3R-205

MW Installation Work Plan

Date: 8/22/2013

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October 22, 2013

Mr. Glen Von Gonten
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: El Paso CGP Company: Pit groundwater Remediation Sites
K-31 Line Drip – 2013 Monitoring Well Installation Workplan

Dear Mr. Von Gonten:

MWH Americas, Inc., on behalf of El Paso CGP Company (EPCGP), is submitting the enclosed 2013 Monitoring Well Installation Workplan for K-31 Line Drip (Site). The enclosed document contains the proposed methodology for the assessment of subsurface soil conditions and subsequent groundwater monitoring well installations at the Site. The procedures outlined in this work plan comply with and supersede the requirements established in the "Remediation Plan for Groundwater Encountered During Pit Closure Activities" document approved by NMOCD on November 30, 1995. Barring unforeseen circumstances, the scope of work contained herein is scheduled to begin on November 14, 2013.

Please contact me at (303) 291-2250 or Joe Wiley (representing EPCGP) at (713) 420-3475 if you have any questions or comments concerning the enclosed work plan.

Sincerely,
MWH Americas, Inc.

Daniel Wade, P.G.
Senior Geologist

cc: Joe Wiley, EPCGP (via electronic mail)
Brandon Powell, NMOCD Aztec, New Mexico

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DIST. 3

El Paso CGP Company
1001 Louisiana
Houston, Texas 77002

K-31 LINE DRIP
MONITORING WELL INSTALLATION WORK PLAN
SAN JUAN COUNTY, NEW MEXICO

October, 2013

Prepared by:

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1.0 INTRODUCTION

This Monitoring Well Installation Work Plan (Work Plan) presents the scope of work to be completed to perform monitoring well installations at the K-31 Line Drip remediation site (Site) located in the San Juan River Basin near Farmington, New Mexico. The new monitoring wells are intended to provide further delineation of petroleum hydrocarbon impacted groundwater and more clearly define the groundwater potentiometric surface.

The purpose of this work plan is to provide the field methods and an implementation schedule for the monitoring well installations. Section 2.0 describes the Site and the purpose behind the proposed well locations. Section 3.0 provides details on the field methods to be used during the monitoring well installations, and Section 4.0 presents the anticipated implementation schedule.

2.0 PROPOSED NEW MONITORING WELLS

The new monitoring wells are intended to provide further delineation of groundwater impacts at the Site and to further establish the groundwater gradient in an effort to move the Site toward closure. The proposed new monitoring well locations are shown in Figure 1. Details of the proposed monitoring wells are provided below:

K-31 Line Drip

There are currently four monitoring wells at this location from which a groundwater sample can be obtained. Four monitoring wells will be installed at the Site and are intended not only for the collection of groundwater samples, but to establish better control on groundwater gradient at the Site: two wells will be located south and west of existing monitoring well MW-1 in order to better delineate groundwater impacts from the former EPCGP drip line, one well will be installed between impacted borings GP-1 and GP-2: and one well will be installed to replace MW-3 which has been historically dry. The Site is located on State of New Mexico land. Property access approval will be obtained from the current operator, Enterprise Products. The proposed well locations are shown on Figure 1.

3.0 FIELD METHODS – SOIL BORING AND MONITORING WELL INSTALLATION

The follow sections describe field procedures to be followed for the Monitoring Well Installation.

3.1 SOIL BORING

A truck-mounted, hollow-stem auger drill rig will be mobilized to the Site after access has been obtained and underground utility and line locates have occurred. The rig will be utilized to advance soil borings to an anticipated depth of 30 ft. below ground surface (bgs). During soil boring activities, soil screening will be conducted from the ground surface to the base of the borehole by utilizing a 5-foot CME Dry Core continuous sampling system. In the event that auger penetration refusal occurs before the maximum depth has been reached, the drill rig will switch over to air rotary and a rotary bit will be used to obtain the maximum depth. Other than lithologic descriptions, soil screening will not be conducted on intervals drilled with air rotary.

Borehole logging will include United Soil Classification System (USCS) soil descriptions the entire depth of the boring. In addition to the USCS descriptions, the field geologist will provide a detailed description of each discrete lithologic unit.

Soil samples will be collected in 2.5-foot intervals, mixed in a stainless steel bowl, and split in half. One half of the sample will be placed into a Zip-loc® bag, and allowed to equilibrate for at

least 5 minutes. The bag headspace will then be screened with a photo ionization detector (PID) and the reading will be noted on the borehole log. The second half will be placed into a Zip-loc® bag and stored in an ice-filled cooler until completion of the boring. The sample interval exhibiting the highest PID reading will be collected and placed in a 4 ounce jar for laboratory analysis. Sample jars will be stored in an ice-filled cooler and shipped under standard chain of custody to Test America Laboratories. Samples will be analyzed per the guidance established by the 2013 Pit Rule (Attachment A to order No. R-13506-D, Table 1 - closure criteria for soils where groundwater is ≤ 50 feet below bottom of pit) for the presence of benzene, toluene, ethylbenzene, and total xylenes (BTEX) according to EPA Method SW846 8260B, Total petroleum hydrocarbons using EPA Method SW846 9071 (method 418.1 no longer promulgated by EPA), and Chlorides according to EPA Method 300.

3.2 MONITORING WELL INSTALLATION

Monitoring wells will be constructed of 2-inch diameter, schedule 40, .010 continuous slot PVC screen and schedule 40 blank PVC casing. The well screen will be installed from 30 feet bgs. to 10 feet bgs, which is anticipated to intersect the groundwater surface and provide sufficient water column for sample collection. The blank PVC casing will extend from the top of the screen to about two and a half feet above the ground surface. The annular space adjacent to the PVC screen will be filled with silica sand from the bottom of the borehole to two feet above the top of the screen. Three feet of hydrated bentonite chips will be placed above the silica sand to prevent downward migration of surface water. Bentonite grout will be placed above the bentonite chips to the ground surface. A locking protective steel well vault will be installed from 3 feet above ground surface to 2 feet below ground surface within a concrete pad at the top of the well. Four concrete filled steel bollards will be placed around the well pad to protect the well vault.

Based on the anticipated low yields of the groundwater formations, monitoring well development will be performed using a well swab and disposable bailer until all sediment has been removed and visibly clear water is observed. Purged water will be stored in a labeled 55-gallon drum and staged on-site along with the soil cuttings.

After construction, the surface and top of casing elevations of the wells will be surveyed by a licensed surveyor using state plane coordinates and the existing site benchmark.

3.4 GENERAL PROTOCOLS

This section presents a discussion of documentation procedures, location identification, sampling methods, and other procedures to be performed as part of the investigation.

3.4.1 Health and Safety

A Site-Specific Health and Safety Plan (HASP) has been prepared for groundwater monitoring, operations and maintenance, and drilling activities. The HASP includes guidance on the personal protective equipment (PPE) necessary for drilling activities, identified hazards associated with the field activities, and directions to the nearest medical facility. Flame resistant clothing and level D protective equipment will be worn as required. A copy of the plan will be on Site at all times while work is being performed. The HASP will apply to MWH employees, MWH's subcontractors, and visitors at the Site. Typically, subcontractors will operate under their own HASP, which is reviewed and referenced by MWH prior to the start of the project.

3.4.2 Documentation Procedures

- Data generated during the field investigation will be recorded on boring and well construction logs. The boring logs will include the United Soil Classification System (USCS) descriptions, detailed lithologic description, PID measurements, amount of recovery, and drilling method. The well construction logs will include screen, sand pack, wellbore seal, and surface completion details.
- The field geologist will maintain a daily field log book. At the end of each field day, the daily reports will be dated and signed by the field geologist.
- The daily field log book will contain information such as:
  - Date
  - Name and location of the work activities
  - Weather conditions
  - Personnel and visitors on site
  - Photograph numbers and descriptions (if applicable)
  - Description of decontamination activities (if applicable)
  - Any deviations from the Work Plan
  - Other relevant observations as the field work progresses
  - Problems and corrective actions

3.4.3 Boring Locations and Utility Identification

Prior to any drilling or excavation, a call will be made to the New Mexico 811 "One Call" to verify utility clearance and to notify the operator. "One Call" will be notified that the boring locations are staked and that the entire pad and areas surrounding the borings should be marked. The clearance call must be made at least two working days prior to drilling, and the site work must be completed within five days of the clearance. In addition, access will be coordinated with the current operator of the pit groundwater remediation Site prior to any drilling activities to locate any underground infrastructure and comply with operator safety guidance.

3.4.4 Equipment Decontamination

Prior to the drilling, downhole equipment will be steam-cleaned or scrubbed with a non-phosphate detergent (e.g., Alconox). Where feasible, equipment to be decontaminated will be disassembled to permit adequate cleaning of the internal portions of the equipment. Equipment to be steam cleaned will be placed into a self-contained decontamination trailer with metal cleaning racks that support the equipment for cleaning, rinsing, and air drying. Heavy waterproof gloves will be worn during steam cleaning to reduce the potential for cross-contamination between samples and to protect against skin contact with steam and potential contaminants.

3.4.5 Investigation-Derived Waste

Drill cuttings - Drill cuttings generated from the hollow-stem auger activities will be containerized in labeled 55-gallon drums and staged on-site for removal by the contracted transport and disposal company.

Groundwater and Decontamination Water – Decontamination water and purge water generated through the development of new monitoring wells will be containerized in labeled 55-gallon drums and staged on-site for removal with the drill cuttings.

Disposable Equipment and PPE - Waste generated during the field investigation, including rope, disposable bailers, latex gloves, Tyvek suits, etc., will be disposed in standard industrial dumpsters. In the event the equipment or PPE is grossly contaminated, it will be decontaminated before disposal.

3.4.6 Field Equipment Calibration Procedures

Organic Vapor Meters - Field personnel will use a 10.6 eV PID for screening soil samples during soil boring. This instrument will be calibrated prior to use according to the manufacturer's specifications. The instrument calibration will be checked at the beginning of each day of use and any time meter drift is suspected. All calibration information will be recorded in the field log.

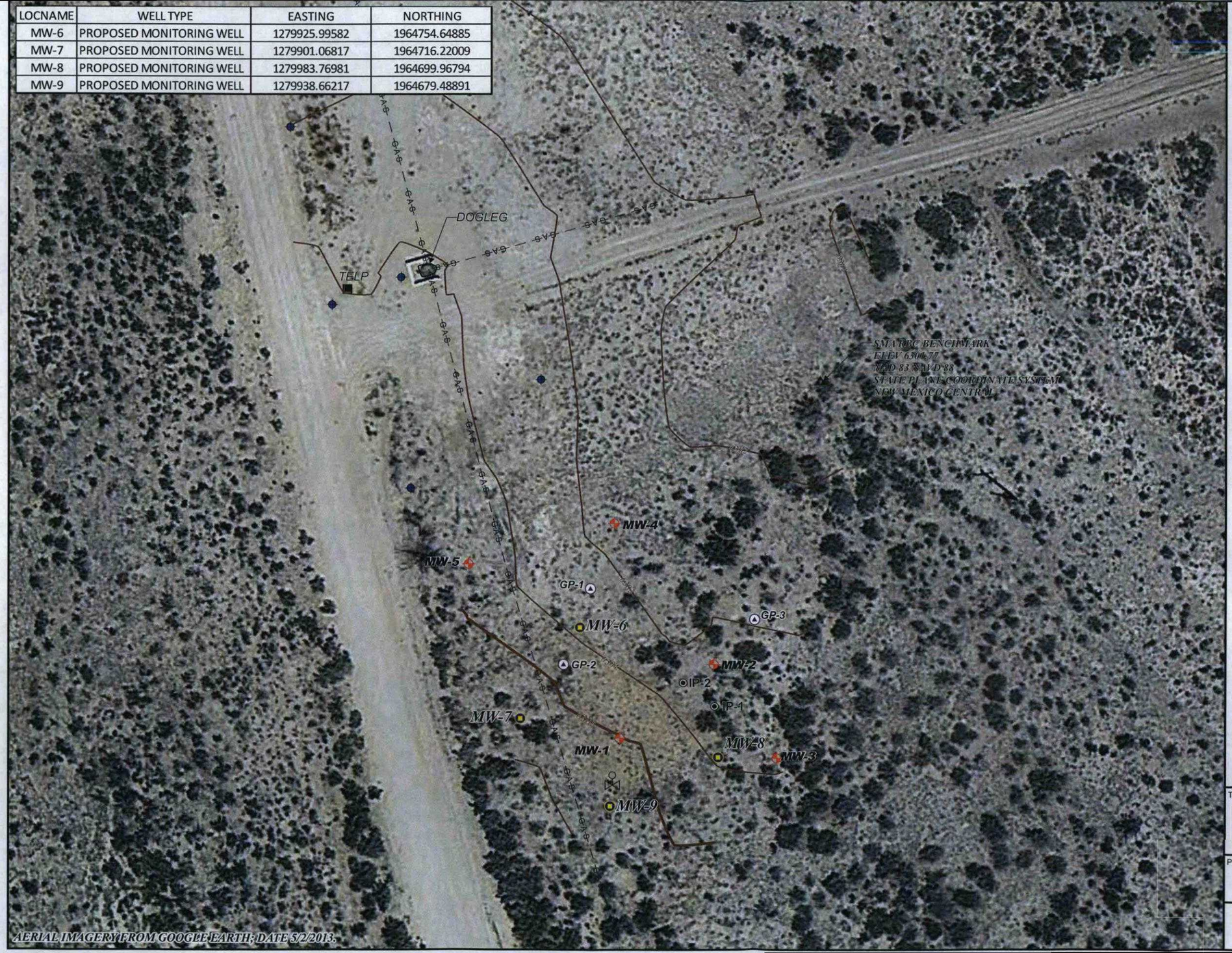
4.0 SCHEDULE

It is anticipated that monitoring well installation activities will commence in late October 2013 and finish by mid November 2013. Utility locates and property access agreements must be verified and/or granted prior to well installations. Soil analytical results and recommendations from the investigation will be provided in the 2013 Annual Report.

The new monitoring wells will be prepped for groundwater sample collection during the fourth quarter groundwater monitoring event. Assuming free phase petroleum hydrocarbons are not encountered; Hydrasleeve® no purge groundwater samplers and tethers will be placed in the wells in preparation for the initial sampling event, scheduled to occur during the first quarter 2014.

FIGURES

LOCNAME	WELL TYPE	EASTING	NORTHING
MW-6	PROPOSED MONITORING WELL	1279925.99582	1964754.64885
MW-7	PROPOSED MONITORING WELL	1279901.06817	1964716.22009
MW-8	PROPOSED MONITORING WELL	1279983.76981	1964699.96794
MW-9	PROPOSED MONITORING WELL	1279938.66217	1964679.48891



AERIAL IMAGERY FROM GOOGLE EARTH; DATE 5/2/2013.

LEGEND:

- APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- CORRECTED GROUNDWATER ELEVATION CONTOUR
- ACCESS ROAD
- NATURAL GAS LINE
- DRIP LINE
- GEOPROBE BORING LOCATION
- MONITORING WELL
- MONITORING WELL ASSOCIATED WITH UNRELATED RELEASE
- ORC INJECTION POINT
- PROPOSED MONITORING WELL
- SMA BENCHMARK

N

SCALE IN FEET

0 40 80

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	10/9/2013	CCL	CCL	DAW

TITLE:

K-31 LINE DRIP

PROJECT: **SAN JUAN RIVER BASIN MONITORING AND REMEDIATION SAN JUAN COUNTY, NEW MEXICO**

MWH

Figure No.: 1