3R – 453

GW WORKPLAN

01 / 16 / 2013

FED 2E#1 /2012
3R-453

Enterprise Products

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

ENTERPRISE PRODUCTS OPERATING LLC

RECEIVED OCD

January 16, 2013

EMNRD Oil Conservation Division
Aztec District III Office
Attn: Brandon Powell
1000 Rio Brazos Road
Aztec, NM 87410

Return Receipt Requested
7012 2210 0001 2251 4075

EMNRD Oil Conservation Division
Environmental Bureau
Attention: Glen von Gonten
122 South St. Francis Drive
Santa Fe, NM 87505

Return Receipt Requested
7012 2210 0001 2251 4082

Navajo EPA
Attn.: Steve Austin
P. O. Box 1999/Old NAPA Building
Shiprock, NM 87420

Return Receipt Requested
7012 2210 0001 2251 4099

Navajo Agricultural Products Inc.
Attn: Tsosie Lewis, CEO
P. O. Drawer 1318
Farmington, NM 87499

Return Receipt Requested
7012 2210 0001 2251 4105

RE: Enterprise Field Services, LLC
Continued Site Investigation Workplan
Federal 2E #1 March 2012 Release

Dear Sir or Madam:

Enclosed please find the Continued Site Investigation Workplan for the Federal 2E #1 March 2012 Release in San Juan County, NM.

If you have any questions or need more information, please contact Aaron Dailey, Field Environmental Representative, by phone at 505-599-2286, by email at amdailey@eprod.com or me at 713-381-6684.

Regards,

Matthew E. Marra
(Bm)

Matthew E. Marra
Sr. Director, Environmental

/bjm
enclosure

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

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

Prepared for:

Steve Austin
Navajo Environmental Protection Agency
P.O. Box 1999
Shiprock, New Mexico 87420

Prepared on behalf of:

Enterprise Field Services, LLC
614 Reilly Avenue
Farmington, NM 87401

Continued Site Investigation Workplan
Enterprise Field Services, LLC
Federal 2E #1 March 2012 Release
SW¼ NE¼, Section 2, T27N, R12W
San Juan County, New Mexico

January 3, 2013

Prepared by:
Animas Environmental Services, LLC
624 E. Comanche
Farmington, New Mexico 87401
www.animasenvironmental.com

Contents

Figures

1.0 Introduction

Animas Environmental Services, LLC (AES), on behalf of Enterprise Field Services, LLC (Enterprise), has prepared a workplan to complete a continued site investigation associated with a release of natural gas condensate, which occurred along the Enterprise Federal 2E #1 pipeline in March 2012. Details of the initial site investigation were previously submitted in AES' *Site Investigation Report* dated July 2, 2012.

1.1 Site Location and NMOCD Ranking

The release is located approximately 11 miles southeast of Farmington, New Mexico, within Navajo Agricultural Products Industry's (NAPI) Field 409A, which is under jurisdiction of the Navajo Nation Environmental Protection Agency (NNEPA). The release is located within the SW¼ NE¼, Section 2, T27N, R12W, San Juan County, New Mexico. Latitude and longitude of the release were recorded as N36.60681 and W108.08013, respectively, and site elevation is approximately 5,977 feet above mean sea level as determined by Global Positioning System (GPS). A topographic site location map is included as Figure 1, and an aerial map showing the release location is included as Figure 2.

The NNEPA does not have codified regulations or guidelines for oil and gas release response protocol and requested that Enterprise follow the release protocol written in the New Mexico Oil Conservation Division (NMOCD) *Guidelines for Remediation of Leaks, Spills, and Releases* (August 1993). Therefore, in accordance with the NMOCD guidelines, the release location was assigned a ranking score. The ranking score was obtained in part by reviewing available records of nearby oil/gas wells using the NMOCD online database; however, no records were found to aid in the assessment. Additionally, the New Mexico Office of the State Engineer (NMOSE) database was reviewed for the presence of nearby water wells, and no registered water wells were reported to be located within 1,000 feet of the location. Google Earth and the New Mexico Tech Petroleum Recovery Research Center online mapping tool (http://ford.nmt.edu/react/pitrules_index.html) were accessed to aid in the identification of downgradient surface water.

Once on-site, AES personnel assessed the NMOCD ranking criteria using topographical interpretation, GPS elevation readings and visual reconnaissance. Based on field observations during the initial site investigation, the depth of groundwater ranges from 27 to 29 feet below ground surface (bgs). Distance to the nearest surface water body, a NAPI irrigation canal, is approximately 2,515 feet west of the release location. The location was assessed a NMOCD ranking score of 20.

1.2 Release Information

On March 15, 2012, petroleum hydrocarbon contaminated surface soil was discovered within NAPI Field 409A by NAPI personnel while preparing the field for planting. On the same day, Enterprise personnel responded to isolate the suspected pipeline, which was identified as a 4-inch diameter well tie to the Federal 2E #1 natural gas well, operated by Energen Resources Corporation. The release was believed to be associated with two small corrosion holes in the pipeline.

1.3 Initial Release Assessment and Investigation

1.3.1 Initial Assessment

On March 21 to 23, 2012, Enterprise contractors completed initial pipeline repairs. During the excavation work, AES collected field screening samples to evaluate the level of soil contamination present along the walls and base of the excavation. Additionally, a test hole was excavated within the pipeline trench to a maximum depth of 23 feet bgs, from which a soil sample was collected for field screening and laboratory analysis.

The initial mitigation was continued on March 26 and 27, 2012. Enterprise contractors made the final repairs to the pipeline, excavated and transported hydrocarbon contaminated soil off-site to an authorized disposal facility, and backfilled the excavation. The final excavation dimensions measured approximately 16 feet by 16 feet by 12 feet deep, which encompassed the 23 foot deep test hole.

Prior to receipt of the laboratory analysis from the test hole, and based on a high field screening value of 2,984 parts per million (ppm) for volatile organic compounds (VOCs) from the test hole, AES recommended the installation of five temporary soil borings to delineate the horizontal and vertical extent of the subsurface contamination.

1.3.2 Site Investigation

On March 30 and 31, 2012, AES completed a site investigation with the purpose of delineating the full extent of petroleum hydrocarbon impact on subsurface soils and groundwater resulting from the release. The investigation included the installation of five soil borings (SB-1 through SB-5) and the collection of soil and groundwater samples.

Soil borings were advanced to depths ranging from 30 to 52 feet bgs. Site lithology consists of alternating layers of fine to medium grained sand and sandy clay from the ground surface to total depth. Soil boring logs were submitted in the AES *Site Investigation Report* dated July 2, 2012.

Groundwater was encountered in each soil boring between 27 to 29 feet bgs. Based on soil field screening results, one groundwater sample (SB-2W) was collected from soil boring SB-2 using a new disposable bailer.

Soil samples indicated that residual total benzene, toluene, ethyl-benzene, and xylenes (BTEX) and total petroleum hydrocarbons (TPH) concentrations do not exceed NMOCD action levels. The highest soil concentrations were reported in SB-2 (release area) at 18 feet bgs with 1.1 mg/kg total BTEX and 21 mg/kg TPH as gasoline range organics (GRO). However, dissolved phase analytical results indicated groundwater is impacted above the New Mexico Water Quality Control Commission (WQCC) standards for benzene, toluene, and total xylenes in SB-2W. Dissolved phase concentrations were reported at 1,500 µg/L benzene, 3,500 µg/L toluene, and 1,900 µg/L xylenes.

Based on the groundwater analytical results and project planning with Enterprise, AES recommended the installation of temporary wells using a Hydropunch point on a Geoprobe® in order to delineate the horizontal extent of the dissolved phase plume. Permanent groundwater monitor wells will be considered based on the continued site investigation results, since specially designed monitor wells would have to be installed because the release is within an active agricultural field (i.e. the permanent wells may have to be installed below tilling depth and at an optimal time as not to interfere with agricultural activities).

2.0 Proposed Groundwater Investigation

The continued site investigation is proposed in order to delineate the extent of the dissolved phase hydrocarbon contaminants associated with the Federal 2E #1 pipeline release. The investigation procedures are designed to be protective of both surface water and groundwater and are based upon protocols outlined in AES' Standard Operating Procedures (SOPs). AES' SOPs follow applicable NMOCD guidelines, BLM guidelines, ASTM standards and applicable U.S. Environmental Protection Agency (USEPA) methods and guidelines for soil and groundwater sampling.

2.1 Pre-Field Permits and Coordination

2.1.1 Access Agreements

Prior to initiating the field work, AES will work with Enterprise, NNEPA and NAPI for access authorization.

2.1.2 Archaeological Clearances

In the event that any evidence of artifacts and/or human remains is encountered, all work will be stopped immediately. The Navajo Nation Historical Preservation Office will be contacted, and appropriate mitigation measures will be implemented.

2.1.3 Navajo Water Resources and Office of State Engineer Permits

Prior to initiating the groundwater investigation, AES will consult with the Navajo Nation Division of Natural Resources (DNR) Water Resources Department and New Mexico Office of the State Engineer (NMOSE) to determine if groundwater monitor well permits are required. However, since the hydropunch locations are temporary, permits are not anticipated.

2.1.4 Utilities Notification

AES will utilize the New Mexico One-Call and Navajo Tribal Utility Authority system to identify and mark all underground utilities at the site before the start of any proposed field activities which could impact buried utilities.

2.1.5 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 Hydropunch Groundwater Sampling Points

AES proposes to install seven hydropunch points within the release area to delineate the extent of the groundwater petroleum hydrocarbon contaminants. The hydropunch tool will be advanced to a total depth of 30 to 35 feet bgs with a DT 6620 track-mounted direct push rig, manufactured by Geoprobe®, and equipped with a 2-inch outer diameter (OD) core barrel. Direct push drilling will be provided by Earth Worx, Los Lunas, New Mexico. The latitude, longitude, and surface elevation of each hydropunch location will be recorded with a Topcon total station. The locations of the proposed hydropunch sample points are shown on Figure 3.

2.2.1 Hydropunch Groundwater Sampling

Groundwater grab samples will be collected from each hydropunch location with a new disposable bailer equipped with a low-flow release valve. The depth to groundwater will be measured from surface grade with a water level indicator. Prior to sample collection, water quality measurements, including pH, temperature, conductivity, oxidation reduction potential (ORP), and dissolved oxygen (DO), will be made and recorded onto water sample collection forms.

2.2.2 Laboratory Analyses

All groundwater samples collected from the hydropunch locations will be submitted to Hall for analysis of the following parameters:

- BTEX per USEPA Method 8021B

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

2.3 Equipment Decontamination

In order to prevent cross-contamination between sampling locations, strict decontamination procedures will be employed during the continued site investigation. All drilling equipment will be decontaminated after completing each hydropunch location, 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 of equipment will be completed within clean 5-gallon plastic buckets, which will contain the effluent. At least two tubs will be used, one designated for push rods and the other for small sampling equipment. On an as-needed basis, effluent from the tubs will be transferred by small pump or bucket into 55-gallon Department of Transportation (DOT) approved drums, which will then be marked with identification labels and sealed. Decontamination procedures to be utilized are outlined below.

For small equipment such as hand augers, hand tools and spoon samplers:

1. Physical removal of gross contamination and all debris with brushes;
2. Hand wash with non-phosphate detergent;
3. Hand wash with non-phosphate detergent and water using brush;
4. Rinse with water;
5. Second rinse with water; and
6. Air dry.

All decontamination procedures will be completed in strict accordance with AES SOPs and applicable USEPA guidelines.

3.0 Deliverables

Following completion of the site investigation activities, a Continued Site Investigation Report summarizing the investigation activities will be submitted to Enterprise. The report will include the following:

1. A summary of all work conducted as part of the investigation;
2. Copies of any permits required in order to conduct the investigation;
3. Maps showing hydropunch locations and groundwater contaminant concentrations and contours;

4. All laboratory data and quality assurance and quality control information; and
5. Recommendations for further investigation and/or corrective action.

4.0 Implementation Schedule

AES proposes to begin the continued site investigation activities on January 14, 2013, pending NNEPA approval. This schedule assumes that no permits will be required for the hydropunch locations and no prohibitive inclement weather occurs, both of which could result in a delay in implementing field activities.

Respectfully submitted,

Tami C. Ross

Tami C. Ross, CHMM
Project Manager

Elizabeth McNally, PE
Principal

5.0 References

Animas Environmental Services, LLC (AES). Enterprise Federal 2E #1 *Initial Release and Abatement Report*, March 28, 2012

AES. *Enterprise Federal 2E #1 Site Investigation Report*, July 2, 2012.

American Society for Testing and Materials (ASTM International). ASTM D5092 - 04(2010)e1. *Standard Practice for Design and Installation of Groundwater Monitoring Wells,* 2010.

New Mexico Oil Conservation Division. 1993. *Environmental Handbook: Miscellaneous Guidelines: Guidelines for Remediation of Spills, Leaks, and Releases.* August 13, 1993. http://www.emnrd.state.nm.us/ocd/EnvironmentalHandbook.htm

U.S. Department of Interior (USDI) Bureau of Land Management. 2008. *Natural Resource Damage Assessment and Restoration Handbook.* Release 1-1712. May, 2008.

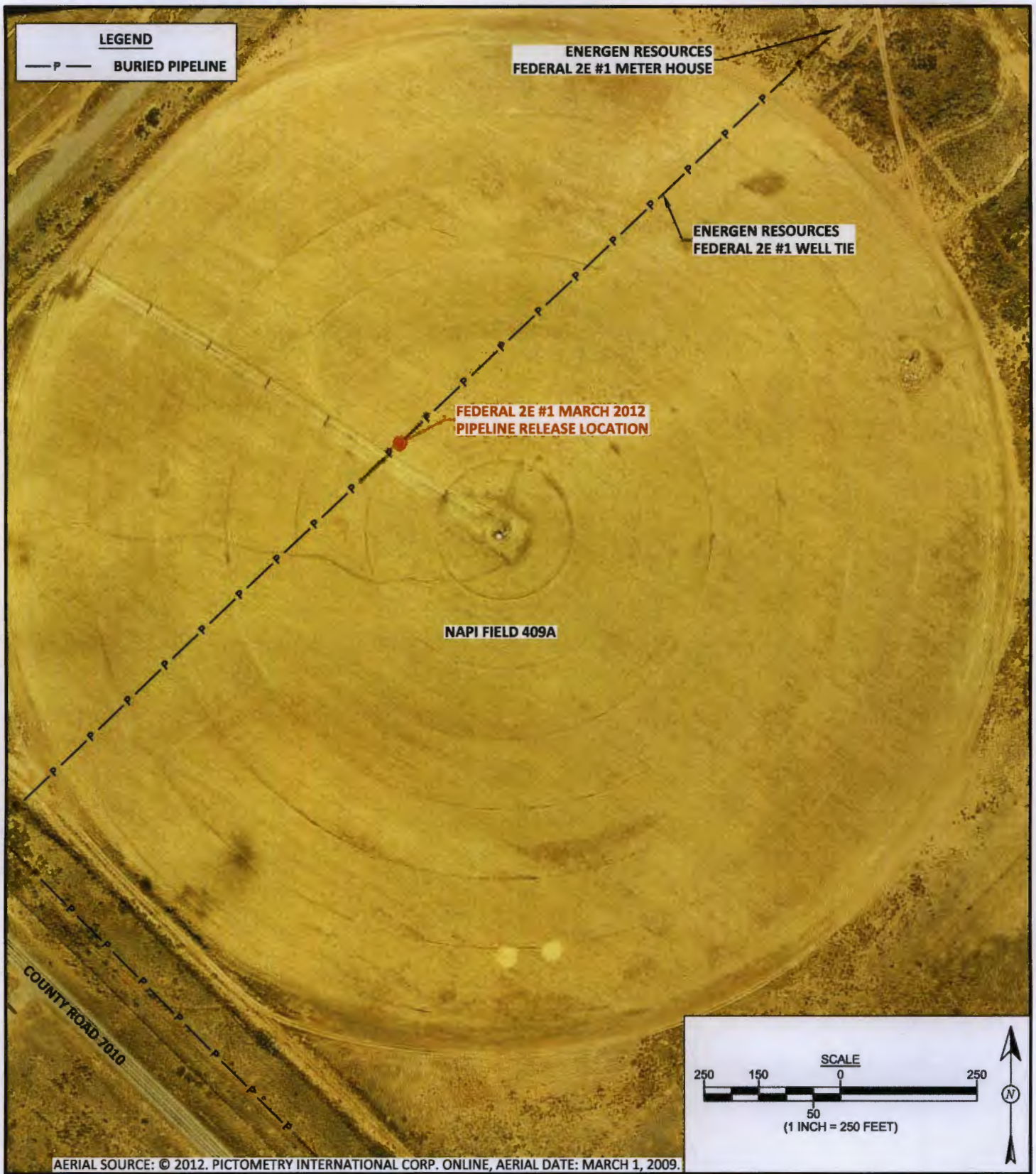
U.S. Environmental Protection Agency (USEPA). 1982. *Methods for Chemical Analysis for Water and Wastes.* Document EPA-600, July, 1982.

USEPA. 1992. SW-846, 3rd Edition, *Test Methods for Evaluating Solid Waste: Physical Chemical Methods*, dated November, 1986, and as amended by Update One, July, 1992.

USEPA. 2001. Contract Laboratory Program (CLP) Guidance for Field Samplers. OSWER 9240.0-35, EPA 540-R-00-003. June, 2001.

DRAWN BY: C. Lameman	**DATE DRAWN:** December 27, 2012	**FIGURE 1**	
REVISIONS BY: C. Lameman	**DATE REVISED:** December 27, 2012	**TOPOGRAPHIC SITE LOCATION MAP** ENTERPRISE FIELD SERVICES, LLC FEDERAL 2E #1 MARCH 2012 PIPELINE RELEASE SAN JUAN COUNTY, NEW MEXICO SW¼ NE¼, SECTION 2, T27N R12W N36.60681, W108.08013	
CHECKED BY: T. Ross	**DATE CHECKED:** December 27, 2012		
APPROVED BY: E. McNally	**DATE APPROVED:** December 27, 2012		

AES
Animas Environmental Services, LLC

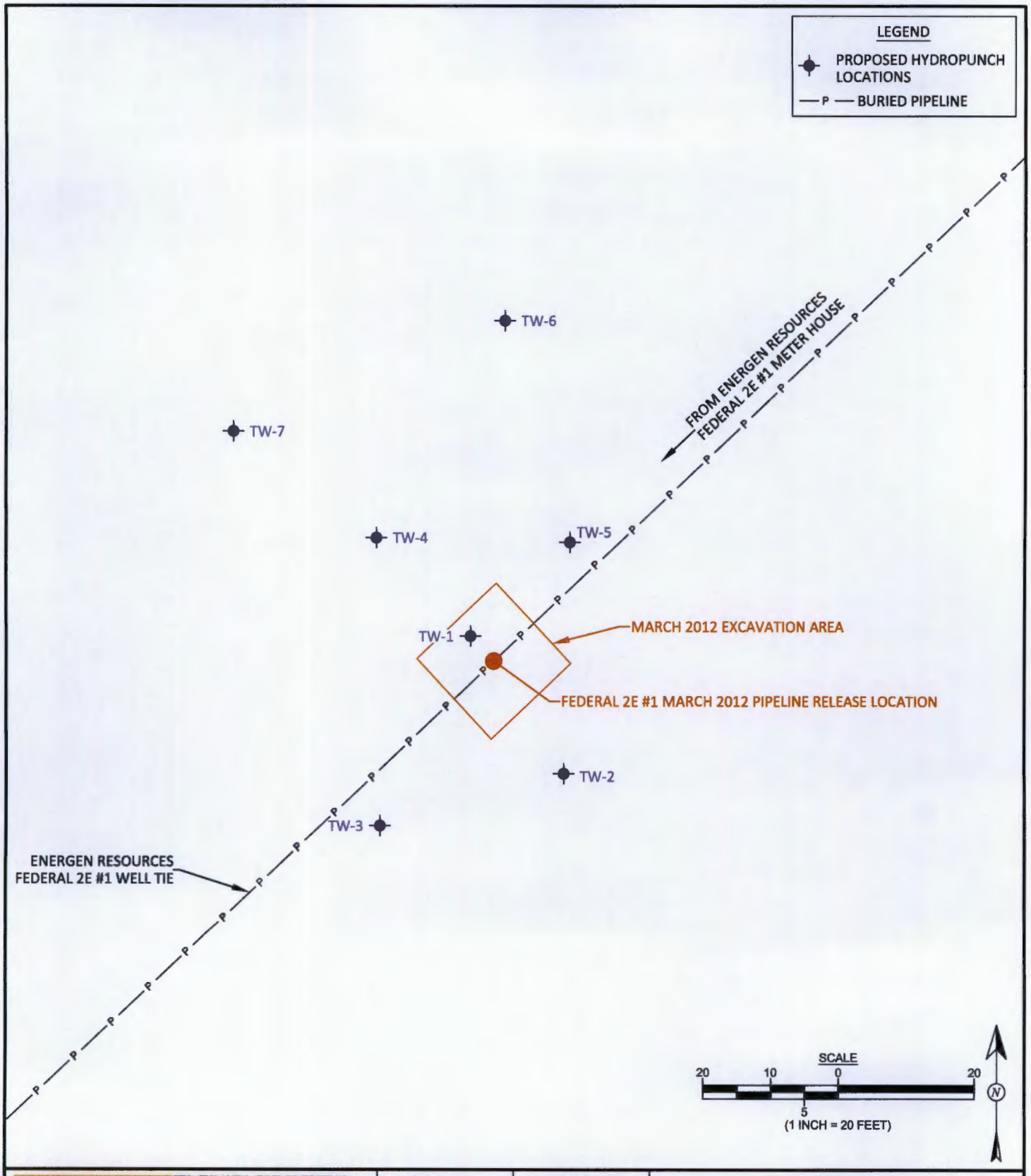


AES
Animas Environmental Services, LLC

DRAWN BY: C. Lameman	**DATE DRAWN:** December 27, 2012
REVISIONS BY: C. Lameman	**DATE REVISED:** December 27, 2012
CHECKED BY: T. Ross	**DATE CHECKED:** December 27, 2012
APPROVED BY: E. McNally	**DATE APPROVED:** December 27, 2012

FIGURE 2

AERIAL SITE MAP
ENTERPRISE FIELD SERVICES, LLC
FEDERAL 2E #1 MARCH 2012 PIPELINE RELEASE
SAN JUAN COUNTY, NEW MEXICO
SW¼ NE¼, SECTION 2, T27N R12W
N36.60681, W108.08013



Animas Environmental Services, LLC

DRAWN BY: C. Lameman	**DATE DRAWN:** December 27, 2012	**FIGURE 3**
REVISIONS BY: C. Lameman	**DATE REVISED:** December 27, 2012	**PROPOSED HYDROPUNCH LOCATIONS**
CHECKED BY: T. Ross	**DATE CHECKED:** December 27, 2012	ENTERPRISE FIELD SERVICES, LLC FEDERAL 2E #1 MARCH 2012 PIPELINE RELEASE SAN JUAN COUNTY, NEW MEXICO
APPROVED BY: E. McNally	**DATE APPROVED:** December 27, 2012	SW¼ NE¼, SECTION 2, T27N R12W N36.60681, W108.08013