

IGS 156

Site Specific Data Sheet

Elm Ridge Exploration Company, LLC

February 2015

INTRODUCTION

This Site Specific Data Sheet (SSDS) includes the best management practices (BMPs) and reclamation plans for Elm Ridge Exploration Company LLC (Elm Ridge) IGS 156 well in accordance with the Colorado Department of Public Health and Environment (CDPHE) requirements. This SSDS is a supplemental attachment to the Elm Ridge Master Stormwater Management Plan (MSWMP) for oil and gas construction activities in the Ignacio-Blanco oil and gas field. BMP diagrams and additional general stormwater information are also included in the MSWMP.

The SSDS and MSWMP can be obtained from Elm Ridge. Terry Lindeman is the Elm Ridge contact person and his contact information is listed below:

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PROJECT DESCRIPTION

The proposed work area would be located on and off the existing Elm Ridge Davis #1 well pad. This area of existing well pad disturbance is 1.58 acres. The total area of the proposed well pad construction is 0.94 acre, of which, 0.24 acre would be new disturbance away from the existing pad. Slopes within the proposed project average 0 to 7 percent. Disturbance would include the removal of soil to create a level pad of 150 feet by 135 feet for drilling.

ESTIMATED TOTAL AREA OF THE SITE TO UNDERGO CLEARING, EXCAVATION, OR GRADING

The maximum disturbance associated with the proposed permanent well pad would be 0.94 acre, of which, 0.24 acre would be new disturbance.

EXISTING SOIL

Parent materials found at the project site and surrounding areas include residuum weathered from shale. The surveyed soil-map unit for the project area consist of Zyme-Rock outcrop complex, 12 to 65 percent slopes. This soil type is well drained. Zyme-Rock outcrop soils have a low potential for water erosion and a moderate potential for wind erosion (NRCS 2015¹).

¹ Natural Resources Conservation Service (NRCS). 2015. Web Soil Survey. Available online at <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed February 2015.

DESCRIPTION OF EXISTING VEGETATION AND ESTIMATE OF PERCENT OF GROUND COVER

The proposed well pad would be within an existing well pad disturbance area. The majority of the project area is bare ground with no ground cover. Previously disturbed, reclaimed vegetation accounts for a small portion of the project area. Undisturbed vegetation occurs on the south side of the well pad, consisting of piñon-juniper woodland. Ground cover was visually estimated at approximately 20 percent in reclaimed areas and 20 to 40 percent in undisturbed areas during the February 2015 site visit.

NAME OF RECEIVING WATER AND TYPE OF OUTFALLS

The nearest perennial water (indicated on the U.S. Geological Survey topographic map) is the Florida River—located approximately 3 miles west of the project area. Drainage from the proposed project area generally flows north then northwest, through unnamed intermittent drainages to the Florida River. There are no perennial water sources, wetlands, seeps, springs, or riparian areas within the proposed well pad or surrounding area.

PROJECT-SPECIFIC BMPs

The following BMPs are site-specific BMPs identified by Ecosphere Environmental Services during a field visit conducted in February 2015. BMP diagrams are included in the MSWMP. BMPs would be maintained or amended by Elm Ridge as site conditions change throughout the construction and reclamation process. Stormwater inspections would occur as stipulated in the MSWMP and required by the CDPHE. A map showing the BMP locations is attached. Site-specific BMPs will be installed pre-construction and during the construction process; BMPs will continue to be maintained until the site is finally stabilized per CDPHE requirements. Table 1 describes the structural BMPs used at IGS 156.

Table 1. Structural BMPs

BMP	How It Works	Location
Culvert with Culvert Protection	Culverts allow stormwater to flow through the project area without causing erosion. Inlet and outlet protection prevents soil and debris from entering storm drain inlets and prevents scouring at outlets by reducing flow.	Culvert with culvert protection at access road/well pad entrance.
Erosion Control Logs	Erosion control logs are made of fibrous material and work by trapping sediment. Erosion control logs must be trenched into the ground to be effective.	Below the fill slopes of the well pad.
Diversion Ditch	The diversion ditch diverts surface run on, around the well pad.	A diversion ditch would be located on top of the slope on the southeast, south, and west sides of the well pad to divert water around the well pad. Another diversion ditch will be located around the perimeter of the well pad area to divert water from the well pad.
Fuel and Chemical Containment	Fuel and chemicals stored on-site will be within secondary containments to reduce the potential for spills or off-site releases.	Where needed.

BMP	How It Works	Location
Tracking Control	An effective vehicle tracking control helps remove sediment (mud or dirt) from vehicle tires, reducing the potential for tracking onto off-site paved roadways.	If and where needed.
Riprap	Riprap is protection consisting of a layer of angular rocks. The rocks slow stormwater flow, thereby reducing erosion and settling out sediment.	Installed at inlets and/or outlets of diversion ditches, drainpipes, and culverts.
Silt Trap	Silt traps located at the end of diversion ditches collect sediment.	Installed at the end of diversion ditches.
Tackifier	Used to stabilize bare soil from wind and water erosion. The tackifier is combined with seed to encourage germination as well.	On cut slopes and fill slopes of the disturbance area on the well pad.

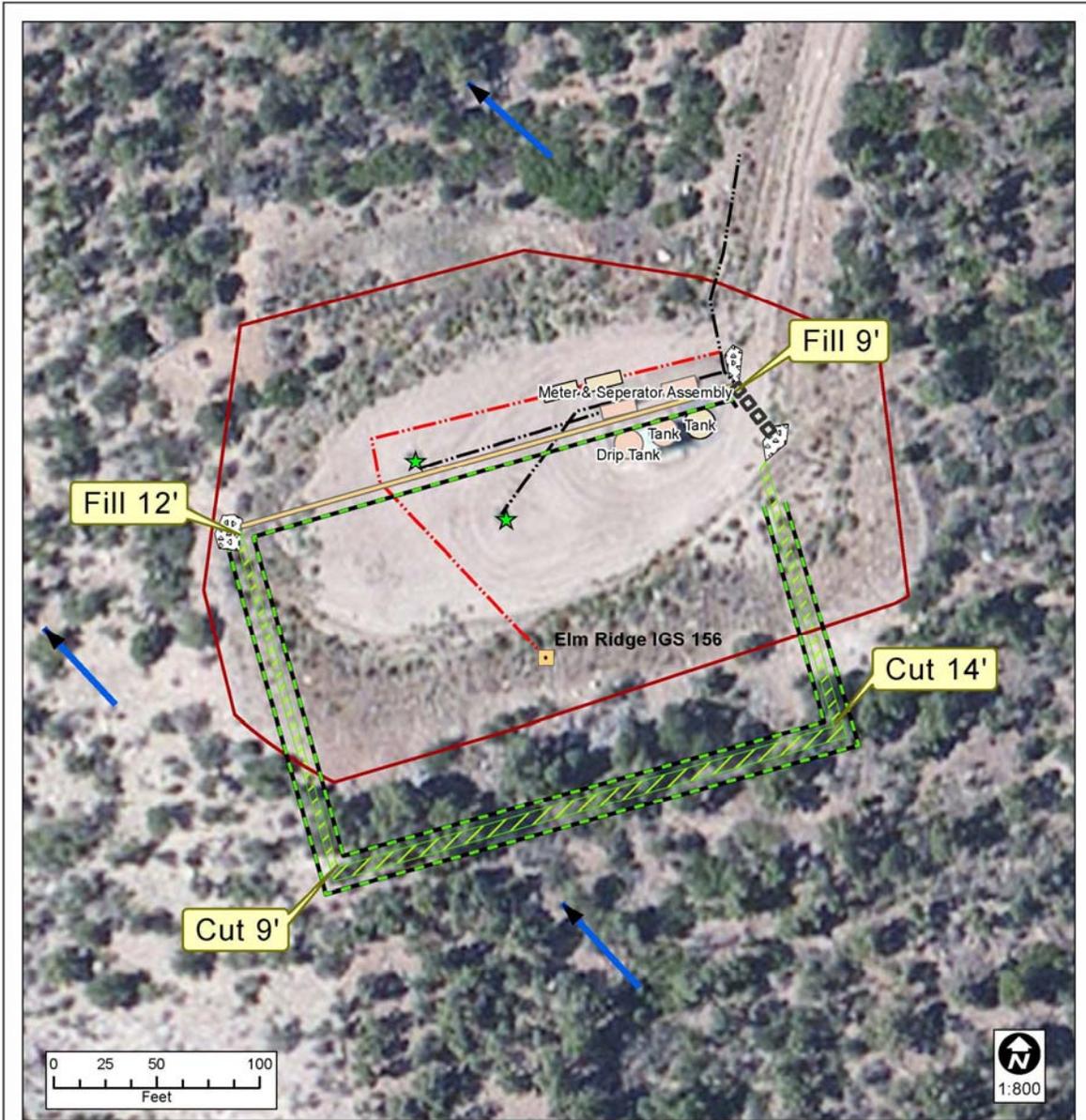
NON-STRUCTURAL BMPs

Table 2 includes non-structural BMPs that will be applied to the entire project area where needed, beginning with construction and continuing until final stabilization is reached.

Table 2. Non-Structural BMPs

BMP	How It Works	Location
Soil Roughening	Surface roughening creates small ridges and gullies with the teeth of the bucket on the front-end loader or with the grooves of tracked equipment. These ridges and gullies go across the slope (or along the contour of the slope), trapping stormwater and helping with revegetation. To create these ridges/gullies with tracked equipment, the equipment should be run up/down the slope.	All disturbed areas where needed.
Equipment Storage	All equipment will be contained within the ROW disturbance.	Within disturbance area where needed.
Rapid Reclamation	Rapid reclamation (surface contouring, surface roughening, seeding, and weed control) help to stabilize soil with vegetation and reduce runoff.	Within disturbance area where needed.
Dust Mitigation	Whenever needed, a water truck will be used to add moisture to the soil that will prevent the soil from becoming airborne and leaving the site.	Within disturbance area where needed.

PROJECT BMP MAP



- ★ Existing Well
- ▣ Culverts and Outlet Protection
- Diversion Ditch
- Erosion Control Wattles
- ▣ Rip Rap
- ▨ Soil Tackifier
- ▭ Existing Site Disturbance
- ▭ Proposed Structures
- ▭ Existing Structures
- Existing Pipeline
- Proposed Pipeline

**ELM RIDGE
EXPLORATION COMPANY
IGS 156 BMP MAP**

LA PLATA COUNTY, COLORADO

T33N, R9W SECTION 26

BONDAD HILL, CO
QUADRANGLE

Date: 2/27/2015

Coordinate System: NAD 1983 StatePlane Colorado South FIPS 0503 Feet

Name: ElmRidge_IGS_156_SWMP_20150226.mxd