



**Bayswater Exploration & Production, LLC**  
**E&P Waste Management Plan**

In compliance with Weld County Ordinance Sec. 21-5-450, COGCC Rules 905 and 1000 Series Reclamation Regulations, and the Drill Cuttings Management Policy (9/15/14), the following describes Bayswater Exploration & Production, LLC's general plan for handling and disposing of E&P waste, including drilling mud and cuttings. Wastes stored onsite will be stored in compatible containers that are regularly inspected to ensure they are in good condition and free of excessive wear, structural issues or other defects that may impact their effectiveness. Bayswater coordinates with Relevant Local Governments on haul routes for transport of waste.

Bayswater does not anticipate conducting any on-site disposal or use land-application for waste management. All wastes generated on location will be disposed of at a permitted commercial waste facility. Each individual waste stream hauled off location will be accompanied with an approved waste profile and manifest and estimated volume. The waste profiles are established using knowledge of process.

The contingency plan for contaminated soil will be to sample, remediate, dispose of according to Rules 905, 912, 913 and 915. All contaminated soils exceeding regulatory clean-up standards are excavated and managed/disposed by immediate transfer to an off-site commercial disposal facility that is authorized to accept that type of waste. If any incident is subject to agency reporting requirements, the appropriate agencies are notified within the regulatory timelines.

#### **WATER-BASED BENTONITIC DRILLING FLUIDS**

##### Treatment

Water-based bentonitic drilling fluids returning up the annulus will be filtered to remove solids through the closed loop system, cuttings are shaken out into impervious bins above a mat and hauled off for off-site disposal while fluids will be routed through a suction tank and mud pump, remixed and recirculated.

##### Characterization

Water with bentonite clay to create native mud with gel and lime as needed.

- Is the waste a "solid waste"? YES, per COGCC definition.
- Is the waste specifically excluded from the RCRA regulations? YES.
- Is the waste a "listed" hazardous waste? NO.
- Does the waste exhibit a characteristic of hazardous waste? NO.

By applying knowledge of the hazardous characteristic(s) of the waste in light of the materials or the processes used ("knowledge of process"), this waste stream does NOT meet the criteria of a hazardous waste as defined by EPA RCRA Hazardous Waste Classification.

##### Management/Storage/Disposal/Transport

A minimum of two 1600 hp x 7500 psi triplex mud pumps will be utilized for the circulating system. Also, in addition to the BOP stack, a gas buster and flare stack will be installed into the system with a fully operational EDR system to monitor pressures and tank volumes.



Surface Hole is to be drilled with fresh water with enough viscosity to clean the hole. Gel sweeps should be utilized to clean the hole. The entire interval will be drilled with a closed loop solids control system. Mud weights in this section can vary from 8.4-8.8 ppg. Reactive clays and bit balling can be expected.

A 40 ml poly liner with foam type berms will be utilized under the drilling rig, mud tanks, shakers, and drill cuttings bins.

Water-based bentonitic drilling fluids will be hauled off site by a licensed third-party transporter to be disposed of at a properly permitted commercial waste facility per Rule 905.d.(3)

Expected volumes and Frequency of loading:

Daily Volume	Frequency of Disposal	Phase(s) of Generation	Duration of Waste Stream
150 BBLs	Once per Pad	Surface Hole Drilling	1 Day/well

**WATER-BASED BENTONITIC DRILL CUTTINGS**

Treatment

Water-based bentonitic drilling fluids returning up the annulus will be filtered to remove solids through the closed loop system, cuttings are shaken out into impervious bins above a mat and hauled off for off-site disposal while fluids will be routed through a suction tank and mud pump, remixed and recirculated.

Characterization

Drill cuttings are made up of small pieces of shale, chalk or sand that is cut from the subsurface formations via the drill bit. Such pieces are lifted to the surface via the drilling mud in the hole.

- Is the waste a "solid waste"? YES, per COGCC definition.
- Is the waste specifically excluded from the RCRA regulations? YES.
- Is the waste a "listed" hazardous waste? NO.
- Does the waste exhibit a characteristic of hazardous waste? NO.

By applying knowledge of the hazardous characteristic(s) of the waste in light of the materials or the processes used ("knowledge of process"), this waste stream does NOT meet the criteria of a hazardous waste as defined by EPA RCRA Hazardous Waste Classification.

Management/Storage/Disposal/Transport

Samples of cuttings may be separated for analysis.

Water-based bentonitic drill cuttings will be hauled off site a licensed third-party transporter to be disposed of at a properly permitted commercial waste facility per Rule 905.g.

Expected volumes and Frequency of loading:

Daily Volume	Frequency of Disposal	Phase(s) of Generation	Duration of Waste Stream
200 Tons	10 Loads/Day	Drilling of Surface Hole	1 Day/Well



## **OIL-BASED DRILLING FLUIDS**

### Treatment

Oil-based drilling fluids returning up the annulus will be filtered to remove solids through the closed loop system, cuttings are shaken out into impervious bins above a mat and hauled off for off-site disposal while fluids will be routed through a suction tank and mud pump, remixed and recirculated.

### Characterization

Operator utilizes a clear, colorless refined distillate derived from petro hydrocarbons called D822 that is specifically designed for down hole OBM drilling purposes. This product provides a higher aniline point and a lower BTEX than straight diesel which should reduce the odor associated with the OBM system. The refined distillate is generally classified as a Group II fluid per the manufacturer as it is not a diesel nor is it a synthetic mineral oil or an additive/odor neutralizer.

- Is the waste a "solid waste"? YES, per COGCC definition.
- Is the waste specifically excluded from the RCRA regulations? YES.
- Is the waste a "listed" hazardous waste? NO.
- Does the waste exhibit a characteristic of hazardous waste? NO.

By applying knowledge of the hazardous characteristic(s) of the waste in light of the materials or the processes used ("knowledge of process"), this waste stream does NOT meet the criteria of a hazardous waste as defined by EPA RCRA Hazardous Waste Classification.

### Management/Storage/Disposal/Transport

Production Hole is to be drilled with an oil-based mud (OBM) system utilizing D822 as the base fluid. The mud weights will be kept in the 9.6 – 11.5 ppg range as needed to adequately control the well. Ensure there is enough volume of fluid in the system and be prepared to have Mud Engineer order out or mix up heavier mud for caps and weighting up.

A 40 ml poly liner with foam type berms will be utilized under the drilling rig, mud tanks, shakers, and drill cuttings bins.

Oil-based drilling fluids are stored in impervious bins while on location. Any oil-based drilling fluids brought to location are typically remixed and re-used during drilling operations. Upon completion of drilling operations, the oil-based drilling fluid is returned to provider for reuse or recycle. If disposal of oil-based drilling fluid is required, the waste will be transported off-site and to a permitted commercial waste facility accompanied by an approved waste manifest.

### Expected volumes and Frequency of loading:

Daily Volume	Frequency of Disposal	Phase(s) of Generation	Duration of Waste Stream
150 BBLs	Recycled	Drilling Production Hole	6 Days/Well



## **OIL-BASED DRILL CUTTINGS**

### Treatment

Oil-based drilling fluids returning up the annulus will be filtered to remove solids through the closed loop system, cuttings are shaken out into impervious bins above a mat and hauled off for off-site disposal while fluids will be routed through a suction tank and mud pump, remixed and recirculated.

### Characterization

Drill cuttings are made up of small pieces of shale, chalk or sand that is cut from the subsurface formations via the drill bit. Such pieces are lifted to the surface via the drilling mud in the hole.

- Is the waste a "solid waste"? YES, per COGCC definition.
- Is the waste specifically excluded from the RCRA regulations? YES.
- Is the waste a "listed" hazardous waste? NO.
- Does the waste exhibit a characteristic of hazardous waste? NO.

By applying knowledge of the hazardous characteristic(s) of the waste in light of the materials or the processes used ("knowledge of process"), this waste stream does NOT meet the criteria of a hazardous waste as defined by EPA RCRA Hazardous Waste Classification.

### Management/Storage/Disposal/Transport

Samples of cuttings will be separated for analysis and mud logging will be done on cuttings from a depth of approximately 5,000 ft to total depth of the well.

Oil-based drill cuttings will be hauled off site by a licensed third-party transporter to be disposed of at a properly permitted commercial waste facility per Rule 905.g.

Oil-based drill cuttings will be stored in an impervious bin where it is mixed with mulch/soil mixture to remove any free liquids before disposal. All oil-based drill cuttings are transported by a licensed third-party transporter to a permitted commercial waste facility. Each truck load will be accompanied with an approved waste profile and manifest before sending to a commercial waste facility.

### Expected volumes and Frequency of loading:

Daily Volume	Frequency of Disposal	Phase(s) of Generation	Duration of Waste Stream
300 Tons/Day	15 Loads/Day	Drilling Production Hole	6 Days/Well

## **PRODUCED WATER**

### Treatment

Prior to first production, flowback water will be run through separation equipment and routed via dump lines to closed top temporary flowback tanks and loaded for off-site disposal via truck. After first production is established through the production facility, produced fluids will be routed to HP & LP separators, where the water will be routed to 16 oz closed water tanks prior to being loaded for off-site disposal via truck.



### Characterization

Produced waters are typically naturally occurring saline waters from underground formations that are brought to the surface.

- Is the waste a "solid waste"? YES, per COGCC definition.
- Is the waste specifically excluded from the RCRA regulations? YES.
- Is the waste a "listed" hazardous waste? NO.
- Does the waste exhibit a characteristic of hazardous waste? NO.

By applying knowledge of the hazardous characteristic(s) of the waste in light of the materials or the processes used ("knowledge of process"), this waste stream does NOT meet the criteria of a hazardous waste as defined by EPA RCRA Hazardous Waste Classification.

### Management/Storage/Disposal/Transport

All produced water will be contained in steel water or multi-use tanks inside the facility tank berm and installed above the impermeable synthetic liner system to contain and spills or leaks.

### Expected volumes and Frequency of loading:

Daily Volume	Frequency of Disposal	Phase(s) of Generation	Duration of Waste Stream
500 BBL/Well	Daily	Flowback - Completions	60 days/well
50 BBL/Well	Daily	Production	Life of wells

## **OILY WASTE/TANK BOTTOMS**

### Treatment

None.

### Characterization

A mixture of sediment, dirt, emulsified oil, and water which settles and accumulates in the bottom of storage tanks.

- Is the waste a "solid waste"? YES, per COGCC definition.
- Is the waste specifically excluded from the RCRA regulations? YES.
- Is the waste a "listed" hazardous waste? NO.
- Does the waste exhibit a characteristic of hazardous waste? NO.

By applying knowledge of the hazardous characteristic(s) of the waste in light of the materials or the processes used ("knowledge of process"), this waste stream does NOT meet the criteria of a hazardous waste as defined by EPA RCRA Hazardous Waste Classification.

### Management/Storage/Disposal

Volumes of sediment vary by location and will be monitored via visual inspection and through automation data.



Transport

Oily waste and tank bottoms will be periodically drained via vacuum truck as needed and hauled off site by a licensed third-party transporter to be disposed of at a properly permitted commercial waste facility per Rule 905.d.

Expected volumes and Frequency of loading:

Daily Volume	Frequency of Disposal	Phase(s) of Generation	Duration of Waste Stream
As needed	As needed	Production	Life of wells

**GENERAL TRASH**

Treatment

None.

Characterization

Trash consists of any unused equipment, junk, or all other man-made non-E&P, non-hazardous waste.

- Is the waste a "solid waste"? YES, per COGCC definition.
- Is the waste specifically excluded from the RCRA regulations? YES.
- Is the waste a "listed" hazardous waste? NO.
- Does the waste exhibit a characteristic of hazardous waste? NO.

By applying knowledge of the hazardous characteristic(s) of the waste in light of the materials or the processes used ("knowledge of process"), this waste stream does NOT meet the criteria of a hazardous waste as defined by EPA RCRA Hazardous Waste Classification.

Management/Storage/Disposal/Transport

A trash bin will be located on site to accumulate waste by the personnel drilling the wells. Site will have unused equipment, trash and junk removed immediately as the bin is filled during drilling and completion phases. Lease operator will remove any trash found on site during daily inspections.

Bayswater will not bury or burn trash or other waste materials at an oil and gas location.

Trash receptacles will be designed, maintained, and operated to exclude wildlife, and to protect public safety, the environment, and wildlife from exposure to overflowing, leak prone, or insecure trash receptacles.

General trash and other non-hazardous waste will be hauled off site by a licensed third-party transporter to be disposed of at a properly permitted commercial waste facility per Rule 906.c.

Expected volumes and Frequency of loading:

Daily Volume	Frequency of Disposal	Phase(s) of Generation	Duration of Waste Stream
As needed	As needed	All Phases	Life of wells



There will be one portable toilet on location that will be emptied once a week, and two septic tanks that will be emptied twice a week.

### **Reuse and Recycling**

If opportunities for reuse and recycling become practicable, a reuse and recycling plan will be submitted as described in Rule 905.a.(3), however based on Bayswater's projected frac schedule adequate production water may not be readily available for recycling operations. In addition, water recycling is dependent on transportation, storage, and site traffic safety. To achieve the greatest truck traffic reduction for the benefit of offset residential building unit owners, Bayswater does not believe this site is an acceptable site for recycling operations, as it would potentially increase the number of round-trip truck trips by up to 75 trips daily during completion operations. This would also not be consistent with our approved 1041WOGLA from the Weld County whereby Bayswater agreed to not truck water into location for frac operations thereby reducing the traffic counts as noted above.

### **Haul Routes**

Operator will use the appropriate haul routes for all waste transport as coordinated and identified within the approved 1041WOGLA for this location and communicated via the Road Maintenance Agreement with Weld County.

### **Best Management Practices**

- Inspections: Conduct inspections and preventative maintenance on flow lines, storage tanks, and other E&P production equipment; use proper containers, keep lids on containers, and store containers properly to prevent overflow or spillage; maintain secondary containment for recovery of spills; and review SPCC Plans if applicable.
- Manifests: All drill cuttings generated during drilling operations are transported offsite with proper manifesting for disposal at facilities properly permitted to receive E&P waste.
- Sampling/Disposal/Inspections: Prior to transporting of the waste, Operator will ensure that a waste profile is on file with the disposal company, or will, characterize the waste for profiling. When the waste is sent for disposal, the waste will be identified on the waste shipping manifest. Any associated sampling data, inspection results, and/or SDS information will be kept with the waste profile documentation. Unforeseen wastes not listed in the Waste Stream table will be stored and disposed of in accordance with all regulations applicable to the specific waste.
- All odor emitting substances are removed from Location as quickly as possible. Cuttings are hauled off Location daily, except Sundays when the disposal facility is closed. The large trash bin on Location is covered and emits little to no odor, it is emptied and hauled off site as necessary, generally every two to four days.