

HA-#6 Well Pad Form 2A

Kinder Morgan CO2 Company, LP

INTRODUCTION

This Form 2A stormwater report includes the Best Management Practices (BMPs) and reclamation plans for Kinder Morgan's proposed HA-#6 well pad in accordance with Colorado Oil and Gas Conservation Commission's (COGCC) Form 2A 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 the Hovenweep area. The MSWMP can be obtained from Kinder Morgan and is in accordance with Colorado Department of Public Health and Environment (CDPHE) stormwater guidelines. The Kinder Morgan contact person is Bob Clayton and his contact information is below:

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PROJECT DESCRIPTION

The proposed well pad would be entirely located within dry croplands. The proposed access road would traverse similar habitat. Slopes within the proposed project average 5 percent. Disturbance (535 feet by 500 feet) would include the removal of top soil to create a level pad (350 feet by 375 feet) for drilling. The associated pipeline would leave the pad alongside the access road and continue west to tie in with an existing pipeline. 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 with the proposed well pad would be 6.14 acres.

EXISTING SOIL

Parent materials found at the project site and surrounding areas include Eolian deposits derived from sandstone. The surveyed soil map units for the project area include Wetherill loam, 1 to 3 percent slopes, Wetherill loam, 3 to 6 percent slopes, Wetherill loam, 6 to 12 percent slopes,. (NRCS 2013¹).

Table 1. Soils found in the project area¹

Soil Name	Drainage	Wind Erosion Potential	Water Erosion Potential
Wetherwill loam, 1 to 3 percent slopes	Well drained	Slight	Slight
Wetherill loam 3 to 6 percent slopes	Well drained	Slight	Slight
Wetherill loam 6 to 12 percent slopes	Well drained	Slight	Slight

¹ Natural Resources Conservation Service (NRCS). 2013. Web Soil Survey. Available online at: <http://websoilsurvey.nrcs.usda.gov/app/>. Accessed May 29, 2013.

DESCRIPTION OF EXISTING VEGETATION AND ESTIMATE OF PERCENT OF GROUND COVER

The proposed well pad would be located on approximately 100 percent dry cropland. Vegetation in this dry cropland is composed of big sagebrush (*Artemisia tridentata*), Sandberg bluegrass (*Poa secunda*), rubber rabbitbrush (*Ericameria nauseosa*), common yarrow (*Achillea millefolium*), hairy false golden aster (*Heterotheca villosa*), and globemallow (*Sphaeralcea* sp.).

NAME OF RECEIVING WATER AND TYPE OF OUTFALLS

The nearest perennial water—indicated on the U.S. Geological Survey topographic map—flows through Yellow Jacket Canyon, located 6.3 miles south of the project area. Drainage from the proposed project area flows immediately southeast and continues in a southwest direction through several named and unnamed ephemeral and intermittent drainages to Yellow Jacket Canyon, which empties into McElmo Creek. There are no perennial water sources, wetlands, seeps, springs, or riparian areas within the proposed well pad or surrounding area.

PROJECT-SPECIFIC BMPs

Site-specific BMPs should be installed pre-construction and during the construction process. 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 required 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 1 describes structural BMPs used at HA #6 and Table 2 describes non-structural BMPs used at HA #6. These non-structural BMPs will be applied to the entire project area where needed beginning with construction and continuing until final stabilization is reached.

Table 1. Structural BMPs

BMP	How It Works	Location
Bonded Fiber Matrix (Tackifier)	Bonding agents provide durability to minimize water and wind erosion while allowing for optimal rainwater penetration into soil for vegetative growth.	When needed on disturbed areas surrounding well pad typically on the cut and fill slopes of the well pad.
Fiber Wattle (Sediment Control Logs)	Fiber Wattles on the downhill side of a disturbed area help filter contaminants from stormwater and reduce water velocity which also helps reduce soil erosion.	Along the down gradient edges of disturbance (EOD) and around stock piled soils.
Diversion Ditch with Wattles	The diversion ditch captures runoff and diverts it around the well pad	Diversion ditch would be located along the south and west EOD. Wattle check dams would be located every 50 ft. in the diversion ditch.
Fuel and Chemical Containment	Fuel and chemicals stored on-site will be within secondary containment to reduce the potential for spills or off-site releases.	Where needed.
Earth Berm	A compacted and stabilized earth berm greatly helps prevent any off-site releases.	Around perimeter of the well pad
Water Bars	Reduces water velocity, which helps prevent rills/ruts from forming. In addition, slowing down water flow allows more sediment to settle and not be carried off-site.	Along access roadways where needed. Along the Pipeline ROW on steeper slope.

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 which will greatly prevent the soil from becoming airborne and leaving the site.	Within disturbance area where needed.

PROJECT BMP MAP

