at aforementioned meetings via attendance or emails to the Committee (3) notify local emergency response agencies (Fire/Police) of schedule changes; and (4) notify all homes within a ¼-mile radius and local emergency responders (Fire/Police) 7 days prior to mobilization in, rig up (MIRU).

COA R2 - Notify the local emergency responders (Fire/Police), COGCC Oil and Gas Location Assessment (OGLA) Specialist for Western Colorado (Dave Kubeczko; email dave.kubeczko@state.co.us), and the COGCC Field Inspection Supervisor for Northwest Colorado (Shaun Kellerby; email shaun.kellerby@state.co.us) 48 hours prior to location construction and 24 hours prior to MIRU.

COA R3 - Operator will review local governmental requirements for access from public roads. At a minimum the following traffic requirements will apply: (1) operator will work with the Garfield County Road and Bridge Department to develop and implement a traffic control plan which will at a minimum: a) establishes designated haul routes, b) designates haul routes to avoid school zones and schedules heavy equipment movement to avoid school bus operation hours, c) provides for additional signage on major and/or local roads to be employed during heavy activity periods warning of increased truck traffic, d) restricts all oil and gas related construction, drilling, and operational traffic to access the location from a single point, e) provide for flaggers and/or pilot vehicles as necessary, and f) schedules work to avoid peak traffic flow; and (2) operator will require safe driving training for employees and contractors.

COA R4 - Operator will prepare a job specific Emergency Management/Response Plan that will be developed with input from the local emergency responders (Fire/Police). Operator will provide temporary engineering controls to prevent uncontrolled public access during drilling and completion activities. Site security shall include, but not be limited to, appointing a Health and Safety Officer that will insure the Emergency Management/Response Plan is adhered to and who is authorized to shut down operations at any time when health and safety risk is present.

COA R5 - Temporary perimeter sound walls (consisting of earthen berms, stacked hay bales and/or metal, synthetic or wood sheeting) shall be used on the north and east perimeters of the location during drilling and completion activities to provide noise relief to nearby residents. Operator shall conduct noise monitoring as described in 802.c. at a minimum once during each phase of activity (pad construction, drilling, completion and production), and submit the results to the COGCC. The COGCC may require additional noise mitigation if measures taken are deemed insufficient.

COA R6 - Operator will take aggressive action to establish vegetation on cut and fill slopes to prevent storm water erosion and the generation of fugitive dust. Operator shall install and maintain native vegetative visual buffering on the north and east sides in conjunction with site stabilization. Visual mitigation shall also include the use of low profile tanks.

COA R7 - Lighting abatement measures beyond the requirements of Rule 803. shall be implemented, including the following, at a minimum: (1) rig oriented to direct light away from nearby residents; (2) install lighting shield devices on all of the more conspicuous lights; (3) low density sodium lighting; and (4) rig shrouded on the north and east sides.

COA R9 - Flares (such as TCI's portable flare with high combustion rate, low noise, and low visibility flare) will be utilized and will have appropriate emissions controls to prevent VOCs from impacting nearby residents in harmful concentrations.

COA R10 - Emissions from condensate, crude oil, and produced water tanks and from glycol dehydrators shall be controlled as described in Rule 805.b.(2), notwithstanding the exceptions for production facilities emitting less than five tons per year (TPY) of volatile organic compounds (VOC).

COA R11 - Access roads to well sites, completion staging sites and production facilities shall be constructed to meet the requirements of emergency responders, including all weather surface.

COA R12 - Land-farming of E&P waste is prohibited on the location. This shall not preclude onsite disposal of E&P waste in accordance with COGCC Rules and permit conditions.

GENERAL SITE COAs:

Notify COGCC Oil and Gas Location Assessment (OGLA) Specialist for Western Colorado (Dave Kubeczko; email dave.kubeczko@state.co.us; phone 970-309-2514) 48 hours prior to start of construction.

Reserve pit (if constructed) must be lined or a closed loop system (which has already been indicated by Antero on the Form 2A) must be implemented during drilling; however, Antero will be using a closed loop drilling system, therefore, a reserve pit will not be constructed.

Flowback and stimulation fluids must be sent to tanks to allow the sand to settle out before the fluids can be placed into any pipeline or pit located on the well pad. The flowback and stimulation fluid tanks must be placed on the well pad in an area with additional downgradient perimeter berming. The area where flowback fluids will be stored/reused must be constructed to be sufficiently impervious to contain any spilled or released material (per Rule 604.a.(4)). In addition, operator must implement odor controls during fracing operations.

Notify COGCC Oil and Gas Location Assessment (OGLA) Specialist for Western Colorado (Dave Kubeczko; email dave.kubeczko@state.co.us; phone 970-309-2514) 48 hours prior to start of fracing operations.

The moisture content of any drill cuttings in a cuttings pit, trench, or pile shall be as low as practicable to prevent accumulation of liquids greater than de minimis amounts. At the time of closure, the drill cuttings must also meet the applicable standards of table 910-1.

No portion of any pit that will be used to hold liquids shall be constructed on fill material, unless the pit and fill slope are designed and certified by a professional engineer, subject to review and approval by the director prior to construction of the pit. The construction and lining of the pit shall be supervised by a professional engineer or their agent. The entire base of the pit must be in cut.

The surface soils and materials are fine-grained and highly unconsolidated; therefore the pad shall be constructed as quickly as possible and appropriate BMPs need to be in place both during, after well pad construction completion, as well as during all drilling and well completion operations. Standard stormwater BMPs must be implemented at this location to insure compliance with CDPHE and COGCC requirements and to prevent any stormwater run-on and /or stormwater runoff.

Operator must implement best management practices to contain any unintentional release of fluids, including any fluids conveyed via temporary surface pipelines.

WATER RESOURCES (WATER QUALITY TESTING PROGRAM) COA:

COA WQ1 - Water Testing: Prior to drilling operator shall sample the two (2) closest domestic water wells, springs, or surface water features within a one (1) mile radius of the proposed oil and gas location. Testing preference shall be given to domestic water wells and springs over surface water. Testing of surface water features shall only be conducted if two (2) water wells or springs do not exist within a one (1) mile radius of the selected oil and gas location. If possible, the water wells or springs selected should be on opposite sides of the oil and gas location not exceeding a one (1) mile radius. If water wells or springs on opposite sides of the oil and gas location cannot be identified, then the two (2) closest wells or springs within a one (1) mile radius of the oil and gas location shall be sampled. The sample location shall be surveyed in accordance with Rule 215.

Initial baseline testing shall include laboratory analysis of all major cations and anions, total dissolved solids, iron and manganese, nutrients (nitrates, nitrites, selenium), dissolved methane, pH, specific conductance, and benzene, toluene, ethylbenzene, and xylenes ("BTEX"). Sampling shall be performed by qualified individuals using methods consistent with commonly accepted environmental sampling procedures. Field observations such as pH, temperature, specific conductance, odor, water color, sediment, bubbles, and effervescence shall also be included.

After 90 days, but less than 180 days of completion of the first proposed well a "post-completion" test shall be performed for the same analytical parameters listed above and repeated one (1), three (3) and six (6) years thereafter. If no significant changes from the baseline have been identified after the third test (i.e. the six-year test), no further testing shall be required. Additional "post-completion" test(s) may be required if changes in water quality are identified during follow-up testing. The Director may require further water well sampling at any time in response to complaints from water well owners.

If free gas or a methane concentration level greater than 1 mg/l is detected in a water quality testing well, gas compositional analysis, and stable isotopes of both the carbon and hydrogen isotopes of methane shall be performed to determine gas type (thermogenic, biogenic or a mixture).

Copies of all analytical data described above shall be provided to the Director and the landowner where the water quality testing well is located within three (3) months of collecting the samples used for the test. The analytical data and surveyed well locations shall also be submitted to the Director in an electronic data deliverable format. Operator will furnish to the Director any analytical results from groundwater or surface water monitoring activities conducted associated with this location in a timely manner.

Attachment Check List

Att Doc Num	Name
2033648	CORRESPONDENCE
400098244	FORM 2A SUBMITTED
400098398	HYDROLOGY MAP
400098400	LOCATION PICTURES
400106615	CONST. LAYOUT DRAWINGS
400106616	ACCESS ROAD MAP
400106617	MULTI-WELL PLAN
400106618	SURFACE AGRMT/SURETY
400106626	NRCS MAP UNIT DESC
400106628	OTHER
400106632	EQUIPMENT LIST
400106633	PROPOSED BMPs
400106635	LOCATION DRAWING

Total Attach: 13 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
OGLA	Return to IN PROCESS to pass OGLA task and for final approval.	3/25/2011 8:17:06 AM
OGLA	finalized review and consideration of comments. Finalized language for COAs.	3/18/2011 11:06:46 AM
OGLA	Initiated/Completed OGLA Form 2A review on 12-20-10 and a re-review on 03-07-11 by Dave Kubeczko; requested clarifications and acknowledgement of fluid containment, spill/release BMPs, stormwater BMPs, lined pits/closed loop, no pit in fill, flowback to tanks only, noise/visual mitigation, residential, and cuttings low moisture content COAs from operator on 12-20-10; received clarifications and acknowledgement of COAs from operator on 12-30-10 and 03-15-11; passed by CDOW on 12-17-10 with operator submitted BMPs (with permit application) acceptable; passed OGLA Form 2A review on 03-25-11 by Dave Kubeczko; fluid containment, spill/release BMPs, stormwater BMPs, lined pits/closed loop, no pit in fill, flowback to tanks only, noise/visual mitigation, residential, and cuttings low moisture content COAs.	12/20/2010 4:39:19 PM
DOW	The BMPs as submitted by the operator are applicable to the site. by Michael Warren on Friday, December 17, 2010 at 4:15 P.M.	12/17/2010 4:13:59 PM
OGLA	Placed ON HOLD by Dave Kubeczko; waiting for air monitoring sampling and analysis plan from Antero	11/30/2010 4:04:32 PM
Public	We are very concerned about this location. Seems like Antero does not care what bad effects the drilling has on the local people. We have smelled the bad odors from their Watson Ranch pad, felt sick when out walking, and headaches from justgoing out in the yard; and they expect us to believe that it is nothing. Give us a break!	11/22/2010 11:23:19 AM
Public	Antero's desire to drill this close to the Battlement Mesa PUD, with no regard for the fact that health effects of drilling within the PUD are still being studied shows absolutely no regard for our community. The PUD has no impermeable shield around it ! If there is any concern on the part of Antero, as a corporate citizen, for the health and well being of neighbors, the fact that these well would be outside our borders should not make them any less concerned for the people in close proximity. Your responsibility for public health should compel you to defer approval of this permit until the study has been completed.	11/20/2010 12:21:11 PM

Public	<p>As residents and potentially impacted landowners in the Battlement Mesa PUD, we strongly object to the location of this proposed well pad for the following reasons.</p> <p>The location is too near the major residential neighborhood of Tamarisk Meadows, and poses unacceptable risks to the health, safety and welfare of those residents.</p> <p>The prevailing winds in this area are likely to cause wide spread air pollution over a large part of the Battlement Mesa community due to dust and emissions from drilling operations.</p> <p>The additional cumulative impacts that this location would create, considering all the existing oil and gas operations in the area, upon the Battlement Mesa community is unacceptable.</p>	11/20/2010 8:50:29 AM
Public	<p>We are residents of Tamarisk Medows village in Battlement Mesa, and strongly object to the approval of this application for the following reasons. These drilling operations will be in very close proximity to our heavily populated area and our health and property values will be extremely negatively impacted due to the heavy truck traffic on Stone Quarry Road as well as being subjected to toxic fumes, dust, noise and lighting from the drilling operations and truck traffic. In addition there is a very real danger of fire and explosion damage or destruction to life and property located this close to these operations.</p> <p>We realize the mineral owners believe that they have a right to extract their minerals, but this should not override the rights of property surface owners to have a safe and peaceful environment in which to live and to preserve the value of their property.</p>	11/19/2010 6:59:04 PM

Total: 9 comment(s)

BMP

<u>Type</u>	<u>Comment</u>
Site Specific	<p>BNMP WQ2 - Water Quality Testing:</p> <p>a. Prior to drilling, operator shall test all water wells within ½ mile radius of the surface-hole location from each well on a well pad location and will consider testing springs within ½ mile radius upon landowner request. Within one year or after all wells have been drilled and completed on a well pad location, a post/follow-up test will be performed on all water wells/springs that were tested prior to drilling.</p> <p>b. Initial baseline testing shall include laboratory analysis of all major cations and anions, total dissolved solids, iron and manganese, nutrients (nitrates, nitrites, selenium), dissolved methane, pH, specific conductance, and benzene, toluene, ethylbenzene, and xylenes ("BTEX"). Sampling shall be performed by qualified individuals using methods consistent with commonly accepted environmental sampling procedures. Field observations such as pH, temperature, specific conductance, odor, water color, sediment, bubbles, and effervescence shall also be included. Copies of all analytical data described above shall be provided to the landowner where the water quality testing well is located. In addition, the analytical data and surveyed well locations will be available to the COGCC upon request in an electronic data deliverable format.</p>
Drilling/Completion Operations	<p>BMP R8 - Air quality and odor controls will be implemented and will include the following: (1) Emissions from production tank venting will be routed to a VOC combustor and VOC combustors will operate with an auto-igniter; (2) a low emissions flowback process will be used which includes routing the flowback stream to a separator (green completion skid); from this vessel, salable gas will be routed to a gas sales line and the non-salable gas, when practicable, will be routed to a flare equipped with an automatic igniter; (3) frac/flowback storage tank hatches will be closed and latched until the tanks are prepared to receive flowback water, then the hatches will be closed but unlatched when receiving flowback fluids; (4) frac/flowback storage tanks will be equipped with hydrocarbon absorbing blankets when full to control odors; and (5) maintain a portable meteorological weather station during well drilling and completion operations, that includes a data logger to archive wind speed, wind direction, and temperature, and make related data available to the COGCC upon request.</p>

Total: 2 comment(s)