

**HIGHPOINT OPERATING CORPORATION**  
**EXPLORATION AND PRODUCTION WASTE MANAGEMENT**  
**PLAN (DRILLING, COMPLETION, AND PRODUCTION ACTIVITIES)**

Water-Based and Oil-Based Drilling Fluids

The use of water-based and oil-based fluids is used for drilling horizontal wells. The operator uses the following drilling scenario with oil-based muds. The use of water-based drilling mud only while drilling the surface casing is set in the vertical portion of the borehole. Once the surface casing is set, Operator switches to oil-based drilling fluid to complete the remaining lateral borehole. Operator determines the appropriate drilling scenario based on borehole layout, costs, and available equipment. The well is then permitted accordingly depending on the drilling mud type chosen. All wells are drilled using pitless “closed loop” mud handling systems. Drilling fluid is contained in a series of metal tanks associated with the drilling rig and does not contact the ground surface.

The following is a summary of the drilling process when Operator uses both water-based and oil-based drilling mud, while drilling a single borehole. Approximately 400-500 barrels (bbls) of water-based drilling fluid waste is produced during drilling of the surface casing borehole(s). The water-based drilling fluid is reused for each surface casing borehole on a well pad. After the surface casing installation is completed, the used water-based drilling fluid is transported to a permitted disposal facility via vacuum truck and transport tanker trucks on an as-needed basis. Upon completion of the surface casing borehole(s), Operator will switch to oil-based drilling fluid. Operator will use oil-based drilling fluid to drill the remaining lateral borehole(s). Oil-based drilling fluid can be recycled much longer than water-based drilling fluid. The oil-based drilling fluid is transported to the next drilling location and reused. Only small quantities of the oil-based drilling fluid will be transported to a permitted disposal facility, if necessary. All drilling fluid is transported to permitted disposal facilities under waste manifest to ensure chain of custody control.

Drill Cuttings

Approximately 400 - 500 cubic yards of drill cuttings are produced during the drilling of a typical Wattenberg Field horizontal well. The wells are drilled using pitless “closed loop” mud handling systems. Drill cuttings are mechanically separated and stored in a 20 cubic yard metal roll-off container. The cuttings are transferred from the roll-off container to a transport truck and hauled to a permitted disposal facility. Drill cuttings are transported to permitted disposal facilities under waste manifest to ensure chain of custody control.

Flowback Fluid

During well stimulation, water is injected into the formation. After conclusion of completions activity, the injected water and formation fluid are temporarily produced by the well (flowback fluid) and diverted to onsite tanks and temporarily stored onsite. At the completion of flowback operations on a typical horizontal well, approximately 13,000 bbls of fluid are recovered. Recovered flowback fluids are then transported to a permitted water

# **HIGHPOINT OPERATING CORPORATION**

## **EXPLORATION AND PRODUCTION WASTE MANAGEMENT PLAN**

### **(DRILLING, COMPLETION, AND PRODUCTION ACTIVITIES)**

recycling/disposal facility via vacuum truck or transport tanker truck. Flowback water is transported to permitted recycling/disposal facilities under waste manifest to ensure chain of custody control.

#### Produced Water

Water produced from an operating Wattenberg Field horizontal well is separated from other produced fluids via a three phase separator and diverted to a cement, fiberglass, or steel produced water storage vessel. Produced water storage tanks are emptied on a routine basis and the produced water is transported to a permitted water recycling/disposal facility via vacuum truck or transport tanker truck. Produced water is transported to a permitted recycling/disposal facility under waste manifest to ensure chain of custody control. On a limited number of locations produced water is piped directly to the permitted water recycling/disposal facility via Operator pipeline.

#### Tank Bottoms

Liquid wastes consisting of Sand/Bacteria/Water, resulting from cleaning an oil production tank or produced water tank are transferred via hydro-vac truck to a permitted water recycling/disposal facility via vacuum truck or transport tanker truck. Liquid waste is transported to permitted recycling/disposal facilities under waste manifest to ensure chain of custody control.

Solid wastes at the bottom of oil production tanks and produced water tanks including, but not limited to, sand, sludge, and other solids are transported to a permitted disposal facility via transport truck. Solid waste is transported to permitted disposal facilities under waste manifest to ensure chain of custody control.

#### Impacted Soil Storage/Disposal

General housekeeping of production facilities, including cleanup of limited drips and spills may generate small quantities of (E&P) exempt impacted soil and/or gravel. This includes soil or gravel from secondary containment. Operator may install small, centralized storage/disposal locations throughout the operations area for organized disposal of this waste. The covered waste containers are emptied on an as needed basis. The impacted soil/gravel is transported to a permitted disposal facility under waste manifest to ensure chain of custody control. Storage/disposal is only related to housekeeping activities and is not meant for large release cleanup or remediation.

#### Oily Trash

During operations and maintenance of production facilities, various types of exploration and production (E&P) exempt trash are generated. This includes oily gloves, rags, absorbent pads, rod packing, and spent bags filters. These items are used in the maintenance of E&P exempt oil and produced water process equipment. Operator has installed centralized disposal locations

**HIGHPOINT OPERATING CORPORATION**  
**EXPLORATION AND PRODUCTION WASTE MANAGEMENT PLAN**  
**(DRILLING, COMPLETION, AND PRODUCTION ACTIVITIES)**

throughout the operations area for disposal of this waste. The covered waste containers are emptied on an as needed basis. The oily trash is transported to a permitted disposal facility under waste manifest to ensure chain of custody control.