

State of New Mexico
rals and Natural Resources
Department

Iservation Division/ IZZV South St. Francis Dr. Santa Fe, NM 87505 For temporary pits, closed-loop systems, and below-grade tanks, submit to the appropriate NMOCD District Office.
For permanent pits and exceptions submit to

For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD 36 District Office.

# 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
	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.

I.         Operator: XTO Energy, Inc.         OGRID #: 5380
Address: #382 County Road 3100, Aztec, NM 87410
Facility or well name: UTE INDIAN A # 25
API Number: 30-045-29417 OCD Permit Number:
U/L or Qtr/Qtr F Section 02 Township 31N Range 14W County: San Juan
Center of Proposed Design: Latitude 36.9322 Longitude 108.27956 NAD: 1927 \( \sqrt{1927} \) 1983
Surface Owner: Federal State Private Tribal Trust or Indian Allotment
Pit: Subsection F or G of 19.15.17.11 NMAC
Temporary: Drilling Workover
Permanent Emergency Cavitation P&A
Lined Unlined Liner type: Thicknessmil LLDPE HDPE PVC Other
☐ String-Reinforced
Liner Seams: Welded Factory Other Volume: bbl Dimensions: L x W x D
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: Thicknessmil 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 _ <u>Visible sidewalls</u> , vaulted, automatic high-level shut off, no liner
Liner type: Thickness mil
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.

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, in this is an advantable of the strands of barbed wire at top (Required if located within 1000 feet of a permanent residence, school, in this is a supplied to the strands of barbed wire at top (Required if located within 1000 feet of a permanent residence, school, it is a supplied to the strands of barbed wire at top (Required if located within 1000 feet of a permanent residence, school, it is a supplied to the strands of barbed wire at top (Required if located within 1000 feet of a permanent residence, school, it is a supplied to the strands of barbed wire at top (Required if located within 1000 feet of a permanent residence, school, it is a supplied to the strands of barbed wire at top (Required if located within 1000 feet of a permanent residence, school, it is a supplied to the strands of the stran	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	
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 consideration of approval.  Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.	office for
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 accept material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. Siting criteria does not apply to drying above-grade tanks associated with a closed-loop system.	priate district pproval. ng pads or
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	Yes 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	Yes 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	☐ Yes ☑ No ☐ 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	☐ Yes ☐ No ☐ 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	Yes 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	☐ 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
Within the area overlying a subsurface mine.  - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☒ No
Within an unstable area.  - 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 FEMA map	☐ Yes ☒ 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
<ul> <li>☑ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC</li> <li>☑ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC</li> <li>and 19.15.17.13 NMAC</li> </ul>
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)
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 19.15.17.19 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
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)
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 G of 19.15.17.13 NMAC

Form C-144

Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only: (19.15.17.13. Instructions: Please indentify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if 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 set    Yes (If yes, please provide the information below)    No	vice and operations?
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	AC
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 sou provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate disconsidered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Just demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for guidance.	trict office or may be
Ground water is less than 50 feet below the bottom of the buried waste.  - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	Yes No
Ground water is between 50 and 100 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	Yes No
Ground water is more than 100 feet below the bottom of the buried waste.  - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	Yes 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	☐ 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 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; Visual inspection (certification) of the proposed site	Yes 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	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
Within the area overlying a subsurface mine.  - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☐ No
<ul> <li>Within an unstable area.</li> <li>Engineering measures incorporated into the design; NM Bureau of Geology &amp; Mineral Resources; USGS; NM Geological Society; Topographic map</li> </ul>	☐ Yes ☐ No
Within a 100-year floodplain FEMA map	☐ Yes ☐ No
On-Site Closure Plan Checklist: (19.15.17.13 NMAC) Instructions: Each of the following items must be attached to the closure p 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 19.15.17.13 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 can 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 G of 19.15.17.13 NMAC	.15.17.11 NMAC

Operator Application Certification:  I hereby certify that the information submitted with this application is true, acc	urate and complete to th	ne best of my knowledge and belief.
Name (Print): Kim Champlin	Title:	Environmental Representative
Signature: Kim Champler	Date:	11.25.08
e-mail address: kim_champlin@xtoenergy.com		(505) 333-3100
OCD Approval: Permit Application (including closure plan) Closure	Plan (only) OCD	Conditions (see attachment)
OCD Representative Signature:		Approval Date:
Title:	OCD Permit Numl	ber:
Closure Report (required within 60 days of closure completion): Subsection Instructions: Operators are required to obtain an approved closure plan prior The closure report is required to be submitted to the division within 60 days of section of the form until an approved closure plan has been obtained and the	r to implementing any of f the completion of the	closure activities and submitting the closure report. closure activities. Please do not complete this been completed.
22.		
Closure Method:  Waste Excavation and Removal On-Site Closure Method Alter If different from approved plan, please explain.	rnative Closure Method	Waste Removal (Closed-loop systems only)
Closure Report Regarding Waste Removal Closure For Closed-loop System Instructions: Please indentify the facility or facilities for where the liquids, detwo facilities were utilized.	ns That Utilize Above or illing fluids and drill c	Ground Steel Tanks or Haul-off Bins Only: cuttings were disposed. Use attachment if more than
Disposal Facility Name:	Disposal Facility Pe	ermit Number:
Disposal Facility Name:		ermit Number:
Were the closed-loop system operations and associated activities performed on  Yes (If yes, please demonstrate compliance to the items below)  No		
Required for impacted areas which will not be used for future service and operation   Site Reclamation (Photo Documentation) Soil Backfilling and Cover Installation Re-vegetation Application Rates and Seeding Technique	ations:	
Closure Report Attachment Checklist: Instructions: Each of the following 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)	e)	
On-site Closure Location: LatitudeLong	gitude	NAD: 1927 1983
Operator Closure Certification: I hereby certify that the information and attachments submitted with this closure belief. I also certify that the closure complies with all applicable closure requirements.  Name (Print):	ements and conditions s	and complete to the best of my knowledge and pecified in the approved closure plan.
Signature:	Date:	
e-mail address:	Telephone:	

District I PO Box 1980, Hobbs, NM 88241-1980 District II Pt) Drawer DD, Artesia, NM 88211-0719 District III 1000 Ris Brazos Rd., Astec, NM 27410

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION PO Box 2088 Santa Fc, NM 87504-2088

Form C-102 Revised February 21, 1994 Instructions on back Submit to Appropriate District Office State Lease - 4 Copies

Fee Lease - 3 Copies

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Date of Survey Signature and

7016 Certificate No

BLM RECORD

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A			Client:	XTO Energy			
Lodestar Service	s. Inc.	Pit Permit	Project:	Pit Permits			
PO Box 4465, Durang		Siting Criteria	Revised:	9/26/2008			
I V July Trou, Delang		Information Sheet	Prepared by:	Daniel Newman			
V.	1						
API#:		3004529417	USPLSS:	T31N,R14W,02F			
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Name:	U <sup>-</sup>	TE INDIAN A#25	Lat/Long:	36.9322, -108.27956			
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		> 100°	Geologic	Menefee Formation			
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Distance to closest	7-4						
significant watercourse,		,					
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lakebed, playa lake, or							
sinkhole:	- 20.7 U 20			THE RESIDENCE OF PERSONS FAIL AND ASSESSED.			
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school, hospital,		No					
institution or church		11,40					
within 300'							
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Domestic fresh water			Precipitation				
well or spring within		No		1 3.82" largest daily rainfall on record.			
500'			Notes:				
Any other fresh water							
well or spring within		No					
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and the second s		The state of the s					
Within incorporated	Carried Contract		Attached				
municipal boundaries		No	Documents:				
Within defined			Documents.				
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Within 100 year flood plain	No F	EMA data availble					

**Additional Notes:** 

# Ute Indians A#25 Below Grade Tank Siting Criteria and Closure Plan

## 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 below ground tank location will be located in the northwest corner of the San Juan Basin, where the Hogback monocline ends. Thicker sequences common throughout the central basin begin to pinch out and older units of Cretaceous Age are exposed, specifically components of the Late Cretaceous Mesaverde Group (Point Lookout Sandstone, Menefee Formation and Cliff House Sandstone; (Brister and Hoffman, 2002). The resistant Point Lookout and Cliff House sandstones form prominent cliff bands, while shales and smaller sandstones of the Menefee Formation are exposed at lower, more eroded elevations. The stratigraphic section reflects deposition in a transgressive marine to coastal plain environment and consists of gray, brownish and tank sandstone interbedded with dark, carbonaceous shales and coal beds. Also, deposits of Quaternary alluvial and aeolian sands occur prominently near the surface, 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). Within the Menefee Formation, thinner confining units that consist of shale, as well as coal and thick sandstone beds, are present. In general, the water from Cretaceous aquifers is minimal (less than 5 gpm), although moderate quantities (5-25 gpm) may be supplied from aquifers within the Menefee Formation (Stone et al., 1983). Aquifer depths range from very shallow depths to over 6000 feet below ground surface. Groundwater within these aquifers flows toward the nearby La Plata River, which is a tributary of the San Juan River.

The prominent soil type at the proposed site is rockland, which are basically little to no soils that do not show any profile development. Soils that are present are unaltered from their parent rock. Miles of arroyos, washes and intermittent streams exist as part of the drainage network towards the La Plata River (www.emnrd.state.nm.us). 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 and prohibits effective recharge to the underlying aquifers.

Dry and arid weather further prohibit active recharge. The climate of the region is arid, averaging just over 8 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).

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

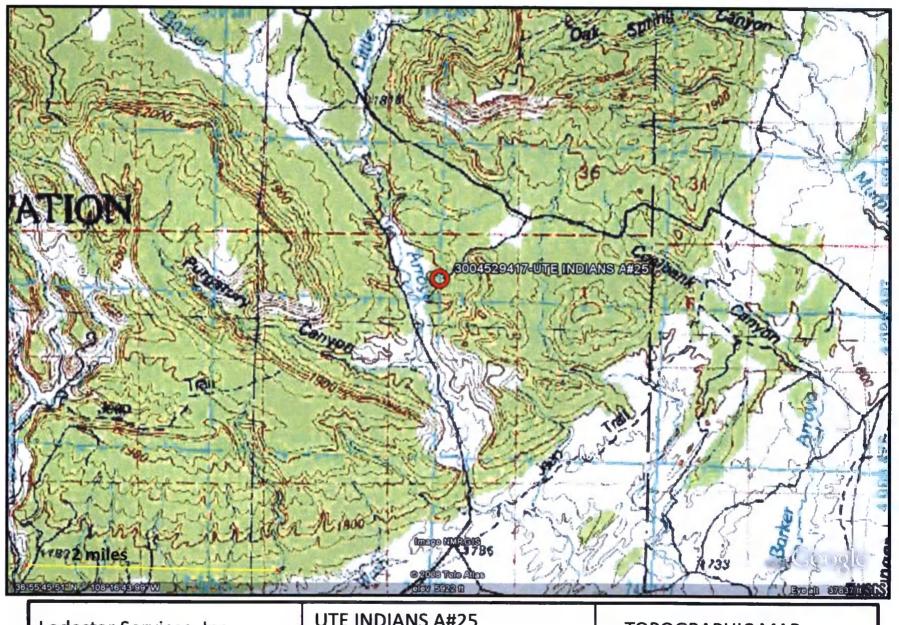
# Site Specific Hydrogeology

Depth to groundwater is estimated to be greater than 100 feet. This estimation is based on data from Stone and others, 1983 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.

Local aquifers include sandstones within the Menefee Formation, which range from shallow depths to over 6000 feet deep in this area (Stone et al., 1983).

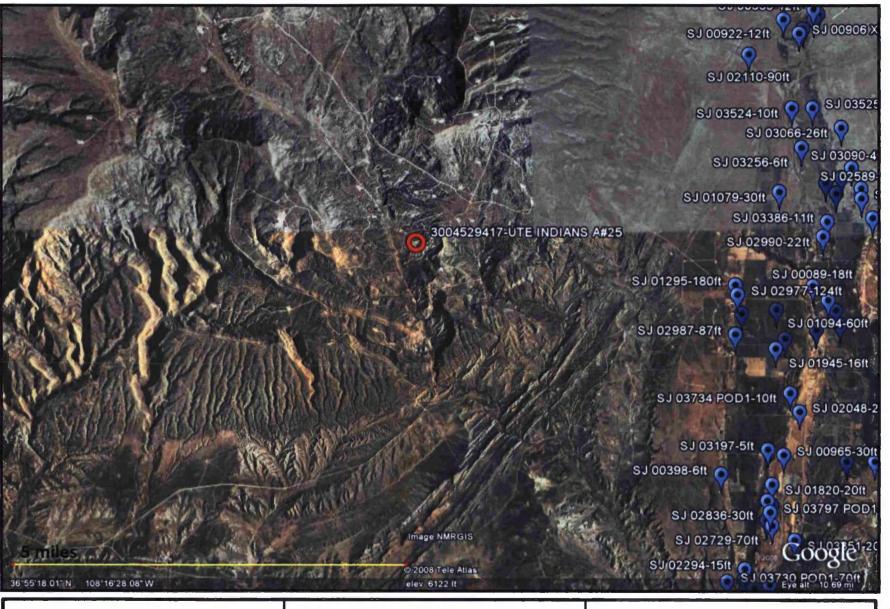
The site in question is located on a slope approximately 1530 feet away from outcropping sandstones that are over 250 feet higher in elevation. The slope is composed of shale and alluvium which, taken together, are expected to be at least 100 feet thick. This site is located on the rim of Barker Arroyo. The floor of Barker Arroyo, where groundwater may be shallow, is almost 120 feet below the proposed site.

Groundwater data available from the NM State Engineer's iWaters Database for wells near the proposed site are attached. A map showing the location of wells in reference to the proposed pit location is attached. Pinpoints show locations of wells and the labels for each pinpoint indicate depth to groundwater in feet. Wells are clustered near populated areas along the La Plata River east of the proposed site. These sites contain shallow groundwater, but topographic and hydrographic conditions are not representative of the site in question. Many data points exist east of the site and indicate groundwater at 10-180 feet in depth. These groundwater wells are located approximately 100 feet lower in elevation than the proposed site, suggesting groundwater is greater than 100 feet deep at the proposed location.



UTE INDIANS A#25 32N,14W,02F SAN JUAN COUNTY, NM

**TOPOGRAPHIC MAP** 



UTE INDIANS A#25 32N,14W,02F SAN JUAN COUNTY, NM

i-Waters Ground Water Data Map

# New Mexico Office of the State Engineer POD Reports and Downloads WATER COLUMN REPORT 09/16/2008

### (quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are biggest to smallest) Depth Depth Water (in feet) POD Number Rng Sec q q q Well Water Column SJ 01187 CLW226675 32N 13% 10 3 4 24 9 15 SJ 01187 32N 13% 10 3 4 4 24 5 15 SJ 01353 32N 13W 10 4 3 38 SJ 01439 32N 13W 10 4 3 4'5 25 20 SJ 02068 SJ 01549 32N 13W 15 45 16 29 32N 13W 15 2 1 47 28 19 SJ 02985 32N 13W 15 47 25 22 SJ 02865 32N 137 15 2 3 2 25 15 44 SJ 02558 32N 13W 15 3 2 41 23 18 SJ 02934 32N 13W 15 34 18 16 SJ 02890 32N 13W 15 4 1 55 30 25 SJ 02705 137 22 1 4 32N 25 12 13 SJ 02704 32N 13W 22 1 4 2 25 12 13 SJ 03111 32N 13W 22 2 1 4 19 € 13 SJ 02848 32N 13W 22 2 4 608 50 558 SJ 00922 32N 13W 22 3 1 4 27 12 15 SJ 00906 X 32N 13W 22 8€ 3 4 26 ÉŒ SJ 02918 13W 22 32N 3 4 2 51 30 21 SJ 00736 32N 13W 22 40 15 25 SJ 00339 32N 13W 22 4 1 50 12 38 SJ 00340 32N 13W 22 50 12 38 SJ 02847 32N 13W 22 1255 1255 SJ 03524 13W 27 10 32N 3 4 1 3.3 23 SJ 03525 32N 13W 27 71 12 59 SJ 03256 32N 13W 34 1 4 2 € 15 SJ 03066 32N 13W 34 2 2 2 41 28 13 SJ 01079 32N 13W 34 3 3 100 30 70 SJ 01943 32N 13W 34 8 3 5 SJ 03635 32N 13W 34 4 2 4 44 35 9 SJ 02577 32N 13W 34 4 4 30 15 15 SJ 03090 32N 13W 35 3 1 1 59 47 13 SJ 02589 13W 35 3 3 2 32% 60 35 25

62

48

14

SJ 02783

32N

137 35 3 3 4

# New Mexico Office of the State Engineer POD Reports and Downloads

# WATER COLUMN REPORT 09/22/2008

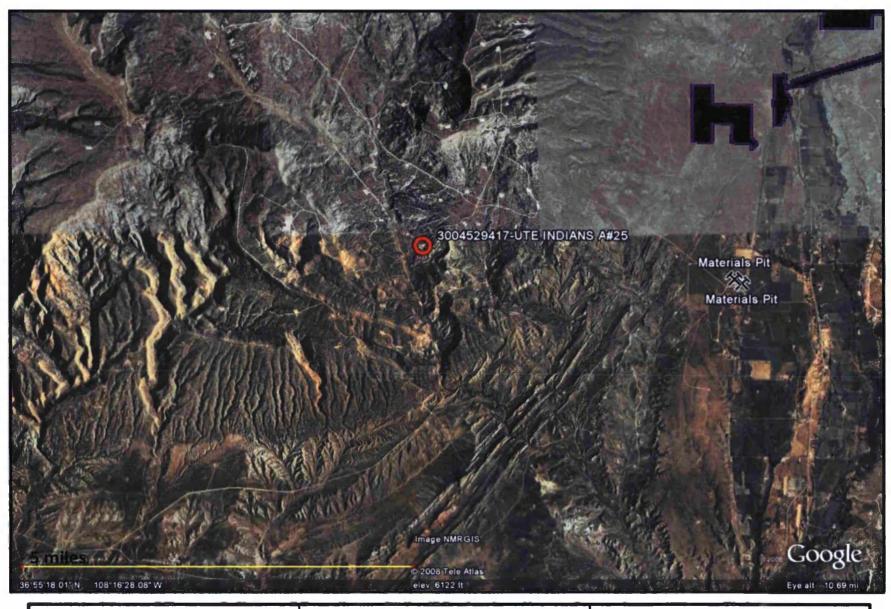
	(quarter	s are 1=	NW 2=	=NE	3=SW 4=SE)							
	(quarter				smallest)			Depth	Depth	Water	(in	feet)
POD Number	Tws	Rng Sec			Zone	X	Y	Well	Water	Column		
SJ 02590	31N	13W 02	1 2	3				114	70	44		
SJ 00835	31N	13W 02	2 2					34	19	15		
SJ 03386	31N	13W 03	2					30	11	69		
SJ 02990	31N	13W 03	2 3	4				100	22	78		
SJ 01295	31N	13W 09	2 1	1				230	180	50		
SJ 02977	31N	13W 09	2 1	3				325	124	201		
SJ 02755	31N	13W 09	2 3	4				60	40	20		
SJ 02987	31N	13W 09	4 1	3				250	87	163		
SJ 02717	31N	13W 10	1 3					42	22	20		
SJ 01094	31N	13W 10	2					130	60	70		
SJ 00798	31N	13W 10	2					125	€5	60		
SJ 00089	31N	13W 10	2 1	1				80	18	€2		
SJ 01952	31N	13W 10	2 4					1€	6	10		
SJ 01944	31M	13W 10	2 4					20	4	1€		
SJ 02276	31N	13W 10	3					24	19	5		
SJ 01945	31N	13W 10	3 3					31	16	15		
SJ 00729	31N	13W 10	4 1					43	10	33		
SJ 01950	31N	13W 10	4 1					21	11	10		
SJ 02637	31N	13W 10	4 2	2				20	€	14		
SJ 03734 POD1	31N	13W 15	1 4	3				40	10	30		
SJ 02048	31N	13W 15	3 2	4				54	24	30		
SJ 00398	31N	13W 21						104	€	98		
SJ 00965	31N	13W 22	1					115	30	35		
SJ 03197	31N	13W 22	1 1	3				11	5	ć		
SJ 01820	31N	13W 22	3 1					50	20	30		
SJ 02737	31N	13W 22	3 3					78	40	38		
SJ 02836	31N	13W 22	3 3	1				100	30	70		
SJ 03797 POD1	31N	13W 22	3 3	3				220	20	200		
SJ 03611	31N	13W 23	1 3	1				24	14	10		
SJ 02729	31N	13W 27	1 1					100	70	30		

31N	13W 27	1	1	1	74	40	34
31N	13W 27	1	1	1	80	20	€0
31N	13W 27	1	4	2	42	20	22
31N	13W 27	3	3		80	40	40
31N	13W 28	4	2	3	42	15	27
31N	13W 28	4	2	3	40	5	35
31N	13W 28	4	3	1	190	70	120
31N	13W 28	4	4	1	50	2	48
31N	13W 28	4	4	4	50	12	38
3IN	13W 33	- 1	4		42	18	24
31N	13W 33	3	1	1	70	5€	14
31N	13W 33	3	2	2	25	14	11
31N	13W 33	3	2.	3	18	É	12
	31N 31N 31N 31N 31N 31N 31N 31N 31N 31N	31N 13W 27 31N 13W 27 31N 13W 27 31N 13W 28 31N 13W 28 31N 13W 28 31N 13W 28 31N 13W 28 31N 13W 28 31N 13W 33 31N 13W 33	31N 13W 27 1 31N 13W 27 1 31N 13W 27 1 31N 13W 27 3 31N 13W 28 4 31N 13W 33 1 31N 13W 33 3 31N 13W 33 3	31N 13W 27 1 1 31N 13W 27 1 4 31N 13W 27 3 3 3 31N 13W 28 4 2 31N 13W 28 4 2 31N 13W 28 4 4 3 31N 13W 28 4 4 4 31N 13W 28 4 4 4 31N 13W 33 1 4 31N 13W 33 3 1 3 31N 13W 33 3 2	31N 13W 27 1 1 1 31N 13W 27 1 4 2 31N 13W 27 1 4 2 3 31N 13W 28 4 3 1 31N 13W 28 4 4 1 31N 13W 28 4 4 4 4 31N 13W 33 1 4 31N 13W 33 3 1 1 31N 13W 33 3 2 2	31N 13W 27 1 1 1 1 80 31N 13W 27 1 4 2 42 31N 13W 27 1 4 2 42 31N 13W 27 3 3 80 31N 13W 28 4 2 3 40 31N 13W 28 4 2 3 40 31N 13W 28 4 4 3 1 190 31N 13W 28 4 4 1 50 31N 13W 28 4 4 4 1 50 31N 13W 33 1 4 42 31N 13W 33 3 1 1 70 31N 13W 33 3 2 2 25	31N     13W     27     1     1     1     1     1     1     20       31N     13W     27     1     4     2     20       31N     13W     27     3     3     80     40       31N     13W     28     4     2     3     42     15       31N     13W     28     4     2     3     40     5       31N     13W     28     4     4     1     50     2       31N     13W     28     4     4     4     50     12       31N     13W     33     1     4     42     18       31N     13W     33     3     1     1     70     56       31N     13W     33     3     2     2     25     14



UTE INDIAN A#25 32N,14W,02F SAN JUAN COUNTY, NM

**AERIAL PHOTOGRAPH** 



UTE INDIANS A#25 32N,14W,02F SAN JUAN COUNTY, NM

Mines and Quarries Map

# 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.

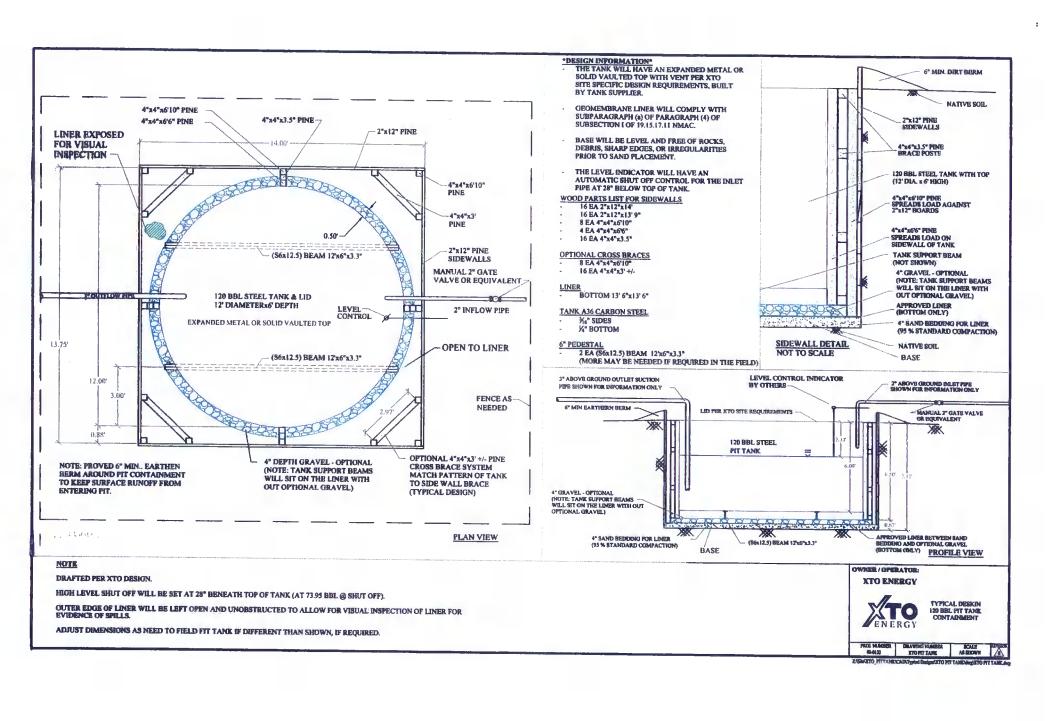
### General Plan

- 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 ½ 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 \( \lambda'' \) 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 x 10-9 cm/sec. The geomembrane liner shall be composed of an impervious, synthetic material that is resistant to petroleum hydrocarbons, salts and acidics 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.



# 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.
- 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.
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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.

MONTHLY BELOW GRADE TANK INSPECTION FORM											
Well Nam	ne:										
Legals	Sec:		Township:		Range:						
XTO Inspector's	Inspection	Inspection		Any visible signs of	Collection of surface	Visible layer	Any visible signs	Freeboard			
Name	Date	Time	tears (Y/N)	tank overflows (Y/N)	run on (Y/N)	of oil (Y/N)	of a tank leak (Y/N)	Est. (ft)			
	-										
					a.	1					
								-			
					<u> </u>						
Notes:	Provide De	tailed Descri	ption:								
Misc:					•						

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# 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.
- 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.

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General Closure Plan
For Below-Grade Tanks
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- 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.