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October 5, 2017

Mr. Randy Bayliss, PE – Hydrologist, District III  
New Mexico Oil Conservation Division  
Energy, Minerals, and Natural Resources Division  
1220 South St. Francis Drive  
Santa Fe, NM 87505

RE: 2017 Monitoring Well Installation Work Plan – K27 LD072 Site  
El Paso CGP Company – Pit Groundwater Remediation Sites  
NMOCD Order Number: 3RP-204-0

Dear Mr. Bayliss:

Stantec Consulting Services Inc. (Stantec), on behalf of El Paso CGP Company, LLC (EPCGP), is submitting the enclosed 2017 Monitoring Well Installation Work Plan (Work Plan) for the K27 LD072 site (Site). The enclosed document contains the proposed methodology for assessment of subsurface soil conditions and subsequent groundwater monitoring well installations at the Site. The procedures outlined in this Work Plan meet or exceed the requirements established in EPCGP's "Remediation Plan for Groundwater Encountered during Pit Closure Activities" document approved by the New Mexico Oil Conservation Division (NMOCD) on November 30, 1995. The scope of work contained herein is scheduled to begin the week of October 16, 2017.

Please contact Mr. Joseph Wiley of EPCGP at (713) 420-3475, or me if you have any questions or comments concerning the enclosed Work Plan.

Sincerely,

**Stantec Consulting Services, Inc.**

A handwritten signature in blue ink, appearing to read "Stephen Varsa".

Stephen Varsa  
Project Manager  
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/rsm:sv:leh

cc: Joseph Wiley, EPCGP (via electronic mail)  
Cory Smith, Vanessa Fields, NMOCD District 3 – Aztec Office  
Jillian Aragon, Bureau of Land Management, Farmington Office



El Paso CGP Company, LLC  
1001 Louisiana  
Houston, Texas 77002

K27 LD072 SITE  
NMOCD Order Number: 3RP-204-0  
2017 MONITORING WELL INSTALLATION WORK PLAN  
SAN JUAN COUNTY, NEW MEXICO

October 2017

Prepared by:

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## TABLE OF CONTENTS

SECTION 1	INTRODUCTION.....	1
SECTION 2	SCOPE OF WORK .....	2
SECTION 3	FIELD METHODS.....	3
3.1	Soil Boring .....	3
3.2	Monitoring Well Installation.....	4
3.3	General Protocols .....	4
3.3.1	Health and Safety .....	5
3.3.2	Documentation Procedures .....	5
3.3.3	Boring Locations and Utility Identification .....	5
3.3.4	Equipment Decontamination.....	6
3.3.5	Investigation-Derived Waste .....	6
3.3.6	Field Equipment Calibration Procedures.....	6
SECTION 4	SCHEDULE.....	7

## LIST OF FIGURES

Figure 1 – K27 LD072 Proposed Groundwater Monitoring Well Locations

## **SECTION 1 INTRODUCTION**

This Monitoring Well Installation Work Plan (Work Plan) presents the scope of work to be completed to perform monitoring well installations at the K27 LD072 remediation site (Site) located in Rio Arriba County in the San Juan River Basin near Farmington, New Mexico. There are currently eight El Paso CGP Company, LLC (EPCGP) monitoring wells (MW-1, MW2R, MW-3R, and MW-4 through MW-8) at the Site, one of which (MW-2R) contains measureable free product. Two additional monitoring wells (MW-9 and MW-10) will be installed at the Site to better define the extent of free product around MW-2R.

The purpose of this Work Plan is to provide the field methods and an implementation schedule for the monitoring well installation activities. Section 2 describes the Site and the purpose behind the proposed well locations. Section 3 provides details on the field methods to be used. Section 4 presents the anticipated implementation schedule.

## SECTION 2 SCOPE OF WORK

The new monitoring wells are intended to provide better delineation of free product at the Site in an effort to select an appropriate free product recovery remedy and move the Site toward closure. Details of the proposed monitoring wells are provided below.

There are currently eight monitoring wells (MW-1, MW-2R, MW-3R, and MW-4 through MW-8) at the Site. Two additional monitoring wells (MW-9 and MW-10), will be installed at the Site to better delineate the extent of free product around MW-2R. Further assessment of soil concentrations at the Site will be completed during advancement of the monitoring wells. In the absence of measureable free product, the monitoring wells will also be used for the collection of groundwater samples.

The existing and proposed monitoring well locations are depicted in Figure 1.

## SECTION 3 FIELD METHODS

The following subsections describe field procedures to be followed during the Site activities.

### 3.1 SOIL BORING

A truck-mounted, hollow-stem auger drill rig will be mobilized to the Site after underground utility and line locates have been completed. The drill rig will be used to advance soil borings to an anticipated depth of 50 feet below ground surface (bgs). Prior to advancing each soil boring, soft digging utilizing vacuum excavation or similar methods will be utilized to a depth of at least eight feet bgs to confirm no unmarked subsurface utilities or other obstructions are present.

Once vacuum excavation activities have been completed, soil sampling and screening will be conducted from the soft-digging termination depth to the base of the borehole using hollow-stem auger and continuous-core sampling methods. Borehole logging will include Unified Soil Classification System (USCS) soil descriptions for 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 at 1 foot intervals, where recovery is possible, for field screening and potential laboratory analysis. After the sample core is collected, the field personnel will field screen using a pre-calibrated photoionization detector (PID) and record the readings. The field screening will be conducted by notching the soil in the core with a hand trowel or other pre-cleaned hand tool, and briefly placing the PID in the notch to measure impacts. The screening, in addition to visual and olfactory observations (e.g., observing apparent hydrocarbon staining), will aid in identifying the portion of the sample interval to retain for potential laboratory analysis (i.e., the portion with the greatest suspected hydrocarbon impact).

Based on the field screening, a soil sample will be collected from the core representing the greatest suspected hydrocarbon impact. No soil samples will be collected below the field-apparent water table. If the current core section being screened does not appear to be impacted to a level equal to or greater than a preceding core section, one soil sample will be collected immediately above the field-interpreted and/or gauged water table for laboratory analysis. The sample(s) retained for potential laboratory analysis will be placed in a laboratory-provided 4-ounce glass jar(s), sealed, labeled, and stored on ice. After the boring and soil screening are completed, the collected sample associated with the highest PID reading will be retained and shipped in an ice-filled cooler under standard chain-of-custody to TestAmerica Laboratories, Inc. in Pensacola, Florida. Samples not retained for analysis will be disposed of with the soil cuttings.

Soil samples will be analyzed per the guidance established by Attachment A to Order No. R-13506-D, New Mexico Administrative Code (NMAC) Section 19.15.17.13, Table 1, for the presence of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by United States Environmental Protection Agency (EPA) Method SW846 8021B; gasoline-range organics,

diesel-range organics, and oil-range organics by EPA Method 8015 M, and chlorides by EPA Method 300.

### **3.2 MONITORING WELL INSTALLATION**

Each monitoring well will be constructed of 2-inch-diameter, Schedule 40, 0.010-slot polyvinyl chloride (PVC) screen and 2-inch-diameter, Schedule 40 PVC riser casing. For each well, a locking, protective steel well vault will be installed from 3 feet above ground surface to 2 feet bgs within a concrete pad on the ground surface. Four concrete-filled steel bollards will be placed around the concrete pad to protect the well vault.

A 25-foot well screen will be installed in each well at the depths estimated in Figure 1, which is anticipated to intersect the groundwater surface and provide sufficient water column for sample collection. The riser casing will extend from the top of the screen to approximately 2.5 feet above the ground surface. The annular space adjacent to the well screen will be filled with 10-20 silica sand from the bottom of the borehole to 2 feet above the top of the screen. Three (3) 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 6 inches below the bottom of the well vault. Silica sand will be placed from 6 inches below the bottom of the well vault (approximately 2.5 feet bgs) to within approximately 1 foot of the ground surface, or to a field-determined depth based on concrete pad placement.

Monitoring well development will be performed using a surge block and down-hole pump until sediment has been removed and visibly clear water is observed or the well runs dry. Upon completion of development, each newly-installed monitoring well will be fitted with a Hydrasleeve™ no-purge groundwater sampling device to facilitate future groundwater sampling. Development and decontamination water and soil cuttings will be stored in labeled 55-gallon drums and staged on site.

After construction, ground surfaces and top-of-casing elevations will be surveyed by a licensed surveyor using State plane coordinates and the existing site benchmark.

### **3.3 GENERAL PROTOCOLS**

This subsection presents a discussion of health and safety, documentation procedures, buried piping or utility identification, waste handling, and other procedures to be performed as part of the investigation.

### **3.3.1 Health and Safety**

A Site-Specific Health and Safety Plan (HASP) will be prepared for groundwater monitoring, operations, maintenance, and drilling activities. The HASP includes guidance on the personal protective equipment (PPE) necessary for field 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 HASP will be on site at all times while work is being performed. The HASP will apply to Stantec employees and visitors at the Site. Typically, subcontractors will operate under their own HASP, which will be reviewed and referenced by Stantec prior to the start of the project.

### **3.3.2 Documentation Procedures**

Data generated during the field investigation will be recorded on boring and well construction logs. The boring logs will include USCS descriptions, detailed lithologic descriptions, PID readings, length/percent recovery, sample collection intervals, and drilling method employed. The well construction logs will include screen, sand pack, wellbore seal, and surface completion details.

The field geologist will maintain a field log book. At the end of each day of field activities, the notes will be dated and signed by the field geologist.

The daily field log book will contain information such as:

- Date
- Name, location, and objective of the work activities
- Weather conditions
- Equipment calibration information
- 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 fieldwork progresses
- Sample collection intervals and times
- Problems and corrective actions

### **3.3.3 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 or flagged and that the entire well pad and areas surrounding the borings should be marked. The clearance call must be made at least two working days prior to drilling, and site work must be completed within five days of the clearance. In addition, access will be coordinated with the current operator of the Site prior to any drilling activities to allow location of any underground infrastructure and to comply with operator safety guidance.

### **3.3.4 Equipment Decontamination**

Prior to drilling, down-hole 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 protect against skin contact with steam and potential contaminants and to reduce the potential for cross-contamination between samples.

### **3.3.5 Investigation-Derived Waste**

Soil cuttings generated from drilling activities will be containerized in labeled 55-gallon drums and staged on site for removal by a contracted transport and disposal company.

Decontamination 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 soil cuttings.

Other investigation-derived wastes (i.e., excess well materials, bags, buckets, gloves) will be removed from the Site by the waste hauler for disposal as general construction/demolition debris.

Disposable equipment and PPE waste generated during field activities, including scrap PVC, rope, disposable bailers, nitrile gloves, and Tyvek® suits, will be disposed in standard industrial dumpsters. In the event the waste is grossly contaminated, it will be containerized for proper disposal along with the other investigation-derived waste.

### **3.3.6 Field Equipment Calibration Procedures**

With regard to organic vapor meters, field personnel will use a 10.6 electron volt (eV) PID for screening soil samples during advancement of soil borings. 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 book.

## SECTION 4 SCHEDULE

It is anticipated that monitoring well installation activities will commence the week of October 16, 2017. Utility locates must be verified prior to the work. Soil and groundwater analytical results and recommendations from the field activities will be provided in the 2017 Annual Report, anticipated to be submitted by March 2018.

The new monitoring wells will be prepared for groundwater sample collection. Assuming free-phase petroleum hydrocarbons are not encountered; following development, HydraSleeve™ no-purge groundwater samplers and tethers will be placed in the new wells. The new wells will be sampled during the next semiannual gauging event following monitoring well installation, anticipated to occur in November 2017.

Proposed Monitoring Well Installations				
Locname	Easting	Northing	Proposed Total Depth	Screened Interval
MW-9	1278607.135	1978361.311	~50' BGS	~25' - 50' BGS
MW-10	1278581.941	1978418.232	~50' BGS	~25' - 50' BGS

Notes: 1) Coordinates given in State Plane, New Mexico Central.  
2) Existing MW water level range: ~29' - 36' BGS.



**LEGEND:**

- APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- FENCE
- NATURAL GAS LINE
- ABANDONED MONITORING WELL
- MONITORING WELL
- PROPOSED GROUNDWATER MONITORING WELL LOCATION
- SOIL BORING
- SMA BENCHMARK
- BLM RIGHT OF WAY BOUNDARY

SMA BENCHMARK  
ELEV. 6260.32'  
NAD 83 NAVD 88  
STATE PLANE COORDINATE SYSTEM  
NEW MEXICO CENTRAL

FORMER TANK &  
FENCE LOCATION

FORMER EPC PIT  
EXCAVATED TO 12 FEET

FORMER  
CORRAL

SCALE IN FEET

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
	9/21/2017	SLG	SLG	SRV

TITLE:  
**PROPOSED GROUNDWATER  
MONITORING WELL LOCATIONS**

PROJECT: **K27 LD072  
SAN JUAN RIVER BASIN  
RIO ARRIBA COUNTY, NEW MEXICO**

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Figure No.: **1**