

District I  
 1625 N. French Dr., Hobbs, NM 88240  
 District II  
 1301 W. Grand Avenue, Artesia, NM 88210  
 District III  
 1000 Rio Brazos Road, Aztec, NM 87410  
 District IV  
 1220 S. St. Francis Dr., Santa Fe, NM 87505

For temporary pits, closed-loop systems, and below-grade tanks, submit to the appropriate NMOGD District Office.  
 For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOGD District Office.

NOV 24 AM 11 49

BGT 1

## Pit, Closed-Loop System, Below-Grade Tank, or Proposed Alternative Method Permit or Closure Plan Application

- Type of action:  Permit of a pit, closed-loop system, below-grade tank, or proposed alternative method  
 Existing BGT  Closure of a pit, closed-loop system, below-grade tank, or proposed alternative method  
 Modification to an existing permit  
 Closure plan only submitted for an existing permitted or non-permitted pit, closed-loop system, below-grade tank, or proposed alternative method

**Instructions:** Please submit one application (Form C-144) per individual pit, closed-loop system, 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: XTO Energy, Inc. OGRID #: 5380  
 Address: #382 County Road 3100, Aztec, NM 87410  
 Facility or well name: AZTEC GAS COM #1  
 API Number: 30-045-06906 OCD Permit Number: \_\_\_\_\_  
 U/L or Qtr/Qtr D Section 02 Township 27N Range 10W County: San Juan  
 Center of Proposed Design: Latitude 36.60825 Longitude 107.87062 NAD:  1927  1983  
 Surface Owner:  Federal  State  Private  Tribal Trust or Indian Allotment

2.  
 **Pit:** Subsection F or G of 19.15.17.11 NMAC  
 Temporary:  Drilling  Workover  
 Permanent  Emergency  Cavitation  P&A  
 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.  
 **Closed-loop System:** Subsection H of 19.15.17.11 NMAC  
 Type of Operation:  P&A  Drilling a new well  Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent)  
 Drying Pad  Above Ground Steel Tanks  Haul-off Bins  Other \_\_\_\_\_  
 Lined  Unlined Liner type: Thickness \_\_\_\_\_ mil  LLDPE  HDPE  PVC  Other \_\_\_\_\_  
 Liner Seams:  Welded  Factory  Other \_\_\_\_\_

4.  
 **Below-grade tank:** Subsection I of 19.15.17.11 NMAC  
 Volume: 120 bbl Type of fluid: Produced Water  
 Tank Construction material: Steel  
 Secondary containment with leak detection  Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off  
 Visible sidewalls and liner  Visible sidewalls only  Other Visible sidewalls, vaulted, automatic high-level shut off, no liner  
 Liner type: Thickness \_\_\_\_\_ mil  HDPE  PVC  Other \_\_\_\_\_

5.  
 **Alternative Method:**  
 Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

6.  
**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 Four foot height, steel mesh field fence (hogwire) with pipe top railing

7.  
**Netting:** Subsection E of 19.15.17.11 NMAC (*Applies to permanent pits and permanent open top tanks*)  
 Screen  Netting  Other Expanded metal or solid vaulted top  
 Monthly inspections (If netting or screening is not physically feasible)

8.  
**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 19.15.3.103 NMAC

9.  
**Administrative Approvals 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:  
 Administrative approval(s): Requests must be submitted to the appropriate division district or the Santa Fe Environmental Bureau office for consideration of approval.  
 Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

10.  
**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. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. Siting criteria does not apply to drying pads or above-grade tanks associated with a closed-loop system.*

Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. (Applies to temporary, emergency, or cavitation pits and below-grade tanks) - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. (Applies to permanent pits) - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" 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. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within a 100-year floodplain. - FEMA map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

11.

**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: \_\_\_\_\_

12.

**Closed-loop Systems 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.

- Geologic and Hydrogeologic Data (only for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9
- Siting Criteria Compliance Demonstrations (only for on-site closure) - 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: \_\_\_\_\_
- Previously Approved Operating and Maintenance Plan API Number: \_\_\_\_\_ (Applies only to closed-loop system that use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)

13.

**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

14.

**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  Closed-loop System  
 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 (Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)

15.

**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 F 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 I of 19.15.17.13 NMAC
- Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

**16. Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:** (19.15.17.13.D NMAC)  
**Instructions:** Please identify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two facilities are required.

Disposal Facility Name: \_\_\_\_\_ Disposal Facility Permit Number: \_\_\_\_\_

Disposal Facility Name: \_\_\_\_\_ Disposal Facility Permit Number: \_\_\_\_\_

Will any of the proposed closed-loop system operations and associated activities occur on or in areas that *will not* be used for future service and operations?  
 Yes (If yes, please provide the information below)  No

*Required for impacted areas which will not be used for future service and operations:*

- 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 I of 19.15.17.13 NMAC
- Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

**17. 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 may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for guidance.

- |   |   |
|---|---|
| Ground water is less than 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 between 50 and 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 |
| 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 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).<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 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, 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                                |
| 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 500 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 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                                |

**18. 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 F of 19.15.17.13 NMAC
- Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements 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 Subsection F of 19.15.17.13 NMAC
- Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F 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 I of 19.15.17.13 NMAC
- Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

19.

**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): Kim Champlin Title: Environmental Representative

Signature: Kim Champlin Date: 11-20-08

e-mail address: kim\_champlin@xtoenergy.com Telephone: (505) 333-3100

20.

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

OCD Representative Signature: \_\_\_\_\_ Approval Date: \_\_\_\_\_

Title: \_\_\_\_\_ OCD Permit Number: \_\_\_\_\_

21.

**Closure Report (required within 60 days of closure completion):** Subsection K of 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: \_\_\_\_\_

22.

**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.

23.

**Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:**

*Instructions: Please identify the facility or facilities for where the liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than two facilities were utilized.*

Disposal Facility Name: \_\_\_\_\_ Disposal Facility Permit Number: \_\_\_\_\_

Disposal Facility Name: \_\_\_\_\_ Disposal Facility Permit Number: \_\_\_\_\_

Were the closed-loop system operations and associated activities performed on or in areas that *will not* be used for future service and operations?

- Yes (If yes, please demonstrate compliance to the items below)  No

*Required for impacted areas which will not be used for future service and operations:*

- Site Reclamation (Photo Documentation)
- Soil Backfilling and Cover Installation
- Re-vegetation Application Rates and Seeding Technique

24.

**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)
- 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

25.

**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: \_\_\_\_\_

# NEW MEXICO OIL CONSERVATION COMMISSION

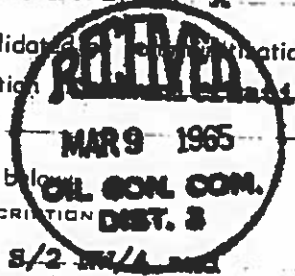
## Well Location and Acreage Dedication Plat

### SECTION A.

Date March 2, 1965

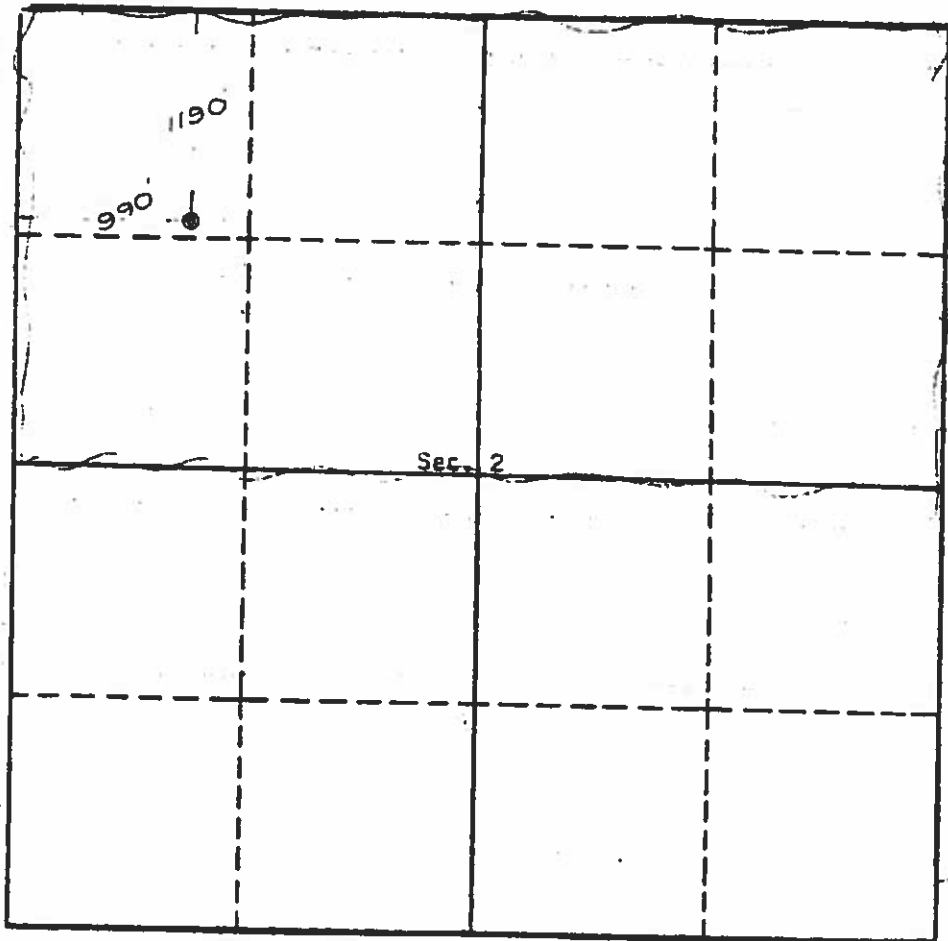
Operator Sunset International Petroleum Corp. Lease AZTEC  
 Well No. 1 Unit Letter D Section 2 Township 27 North Range 10 West NMPM  
 Located 1190 Feet From North Line, 990 Feet From West Line  
 County San Juan G. L. Elevation 5919 Dedicated Acreage N/2 Section 2 Acres 322.64  
 Name of Producing Formation Dakota Pool Basin Dakota

1. Is the Operator the only owner\* in the dedicated acreage outlined on the plat below? Yes \_\_\_\_\_ No X
2. If the answer to question One is "No," have the interests of all the owners been consolidated by a consolidation agreement or otherwise? Yes X No \_\_\_\_\_ If answer is "Yes," Type of Consolidation Consolidation
3. If the answer to question Two is "No," list all the owners and their respective interests below.



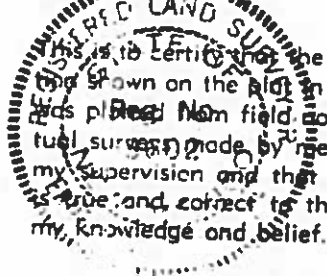
OWNER LAND DESCRIPTION  
Sunset International Petroleum Corporation Lots 3 & 4 and S/2 NW/4 and S/2 NE/4 Section 2  
Astec Oil & Gas Company Lots 1 & 2 Section 2

### SECTION B.



This is to certify that the information in Section A of this plat is complete to the best of my knowledge and belief.

**Sunset International Pet. Co**  
(OPERATOR)  
**R. W. Arndt**  
(REPRESENTATIVE)  
**West Texas Division**  
**201 Wall Bldg. Suite 308,**  
**Midland, Texas**  
(ADDRESS)



Date Surveyed Nov. 21, 1964  
**Four States Engineering Co.**  
BERMINGTON, NEW MEXICO

*Carl W. Edwards*  
REGISTERED ENGINEER OR LAND SURVEYOR



Certificate No. 3602



**Lodestar Services, Inc.**  
PO Box 4465, Durango, CO 81302

**Pit Permit  
Siting Criteria  
Information Sheet**

<b>Client:</b>	XTO Energy
<b>Project:</b>	Pit Permits
<b>Revised:</b>	5-Nov-08
<b>Prepared by:</b>	Brooke Herb

<b>API#:</b>	3004506906	<b>USPLSS:</b>	T27N,R10W,S02D
<b>Name:</b>	AZTEC GAS COM #1	<b>Lat/Long:</b>	36.60825, -107.87062
<b>Depth to groundwater:</b>	50' - 100'	<b>Geologic formation:</b>	Nacimiento Formation
<b>Distance to closest continuously flowing watercourse:</b>	6.14 miles S of San Juan River		
<b>Distance to closest significant watercourse, lakebed, playa lake, or sinkhole:</b>	614' W of Armenta Canyon Wash		
<b>Permanent residence, school, hospital, institution or church within 300'</b>	No	<b>Soil Type:</b>	Entisols
<b>Domestic fresh water well or spring within 500'</b>	No	<b>Annual Precipitation:</b>	8.71 inches (Bloomfield)
<b>Any other fresh water well or spring within 1000'</b>	No	<b>Precipitation Notes:</b>	Historical Daily Max Bloomfield 4.19"
<b>Within incorporated municipal boundaries</b>	No	<b>Attached Documents:</b>	Groundwater report and Data; FEMA Flood Zone Map
<b>Within defined municipal fresh water well field</b>	No		Aerial Photo, Topo Map, Mines Mills and Quarries Map
<b>Wetland within 500'</b>	No	<b>Mining Activity:</b>	None Near
<b>Within unstable area</b>	No		
<b>Within 100 year flood plain</b>	No - FEMA Flood Zone 'X'		

**Additional Notes:**

## **AZTEC GAS COM #1 Below Ground Tank Hydrogeologic Report for Siting Criteria**

### **General Geology and Hydrology**

The San Juan Basin is a typical Rocky Mountain basin with a gently dipping southern flank and a steeply dipping northern flank. Asymmetrically layered Tertiary sandstones and shales, along with Quaternary alluvial deposits, dominate surficial geology (Dane and Bachman, 1965). The proposed pit location will be located in the southern Armenta Canyon region of the San Juan Basin. The predominant geologic formation is the Nacimiento Formation of Tertiary age, which underlies surface soils and is often exposed (Dane and Bachman, 1965). Deposits of Quaternary alluvial and aeolian sands occur prominently near the surface of the area, especially near streams and washes.

Cretaceous and Tertiary sandstones, as well as Quaternary alluvial deposits serve as the primary aquifers in the San Juan basin (Stone et al., 1983). In most of the proposed area, the Nacimiento Formation lies at the surface and grades into the Animas Formation to the west. Thickness of the Nacimiento ranges from 418 to 2232 feet (Stone et al., 1983). Aquifers within the coarser and continuous sandstone bodies of the Nacimiento Formation are between 0 and 1000' deep in this section of the basin (Stone et al., 1983). Groundwater within these aquifers flows toward the San Juan River.

The prominent soil type at the proposed site are entisols and aridisols, which are defined as soils that exhibit little to no any profile development ([www.emnrd.state.nm.us](http://www.emnrd.state.nm.us)). Soils are basically unaltered from their parent rock. Miles of arroyos, washes and intermittent streams exist as part of the drainage network towards the San Juan River. These features often cut into soil and other unconsolidated materials, contributing to sedimentation downstream. The sudden influx of water from storm events easily erodes the soils that cover the area. The sudden influx of water from storm events easily erodes the soils that cover the area and prohibits effective recharge to the underlying aquifers.

Dry and arid weather further prohibit active recharge. The climate of the region is arid, averaging 8 to 12 inches of rainfall annually. As is typical of the southwestern United States monsoonal weather patterns, most precipitation falls from August through October. The heaviest rainfall occurs in the summer in isolated, intense cloudbursts. November through June is relatively dry. Snow generally falls from December to mid-February and averages less than one-half inch in depth. However, most recharge occurs during the winter months during snowmelt periods from the upper elevations (Western Regional Climate Center [www.wrcc.dri.edu](http://www.wrcc.dri.edu)).

The predominant vegetation is sagebrush and grasses with a more restricted pinon-juniper association (Dick-Peddie, 1993). However, vegetation is very sparse and discontinuous.



## **Site Specific Hydrogeology**

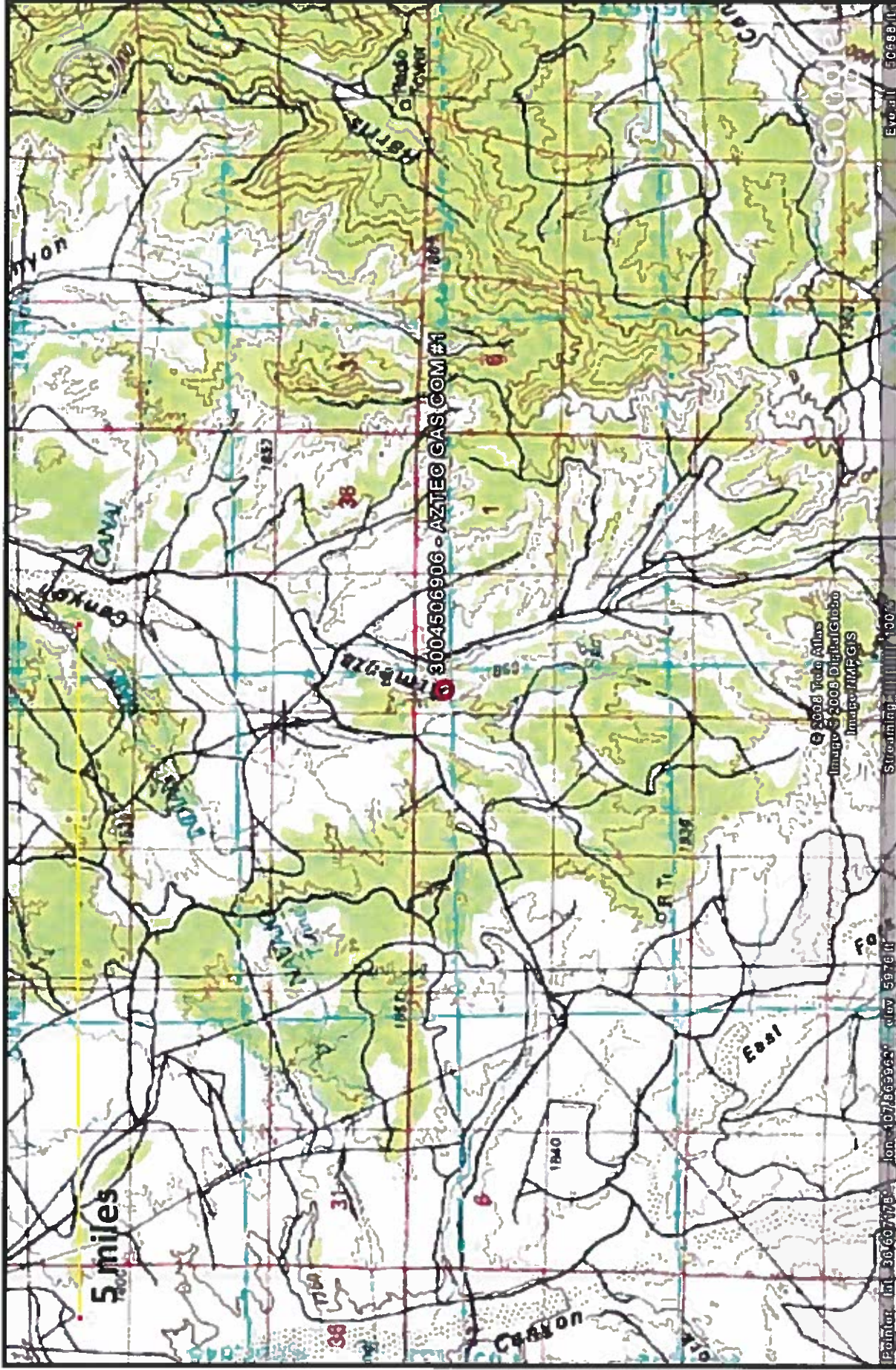
Depth to groundwater is estimated to be between 50 feet and 100 feet. This estimation is based on data from Stone and others (1983), the USGS Groundwater Atlas of the United States and depth to groundwater data published on the New Mexico State Engineer's iWaters Database website. Local topography and proximity to surface hydrologic features are also taken into consideration.

Beds of water-yielding sandstone are present in the Nacimiento Formation, which are fluvial in origin and are interbedded with siltstone, shale and coal. Porous sandstones form the principal aquifers, while relatively impermeable shales form confining units between the aquifers (Stone et al., 1983). Local aquifers exist within the Nacimiento Formation at depths greater than 100 feet and thicknesses of the aquifer can be up to 3500 feet (USGS, Groundwater Atlas of the US).

The site in question is located near the edge of Armenta Canyon, where deeply eroded sandstone-capped mesas and slope-forming mudstones occur in a sparsely vegetated and arid badlands-type setting. Broad shaley hills are interspersed with occasional sandstone outcrops, and systems of dry washes and their tributaries are evident on the attached aerial image.

The pit is situated at an elevation of approximately 5964 feet. The proposed site is located approximately 614 feet east of Armenta Canyon Wash. Groundwater is expected to be shallow within Armenta Wash. The proposed site is approximately 35 feet higher than the center of the Armenta Wash. The close proximity to the Wash as well as the small elevation difference between the wash and the proposed site, suggests that groundwater depth at the proposed site is between 50 and 100 feet.

State iWaters data points are sparsely distributed in this region. There are two iWaters data points approximately 2.54 miles to the west-southwest of the site, at an elevation of approximately 5985 feet. Depth to groundwater within the wells is 60 feet and 170 feet below ground surface. A map showing the location of wells in reference to the proposed pit location is attached.



Lodestar Services, Inc PO Box 4465 Durango, CO 81302	AZTEC GAS COM #1 T27N, R10W, S02D San Juan County, NM	Topographic Map
--	---	-----------------



<p>Lodestar Services, Inc          PO Box 4465          Durango, CO 81302</p>	<p>AZTEC GAS COM #1          T27N, R10W, S02D          San Juan County, NM</p>	<p>iWaters Groundwater          Data Map</p>
---	--	--

New Mexico Office of the State Engineer  
 POD Reports and Downloads

Township:  Range:  Sections:

NAD27 X:  Y:  Zone:  Search Radius:

County:  Basin:  Number:  Suffix:

Owner Name: (First)  (Last)  Non-Domestic  Domestic  All

POD / Surface Data Report Avg Depth to Water Report Water Column Report

WATER COLUMN REPORT 10/30/2008

(quarters are 1=NW 2=NE 3=SW 4=SE)  
 (quarters are biggest to smallest)

POD Number	Tws	Rng	Sec	q	q	q	Zone	X	Y	Depth Well	Depth Water	Water Column	Water (in feet)
SJ 00032	27N	10W	03	2	2	3				235	60	175	
SJ 00033	27N	10W	03	2	2	3			235	170		65	
SJ 00034	27N	10W	03	2	2	3			235	170		65	

Record Count: 3

SJ 03756 P001	30N	11W	03	1	1	2	268-75	2127870	41	20	21
SJ 02786	30N	11W	03	2	3	1			51	24	27
SJ 01901	30N	11W	03	2	3	2			60	26	34
SJ 00698	30N	11W	03	2	3	3			44	14	30
SJ 01261	30N	11W	03	2	3	4				20	
SJ 02930	30N	11W	03	2	4	4			81	64	17
SJ 02798	30N	11W	03	2	4	4			80	61	19
SJ 00402	30N	11W	03	3					32	18	14
SJ 01734	30N	11W	03	3	2				33	5	28
SJ 00762	30N	11W	03	3	2				47	21	25
SJ 01440	30N	11W	03	3	2	3			41	21	20
SJ 01020	30N	11W	03	3	3				27	5	22
SJ 03242	30N	11W	03	3	3	1			23	9	14
SJ 03732 P001	30N	11W	03	3	3	1			38	9	29
SJ 03239	30N	11W	03	3	3	3			33	12	21
SJ 01238	30N	11W	03	4	1				55	38	57
SJ 02245	30N	11W	03	4	1	3			66	30	36
SJ 01043	30N	11W	03	4	1	4					
SJ 01249	30N	11W	03	4	2				50		
SJ 02563	30N	11W	03	4	2	1			52	22	30
SJ 02824	30N	11W	03	4	2	1			96	60	36
SJ 03153	30N	11W	03	4	2	1			70	50	20
SJ 03454	30N	11W	03	4	2	4			80	60	20
SJ 03291	30N	11W	03	4	3	2			100		
SJ 00366	30N	11W	03	4	4	4			38	18	20
SJ 01364	30N	11W	04	2					33	18	15
SJ 03076	30N	11W	04	2	2	3			115	36	29
SJ 02903	30N	11W	04	2	3	2			44	10	34
SJ 03039	30N	11W	04	4	1	2			45	31	18
SJ 01450	30N	11W	04	4	3				53	40	13
SJ 02941	30N	11W	04	4	3	2			45	20	25
SJ 01367	30N	11W	04	4	4	1			58	37	21
SJ 03407	30N	11W	04	4	4	4			48	20	28
SJ 03267	30N	11W	05	2	1	3			30	5	25
SJ 03245	30N	11W	06	4	4	4			83	60	23
SJ 02194	30N	11W	07						80	65	15
SJ 02140	30N	11W	07	1	1	1			59	22	37
SJ 00689	30N	11W	07	1	4	3			70	60	10
SJ 00690	30N	11W	07	1	4	3			78	65	13
SJ 00882	30N	11W	07	1	4	3			60		
									60	50	10

W 453700 2124100

SJ 00889	3CN	11W	07	1	4	3	55	20	18
SJ 00806	3CN	11W	07	1	4	3	38	58	12
SJ 00739	3CN	11W	07	1	4	3	70		
SJ 00389	3CN	11W	07	1	4	3	53		
SJ 00688	3CN	11W	07	1	4	3	70		
SJ 00358	3CN	11W	07	1	4	3	61		
SJ 00397	3CN	11W	07	1	4	3	56		
SJ 00415	3CN	11W	07	1	4	3	53		
SJ 00387	3CN	11W	07	1	4	3	60		
SJ 00748	3CN	11W	07	1	4	3			
SJ 03271	3CN	11W	07	2	3	2			
SJ 01475	3CN	11W	07	2	3	3	49	27	22
SJ 03465	3CN	11W	07	2	3	4	80		
SJ 00259	3CN	11W	07	2	4		25	12	13
SJ 01492	3CN	11W	07	3			60	22	38
SJ 03794 POD1	3CN	11W	07	3	1	3	44	27	17
SJ 01172	3CN	11W	07	3	2		50	30	20
SJ 01310	3CN	11W	07	3	3		80	50	30
SJ 01484	3CN	11W	07	3	3		61	10	51
SJ 03630	3CN	11W	07	3	3	3	68	24	44
SJ 01425	3CN	11W	07	3	4		55	25	30
SJ 01468	3CN	11W	07	3	4		60	25	35
SJ 02006	3CN	11W	07	3	4	2	50	24	26
SJ 03484	3CN	11W	07	3	4	3			
SJ 02005	3CN	11W	07	3	4	4			
SJ 02715	3CN	11W	07	3	4	4			
SJ 00135	3CN	11W	07	4	1		180	23	157
SJ 00769	3CN	11W	07	4	1		50	14	36
SJ 01406	3CN	11W	07	4	1		45	12	33
SJ 02936	3CN	11W	07	4	1	1	38	30	8
SJ 00679	3CN	11W	07	4	1	3	48	22	26
SJ 00620	3CN	11W	07	4	1	3	52	35	17
SJ 00329	3CN	11W	07	4	1	3			
SJ 00162	3CN	11W	07	4	1	3	63	20	43
SJ 02906	3CN	11W	07	4	1	4	58	23	35
SJ 00893	3CN	11W	07	4	2		45	24	21
SJ 01667	3CN	11W	07	4	3		80	40	40
SJ 01404	3CN	11W	07	4	3		41	21	20
SJ 00919	3CN	11W	07	4	3	2	40	15	25
SJ 00604	3CN	11W	07	4	3	2	35	12	23
							38	22	16

266272 2119520

SJ 00601	30N	11W	07	4	3	2	40	22	18
SJ 00918	30N	11W	07	4	3	2	35	14	21
SJ 00920	30N	11W	07	4	3	2	35	12	23
SJ 01567	30N	11W	07	4	4	2	35	14	21
SJ 00183	30N	11W	08	1	1		360	300	60
SJ 03154	30N	11W	08	1	1	4	40		
SJ 03431	30N	11W	08	1	1	4	50		
SJ 00332	30N	11W	08	2	2		52	34	18
SJ 01451	30N	11W	08	2	2		64	34	30
SJ 01968	30N	11W	08	2	2		40	25	15
SJ 01999	30N	11W	08	2	2		61	45	16
SJ 01814	30N	11W	08	2	2		52	10	42
SJ 03398	30N	11W	08	2	2	1	80	20	60
SJ 03210	30N	11W	08	2	2	2	60	30	30
SJ 03098	30N	11W	08	2	2	2	63	23	40
SJ 03381	30N	11W	08	2	2	2	50		
SJ 03240	30N	11W	08	2	2	2	50		
SJ 00220	30N	11W	08	2	2	3	60	36	24
SJ 03639	30N	11W	08	2	2	4	60	24	36
SJ 01115	30N	11W	08	2	2	4	35	26	9
SJ 03653	30N	11W	08	2	2	4	62	26	36
SJ 03646	30N	11W	08	2	2	4	61	24	37
SJ 00228	30N	11W	08	2	2	4	67	38	29
SJ 03202	30N	11W	08	2	2	4	45		
SJ 03030	30N	11W	08	2	2	4	56	40	16
SJ 03305	30N	11W	08	2	2	4	50		
SJ 03378	30N	11W	08	2	2	4	50		
SJ 02331	30N	11W	08	2	2	4	53	35	18
SJ 03303	30N	11W	08	2	2	4	55	30	25
SJ 02293	30N	11W	08	2	2	4	50	35	15
SJ 00249	30N	11W	08	2	2	4	46	30	16
SJ 01368	30N	11W	08	3	2		59	39	20
SJ 03089	30N	11W	08	3	2	4	48	36	12
SJ 03480	30N	11W	08	3	2	4	50		
SJ 03199	30N	11W	08	3	4	1	40	20	20
SJ 02413	30N	11W	08	3	4	1	40	31	9
SJ 02915	30N	11W	08	3	4	1	45		
SJ 03367	30N	11W	08	3	4	4	29	5	24
SJ 01570	30N	11W	08	4	1		59	37	22
SJ 00925	30N	11W	08	4	1	2	32	20	10

SJ 03642	3CN	11W	0E	4	1	2	59	32	26
SJ 01520	3CN	11W	0E	4	1	2	58	18	40
SJ 03313	3CN	11W	0E	4	1	4	58	20	36
SJ 02485	3CN	11W	0E	4	1	4	49	30	19
SJ 02261	3CN	11W	0E	4	3	2	41	9	32
SJ 03419	3CN	11W	0E	4	4	2	39	27	12
SJ 02241	3CN	11W	0E	1			36	26	10
SJ 01560	3CN	11W	0E	1	1		40	28	12
SJ 01585	3CN	11W	0E	1	1		53	12	41
SJ 03499	3CN	11W	0E	1	1	1	35	17	18
SJ 02236	3CN	11W	0E	1	1	1	55	30	25
SJ 03304	3CN	11W	0E	1	1	2	49	32	17
SJ 03209	3CN	11W	0E	1	1	3	47	30	17
SJ 03726 P001	3CN	11W	0E	1	1	3	50	31	19
SJ 03342	3CN	11W	0E	1	1	3	50		
SJ 03225	3CN	11W	0E	1	1	4	50		
SJ 03229	3CN	11W	0E	1	1	4	46	16	30
SJ 00924	3CN	11W	0E	1	2	2	29	19	10
SJ 00438	3CN	11W	0E	1	2	3	56	33	23
SJ 01169	3CN	11W	0E	1	3		46	27	19
SJ 01574	3CN	11W	0E	1	3	1	48	28	20
SJ 02237	3CN	11W	0E	1	3	1	50	30	20
SJ 03019	3CN	11W	0E	1	3	1	49	26	23
SJ 02493	3CN	11W	0E	1	3	1	47	36	11
SJ 03724 P001	3CN	11W	0E	1	3	1	55	35	20
SJ 03031	3CN	11W	0E	1	3	1	47	11	35
SJ 01465	3CN	11W	0E	1	3	2	46		
SJ 02336	3CN	11W	0E	1	3	2	50	20	30
SJ 03482	3CN	11W	0E	1	3	2	26	6	20
SJ 03423	3CN	11W	0E	1	3	3	37	12	25
SJ 00750	3CN	11W	0E	1	4		61	10	51
SJ 02975	3CN	11W	0E	2	1	4	50	20	30
SJ 03268	3CN	11W	0E	2	2	2	50		
SJ 00364	3CN	11W	0E	2	3	2	33	11	22
SJ 03128	3CN	11W	0E	2	3	2	40	11	29
SJ 00364 CLW263561	3CN	11W	0E	2	3	2	60	28	32
SJ 01955	3CN	11W	0E	2	4		45	15	30
SJ 02528	3CN	11W	0E	2	4		36	17	17
SJ 02290	3CN	11W	0E	2	4	2			
SJ 00347	3CN	11W	0E	4					



SJ 01436	30N	11W	09	4	1	210	50	160
SJ 03471	30N	11W	09	4	1	20	5	15
SJ 03223	30N	11W	09	4	2	59	25	34
SJ 03263	30N	11W	09	4	2	63	35	26
SJ 03374	30N	11W	09	4	3	44	25	15
SJ 02796	30N	11W	09	4	3	100		
SJ 03214	30N	11W	09	4	4	93	63	30
SJ 03213	30N	11W	09	4	4	100		
SJ 02176	30N	11W	10	1	3	57	37	20
SJ 03356	30N	11W	10	1	3	55	30	25
SJ 03258	30N	11W	10	1	3	55	10	45
SJ 03444	30N	11W	10	1	3	60		
SJ 03248	30N	11W	10	1	3	50	30	60
SJ 03354	30N	11W	10	1	3	50	30	50
SJ 00348	30N	11W	10	1	3	72	24	48
SJ 03032	30N	11W	10	1	4	80	30	50
SJ 02819	30N	11W	10	2	3	140	40	100
SJ 03282	30N	11W	10	2	3	70	30	40
SJ 03281	30N	11W	10	2	3	62	32	30
SJ 03572	30N	11W	10	3	1	70		
SJ 03218	30N	11W	10	3	3	50	30	20
SJ 01720	30N	11W	13			225	90	135
SJ 03745 P001	30N	11W	13	1	1	325	150	175
SJ 01693	30N	11W	13	1	3	225	85	136
SJ 01672	30N	11W	13	1	3	180	90	100
SJ 01294	30N	11W	13	1	3	92	52	40
SJ 02773	30N	11W	16	1	1	46	25	21
SJ 00410	30N	11W	16	1	2	61	45	16
SJ 03010	30N	11W	16	1	3	80	40	40
SJ 03257	30N	11W	16	1	3	80	40	40
SJ 02923	30N	11W	16	1	3	75	40	35
SJ 03265	30N	11W	16	1	3	50	70	20
SJ 03310	30N	11W	16	1	3	55	20	35
SJ 01082	30N	11W	16	2	1	90	34	46
SJ 01722	30N	11W	17	1	1	20	8	12
SJ 01528	30N	11W	17	1	1	26	10	16
SJ 03373	30N	11W	17	1	1	50	35	15
SJ 01948	30N	11W	17	1	2	21	3	18
SJ 02817	30N	11W	17	1	2	15		
SJ 01722 P002	30N	11W	17	1	2	17	3	14

266567 2116417

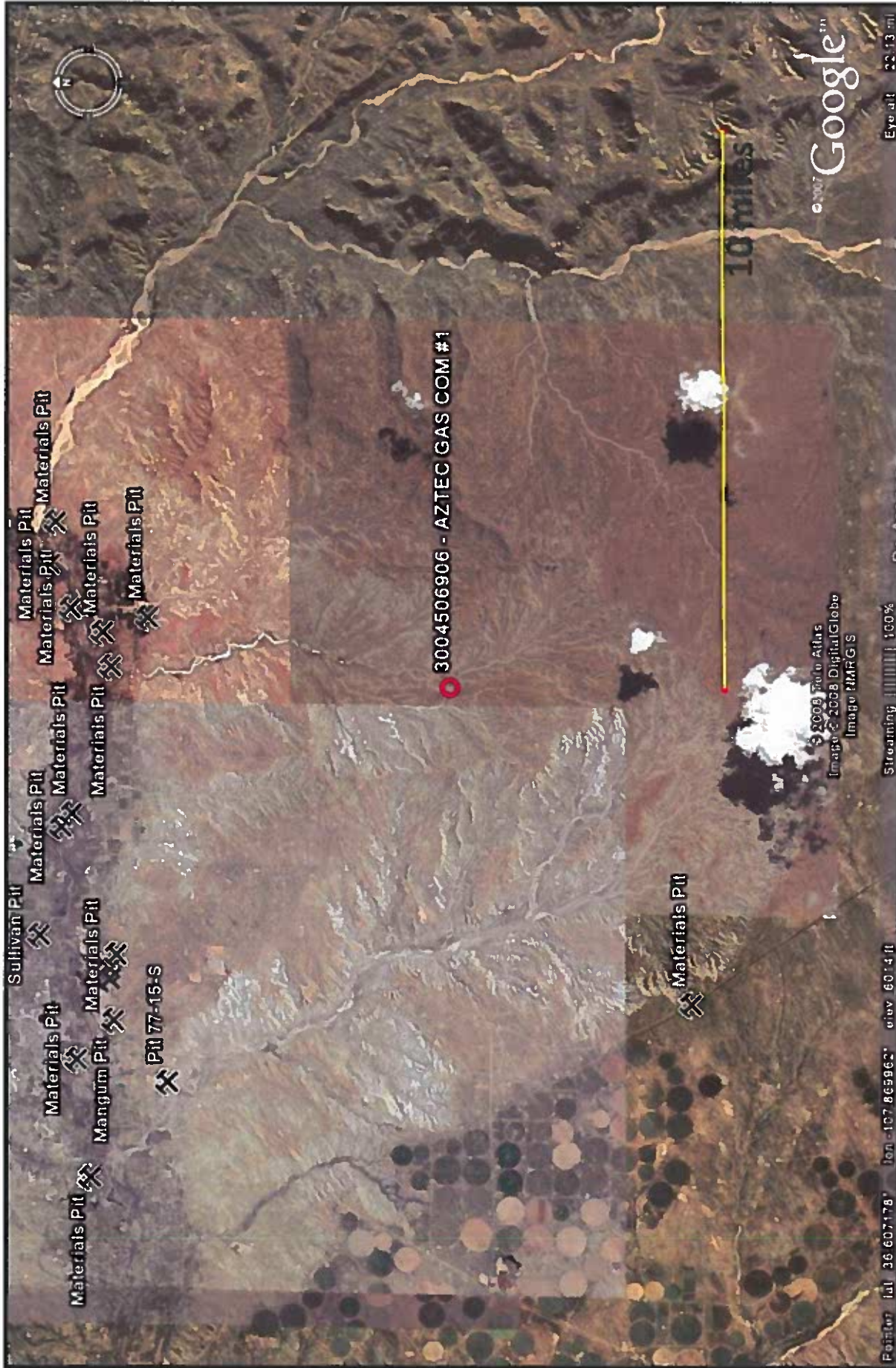
SJ 01899	30N	11W	17	1	3	2														27	7	20
SJ 03771 PC01	30N	11W	17	1	3	3					266811	211517								20	6	14
SJ 03750 PC01	30N	11W	17	1	3	3					266811	211517								20	6	14
SJ 03319	30N	11W	17	1	3	4														55	31	24
SJ 03266	30N	11W	17	1	4	3														30	10	20
SJ 03436	30N	11W	17	1	4	3														20		
SJ 00745	30N	11W	17	2																54	30	24
SJ 00665	30N	11W	17	2	1	1														28	14	14
SJ 01342	30N	11W	17	2	1	1														26	5	21
SJ 01166	30N	11W	17	2	3															48	11	37
SJ 01057	30N	11W	17	2	3															63	28	35
SJ 01060	30N	11W	17	2	3															58	23	35
SJ 03241	30N	11W	17	2	3	3														75	20	55
SJ 03269	30N	11W	17	2	3	4														60	10	70
SJ 01200	30N	11W	17	2	4															50	20	30
SJ 03219	30N	11W	17	2	4	2														68	38	30
SJ 00159	30N	11W	17	3	1															35	8	27
SJ 03276	30N	11W	17	3	1	4														60	20	40
SJ 01296	30N	11W	17	3	2															50	10	40
SJ 03249	30N	11W	17	3	2	2														55	12	43
SJ 01810	30N	11W	17	3	4															29	5	20
SJ 00411	30N	11W	17	4	1															60	25	35
SJ 00234	30N	11W	17	4	1															54	23	31
SJ 01847	30N	11W	17	4	1															30	6	24
SJ 00457	30N	11W	17	4	1	2														52	18	34
SJ 00650	30N	11W	17	4	1	3														49	18	31
SJ 02018	30N	11W	17	4	2															100	40	60
SJ 00136	30N	11W	17	4	2															69	35	34
SJ 03718 PC01	30N	11W	17	4	2	2														68	41	27
SJ 03261	30N	11W	17	4	2	2														88	50	36
SJ 03215	30N	11W	18	1	1	3														52	9	43
SJ 01316	30N	11W	18	1	1	3														46	12	34
SJ 03152	30N	11W	18	1	1	3														52	22	30
SJ 02805	30N	11W	18	1	2	1														60		
SJ 03463	30N	11W	18	1	2	1														70	20	50
SJ 02996	30N	11W	18	1	2	1														50	25	25
SJ 00932	30N	11W	18	1	2	4														32	15	17
SJ 01738	30N	11W	18	1	3															33	6	27
SJ 01733	30N	11W	18	1	3															29	9	20
SJ 01786	30N	11W	18	1	5															35	10	25

SJ 01401	3CN	11W	18	1	3	44	12	32
SJ 03526	3CN	11W	18	1	3	40		
SJ 03176	3CN	11W	18	1	4	48	20	28
SJ 03177	3CN	11W	18	1	4	37	15	22
SJ 03344	3CN	11W	18	1	4	100	8	92
SJ 03801 P001	3CN	11W	18	2	2	21	6	15
SJ 03800 P001	3CN	11W	18	2	2	21	6	15
SJ 01639	3CN	11W	18	2	2	40	18	22
SJ 02098	3CN	11W	18	2	4	21	7	14
SJ 02109	3CN	11W	18	2	4	19	4	15
SJ 02123	3CN	11W	18	2	4	22	8	14
SJ 03290	3CN	11W	18	2	4	40	10	30
SJ 02045	3CN	11W	18	4	4	480	200	280
SJ 03322	3CN	11W	18	4	1	40	10	30
SJ 03320	3CN	11W	18	4	3	80		
SJ 03321	3CN	11W	18	4	3	80		
SJ 02193	3CN	11W	19				105	
SJ 03403	3CN	11W	19	1	2	400		60
SJ 00638	3CN	11W	19	2	1	130	70	
SJ 01073	3CN	11W	19	2	1	100	38	62
SJ 03615	3CN	11W	19	2	1	105	35	70
SJ 03434	3CN	11W	19	2	1	140		
SJ 03088	3CN	11W	19	2	1	120	30	40
SJ 01636	3CN	11W	19	2	2	70	25	45
SJ 02862	3CN	11W	19	2	2	20		
SJ 00284	3CN	11W	19	2	3	200	35	165
SJ 03645	3CN	11W	19	3	1	60	20	40
SJ 03533	3CN	11W	19	3	1	20		
SJ 01621	3CN	11W	19	3	2	40	38	2
SJ 02692	3CN	11W	19	3	2	52	12	40
SJ 02968	3CN	11W	19	3	2	75	5	70
SJ 02812	3CN	11W	19	3	2	50		
SJ 01123	3CN	11W	19	4	1	40	15	25
SJ 03437	3CN	11W	19	4	1	30		
SJ 03315	3CN	11W	19	4	1	60	54	6
SJ 00284 CLW222415	3CN	11W	19	4	4	200	35	165
SJ 03224	3CN	11W	30	1	2	80	30	50
SJ 03077	3CN	11W	30	2	1	75	70	5
SJ 03668	3CN	11W	30	2	1	360	230	100
SJ 03251	3CN	11W	32	3	4	150	77	73

266702 2116445  
266718 2116651



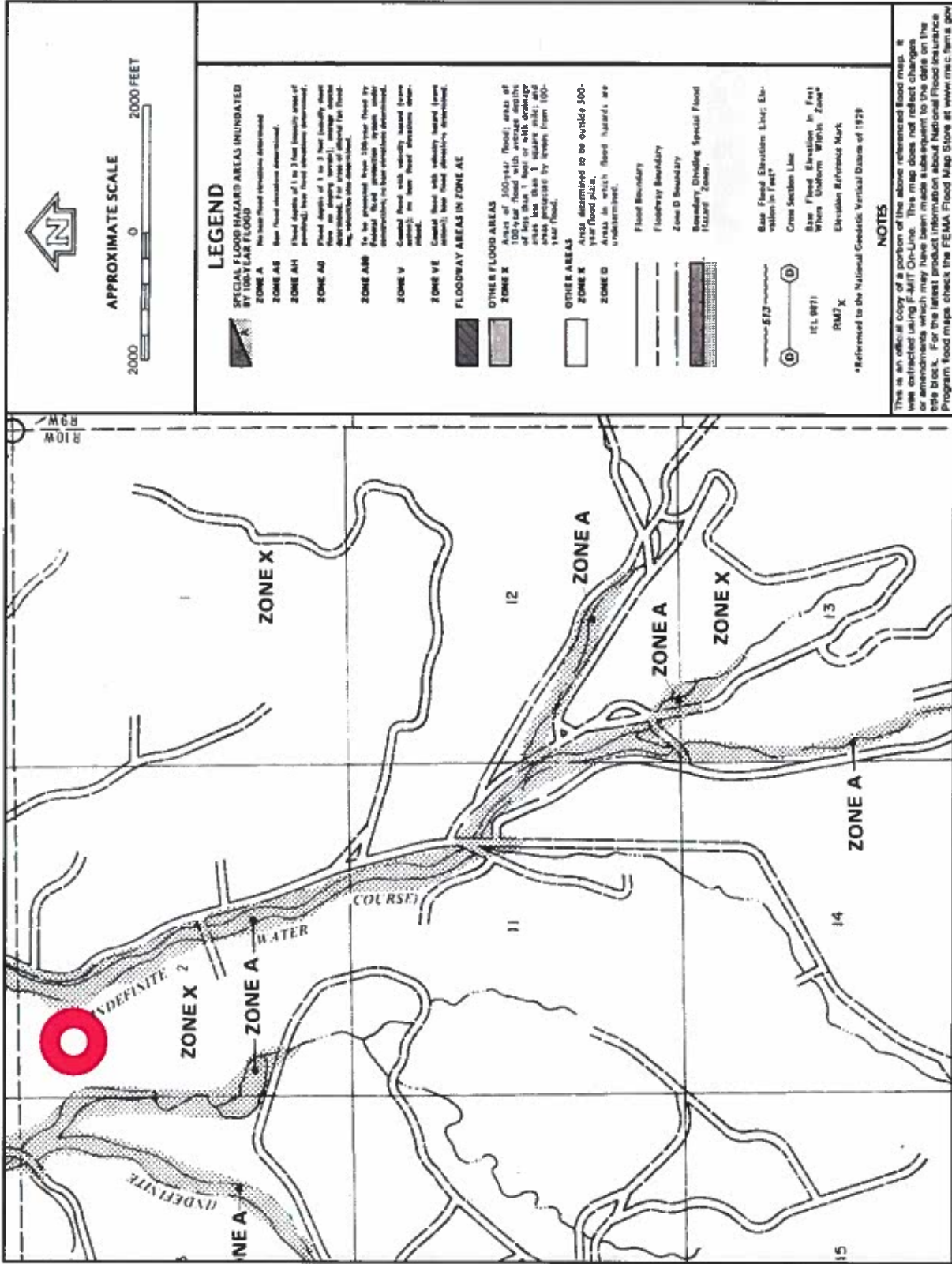
<p>Lodestar Services, Inc          PO Box 4465          Durango, CO 81302</p>	<p>AZTEC GAS COM #1          T27N, R10W, S02D          San Juan County, NM</p>	<p>Aerial Photograph</p>
---	--	--------------------------



Mines, Mills, and  
Quarries Map

AZTEC GAS COM #1  
T27N, R10W, S02D  
San Juan County, NM

Lodestar Services, Inc  
PO Box 4465  
Durango, CO 81302



**FEMA Flood Zone Map**

**AZTEC GAS COM #1**  
T27N, R10W, S02D  
San Juan County, NM

**Lodestar Services, Inc**  
PO Box 4465  
Durango, CO 81302

**XTO Energy Inc.**  
**San Juan Basin (Northwest New Mexico)**  
**General Design and Construction Plan**  
**For Below-Grade Tanks**

In accordance with Rule 19.15.17.11 NMAC the following information describes the design and construction of below-grade tanks on XTO Energy Inc. (XTO) locations. This is XTO's standard procedure for all below-grade tanks. A separate plan will be submitted for any below-grade tank which does not conform to this plan.

**General Plan**

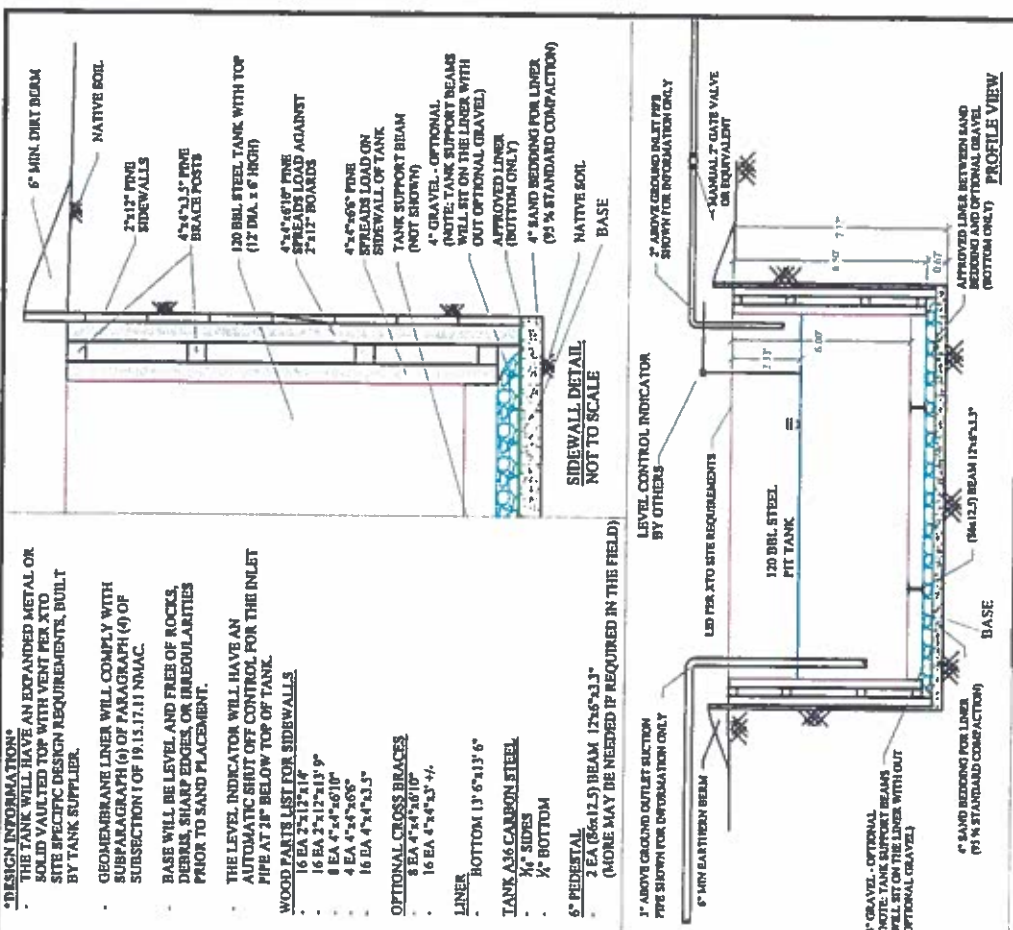
1. XTO will design and construct below-grade tanks to contain liquids and solids and prevent contamination of fresh water and protect public health and environment.
2. XTO will post a well sign, in compliance with 19.15.3.103 NMAC, on the existing well site operated by XTO where the existing below-grade tank is located. The sign will list the Operator on record as the operator, the location of the well site by unit letter, section, township, range, and emergency telephone numbers.
3. XTO is requesting approval of an alternative fencing to be used on below-grade tank locations. Below-grade tank locations will be fenced utilizing 48" steel mesh field-fence (hogwire) with pipe railing along the top. A 6' chain link fence will be utilized around the well pad if the well site is within a city limits or ¼ mile of a permanent residence, school, hospital, institution or church. Below-grade tanks located within 1000' of a permanent residence, school, hospital, institution or church will be fenced by 6' chain link fence with at least two strands of barbed wire at the top. All gates associated with below-grade tanks will remain closed and locked when responsible individuals are not on site.
4. XTO shall construct below-grade tanks with an expanded metal covering or solid vaulted top on the top of the below-grade tank.
5. XTO will ensure that below-grade tanks are constructed of materials resistant to the below-grade tank's particular contents and resistant to damage from sunlight. Tanks will be constructed of A36 carbon steel with 3/16" sides and ¼" bottom. (See attached drawing).
6. The below-grade tank system will have a properly constructed foundation consisting of a level base free of rocks, debris, sharp edges or irregularities to prevent punctures, cracks or indentations of the liner or tank bottom. Sand bedding (4") will be placed on top of a level foundation to ensure prevention of punctures, cracks or indentations of the liner or tank bottom.
7. XTO will construct a berm and/or diversion ditch in a manner that prevents the collection of surface water run-on. Below-grade tanks will be equipped with automatic high level shut-off devices as well as manually operated shut-off valves. (See attached drawing).
8. XTO will construct and use below-grade tanks that do not have double walls. The below-grade tank sidewalls will be open for visual inspection for leaks. The sidewalls of the cellar will be constructed with 2" X 12" pine sidewalls and 4" X 4" pine brace posts. The below-grade tank

XTO Energy Inc.  
San Juan Basin (Northwest New Mexico)  
General Design and Construction Plan  
For Below-Grade Tanks  
Page 2

bottom will be elevated a minimum of 6" above the underlying ground surface and the below-grade tank will be underlain with a geomembrane liner to divert leaked liquid to a location that can be visually inspected. (See attached drawing).

9. XTO will equip below-grade tanks designed in this manner with a properly functioning automatic high-level shut-off control device and manual controls to prevent overflows. (See attached drawing).
10. XTO will demonstrate to the OCD that the geomembrane liner complies with the specifications of Subparagraph (a) of Paragraph (4) of Subsection I of 19.15.17.11 NMAC and obtain approval from OCD prior to the installation of the design. The geomembrane liner shall have a hydraulic conductivity no greater than  $1 \times 10^{-9}$  cm/sec. The geomembrane liner shall be composed of an impervious, synthetic material that is resistant to petroleum hydrocarbons, salts and acids and alkaline solutions. The liner material shall be resistant to ultraviolet light. Liner compatibility shall comply with EPA SW-846 method 9090A. (See attached drawing).
11. The general specifications for design and construction are attached.





**\*DESIGN INFORMATION\***  
 THE TANK WILL HAVE AN EXPANDED METAL OR SOLID VAULTED TOP WITH VENT PER XTO SITE SPECIFIC DESIGN REQUIREMENTS, BUILT BY TANK SUPPLIER.

GEOMETRIC LINE WILL COMPLY WITH SUBPARAGRAPH (6) OF PARAGRAPH (4) OF SUBSECTION 1 OF 19.15.17.11 NMAC.

BASE WILL BE LEVEL AND FREE OF ROCKS, DEBRIS, SHARP EDGES OR IRREGULARITIES PRIOR TO SAND PLACEMENT.

THE LEVEL INDICATOR WILL HAVE AN AUTOMATIC SHUT OFF CONTROL FOR THE INLET PIPE AT 2" BELOW TOP OF TANK.

**WOOD PARTS LIST FOR SIDEWALLS**

- 16 EA 2"x12"x14'
- 16 EA 2"x12"x15' 9"
- 4 EA 4"x4"x6'10"
- 16 EA 4"x4"x13' 5"

**OPTIONAL CROSS BRACES**

- 8 EA 4"x4"x6'10"
- 16 EA 4"x4"x13' 5"

**LINE**

- BOTTOM 13' 6"x13' 6"
- TANK AS6 CARBON STEEL
- 1/4" SIDES
- 1/2" BOTTOM

**5" PEDESTAL**

- 2 EA (86x12.5) BEAM 12x6"x3.3"

(MORE MAY BE REQUIRED IF REQUIRED IN THE FIELD)

1" ABOVE GROUND OUTLET SECTION PFS SHOWN FOR INFORMATION ONLY

6" MIN. EARTHEN BEAM

120 DBL. STEEL PFT TANK

LED PER XTO SITE REQUIREMENTS

LEVEL CONTROL INDICATOR BY OTHERS

2" ABOVE GROUND INLET PFS SHOWN FOR INFORMATION ONLY

MANUAL 2" GATE VALVE OR EQUIVALENT

APPROVED LINER BETWEEN SAND BEDDED AND OPTIONAL GRAVEL (BOTTOM ONLY) PROFILE VIEW

4" SAND BEDDING FOR LINER (9% STANDARD COMPACTION)

BASE

4" SAND BEDDING FOR LINER (9% STANDARD COMPACTION)

BASE

4" GRAVEL - OPTIONAL (NOTE: TANK SUPPORT BEAMS WILL SIT ON THE LINER WITH OUT OPTIONAL GRAVEL)

4" GRAVEL - OPTIONAL (NOTE: TANK SUPPORT BEAMS WILL SIT ON THE LINER WITH OUT OPTIONAL GRAVEL)

**PLAN VIEW**

NOTE: PROVIDED 6" MIN. EARTHEN BEAM AROUND PFT TANK TO KEEP SURFACE RUNOFF FROM ENTERING PFT.

NOTE: HIGH LEVEL SHUT OFF WILL BE SET AT 24" BENEATH TOP OF TANK (AT 71.95 BBL @ SHUT OFF).

NOTE: OUTER EDGE OF LINER WILL BE LEFT OPEN AND UNOBSTRUCTED TO ALLOW FOR VISUAL INSPECTION OF LINER FOR EVIDENCE OF SPILLS.

NOTE: ADJUST DIMENSIONS AS NEEDED TO FIELD PFT TANK IF DIFFERENT THAN SHOWN, IF REQUIRED.

**OWNER / OPERATOR:**  
**XTO ENERGY**

**TYPICAL DESIGN**  
 120 BBL PFT TANK  
 CONTAINMENT

**XTO ENERGY**

**PROJECT NUMBER:** [ ]  
**DATE:** [ ]  
**DESIGNED BY:** [ ]  
**CHECKED BY:** [ ]  
**APPROVED BY:** [ ]

2500000 PFT Tank Containment Design for PFT Tank at [ ]

**XTO Energy Inc.**  
**San Juan Basin (Northwest New Mexico)**  
**General Maintenance and Operating Plan**  
**For Below-Grade Tanks**

In accordance with Rule 19.15.17.12 NMAC the following information describes the operation and maintenance of below-grade tanks on XTO Energy Inc. (XTO) locations. This is XTO's standard procedure for all below-grade tanks. A separate plan will be submitted for any below-grade tank which does not conform to this plan.

**General Plan**

1. XTO will operate and maintain below-grade tanks to contain liquids and solids, maintain the integrity of the liner and secondary containment system, prevent contamination of fresh water and protect public health and the environment. Fluid levels will be monitored weekly and high levels will be removed as necessary. Monthly inspections will be conducted to monitor integrity of below-grade tank systems and below-grade tanks will be equipped with automatic high-level shut-off devices.
2. XTO will not allow below-grade tanks to overflow and will use berms and/or diversion ditch to prevent surface run on to enter the below-grade tank. Below-grade tanks will be equipped with automatic high-level shut-off control devices as well as manually operated shut-off valves. See attached drawing for vault design and placement of diversion berms and shut-off devices.
3. XTO will continuously remove any visible or measurable layer of oil from the fluid surface of below-grade tanks in order to prevent significant accumulation of oil.
4. XTO will inspect the below-grade tank monthly and maintain written records for five years. Monthly inspections will consist of documenting the following: (see attached template),
  - Well Name
  - API #
  - Sec., Twn., Rng.
  - XTO Inspector's name
  - Inspection date and time
  - Visible tears in liner
  - Visible signs of tank overflow
  - Collection of surface run on
  - Visible layer of oil
  - Visible signs of tank leak
  - Estimated freeboard
5. XTO will maintain adequate freeboard to prevent over topping of the below-grade tank. High level shut-off devices control the freeboard at an average of 28" beneath the top of the tank.
6. XTO will not discharge into or store any hazardous waste in any below-grade tank.
7. If a below-grade tank develops a leak, or if any penetration of a below-grade tank occurs below the liquids surface, XTO will remove all liquids above the damage or leak line within 48 hours,

XTO Energy Inc.  
San Juan Basin (Northwest New Mexico)  
General Maintenance and Operating Plan  
For Below-Grade Tanks  
Page 2

notify the appropriate division district office within 48 hours of the discovery and repair the damage or replace the below-grade tank. If an existing below-grade tank does not meet current requirements of Paragraphs 1-4 of Subsection I of 19.15.17.11 NMAC the tank will be modified or retrofitted to comply. If compliance can not be achieved XTO will implement the approved closure plan.



**XTO Energy Inc.**  
**San Juan Basin (Northwest New Mexico)**  
**General Closure Plan**  
**For Below-Grade Tanks**

In accordance with Rule 19.15.17.13 NMAC the following information describes the closure requirements of below-grade tanks on XTO Energy Inc. (XTO) locations. This is XTO's standard procedure for all below-grade tanks. A separate plan will be submitted for any below-grade tank which does not conform to this plan

**General Plan**

1. XTO will close below-grade tanks within the time periods provided in 19.15.17.13 NMAC, or by an earlier date that the division requires because of imminent danger to fresh water, public health or the environment.
2. XTO will close a below-grade tank that does not meet the requirements of Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC or is not included in Paragraph (5) of Subsection I of 19.15.17.11 NMAC within five years after June 16, 2008, if not retrofitted to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC.
3. XTO will close a permitted below-grade tank within 60 days of cessation of the below-grade tank's operation or as required by the transitional provisions of Subsection B of 19.15.17.17 NMAC in accordance with a closure plan that the appropriate division district office approves. The closure report will be filed on form C-144.
4. XTO will remove liquids and sludge from below-grade tanks prior to implementing a closure method and will dispose of the liquids and sludge in a division-approved facility. Approved facilities and waste streams include:
  - Envirotech Permit No. NM01-0011 and IEI Permit No. NM 01-0010B
    - Soil contaminated by exempt petroleum hydrocarbons
    - Produced sand, pit sludge and contaminated bottoms from storage of exempt wastes
  - Basin Disposal Permit No. NM01-005
    - Produced water
5. XTO will 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 has approved prior to removal. Any associated liners will be removed, properly cleaned and disposed of per 19.15.9.712 NMAC at San Juan County Landfill. Documentation of the final disposition will be included in the closure report.
6. XTO will remove any on-site equipment associated with a below-grade tank unless the equipment is required for some other purpose.
7. XTO will test the soils beneath the below-grade tank to determine whether a release has occurred. At a minimum 5 point composite sample will be collected along with individual grab samples from any area that is wet, discolored or showing other evidence of a release. Samples will be

XTO Energy Inc.  
San Juan Basin (Northwest New Mexico)  
General Closure Plan  
For Below-Grade Tanks  
Page 2

analyzed for BTEX, TPH and chlorides to demonstrate that the benzene concentration, as determined by EPA SW-846 methods 8021B or 8260B or EPA method that the division approves, does not exceed 0.2 mg/kg; total BTEX concentration, as determined by EPA SW-846 methods 8021B or 8260B or other EPA method that the division approves, does not exceed 50 mg/kg, the TPH concentration, as determined by EPA method 418.1 or other EPA method that the division approves, does not exceed 100mg/kg, and the chloride concentration, as determined by EPA method 300.1 or other EPA method that the division approves, does not exceed 250 mg/kg, or the background concentration, whichever is greater. XTO will notify the division of its results on form C-141.

8. If XTO or the division determines that a release has occurred, XTO will comply with 19.15.3.116 NMAC and 19.15.1.19NMAC as appropriate.
9. If the sampling program demonstrates that a release has not occurred or that any release does not exceed the concentrations specified in Paragraph (4) of Subsection E of 19.15.17.13 NMAC, XTO will backfill the excavation with compacted, non-waste containing, earthen material; construct a division prescribed soil cover; recontour and re-vegetate the site.
10. Notice of Closure operations will be given to the Aztec Division District III office between 72 hours and one week prior to the start of closure activities via email or verbally. The notification will include the following:
  - i. Operator's name
  - ii. Well Name and API Number
  - iii. Location by Unit Letter, Section, Township, and Range

The surface owner shall also be notified prior to the implementation of any closure operations of below-grade tanks as per the approved closure plan using certified mail, return receipt requested.

11. Re-contouring of location will match fit, shape, line, form and texture of the surrounding area. Re-shaping will include drainage control, prevent ponding, and prevent erosion. Natural drainages will be unimpeded and water bars and/or silt traps will be placed in areas where needed to prevent erosion on a large scale. Final re-contour shall have a uniform appearance with smooth surface, fitting the natural landscape.
12. A minimum of 4 feet of cover shall be achieved and the cover shall include 1 foot of suitable material to establish vegetation at the site, or the background thickness of topsoil, whichever is greater. Soil cover will be constructed to the site's existing grade and ponding of water and erosion of the cover material will be prevented with drainage control, natural drainages and silt traps where needed.
13. XTO will seed the disturbed areas the first growing season after the operator closes the pit. Seeding will be accomplished via drilling on the contour whenever practical or by other division-approved methods. BLM or Forest Service stipulated seed mixes will be used on federal lands. Vegetative cover will equal 70% of the native perennial vegetative cover (un-impacted) consisting of at least three native plant species, including at least one grass, but not including noxious weeds, and maintain that cover through two successive growing seasons. Repeat seeding or planting will be continued until successful vegetative growth occurs.

XTO Energy Inc.  
San Juan Basin (Northwest New Mexico)  
General Closure Plan  
For Below-Grade Tanks  
Page 3

14. All closure activities will include proper documentation and be available for review upon request and will be submitted in closure report form to OCD within 60 days of closure of the below-grade tank. Closure report will be filed on form C-144 and incorporate the following:
- i. Proof of closure notice to division and surface owner;
  - ii. Details on capping and covering, where applicable;
  - iii. Inspection reports;
  - iv. Confirmation sampling analytical results;
  - v. Disposal facility name(s) and permit number(s);
  - vi. Soil backfilling and cover installation;
  - vii. Re-vegetation application rates and seeding techniques, (or approved alternative to re-vegetation requirements if applicable);
  - viii. Photo documentation of the site reclamation.