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**BUILDING A BETTER WORLD**

October 5, 2015

Mr. Glenn von Gonten  
New Mexico Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, NM 87505

RE: 2015 Monitoring Well Installation Work Plan – Johnston Federal #6A  
El Paso CGP Company – Pit Groundwater Remediation Sites  
NMOCD Order Number: 3RP-202-0

Dear Mr. von Gonten:

MWH Americas, Inc., on behalf of El Paso CGP Company, LLC (EPCGP), is submitting the enclosed 2015 Monitoring Well Installation Work Plan (Work Plan) for the Johnston Federal #6A Pit 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 19, 2015.

Please contact Mr. Joseph Wiley of EPCGP at (713) 420-3475, Steve Varsa at (515) 251-1020, or me at (515) 251-1005 if you have any questions or comments concerning the enclosed Work Plan.

Sincerely,

Clint Oberbroeckling  
Project Manager

/cwo:srv:vas

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



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

**Johnston Federal #6A PIT SITE  
NMOCD Order Number: 3RP-202-0  
2015 MONITORING WELL INSTALLATION WORK PLAN  
SAN JUAN COUNTY, NEW MEXICO**

**October 2015**

**Prepared by:**

**MWH  
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Figure 1 – Johnston Federal #6A Proposed Well Location Map

## **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 Johnston Federal #6A 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. One soil boring will also be completed in the former pit area to evaluate soil conditions below the area excavated when the pit was closed.

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

## **SECTION 2**

### **SCOPE OF WORK**

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

There are currently six monitoring well at the Site. Three additional monitoring wells will be installed at the Site and are intended not only for the collection of groundwater samples, but will also further define soil profiles. The monitoring wells will be installed around the known or estimated extent of the groundwater plume, in order to better delineate impacts from the former El Paso CGP Company, LLC (EPCGP) pit. To better assess the distribution of soil impacts in the former pit, one soil boring will also be advanced adjacent to existing monitoring well MW-1.

The existing and proposed monitoring well locations, and proposed soil boring, 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 access has been obtained and 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). During soil boring activities, soil screening will be conducted from the ground surface to the base of the borehole using direct-push continuous sampling or dry coring methods. In the event auger refusal occurs before the maximum depth has been reached, the drill rig will convert 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 via air rotary.

Borehole logging will include United 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 based on 2- or 2.5-foot intervals, depending on the length of the sampling barrel used by the driller. 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 screen 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 water table for laboratory analysis. The sample 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.

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; total petroleum hydrocarbons (TPH) 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, .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 20-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.

Based on the anticipated low yields of the groundwater formations, monitoring well development will be performed using a well swab and disposable bailer until sediment has been removed and visibly clear water is observed or the well runs dry. Purged groundwater 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 WELL ABANDONMENT**

Soil boring SB-1 will be plugged and abandoned in accordance with the New Mexico Environment Department (NMED) Ground Water Quality Bureau Monitoring Well Construction and Abandonment Guidelines dated March 2011 as a guideline; however, the project is under the New Mexico Oil Conservation Division rather than the NMED. The soil boring will be grouted to the ground surface. Following completion of the work, Form WD-11, Plugging Record, will be submitted to the State Engineer's office.

### **3.4 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.



### **3.4.1 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 EPCGP employees, MWH's subcontractors, and visitors at the Site. Typically, subcontractors will operate under their own HASP, which will be 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 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

### **3.4.3 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 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.

#### **3.4.4 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 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**

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 driller for disposal as general construction/demolition debris.

Disposable equipment and PPE waste generated during field activities, including scrap PVC, concrete, steel, 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.

#### **3.4.6 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 in October 2015. Utility locates and property access agreements must be verified and/or granted prior to well installations. Soil and groundwater analytical results and recommendations from the field activities will be provided in the 2015 Annual Report, anticipated to be submitted in January 2016.

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 in preparation for the initial sampling event, scheduled to occur during the first semiannual gauging event following monitoring well installation. This event is anticipated to occur in November 2015.

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# FIGURES

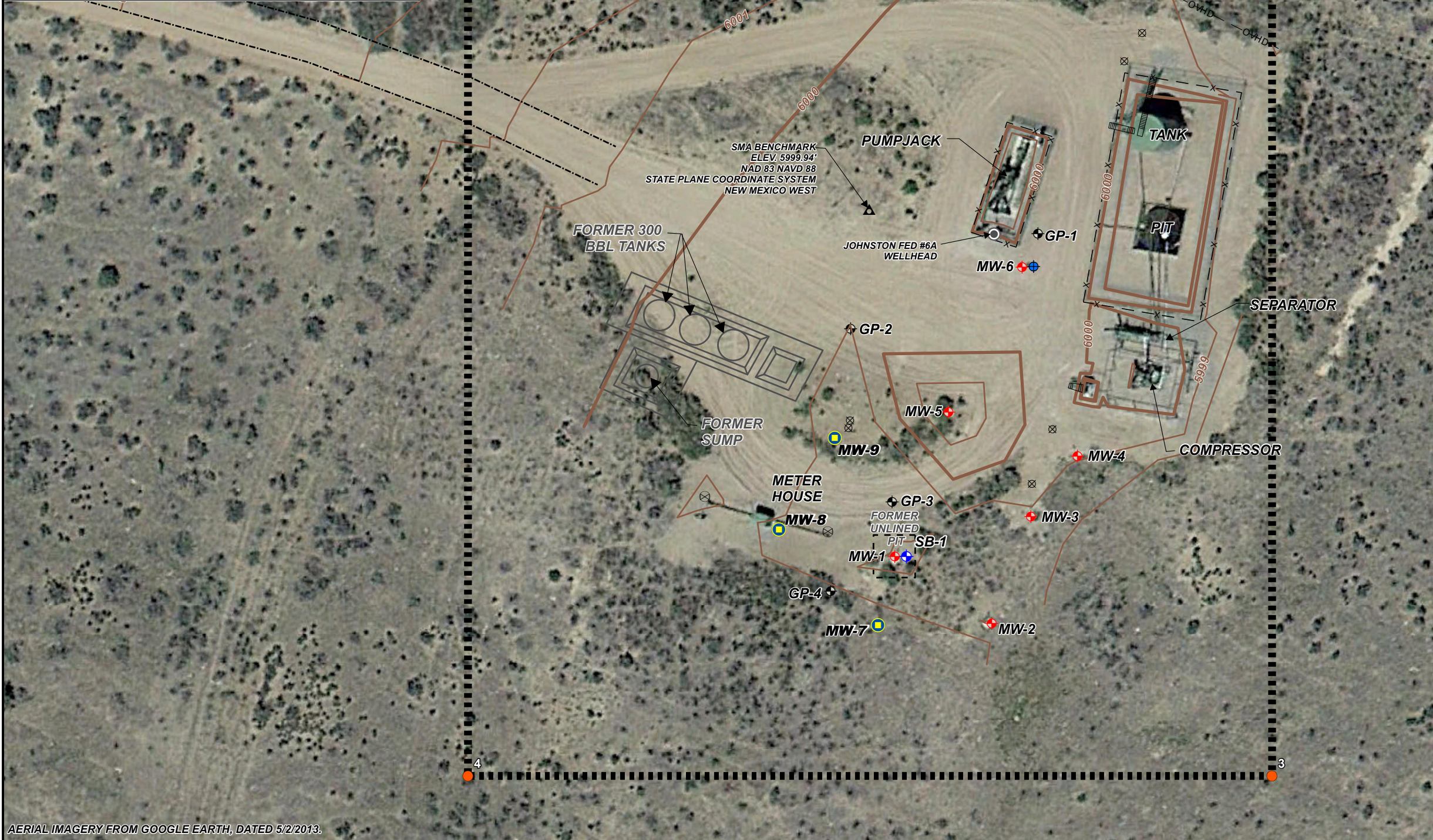


Proposed Monitoring Well Installations for 2015				
Locname	Easting	Northing	Proposed Total Depth	Screened Interval
MW-7	2746334.570	2131097.990	~50' BGS	~30' - 50' BGS
MW-8	2746299.465	2131131.950	~50' BGS	~30' - 50' BGS
MW-9	2746319.217	2131164.506	~50' BGS	~30' - 50' BGS
SB-1	2746344.639	2131122.311	~50' BGS	NA

BLM Corner Points				
Designation	Easting	Northing		
1	2746189.118	2131329.677		
2	2746474.326	2131329.677		
3	2746474.326	2131044.469		
4	2746189.118	2131044.469		

Notes: 1) Coordinates given in State Plane, New Mexico West.  
2) Existing MW water level range: ~34' - 37' BGS.



### LEGEND:

- APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- OVERHEAD POWER LINE
- PRODUCED WATER LINE
- CORNER POINT OF BLM ROW
- MONITORING WELL
- OTHER MONITORING WELL
- SOIL BORING LOCATIONS
- SMA BENCHMARK
- RIG ANCHOR
- PROPOSED GROUNDWATER MONITORING WELL LOCATIONS
- PROPOSED SOIL BORING LOCATION

SCALE IN FEET

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	8/23/2015	CCL	CCL	DAW

TITLE: **JOHNSTON FED #6 PROPOSED GROUNDWATER MONITORING WELL AND SOIL BORING LOCATIONS**

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

MWH

Figure No.: