

FORM  
2

Rev  
08/16

## 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:

401265869

Date Received:

06/09/2017

#### APPLICATION FOR PERMIT TO:

☒ Drill ☐ Deepen ☐ Re-enter ☐ Recomplete and Operate

TYPE OF WELL OIL ☐ GAS ☒ COALBED ☐ OTHER \_\_\_\_\_

Refilling ☐

ZONE TYPE SINGLE ZONE ☒ MULTIPLE ZONES ☐ COMMINGLE ZONES ☐

Sidetrack ☐

Well Name: BMC L

Well Number: 14D-08-07-95

Name of Operator: URSA OPERATING COMPANY LLC

COGCC Operator Number: 10447

Address: 792 BUCKHORN DR

City: RIFLE State: CO Zip: 81650

Contact Name: CARI MASCIOLI

Phone: (970)284-3244

Fax: ( )

Email: cmascioli@ursaresources.com

#### RECLAMATION FINANCIAL ASSURANCE

Plugging and Abandonment Bond Surety ID: 20120125

#### WELL LOCATION INFORMATION

QtrQtr: SENW Sec: 8 Twp: 7S Rng: 95W Meridian: 6

Latitude: 39.453326

Longitude: -108.023931

Footage at Surface: 2262 Feet FNL/FSL FNL 1900 Feet FEL/FWL FWL

Field Name: PARACHUTE

Field Number: 67350

Ground Elevation: 5436

County: GARFIELD

GPS Data:

Date of Measurement: 05/01/2017 PDOP Reading: 1.1 Instrument Operator's Name: HOFFMANN

If well is ☒ Directional ☐ Horizontal (highly deviated) **submit deviated drilling plan.**

Footage at Top of Prod Zone: FNL/FSL FNL/FWL Bottom Hole: FNL/FSL FEL/FWL  
290 FSL 654 FWL 290 FSL 654 FWL  
Sec: 8 Twp: 7S Rng: 95W Sec: 8 Twp: 7S Rng: 95W

#### LOCATION SURFACE & MINERALS & RIGHT TO CONSTRUCT

Surface Ownership: ☒ Fee ☐ State ☐ Federal ☐ Indian

The Surface Owner is: ☒ is the mineral owner beneath the location.

(check all that apply)

☒ 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 by this Well: No

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

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

## LEASE INFORMATION

Using standard QtrQtr, Sec, Twp, Rng format, describe one entire mineral lease that will be produced by this well (Describe lease beneath surface location if produced. Attach separate description page or map if necessary.)

PLEASE SEE ATTACHED LEASE MAP.

Total Acres in Described Lease: 121 Described Mineral Lease is: ☒ Fee ☐ State ☐ Federal ☐ Indian

Federal or State Lease # \_\_\_\_\_

Distance from Completed Portion of Wellbore to Nearest Lease Line of described lease: 290 Feet

## CULTURAL DISTANCE INFORMATION

Distance to nearest:

Building: 1019 Feet  
Building Unit: 1026 Feet  
High Occupancy Building Unit: 3181 Feet  
Designated Outside Activity Area: 5280 Feet  
Public Road: 470 Feet  
Above Ground Utility: 230 Feet  
Railroad: 5280 Feet  
Property Line: 470 Feet

### INSTRUCTIONS:

- All measurements shall be provided from center of the Proposed Well to nearest of each cultural feature as described in Rule 303.a.(5).
- 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.

## DESIGNATED SETBACK LOCATION INFORMATION

Check all that apply. This location is within a: ☐ Buffer Zone  
☐ Exception Zone  
☐ Urban Mitigation Area

- 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.

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: \_\_\_\_\_

Date of Rule 305.a.(2) Buffer Zone Notification to Building Unit Owners: \_\_\_\_\_

## SPACING and UNIT INFORMATION

Distance from completed portion of proposed wellbore to nearest completed portion of offset wellbore permitted or completed in the same formation: 330 Feet

Distance from Completed Portion of Wellbore to Nearest Unit Boundary 290 Feet (Enter 5280 for distance greater than 1 mile.)

Federal or State Unit Name (if appl): \_\_\_\_\_ Unit Number: \_\_\_\_\_

## SPACING & FORMATIONS COMMENTS

## OBJECTIVE FORMATIONS

Objective Formation(s)	Formation Code	Spacing Order Number(s)	Unit Acreage Assigned to Well	Unit Configuration (N/2, SE/4, etc.)
WILLIAMS FORK	WMFK	440-59	320	S2-Sec 8

## DRILLING PROGRAM

Proposed Total Measured Depth: 7997 Feet

Distance from the proposed wellbore to nearest existing or proposed wellbore belonging to another operator, including plugged wells:

Enter distance if less than or equal to 1,500 feet: \_\_\_\_\_ Feet ☒ No well belonging to another operator within 1,500 feet

Will a closed-loop drilling system be used? Yes

Is H<sub>2</sub>S gas reasonably expected to be encountered during drilling operations at concentrations greater than or equal to 100 ppm? No (If Yes, attach an H<sub>2</sub>S Drilling Operations Plan)

Will salt sections be encountered during drilling? No

Will salt based (>15,000 ppm Cl) drilling fluids be used? No

Will oil based drilling fluids be used? No

BOP Equipment Type: ☐ Annular Preventor ☐ Double Ram ☒ Rotating Head ☐ None

## GROUNDWATER BASELINE SAMPLING AND MONITORING AND WATER WELL SAMPLING

Water well sampling required per Rule 609

## DRILLING WASTE MANAGEMENT PROGRAM

Drilling Fluids Disposal: OFFSITE Drilling Fluids Disposal Methods: Recycle/reuse

Cuttings Disposal: OFFSITE Cuttings Disposal Method: Beneficial reuse

Other Disposal Description:

PLEASE SEE WASTE MANAGEMENT PLAN ATTACHED TO FORM 2A.

Beneficial reuse or land application plan submitted? \_\_\_\_\_

Reuse Facility ID: \_\_\_\_\_ or Document Number: \_\_\_\_\_

## CASING PROGRAM

Casing Type	Size of Hole	Size of Casing	Wt/Ft	Csg/Liner Top	Setting Depth	Sacks Cmt	Cmt Btm	Cmt Top
CONDUCTOR	24	16	75	0	60	111	60	0
SURF	12+1/4	8+5/8	32	0	1972	393	1972	0
1ST	7+7/8	4+1/2	11.6	0	7997	576	7997	

☐ Conductor Casing is NOT planned

## DESIGNATED SETBACK LOCATION EXCEPTIONS

Check all that apply:

- ☐ Rule 604.a.(1)A. Exception Zone (within 500' of Building Unit)
- ☐ 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)

## GREATER WATTENBERG AREA LOCATION EXCEPTIONS

Check all that apply:

- ☐ Rule 318A.a. Exception Location (GWA Windows).
- ☐ Rule 318A.c. Exception Location (GWA Twinning).

## RULE 502.b VARIANCE REQUEST

☐ Rule 502.b. Variance Request from COGCC Rule or Spacing Order Number \_\_\_\_\_

## OTHER LOCATION EXCEPTIONS

Check all that apply:

- ☐ Rule 318.c. Exception Location from Rule or Spacing Order Number \_\_\_\_\_
- ☐ Rule 603.a.(2) Exception Location (Property Line Setback).

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

Distance to nearest well completed in the same formation / permitted or existing well penetrating objective formation was measured to Ursa's proposed BMC L 14C-08-07-95. Distance to nearest well completed in the same formation / permitted or existing well belonging to another operator was measured at 2920' to the TEP's T & T and Assoc. LTD PA 442-7 (API #05-045-20159).

This pad location does not meet LUMA criteria, nor does the location fall within a designated setback area. However, due to the sensitive nature of the area, Ursa has voluntarily proposed Rule 604 mitigation measures as a BMP.

This application is in a Comprehensive Drilling Plan \_\_\_\_\_ CDP #: \_\_\_\_\_

Location ID: \_\_\_\_\_

Is this application being submitted with an Oil and Gas Location Assessment application? \_\_\_\_\_ Yes

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

Signed: \_\_\_\_\_ Print Name: CARI MASCIOLI

Title: REGULATORY TECH Date: 6/9/2017 Email: cmascioli@ursaresources.com

Operator must have a valid water right or permit allowing for industrial use or purchased water from a seller that has a valid water right or permit allowing for industrial use, otherwise an application for a change in type of use is required under Colorado law. Operator must also use the water in the location set forth in the water right decree or well permit, otherwise an application for a change in place of use is required under Colorado law. Section 37-92-103(5), C.R.S. (2011).

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: 12/29/2017

Expiration Date: 12/28/2019

API NUMBER

05 045 23832 00

## **Conditions Of Approval**

All representations, stipulations and conditions of approval stated in the Form 2A for this location shall constitute representations, stipulations and conditions of approval for this Form 2 Permit-to-Drill and are enforceable to the same extent as all other representations, stipulations and conditions of approval stated in this Permit-to-Drill.

### **COA Type**

### **Description**

	<p>1) Operator shall comply with the most current revision of the Northwest Notification Policy.</p> <p>2) Operator shall comply with the most current revision of the Garfield County Rulison Field Notice to Operators, with the following exception: All field notice requirements specified in that Notice to Operators are superseded by the requirements of the most current revision of the Northwest Colorado Notification Policy (see Condition of Approval #1).</p> <p>3) Operator shall provide cement coverage from the production casing shoe (4+1/2" First String) to a minimum of 650' above the Mesaverde Group to provide isolation of the Lower Wasatch, all Mesaverde Group formations including the Ohio Creek Formation, and underlying formations, if penetrated. Verify production casing cement coverage with a cement bond log.</p>
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## **Best Management Practices**

No	BMP/COA Type	Description
1	Planning	<ul style="list-style-type: none"> <li>• Ursa agrees and commits to a three year time frame which includes placing up to 31 natural gas wells into full production on the BMC L pad. This time frame will commence at the start of construction of a well pad.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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 employs a full-time safety manager to oversee all field contractors.</li> <li>• As part of the siting rationale and alternatives analysis, Ursa has developed a comprehensive fly-over tool allowing for viewshed 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 L pad can be accessed through this link: BMC L Pad – Production Phase: BMC L Pad – Drilling Phase: 604.c.(2)W. - Site specific measures</li> <li>• 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:</li> </ul> <ul style="list-style-type: none"> <li>• Rule 604 BMPs included for the BMC L pad are voluntary as the proposed pad location no longer meets LUMA criteria.</li> <li>• BMC L pad location shifted north ~115' from onsited location in order to maintain &gt;1000' setbacks from residential subdivision to the north and church to the west of the pad location at the request of Garfield County and COGCC staff.</li> <li>• Production tanks have been relocated to the north side of the pad per request of the CDPHE staff.</li> </ul> <p>Per request of Garfield County Vegetation Manager:</p> <ul style="list-style-type: none"> <li>• Prior to delivery to site, equipment will be cleaned of soils and other materials remaining from previous construction sites.</li> <li>• Equipment and material handling will be done on established sites to reduce the area and extent of soil compaction.</li> <li>• Temporary disturbance will be kept to a minimum and will be in accordance with existing surface use agreements.</li> <li>• Ursa commits to use only weed free straw or mulch and weed-free wattles for sediment retention work.</li> <li>• 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</li> <li>• Slopes will be stabilized using appropriate reshaping and earthwork measures, including proper placement of soils and materials.</li> <li>• Topsoil will be salvaged from areas to be disturbed and managed for later use in reclamation. Topsoil stockpiles will be seeded to prevent erosion.</li> </ul>

2	Community Outreach and Notification	<ul style="list-style-type: none"> <li>• 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"> <li>- Ursa complaint / 24 hr hotline: 970-620-2787</li> <li>- Ursa emergency / 24 hotline: 855-625-9922</li> <li>- Community Counts: 866-442-9034</li> <li>- Garfield County (Kirby Wynn): 970-987-2557</li> <li>- Colorado Oil &amp; Gas Conservation Commission: <a href="http://cogcc.state.co.us/complaints.html#/complaints">http://cogcc.state.co.us/complaints.html#/complaints</a></li> </ul> </li> </ul>
3	Pre-Construction	604.c.(2)N. - Control of fire hazards 604.c.(4)B.i. - Control of fire hazards <ul style="list-style-type: none"> <li>• 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.</li> </ul>
4	Traffic control	604.c.(2)D. - Traffic Plan <ul style="list-style-type: none"> <li>• 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. 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.</li> </ul>
5	General Housekeeping	<ul style="list-style-type: none"> <li>• 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.</li> </ul> 604.c.(2)P. - Removal of surface trash <ul style="list-style-type: none"> <li>• 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&amp;P and non-E&amp;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.</li> </ul>

6	Wildlife	<ul style="list-style-type: none"> <li>• All separators/dehydrators and heater –treater equipment are outfitted with bird cones.</li> <li>• 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.</li> </ul> <p>306.c.(1).A.i. - CPW Wildlife Consultation</p> <ul style="list-style-type: none"> <li>• 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:</li> </ul> <ol style="list-style-type: none"> <li>1. Closed loop (pitless) drilling systems.</li> <li>2. Annual raptor and other bird surveys will be conducted in accordance with protocols provided by CPW.</li> <li>3. Rig shift changes will take place when practical at 6am and 6pm and will utilize one (1) vehicle to minimize impacts to wildlife.</li> <li>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.</li> <li>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.</li> <li>6. Buried water and gas pipelines will be utilized as means to reduce truck traffic and impacts to wildlife.</li> <li>7. Restrict rig operation to no more than 2 rigs per section (or equivalent acreage) within the big-game seclusion areas during the winter.</li> <li>8. Maintaining a ¼ mile no surface occupancy buffer around active bald eagle nests.</li> <li>9. New pad construction not to exceed 3 acres of working surface.</li> <li>10. Pad density not to exceed 1 pad per 160 acres.</li> <li>11. Bury all gas and water pipelines adjacent to roads whenever possible.</li> <li>12. A weed management plan will be developed and implemented to monitor and control noxious and invasive weeds.</li> <li>13. Noxious weed control includes up to three treatments per year.</li> <li>14. Existing weed infestations will be mapped prior to the development of each pad, access road and pipeline when practicable.</li> <li>15. Antero (now Ursa) has completed all habitat restoration contributions contained within the WMP.</li> </ol>	
7	Material Handling and Spill Prevention	<p>604.c.(2)F. - Leak Detection Plan - Monitoring</p> <ul style="list-style-type: none"> <li>• TANK MONITORING - Fluid Monitoring in tanks will be achieved through high level alarms installed in each tank with floating tank level gauges. 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.</li> <li>• FLOWLINE TESTING / MONITORING - will be tested per COGCC 1100 regulations/1101 and 1102 guidance document updated February 25, 201 and most recent May 2, 2017.</li> </ul> <ul style="list-style-type: none"> <li>- New flowlines will be pressure tested to manufactures recommended levels before put in to use.</li> <li>- 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.</li> </ul> <p>604.c.(2)F. - Leak Detection Plan - Maintenance</p> <ul style="list-style-type: none"> <li>• MAINTENANCE - Corrective actions relating to the tanks or flowlines will have effected equipment repaired or replaced as necessary. If larger issues are identified,</li> </ul>	



		<p>the repairs may require further attention and/or redesign.</p> <p>604.c.(2)F. - Leak Detection Plan - Inspections</p> <ul style="list-style-type: none"> <li>• TANK INSPECTIONS - will be formally inspected quarterly under the Spill Prevention Control and Countermeasures (SPCC) plan unless specific COAs warrant more frequent inspections. Ursa contracts Forward Looking Infrared (FLIR) inspections to HCSI. HCSI performs regulatory required FLIR inspections with frequencies determined by throughput volumes. Tanks are also 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.</li> <li>• FLOWLINE INSPECTIONS - will be inspected per COGCC 1100 regulations/1101 and 1102 guidance document updated February 25, 2016 and most recent May 2, 2017.</li> <li>- Daily site visits are made by lease operators (aka pumpers) to the well pad for maintenance issues including leaks and spill potential</li> <li>- Periodic site inspections will be conducted by 3rd party environmental contractors to look for any signs of leaks and or potential leaks.</li> <li>- FLIR surveys are used to identify any leaks coming from the flowlines on a regular basis.</li> <li>- According to Ursa's STEM Management Plan onsite inspections will also conducted to check for leaks.</li> <li>- New flowlines will be hydrotested to manufactures recommended levels before put in to use.</li> <li>- 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.</li> </ul> <p>604.c.(2)F. - Leak Detection Plan</p> <p>604.c.(4)B.ii. - Leak Detection, repair, reporting and record keeping</p> <ul style="list-style-type: none"> <li>• Spill prevention and response are addressed in Ursa's Spill Prevention and Management Plan which includes training of employees and contractor's 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&amp;P or non-E&amp;P wastes. For E&amp;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&amp;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.</li> <li>• 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.</li> <li>• High level alarms will be installed on production tanks.</li> </ul>
8	Dust control	<p>604.c.(2)S. - Access roads</p> <ul style="list-style-type: none"> <li>• The pad and access road will be graveled to reduce fugitive dust and maintained as required by COGCC rules. 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.</li> <li>• Remote monitoring and telemetry will be used to optimize truck trips and reduce resultant fugitive dust to the extent practical.</li> </ul>

9	Construction	<ul style="list-style-type: none"> <li>• The construction of the BMC L 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.</li> </ul> <p>604.c.(2)E.i. - Multi-well Pads</p> <p>604.c.(2)V. - Development from existing well pads</p> <ul style="list-style-type: none"> <li>• Drilling multiple wells from the BMC L 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. There are no existing Ursa pads nor available shared locations with other operators to access the targeted bottom hole locations. 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 5 total pads within the BM PUD, including the BMC L Pad.</li> </ul> <p>604.c.(2)E.ii. - Multi-well Pads</p> <ul style="list-style-type: none"> <li>• This pad is planned to be constructed to allow for the installation and removal of Ursa's proposed sound mitigation measures (i.e. sound walls) without disturbing the location or proposed landscaping.</li> </ul> <p>604.c.(2)E.iii. - Multi-well Pads</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul> <p>604.c.(2)G. - Berm construction (Buffer Zone)</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul> <p>604.c.(2)R. - Tank specifications</p> <ul style="list-style-type: none"> <li>• Ursa will utilize low profile tanks on this location (15.5' diameter x 9' height). 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.</li> </ul> <p>604.c.(4)B.iii. - Automated well shut-in control</p> <ul style="list-style-type: none"> <li>• All wells on the BMC L pad will be equipped with remote monitoring / telemetry system setup to allow for automated shut-in controls in the event of an emergency.</li> </ul> <p>604.c.(4)C.iii. - Visual Impacts</p> <ul style="list-style-type: none"> <li>• Ursa has a detailed landscape plan for the BMC L Pad which has been included for review by Garfield County as part of the special use permit. The plan includes mounding and a mix of native trees and shrubs that will assist in shielding well heads and production facilities from the surrounding properties. Above-ground facilities (e.g. production tanks) will be managed to minimize visual effects (e.g. painted to blend with environment). Please refer to the Alternatives Analysis - Supplemental Information document for additional detail.</li> </ul>
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10	Noise mitigation	<ul style="list-style-type: none"> <li>• 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).</li> </ul> <p>604.c.(2)A. - Noise</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul> <p>604.c.(4)C.i. - Noise</p> <ul style="list-style-type: none"> <li>• Sound walls will be installed per the site specific plan provided by a professional third party firm to include on-pad mitigation designed for specific equipment and orientation of said equipment to be used during drilling and completion operations. This includes a combination of 32' and 40' sound walls to surround the entire pad including and acoustic gate to close off the entrance of the pad. Sound barriers shall be included around the perimeter of the well pad and internal completions equipment. Additional sound walls closer to residential units shall be available upon mutual agreement between the Operator, landowner, and homeowner(s).</li> </ul>
11	Odor mitigation	<p>604.c.(2)C. - Green Completions – Emission Control Systems</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>
12	Drilling/Completion Operations	<ul style="list-style-type: none"> <li>• One of the first wells drilled on the pad will be logged with open-hole Resistivity Log and Gamma Ray Log from TD into the surface casing. All wells on the pad will have a cement bond log with gamma-ray run on production casing (or on intermediate casing if production liner is run) into the surface casing. The Form 5, Completion Report, for each well on the pad will list all logs run and have those logs attached. The Form 5 for a well without open-hole logs shall clearly state "No open-hole logs were run" and shall clearly identify (by API#, well name &amp; number) the well in which open hole logs were run.</li> <li>• 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.</li> <li>• 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.</li> </ul> <p>604.c.(2)B.i. - Closed Loop Drilling Systems – Pit Restrictions</p> <ul style="list-style-type: none"> <li>• A closed-loop (pitless) drilling system will be used.</li> </ul> <p>604.c.(2)B.ii-v. - Closed Loop Drilling Systems – Pit Restrictions</p> <ul style="list-style-type: none"> <li>• No stimulation, flowback or fresh water storage pits will be constructed for the BMC L pad location.</li> </ul> <p>604.c.(2)C.i. - Green Completions – Emission Control Systems</p> <ul style="list-style-type: none"> <li>• Green completions will be used for this well. Saleable quality gas will be immediately routed to the sales line or shut in and conserved.</li> </ul> <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"> <li>• 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.</li> </ul>

		<p>604.c.(2)C.iii.aa. - Green Completions – Emission Control Systems</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul> <p>604.c.(2)C.iii.bb. - Green Completions – Emission Control Systems</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul> <p>604.c.(2)C.iii.cc. - Green Completions – Emission Control Systems</p> <ul style="list-style-type: none"> <li>• Combustor / Incinerator 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. Low Pressure captured gas will be routed to this Combustor / Incinerator.</li> </ul> <p>604.c.(2)H.ii. - Blowout preventer equipment ("BOPE")</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul> <p>604.c.(2)I. - BOPE testing for drilling operations</p> <ul style="list-style-type: none"> <li>• BOPE testing will be completed in accordance with Rule 604.c.(2)I.</li> </ul> <p>604.c.(2)J.i. - BOPE for well servicing operations</p> <ul style="list-style-type: none"> <li>• Adequate blowout prevention equipment will be used on all well servicing operations. This prevention equipment will be rated to pressures of 5000 psi.</li> </ul> <p>604.c.(2)J.ii. - BOPE for well servicing operations</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul> <p>604.c.(2)K. - Pit level indicators</p> <ul style="list-style-type: none"> <li>• Tank level indicators will be installed on all tanks associated with the drilling rig. No stimulation, flowback or freshwater storage pits will be constructed.</li> </ul> <p>604.c.(2)L. - Drill stem tests</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul> <p>604.c.(2)O. - Loadlines</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul> <p>604.c.(4)B.vi. - Proppant</p> <ul style="list-style-type: none"> <li>• Ursa plans to utilize "proppant-less" fracture stimulation. Should Ursa plans change to utilize silica proppant during completion of wells on the BMC L 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.</li> </ul>
13	Interim Reclamation	<ul style="list-style-type: none"> <li>• Ursa will comply with Rule 1003 by mounding around the well pad and planting of native vegetation to include trees, shrubs and grasses in accordance with the SUA. However, the pad will not be pulled back in after drilling and completions, but maintained, stabilized and revegetated around the perimeter of the working surface. The purpose of the proposed landscaping is to visually shield production tanks during production phase of operations. Irrigation water will be applied until vegetation is established (also a requirement under the Garfield County Special Use Permit). If required by COGCC Reclamation Unit, Ursa will request a variance from applicable provisions of Rule 1003 prior to commencement of construction on this pad.</li> </ul>
14	Final Reclamation	<p>604.c.(2)T. - Well site cleared</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul> <p>604.c.(2)U. - Identification of plugged and abandoned wells</p> <ul style="list-style-type: none"> <li>• Upon plugging and abandonment, the location of the wellbore will be marked per Rule 319.a.(5)</li> </ul>

Total: 14 comment(s)

### **Applicable Policies and Notices to Operators**

Policy
Piceance Rulison Field - Notice to Operators. <a href="http://cogcc.state.co.us/documents/reg/Policies/NoticeToOp-20060623-2.pdf">http://cogcc.state.co.us/documents/reg/Policies/NoticeToOp-20060623-2.pdf</a>
NW Colorado Notification Policy. <a href="http://cogcc.state.co.us/documents/reg/Policies/nw_notification_procedures.pdf">http://cogcc.state.co.us/documents/reg/Policies/nw_notification_procedures.pdf</a>
Notice Concerning Operating Requirements for Wildlife Protection. <a href="http://cogcc.state.co.us/documents/reg/Policies/Wildlife_Notice.pdf">http://cogcc.state.co.us/documents/reg/Policies/Wildlife_Notice.pdf</a>

### **Attachment Check List**

<b><u>Att Doc Num</u></b>	<b><u>Name</u></b>
401265869	FORM 2 SUBMITTED
401298359	WELL LOCATION PLAT
401298360	DEVIATED DRILLING PLAN
401298361	LEASE MAP
401298363	DIRECTIONAL DATA
401315601	SURFACE AGRMT/SURETY

Total Attach: 6 Files

## General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Final Review Complete. Corrected cuttings disposal to "Beneficial Reuse" to be consistent with related Form 2A.	12/29/2017
Permit	Corrected the distance to the building unit from 1222' to 1026' as directed by operator. Corrected the distance to the High Occupancy Building Unit from 2648' to 3181' as directed by operator. Removed attachment called "Other" showing incorrect distances to cultural features. Final review complete.	12/28/2017
Permit	Added Sec 8 to unit configuration description. Preliminary review complete.	08/01/2017
LGD	See Form 2A comments	07/28/2017
LGD	See comment on Form 2A	07/26/2017
Engineer	<p>The Wasatch Formation is present at surface, possibly overlain by alluvium, based on review of COGCC's geologic maps. The operator's proposed surface casing setting depth is near the Fort Union Formation top. Based on COGCC log review and operator information demonstrating low Fort Union water saturation in offset wells, Fort Union cement coverage is not required for wells on this pad. Condition of Approval #3 addresses isolation of the Lower Wasatch and Mesaverde Group formations including the Ohio Creek Formation.</p> <p>Offset water well check: COGCC evaluated offset water wells within one mile of this proposed well's surface hole location. This information was used in addition to locally-available geophysical logs and hydrogeologic information to evaluate the adequacy of the operator's proposed surface casing setting depth. The deepest water well within one mile is 300 feet.</p> <p>Offset Well Evaluation: Existing offset oil and gas wells within 1,500 feet of this wellbore meet standards. No mitigation required. There is offset Wasatch G sand production in Section 5 (CURFMAN #W 15-5 API #045-06944) within one mile of this pad. Surface casing or intermediate/production casing cement is required across the Wasatch G Sand(s). Wells on this pad are planned with surface casing across the Wasatch G Sand(s).</p> <p>Per operator: removed "First String / Production cement will be &gt; 500 feet above TOG." and unchecked "no offset wells within 1500 feet." Revised Operator BMP/COA Item 12 bullet point 10 to read: "Combustor / Incinerator 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. Low Pressure captured gas will be routed to this Combustor / Incinerator."</p>	07/26/2017
Permit	Passed Completeness.	07/10/2017
Permit	<p>Returned to draft for:</p> <ul style="list-style-type: none"> <li>-Removal of checks from the "is committed to an oil and Gas Lease" and "has signed the Oil and Gas Lease" statements as the "Operator's right to construct" is Surface Use Agreement.</li> <li>-Surface Use Agreement contains monetary compensation and should be redacted.</li> </ul>	06/19/2017

Total: 8 comment(s)