



Ursa Operating Company LLC

792 Buckhorn Drive Rifle, CO 81650 – 970-625-9922

Rule 908.b(8)
Operating Plan
Facility - Impoundments



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BOISE RANCH PRODUCED WATER PIT OPERATING PLAN

A. Description

Ursa Operating Company LLC (Ursa), Boies Ranch Produced Water Pit facility (facility). The proposed facility would be located on property co-owned by Ursa and ExxonMobil Oil Corporation (ExxonMobil) in Section 33, Township 2 South, Range 98 West of the 6th Principle Meridian (P.M.) in Rio Blanco County, Colorado.

The project area on the 3,636-acre subject property having the parcel identification number (PIN) 1659-233-00-016, per the Rio Blanco County Assessors' database, is located in the S $\frac{1}{2}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ NW $\frac{1}{4}$, N $\frac{1}{2}$ NE $\frac{1}{4}$ of Section 33, Township 2 South, Range 98 West, 6th P.M.. The property is zoned Agriculture (A) and has the following land uses: native habitat, non-irrigated rangeland, and oil and gas well pad development. The proposed facility would be located specifically in the NW $\frac{1}{4}$ NE $\frac{1}{4}$, NE $\frac{1}{4}$ NW $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$, and the SW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 33 and would be bordered on the north by County Road (CR) 26, on the south by Black Sulphur Creek (Creek), and to the east and west by non-irrigated rangelands

The facility will hold and manage produced water which will be transferred via a buried water line or trucked to the facility. The majority of the produced water will enter the facility via pipeline. However, water may be trucked in to ensure adequate storage space is available to support active completions jobs. The produced water pit facility will be comprised of an offload area; a series of tanks to provide additional separation of solids and hydrocarbons; an MCC/pumphouse building, a net covered pit for produced water storage, and a solids mixing area.

During normal production operations the E&P facility allows waste to be gathered, treated and stored at a central facility. When deemed appropriate to Ursa's operations, solids and/or liquid waste will be mixed and trucked out of the facility for disposal at a permitted licensed disposal site. During active completion operations, storage of the water in the facility will maximize the amount of water for reuse in drilling, completions and production activities.

Water stored at the facility will be transported to the facility via pipeline network. All process equipment required for the facility will be designed to prevent a single point of failure and to allow for maintenance on a single piece of equipment while continuing operation at target flow rates.

A de-sander tank and Skim (HWSB) tanks will provide solids and hydrocarbon (oil/condensate) separation prior to entering the pit, which will negate the need of a covered pond. Oil and condensate that is separated in the process will be gravity flowed to an isolated Oil tank for sales.

All Inflows (piped, and trucked) will flow through the tank system and will first enter the De-sander tank to drop solids and then distributed to the Skim (HWSB) tank to maintain good oil-water separation to the pit, oil/condensate is gravity skimmed and flowed to the Oil tank. This process is designed to reduce emissions on the pit surface. An individual De-Sander tank will be designed to handle the overall facility throughput rate.



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The current flow rate into the facility is anticipated to be at maximum, 383,333 barrels per month (BPM per CDPHE's air permit). The throughput will decrease as the gas and water production from the wells contributing to the facility declines over time. If Ursa continues active drilling in the area, the throughput will increase during stimulation flowback and then decline over the life of the wells. The anticipated maximum working capacity of the facility is approximately 468,000 barrels (bbls). Water levels in the impoundment will be monitored with a fluid level monitor to track fluctuation and to assure a minimum of two feet of freeboard in the impoundment at all times.

When drilling or completing wells, Ursa can reuse the water. It will be transferred from the facility via pipeline by way of the pump house, or trucked if needed. From the pump house, the water will be directed to the requesting location via the pipeline network.

B. Dust and Moisture Control

The primary dust control measure used at the facility will be to apply fresh water to the access road and facility site as needed to control dust during operation. Blackbase (crushed asphalt) or gravel will also be used in high traffic areas in the facility to help mitigate dust.

Ursa has incorporated the facility into its existing spill prevention, control, and countermeasure plan (SPCC) to prevent the discharge of petroleum products from storage tanks. The tanks have steel secondary containment and a poly liner system in place. Ursa will comply with all appropriate Colorado Division of Oil and Public Safety standards associated with storage tanks and tank batteries. Refer to Ursa's Emergency Response Plan for specific emergency response procedures.

C. Sampling

A minimum of three monitoring wells are scheduled be put in place and sampled/tested periodically to evaluate water quality. Results of the monitoring program will be included in Ursa's annual 900 Series facility report to the Director of the COGCC.

D. Inspection and Maintenance

The facility's fluid levels and leak detection will be monitored remotely by Ursa personnel (or their operator) via the MCC pumphouse control center, as well as reported through the SCADA (Supervisory Control and Data Acquisition) system.

Several leak detection systems will be installed to monitor for any leaks (new technology and old technology). Ursa will be using a transmitter that will be radio linked via a local Remote Terminal Unit (RTU) that will alert the operator of any leak detection via the MCC control center. The presence of fluid will be traced in real time, logged, graphed and stored at the MCC pumphouse location as well as through SCADA. Alarms will be set to notify operators of the



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presence of fluids. The device will be installed in the leak detection trap via the PVC inspection pipe outlined in the construction drawings, as well as a leak detection system integrated into the liners.

Water level monitoring devices will be used to ensure a minimum of two feet of freeboard in the impoundment at all times. Ursa will track/log all Pit levels daily, as well as compare to inlet/outlet metered information to verify actual daily levels

All pipelines transporting fluids to the facility will be pressure tested with water prior to initiating transport. Pipeline integrity will be monitored during operational activity via regular inspections of pressure gauges and valve sets at the facility and throughout the field, and QC during water transfer activities.

When water is pumped to or from the facility, the water supervisor will be informed of the intention to pump with information as to what time and from where and expected duration and quantity. Once authorization to pump has been given by the water supervisor, personnel experienced in waste water management will walk entire surface systems inspecting (QC) all fittings and valves to ensure all are in good working condition and in proper alignment for water receipt at facility. Verification will be transmitted to all parties involved with job that pumping operations can commence. The pump system will be put on line and onsite flow volumes will be confirmed and field site will be notified. All valves will be placed in proper alignment before and after job. After pumping operations commence, verification that water flow has been established will be reported back to pumping crew (including flow volumes). All volumes will be cross checked after completion of the job to insure anticipated water volumes were pumped to/from the appropriate location. Metering records of all jobs including date, location, time and quantity will be kept and reported to proper personnel.

During normal operations, daily and weekly inspections will be performed by an Ursa operator or designated representative. During the weekly inspection, the operator will perform the activities detailed in the "**Weekly Checklist**". Adherence to the criteria imbedded to the checklist will involve visual inspections of the facilities, visual inspections of equipment and tanks, assessment of the water impoundment levels, visual inspection for sheen on the impoundment, recording meter values, visual inspections of stormwater BMPs, visual inspection of pond netting, visual inspection of wildlife fencing, and performance of general housekeeping activities. The operator will ensure that all equipment is in proper working order and that the inspection is documented. If there are any corrective actions noted during the inspection, a supervisor shall be notified and (if required) an appropriate response plan will be coordinated to resolve the corrective actions.

In addition to the weekly inspections, Ursa will conduct monthly inspections of the facility according the criteria identified in the "**Monthly Checklist**" document. During semi-annual inspections of the facility, items such as pond water sampling, leak detection piping, sampling



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of monitoring wells, and additional equipment inspections will take place as detailed in the **“Semi-Annual Checklist”**.. The schedule of these inspections may be

modified by the COGCC as part of the State’s approval process, but otherwise the inspections will take place on a daily, weekly, monthly and semi-annual basis. All checklists will be revised, as necessary, to reflect current operating and regulatory requirements.

E. Emergency Response

To ensure a safe and timely response to emergency situations, Ursa will provide office personnel with contact information for the Rio Blanco County Sheriff’s Department, the local fire department, and emergency medical service providers. Ursa will provide local emergency response agencies with a detailed map showing the location of the proposed facility, detailed directions to it, and GPS coordinates to facilitate timely response. Since the facility would be located within an active field, roads will be well maintained and snow plowed in the winter to facilitate vehicle access. Ursa will install signage to adequately identify the entrance to the location.

In the case of a medical emergency, the type of action taken will depend on the severity of the medical emergency. Should a life threatening medical emergency arise, Ursa or its contractors would summon St. Mary’s Care Flight in Grand Junction for helicopter response. Helicopter landing sites have been established in close proximity to the facility on the access road adjacent to the facility. The GPS locations of the landing site will be provided to office personnel for communication to first responders in the event of an incident. In the case of injuries or medical problems that are not life threatening, the injured worker would either be transported from the facility in a company or contractor vehicle to the nearest medical center for treatment or transportation by ambulance summoned to the site, depending on the circumstances.

Since the proposed water impoundment is located on a location that is clear of vegetation, the risk of wildfires is minimal. Smoking on-site and open fires will not be permitted at the facility.

F. Record Keeping

As stated above, typical operation of the facility will include transferring water to and from the facility. It will be the responsibility of the operator to manage daily inputs and outputs to the facility. The operator will be in daily communication with the production staff, drilling staff and completions staff to track the produced water volumes entering the facility and track any water volumes pumped to Ursa gas development locations. The CDPHE has COAs involving inspections and testing and the records retention timelines for each in the approved air permit.

All records of the site inspections, including the daily logs, are created/filled in manually and electronically, signed by the responsible operator, and filed at Ursa office for storage.



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Documents may also be scanned and stored in the appropriate electronic file for access by all management personnel. Ursa will manually record the facility operational parameters as well as generate electronic tracking and data storage to maintain safe operation of the facility.

G. Site Security

The site is located in a rural and remote area of Rio Blanco County west of Meeker.

The entire facility shall be fenced to prevent access by wildlife or domestic animals. A locked gate is located at the entrance of the Pit area, which is surrounded by an approved 8' wildlife fence. The entire facility will be fenced with a 4' livestock fence that adjoins the 8' wildlife fence. All wildlife that may be inadvertently entrapped by the fencing will be immediately reported to the Colorado Division of Parks and Wildlife. Ursa will implement the following:

- Record-keeping of site visitors.
- Locks installed on Pit entrance gates and doors.
- Signage at the facility describing security procedures and areas.
- Employee training.

H. Hours of Operation

The proposed facility will operate 24 hours a day, 365 days a year. During completions activity, pumping could take place seven days a week. Personnel will be on site during pumping operations. The facility and water pit will be manned 24/7 and it will be monitored remotely by Ursa personnel or operator via a Supervisory Control and Data Acquisition (SCADA) system. Weekly inspections will be conducted by local operations personnel and Ursa management.

I. Noise and Odor Mitigation

Ursa does not anticipate any noise or odor issues with the proposed facility. Noise impacts will be controlled through the implementation of industry best management practices and per the issued local land use permit. The proposed facility will adhere to Rio Blanco County, COGCC standards. Impacts associated with odor will be mitigated via adherence to Colorado Department of Health and Environment (CDPHE) Air Quality permitting. Ursa will also control noise and odors through:

- Installation of water circulation pumps.
- Regular sampling events and intervals.
- Monthly treatment of pit water with oxygenation products (as needed pending sampling data).



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J. Final Disposition of Waste

If the accumulation of fluid in the impoundment exceeds the working capacity, it will be transported to a licensed disposal facility or permitted injection well. Accumulated sediment wastes and solids will be solidified and transported to a licensed facility for disposal after sampling analysis has determined the chemical constituents of the materials.



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Appendix A Inspection Checklists



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Weekly Operations Checklist

Date:

Inspector:

Tanks and Equipment	Comments
Inspections Prior to Operation of the Facility	
Water Levels – Visual and Instrumentation Inspection	
Oil Staining or Debris – Visual Inspection	
Record Meter Values – In/Out	
Fencing – Visual Inspection	
Waterfowl/Bird Net – visual Inspection	
Weeds – Visual Inspection	
Berms – Visual Inspection	
Containment and Pit Liner – Visual/instrument inspection; verify monitors	
Piping – Visual Inspection	
Valves – Inspect/Operate	
Pump Oil Levels and Leaks - Visual Inspection	
Odor – Detectable Level	
Stormwater BMPs – Visual Inspection	
General Housekeeping – Perform	

Notes:



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Monthly Operations Checklist

Date:

Inspector:

Tanks and Equipment	Comments
Typical Inspections of the Facility	
Housekeeping: Facility clean, free of unnecessary items	
Danger & Warning Signs: Posted & visible	
Fencing: Fencing intact, gates locked	
Waterfowl/Bird Net: Visual Inspection	
Lighting: Adequate, lights functioning properly	
Equipment and Tank Integrity: No visible leaks, weeping or drips along seams, or tank bottoms	
Vents: Clear	
Gauges & Automation Devices: Gauges working & test alarms and automatic shutoff	
Piping & Hoses integrity: No visible leaks, drip or cracks especially at supports, joints, elbows and fittings	
Valves: No visible leaks and in good working condition	
Coating, Wrapping and Paint: Wear, tear, chipping, no peeling, cracking or bleeding	
Secondary Containment: Clear, no standing water, snow, ice buildup or vegetation	
Pit Liner integrity: visually free of rips, tears; verify leak detection monitors	
Notes:	



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Semi-Annual Operations Checklist

Date:

Inspector:

Tanks and Equipment	Comments
Typical Inspections of the Facility	
Housekeeping: Facility clean, free of unnecessary items	
Fire extinguishers: Adequate, accessible and charged	
No Smoking Signs: Posted and visible	
Danger & Warning Signs: Posted & visible	
Fencing: Fencing intact, gates locked	
Waterfowl/Bird Net: Visual Inspection	
Lighting: Adequate, lights functioning properly	
Equipment and Tank integrity: No visible leaks, weeping or drips along seams or tank bottoms	
Tank Signs: Product stored, storage capacity, and fire hazard rating, posted and visible	
Vents: Clear	
Foundation: Solid, no cracks, or rotting	
Gauges & Automation devices: Gauges working & test alarms and automatic shutoff	
Piping & Hoses integrity: No visible leaks, drip or cracks especially at supports, joints, elbows and fittings	
Valves: No visible leaks and in good working condition	
Protection: from falling snow and ice & traffic	
Coating, Wrapping and Paint: wear, tear, chipping, no peeling, cracking, or bleeding	
Secondary Containment: Clear, no standing water, snow, ice buildup or vegetation	
Pit Liner integrity: visually free of rips, tears, and verify leak detection monitors	
Notes:	