



## **E&P WASTE MANAGEMENT PLAN**

**1041WOGLA22-0042**

**Dittmer Pad Oil and Gas Development Plan**

**Dittmer Pad: NWNW Section 32, Township 1 North, Range 66 West**

**Form 2A Doc #403185947**

**Weld County, Colorado**

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 Incline'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. Incline coordinates with Relevant Local Governments on haul routes for transport of waste.

### **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 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 get 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.

#### Management/Storage/Disposal/Transport

A minimum of two 1600 hp x 7500 psi triplex mud pumps will utilized on the drilling rig 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.

All oil and water loadouts that are commonly used have a load bucket and isolation valve. Since they are used often, there is not a bull plug installed. Any loadouts (water on back of tanks for example) that are rarely used, are bull plugged without a load bucket.



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)

### **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 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...

- 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.

#### Management/Storage/Disposal/Transport

Samples of cuttings will be separated for analysis and mud logging.

Water-based bentonitic drill cuttings will be hauled off site by a licensed third-party transporter to be disposed of at a properly permitted commercial waste facility. Cuttings will be temporarily stored in steel bins on the location in the time between recovery of the drill cuttings and ground transportation to North Weld Landfill, 40000 Weld County Rd 25, Ault, CO 80610.

### **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 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 petroleum hydrocarbons 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 a non-Group II or Group III fluid and is not an additive/odor neutralizer. An actual odor neutralizer will be utilized in the OBM mud system during drilling operations to help mitigate odors. Aromatics will also be mitigated during completion operations by utilizing closed flowback tanks with all vapors being sent to a temporary combustor during the flowback period.

- 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.

#### Management/Storage/Disposal/Transport

Production Hole is to be drilled with an oil-based mud (OBM) system utilizing diesel make up fuel. Mud weight will be kept at 9.6 – 11.5 ppg. Incline personnel will ensure there is sufficient volume of fluid in the system and will have sufficient weighting material on site to build 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.

All load lines will be bull plugged and have spill-containments buckets installed. Any valves that are rarely used (drain valve on back of tanks for example) will be bull plugged without a load bucket.

Oil-based 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.e.

#### **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 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

Oil-based drilling fluids returning up the annulus

- 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.

#### Management/Storage/Disposal/Transport

Mud logging will be done on cuttings.

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. Cuttings will be temporarily stored in steel bins on location in the time between recovery of the drill cuttings and ground transportation to North Weld Landfill, 40000 Weld County Rd 25, Ault, CO 80610.

#### **Produced Water**

##### Treatment

During the Flowback phase, produced 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. These



tanks will be connected to an ECD to control vapors. After production is established, produced fluids will be routed to HP & LP separators, where the water will be routed to sealed water tanks connected to ECDs and enclosed in secondary containment, then 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.

#### Management/Storage/Disposal/Transport

Produced water will be stored in four sealed 536-bbl (22,500) gallon FRP tanks constructed to API Spec 12P and enclosed in a steel-ringed secondary containment berm with an impermeable synthetic liner. Vapors from these tanks will be routed to a combustion device. All load lines will be bull plugged and have spill-containments buckets installed. Any valves that are rarely used (drain valve on back of tanks for example), will be bull plugged without a load bucket. Produced water will be hauled from these tanks to one of several approved Class II UIC disposal facility in Weld County in sealed vacuum trucks.

### **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.

#### Management/Storage/Disposal/Transport

Oily waste and tank bottoms will be periodically drained via vacuum truck.

Oily waste and tank bottoms 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.

### **General Trash**

#### Treatment

None.



### Characterization

Trash consists of any unused equipment, junk, or 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? NO.
- Is the waste a "listed" hazardous waste? NO.
- Does the waste exhibit a characteristic of hazardous waste? NO.

### Management/Storage/Disposal/Transport

Unused equipment, trash and junk will be removed immediately during drilling and completion phases. During the production phase the lease operator will remove any trash found on site during daily inspections.

Incline Operating, LLC will not bury or burn trash or other waste materials at this or any 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 stored in a dumpster onsite and hauled off site by a licensed third-party transporter to be disposed of at a properly permitted commercial waste facility per Rule 906.c.

### **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). At this time, no recycled or reused water is anticipated to be used due to constraints in the scheduling and availability. If available, a small amount of recycled or reused water could be used during the drilling and completion phases.

At this time, Incline Operating, LLC does not plan to recycle water on the Dittmer pad as there is not sufficient room at the facility to accommodate the additional storage and processing equipment required. In addition, successful processing requires additional chemical usage and significant energy expenditure, which increases the cumulative impact and carbon footprint of the operation. The storage of recycled water can lead to increased odor complaints.

Incline Operating, LLC has determined that the lowest cost course of action, both in terms of decreased impact on public health, safety, welfare, the environment and wildlife resources, and in monetary terms, is to take produced water to an approved disposal site as soon as possible. The area currently has adequate supplies of fresh water adjudicated for industrial purposes such as hydraulic fracturing, in addition to safe and reliable disposal options.



## Haul Routes

Operator will use the appropriate haul routes for all waste transport as coordinated and identified within the approved WOGLA for this location.

## Best Management Practices

- Operator utilizes advanced oil-based mud systems which target the reduction of aromatics.
- Hydrocarbon odors from production facilities are minimized and eliminated by keeping produced fluid hydrocarbons and natural gas contained within pipes, separators, tanks, and combustors. All tanks will be sealed with thief hatches and gaskets. Tank vapors are captured with properly sized piping and combustors.
- A temporary impermeable synthetic or geosynthetic liner with foam type berms will be utilized under the drilling rig, mud tanks, shakers, and drill cuttings bins.
- Operator will not bury or burn trash or other waste materials at an oil and gas location.
- All loadlines shall be bullplugged or capped.
- Secondary containment berms shall be constructed with steel walls with an impermeable synthetic or engineered liner.
- All liner seams will be welded and tested in accordance with applicable ASTM international standards.
- 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.
- Occasionally, spills of production fluids may occur during oil and gas operations that result in localized impacts to soils on or near the facility. All spills are immediately investigated by Incline personnel and 3<sup>rd</sup> party Contractors. Impacted soils are assessed to determine if they exceed regulatory cleanup standards and require removal, treatment, or disposal. Characterizing potentially contaminated soils is accomplished by field-screening the impacted soils to determine relative hydrocarbon concentrations, and/or by collecting samples of the impacted soils and sending the samples to an approved commercial lab for analysis. All contaminated soils exceeding regulatory cleanup standards are excavated and disposed of appropriately. If a spill incident is subject to agency reporting requirements, the appropriate agencies are notified within the regulatory timelines. Impacted soils that exceed applicable cleanup standards are typically excavated and taken to an off-site commercial disposal facility that is authorized to accept that type of waste.