

APPLICATION FOR PERMIT TO:

Drill Deepen Re-enter Recomplete and Operate

Date Received:
12/15/2015

TYPE OF WELL OIL GAS COALBED OTHER _____

ZONE TYPE SINGLE ZONE MULTIPLE ZONES COMMINGLE ZONES

Refiling
Sidetrack

Well Name: BMC B Well Number: 22A-18-07-95

Name of Operator: URSA OPERATING COMPANY LLC COGCC Operator Number: 10447

Address: 1050 17TH STREET #1700

City: DENVER State: CO Zip: 80265

Contact Name: JENNIFER LIND Phone: (720)508-8362 Fax: ()

Email: JLIND@URSARESOURCES.COM

RECLAMATION FINANCIAL ASSURANCE

Plugging and Abandonment Bond Surety ID: 20120125

WELL LOCATION INFORMATION

QtrQtr: SWNW Sec: 18 Twp: 7S Rng: 95W Meridian: 6

Latitude: 39.438864 Longitude: -108.046607

Footage at Surface: 2237 Feet FNL/FSL FNL 647 Feet FEL/FWL FWL

Field Name: WILDCAT Field Number: 99999

Ground Elevation: 5100 County: GARFIELD

GPS Data:
Date of Measurement: 06/16/2014 PDOP Reading: 1.7 Instrument Operator's Name: HOFFMANN

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

Footage at Top of Prod Zone: FNL/FSL FEL/FWL Bottom Hole: FNL/FSL FEL/FWL

1598 FNL 1901 FWL 1598 FNL 1901 FWL

Sec: 18 Twp: 7S Rng: 95W Sec: 18 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.)

A PORTION OF THE NW/4 OF SECTION 18-T7S-R95W. PLEASE SEE ATTACHED LEASE MAP.

Total Acres in Described Lease: 33 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: 15 Feet

CULTURAL DISTANCE INFORMATION

Distance to nearest:

Building: 388 Feet
 Building Unit: 574 Feet
 High Occupancy Building Unit: 3231 Feet
 Designated Outside Activity Area: 5280 Feet
 Public Road: 647 Feet
 Above Ground Utility: 275 Feet
 Railroad: 3864 Feet
 Property Line: 200 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: 09/12/2015

Date of Rule 305.a.(2) Buffer Zone Notification to Building Unit Owners: 09/24/2015

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 1060 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	440-71	320	SEC.18 N/2

DRILLING PROGRAM

Proposed Total Measured Depth: 6750 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: 3630 Feet No well belonging to another operator within 1,500 feet

Will a closed-loop drilling system be used? Yes

Is H₂S gas reasonably expected to be encountered during drilling operations at concentrations greater than or equal to 100 ppm? No (If Yes, attach an H₂S 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: Commercial Disposal

Other Disposal Description:

Please see Waste Management Plan attached to the associated Form 2A

Beneficial reuse or land application plan submitted? No

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	1792	370	1792	0
1ST	7+7/8	4+1/2	11.6	0	6750	559	6750	2671

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 First String / Production cement will be > 500 feet above TOG. Distance to nearest well completed in the same formation / permitted or existing well penetrating objective formation was measured to the proposed BMC B 13B-18-07-95. Distance to nearest well completed in the same formation / permitted or existing well belonging to another operator was measured to the existing WPX C&C Energy GM 544-12 (API 05-045-22427). Please note that all pads depicted on the Exhibit B to the attached SUA are covered under one, single SUA. The entire PUD is governed by Battlement Mesa partners, who have executed the master surface use agreement. In addition to the redacted SUA, a map of the legal description per Exhibit A is attached as "Legal / Lease Description" for your reference.

The BMPs included in this Form 2 application are being submitted in accordance with Rule 604.a.(2) and specifically address the mitigation of nuisance items (noise, lighting, odors and dust) associated with well-specific development. Please refer to associated Form 2A for a full list of Rule 604 mitigation measures applicable to the pad location, preapplication notice certifications, and Garfield County Special Use Permit COAs.

Ursa requests approval of a Rule 604.a.(2) exception location in accordance with Rule 604.b.(2). Exception location request letter is attached.

This application is in a Comprehensive Drilling Plan No 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: JENNIFER LIND

Title: REGULATORY ANALYST Date: 12/15/2015 Email: JLIND@URSARESOURCES.C

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: *Matthew Lee* Director of COGCC Date: 9/10/2016

Expiration Date: 09/09/2018

API NUMBER
05 045 23315 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.

<u>COA Type</u>	<u>Description</u>
	PLN 7 - The approved Form 2A# 400927767 for this location will be posted onsite during construction, drilling, and completions operations.
	<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>

Best Management Practices

<u>No</u>	<u>BMP/COA Type</u>	<u>Description</u>
1	Planning	<ul style="list-style-type: none"> • Prior to initiation of the Form 2A permitting process, internal onsite are held to determine the feasibility of the location (based on the SUA and landowner preferences), topographic constraints, proximity to building units, and public and environmental concerns including surface waters, traffic/haul routes, 317B applicability, wildlife RSOs and SWH areas, noise potential, soil stability, etc. • Planning and permitting information relevant to the location based on Federal, state and county regulations, guidance and policies is documented as appropriate in Ursa's "Site Assessment Checklist/Map". • The best management practices (BMPs) incorporated herein also considered other Federal, state and county agency requirements and guidance, including those under the jurisdiction of the Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (ACOE), Federal Emergency Management Agency (FEMA), Colorado Department of Public Health and Environmental (CDPHE), Colorado Parks and Wildlife (CPW), and Garfield County (GARCO), among others. • Upon approval of the Form 2A, Ursa holds Pre-Construction, Pre-Spud, Pre-Completions and Pre-Production meetings with contractors performing work at the location as determined necessary by the responsible Ursa Operations Manager or Supervisor. As a BMP, Ursa has developed checklists for these meetings to review COAs, NTOs and related issues. • 604.c.(2)D. - Traffic Plan • 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. • 604.c.(2)V. - Development from existing well pads • Please refer to the alternatives analysis provided as an attachment to this form 2A. • Ursa typically holds weekly meetings to address new, expanded, or additional wells at an Oil and Gas locations. Once a location is determined feasible, preliminary notifications are made to affected surface owners (see below) as a best management practice (BMP). • Ursa has developed and implemented processes and systems to track all agency inspections and concerns (e.g. COGCC, CDPHE, BLM...). Corrective actions are typically implemented with 24 hours of discovery. • Ursa will comply with CDPHE regulations regarding air permits, including the application for general permits, including compliance monitoring. In addition, Ursa is required to track, monitor and report Greenhouse Gas (GHG) emissions to EPA. All air sources will be assigned AIRS ID numbers and tracked for compliance and reporting

		<p>purposes.</p> <ul style="list-style-type: none"> • In addition, Ursa submitted permit applications to Garfield County and received Planning Commission approval with Conditions of Approval on October 28, 2015. The Board of County Commissioners approved the Special Use Permit on Dec 16, 2015. • AGENCY INSPECTIONS AND CORRECTIVE ACTIONS - Ursa will implement corrective actions necessary in response to all Federal and state agency inspections in a timely manner. Inspections resulting in the potential for immediate or significant environmental impacts will be addressed immediately, subject to safety and weather considerations. • URSA VOLUNTARY INSPECTIONS - 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. • AIR PERMITTING AND COMPLIANCE - 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. • AIR PERMITTING AND COMPLIANCE - 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. • 604.c.(2)W. - Site-specific measures • SETBACK MITIGATION REQUIREMENTS - Ursa has incorporated the mitigation requirements identified in COGCC Rule 604, as applicable on a site-specific basis into its Operations Checklists, voluntary and mandatory Site Inspections, and Environmental Programs plans, status monitoring, and policies and procedures. • SAFETY - 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.
2	Planning	<p>Garfield County COA #23 - Development timing</p> <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 B pad. This time frame will commence at the start of construction of a well pad.

3	Community Outreach and Notification	<ul style="list-style-type: none"> •305.a.(1) - Pre-application Notifications • Once the Form 2A permitting process was initiated the LGD was notified by letter with an invitation to meet or discuss the proposal (certification attached). Communication with Kirby Wynn and municipal LGDs are also held routinely in addition to communication required by COGCC regulations. •305.a.(2) - Pre-application Notifications • Once the Form 2A permitting process was initiated all surface owners and owners of building units within 1000 feet of the location were notified by letter with an invitation to meet or discuss the proposal (certification attached). • Ursa conducted a series of five (5) stakeholder meetings between June 2015 and December 2015 which focused on development of this location. Approximately 50 community citizens and 25 oil and gas contractors and employees attended these meetings. All meetings were recorded and published on a website. The meetings covered all operations phases, potential impacts, and proposed BMPs. Mass mailings and newspaper articles and notices were published on a voluntary basis and in accordance with Garfield County noticing requirements. • An SUA has been signed with the landowner allowing this location to be constructed, drilled and operated in accordance with the Form 2A submitted. • Unless waivers are received from surface and building unit owners regarding COGCC required notifications to include: Pre-application notifications, statutory notifications, drilling and completions notifications, Ursa will complete the notifications in accordance with COGCC regulations. • Ursa routinely communicates proposed plans and operations schedules with Community Counts, the GARCO Energy Advisory Board, and Battlement Mesa Concerned Citizens (BMCC), if the proposal or work may affect Battlement Mesa. In addition, periodic stakeholder meetings are held with landowners and affected parties. • Voluntary Notifications - Once a new or expanded location, or additional wells are proposed, Ursa's land department contacts the landowner to get an initial approval, prior to formal Pre-application notifications to all affected stakeholders.
4	Community Outreach and Notification	<p>Complaints</p> <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: - 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"
5	Traffic control	<p>604.c.(2)D. - Traffic Plan Garfield County COA #24 - Haul Route</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. 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.

6	General Housekeeping	<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. • 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 three treatments annually by a licensed and certified herbicide applicator.
7	Wildlife	<ul style="list-style-type: none"> • WILDLIFE - All separators/dehydrators and heater –treater equipment are outfitted with bird cones. • 1200 Series • WILDLIFE - A Wildlife Mitigation Plan (2011) is in place that allows for up to 15 well pads in the Battlement Mesa area (including within the PUD). Once COGCC and Garfield County Permits are approved, additional mitigation will be required provided that CPW approves Ursa's draft Wildlife Management Plan Revisions (pending). Annual meetings (quarterly as deemed appropriate by Colorado Parks and Wildlife) will be held with Colorado Parks and Wildlife (CPW) to determine the status of, and any outstanding commitments. • WILDLIFE - The Ursa BMC B and D 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 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.

8	Material Handling and Spill Prevention	<ul style="list-style-type: none"> • CHEMICAL AND MATERIAL HANDLING - All materials and chemicals will be managed to minimize environmental contamination in accordance with MSDS sheets and EPA, COGCC and CDPHE regulations. Materials and chemicals that are not a waste may be reused or recycled. • 604.c.(2)F. - Leak Detection Plan • SPILLS / INCIDENTS - Spill prevention and response are addressed in Ursa's Spill Prevention and Management Plan. This includes training of employees and contractors 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. • SPILLS / INCIDENTS - Spills will be managed in accordance with Ursa's SPCC plan, COGCC rules 317b and 604 including prevention, spill containment and monthly inspections. High level alarms will be installed on production tanks.
9	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. 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. - New flowlines will be hydrotested 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. <p>604.c.(2)F. - Leak Detection Plan - Inspections</p> <ul style="list-style-type: none"> • TANK INSPECTIONS - will be formally inspected every 30 days 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. • FLOWLINE INSPECTIONS - will be inspected per COGCC 1100 regulations/1101 and 1102 guidance document Updated February 25, 2016.
10	Dust control	<p>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.</p> <ul style="list-style-type: none"> • Remote monitoring and telemetry will be used to optimize truck trips and reduce resultant fugitive dust to the extent practical.

11	Construction	<ul style="list-style-type: none"> • FLOODPLAIN IMPACTS - Ursa completed a floodplain assessment and found that this location did not meet criteria to be designated within the 100 year floodplain. •604.c.(2)E.ii. - Multi-well Pads & 604.c.(2)N. - Control of fire hazards" • For safety purposes, the location and site layout has been designed to accommodate all operations, including drilling and completions, within the limits of disturbance while meeting Federal and state safety regulations, including required buffers and distances between operating components and combustion sources in accordance with COGCC Section 600 Rules. • Water pipeline infrastructure will be installed concurrently with the gas pipeline infrastructure where possible. No water infrastructure currently exists.
12	Construction	<ul style="list-style-type: none"> •604.c.(2)N. - Control of fire hazards 604.c.(4)B.i. - Control of fire hazards • All production and injection equipment will be grounded to prevent lightning strike hazards. Injection tanks will be low-profile tanks of steel construction to allow for more effective grounding than standard fiberglass produced water tanks. Systems including VOC combustors and emission controls will be installed on all tanks to capture potentially flammable vapors and therefore reduce fire hazards in the event of a lightning strike or other unintended ignition source. As required by Rule, 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.
13	Construction	<p>Garfield County COA #9 - Construction</p> <ul style="list-style-type: none"> • The construction of the BMC B 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>Garfield County COA #10 - Flowlines - • Ursa will utilize only welded and flanged 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 line all flowline trenches with either a bentonite liner at least 6 inches in depth, a geosynthetic clay liner (GCL) or a barrier / leak detection alternative that provides equivalent protection of groundwater. The liner will be placed below the bedding material. Flowlines will be tested annually in accordance with permit COAs and COGCC 1100 series rules.</p> <p>Garfield County COA #15 - Water well sampling 317B.d.(4)</p> <ul style="list-style-type: none"> • Ursa will install at least one up-gradient and two down-gradient groundwater piezometer monitoring wells at the B Pad location. Ursa will conduct baseline sampling in accordance with Rule 317B.d.(4). Ursa will conduct monthly monitoring of the well site groundwater wells for the parameters specified in Rule 317B.d.(4) during well drilling and completion activities, followed by annual monitoring for the duration of the project." <p>317B.d.(2)</p> <ul style="list-style-type: none"> • In addition to steel-reinforced, lined secondary containment for production tanks at 150% of capacity, tertiary containment with a holding capacity 100% of production tank fluids will be installed on the north side of the proposed pad location as this pad falls within the intermediate buffer of a 317B area. The containment will be designed to shed stormwater away from the tertiary containment, as has been approved by COGCC on other Ursa locations. Inspections of the secondary and tertiary containment will be conducted in accordance with COGCC regulations, and Ursa's EPA Spill Prevention and Control plan, typically on a monthly basis. • 604.c.(3)B.iii. - Berm Construction (Exception Zone) • As this location is within a 317b area, a tertiary berm will be constructed at the northern sides of the location. This location will not be used as a remote temporary tank farm for other locations; therefore the berm will accommodate 100% containment of the total volume of all tanks to conduct completions at this location. • 604.c.(2)G. - Berm construction (Buffer Zone) • All production equipment to include separators, produced water and condensate tanks, pipelines and flowlines will be constructed and managed in accordance with COGCC 604 c.(2).G, 605 and 1100 Series Rules. <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"> • Drilling multiple wells from the BMC B 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

		<p>beneath the BMPUD which will now be accessed by consolidating the wells on 5 total pads within the BMPUD, including the BMC B Pad.</p> <p>604.c.(2)E.ii. - Multi-well Pads</p> <ul style="list-style-type: none"> • 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. <p>604.c.(2)E.iii. - Multi-well Pads</p> <ul style="list-style-type: none"> • 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.(3)B.i.-iv. - Berm construction (Exception Zone) 317B.d.(3)</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. No more than 2 oil tanks will be located within a berm. <p>604.c.(2)M. - Fencing requirements</p> <ul style="list-style-type: none"> • Fencing will be installed per the surface use agreement and shall be designed and maintained to prevent unauthorized access to the site during production operations. <p>604.c.(2)R. - Tank specifications</p> <ul style="list-style-type: none"> • 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 B pad will be equipped with remote monitoring / telemetry system setup to allow for automated shut-in controls in the event of an emergency. <p>604.c.(4)C.iii. - Visual Impacts</p> <ul style="list-style-type: none"> • Above-ground facilities (e.g. production tanks) will be managed to minimize visual effects (e.g. painted to blend with environment). 	
14	Noise mitigation	<ul style="list-style-type: none"> •Garfield County COA #7.a. - Noise • 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. <p>604.c.(4)C.i. - Noise</p> <p>Garfield County COA #26 - Noise Site Control Access</p> <ul style="list-style-type: none"> • 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). 	
15	Odor mitigation	<ul style="list-style-type: none"> • 604.c.(2)C. - Green Completions – Emission Control Systems • Combustor controls will be used to mitigate odors from all production and injection 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. 	

16	Drilling/Completion Operations	<ul style="list-style-type: none"> • 604.c.(2)E.i. - Multi-well Pads • Drilling multiple wells from this location using directional / horizontal drilling will be implemented to avoid the need for additional well pads; reducing potential environmental impacts to include habitat loss and fragmentation, noise, traffic concerns, and related impacts to air, land and water. • 305.h. - Buffer Zone Move-in, Rig-up Notice • MIRU - Unless waived, Notice to all Building Unit owners will be sent at least 30 days, but no more than 90 days within the 1000' Buffer Zone prior to the Move-In, Rig-Up of the drilling rig when more than 1 year has elapsed since previous notice or since drilling activity last occurred, or if no notice had previously been required in accordance with the four examples provided in the COGCC MIRU policy. • TEMPORARY COMPLETIONS FACILITIES - Completions at the location may be supported by staging temporary tanks / water pumping station at adjacent existing location(s). At the time of application support facilities are anticipated at the BMC D pad. This will support lease operation as authorized under COGCC regulations. This will eliminate the need for additional surface disturbance. Water will be transferred between the locations via buried waterline (or temporary surface line). Buried water pipeline infrastructure is used to transport flowback water where water lines exist in close proximity to the well pad will be installed concurrently with the gas pipeline infrastructure where possible. [No waterline infrastructure currently exists, but is planned to be installed prior to completing at the location.] • CHEMICAL USE - All chemicals used will be tracked and reported in accordance with COGCC rules and submitted through FracFocus within 120 days of initiating well stimulation. • Completions will typically be conducted during daylight hours. • 604.c.(2)C.ii. - Green Completions – Emission Control Systems • WATER RECYCLING - Produced / flowback water used for well completions will be recycled and treated to the maximum extent practical at the location. Water that can't be recycled will be injected through the use of wells approved by COGCC and Garfield County, or transported via truck to the COGCC and Garfield County approved Wasatch E&P Facility. • 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 & number) the well in which openhole logs were run. 	
17	Drilling/Completion Operations	<p>Garfield County COA #8 - Lighting</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. <p>Garfield County COA #9 - Completions</p> <ul style="list-style-type: none"> • 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 317B.d.(1)</p> <ul style="list-style-type: none"> • A closed-loop (pitless) drilling system will be used. <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 B 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. Saleable 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.

604.c.(2)C.iii.aa. - Green Completions – Emission Control Systems

- 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.

604.c.(2)C.iii.bb. - Green Completions – Emission Control Systems

- 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.

604.c.(2)C.iii.cc. - Green Completions – Emission Control Systems

- 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.

604.c.(2)H.ii. - Blowout preventer equipment (“BOPE”)

- 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.

604.c.(2)I. - BOPE testing for drilling operations

- BOPE testing will be completed in accordance with Rule 604.c.(2)I.

604.c.(2)J.i. - BOPE for well servicing operations

- Adequate blowout prevention equipment will be used on all well servicing operations. This prevention equipment will be rated to pressures of 5000 psi.

604.c.(2)J.ii. - BOPE for well servicing operations

- 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.

604.c.(2)K. - Pit level indicators

- Tank level indicators will be installed on all tanks associated with the drilling rig. No stimulation, flowback or freshwater storage pits will be constructed.

604.c.(2)L. - Drill stem tests

- 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.

604.c.(2)O. - Loadlines

- 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.

604.c.(2)Q. - Guy line anchors

- All guy line anchors left buried for future use will be identified as required per Rule 604.c.(2)Q.

604.c.(4)B.vi. - Proppant
Garfield County COA #27 - Proppant

- Ursa plans to utilize "proppant-less" fracture stimulation. Should Ursa plans change to utilize silica proppant during completion of wells on the BMC B 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.

604.c.(4)C.iv. - Remote Stimulation Operations

- Ursa plans to utilize the BMC B pad surface area for staging of completion operations. Staging at the pad location allows for planned BMPs (i.e. soundwalls, noise monitoring, etc.) to be in place for the duration of completion operations on this location. Due to difficult surface topography in the area as well as proximity to residences in the Battlement Mesa PUD, Ursa has determined that staging the completion operations on the pad rather than a remote location will minimize surface disturbance, noise, visual impacts and traffic to the surrounding neighborhoods. We have designed site specific noise mitigation plans for the BMC B pad that are based on actual equipment, topography, typical wind direction, and closest possible affected neighbor. Additionally, we have performed voluntary ambient noise studies to better help us determine the impacts of our operations.

Fracking from a remote location (i.e. the existing Watson Ranch B pad) would require a several thousand feet of temporary high pressure line, which would cross 3 major traffic thoroughfares within Battlement Mesa and would be in close proximity to homes and other sensitive areas. Remote completions from any other area would move operations closer to residences, the Colorado river, high occupancy buildings or outdoor recreational areas. After careful consideration of several alternatives, it has

been determined that the preferred completion staging area remains on the pad.

Total: 17 comment(s)

Applicable Policies and Notices to Operators

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

Attachment Check List

Att Doc Num	Name
2168176	WELL LOCATION PLAT
400927758	FORM 2 SUBMITTED
400954385	DEVIATED DRILLING PLAN
400954387	LEASE MAP
400954388	EXCEPTION LOC REQUEST
400954390	SURFACE AGRMT/SURETY
400954392	DIRECTIONAL DATA
400964577	LEGAL/LEASE DESCRIPTION

Total Attach: 8 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Final review complete.	3/7/2016 3:53:12 PM
Permit	Logging BMP for Rule 317.p Requirement to log well is located in BMP #16 as the last item. Added and corrected BMP's as directed. Deleted Proposed BMP attachment as per operator. Corrected distance to utility from 477' to 275' as per operator. Deleted old well location plat and attached new one sent from operator.	3/9/2016 4:22:34 PM
Engineer	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. COGCC engineering staff notified operator on 5/3/2016 of new Parachute Field geologic isolation requirements for the Mesaverde Group and lower portion of the Wasatch Formation, as specified in Conditions of Approval on this Form 2. COGCC staff met with operator staff on 5/5/2016, 5/16/2016, and 6/16/2016 to discuss isolation requirements. Condition of Approval #3 addresses isolation of the Lower Wasatch and Mesaverde Group. Operator submitted revised cement volume and a proposed cement top for the First String on 6/23/2016 to provide the required coverage (updated by COGCC in the casing/cement section of this form on 6/24/2016; sacks based on operator's proposed 1.83 cf/sk yield). 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.	5/23/2016 11:47:36 AM
LGD	Submitted by Garfield County LGD, Kirby Wynn Please see comments on Form 2A	2/13/2016 11:16:55 AM
Permit	Corrected typo in spacing unit description from Sec. 18 T7S R95W to SEC.18 N/2 and notified operator. Ready to pass pending 2A approval.	1/22/2016 11:00:54 AM
Engineer	Offset Well Evaluation: Existing offset oil and gas wells within 1,500 feet of this wellbore meet standards. No mitigation required. 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 285 feet.	1/8/2016 11:49:56 AM
Permit	Public comment period has been extended from 1/26/16 to 2/16/16 at Garfield County LGD request.	1/8/2016 9:45:24 AM
Permit	Passed completeness.	1/6/2016 3:00:53 PM
Permit	Returned to draft for additional BMPs.	12/28/2015 2:12:38 PM

Total: 9 comment(s)