

FORM
2A

Rev
08/13

State of Colorado Oil and Gas Conservation Commission

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



Document Number:

401234964

(SUBMITTED)

Date Received:

06/08/2017

Oil and Gas Location Assessment

New Location Refile Amend Existing Location Location#: _____

This Oil and Gas Location Assessment is to be submitted to the COGCC for approval prior to any ground disturbance activity associated with oil and gas operations. Approval of this Oil and Gas Location 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. Please see the COGCC website at <http://cogcc.state.co.us/> for all accompanying information pertinent this Oil and Gas Location Assessment.

Location ID:

Expiration Date:

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

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.

Operator

Operator Number: 10447

Name: URSA OPERATING COMPANY LLC

Address: 792 BUCKHORN DR

City: RIFLE State: CO Zip: 81650

Contact Information

Name: CARI MASCIOLO

Phone: (970) 284-3244

Fax: ()

email: cmascioli@ursaresources.com

RECLAMATION FINANCIAL ASSURANCE

Plugging and Abandonment Bond Surety ID: 20120125

Gas Facility Surety ID: _____

Waste Management Surety ID: _____

LOCATION IDENTIFICATION

Name: BMC A Pad

Number: _____

County: GARFIELD

Quarter: SESE Section: 13 Township: 7S Range: 96W Meridian: 6 Ground Elevation: 5104

Define a single point as a location reference for the facility location. When the location is to be used as a well site then the point shall be a well location.

Footage at surface: 1173 feet FSL from North or South section line

234 feet FEL from East or West section line

Latitude: 39.433606 Longitude: -108.049666

PDOP Reading: 1.1 Date of Measurement: 11/01/2016

Instrument Operator's Name: HOFFMANN

SURFACE & MINERALS & RIGHT TO CONSTRUCT

Name: BM Land Investments LLC

Phone: _____

Address: PO Box 6000

Fax: _____

Address: _____

Email: _____

City: Parachute State: CO Zip: 81635

Surface Owner: Fee State Federal Indian

Check all that apply. The Surface Owner: is the mineral owner

is committed to an oil and Gas Lease

has signed the Oil and Gas Lease

is the applicant

The Mineral Owner beneath this Oil and Gas Location is: Fee State Federal Indian

The Minerals beneath this Oil and Gas Location will be developed from or produced to this Oil and Gas Location: Yes

The right to construct this Oil and Gas Location is granted by: Surface Use Agreement

Surface damage assurance if no agreement is in place: _____ Surface Surety ID: _____

Date of Rule 306 surface owner consultation 02/28/2017

CURRENT AND FUTURE LAND USE

Current Land Use (Check all that apply):

Crop Land: Irrigated Dry land Improved Pasture Hay Meadow CRP

Non-Crop Land: Rangeland Timber Recreational Other (describe): _____

Subdivided: Industrial Commercial Residential

Future Land Use (Check all that apply):

Crop Land: Irrigated Dry land Improved Pasture Hay Meadow CRP

Non-Crop Land: Rangeland Timber Recreational Other (describe): _____

Subdivided: Industrial Commercial Residential

CULTURAL DISTANCE INFORMATION

Provide the distance to the nearest cultural feature as measured from Wells or Production Facilities onsite.

	From WELL	From PRODUCTION FACILITY
Building:	<u>265</u> Feet	<u>340</u> Feet
Building Unit:	<u>500</u> Feet	<u>340</u> Feet
High Occupancy Building Unit:	<u>1561</u> Feet	<u>1513</u> Feet
Designated Outside Activity Area:	<u>5280</u> Feet	<u>5280</u> Feet
Public Road:	<u>609</u> Feet	<u>498</u> Feet
Above Ground Utility:	<u>416</u> Feet	<u>285</u> Feet
Railroad:	<u>4432</u> Feet	<u>4597</u> Feet
Property Line:	<u>156</u> Feet	<u>86</u> Feet

INSTRUCTIONS:

- All measurements shall be provided from center of nearest Well or edge of nearest Production Facility to nearest of each cultural feature as described in Rule 303.b.(3)A.
- Enter 5280 for distance greater than 1 mile.
- Building - nearest building of any type. If nearest Building is a Building Unit, enter same distance for both.
- Building Unit, High Occupancy Building Unit, and Designated Outside Activity Area - as defined in 100-Series Rules.
- For measurement purposes only, Production Facilities should only include those items with an asterisk(*) on the Facilities Tab.

DESIGNATED SETBACK LOCATION INFORMATION

Check all that apply. This location is within a:

- Buffer Zone
 Exception Zone
 Urban Mitigation Area

Does the UMA Facility meet the definition of a Large UMA Facility Yes No

- Buffer Zone - as described in Rule 604.a.(2), within 1,000' of a Building Unit.
- Exception Zone - as described in Rule 604.a.(1), within 500' of a Building Unit.
- Urban Mitigation Area - as defined in 100-Series Rules.
- Large UMA Facility - as defined in 100-Series Rules.

Pre-application Notifications (required if location is within 1,000 feet of a building unit):

Date of Rule 305.a.(1) Urban Mitigation Area Notification to Local Government: 03/15/2017

Date of Rule 305.a.(2) Buffer Zone Notification to Building Unit Owners: 03/30/2017

Pre-application Notifications (required if location is a Large UMA Facility)

Date of Rule 305A.a.(1)A Notice of intent to construct a Large UMA Facility to Local Government: 01/11/2017

Date of Rule 305A.a.(1)B Notice of intent to construct a Large UMA Facility to Surface Owner: 01/11/2017

Date of Rule 305.a.(3) Large UMA Facility Notice to Proximate Local Governments: 03/15/2017

Large UMA Facility Form 2A Process Initiation (check all that apply)

- Rule 305A.f.(1)A. Local Government and Operator have reached agreement regarding the siting of the Large UMA Facility (attach certification of Rule 305A compliance)
- Rule 305A.f.(1)B. Rule 305A.e exception claimed (if checked then a 305A exception must be checked on the Exceptions Tab)
- Rule 305A.f.(1)C. Local Government waived 305A procedures for this proposed location (attach waiver as evidence of Rule 305A compliance)
- Rule 305A.f.(1)D. The Local Government did not respond in writing within 30 days of receiving the notice of intent to construct (attach certification of Rule 305A compliance)
- Rule 305A.f.(1)E. The Local Government and Operator have engaged in consultation pursuant to Rule 305A.c. but have not reached agreement within 90 days of the 305A.a.(1)A. notice of intent to construct
- Rule 303.c.(1). Form 2A submittal is consistent with a Rule 216.f.(3) Comprehensive Drilling Plan or a Local Government comprehensive plan that specifies locations for oil and gas facilities. (attach Rule 303.c.(1) supporting documentation)

FOR MULTI-WELL PADS AND PRODUCTION FACILITIES WITHIN DESIGNATED SETBACK LOCATIONS ONLY:

- Check this box if this Oil and Gas Location has or will have Production Facilities that serve multiple wells (on or offsite) and the Production Facilities are proposed to be located less than 1,000 feet from a Building Unit. (*Pursuant to Rule 604.c.(2)E.i., the operator must evaluate alternative locations for the Production Facilities that are farther from the Building Unit, and determine whether those alternative locations were technically feasible and economically practicable for the same proposed development.*)
- By checking this box, I certify that no alternative placements for the Production Facilities, farther from the nearest Building Unit, were available based on the analysis conducted pursuant to Rule 604.c.(2)E.i.

In the space below, explain rationale for siting the multi-well Production Facility(ies) that supports your Rule 604.c.(2)E.i determination. Attach documentation that supports your determination to this Form 2A.

PLEASE SEE ATTACHED ALTERNATIVES ANALYSIS.

SOIL

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 be used when segregating topsoil.

The required information can be obtained from the NRCS web site at <http://soildatamart.nrcs.usda.org/> 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: 4 Arvada loam, 6 to 20 percent slopes

NRCS Map Unit Name: 34 Ildfonso stony loam, 25 to 45 percent slopes

NRCS Map Unit Name: _____

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: 09/14/2016

List individual species: _____

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): _____

WATER RESOURCES

Is this a sensitive area: No Yes

Distance to nearest

downgradient surface water feature: _____ 0 Feet

water well: _____ 903 Feet

Estimated depth to ground water at Oil and Gas Location _____ 66 Feet

Basis for depth to groundwater and sensitive area determination:

Static water level from existing well (permit #9113515)

Is the location in a riparian area: No Yes

Was an Army Corps of Engineers Section 404 permit filed No Yes If yes attach permit.

Is the location within a Rule 317B Surface Water Supply Area buffer zone: _____ No

If the location is within a Rule 317B Surface Water Supply Area buffer have all public water supply systems within 15 miles been notified: _____

Is the Location within a Floodplain? No Yes Floodplain Data Sources Reviewed (check all that apply)

Federal (FEMA)

State

County

Local

Other _____

GROUNDWATER BASELINE SAMPLING AND MONITORING AND WATER WELL SAMPLING

Water well sampling required per Rule _____ 609

WILDLIFE

This location is included in a Wildlife Mitigation Plan

This location was subject to a pre-consultation meeting with CPW held on 04/27/2017

Operator Proposed Wildlife BMPs

No BMP

DESIGNATED SETBACK LOCATION EXCEPTIONS

Check all that apply:

- Rule 604.a.(1)A. Exception Zone (within 500' of a Building Unit) and is in an Urban Mitigation Area
- Rule 604.b.(1)A. Exception Location (existing or approved Oil & Gas Location now within a Designated Setback as a result of Rule 604.a.)
- Rule 604.b.(1)B. Exception Location (existing or approved Oil & Gas Location is within a Designated Setback due to Building Unit construction after Location approval)
- Rule 604.b.(2) Exception Location (SUA or site-specific development plan executed on or before August 1, 2013)
- Rule 604.b.(3) Exception Location (Building Units constructed after August 1, 2013 within setback per an SUA or site-specific development plan)

LARGE UMA FACILITY EXCEPTIONS

- 305A.e.(1)A. Local Government has currently opted out of Rule 305A notification and consultation processes
- 305A.e.(1)B. Pre-existing agreement with Local Government (attach copy of relevant provisions to 2A per Rule 303.b.(3)K).
- 305A.e.(1)C. Approved site specific development plan (attach copy of relevant portions of the plan and approval by the Local Government to Form 2A per Rule 303.b.(3)K)
- 305A.e.(1)D. Large UMA Facility is within an oil and gas operations area (attach copy of relevant portions of the plan and approval by the Local Government to Form 2A per Rule 303.b.(3)K).

RULE 502.b VARIANCE REQUEST

- Rule 502.b. Variance Request from COGCC Rule or Spacing Order Number _____

ALL exceptions and variances require attached Request Letter(s). Refer to applicable rule for additional required attachments (e.g. waivers, certifications, SUAs).

OPERATOR COMMENTS AND SUBMITTAL

Comments

LUMA Pre-application Notice was sent to the Garfield County LGD on 1/11/2017 and to the Proximate LGDs (Town of Parachute and Battlement Mesa Community) on 3/15/2017. Pre-Application Notice / Buffer Zone Notice was sent to building unit owners within 1000' of the location on 3/30/2017, certification attached.

Ursa requests approval of a Rule 604.a.(1) A. exception location. Exception location waivers and request letter are attached.

Ursa has requested that COGCC withhold decision on approvals of the Form 2A and associated Form 2's for this pad location until the time the Local Government permitting process has reached resolution, therefore providing agreement as to the siting of the pad location as required by Rule 305A. If the technical review has been completed by COGCC staff prior to obtaining local government approval, Ursa will request that the permits be put in an "On Hold" status until the Garfield County process has concluded. As the Garfield County permitting process has been initiated and is moving forward, Ursa does not anticipate the need for mediation nor a Commission hearing to make a determination on these applications. Work on this location will not commence until permits are received from both the Local Government and the COGCC.

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

Signed: _____ Date: 06/08/2017 Email: cmascioli@ursaresources.com

Print Name: CARI MASCIOLI Title: REGULATORY TECH

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: _____ Director of COGCC Date: _____

Conditions Of Approval

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.

COA Type

Description

<u>COA Type</u>	<u>Description</u>

Best Management Practices

No	BMP/COA Type	Description
1	Planning	<ul style="list-style-type: none"> • Ursa agrees and commits to a three year time frame which includes placing up to 24 natural gas wells into full production on the BMC A pad. This time frame will commence at the start of construction of a well pad. • Ursa conducts voluntary inspections and corrective actions of all locations at least monthly using a self-implemented checklist of key actions (including environmental) that require compliance with COGCC, Federal, and other state and county requirements. • Ursa will comply with CDPHE regulations regarding air permitting, compliance monitoring, inspections and reporting. All air sources will be assigned AIRS ID numbers by the CDPHE and tracked for compliance and reporting purposes. In addition, Ursa is required to track, monitor and report Greenhouse Gas (GHG) emissions to EPA annually. • Safety requirements and buffers as required by the COGCC 602, 603, and 606A and 606B Series Rules, among others, and the Office of Safety and Health Administration (OSHA) will be observed at all time. Daily safety briefings and Job Safety Assessments (JSA's) are routinely conducted in all phases of operations. In addition, Ursa employees a full-time safety manager to oversee all field contractors. • As part of the siting rationale and alternatives analysis, Ursa has developed a comprehensive fly-over tool allowing for view shed analysis from selected points of interest proximate to the pad location in an effort to better illustrate proposed operations impacts to the surrounding community. The fly-over tool for the BMC A pad can be accessed through this link: BMC A Pad – Production Phase: https://skfb.ly/6nX8S BMC A Pad – Drilling Phase: https://skfb.ly/6nWVr 604.c.(2)W. - Site specific measures • Ursa held a LUMA consultation site visit in February, 2017. The following BMPs have been adopted as a direct result of the LUMA consultation process and are included and site-specific mitigation measures: <p>Per request of Garfield County Vegetation Manager:</p> <ul style="list-style-type: none"> • Prior to delivery to site, equipment will be cleaned of soils and other materials remaining from previous construction sites. • Equipment and material handling will be done on established sites to reduce the area and extent of soil compaction. • Temporary disturbance will be kept to a minimum and will be in accordance with existing surface use agreements. • Ursa commits to use only weed free straw or mulch and weed-free wattles for sediment retention work. • Reclaimed areas will be stable and will be free from large rills and gullies, perceptible soil movement or head-cutting in drainages, slope instability on or adjacent to the reclaimed area • Cut slopes, fill slopes, soil stockpiles, and berms will be stabilized using appropriate reshaping and earthwork measures, including proper placement of soils and materials. • Topsoil will be salvaged from areas to be disturbed and managed for later use in reclamation. Topsoil stockpiles will be seeded to prevent erosion. • Ursa will provide advanced notice and community awareness to neighborhoods and meet with the neighborhood residents regarding schedule and activities, include local emergency response agencies (Fire/Police). (Operator may satisfy these public notification requirements through direct correspondence, Community Counts, publication in local newspapers, or through the Garfield County, Parachute, and Battlement Mesa Local Governmental Designees (LGDs)); • Ursa will post schedule changes at a location convenient to residents, as well as notifying local emergency response agencies (Fire/Police) of schedule changes; • notify all local emergency responders (Fire/Police) 7 days prior to mobilization in, rig up (MIRU); and • notify all homes within a ¼-mile radius 7 days prior to MIRU.

2	Community Outreach and Notification	<ul style="list-style-type: none"> • Ursa has a dedicated phone line to address complaints and responds 24 hours per day, 7 days a week. All complaints received by Ursa are documented, investigated, responded to immediately with appropriate corrective actions and communicated to the complainant, landowner, county LGD and appropriate state agency officials. Coordination with Kirby Wynn, Garfield County LGD, will be ongoing to ensure the effectiveness of our complaint management process. The following phone numbers and websites are available to the community members to report complaints: <ul style="list-style-type: none"> - Ursa complaint / 24 hr hotline: 970-620-2787 - Ursa emergency / 24 hotline: 855-625-9922 - Community Counts: 866-442-9034 - Garfield County (Kirby Wynn): 970-987-2557 - Colorado Oil & Gas Conservation Commission: http://cogcc.state.co.us/complaints.html#/complaints
3	Pre-Construction	<p>604.c.(2)N. - Control of fire hazards 604.c.(4)B.i. - Control of fire hazards</p> <ul style="list-style-type: none"> • All equipment will be grounded to prevent lightning strike hazards. Additionally, any material not in use that might constitute a fire hazard will be removed a minimum of 25 feet from the wellheads and production equipment. • Ursa will monitor wildfire potential daily during all construction, drilling, and completion operations at this Oil and Gas Location, and coordinate as necessary with the local fire department on Red Flag Days to ensure appropriate response to any fire emergencies.
4	Traffic control	<p>604.c.(2)D. - Traffic Plan / Emergency Response</p> <ul style="list-style-type: none"> • In consultation with Garfield County and the local emergency response agencies (Fire/police), Ursa has developed a site-specific Emergency Response Plan and Haul Route Map which is communicated to local emergency response agencies and stakeholders, as well as contractors performing work at the location. Prior to any oil and gas activities, including site construction, Ursa will update the site-specific Emergency Response Plan with current information; the plan will describe employee spill response and safety training, organizational structure, site specific response plan for spills and other emergency situations at this Oil and Gas Location, and preventative maintenance provisions. Operator will update the site specific plan annually and will be available to COGCC for review upon request. The preferred/primary haul route for this location is the Upper Route (I-70 exit 75). The Lower Route (I-70 exit 72) shall be a secondary route. • In consultation with Garfield County, Town of Parachute, Battlement Mesa Service Association, and emergency responders, Ursa will develop a traffic control plan which addresses all phases of activity at the site. The traffic control plan includes provisions describing: limiting site access; signage on local roads warning of increased truck traffic; flaggers and pilot vehicles; oil and gas related traffic restrictions (speed and routes); and coordination of heavy equipment movement and intense traffic periods to avoid peak times and school bus routes.
5	General Housekeeping	<ul style="list-style-type: none"> • Weeds will be managed in accordance COGCC Rule 1003.f. and 1004.e. as incorporated into Ursa's Noxious Weed plan; to include up to three treatments per year depending upon the species being managed and mapping as needed, throughout the life cycle of the location (construction – final reclamation). Additionally, Once construction begins, the Operator shall treat all List A, B, C noxious weeds within pad site perimeter and along access road according to Ursa's noxious weed management plan. This shall include up to three treatments annually by a licensed and certified herbicide applicator. <p>604.c.(2)P. - Removal of surface trash</p> <ul style="list-style-type: none"> • The location will be managed in accordance with COGCC 907 and 907A Rules, which are incorporated into Ursa's Waste Management Plan, which addresses both E&P and non-E&P waste, including those under the jurisdiction of the CDPHE and EPA. The plan, in combination with Ursa's Spill Prevention and Management Plan, minimizes the potential for any exploration and production wastes, chemicals, fluids, etc. from leaving the location, using BMPs including berms, barriers, and use of spill control materials.

6	Wildlife	<ul style="list-style-type: none"> • All separators/dehydrators and heater –treater equipment are outfitted with bird cones. • Ursa will operate in accordance with the Wildlife Mitigation Plan (signed with CPW in 2011) that allows for up to 15 well pads in the Battlement Mesa area (including within the PUD). Ursa has met with CPW to determine the appropriate BMP implementation and has completed all wildlife mitigation commitments required per the 2011 Wildlife Mitigation Plan in the Battlement Mesa area. • The Ursa BMC A, L and F Pad locations were provided to CPW and analyzed as part of the Antero (now Ursa) Battlement Mesa Wildlife Mitigation Plan (WMP). The terms and conditions agreed upon within the WMP document are still adequate to avoid, minimize, and mitigate any impacts to wildlife from the proposed actions. Agreed upon BMPs from the WMP document have been sent for inclusion as an attachment to the Form 2A permit and are listed below: <ol style="list-style-type: none"> 1. Closed loop (pitless) drilling systems. 2. Annual raptor and other bird surveys will be conducted in accordance with protocols provided by CPW. 3. Rig shift changes will take place when practical at 6am and 6pm and will utilize one (1) vehicle to minimize impacts to wildlife. 4. Development program is planned to include four phases as a means for mitigating wildlife impacts. These phases will be based on infrastructure construction schedules and will be coordinated with affected land owners, the Battlement Mesa Services Association (BMSA), local municipalities, Garfield County, COGCC, and CDPHE during the Comprehensive Drilling Plan and the Major Land Use Impact Review process. 5. Well pad location visits during the production phase of operations (post drilling and completion for all wells on a well pad location) will be restricted when/where possible to between the hours of 10am and 3pm to minimize impacts to wildlife unless operational concerns warrant pad visits outside this timeframe. 6. Buried water and gas pipelines will be utilized as means to reduce truck traffic and impacts to wildlife. 7. Restrict rig operation to no more than 2 rigs per section (or equivalent acreage) within the big-game seclusion areas during the winter. 8. Maintaining a ¼ mile no surface occupancy buffer around active bald eagle nests. 9. New pad construction not to exceed 3 acres of working surface. 10. Pad density not to exceed 1 pad per 160 acres. 11. Bury all gas and water pipelines adjacent to roads whenever possible. 12. A weed management plan will be developed and implemented to monitor and control noxious and invasive weeds. 13. Noxious weed control includes up to three treatments per year. 14. Existing weed infestations will be mapped prior to the development of each pad, access road and pipeline when practicable. 15. Antero (now Ursa) has completed all habitat restoration contributions contained within the WMP.
7	Material Handling and Spill Prevention	<p>604.c.(2)F. - Leak Detection Plan - Monitoring</p> <ul style="list-style-type: none"> • TANK MONITORING - Fluid Monitoring in tanks will be achieved through high level alarms installed in each tank with floating tank level gauges, including produced water tanks supporting injection operations. These gauges report remotely tank volumes via telemetry. This telemetry allows pumpers to have real time access to information and review levels on a daily basis. Pumpers also have the ability to program the wells to be shut in automatically in the event of pressure loss. Reference Ursa's Leak Detection and Flowline Management plan for specifics on inspections, testing, documentation, etc. • FLOWLINE TESTING / MONITORING - will be tested per COGCC 1100 regulations/1101 and 1102 guidance document updated February 25, 2016 and most recently May 2, 2017. <ul style="list-style-type: none"> - New flowlines will be pressure tested to manufactures recommended levels before put in to use. - Ursa will use SCADA to continuously monitor line pressures. Any fluctuations or drops in pressures that indicate a drop or rise in pressure will be closely monitored and will trigger immediate action including shutting in and scheduling repairs/replacements as necessary. <p>604.c.(2)F. - Leak Detection Plan - Maintenance</p> <ul style="list-style-type: none"> • MAINTENANCE - Corrective actions relating to the tanks or flowlines will have effected equipment repaired or replaced as necessary. If larger issues are identified, the repairs may require further attention and/or redesign.

604.c.(2)F. - Leak Detection Plan - Inspections

- TANK INSPECTIONS - will be formally inspected quarterly under the Spill Prevention Control and Countermeasures (SPCC) plan unless specific COAs warrant more frequent inspections. Ursa contractor performs regulatory required FLIR inspections with frequencies determined by throughput volumes. Tanks are also visually inspected daily by the lease operator (pumper) and contract water haulers, who have been trained on identifying corrective actions on tanks/flowlines. Reference Ursa's SPCC, Storage Tank Emissions Monitoring (STEM) and Leak Detection and Flowline Management Plans for inspection and location specifics.

- FLOWLINE INSPECTIONS - will be inspected per COGCC 1100 regulations/1101 and 1102 guidance document updated February 25, 2016 and most recent May 2, 2017.

- Daily site visits are made by lease operators (aka pumpers) to the well pad for maintenance issues including leaks and spill potential

- Periodic site inspections will be conducted by 3rd party environmental contractors to look for any signs of leaks and or potential leaks.

- FLIR surveys are used to identify any leaks coming from the flowlines on a regular basis.

- According to Ursa's STEM Management Plan onsite inspections will also be conducted to check for leaks.

- New flowlines will be pressure tested to manufacturer's recommended levels before put in to use.

- Ursa will use SCADA to continuously monitor line pressures. Any fluctuations or drops in pressures that indicate a drop or rise in pressure will be closely monitored and will trigger immediate action including shutting in and scheduling repairs/replacements as necessary.

- Ursa will conduct daily visual inspections of equipment for leaks and equipment problems from start of construction through 14 days after date of first production. All equipment deficiencies will be corrected immediately or as soon as practical (all identified problems and corrections/repairs will be documented and records will be maintained in the operator's office). Timely inspections will continue during the production phase (see previous BMP).

604.c.(4)B.ii. - Leak Detection, repair, reporting and record keeping

- Spill prevention and response are addressed in Ursa's Spill Prevention and Management Plan which includes training of employees and contractor personnel on at least an annual basis. Spill response includes notifications, reporting, response actions, remediation and corrective actions. The spill criteria in Ursa's plan requires that waste be properly classified as E&P or non-E&P wastes. For E&P waste, all spills greater than 1 barrel (outside containment) or greater than 5 barrels (inside containment) will be reported to the COGCC using a Form 19. Should remediation be required, a Form 27 will be submitted as well. Spills related to non-E&P waste will be managed in accordance with CDPHE and EPA regulations depending on the volume spilled. As a BMP, Ursa tracks and cleans up all spills, including those that are not reportable.

- Operator shall comply with the CDPHE regulations and air quality permit conditions for emission controls considering technically and economically feasible BMPs. All facilities onsite shall be subjected to an instrument-based leak detection and repair (LDAR) inspection at least monthly during drilling and completion and quarterly during production. If a leak over 10,000 ppm hydrocarbons is discovered, the first attempt to repair the leak shall be made as soon as reasonably possible and in accordance with state law.

- High level alarms will be installed on production tanks and injection tanks.

- Appropriate heavy equipment (e.g., a backhoe, front end loader) will be staged at the location during all drilling and completion operations so that any emergency diversions or pits to contain spills can be built immediately upon discovery; or to quickly build additional earthen berms in the event of a spill outside of containment.

- All Ursa and contractor personnel working at the location during drilling and completion operations will be trained on COGCC requirements for spill response and reporting (documentation of this training will be maintained in the operator's office/onsite trailer). Ursa will hold and document weekly meetings during drilling and completion operations to refresh all personnel onsite regarding response and reporting requirements and staff responsibilities during spill events.

- Ursa's spill response trailer will be on location 24 hours a day, 7 days a week during construction, drilling, and completion operations to facilitate a timely response to any spills that may occur. If the spill response trailer is not onsite, it will be available within

		<p>15 minutes during production operations.</p> <ul style="list-style-type: none"> • UIC - Operator will perform SPCC inspections combined with the pumper's daily inspections to monitor tanks and secondary containment capacity. Operator will temporarily shut in all production wells on the pad in the event of any upset condition.
8	Dust control	<p>604.c.(2)S. - Access roads</p> <ul style="list-style-type: none"> • The pad and access road will be graveled to reduce fugitive dust and maintained as required by COGCC rules through all phase of operations. In addition, Operator will have water trucks onsite for dust abatement during construction. Water and other dust suppressants are used as required, dependent upon the level of activity, moisture conditions, etc. throughout all phases of operations. Ursa commits to ensuring truckloads of dirt, sand, aggregate materials, drilling cuttings, and similar materials are covered to reduce dust and PM emissions during transport. The access road will be constructed and maintained to prevent sediment migration from the access road to nearby surface water or any drainages or ditches leading to surface water. • Remote monitoring and telemetry will be used to optimize truck trips and reduce resultant fugitive dust to the extent practical.
9	Construction	<ul style="list-style-type: none"> • A truck loading and metering system that allows loading without opening thief hatches will be installed, pursuant to COGCC Rule 604.c.(4).B.v. • Ursa will utilize only welded connections for all buried flowlines. Ursa will bed and partially backfill flowlines on the pad with non-native backfill to eliminate the corrosive soil concern. • Ursa will provide temporary engineering controls to prevent uncontrolled public access during drilling and completion activities. Site security will be maintained during production. • Ursa will use electric grid power or solar power to power all permanent Production Facilities and pumps on this Oil and Gas Location. • The construction of the BMC A Pad shall be limited to the hours of 7:00AM to 7:00PM, with the exception of emergencies and episodic events beyond Ursa's control. <p>604.c.(2)E.i. - Multi-well Pads 604.c.(2)V. - Development from existing well pads</p> <ul style="list-style-type: none"> • Drilling multiple wells from the BMC A pad location using directional drilling will be implemented to minimize the need for additional well pads; reducing potential environmental impacts including habitat loss and fragmentation, noise, traffic concerns, and related impacts to air, land and water. The initial plan by Antero consisted of 14 well pads to access the minerals beneath the BM PUD which will now be accessed by consolidating the wells on 4-5 total pads within the BM PUD, including the BMC A Pad. • Access road will be maintained as an all-weather access route for operator and emergency response. Accumulations of snow that prevent or limit access to the location will be removed within 24 hours or as soon as conditions allow after a weather event. The road will be timely maintained to prevent ruts, potholes and other damage. <p>604.c.(2)G. - Berm construction (Buffer Zone) 604.c.(3)B.i.-iv. - Berm construction (Exception Zone)</p> <ul style="list-style-type: none"> • All containment is constructed of steel rings with an engineered impervious liner and are sized to hold 150% of the volume of the largest single tank in the secondary containment, including produced water tanks supporting injection operations. No more than 2 condensate tanks will be located within a single berm. The main sediment/stormwater trap will act as tertiary containment in the event of a catastrophic spill that escapes primary containment, secondary containment and travels across the entire pad and enters into our stormwater controls. Ursa will install electronic level monitoring within the secondary containment for production facilities that will shut in all of the wells on the pad and any produced water pipelines leading to or leaving from the well pad to prevent an upset tank release from overflowing the containment device. <p>604.c.(2)R. - Tank specifications</p> <ul style="list-style-type: none"> • 14 604.c.(2)R. - Tank specifications - All production tanks and tanks used for completions activities will be installed, labeled, contained, operated, and decommissioned in accordance with NFPA Code 30 (2008 Revision) and Ursa's SPCC/Containment Plan, which is required by EPA regulations (40 CFR 112). The plan, in combination with Ursa's Spill Prevention and Management plan, addresses COGCC 600 and 900 Series Rules, among others, regarding the management of tanks. Records will be maintained in accordance with Rule 604.c.(2)R. <p>604.c.(4)B.iii. - Automated well shut-in control</p> <ul style="list-style-type: none"> • All wells on the BMC A pad will be equipped with remote monitoring / telemetry

		<p>system setup to allow for automated shut-in controls in the event of an emergency. Ursa will equip all condensate and produced water storage tanks with an electronic level monitoring device that automatically shuts in all wells on the pad to prevent overflowing or during an upset condition, such as a leak or a fire. Produced water pipelines will be manned at all times while in operation. In the event of an upset condition, all pumps will be shut down immediately by trained personnel onsite.</p> <ul style="list-style-type: none"> • UIC - Ursa will utilize suitable containment devices for all required chemicals, hazardous materials, and injection equipment (pumps) used onsite during the operation of the injection well. • UIC - Ursa will equip all produced water storage tanks associated with the injection well with an electronic level monitoring device that automatically shuts in all flow to the injection tanks to prevent overflowing or during an upset condition, such as a leak or a fire. Produced water pipelines coming from other well pads will be manned and monitored at all times while fluid is flowing through them or the pipelines will be equipped with automatic shut down capability. In the event of an upset condition, all pumps will be shut down immediately by trained personnel onsite. • UIC - Ursa will construct the secondary containment for the injection well tanks to have a capacity of 150 percent of the largest tank in the containment area. The construction and lining of the secondary containment structures/areas shall be installed according to API standards and manufacturer's specifications.
10	Noise mitigation	<ul style="list-style-type: none"> • In order to evaluate ambient/baseline noise levels at the BMC "A" Pad, operator will conduct a minimum 72 hour baseline noise survey from a minimum of three points prior to the commencement of construction. • Operator will perform continuous sound monitoring surveys during construction, drilling, and completion activities with data collection instruments placed as mutually agreed to with the Garfield County LGD and COGCC and will be located to between the Oil and Gas Location and the residential Building Units. Ursa will have a documented process for responding to sound levels that exceed COGCC sound limits and must provide continuous sound monitoring data to COGCC on tables or graphs within 48 hours of COGCC's request. Ursa will have a documented process for managing data collection instrumentation in intermittent or occasional events of downtime outside the Operator's Control. • Volume of the sound generated: Every use shall be so operated that the volume of sound inherently and recurrently generated does not exceed 70 dB(A) from 7:00 AM to 7:00 PM and 65 dB(A) from 7:00 PM to 7:00 AM, measured 350 feet from the edge of the pad. As set forth in COGCC Regulation 802(b), the noise levels shall be subject to an increase by 10 dB(A) for a period not to exceed 15 minutes in any one (1) hour period and cannot exceed 65 dB(A) for shrill or periodic impulsive noise. Complaint protocols shall be governed by COGCC Rule 802(c). <p>604.c.(2)A. - Noise</p> <ul style="list-style-type: none"> • Lighting, noise, odors, dust and related nuisances are managed in accordance with COGCC 600 and 802, 803, 804 and 805 Series Rules, and in accordance with Ursa policies, procedures and checklists. Additional noise monitoring above and beyond COGCC regulations may be conducted by Ursa on a voluntary basis. If conditions warrant further mitigation at the time of operations, Ursa will request approval as necessary from the COGCC to implement additional measures.
11	Odor mitigation	<p>604.c.(2)C. - Green Completions – Emission Control Systems</p> <ul style="list-style-type: none"> • Combustor controls will be used to mitigate odors from production tanks. Ursa will perform inspections at minimum on a monthly basis to ensure potential emissions sources are properly managed. In addition, Ursa's pumper crew inspects each location on a daily basis. Emission control devices (including the most current VOC destruction and capture technology) will be installed on all permanent condensate/oil and produced water storage tanks, regardless of the potential to emit. • Combustor controls will be used to mitigate odors from production tanks. Ursa will perform inspections at minimum on a monthly basis to ensure potential emissions sources are properly managed. In addition, Ursa's pumper crew inspects each location on a daily basis. Emission control devices (including the most current VOC destruction and capture technology) will be installed on all permanent condensate/oil and produced water storage tanks, regardless of the potential to emit. • Air quality and odor control equipment used during flowback operations will be utilized until the flow rate from all wells is within the design parameters of the permanent/long term separation equipment. Following removal of flowback air quality and odor control equipment, the permanent/long term separation equipment will not be bypassed during production operations.

<p>12 Drilling/Completion Operations</p>	<ul style="list-style-type: none"> • All lighting, except as demonstrated for safety reasons, shall be directed inward and downward and be shaded in order to prevent direct reflection on adjacent property and residences in the area. LED lights will be used when possible and practical. Workers will be advised when moving light plants to ensure that the light is focused directly on the work being done. Most lighting will be below the sound wall. Drilling mast lighting that is above the sound wall will be downcast and/or shielded to reduce fugitive light outside sound wall and well pad. Safety considerations will take precedence. • Well completion activity shall be limited to occurring between 7:00AM and 7:00PM. Once the wells are in production, vehicle trips to the pad shall be limited to the hours of 7:00AM to 7:00PM, with the exception of emergencies and episodic events beyond Ursa's control. • Well completion activity shall be limited to occurring between 7:00AM and 7:00PM. Once the wells are in production, vehicle trips to the pad shall be limited to the hours of 7:00AM to 7:00PM, with the exception of emergencies and episodic events beyond Ursa's control. • Well completion activity shall be limited to occurring between 7:00AM and 7:00PM. Once the wells are in production, vehicle trips to the pad shall be limited to the hours of 7:00AM to 7:00PM, with the exception of emergencies and episodic events beyond Ursa's control. <p>604.c.(2)B.i. - Closed Loop Drilling Systems – Pit Restrictions</p> <ul style="list-style-type: none"> • A closed-loop (pitless) drilling system will be used. No diesel/oil-based drilling mud (OBM) or high chloride/TDS-based drilling mud (salt-SBM) will be used at this Oil and Gas Location. The moisture content of water/bentonite-based mud (WBM) generated cuttings managed onsite will be kept as low as practicable to prevent accumulation of liquids greater than de minimis amounts as indicated on the Form 2A. <p>604.c.(2)B.ii-v. - Closed Loop Drilling Systems – Pit Restrictions</p> <ul style="list-style-type: none"> • No stimulation, flowback or fresh water storage pits will be constructed for the BMC A pad location. <p>604.c.(2)C.i. - Green Completions – Emission Control Systems</p> <ul style="list-style-type: none"> • Green completions will be used for this well. Salable quality gas will be immediately routed to the sales line or shut in and conserved. <p>604.c.(2)C.ii. - Green Completions – Emission Control Systems</p> <p>604.c.(4)B.iv. - Venting</p> <ul style="list-style-type: none"> • Ursa commits to zero venting / flaring of gas upon completion and flowback of these wells except during upset or emergency conditions only. If plans change and venting / flaring during completion and flowback operations becomes necessary, Ursa will obtain COGCC approval prior to venting / flaring when required in accordance with the Venting / Flaring NTO Policy and Rule 912.a. Ursa will have production facilities and pipelines, including the natural gas sales line, in place prior to flowing back oil or gas from any wells on the pad. Wells will be shut in at "gas cut" if sales line is not yet available. <p>604.c.(2)C.iii.aa. - Green Completions – Emission Control Systems</p> <ul style="list-style-type: none"> • Flowback equipment is sized to accommodate a minimum of 1.5 times the largest flowback volume of gas experienced in a ten (10) mile radius. <p>604.c.(2)C.iii.bb. - Green Completions – Emission Control Systems</p> <ul style="list-style-type: none"> • Flowback tanks will employ valves and porting available to divert gas to temporary equipment or to permanent flaring and oxidizing equipment. Open flares will not be used during flowback operations. Flowback and stimulation fluids will be sent to a closed system capable of containing and managing vapors, fumes, or gases under pressure. Open top tanks will not be used to capture, contain, or store flowback fluid. Flowback fluid containment and storage vessels will be located in an area sufficiently impervious to prevent migration of any spilled or released material into groundwater. <p>604.c.(2)C.iii.cc. - Green Completions – Emission Control Systems</p> <ul style="list-style-type: none"> • Flowback tanks will be equipped with auxiliary fuel with sufficient supply and heat to sustain combustion or oxidation of the gas mixture when the mixture includes non-combustible gases. <p>604.c.(2)H.ii. - Blowout preventer equipment ("BOPE")</p> <ul style="list-style-type: none"> • BOPE will meet minimum requirements per Rule 604.c.(2)H.ii. The person with Well Control Certification or Director approved training present during drilling will be identified using the sign-in sheet and training certifications will be available upon request by COGCC. <p>604.c.(2)I. - BOPE testing for drilling operations</p> <ul style="list-style-type: none"> • BOPE testing will be completed in accordance with Rule 604.c.(2)I. <p>604.c.(2)J.i. - BOPE for well servicing operations</p> <ul style="list-style-type: none"> • Adequate blowout prevention equipment will be used on all well servicing operations. This prevention equipment will be rated to pressures of 5000 psi.
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		<p>604.c.(2)J.ii. - BOPE for well servicing operations</p> <ul style="list-style-type: none"> • Backup stabbing valves will be used on well servicing operations during reverse circulation. Valves will be pressure tested in accordance with Rule 604.c.(2)J.ii prior to being put into use. Ursa will keep valve pressure testing results on file for a minimum of one year and provide test results to COGCC upon request. <p>604.c.(2)K. - Pit level indicators</p> <ul style="list-style-type: none"> • Tank level indicators will be installed on all tanks associated with the drilling rig. No stimulation, flowback or freshwater storage pits will be constructed. <p>604.c.(2)L. - Drill stem tests</p> <ul style="list-style-type: none"> • Ursa does not plan to conduct drill stem tests. If plans change and drill stem tests are required, Ursa will notify COGCC via Form 4 prior to completing the test. <p>604.c.(2)O. - Loadlines</p> <ul style="list-style-type: none"> • All loadlines will be capped. The loadline ports will be located inside of the tank containment berms and will have sumps in place in the event of small drips or spills. <p>604.c.(4)B.vi. - Proppant</p> <ul style="list-style-type: none"> • Ursa plans to utilize "proppant-less" fracture stimulation. Should Ursa plans change to utilize silica proppant during completion of wells on the BMC A pad, silica proppant shall be utilized only with silica dust controls including dustless silos, sand boxes, or equivalent vacuum technology. Ursa will notify COGCC via Form 4 prior to using or changing proppant materials. • In order to minimize surface disturbance and community impact in the Battlement Mesa area, Ursa plans to utilize the following locations for the temporary staging of frac tanks to support completion operations on this location: B&V, BMC A, BMC B, BMC D, BMC L, Monument Ridge B, Monument Ridge, Speakman A, Tompkins, Watson Ranch, Watson Ranch B and Yater. • Open top tanks will not be utilized for storage of any fluids other than freshwater and water based drilling fluids.
13	Final Reclamation	<p>604.c.(2)T. - Well site cleared</p> <ul style="list-style-type: none"> • Within 90 days of plugging and abandonment, the well site will be cleared of all non-essential equipment, trash, and debris. The landscaping will remain at the discretion of the landowner, subject to COGCC Reclamation Unit variance requirements. <p>604.c.(2)U. - Identification of plugged and abandoned wells</p> <ul style="list-style-type: none"> • Upon plugging and abandonment, the location of the wellbore will be marked per Rule 319.a.(5)

Total: 13 comment(s)

Attachment Check List

<u>Att Doc Num</u>	<u>Name</u>
401234964	FORM 2A SUBMITTED
401302614	EQUIPMENT LIST
401302616	LOCATION DRAWING
401302619	HYDROLOGY MAP
401302620	ACCESS ROAD MAP
401302621	NRCS MAP UNIT DESC
401302622	CONST. LAYOUT DRAWINGS
401302627	FACILITY LAYOUT DRAWING
401302633	MULTI-WELL PLAN
401302637	SITING RATIONALE
401302652	LOCATION PICTURES
401302664	PRE-APPLICATION NOTIFICATION CERTIFICATION
401302675	RULE 305A CERTIFICATION OF COMPLIANCE
401302926	EXCEPTION LOC WAIVERS
401302987	EXCEPTION LOC REQUEST
401318365	SURFACE AGRMT/SURETY
401318415	REFERENCE AREA PICTURES
401318416	REFERENCE AREA MAP
401332294	OTHER
401334683	PROPOSED BMPS
401339980	WASTE MANAGEMENT PLAN
401339981	OTHER
401339988	OTHER

Total Attach: 23 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)

Public Comments

No public comments were received on this application during the comment period.

