#### Jones, Brad A., EMNRD

From:

Kim\_Champlin@xtoenergy.com

Sent:

Thursday, March 17, 2011 8:27 AM

To:

Jones, Brad A., EMNRD

Cc: Subject: James\_McDaniel@xtoenergy.com BGT Closure- Ohio Govt #2

Brad,

The below listed well is scheduled for P&A. Can you please approve the closure plan only?

Ohio Govt #2 API 30-045-07411 Sec. 15P-T28N-R11W submitted to the Santa Fe office on 01/23/2009

Any questions or problems let me know. Thanks

Kim Champlin

XTO Energy

EHS Admin Supervisor

San Juan Division

(505) 333-3100 office

(505) 213-0140 fax

(505) 330-8357 cell

kim\_champlin@xtoenergy.com

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
District III 1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr , Santa Fe, NM 87505
2009 FEB 16 AM 11 41
resolven to 191 TT AT

State of New Mexico
Energy Minerals and Natural Resources
Department
Oil Conservation Division
1220 South St. Francis Dr.

For temporary pits, closed-loop systems, and below-grade tanks, submit to the appropriate NMOCD District Office.

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

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

Santa Fe, NM 87505

Type of action:  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
lease 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 avironment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.
Operator: XTO Energy, Inc. OGRID #: 5380
Address: #382 County Road 3100, Aztec, NM 87410
Facility or well name: Ohio Govt #2
API Number: OCD Permit Number:
U/L or Qtr/Qtr P Section 15 Township 28N Range 11W County: San Juan
Center of Proposed Design:` Latitude <u>36.65747</u> Longitude <u>107.98556</u> NAD: □1927 ☑ 1983
Surface Owner: X Federal X State Private Tribal Trust or Indian Allotment
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: Thickness mil LLDPE HDPE PVC Other
Below-grade tank: Subsection I of 19.15.17.11 NMAC  Volume: 120
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, institution or church)	hospital,						
☐ 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 <u>Expanded metal or solid vaulted top</u>							
Monthly inspections (If netting or screening is not physically feasible)							
2							
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							
Signed in compnance with 19.13.3.103 NWIAC							
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 of consideration of considerat	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 accept							
material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appro- office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of a							
Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. Siting criteria does not apply to dryi							
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	Yes No						
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa	☐ Yes ☒ No						
lake (measured from the ordinary high-water mark).							
- Topographic map; Visual inspection (certification) of the proposed site	. □ Vas ⊠ Na						
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)	☐ Yes ☑ No ☐ NA						
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image							
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.	☐ Yes ☐ No						
(Applies to permanent pits)	⊠ NA						
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image							
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.	☐ Yes ☑ No						
- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site							
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance	☐ Yes ⊠ No						
adopted pursuant to NMSA 1978, Section 3-27-3, as amended.							
- Written confirmation or verification from the municipality; Written approval obtained from the municipality							
Within 500 feet of a wetland.	☐ Yes ⊠ No						
- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site							
Within the area overlying a subsurface mine.	☐ Yes ⊠ No						
- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division							
Within an unstable area.  Engineering measures incorporated into the design; NM Bureau of Goolean, & Minaral Resources, USCS; NM Cooleans	☐ Yes ⊠ No						
<ul> <li>Engineering measures incorporated into the design; NM Bureau of Geology &amp; Mineral Resources; USGS; NM Geological Society; Topographic map</li> </ul>							
Within a 100-year floodplain.	Vac M N						
- FEMA map	☐ Yes ⊠ No						

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:
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 19.15.17.9 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   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

Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Instructions: Please indentify the facility or facilities for the disposal of liquids, a facilities are required.	Steel Tanks or Haul-off Bins Only: (19.15.17.13.Edrilling fluids and drill cuttings. Use attachment if the state of the st	O NMAC) . nore than two
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 of ☐ Yes (If yes, please provide the information below) ☐ No	cur on or in areas that will not be used for future serv	vice and operations?
Required for impacted areas which will not be used for future service and operation  Soil Backfill and Cover Design Specifications based upon the appropriate Re-vegetation Plan - based upon the appropriate requirements of Subsection  Site Reclamation Plan - based upon the appropriate requirements of Subsection	requirements of Subsection H of 19.15.17.13 NMA( I of 19.15.17.13 NMAC	С
Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC Instructions: Each siting criteria requires a demonstration of compliance in the provided below. Requests regarding changes to certain siting criteria may requir considered an exception which must be submitted to the Santa Fe Environmental demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC	e administrative approval from the appropriate disti I Bureau office for consideration of approval. Justi	rict 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	a obtained from nearby wells	☐ Yes ☐ No ☐ NA
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	a obtained from nearby wells	☐ Yes ☐ No ☐ NA
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	a obtained from nearby wells	☐ Yes ☐ No ☐ NA
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other sig lake (measured from the ordinary high-water mark).  - Topographic map; Visual inspection (certification) of the proposed site	nificant watercourse or lakebed, sinkhole, or playa	☐ Yes ☐ No
Within 300 feet from a permanent residence, school, hospital, institution, or church Visual inspection (certification) of the proposed site; Aerial photo; Satellite		☐ Yes ☐ No
Within 500 horizontal feet of a private, domestic fresh water well or spring that less watering purposes, or within 1000 horizontal feet of any other fresh water well or s  NM Office of the State Engineer - iWATERS database; Visual inspection (	pring, in existence at the time of initial application.	☐ Yes ☐ No
Within incorporated municipal boundaries or within a defined municipal fresh water adopted pursuant to NMSA 1978, Section 3-27-3, as amended.  - Written confirmation or verification from the municipality; Written approv		☐ Yes ☐ No
Within 500 feet of a wetland.  - US Fish and Wildlife Wetland Identification map; Topographic map; Visua	al 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 Society; Topographic map</li> </ul>	& Mineral Resources; USGS; NM Geological	☐ 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 by a check mark in the box, that the documents are attached.  Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of Protocols and Procedures - based upon the appropriate requirements of 19.15  Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Disposal Facility Name and Permit Number (for liquids, drilling fluids and descriptions of Subsection Re-vegetation Plan - based upon the appropriate requirements of Subsection	uirements of 19.15.17.10 NMAC Subsection F of 19.15.17.13 NMAC propriate requirements of 19.15.17.11 NMAC ad) - based upon the appropriate requirements of 19. 5.17.13 NMAC uirements of Subsection F of 19.15.17.13 NMAC Subsection F of 19.15.17.13 NMAC lrill cuttings or in case on-site closure standards cann H of 19.15.17.13 NMAC	15.17.11 NMAC
Site Reclamation Plan - based upon the appropriate requirements of Subsection		

., 19.		
Operator Application Certification:  I hereby certify that the information submitted with this application is true,	accurate and complete to the l	best of my knowledge and belief.
Name (Print): Kim Champlin	Title:	Environmental Representative
Signature: him Chamslin	01.	/19/2009
e-mail address: kim_champlin@xtoenergy.com		(505) 333-3100
20.		
OCD Approval: Permit Application (including closure plan) Clos	ure Plan (only) DCD Co	onditions (see attachment)
OCD Representative Signature:	<b>&gt;</b>	Approval Date: 5/5/11
Title: Enjoyee Engineer	OCD Permit Number	·
Closure Report (required within 60 days of closure completion): Subse Instructions: Operators are required to obtain an approved closure plan p The closure report is required to be submitted to the division within 60 day section of the form until an approved closure plan has been obtained and	orior to implementing any clo is of the completion of the clo	sure activities and submitting the closure report. osure activities. Please do not complete this en completed.
22. Closure Method: Waste Excavation and Removal On-Site Closure Method A If different from approved plan, please explain.	Iternative Closure Method	Waste Removal (Closed-loop systems only)
Closure Report Regarding Waste Removal Closure For Closed-loop Systemstructions: Please indentify the facility or facilities for where the liquidative facilities were utilized.	stems That Utilize Above Gr s, drilling fluids and drill cutt	ound Steel Tanks or Haul-off Bins Only: tings were disposed. Use attachment if more than
Disposal Facility Name:	Disposal Facility Pern	nit Number:
Disposal Facility Name:		nit Number:
Were the closed-loop system operations and associated activities performed  Yes (If yes, please demonstrate compliance to the items below)	on or in areas that will not be	
Required for impacted areas which will not be used for future service and operation [In the content of the cont	perations:	
24.  Closure Report Attachment Checklist: Instructions: Each of the follow 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	ongitude	NAD: □1927 □ 1983
Operator Closure Certification:  I hereby certify that the information and attachments submitted with this clobelief. I also certify that the closure complies with all applicable closure reconstruction.  Name (Print):	sure report is true, accurate ar	nd complete to the best of my knowledge and
Signature:	Date:	
e-mail address:		

Submit to Appropriate District Office State Lease - 4 copies Fee Lease - 3 copies

DISTRICT

330

990

1320

1650

#### State of New Mexico Energy, Minerals and Natural Resources Department

Form C-102 Revised 1-1-89

#### **OIL CONSERVATION DIVISION**

P.O. Box 2088

Santa Fe. New Mexico 87504-2088

Certificate No.

P.O. Box 1980, Hobbs, NM 88240 DISTRICT II P.O. Drawer DD, Artesia, NM 88210

1000 Rio Brazos Rd., Aztec, NM 87410

### WELL LOCATION AND ACREAGE DEDICATION PLAT

All Distances must be from the outer boundaries of the section Operator Well No. Ohio Government Marathon Oil Co. County San Juan Unit Letter Section Township 11-W 28-N NMPM Actual Footage Location of Well: 990 East South 890 feet from the feet from the line and line Pool **Producing Formation** Ground level Elev. Dedicated Acreage: 40 Armenta Gallup 5517 Gallup Acres 1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below. 2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty). 3. If more than one lease of different ownership is dedicated to the well, have the interest of all owners been consolidated by communitization, unitization, force-pooling, etc.? If answer is "yes" type of consolidation Yes No If answer is "no" list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if neccessary. No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interest, has been approved by the Division. OPERATOR CERTIFICATION I hereby cartify that the information contained herein in true and complete to the best of my knowledge and belief. Signamre omas m APR 1 3 1992 Printed Name Thomas M. Price OIL CON. DIV.) Position Adv. Eng. Tech. Company Marathon Oil Co. Date 4-10-92 SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervison, and that the same is true and correct to the best of my knowledge and belief. Date Surveyed Signature & Seal of Professional Surveyor

1980 2310 2640

2000

1500

1000

500

0

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

# Pit Permit Siting Criteria Information Sheet

Client:	XTO Energy	I
Project:	Pit Permits	
Revised:	1/14/2008	]
Prepared by:	Daniel Newman	]∙

V	Information Sheet	Prepared by:	Daniel Newman
API#:	30-045-07411	USPLSS:	T28N,R11W,15P
Name:	Ohio Govt #2	Lat/Long:	36.65747 / -107.98556
Depth to groundwater:	les than 50 feet	Geologic formation:	Nacimiento Formation
Distance to closest continuously flowing watercourse:	2.91 miles south of the San Juan River		
Distance to closest significant watercourse, lakebed, playa lake, or sinkhole:	922 feet east of Kutz Canyon		
Permanent residence, school, hospital, institution or church within 300'	No	Soil Type:	Entisols
The state of the s		Annual Precipitation:	Bloomfield 8.71", Farmington 8.21", Otis 10.41"average
Domestic fresh water well or spring within 500'	No	Precipitation Notes:	Historical daily max: Bloomfield 4.19"
Any other fresh water well or spring within 1000'			
Within incorporated municipal boundaries	NO I	Attached Documents:	
Within defined municipal fresh water well field	No		Topo map, ground water data map, ariel photo, mines and quarries map, FEMA map
Wetland within 500'	No .	Mining Activity:	No
Within unstable area	No		
Within 100 year flood plain	Zone X		
Additional Notes:	· · · · · · · · · · · · · · · · · · ·		.,

#### Ohio Govt #2 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 northernmost Bisti region of the San Juan Basin within an area dominated by irrigated fields of the Navajo Indian Irrigation Project. 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, which are defined as soils that exhibit little to no any profile development (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 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). However, vegetation is very sparse and discontinuous.

#### Site Specific Hydrogeology

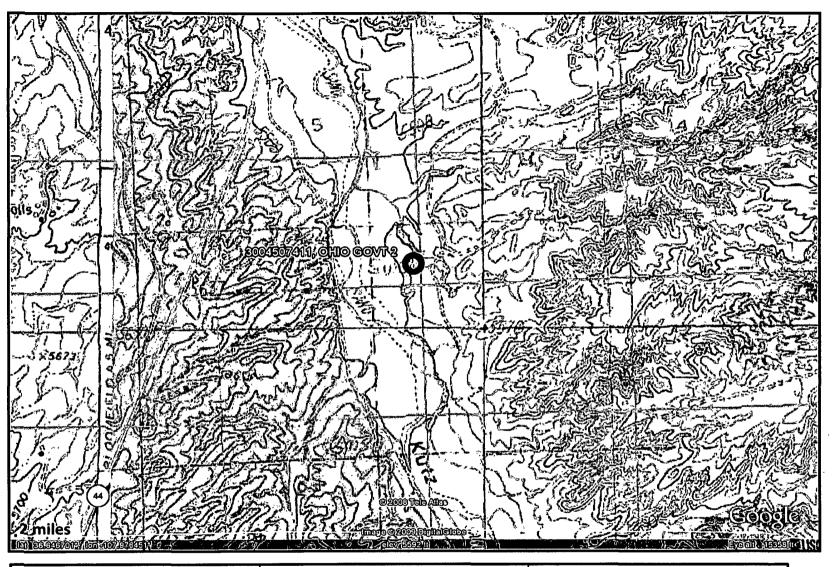
Depth to groundwater is estimated to be less than 50 feet. This estimation is based on data from Stone and others (1983), the USGS Groundwater Atlas of the United States and depth to groundwater data published on the New Mexico State Engineer's iWaters Database website. Local topography and proximity 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 depth s 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 Kutz Canyon, where deeply eroded sandstone-capped mesas and slope-forming mudstone occur in a sparsely vegetated and aird 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.

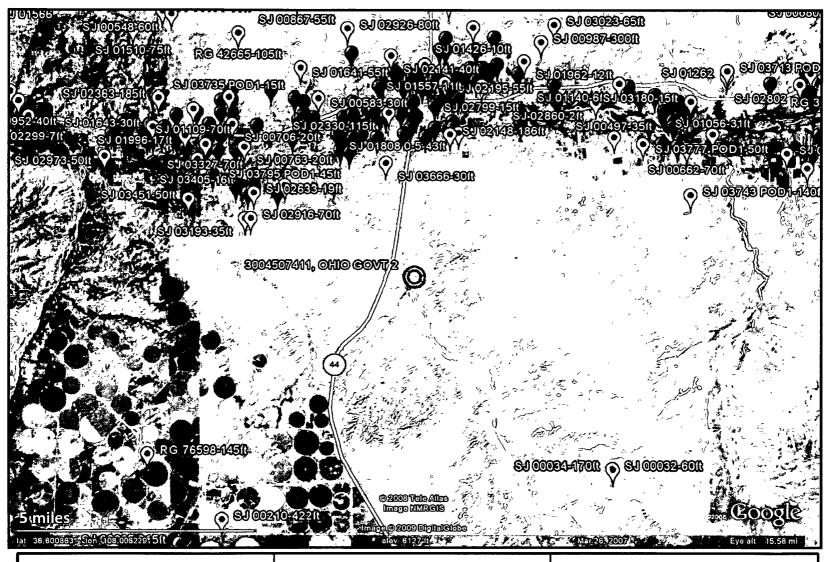
The pit will be located adjacent to Kutz Canyon at an elevation of approximately 5,521 feet approximately 922 feet east of Kutz Canyon. Ground water is expected to be shallow within Kutz Canyon. The floor of Kutz Canyon sits at 5,493 feet an elevation difference of approximately 30 feet exists between the site and the floor of Gallegos Canyon. The elevation difference of almost 30 feet between the proposed site and the floor of Kutz Canyon, suggests groundwater to be less than 50 feet at 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 locations of wells in reference to the proposed pit location is also attached. Water drops show locations of wells and the labels for each water drop indicate depth to groundwater in feet. The closest well to the site (SJ03666) is at an elevation of approximately of 5,518 feet and is located 2.42 miles to the north this well puts groundwater at 30 feet below the surface. However this site is not representative of the proposed site. The elevation difference of approximately 30 feet between the floor of Kutz Canyon and the proposed site should be used as the deciding factor on distance to groundwater in this case, seeing how the water wells surrounding the proposed sites cannot be used to accurately judge distance to groundwater. The observations made within this report suggest that groundwater is less than 50 feet deep at the proposed location.



Lodestar Services, Inc PO Box 4465 Durango, CO 81302 Ohio Govt #2 T28N,R11W,15P San Juan County , NM

**TOPOGRAPHIC MAP** 



Lodestar Services, Inc PO Box 4465 Durango, CO 81302 Ohio Govt #2 T28N,R11W,15P San Juan County , NM

i-Waters Ground Water Data Map

# AVERAGE DEPTH OF WATER REPORT 11/10/2008

							(Depth )	Water in	Feet)
Bsn	Tws	Rng Sec	Zone	X	Y	Wells	Min	Max	Avg
SJ	27N	10W 08				2	<b>6</b> 0	170	<b>1</b> 15

### AVERAGE DEPTH OF WATER REPORT 11/03/2008

					•		(Depth	Water in	Feet)
Bśn	Tws	Rng Sec	Zone	X	Y	Wells	Min	Max-	Avg
SJ	27N	13W 26		•	•	1	550	550	550

### AVERAGE DEPTH OF WATER REPORT 11/03/2008

	•						(Depth	Water in	Feet)
Bsn	Tws	Rng Sec	Zone	x	Y	Wells	Min	Max	Avg
RG	27N	12W 02				1	145	145	145
SJ	27N	1\210 13				4	177	422	306

#### AVERAGE DEPTH OF WATER REPORT 01/09/2009

							• •	Vater in	•
Bsn	Tws	Rng Sec	Zone	X	Y	Wells	Min '	Max	Avg
SJ	28N	09W 20				2	40	71	5€

Record Count: 2

#### AVERAGE DEPTH OF WATER REPORT 11/15/2008

							• • •	(Depth	Water in	Feet)
Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	Min	Max	Avg
RG	29N	10W	25				1	450	450	450
SJ	29N	10W	13				3	10	20	17
SJ	29N	10W	18				1	65	65	65
SJ	29N	10W	19				3	2	9	5
SJ	29N	10W	20				4 5	2	12	ε
SJ	29N	10W	21				5	7	30	17
SJ	29N	10W	22				1	20	20	20
SJ	29N	10W	23			•	1	16	16	16
SJ	29N	10W	24				3	20	34	28
SJ	29N	10W	25				1	12	12	12
SJ	29N	10W	26				1	4	4	4
SJ	29N	10W	27				1	31	31	31
SJ.	29N	10W	28	•			9	4	70	23
SJ	29N	10W	28	W	484600	2075600	1	20	20	20
SJ	29N	10W	29				1	35	35	35
SJ	29N	100	29		270344	2071311	1	50	50	50
SJ	29N	101	30				1	10	10	10
SJ	29N	10W	33				1	140	140	140
SJ	29N	10W	35				1	30	30	30
SJ	29N	10W	36				1	38	38	38

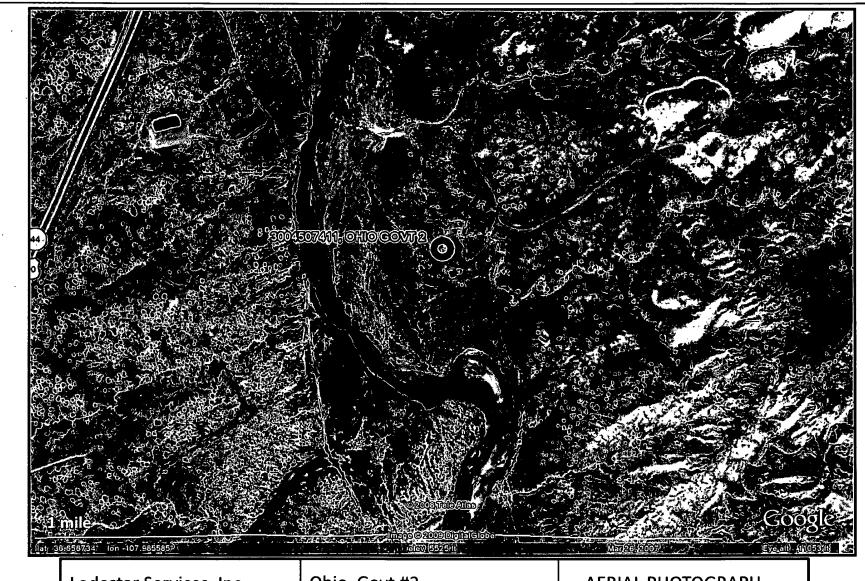
#### AVERAGE DEPTH OF WATER REPORT 11/10/2008

							(Depth	Water in	Feet)
Bsn	Tws	Rng Sec	Zone	X	Y	Wells	Min	Max	Avg
SJ	29N	11W 07				2	55	210	. 133
SJ	29N	11W 10				1	48	48	48
SJ	29N	11W 13				1	300	300	300
SJ	29N	11W 14				4	. 6	56	24
SJ	29N	11W 15				3	12	30	21
SJ	29N	11W 16				1	40	40	40
SJ	29N	11W 17				2	6	80	43
SJ	29N	11W 19				3	18	55	31
SJ	29N	11W 19		440000	2077700	1	6	6	ε
SJ	29N	11W 20				2	3	30	17
SJ	29N	11W 21				7	8	55	18
SJ	29N	11W 22				25	3	59	15
SJ	29N	11W 23				15	15	30	21
SJ	29N	11W 24				2	12	18	15
SJ	29N	11W 25				1	25	25	25
SJ	29N	11W 26		-		1	43	43	43
SJ	2 9 N	11W 27				20 .	6	186	29
SJ	29N	11W 28				9	5	115	27
SJ	29N	11W 28		267348	2075529	1	15	15	15
SJ	29N	11W 29	•			9	• 4	28	13
SJ	29N	11W 30				6	6	25	16
SJ	29N	11W 31				1	40	40	40
SJ	29N	11W 31		266438	2067001	1	45	45 -	45
SJ	29N	11W 33				1	30	30	30

Record Count: 119

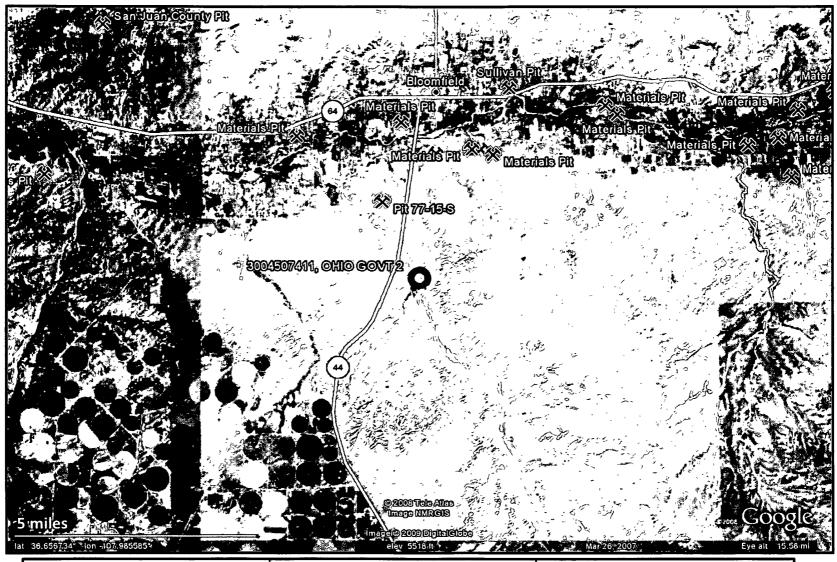
#### AVERAGE DEPTH OF WATER REPORT 10/21/2008

							•	(Depth	Water in	Pect)
Bsn	Tws	Rng	Sec	Sone	X	Y	Wells	Min	Max	λvg
RG	29N	127	01				2	35	40	38
RG	29N	12W	02				2	40	40	40
RG	29N	12W	73		•		1	105	105	105
SJ	29N	12%	01				1	120	120	120
9 <b>J</b>	29N	127	04				3	155	310	212
<b>9</b> J	29N	12W (	05				1	45	45	45
9 <i>J</i>	29N	1277	06				9	4	118	24
9 <i>J</i>	29N	12W	07				3	80	180	117
SJ	29N	127	oe				2	€0	€0	60
SJ	29N	12W .	10				1	175	175	175
9J	29N	127	14				1	60	€0	€0
9 <i>J</i>	29N	12W :	15				3	75	8€	60
9J	29N	12W :	19				9	2	40	18
SJ	29N	12W :	20				1	10	10	10
9J	29N	12W :	22				1	185	165	105
SJ	29N	12W 2	24			*	4	6	35	18
9J	29N	127	24	_	265819	20770€S	1	11	11	11
SJ	29N	127	25				13	3	40	16
SJ	29N	12W :	26				15	12	70	26
SJ	29N	127 3	26		265547	207221€	1	11	11	11.
SJ	29N	127	2 ć		265592	2072287	1	14	14	14
SJ	29N	127 2	27				31	É	48	. 21
SJ	29N	1277	27		264678	2071912	1	10	10	10
SJ	29N	127	28				3	23	25	24
SJ	29N	127	29				19	3	17	е
9J	29N	127	30				5	4	8	. 6
<b>9</b> J	29N	1297	33				2	35	50	43
SJ	29N		34				1	2	2	2
SJ	29H	12W :	35				5	4	50	17
3J	29N	127	3€				11		40	16



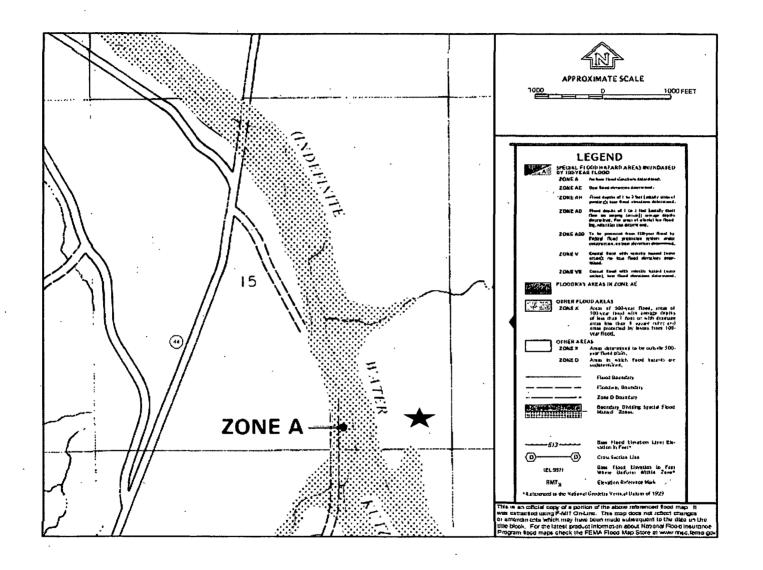
Lodestar Services, Inc PO Box 4465 Durango, CO 81302 Ohio Govt #2 T28N,R11W,15P San Juan County , NM

**AERIAL PHOTOGRAPH** 



Lodestar Services, Inc PO Box 4465 Durango, CO 81302 Ohio Govt #2 T28N,R11W,15P San Juan County , NM

Mines and Quarries Map



# 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.

# 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.

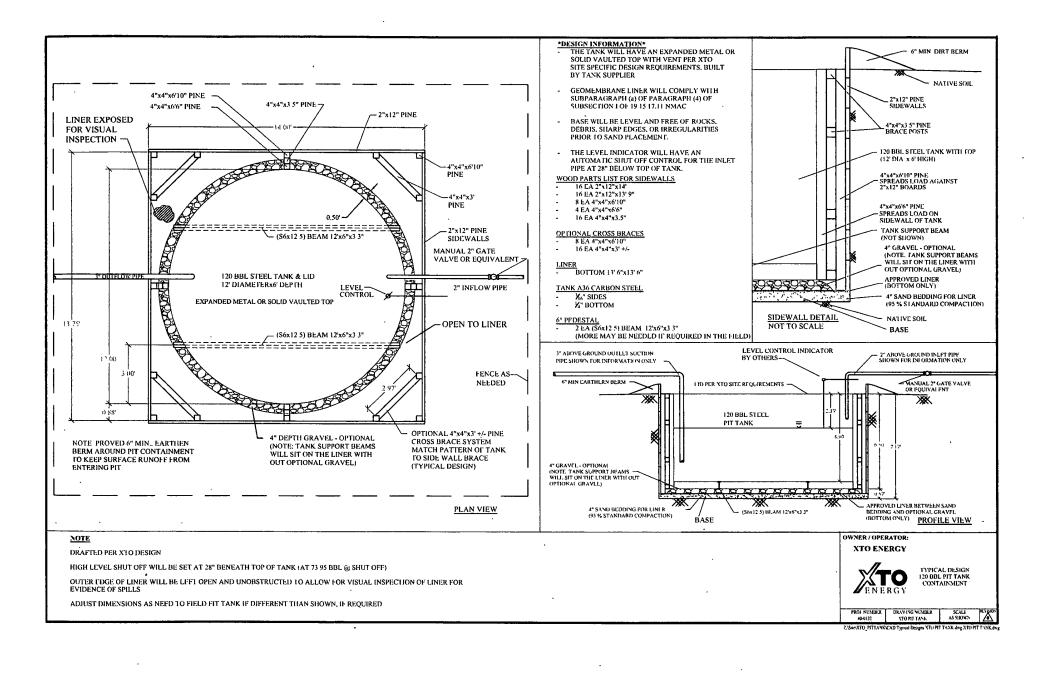
#### General Plan

- 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 1/4" 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).

- 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.
- 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.

MONTHLY BELOW GRADE TANK INSPECTION FORM									
Well Name:									
Legals .	Sec:	<del></del>	Township:		Range:				
XTO Inspector's	Inspection	Inspection	Any visible liner	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)	
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Notes:	Provide De	tailed Descri	ption:			,			
Misc:									
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