

YA #8 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 YA #8 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 McElmo Dome and Doe Canyon. 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 located on rangeland with scattered pinyon and juniper trees. Two small drainages bisect the area from north to south. One cuts through the western half of the location and the other, the east half. The overall slope ranges from 3-7 percent and the site drains to the southwest. The proposed access road leaves the main county road, travels along the edge of an agricultural field, and cuts through the rangeland for 730 feet before terminating at the southeastern pad boundary. The primary disturbance would be the removal of top soil to create a level pad (350 feet by 375 feet) for drilling.

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

The maximum disturbance associated with the proposed well pad would be 6.57 acres.

EXISTING SOIL DATA

Parent materials found at the project site and surrounding areas are Eolian deposits derived from sandstone and Eolian deposits over residuum weathered from sandstone. The surveyed soil map units found within the proposed project area consist of Unit 42 (Gladel-Pulpit complex, 3 to 9 percent slopes) and Unit 143 (Wetherill loam, 1 to 3 percent slopes) (NRCS 2011¹). The majority of the project area falls within unit 42. The dominant Gladel and Pulpit soils are associated with hills and mesas and are well drained. Gladel soils can contain up to 15 percent calcium carbonate (CaCO₃), and have a very low available water capacity. The profile consists of flaggy fine sandy loam down to 15 inches at which point

unweathered bedrock is encountered. Pulpit soils can contain up to 10 percent CaCO_3 and have a moderate available water capacity. The typical profile has loam down to 36 inches, followed by bedrock. Runoff is medium to high and water erosion is moderate to high. Wetherill soils are also associated with hills and mesas and are well drained. These soils can contain up to 30 percent CaCO_3 and have a high available water capacity. The soil profile consists of loam down to seven inches, followed by clay loam down to 48 inches, and loam again down to 60 inches. Run off is high and water erosion is high as well. (NRCS 2011¹).

¹ Natural Resources Conservation Service (NRCS). 2011. Web Soil Survey. Available online at: <http://websoilsurvey.nrcs.usda.gov/app/>. Accessed April 3, 2013.

² Natural Resources Conservation Service (NRCS). 1993. National Engineering Handbook, title 210-VI. Part 630, Chapter 7. Washington, DC. Available online at: http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1043081.pdf. Accessed April 3, 2013

DESCRIPTION OF EXISTING VEGETATION AND ESTIMATE OF PERCENT OF GROUND COVER

The project area is located in rangeland dominated by big sagebrush (*Artemisia tridentata*). Approximately 10 percent of the area has a tree canopy consisting of Utah juniper (*Juniperus utahensis*) and twoneedle pinyon (*Pinus edulis*). Other shrubs include antelope bitterbrush (*Purshia tridentata*), rubber rabbitbrush (*Ericameria nauseosa*), banana yucca (*Yucca baccata*), toadflax Penstemon (*Penstemon linarioides*), and Utah serviceberry (*Amelanchier utahensis*). Forbs and grasses include Indian ricegrass (*Achnatherum hymenoides*), sand dropseed (*Sporobolus cryptandrus*), cheatgrass (*Bromus tectorum*), curvseed butterwort (*Ceratocephala testiculata*), scarlet globemallow (*Sphaeralcea coccinea*), mariposa lily (*Calochortus* sp.), and various members of the mustard family (*Brassicaceae*). Ground cover is comprised of 70 percent vegetation and 10 percent litter.

NAME OF RECEIVING WATER AND TYPE OF OUTFALLS

The nearest perennial water—indicated on the U.S. Geological Survey (USGS) topographic map—is the Dolores River, located 13.0 miles east of the project area. However, drainage from the proposed project flows southwest through several named and unnamed ephemeral and intermittent drainages to the San Juan River which is 35 miles to the southwest. There are no perennial water sources, wetlands, seeps, springs, or riparian areas within the proposed well pad or surrounding area. However, a large canyon (Woods Canyon) with intermittent water flows is located about 1,000 feet to the north of the well head.

PROJECT-SPECIFIC BMPs

The following tables list site-specific BMPs identified by Ecosphere during the field visit conducted on April 8, 2013. 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 required by the Colorado Department of Public Health and Environment (CDPHE). A map showing the BMP locations is attached. Site-specific BMPs would be maintained until vegetation reaches 70 percent of the pre-construction cover as mandated by the COGCC and CDPHE.

BMP	How It Works	Location
Fiber Wattles (Sediment Control Logs)	Fiber wattles on the downhill side of a disturbed area filter stormwater	Encompassing entire periphery of disturbed area as well as around stock piled soils.
Bonded Fiber Matrix	Provides durability to minimize water and wind erosion while allowing for optimal rainwater penetration. Bonding agents hold soil in place to prevent soil runoff and/or dust water-holding ingredients increase performance.	Disturbed areas surrounding well pad.

PROJECT SPECIFIC NON-STRUCTURAL BMPs

Non-structural BMPs are discussed in the Kinder Morgan MSWMP, Table 2 describes non-structural BMPs used at YA #8.

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 of 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 (or perpendicular to the contour of the slope).	All disturbed areas.
Equipment Storage	All equipment will be contained within the ROW disturbance.	Within disturbance area.
Rapid Reclamation	Rapid reclamation (surface contouring, surface roughening, seeding, and weed control) help to stabilize soil with vegetation.	Within disturbance area.

These non-structural BMPs are not shown on the BMP map, because they will be applied to the entire project area beginning with construction and continuing until final stabilization is reached.

YA #8 Preconstruction BMP MAP

