

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources  
Department  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-144  
Revised June 6, 2013

For temporary pits, below-grade tanks, and multi-well fluid management pits, submit to the appropriate NMOCD District Office.  
For permanent pits submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

15736

Pit, Below-Grade Tank, or  
Proposed Alternative Method Permit or Closure Plan Application

- Type of action:  Below grade tank registration  
 Permit of a pit or proposed alternative method  
 Closure of a pit, below-grade tank, or proposed alternative method  
 Modification to an existing permit/or registration  
 Closure plan only submitted for an existing permitted or non-permitted pit, below-grade tank, or proposed alternative method

**Instructions:** Please submit one application (Form C-144) per individual pit, below-grade tank or alternative request

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.  
Operator: Enterprise Products Operating, LLC OGRID #: OIL CONS. DIV DIST. 3  
Address: P.O. Box 4324, Houston, TX 77210  
Facility or well name: Arch Rock Compressor Station Tank #6 SEP 01 2016  
API Number: \_\_\_\_\_ OCD Permit Number: \_\_\_\_\_  
U/L or Qtr/Qtr NW1/4/SW1/4 Section 14 Township 31N Range 10W County: San Juan  
Center of Proposed Design: Latitude 36.895017° Longitude -107.859108° NAD:  1927  1983  
Surface Owner:  Federal  State  Private  Tribal Trust or Indian Allotment

2.  
 **Pit:** Subsection F, G or J of 19.15.17.11 NMAC  
Temporary:  Drilling  Workover  
 Permanent  Emergency  Cavitation  P&A  Multi-Well Fluid Management Low Chloride Drilling Fluid  yes  no  
 Lined  Unlined Liner type: Thickness \_\_\_\_\_ mil  LLDPE  HDPE  PVC  Other \_\_\_\_\_  
 String-Reinforced  
Liner Seams:  Welded  Factory  Other \_\_\_\_\_ Volume: \_\_\_\_\_ bbl Dimensions: L \_\_\_\_\_ x W \_\_\_\_\_ x D \_\_\_\_\_

3.  
 **Below-grade tank:** Subsection I of 19.15.17.11 NMAC  
Volume: 750 Gal Type of fluid: Oily Water from Skid and Packing Vent Drains/Hydrocarbon Liquids Tank Overflow  
Tank Construction material: Steel double wall and bottom  
 Secondary containment with leak detection  Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off  
 Visible sidewalls and liner  Visible sidewalls only  Other Double wall tank with level detection and riser pipe in annular space for monitoring  
Liner type: Thickness \_\_\_\_\_ mil  HDPE  PVC  Other \_\_\_\_\_

4.  
 **Alternative Method:**  
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

5.  
**Fencing:** Subsection D of 19.15.17.11 NMAC (Applies to permanent pits, temporary pits, and below-grade tanks)  
 Chain link, six feet in height, two strands of barbed wire at top (Required if located within 1000 feet of a permanent residence, school, hospital, institution or church)  
 Four foot height, four strands of barbed wire evenly spaced between one and four feet  
 Alternate. Please specify \_\_\_\_\_

6.

**Netting:** Subsection E of 19.15.17.11 NMAC (*Applies to permanent pits and permanent open top tanks*)

Screen  Netting  Other Enclosed

Monthly inspections (If netting or screening is not physically feasible)

7.

**Signs:** Subsection C of 19.15.17.11 NMAC

12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

Signed in compliance with 19.15.16.8 NMAC

8.

**Variations and Exceptions:**

Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

**Please check a box if one or more of the following is requested, if not leave blank:**

Variance(s): Requests must be submitted to the appropriate division district for consideration of approval.

Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

9.

**Siting Criteria (regarding permitting):** 19.15.17.10 NMAC

**Instructions:** The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Siting criteria does not apply to drying pads or above-grade tanks.

**General siting**

**Ground water is less than 25 feet below the bottom of a low chloride temporary pit or below-grade tank.**

-  NM Office of the State Engineer - iWATERS database search;  USGS;  Data obtained from nearby wells

Yes  No  
 NA

**Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit.**

NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells

Yes  No  
 NA

Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. **(Does not apply to below grade tanks)**

- Written confirmation or verification from the municipality; Written approval obtained from the municipality

Yes  No

Within the area overlying a subsurface mine. **(Does not apply to below grade tanks)**

- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division

Yes  No

Within an unstable area. **(Does not apply to below grade tanks)**

- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map

Yes  No

Within a 100-year floodplain. **(Does not apply to below grade tanks)**

- FEMA map

Yes  No

**Below Grade Tanks**

Within 100 feet of a continuously flowing watercourse, significant watercourse, lake bed, sinkhole, wetland or playa lake (measured from the ordinary high-water mark).

- Topographic map; Visual inspection (certification) of the proposed site

Yes  No

Within 200 horizontal feet of a spring or a fresh water well used for public or livestock consumption.

- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

Yes  No

**Temporary Pit using Low Chloride Drilling Fluid** (maximum chloride content 15,000 mg/liter)

Within 100 feet of a continuously flowing watercourse, or any other significant watercourse or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). (Applies to low chloride temporary pits.)

- Topographic map; Visual inspection (certification) of the proposed site

Yes  No

Within 300 feet from a occupied permanent residence, school, hospital, institution, or church in existence at the time of initial application.

- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

Yes  No

Within 200 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 300feet of any other fresh water well or spring, in existence at the time of the initial application.

NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

Yes  No

Within 100 feet of a wetland.

- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

Yes  No

**Temporary Pit Non-low chloride drilling fluid**

Within 300 feet of a continuously flowing watercourse, or any other significant watercourse, or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).

- Topographic map; Visual inspection (certification) of the proposed site

Yes  No

Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.

- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

Yes  No

Within 500 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 1000 feet of any other fresh water well or spring, in the existence at the time of the initial application;

- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

Yes  No

Within 300 feet of a wetland.

- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

Yes  No

**Permanent Pit or Multi-Well Fluid Management Pit**

Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).

- Topographic map; Visual inspection (certification) of the proposed site

Yes  No

Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.

- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

Yes  No

Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application.

- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

Yes  No

Within 500 feet of a wetland.

- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

Yes  No

10.

**Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist:** Subsection B of 19.15.17.9 NMAC

*Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.*

- Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
- Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
- Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

Previously Approved Design (attach copy of design) API Number: \_\_\_\_\_ or Permit Number: \_\_\_\_\_

11.

**Multi-Well Fluid Management Pit Checklist:** Subsection B of 19.15.17.9 NMAC

*Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.*

- Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- A List of wells with approved application for permit to drill associated with the pit.
- Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC
- Hydrogeologic Data - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
- Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC

Previously Approved Design (attach copy of design) API Number: \_\_\_\_\_ or Permit Number: \_\_\_\_\_

12. **Permanent Pits Permit Application Checklist:** Subsection B of 19.15.17.9 NMAC

**Instructions:** Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
- Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- Climatological Factors Assessment
- Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
- Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
- Quality Control/Quality Assurance Construction and Installation Plan
- Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- Nuisance or Hazardous Odors, including H<sub>2</sub>S, Prevention Plan
- Emergency Response Plan
- Oil Field Waste Stream Characterization
- Monitoring and Inspection Plan
- Erosion Control Plan
- Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

13. **Proposed Closure:** 19.15.17.13 NMAC

**Instructions:** Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

- Type:  Drilling  Workover  Emergency  Cavitation  P&A  Permanent Pit  Below-grade Tank  Multi-well Fluid Management Pit  
 Alternative
- Proposed Closure Method:  Waste Excavation and Removal  
 Waste Removal (Closed-loop systems only)  
 On-site Closure Method (Only for temporary pits and closed-loop systems)  
 In-place Burial  On-site Trench Burial  
 Alternative Closure Method

14. **Waste Excavation and Removal Closure Plan Checklist:** (19.15.17.13 NMAC) **Instructions:** Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.

- Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.13 NMAC
- Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
- Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

15. **Siting Criteria (regarding on-site closure methods only):** 19.15.17.10 NMAC

**Instructions:** Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria require justifications and/or demonstrations of equivalency. Please refer to 19.15.17.10 NMAC for guidance.

- |   |   |
|---|---|
| Ground water is less than 25 feet below the bottom of the buried waste.<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells   | <input type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> NA |
| Ground water is between 25-50 feet below the bottom of the buried waste<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells   | <input type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> NA |
| Ground water is more than 100 feet below the bottom of the buried waste.<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells  | <input type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> NA |
| Within 100 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).<br>- Topographic map; Visual inspection (certification) of the proposed site                        | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |
| Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.<br>- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image  | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |
| Within 300 horizontal feet of a private, domestic fresh water well or spring used for domestic or stock watering purposes, in existence at the time of initial application.<br>- NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |
| Written confirmation or verification from the municipality; Written approval obtained from the municipality   | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |
| Within 300 feet of a wetland.<br>US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site   | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |
| Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance   |   |

|   |  |
|---|--|
| adopted pursuant to NMSA 1978, Section 3-27-3, as amended.<br>- Written confirmation or verification from the municipality; Written approval obtained from the municipality | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Within the area overlying a subsurface mine.<br>- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division                                 | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Within an unstable area.<br>- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map     | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Within a 100-year floodplain.<br>- FEMA map   | <input type="checkbox"/> Yes <input type="checkbox"/> No |

16. **On-Site Closure Plan Checklist:** (19.15.17.13 NMAC) *Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.*

Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC  
 Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection E of 19.15.17.13 NMAC  
 Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of Subsection K of 19.15.17.11 NMAC  
 Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC  
 Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC  
 Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of 19.15.17.13 NMAC  
 Waste Material Sampling Plan - based upon the appropriate requirements of 19.15.17.13 NMAC  
 Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)  
 Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC  
 Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC  
 Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

17. **Operator Application Certification:**

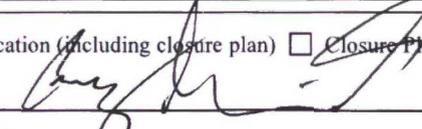
I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): Ivan W. Zirbes Title: Vice President-EHS&T

Signature:  Date: 08-26-2016

e-mail address: snolan@eprod.com Telephone: 713-381-6595

18. **OCD Approval:**  Permit Application (including closure plan)  Closure Plan (only)  OCD Conditions (see attachment)

OCD Representative Signature:  Approval Date: 1/5/17

Title: Environmental Spec OCD Permit Number: 15736

19. **Closure Report (required within 60 days of closure completion):** 19.15.17.13 NMAC

*Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.*

Closure Completion Date: \_\_\_\_\_

20. **Closure Method:**

Waste Excavation and Removal  On-Site Closure Method  Alternative Closure Method  Waste Removal (Closed-loop systems only)  
 If different from approved plan, please explain.

21. **Closure Report Attachment Checklist:** *Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.*

Proof of Closure Notice (surface owner and division)  
 Proof of Deed Notice (required for on-site closure for private land only)  
 Plot Plan (for on-site closures and temporary pits)  
 Confirmation Sampling Analytical Results (if applicable)  
 Waste Material Sampling Analytical Results (required for on-site closure)  
 Disposal Facility Name and Permit Number  
 Soil Backfilling and Cover Installation  
 Re-vegetation Application Rates and Seeding Technique  
 Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude \_\_\_\_\_ Longitude \_\_\_\_\_ NAD:  1927  1983

22.

**Operator Closure Certification:**

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

e-mail address: \_\_\_\_\_ Telephone: \_\_\_\_\_



June, 2016

SMA #5124213

Mr. Tom Long  
Enterprise Products Operating, LLC  
Field Environmental-San Juan Basin  
614 Reilly Avenue  
Farmington, NM 87401

**BGT REGISTRATION PACKET FOR ARCH ROCK COMPRESSOR STATION  
TANK #6 LATITUDE 36.895017°, LONGITUDE -107.859108°**

Dear Mr. Long:

Souder, Miller and Associates (SMA) has compiled the following BGT Registration Packet including Form C-144 in Accordance with the NMOCD Pit Rules per 19.15.17 NMAC. The tank is located at latitude 36.895017°, longitude -107.859108° within the fenced area of the Arch Rock Compressor Station. Tank information is presented in Table 1.

| Name                              | Arch Rock Compressor Station Tank #9   |              |                                     |              |
|-----------------------------------|--|--------------|-------------------------------------|--------------|
| Location                          | Latitude/Longitude   |              | Section, Township, Range            |              |
|                                   | 36.895017°   | -107.859108° | NW ¼ / SW ¼<br>Unit L<br>Section 14 | T31N<br>R10W |
| Date of Site Visit                | 5-Nov-15   |              |                                     |              |
| County                            | San Juan   |              |                                     |              |
| Land Owner                        | Private  |              |                                     |              |
| Tank Capacity                     | 750 Gal  |              |                                     |              |
| Tank Dimensions                   | Unknown  |              |                                     |              |
| Tank Serial Number (If Available) | T-108 (on attached diagrams)   |              |                                     |              |
| Tank Contents                     | Oily Water from Skid and Packing Vent Drains/Hydrocarbon Liquids Tank Overflow                     |              |                                     |              |
| Tank Construction Notes           | Steel double wall tank with level detection and riser pipe in annular space for monthly monitoring |              |                                     |              |
| Tank Operation Notes              | Tank is inspected monthly  |              |                                     |              |

### **Siting Criteria (19.15.17.10 NMAC)**

The below-ground tank (BGT) is located at the Arch Rock Compressor Station at an elevation of 6256 feet above mean sea level (amsl). The BGT meets all siting criteria listed in 19.15.17.10 NMAC with the exceptions for which variances are requested.

Depth to groundwater at the site is estimated to be about 200 feet below ground surface (bgs).

This data is supported by the elevation differences between the site and the base of any nearby washes with definable banks. Local topography and proximity to adjacent water features also support this depth to groundwater. Depth to groundwater in nearby wells permitted by the New Mexico Office of the State Engineer (OSE) do not report depth to groundwater<sup>2</sup>. The BGT base is estimated at 12 feet bgs. Because the BGT base is thus estimated to be greater than 100 feet above the ground water level, a variance is not being requested for this siting criteria.

Figure 1 shows the vicinity of the BGT location and the location of the nearby OSE Wells. The base layer of Figure 1 is the ESRI provided Imagery Topo map<sup>3</sup> and includes USGS Blue Lines<sup>4</sup>.

An aerial imagery map of the site is provided as Figure 2 shows the vicinity of the BGT at 1:4,000 map scale. Figure 2 demonstrates that the BGT is not located within 300 horizontal feet of any permanent residences, schools, hospitals, institutions or churches.

An aerial imagery map of the site is provided as Figure 3 and demonstrates the location of the BGT at a 1:1,000 map scale. Figure 3 demonstrates the BGT is not located within 100 feet of any continuous flowing watercourse, any other significant watercourse, sinkhole, lakebed, wetlands or playa lake as measured from the ordinary high water mark<sup>5</sup>. Figure 3 also demonstrates that the BGT is not located within 200 feet of a spring or freshwater well used for public or livestock consumption, as indicated by the aerial photo<sup>6</sup> and iWaters map layers<sup>3</sup>.

The BGT subject to the attached application for registration under 19.15.17 NMAC is located within the Arch Rock Compressor Station boundaries and was in existence prior to the promulgation of 19.15.17 NMAC. A review of the best available data and a visual inspection of the siting criteria of 19.15.17 NMAC specific to the BGT in question demonstrate that the BGT does not appear to pose a threat to fresh water, public health or the environment.

### **Local Geology and Hydrology**

The Arch Rock Compressor Station is located about 3 miles east of the Animas River, and about 3 miles south of Cedar Hill, New Mexico. The Compressor Station is located



on an eroded surface of sandstone, shales and conglomerates belonging to the Paleocene Nacimiento Formation<sup>7</sup>.

The bluffs about half a mile east of the compressor station are between 200 and 300 feet higher in elevation and are composed mostly of medium-grained mixed clastic rocks belonging to the Eocene San Jose Formation<sup>8</sup>. 3 miles to the west, along the Animas River, the surficial geology is composed of fluvial quaternary alluvium associated with the Animas River<sup>8</sup>.

Groundwater is estimated to be about 200 feet bgs (6056 feet amsl) at this site, based on the following documentation:

- Using the New Mexico Oil and Gas Association (NMOGA) differential method for "surface drainage influenced groundwater", depth to groundwater is estimated to be greater than 100 feet bgs<sup>2</sup>. An unnamed tributary to the Animas River is approximately 210 feet lower than the BGT at an elevation of 6046 feet amsl<sup>9</sup> and located 1.3 miles northwest of the BGT. Groundwater is conservatively assumed to be at the base of the wash. Furthermore, the elevation of the Animas River, at its closest location to the BGT, is over 400 feet below the BGT at 5800 feet amsl.
- No OSE POD records depth to water within 5 miles of the location
- No OSE API with recorded depth to water information is available within 3 miles, any available depth to water data are in locations with a very different hydrologic regime (e.g. along the river or on much higher plateau).

### **Regional Geology and Hydrology**

The San Juan Basin is located in the Navajo section of the Colorado Plateau and is characterized by broad open valleys, mesas, buttes and hogbacks. Away from major valleys and canyons, topographic relief is generally low. Native vegetation is sparse and shrubby consisting primarily of desert scrub (sage and chamisa) in the lower elevations and juniper and piñon in the higher elevations. Drainage of the San Juan Basin is by the San Juan River and its associated tributaries, including the La Plata and the Animas Rivers. The San Juan River is a tributary of the Colorado River. The climate is arid to semi-arid with an average annual precipitation of 8 to 10 inches. Soils within the basin consist of physically weathered parent rock. Aeolian depositional systems are responsible for a majority of the material transport in the San Juan Basin, fluvial systems are also present though less predominant<sup>10</sup>.

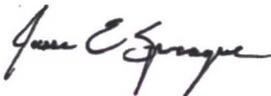
The primary aquifers in the San Juan Basin are contained in Cretaceous and Tertiary sandstones, as well as Quaternary Alluvial Deposits<sup>10</sup>. The Nacimiento Formation of Paleocene age occurs at the surface in a broad belt at the western and southern edges of the central San Juan Basin and dips beneath the San Jose Formation in the center. The lower part of the Nacimiento Formation is composed of interbedded black carbonaceous mudstones and white coarse grained sandstones. The upper part is comprised of mudstones and sandstones. Shales and conglomerates are often interbedded within the mudstones and sandstones, but they are not the primary rock type.



The Nacimiento Formation is generally slope forming, even in the sandstone units. Thickness of the Nacimiento ranges from 418 to 2232 feet<sup>11</sup>. Aquifers within the coarser and continuous sandstone bodies of the Nacimiento Formation are between 0 and 1000 feet deep in this section of the basin. Wells within these bodies flow from 16 to 100 gallons per minute (gpm) and transmissivities are expected to be 100 ft<sup>2</sup>/d. Groundwater within these units flows towards the Animas River<sup>10</sup>.

If there are any questions regarding this report, please contact myself or Reid Allan at 505-325-7535.

Sincerely,  
Souder, Miller & Associates



Jesse E Sprague  
Staff Scientist



Reid S. Allan  
Principal Scientist

**FIGURES:**

- Figure 1 – Vicinity Map
- Figure 2 – Site Map at 1:4,000 Scale
- Figure 3 – Site Map at 1:1,000 Scale

**ATTACHMENTS:**

- Form C-144
- Variance Request
- Tank Diagrams
- Operation and Maintenance Plan
- Depth to Groundwater Documentation



## References

<sup>1</sup>Personal Communication from Tom Long at Enterprise Products, San Juan Operating

<sup>2</sup>Office of the State Engineer (OSE) Water Administrative Technical Engineering Resource System (WATERS), September 4, 2015. "Water Wells – 2015 – OSE", released September, 2015.  
[http://qstore.unm.edu/apps/rqis/datasets/6925a8e3-6f8d-4334-a15e-bf95a11fdaaa/OSE\\_Wells\\_May\\_2015.original.zip](http://qstore.unm.edu/apps/rqis/datasets/6925a8e3-6f8d-4334-a15e-bf95a11fdaaa/OSE_Wells_May_2015.original.zip)

<sup>3</sup>ESRI ArcGIS Online, "USGSImageryTopo", August, 2013. The USGS Imagery Topo base map service from The National Map is a combination of imagery and contours, along with vector layers, such as geographic names, governmental unit boundaries, hydrography, structures, and transportation, to provide a composite base map that resembles the US Topo product. Vector data sources are the National Atlas for small scales, and The National Map for medium to large scales. Imagery data sources are Blue Marble: Next Generation at small scales and NAIP at large scales, with Global Land Survey (Landsat) imagery for medium scales that lack NAIP coverage. Coordinate System: Web Mercator Auxiliary Sphere (WKID 102100) <http://www.arcgis.com/home/item.html?id=c641cc5c41d44faba509959748098471>

<sup>4</sup>New Mexico Oil and Gas Association Training Manual for 19.15.17 NMAC (Pit Rule) "NMOGA & NMOCD Pit Rules Training.pdf" State of New Mexico, October 17, 2014.

<sup>5</sup>National Wetlands Inventory, September 2002. "San Juan Wetland/Riparian Project", R02Y02P01 San Juan, NMRGIS geodatabase. [http://rqis.unm.edu/qstore/datasets/757361ef-2000-4f2a-aff8-15fa0a8bd5db/nwi\\_san\\_juan\\_02.original.zip](http://rqis.unm.edu/qstore/datasets/757361ef-2000-4f2a-aff8-15fa0a8bd5db/nwi_san_juan_02.original.zip)

<sup>6</sup>Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community. November 2015 "World Imagery", Coordinate System: Web Mercator Auxiliary Sphere (WKID 102100)  
[http://server.arcgisonline.com/arcgis/services/World\\_Imagery/MapServer](http://server.arcgisonline.com/arcgis/services/World_Imagery/MapServer)

<sup>7</sup>Green, Gregory N., Jones, Glen E., 2009. "Digital Geologic Map of New Mexico – Formations"  
<http://qstore.unm.edu/apps/rqis/datasets/51349b33-92eb-4ab8-9217-81c82b5c3afa/nmmapdd83shp.original.zip>

<sup>8</sup>USGS Mineral Resources On-Line Spatial Data, Green, G.N., and Jones, G.E., 1997, The Digital Geologic Map of New Mexico in ARC/INFO Format: U.S. Geological Survey Open-File Report 97-0052, 9p.  
<http://pubs.er.usgs.gov/publication/ofr9752> <http://mrddata.usgs.gov/geology/state/state.php?state=NM>

<sup>9</sup>Source: "Largo Canyon Compressor Station and Wash Elevations" 36.485315° N, 107.558061° W. Google Earth. May 2, 2013. November 28, 2015. Elevation Datum: NAVD27.

<sup>10</sup> Stone, et.al., 1983, Hydrogeology and Water Resources of the San Juan Basin, New Mexico, Socorro, New Mexico Bureau of Mines and Mineral Resources Hydrologic Report 6.

<sup>11</sup>Kelley, et. Al., 2014, Hydrologic Assessment of Oil and Gas Resource Development of the Mancos Shale in the San Juan Basin, New Mexico. Open-File Report 566, New Mexico Bureau of Mines and Mineral Resources.



## Arch Rock Compressor Station, Tank # 6 Variance Request

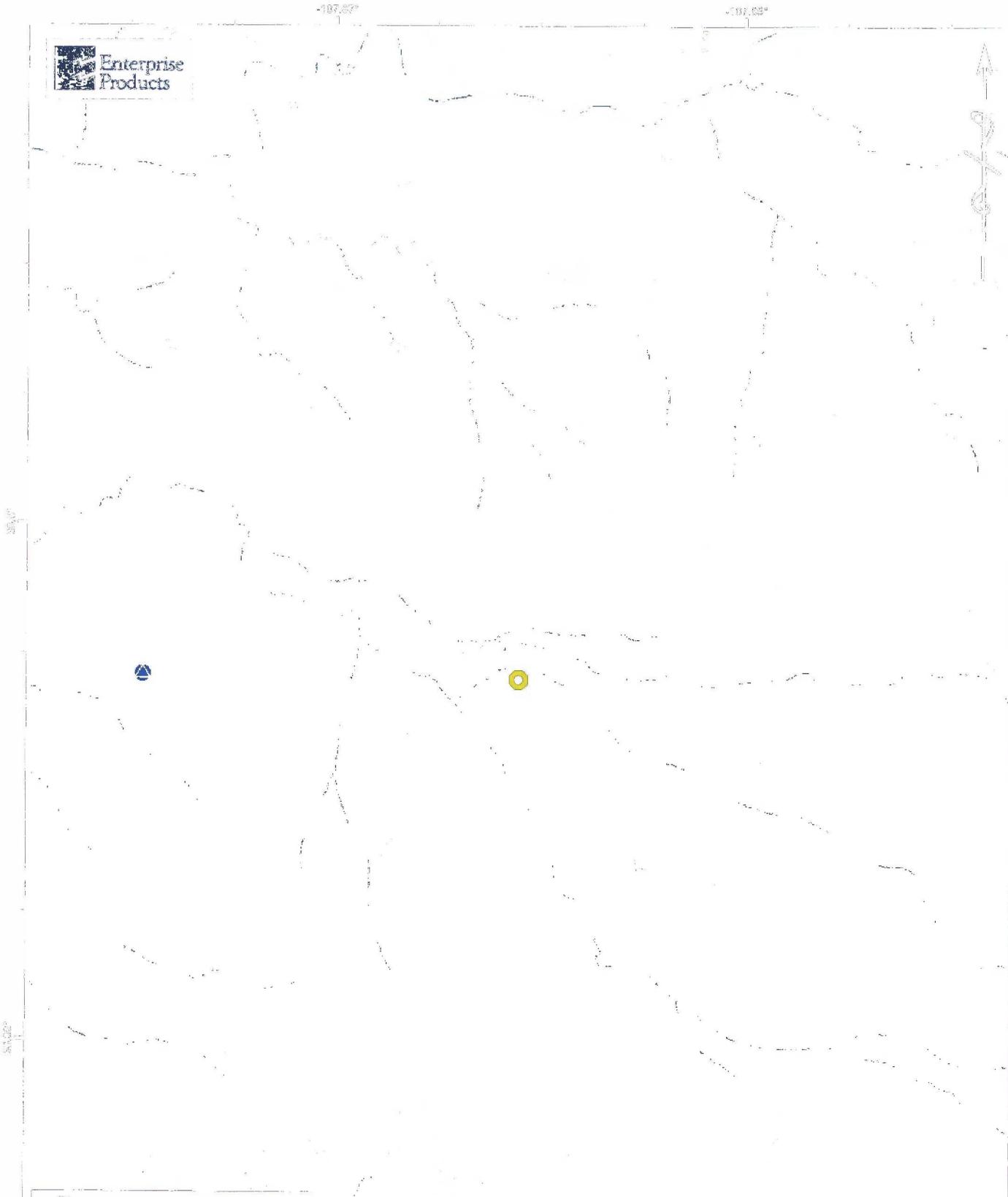
Enterprise requests a variance for the items listed below. The requested variances, per 19.15.17.15A, provide equal or better protection of fresh water, public health and the environment.

1. Signage

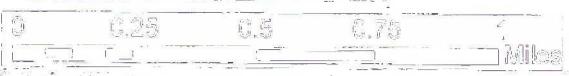
- BGT is located within a facility signed appropriate to NMAC 20.2.70, Title V Operating Permits. The sign is legible and contains the operator's name, the location of the compressor station in decimal degrees and township section and range, and emergency contact telephone numbers. Additional signage relevant to the Title V air quality permit is also present and provides equal or better protection of fresh water, public health and the environment.

2. 2008 Pit Rules

- Arch Rock Compressor Station Tank #6 was installed prior to the 2008 pit rules. The BGT does not pose an imminent threat to the protection of fresh water, public health or the environment.



-  Arch Rock CS Tank #8
-  OSE WELLS



Under Title, National Structure District USGS T14N - National  
 Transportation Research Institute, American Road & Builders  
 Bureau - USGS Topographic Data - National Center for  
 T14N - Geographic Information System, USGS T14N - National  
 Hydrographic Bureau

**SMA**  
 Souders, Miller & Associates  
 601 West Broadway Avenue  
 Bismarck, NY 57401-6007  
 Phone (505) 225-7535 Toll-Free (800) 518-0088  
 www.soudersmlle.com

ENTERPRISE  
 ARCH ROCK COMPRESSOR STATION TANK #8  
 JANUARY, 2013  
 SITE VICINITY MAP  
 SECTION 14, T14N, R10W  
 SAN JUAN COUNTY, NEW MEXICO

| Designed<br>JR         | Checked<br>JS | Checked<br>AFM |
|------------------------|---------------|----------------|
| NO. 102208             |               |                |
| SCALE: 1:24,000        |               |                |
| PROJECTION: NAD 83 UTM |               |                |
| PROJECT NO: 1142213    |               |                |
| FOOTING:               |               |                |

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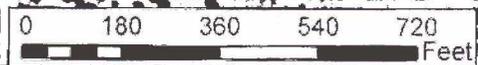
-107.8611°      -107.8597°      -107.8583°      -107.8569°



36.8972°  
36.8958°  
36.8944°  
36.8931°  
36.8917°



- Arch Rock CS Tank #6
- 1000 Foot Buffer
- 500 Foot Buffer
- Wetlands



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroX, Contraco, AeroGRID, IGN, IGP, Swisstopo, and the GIS User Community

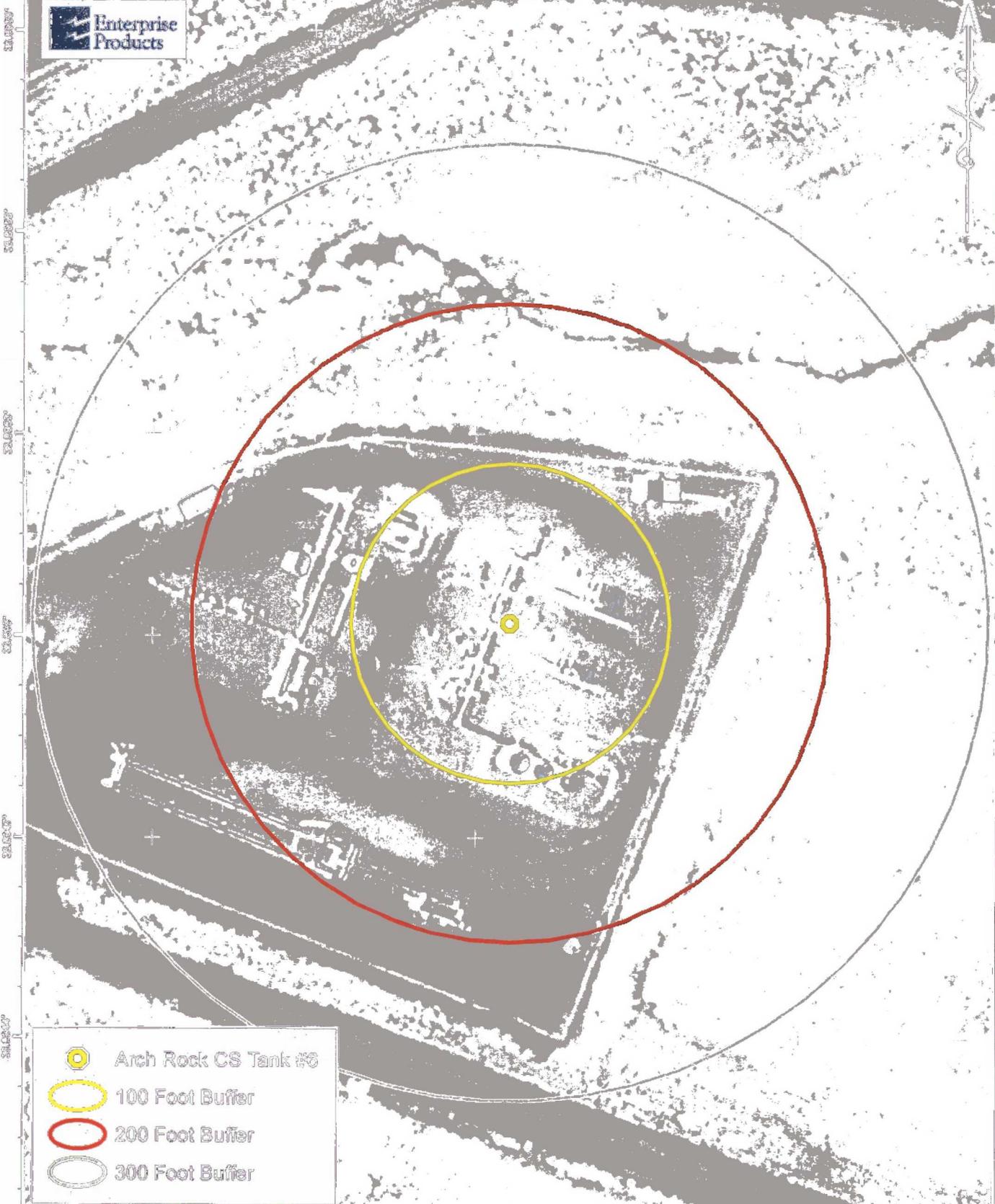
**SMA**  
SOUDEY, MILLER & ASSOCIATES  
401 West Broadway Avenue  
Farmington, NM 87401-5907  
Phone (505) 323-7335 Toll-Free (800) 519-0698  
www.soudermiller.com

ENTERPRISE FARMINGTON, NEW MEXICO  
ARCH ROCK COMPRESSOR STATION TANK #6  
JANUARY, 2016  
1:4,000 SITE MAP  
SECTION 14, T31N, R10W  
SAN JUAN COUNTY, NEW MEXICO

|              |            |       |     |         |     |
|--------------|------------|-------|-----|---------|-----|
| Designed     | JES        | Drewn | JES | Checked | APM |
| DATE:        | 1/13/2016  |       |     |         |     |
| SCALE:       | 1"=1000'   |       |     |         |     |
| PROJECTION:  | NAD 83 UTM |       |     |         |     |
| PROJECT NO.: | 5124213    |       |     |         |     |
| FIGURE:      | 2          |       |     |         |     |

Document Path: F:\S-Enterprise\_MEA\_2016\_46 BCT's Farming (5124213)\GIS Data\Map\Figure 2 Site Map.mxd  
© Copyright 2016 Soudey, Miller & Associates - All Rights Reserved

-107.8697°      -107.8694°      -107.8692°      -107.8690°      -107.8688°      -107.8685°



-  Arch Rock CS Tank #6
-  100 Foot Buffer
-  200 Foot Buffer
-  300 Foot Buffer



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGC, swisstopo, and the GIS User Community



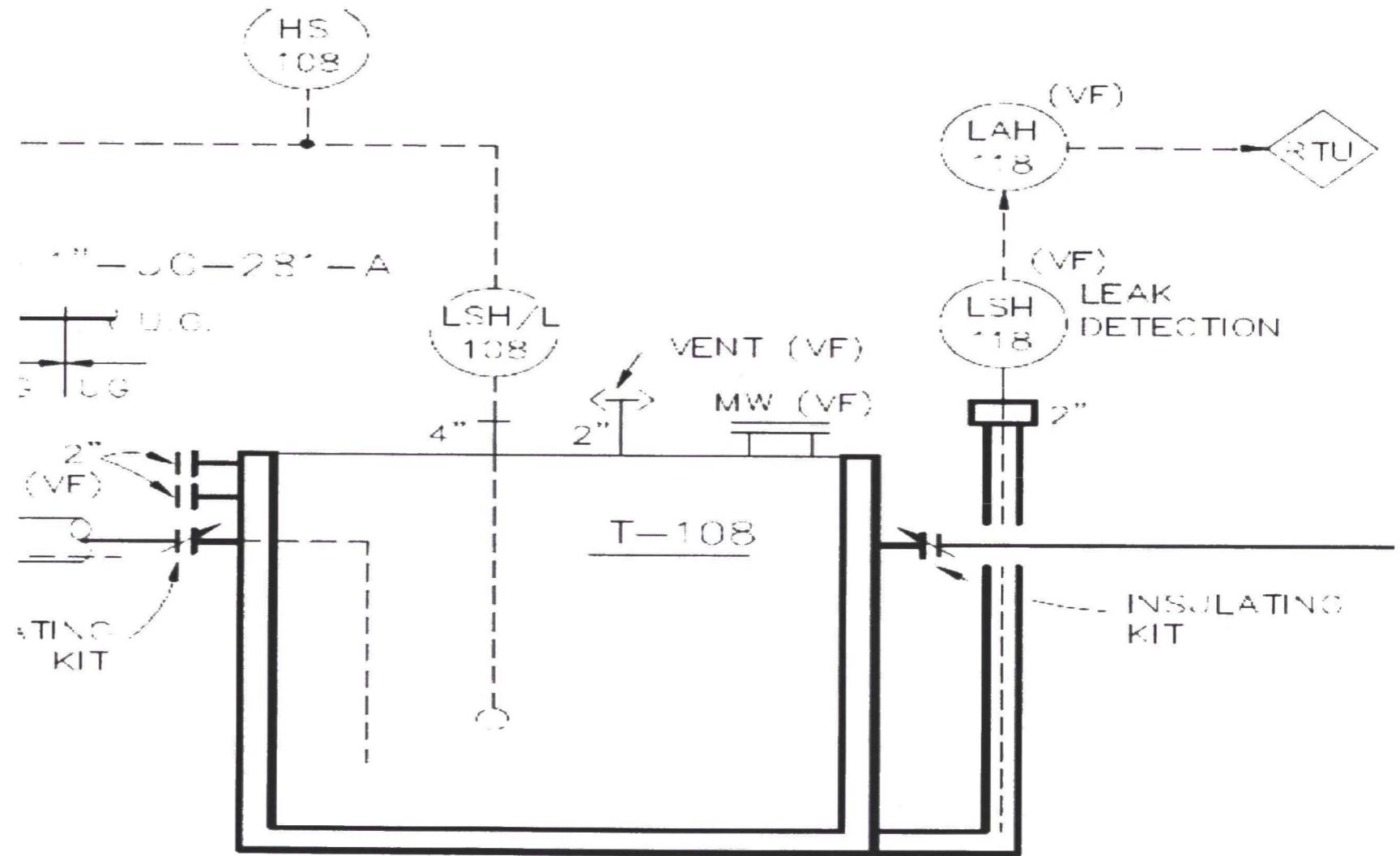
**SOUDER, MILLER & ASSOCIATES**  
 401 West Broadway Avenue  
 Farmington, NM 87401-5617  
 Phone (505) 325-7335 Toll-Free (800) 319-0006  
[www.soudermiller.com](http://www.soudermiller.com)

ENTERPRISE      FARMINGTON, NEW MEXICO  
**ARCH ROCK COMPRESSOR STATION TANK #6**  
 JANUARY, 2016  
 1:1,000 SITE MAP  
 SECTION 14, T31N, R10W  
 RIO ARRIJA COUNTY, NEW MEXICO

| Revised #6           | Drawn #29      | Checked APH          |
|----------------------|----------------|----------------------|
| DATE: 1/15/2016      | SCALE: 1:1,000 | PROJECTION: WGS 1984 |
| PROJECT NO.: 513-213 | FIGURE: 3      |                      |

Enterprise Products, 10000 North 10th Street, Suite 1000, Farmington, NM 87401-5617

Below Grade Tank Diagram  
Arch Rock Tank #6



**Enterprise Field Services, LLC  
Existing Buried Double-Wall Steel Tank(s)  
San Juan Basin - Below Grade Tank(s)  
Design and Construction Plan**

OIL CONS. DIV DIST. 3

OCT 21 2016

In accordance with Rule 19.15.17 NMAC, the following plan describes the general design and construction of the Below Grade Tank(s) (BGT) using double-wall steel tanks at Enterprise Field Services, LLC (Enterprise) facilities in the San Juan Basin of New Mexico.

Plan requirements:

1. The existing BGT(s) is/are located within a facility signed appropriately to NMAC 20.2.70, Title V General Construction Permit requirements. The sign is legible and contains the operator's name, the location of the compressor station in decimal degrees and township section and range, and emergency contact telephone numbers. Additional signage relevant to the Title V air quality permit is also present and provides equal or better protection of fresh water, public health and the environment than the 19.15.17.11 NMAC Subsection C signage requirement.
2. The existing BGT(s) is/are located within a facility with a minimum six foot high chain link fence topped with barbed or razor wire which provides equal or better protection of fresh water, public health and the environment than the 19.15.17.11 NMAC Subsection D fencing requirement.
3. The existing BGT(s) has/have an enclosed double wall steel top which provides equal or better protection of fresh water, public health and the environment than the 19.15.17.11 NMAC Subsection E netting requirement.
4. The existing BGT(s) foundation(s) is/are level and free of rocks, debris, sharp edges or irregularities and has compacted bottom and sidewalls that are stable for the soil conditions.
5. The existing BGT(s) is/are protected from rainwater run-on because the top of the BGT(s) is a minimum of six inches above the ground surface.
6. The existing BGT(s) is steel double-wall and bottom equipped with an Electronic Flow Meter (EFM) to monitor high liquid levels and automatically shuts off liquid discharges to prevent overflows. The annulus between the double walls is also monitored and inspected monthly.

## Operational Plan

NMAC 19.15.17.12

### OPERATIONAL REQUIREMENTS

Enterprise will operate and maintain the below-grade tank to contain liquids and solids and maintain the secondary containment system to prevent contamination of fresh water and protect public health and the environment.

Enterprise shall not discharge into or store any hazardous waste in the below-grade tank.

If the below-grade tank develops a leak, Enterprise shall remove all liquid above the damage or leak within 48 hours of discovery, notify the appropriate division office and repair the damage or replace the below-grade tank as applicable per 19.15.29 NMAC.

Enterprise shall operate and install the below-grade tank to prevent the collection of surface water run-on.

Enterprise shall not allow a below-grade tank to overflow or allow surface water run-on to enter the below-grade tank.

Enterprise shall remove any measurable layer of oil from the fluid surface of a below-grade tank.

Enterprise shall inspect the below-grade tank for leakage and damage at least monthly.

Enterprise shall document the integrity of each tank at least annually and maintain a written record of the integrity for five years.

Enterprise shall maintain adequate freeboard to prevent overtopping of the below-grade tank.

**CLOSURE REQUIREMENTS**

Enterprise shall not commence closure without first obtaining approval of the closure plan submitted with the permit application or registration pursuant to 19.15.17.13 NMAC.

Enterprise shall close the below-grade tank by first removing all contents and transferring the materials to a division approved facility.

Enterprise shall test the soils beneath the below-grade tank as follows:

A minimum of one composite sample to include any obvious stained or wet soils, or other evidence of contamination shall be collected from under the below-grade tank and the sample shall be analyzed for the identified constituents with respective concentrations listed in Table I of 19.15.17.13 NMAC below.

| <b>Table I</b><br><b>Closure Criteria for Soils Beneath Below-Grade Tanks, Drying Pads Associated with Closed-Loop Systems and Pits where Contents are Removed</b> |             |                                  |              |
|--|-------------|----------------------------------|--------------|
| Depth below bottom of pit to groundwater less than 10,000 mg/l TDS   | Constituent | Method*                          | Limit**      |
| ≤50 feet   | Chloride    | EPA 300.0                        | 600 mg/kg    |
|  | TPH         | EPA SW-846 Method 418.1          | 100 mg/kg    |
|  | BTEX        | EPA SW-846 Method 8021B or 8260B | 50 mg/kg     |
|  | Benzene     | EPA SW-846 Method 8021B or 8015M | 10 mg/kg     |
| 51 feet-100 feet   | Chloride    | EPA 300.0                        | 10,000 mg/kg |
|  | TPH         | EPA SW-846 Method 418.1          | 2,500 mg/kg  |
|  | GRO-DRO     | EPA SW-846 Method 8015M          | 1,000 mg/kg  |
|  | BTEX        | EPA SW-846 Method 8021B or 8260B | 50 mg/kg     |
|  | Benzene     | EPA SW-846 Method 8021B or 8015M | 10 mg/kg     |
| <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">&gt; 100 feet</span>  | Chloride    | EPA 300.0                        | 20,000 mg/kg |
|  | TPH         | EPA SW-846 Method 418.1          | 2,500 mg/kg  |
|  | GRO-DRO     | EPA SW-846 Method 8015M          | 1,000 mg/kg  |
|  | BTEX        | EPA SW-846 Method 8021B or 8260B | 50 mg/kg     |
|  | Benzene     | EPA SW-846 Method 8021B or 8015M | 10 mg/kg     |

\*Or other test methods approved by the division

\*\*Numerical limits or natural background level, whichever is greater

\*\*\* Or Method 8015 with GRO, DRO, & MRO

If any contaminant concentration is higher than the above parameters, the division may require additional delineation upon review of the results and Enterprise must receive approval before proceeding with closure.

If all contaminant concentrations are less than or equal to the parameters listed above, Enterprise can proceed to backfill the excavation with non-waste containing, uncontaminated, earthen material.

### CLOSURE NOTICE

Enterprise shall notify the appropriate division district office verbally, and in writing, at least 72 hours, but not more than one week, prior to any closure operation. The notice shall include the Enterprise name and the location to be closed, including the unit letter, section, township, and range.

Enterprise shall notify the surface owner by certified mail (return receipt requested) that Enterprise plans closure operations at least 72 hours, but not more than one week, prior to any closure operation. Evidence of mailing of the notice to the address of the surface owner shown in the county tax records is sufficient to demonstrate compliance with this requirement.

### CLOSURE REPORT AND BURIAL IDENTIFICATION

Within 60 days of closure completion, Enterprise shall submit a closure report on form C-144, with necessary attachments to document all closure activities including sampling results, information required by 19.15.17 NMAC, and details on back-filling, capping and covering, where applicable. In the closure report, Enterprise shall certify that all information in the report and attachments is correct and that Enterprise has complied with all applicable closure requirements and conditions specified in the approved closure plan.

### TIMING REQUIREMENTS FOR CLOSURE

Within 60 days of cessation of operations, Enterprise shall remove liquids and sludge from a below-grade tank prior to implementing a closure method and shall dispose of the liquids and sludge in a division-approved facility.

Within six months of cessation of operations, Enterprise shall remove the below-grade tank and dispose of it in a division-approved facility or recycle, reuse, or reclaim it in a manner that the appropriate division district office approves. If there is any equipment associated with a below-grade tank, Enterprise shall remove the equipment, unless the equipment is required for some other purpose.

### SOIL COVER DESIGNS FOR BELOW-GRADE TANKS

The soil cover for closures after site contouring (where Enterprise has removed the below-grade tank and, if necessary, remediated the soil beneath the below-grade tank to chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0) shall consist of the background thickness of topsoil or one foot of suitable material, whichever is greater.

Enterprise shall construct the soil cover to the site's existing grade and prevent ponding of water and erosion of the cover material.

## RECLAMATION AND RE-VEGETATION

### RECLAMATION OF AREAS NO LONGER IN USE

All areas disturbed by the closure of the below-grade tanks, except areas reasonably needed for production operations or for subsequent drilling operations, shall be reclaimed as early and as nearly as practicable to their original condition or their final land use and shall be maintained to control dust and minimize erosion to the extent practicable.

Enterprise shall replace topsoils and subsoils to their original relative positions and shall be contoured to achieve erosion control, long-term stability and preservation of surface water flow patterns. The disturbed area then shall be reseeded in the first favorable growing season following closure of the below-grade tank.

Reclamation of all disturbed areas no longer in use shall be considered complete when all ground surface disturbing activities at the site have been completed, and a uniform vegetative cover has been established that reflects a life-form ratio of plus or minus fifty percent (50%) of pre-disturbance levels and a total percent plant cover of at least seventy percent (70%) of pre-disturbance levels, excluding noxious weeds.

### OTHER REGULATORY REQUIREMENTS

The re-vegetation and reclamation obligations imposed by other applicable federal or tribal agencies on lands managed by those agencies shall supersede these provisions and govern the obligations of any operations subject to those provisions, provided the other requirements provide equal or better protection of fresh water, human health and the environment.

Enterprise shall notify the division when reclamation and re-vegetation are complete.

1019

E

30-045-21966

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS  
NORTHWESTERN NEW MEXICO  
(Submit 3 copies to OCD Aztec Office)

Operator MERIDIAN OIL Location: Unit NW Sec. 15 Twp 31 Rng 10

Name of Well/Wells or Pipeline Serviced KELLY A #1A  
cps 1193w

Elevation 6177' Completion Date 6/11/77 Total Depth 380' Land Type\* N/A

Casing, Sizes, Types & Depths 71' OF 8" CASING

If Casing is cemented, show amounts & types used N/A

If Cement or Bentonite Plugs have been placed, show depths & amounts used  
N/A

Depths & thickness of water zones with description of water when possible:  
Fresh, Clear, Salty, Sulphur, Etc. WET AT 125'

Depths gas encountered: N/A HOLE MAKING SOME GAS.

Type & amount of coke breeze used: 50 SACKS

Depths anodes placed: 355', 345', 335', 325', 315', 305', 295', 285', 275', 265'

Depths vent pipes placed: 355'

Vent pipe perforations: 230'

Remarks: gb #1 / HOLE MAKING SOME GAS.

**RECEIVED**  
MAY 31 1991  
OIL CON. DIV  
DIST

If any of the above data is unavailable, please indicate so. Copies of all logs, including Drillers Log, Water Analyses & Well Bore Schematics should be submitted when available. Unplugged abandoned wells are to be included.

\*Land Type may be shown: F-Federal; I-Indian; S-State; P-Fee.  
If Federal or Indian, add Lease Number.

WELL CASING  
CATHODIC PROTECTION CONSTRUCTION REPORT  
DAILY LOG

Red Log

Drilling Log (Attach Hereto)

Completion Date 6-11-77

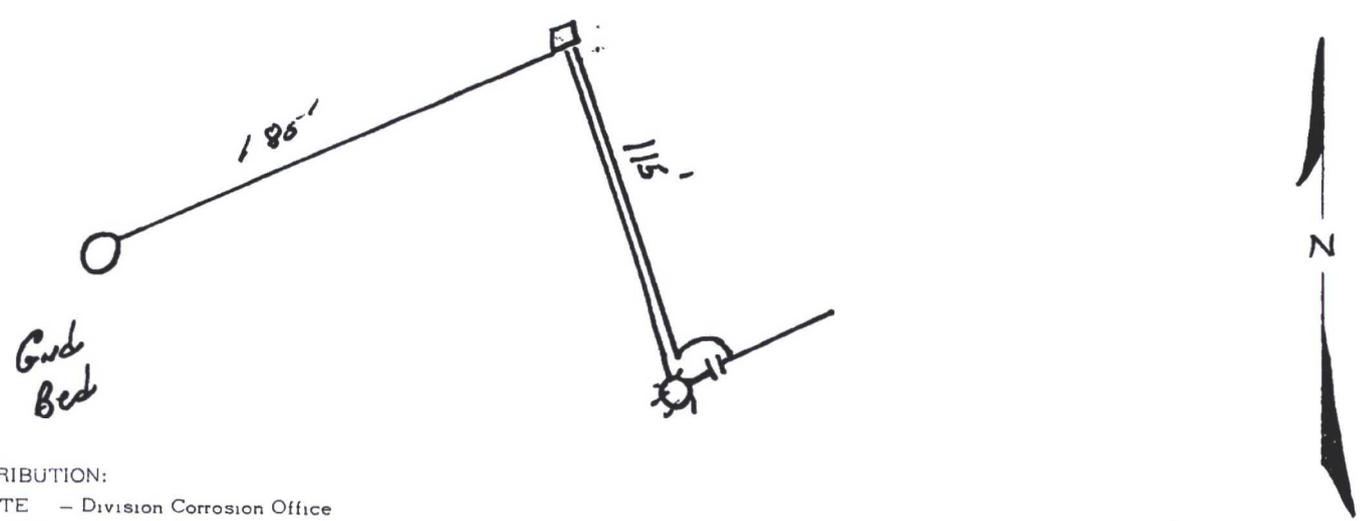
|   |      |                                |     |                      |      |                                |     |                       |      |
|---|------|--------------------------------|-----|----------------------|------|--------------------------------|-----|-----------------------|------|
| Well Name<br><b>Kelly A #1A</b>               |      | Location<br><b>NW 15-31-10</b> |     |                      |      | CPS No.<br><b>1193W</b>        |     |                       |      |
| Type & Size Bit Used<br><b>6 3/4"</b>         |      |                                |     |                      |      | Work Order No.<br><b>57081</b> |     |                       |      |
| Anode Hole Depth<br><b>380 - 374</b>          |      | Total Drilling Rig Time        |     | Total Lbs. Coke Used |      | Lost Circulation Mat'l Used    |     | No. Sacks Mud Used    |      |
| Anode Depth                                   |      | Anode Output (Amps)            |     | Anode Depth          |      | Anode Output (Amps)            |     |                       |      |
| 1   | 355' | 2                              | 4.6 | 3                    | 345' | 4                              | 4.2 | 5                     | 335' |
| 6   | 305' | 7                              | 4.3 | 8                    | 295' | 9                              | 4.2 | 10                    | 285' |
| 11  |      | 12                             |     | 13                   | 325' | 14                             | 2.9 | 15                    | 315' |
| 16  |      | 17                             |     | 18                   | 305' | 19                             | 3.0 | 20                    | 295' |
| 21  |      | 22                             |     | 23                   | 275' | 24                             | 4.5 | 25                    | 265' |
| 26  |      | 27                             |     | 28                   |      | 29                             |     | 30                    |      |
| Total Circuit Resistance<br>Volts <b>11.6</b> |      | Amps <b>19.0</b>               |     | Ohms <b>.61W</b>     |      | No. 8 C.P. Cable Used          |     | No. 2 C.P. Cable Used |      |

Remarks: Driller said wct @ 125' started Inj. @ 125'. Monday morning water standing @ 60'. Started to log hole. Logging Anode stopped @ 195'. Went back in hole & went to 380. Perforated 230' of 1" PVC Vent Pipe. Installed 355' of 1" PVC Vent Pipe. Gnd Bed Making some Gas. Slurried 50 sacks of coke. Installed 7' of 8" casing. Charge static 600' south 0.78 (97.02')

All Construction Completed

W. Z. Lantz  
(Signature)

GROUND BED LAYOUT SKETCH



DISTRIBUTION:  
WHITE - Division Corrosion Office  
YELLOW - Area Corrosion Office  
PINK - Originator File

6177