3R-451

Release Assessment Report

Date: 10/1/2013

Enterprise Products

ENTERPRISE PRODUCTS PARTNERS L.P.
ENTERPRISE PRODUCTS HOLDINGS LLC
(General Partner)

ENTERPRISE PRODUCTS OPERATING LLC

October 1, 2013

Return Receipt Requested
7012 1010 0003 7361 4444

Mr. Glenn von Gonten
New Mexico Energy, Minerals & Natural Resources
Department - Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Attn: Jim Griswold

RCVD OCT 4'13
OIL CONS. DIV.
DIST. 3

Re: Continued Site Assessment Workplan
Enterprise Field Services, LLC
Lateral K-7 July 2013 Pipeline Release
SE¼ SW¼ Section 15, T26N, R7W
Rio Arriba County, New Mexico

Dear Mr. Von Gonten:

Enterprise Field Services, LLC (Enterprise) is submitting the enclosed workplan entitled: *Continued Site Assessment Workplan,* dated September 25, 2013. This workplan details proposed continued site assessment activities in order to delineate the extent of the petroleum hydrocarbon impacted soil and determine whether groundwater has been impacted by the Lateral K-7 pipeline July 2013 release.

Animas Environmental Services, LLC (AES) completed an initial site assessment associated with the excavation of petroleum hydrocarbon contaminated soils, details of which are included within the enclosed workplan. Based on field screening readings, shallow depth to groundwater, and the close proximity of additional pipelines, AES and Enterprise determined that a continued site assessment to determine the vertical and horizontal extents of the release would be appropriate prior to implementing further mitigation measures.

AES recommends the installation of five soil borings, with possible completion as 1-inch diameter groundwater monitor wells as detailed in the enclosed workplan. If you have any questions concerning the enclosed workplan, please do not hesitate to contact me at (713) 381-2286, or via email at: drsmith@eprod.com.

Sincerely,

David R. Smith, P.G.
Sr. Environmental Scientist

Rodney M. Sartor, REM
Sr. Environmental Manager

/dep

Enclosure – Continued Site Assessment Workplan

cc: Brandon Powell, New Mexico Oil Conservation Division, 1000 Rio Brazos Road, Aztec, NM

ec: Sherrie Landon, Bureau of Land Management, 6251 College Blvd., Suite A, Farmington, NM
Ross Kennemer – Animas Environmental Services, Farmington, NM

P. O. BOX 4324
HOUSTON, TX 77210-4324
713.381.6500

1100 LOUISIANA STREET
HOUSTON, TX 77002-5227
www.enterpriseproducts.com

Animas Environmental Services, LLC
www.animasenvironmental.com
624 E. Comanche
Farmington, NM 87401
505-564-2281
Durango, Colorado
970-403-3084

September 25, 2013

David Smith
Enterprise Products Operating, LLC
1100 Louisiana
Houston, Texas 77002-5227

Via email with delivery confirmation receipt to:
drsmith@eprod.com

RE: Continued Site Assessment Workplan
Lateral K-7 July 2013 Pipeline Release
SE¼ SW¼, Section 15, T26N, R7W
Rio Arriba County, New Mexico

Dear Mr. Smith:

Animas Environmental Services, LLC (AES) has prepared a workplan to complete a continued site assessment for the Lateral K-7 pipeline release that was discovered by Enterprise personnel on July 15, 2013. On July 18, 2013, AES completed an initial assessment associated with the non-reportable release (less than 50 Mcf) of natural gas and an estimated two barrels (bbl) of petroleum hydrocarbons from the Enterprise Field Services, LLC (Enterprise) 8-inch diameter Lateral K-7 pipeline. The release resulted from a pipeline leak caused by corrosion.

1.0 Site Information

1.1 Location

Location - SE¼ SW¼, Section 15, T26N, R7W, Rio Arriba County, New Mexico
Latitude/Longitude - N36.47945 and W107.56501, respectively
Surface Owner – Private
Figure 1. Topographic Site Location Map
Figure 2. Aerial Site Map

1.2 NMOCD Ranking

In accordance with New Mexico Oil Conservation Division (NMOCD) release protocols, action levels were established per NMOCD *Guidelines for Remediation of Leaks, Spills, and Releases* (August 1993) prior to the initial assessment. The release was given a ranking score of 30 based on the following factors:

- **Depth to Groundwater:** Based on groundwater measurements from a previous release along the same pipeline in Palluche Canyon located approximately 1 mile to the south at a similar elevation, groundwater ranges from approximately 24 to 28 feet below ground surface (bgs). (20 points)
- **Wellhead Protection Area:** The release location is not within a wellhead protection area. (0 points)
- **Distance to Surface Water Body:** The release location is within the floodplain of Palluche Canyon, which is approximately 360 feet to the west. The wash in Palluche Canyon flows north and ultimately discharges into Largo Canyon. (10 points)

1.3 Initial Release Assessment and Mitigation

On July 18, 2013, Enterprise contractors completed the pipeline repairs. During the excavation work, AES collected one discrete soil sample (S-1) from the base of the excavation for field screening of volatile organic compounds (VOCs). The final excavation dimensions measured approximately 372 square feet by 7.5 feet in depth. The local site lithology consists of stream alluvium and floodplain material, which constitute the wash of Palluche Canyon.

Soil field screening results showed that VOC concentrations exceeded the NMOCD action level of 100 parts per million (ppm) in S-1, with 4,035 ppm.

Based on the field screening readings, shallow depth to groundwater, and the close proximity of additional pipelines, AES and Enterprise determined that a continued site assessment to determine the vertical and horizontal extents of the release would be appropriate prior to implementing further mitigation measures. The excavation was backfilled with clean fill, and the impacted soil was transported to the Envirotech Landfarm for proper disposal.

2.0 Proposed Continued Site Assessment

Based on field screening results and the observed site conditions, a continued site assessment is proposed in order to delineate the extent of the petroleum hydrocarbon impacted soil and determine whether groundwater has been impacted by the Lateral K-7 July 2013 pipeline release. The assessment procedures are designed to be protective of both surface water and groundwater and are based upon protocols outlined in AES' Standard Operating Procedures (SOPs). Work will be conducted within Enterprise's pipeline ROW. AES has received concurrence from the Office of the State Engineer that monitor wells installed in the manner described herein will not require well permits for this project.

2.1 Pre-Field Permits and Coordination

2.1.1 Utilities Notification

AES' drilling subcontractor will utilize the New Mexico One-Call system to identify and mark all underground utilities at the site before the start of any proposed field activities which could impact buried utilities. Any local utilities not participating in the New Mexico One-Call system will be contacted separately by the drilling contractor for utility locations. AES will coordinate with the area supervisor to schedule an Enterprise representative to be onsite during operations within the Enterprise ROW.

2.1.2 Health and Safety Plan

AES has a company health and safety plan in place, and all on-site personnel are 40-hour HAZWOPER trained in accordance with OSHA regulations outlined in 29 CFR 1910.120(e). Prior to the start of the site investigation, AES will prepare a comprehensive site-specific Job Safety Analysis (JSA) addressing the site investigation activities and associated soil and groundwater sampling. All employees and subcontractors are required to read and sign the JSA to acknowledge their understanding of the information contained within the JSA. The JSA will be implemented and enforced on site by the assigned Site Safety and Health Officer.

2.2 Installation of Soil Borings

AES proposes to install approximately five soil borings near the release location to delineate the extent of hydrocarbon impacted soils. Soil borings will be advanced with a DT 6620 track-mounted direct push rig, manufactured by Geoprobe®, and equipped with a 3.25-inch outer diameter (OD) core barrel. Direct push drilling will be provided by Earth Worx, Belen, New Mexico. The locations of the proposed soil boring locations are shown on Figure 3.

Soil boring SB-1, slightly downgradient and nearest to the release location, will be advanced 4 to 8 feet below the total depth at which impacted soils with VOC concentrations above 100 ppm are encountered or to groundwater, whichever is encountered first. Should groundwater be reached before soils exhibiting VOC concentrations below 100 ppm, SB-1 will be completed as a 1-inch diameter groundwater monitor well to delineate the extent of dissolved phase petroleum hydrocarbon impact. Soil borings SB-2 through SB-5 will extend to the total depth of SB-1 or to groundwater, whichever is greater. Should SB-2 through SB-5 extend to groundwater, they will also be completed as 1-inch diameter groundwater monitor wells.

2.3 Soil Sampling and Analyses

Sampling will be conducted in accordance with AES' standard SOPs which follow applicable NMOCD guidelines, BLM guidelines, ASTM standards and applicable U.S. Environmental Protection Agency (USEPA) methods and guidelines for soil and groundwater sampling.

2.3.1 Sample Collection

Each soil boring will be continuously sampled using a core-barrel sampler. Soil samples collected will be field screened for VOCs with a photo-ionization detector (PID) organic vapor meter (OVM). In the event that field screening results exceed 100 parts per million, soil samples will be collected from that boring for laboratory analysis. Generally, these samples will be collected from the vadose zone where the highest OVM-PID reading is observed and from the capillary fringe just above groundwater.

For each soil boring, a Soil Boring Log will be completed. These logs will record sample identification, depth collected, and method of collection, as well as observations of soil moisture, color, density, grain size, plasticity, contaminant presence, and overall stratigraphy.

2.3.2 Field Screening

Samples will be field screened for VOC vapors utilizing a PID-OVM calibrated with isobutylene gas to obtain preliminary data regarding potential hydrocarbon impacted soil. Field screening will follow AES SOPs, applicable ASTM standards and USEPA guidelines. The PID-OVM readings will be recorded onto the soil boring logs.

2.3.3 Laboratory Analyses

Discrete samples collected for laboratory analysis will be placed into new, clean, laboratory-supplied containers, which will then be labeled, placed on ice, and logged onto a sample chain of custody record. Samples will be maintained on ice until delivery to the analytical laboratory, Hall Environmental Analysis Laboratory (Hall) in Albuquerque, New Mexico. Soil samples will be laboratory analyzed for:

- Benzene, toluene, ethylbenzene, and xylene (BTEX) per U.S. Environmental Protection Agency (USEPA) Method 8021B; and
- Total petroleum hydrocarbons (TPH) as gasoline range organics (GRO) and diesel range organics (DRO) per USEPA Method 8015D.

2.4 Groundwater Monitor Well Installation and Sampling

2.4.1 Groundwater Monitor Well Installation and Construction

For soil borings completed as a groundwater monitor wells, monitor well construction will consist of 1.4-inch outside diameter (OD) [0.75-inch inside diameter (ID)] Schedule 40 PVC screen and 1.0-inch blank riser casing. The screened interval will extend 15 feet across the water table. A bentonite seal will be placed above the sand pack, and concrete grout with approximately 5 percent bentonite will be poured from the top of the bentonite plug up to within 0.5 feet of ground surface. An above grade locking steel protective casing, enclosed with a shroud of concrete, will be installed on the well to prevent unauthorized access and damage. A monitor well construction schematic is presented on Figure 3.

2.4.2 Professional Survey

The location and elevation of the top of each well casing will be surveyed to the nearest 0.01 foot with reference to mean sea level by a licensed surveyor in order to accurately determine the local groundwater depth and flow direction beneath the site. Each well will be tied to an existing USGS benchmark. AES will arrange with a New Mexico Licensed Professional Surveyor or with an Enterprise approved and provided surveyor to complete the survey after the monitor well installation.

2.4.3 Monitor Well Development

Following monitor well installation and completion, each well will be developed by a combination of surging and bailing techniques. Groundwater purged from the wells will be contained in a labeled and sealed 55-gallon drum and transported to Envirotech Landfarm for proper disposal.

2.4.4 Groundwater Sampling

Upon well completion and development, the monitor wells will be allowed to sit undisturbed for a minimum of 48 hours. The monitor wells will then be gauged to determine water table elevation and direction of groundwater flow. The wells will then be purged of a minimum of three well volumes, and a groundwater sample will be collected from each well.

Groundwater samples will be collected from each well using a low flow peristaltic pump. Purging data, including pH, temperature, conductivity, oxidation-reduction potential (ORP), and dissolved oxygen (DO), will be measured with a YSI water quality meter and documented on a Water Sample Collection Form along with purged water volume and sample depth. All sampling equipment will be thoroughly decontaminated between uses. Purged water will be contained in a labeled and sealed 55-gallon drum and transported to the Envirotech Landfarm for proper disposal.

2.4.5 Laboratory Analyses

All groundwater analytical samples collected from the monitor wells will be submitted to Hall for analysis of the following parameters:

- BTEX per USEPA Method 8021B;
- TPH as GRO, DRO, and motor oil range organics (MRO) per USEPA Method 8015D.

Once collected, sample containers will be packed per standard protocol with ice in insulated coolers and shipped to the analytical laboratory.

2.5 Equipment Decontamination

In order to prevent cross-contamination between sampling locations, strict decontamination procedures will be employed during the continued site assessment. All drilling equipment will be decontaminated after completing each well, and sampling equipment (i.e. hand auger, spoon sampler and other hand tools) will be decontaminated following each use at an individual depth or location. All decontamination procedures will be completed in strict accordance with AES SOPs and applicable USEPA guidelines.

3.0 Deliverables

Following completion of the continued assessment activities, a Continued Assessment Report summarizing the investigation activities will be submitted to Enterprise. The report will include the following:

1. A summary of all work conducted in the implementation of the assessment;
2. Maps of all sampling locations, including groundwater contaminant concentrations and contours;
3. Soil boring logs and geologic cross-sections;
4. All laboratory data and quality assurance and quality control information;
5. Site photographs;
6. Professional survey data; and
7. Recommendations for further action, if applicable.

4.0 Implementation Schedule

Soil boring installation has been tentatively scheduled for early October 2013, pending site accessibility. Monitor well development and sampling will occur the following week. Note, this schedule assumes that no inclement weather occurs, which could result in a delay in implementing the field work.

AES appreciates the opportunity to provide Enterprise with environmental services. If you have any questions about the proposed scope of work or site conditions, please do not hesitate to contact me or Ross Kennemer at 505.564.2281.

Respectfully submitted,

Heather M. Woods

Heather M. Woods, P.G.
Project Manager

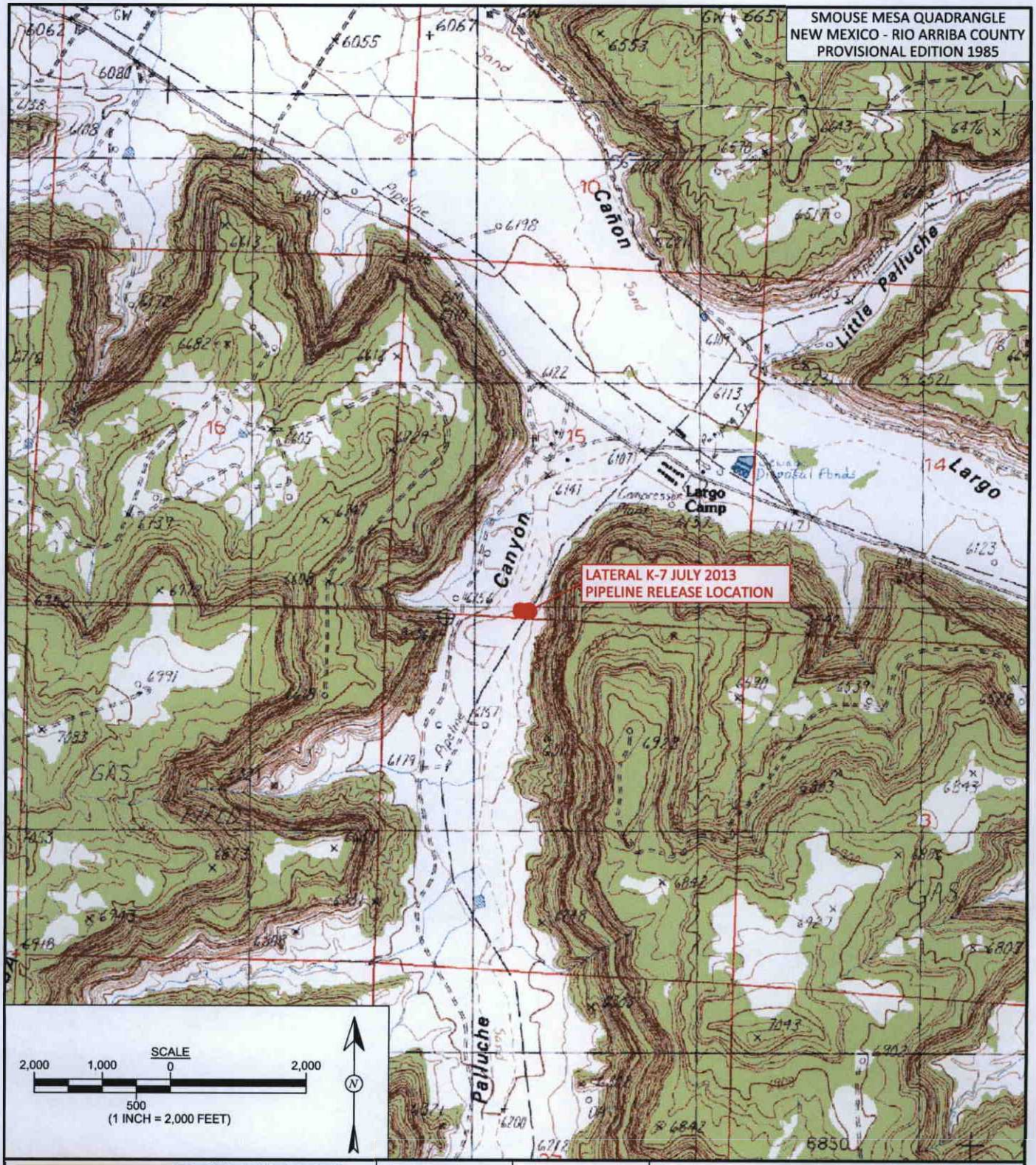
Elizabeth McNally

Elizabeth McNally, P.E.
Principal

Attachments:

Figure 1.	Topographic Site Location Map
Figure 2.	Aerial Site Map
Figure 3.	Proposed Soil Boring/Monitor Well Locations and Well Schematic

R:\Animas 2000\Dropbox\2013 Projects\Enterprise\Lateral K-7 July 2013\Workplans and Reports\Lateral K-7 July 2013 Release Continued Site Assessment Workplan 092513.docx

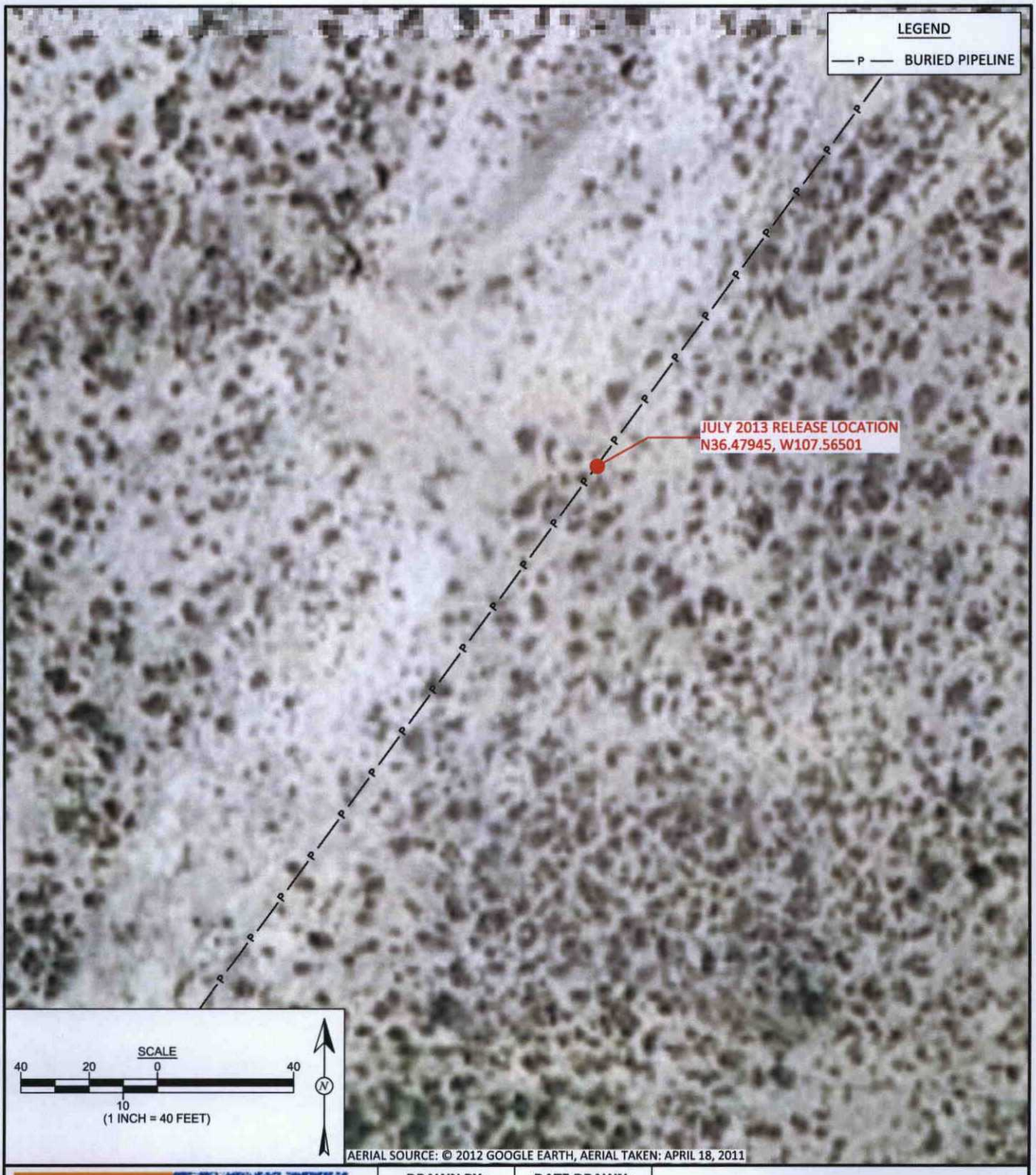


Animas Environmental Services, LLC

DRAWN BY: K. Christiansen	**DATE DRAWN:** September 6, 2013
REVISIONS BY: K. Christiansen	**DATE REVISED:** September 6, 2013
CHECKED BY: H. Woods	**DATE CHECKED:** September 6, 2013
APPROVED BY: E. McNally	**DATE APPROVED:** September 6, 2013

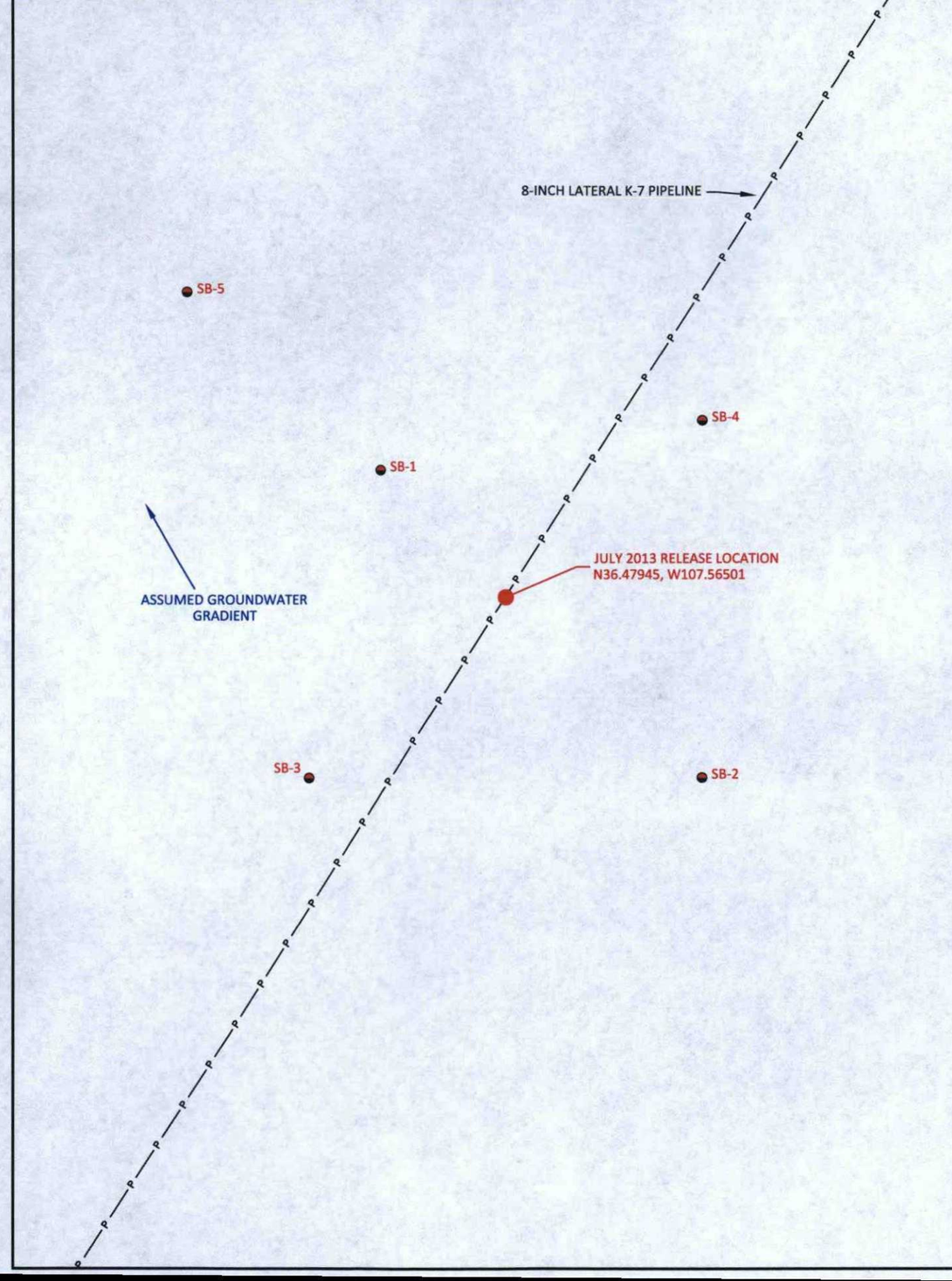
FIGURE 1

TOPOGRAPHIC SITE LOCATION MAP
ENTERPRISE FIELD SERVICES, LLC
LATERAL K-7 JULY 2013 PIPELINE RELEASE
SE¼ SW¼, SECTION 15, T26N, R7W
RIO ARRIBA COUNTY, NEW MEXICO
N36.47945, W107.56501

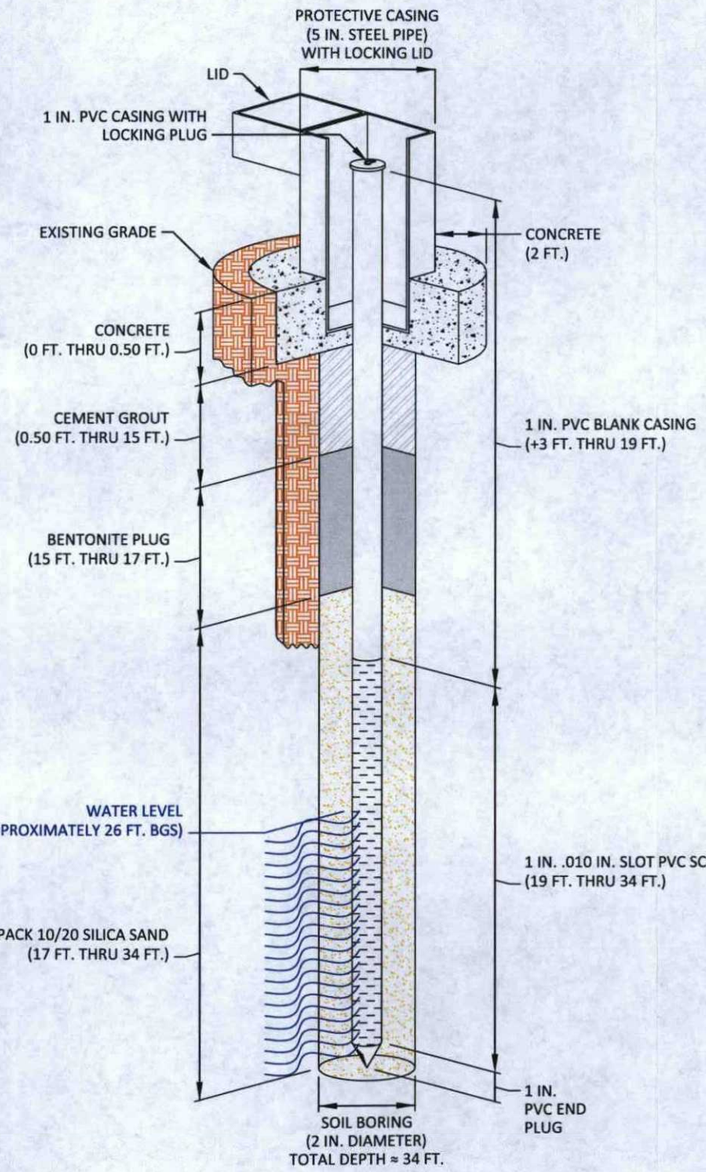


Animas Environmental Services, LLC

DRAWN BY: K.Christiansen	**DATE DRAWN:** Sepember 6, 2013	**FIGURE 2**
REVISIONS BY: K. Christiansen	**DATE REVISED:** September 6, 2013	**AERIAL SITE MAP**
CHECKED BY: H. Woods	**DATE CHECKED:** September 6, 2013	ENTERPRISE FIELD SERVICES, LLC LATERAL K-7 JULY 2013 PIPELINE RELEASE
APPROVED BY: E. McNally	**DATE APPROVED:** September, 2013	SE¼ SW¼, SECTION 15, T26N, R7W RIO ARRIBA COUNTY, NEW MEXICO N36.47945, W107.56501



PROPOSED GROUNDWATER MONITOR WELL SCHEMATIC



NOT TO SCALE

FIGURE 3

PROPOSED SOIL BORING/MONITOR WELL LOCATIONS AND WELL SCHEMATIC
ENTERPRISE FIELD SERVICES, LLC
LATERAL K-7 JULY 2013
SE¼ SW¼, SECTION 15, T26N, R7W
RIO ARRIBA COUNTY, NEW MEXICO
N36.47945, W107.56501

AES
Animas Environmental Services, LLC

DRAWN BY: K. Christiansen	**DATE DRAWN:** September 6, 2013
REVISIONS BY: K. Christiansen	**DATE REVISED:** September 6, 2013
CHECKED BY: H. Woods	**DATE CHECKED:** September 6, 2013
APPROVED BY: E. McNally	**DATE APPROVED:** September 6, 2013

LEGEND

- PROPOSED SOIL BORING AND MONITOR WELL LOCATIONS
- —P— BURIED PIPELINE (APPROXIMATE)