



## **Odor Mitigation Plan**

Outpost OGDG plan

Sec 26 T33N R8W

La Plata County, Colorado

## **Location Information**

This document provides site-specific information for the Outpost wellpad, tank pad, and Outpost OGD. The information in this document relates specifically to the time during the construction, drilling, completion, interim reclamation, and production of the ten (10) proposed horizontal wells on this location.

The Outpost wellpad and tank pad will utilize existing gravel access roads exiting to the south off the paved La Plata County Road 318. The access road entrance is approximately 2.63 miles west of the intersection of County Road 318 and State Highway 172. The Outpost Pad and tanks pads are located in the NWNE and NENE of Section 26, Township 33 North, Range 8 West and would be an expansion and partial pad share of an active well pad operated by Red Willow Production Company. The surface of the wellpad is owned by J Paul Brown and the surface of the temporary tank pad is owned by Danny Jaques and is currently used for rangeland. A permit has been filed with La Plata County in conjunction with the Outpost OGD.

The temporary tank pad would be located northwest of the well pad. The permitted area associated with the well pad would be 7.28 acres, with a proposed working pad surface of 5.30 acres. The permitted area associated with the tank pad would be 5.18 acres, with a working pad surface of 3.20 acres. The proposed production facility equipment for the Outpost Pad will be located within the Working Pad Surface adjacent to the wells and will consist of produced water tanks, separators, coolers, dehydrator(s), electrical/SCADA equipment, and meters.

### **1. *Potential sources of odors.***

Catamount will conduct emission or leak monitoring of all equipment used during field operations which may contain potentially harmful substances, including any pressure relief devices or vacuum devices attached to containment vessels. In addition, Catamount will maintain records of any releases or observations. The following have been identified as potential sources of odor.

#### **Construction Odor Sources**

- Diesel Exhaust
- Toilets and Dumpsters

#### **Drilling Odor Sources**

- Operator shall utilize a closed-loop, pit-less mud system for managing drilling fluids.
- Operator shall employ the use of drilling fluids with low to negligible aromatic content (IOGP Group III) for the production hole section
- Operator shall remove drill cuttings daily and as soon as waste containers are full.
- Operator shall employ pipe cleaning procedures when removing drill pipe from the hole; these procedures may include "wiping" the pipe before racking it in the derrick.

#### **Completions Odor Sources**

- Engines on Workover or Coiled Tubing Rig
- Pump and Sand Trucks
- Generators

- Acid Transports
- Perforating Guns
- Toilets and Dumpsters

**Production Odor Sources**

- Wellheads
- Meters
- Toilets and Dumpsters

**Planned drilling fluid:**

- Hydrocarbon based drilling fluid will be used for the production hole section at an approximate ratio of 70% hydrocarbon to 30% water.
- Fresh water mud system will be used for the surface and intermediate sections
- The 70% hydrocarbon portion of the drilling fluid will be comprised of a Group III non-aqueous fluid with low to negligible aromatic content. The PAH content of the Group III fluid will be less than 0.001% and contain no BTEX.

**List of odor-reducing, or suppressive additives planned for use as part of normal operations:**

- Group III drilling fluids are considered to have negligible odor and do not require any type of additional additive to suppress nuisance odors
- In the unlikely event that nuisance odors do become a problem during active production drilling operations, Catamount will have a contingency water-soluble odor neutralizer with essential oils available to treat the drilling fluid system on an as needed basis

**Equipment and processes used to control odors for each source/activity:**

- Utilizing a Group III base oil drilling fluid will be the primary defense against odor control
- The Group III drilling fluid eliminates odor in the following areas:
  - Shaker area and cuttings transfer tank
  - Active and reserve oil-based mud tanks
  - Three-sided cuttings collection/storage tanks
  - Drilling tubulars racked in derrick
  - Cuttings loads in transport to landfill

**Additional techniques used to further ensure the elimination and/or reduction of odor:**

- All cuttings on location are dried using centrifugal dryers to ensure only trace amounts of drilling fluid remain on the dry cuttings. This ensures odor is eliminated while waiting on transport and during transport to local landfills.
- Drill pipe and any other tubular pulled out of the hole are wiped down before being racked in the derrick or laid down on location.
- Base oil used to build new drilling fluid is transferred through a line outlet run to the bottom of the mix tank to minimize agitation (splashing) and reduce potential to create odor
- During flowback and well completions, utilize closed-loop completion techniques to the maximum extent practicable to minimize emissions and the flaring of natural gas

**Cuttings management at location & odor management during transport:**

- All residual drilling fluid on cutting will be comprised of water and Group III base oil which is considered to have negligible odor.
- After passing over the shale shakers, cuttings are transported through a closed loop piping system to a centrifugal dryer which removes the majority of drilling fluid, leaving dry cuttings and the drilling fluid is then returned to the active pit system for reuse.
- Cuttings are transported to local landfills, generally, remaining on location less than 24 hours. The dried cuttings with only trace drilling fluid will not have an odor because of the use of Group III base oil.
- In the event odor did become noticeable on cuttings on location or during transport, an odor neutralizing agent will be available as a contingency to treat the residual fluid on cuttings, but only applied if necessary.

**Best Management Practices used during drilling:**

- All oil-based drilling fluids will be built using a Group III base oil with negligible aromatic content and PAH less than 0.001% so that it does not emit odor during all production drilling operations.
- The Group III base oil will be utilized in a closed loop drilling fluid system and eliminate odor at the shakers, transfer tank, active/reserve tanks, and cuttings in collection tanks and during transport.
- A freshwater mud system will be utilized for drilling both the surface hole and intermediate hole sections of the wellbore.
- The production section of the wellbore will be drilled with a weighted synthetic Oil Based Mud (OBM) system.
- All drill cuttings are processed through centrifugal dryers to remove residual oil-based drilling fluid not removed by shale shakers.
- The drill cuttings will be mixed with fly-ash to absorb any excess moisture prior to hauling off location.
- All tubulars pulled out of the hole will be wiped prior to being racked in the derrick or laid down.
- Cuttings storage time on location will be minimized prior to transport to local landfills.

**Best Management Practices used during production:**

- Catamount uses pipelines to transport hydrocarbons (gas) from the wellpad.
- Production facilities are inspected regularly by Catamount to make sure the equipment is working properly and necessary maintenance is performed, to reduce potential odors. Catamount incorporates Audio, Visual, Olfactory (AVO) observations at production facility inspections.
- Catamount will use Best Management Practices to reduce unloading events and to reduce potential odor causing emissions when liquids unloading is necessary (i.e., maintenance activities to remove liquids from existing wells that are inhibiting production).
- Catamount remotely monitors production facilities, this reduces traffic onto production facilities which may create odors from truck traffic.