



## **B & V Pad Attachment M Best Management Practices (BMPs)**

### **GENERAL – PLANNING**

- This is a new oil and gas location and will include construction of a well pad and proposed wells.
- Prior to initiation of the COGCC Form 2A permitting process, Ursa held internal meetings and onsites to determine the feasibility of the location, and identified all compliance requirements, guidance and policies needed to permit the location and proposed oil and gas operations. All COGCC permitting requirements under the 200 through 1200 series rules were incorporated, as appropriate into this Form 2A and related attachments.
- 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.
- 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". A copy of this internal BMP (while not required) was provided to the COGCC at the Setback Training on August 30, 2013 held in Grand Junction.
- 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 applicable to the proposed activity. As a BMP, Ursa has developed checklists for these meetings to review regulations, COAs, NTOs and related requirements.
- Traffic and Public Safety – Ursa developed a site-specific Emergency Response Plan (SSERP) and Haul Route Map which are communicated to local emergency response agencies, affect communities and stakeholders, as well as contractors performing work at the location.

### **COMMUNITY / STAKEHOLDER OUTREACH AND NOTIFICATIONS**

- An SUA has been signed with the landowner allowing this location to be constructed, drilled and operated in accordance with the Form 2A submitted.
- The landowner has waived all COGCC notifications to include Pre-application notifications, statutory notifications, drilling and completions notifications related to Federal surface, as they are intimately involved with all phases of permitting the location and associated wells.
- Ursa routinely communicates proposed plans and operations schedules to stakeholders through Community Counts, the GARCO Energy Advisory Board, Battlement Mesa Concerned Citizens, NW Colorado Oil & Gas Forum and others. In addition, periodic stakeholder meetings are held with landowners and affected parties.
- Communication with Kirby Wynn and municipal LGDs are also held routinely in addition to communication required by COGCC regulations, as appropriate.



## **CONSTRUCTION AND SITE STABILIZATION**

- The BMPs below entitled “Environmental Stewardship and Compliance” provide additional information that is applicable to one or more phases of operations.
- **CONSTRUCTION (General)** – The location will be constructed and maintained in accordance with COGCC 1002 Rules regarding soil and stormwater management, and surface disturbance minimization as incorporated into Ursa’s plans, policies and procedures.
- **DUST CONTROL** - The pad and access road will be graveled to reduce fugitive dust and maintained as required by COGCC rules. In addition, water and other dust suppressants are used as required, dependent upon the level of activity, moisture conditions, etc. throughout all phases of operations
- **RECLAMATION (Interim)** - The site/soils will be stabilized as soon as practical during and immediately following construction. Once wells at the location are drilled, Ursa will complete interim reclamation in accordance with the COGCC 1003 rules using seed mixes and materials compatible with soil types, moisture, and local climate conditions as specified by the appropriate agency and/or in landowner surface use agreements, or locally acceptable industry practices.
- **STORMWATER** - The location will be constructed / maintained in accordance with the CDPHE and COGCC 1002.f. (1) and (2) stormwater regulations as implemented by Ursa’s Stormwater Management Plan, so as to control sediment run-off. Stormwater BMPs will also serve as secondary or tertiary containment in the event of a spill. Site specific plans (i.e. diagrams) will be developed and inspected against at the frequency required by CDPHE regulations, to include 14 day, 30 day, and major storm event inspections until 70% reclamation is achieved. Corrective actions and maintenance will be tracked and implemented. The post-construction stormwater program will be managed in accordance with COGCC Rule 1002.f. (3). Inspections and corrective actions will be conducted through 80% interim reclamation and annually thereafter. These inspections are also tracked and corrective actions implemented. Native soils will be used whenever available to construct stormwater BMPs, supplemented by non-native materials based on site-specific conditions.
- **WATER WELL SAMPLING (COGCC Rule 609)** – Water well sampling will be conducted prior to setting conductors; followed by post-sampling requirements and reporting the landowner and COGCC. No water wells exist within ½ mile of the locations under this Form 2A.
- For safety purposes, the location and site layout has been designed to accommodate all operations within the limits of disturbance while meeting Federal and state safety regulations, including required buffers and distances between operating components and combustion sources.
- **FLOODPLAIN IMPACTS** – Ursa completed a floodplain assessment and found that this location did not meet criteria to be designated within the 100 year floodplain.

## **DRILLING**

- 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.
- **MIRU** – Unless waived, Notice to all Building Unit owners will be sent at least 30 days, but no more than 90 days within the 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.
- No cuttings pits are proposed.



## **COMPLETIONS**

- The BMPs below entitled “Environmental Stewardship and Compliance” provide additional information that is applicable to one or more phases of operations.
- AIR & ODORS - Well completions will utilize flowback completion technologies and/or flares to reduce odors from plug drillout, and venting of salable and non-salable gas
- 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.
- WASTE MANAGEMENT OF WATER – 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 or pipeline to the COGCC and Garfield County approved Wasatch E&P Facility.
- WASTE - No stimulation or flowback pits will be constructed.

## **PRODUCTION**

- The BMPs below entitled “Environmental Stewardship and Compliance” provided more detailed information regarding environmental protection applicable general operations.
- All production equipment to include separators, produced water and condensate tanks, pipelines and flow lines will be constructed and managed in accordance with COGCC 605 and 1100 Series Rules.
- AIR & ODORS - Combustor controls will be used to mitigate odors from production tanks. Ursa will perform inspections on at least a monthly basis to ensure potential emissions sources are properly managed. In addition, Ursa’s pumper crew inspects each location on a daily basis.
- REMOTE MONITORING - Remote monitoring will be used to reduce truck traffic, fugitive dust to the extent practical.
- VISUAL IMPACTS - Above-ground facilities (e.g. production tanks) will be managed to minimize visual effects (e.g. painted to blend with environment)
- WILDLIFE – All separators/dehydrators and heater –treater equipment are outfitted with bird cones.
- WATER RECYCLING – Produced water used for well completions will be recycled and treated to the maximum extent practical. Water that can’t be recycled will be injected through the use of wells approved by COGCC and Garfield County, or transported via truck or pipeline to the COGCC and Garfield County approved Wasatch E&P Facility.

## **ENVIRONMENTAL STEWARDSHIP AND COMPLIANCE / HOUSEKEEPING**

- 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.
- AESTHETICS AND NOISE – 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.
- 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.

- **CHEMICAL & 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.
- **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.
- **NOXIOUS WEEDS** – 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).
- **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.
- **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 the COGCC 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.
- **SPCC / CONTAINMENT** – All production tanks and tanks used for completions activities will be installed, labeled, contained, operated, and decommissioned in accordance with 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.
- **WASTE** - 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.
- **WILDLIFE** - A Wildlife Mitigation Plan (March 24, 2010) is in place that was agreed to by Ursa (previously Antero). The plan allows for 90+ well pads. Currently, Ursa has 62 well pads. Ursa is current on all obligations under the plan and communicates with Colorado Parks and Wildlife routinely.