

YF #4 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 YF #4 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 Regional Stormwater Management Plan (RSWMP) for oil and gas construction activities for McElmo Dome and Doe Canyon. The RSWMP can be obtained from Kinder Morgan and are 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:

Bob Clayton
Field Supervisor/Production Operations & Maintenance
Kinder Morgan CO2 Company L.P.
17801 Highway 491
Cortez, CO 81321
Office - 970-882-5507

PROJECT DESCRIPTION

The proposed well pad would be located within a dry land agricultural field. Slopes across the proposed project area drain to the northwest corner and range from two percent in the southeast to nearly ten percent in the northwest. The proposed access road leaves the main county road, travels along a pre-existing two-track, and terminates near the southeast corner of the pad. The primary disturbance would be the removal of top soil to create a level pad (325 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 5.39 acres.

EXISTING SOIL DATA AND ESTIMATED RUNOFF COEFFICIENT BEFORE AND AFTER CONSTRUCTION

Parent materials found at the project site and surrounding areas are Eolian deposits derived from sandstone. The surveyed soil map units found within the proposed project area consist of Unit 144 (Wetherill loam, 3 to 6 percent slopes). The dominant 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 (NRCS 2011¹).

The soils in the map unit are in hydrologic group C (NRCS 1993²). The percent imperviousness of the unimproved areas of the location is 2 percent (UDFCD 2007³). Applying this information to the Runoff Coefficients Table (Table RO-5) in Volume 1 of the Urban Drainage and Flood Control District Criteria

Manual yields a runoff coefficient of about 0.06 for 2-year storm events. The packed gravel surfaces that will remain in place on the access road and the well pad have a percent imperviousness of 40 percent and a runoff coefficient of 0.28 during 2-year storm events (UDFCD 2007³).

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

³ Urban Drainage and Flood Control District (UDFCD). 2007. Criteria Manual (volume 1). Available online at: <http://www.udfcd.org/downloads/pdf/critmanual/Volume%201%20PDFs/050%20Chapter%2005%20Runoff%202008-04%20Rev.pdf>. Accessed April 3, 2013.

DESCRIPTION OF EXISTING VEGETATION AND ESTIMATE OF PERCENT OF GROUND COVER

The project area is located in a dry land agricultural hay field. The dominant species is wildrye (*Psathyrostachys* sp.). Other species include alfalfa (*Medicago sativa*), cheatgrass (*Bromus tectorum*), common sunflower (*Helianthus annuus*), and scarlet globemallow (*Sphaeralcea coccinea*). Ground cover is comprised of 70 percent vegetation and 5 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 15.0 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.

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 RSWMP. 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 RSWMP and required by the Colorado Department of Public Health and Environment (CDPHE). A map showing the BMP locations is attached. Site-specific BMPs 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 YF #4.

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.

PROJECT BMP MAP

