

## **CX #2 Form 2A Stormwater Report and Site Specific Data Sheet**

### **Kinder Morgan CO2 Company, LP**

#### **INTRODUCTION**

This Form 2A stormwater report and Site Specific Data Sheet (SSDS) includes the Best Management Practices (BMPs) and reclamation plans for Kinder Morgan's proposed CX #2 well pad in accordance with Colorado Oil and Gas Conservation Commission's (COGCC) Form 2A and Colorado Department of Public Health and Environment (CDPHE) stormwater requirements. BMP diagrams and additional general stormwater information is included with Kinder Morgan's Master Stormwater Management Plan (MSWMP) for oil and gas construction activities for McElmo Dome and Doe Canyon. The MSWMP can be obtained from Kinder Morgan and is in accordance with CDPHE stormwater guidelines. The Kinder Morgan contact person is Phil Kennedy and his contact information is below:

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#### **PROJECT DESCRIPTION**

The proposed well pad would be located in a pinyon-juniper woodland. The proposed access road would follow an existing two-track road from County Road 8. Slopes within the proposed project average 3-6 percent. Disturbance would include the removal of top soil to create a level pad (400 feet by 350 feet) for drilling. The existing two-track road would be improved for approximately 3,400 feet that connects the proposed well pad to County Road 8. The access road improvements would occur in a 50-foot corridor for a total of 3.9 acres. The wellhead will be the only item on the pad once the well goes to completion.

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

The maximum disturbance associated would be 6.9 acres for the proposed well pad and 3.9 acres for access road improvements for a total of 10.8 acres.

#### **EXISTING SOIL**

Parent materials found at the project site and surrounding areas include alluvium and eolian deposits. There are 5 surveyed soil-map units for the project area that are included in Table 1 including their drainage capabilities and wind and water erosion potentials (NRCS 2014<sup>1</sup>).

Table 1. Soil map units for the project area (NRCS 2014).

Soil Name	Drainage	Wind Erosion Potential	Water Erosion Potential
Cahona loam, 6 to 12 percent slopes	Well drained	Not Highly Erodible	Severe
Cahona-Pulpit complex, 3 to 9 percent slopes	Well drained	Not Highly Erodible	Moderate
Gladel-Pulpit complex, 3 to 9 percent slopes	Well drained	Highly Erodible	Moderate
Romberg-Crosscan complex, 6 to 25 percent slopes	Well drained	Not Highly Erodible	Moderate
Wetherill loam, 3 to 6 percent slopes	Well drained	Not Highly Erodible	Moderate

<sup>1</sup> Natural Resources Conservation Service (NRCS). 2014. Web Soil Survey. Available online at: <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed September 2014.

#### DESCRIPTION OF EXISTING VEGETATION AND ESTIMATE OF PERCENT OF GROUND COVER

The proposed well pad would be located in a pinyon-juniper woodland as would any improvements to the existing two-track road.

#### NAME OF RECEIVING WATER AND TYPE OF OUTFALLS

The nearest perennial water—indicated on the U.S. Geological Survey topographic map—is Cross Canyon located approximately 7 miles southwest of the project area. Drainage from the proposed project area generally flows southwest through unnamed intermittent drainages to Cross Canyon. There are two intermittent streams mapped near the proposed well pad. One is 635 feet to the west and on is 990 feet to the southeast. 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 listed BMPs are site-specific BMPs identified by Ecosphere during a field visit on October 1, 2014. BMP diagrams are included in the MSWMP. BMPs would be maintained or amended by Kinder Morgan as site conditions change throughout the construction and reclamation process. Stormwater inspections would occur as stipulated in the MSWMP and as 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 and will continue to be maintained until the site is determined to be finally stabilized per CDPHE requirements. Table 2 describes structural BMPs used at CX #2.

**Table 2. Structural BMPs**

BMP	How It Works	Location
Bonded Fiber Matrix (Tackifier)	Bonding agents provide durability to minimize water and wind erosion, while also allowing for optimal rainwater penetration into soil for vegetative growth.	Disturbed areas surrounding well pad and topsoil stockpiles.
Culvert Protection	Inlet and outlet protection prevent soil and debris from entering storm drain inlets and preventing scouring at outlets by reducing flow.	At culverts along access road.
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.	Around perimeter of the well pad and soil stockpiles.
Diversion Ditch with Wattles	The diversion ditch diverts run on around the well pad.	Diversion ditch would be located along the north side of the well pad to capture runoff and divert around the well pad. Wattles would be located every 50 feet in the diversion ditch.
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.
Rock Check Dams	Rock check dams are constructed across a ditch to catch sediment.	Along the proposed access road where needed.
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.	Where needed.
Earth Berm	A compacted and stabilized earth berm greatly helps prevent any off-site releases.	Around perimeter of well pad.
Rock Armor	Rock armor is outlet/inlet protection consisting of a layer of angular rocks. The rocks slow stormwater flow, thereby reducing erosion and settling out sediment.	Installed on geotextile blankets at inlets and/or outlets of diversion ditches, drainpipes, and culverts.

#### NON-STRUCTURAL BMPs

Table 3 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 3. 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**

