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

Type of action:

State of New Mexico
Energy Minerals and Natural Resources
Department
Oil Conservation Division
1220 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 the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

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

X 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
1. Operator: XTO ENERGY, INC. OGRID #: 5380
Address: #382 County Road 3100, Aztec, NM 87410
Facility or well name: Apache Federal #14
API Number: 30-039-05514 OCD Permit Number:
U/L or Qtr/Qtr D Section 18 Township 24N Range 5W County: Rio Arriba
Center of Proposed Design:         Latitude         36.31818         Longitude         107.40873         NAD:         1927         1983
Surface Owner: X Federal State Private Tribal Trust or Indian Allotment
Pit: Subsection F or G of 19.15.17.11 NMAC     Permanent   Drilling   Workover     Permanent   Emergency   Cavitation   P&A     Lined   Unlined Liner type: Thickness   mil   LLDPE   HDPE   PVC   Other     String-Reinforced     Liner Seams:   Welded   Factory   Other   Volume:   bbl Dimensions: L   x W   x D     3.   Closed-loop System: Subsection H of 19.15.17.11 NMAC     Type of Operation:   P&A   Drilling a new well   Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent)     Drying Pad   Above Ground Steel Tanks   Haul-off Bins   Other     Lined   Unlined Liner type: Thickness   mil   LLDPE   HDPE   PVC   Other     Liner Seams:   Welded   Factory   Other   Workover   Other   Captavaries (St.)     Drying Pad   Above Ground Steel Tanks   Haul-off Bins   Other     Liner Seams:   Welded   Factory   Other   Workover   Other   Captavaries (St.)     Drying Pad   Above Ground Steel Tanks   Haul-off Bins   Other   Captavaries (St.)     Drying Pad   Above Ground Steel Tanks   Haul-off Bins   Other   Captavaries (St.)     Drying Pad   Above Ground Steel Tanks   Haul-off Bins   Other   Captavaries (St.)     Drying Pad   Above Ground Steel Tanks   Haul-off Bins   Other   Captavaries (St.)     Drying Pad   Above Ground Steel Tanks   Haul-off Bins   Other   Captavaries (St.)     Drying Pad   Above Ground Steel Tanks   Haul-off Bins   Other   Captavaries (St.)     Drying Pad   Above Ground Steel Tanks   Haul-off Bins   Other   Captavaries (St.)     Drying Pad   Above Ground Steel Tanks   Haul-off Bins   Other   Captavaries (St.)     Drying Pad   Above Ground Steel Tanks   Haul-off Bins   Other   Captavaries (St.)     Drying Pad   Above Ground Steel Tanks   Haul-off Bins   Other   Captavaries (St.)     Drying Pad   Above Ground Steel Tanks   Haul-off Bins   Other   Captavaries (St.)     Drying Pad   Above Ground Steel Tanks   Captavaries (St.)     Drying Pad   Above Ground Steel Tanks   Captavaries (St.)     Drying Pad   Above Ground Steel Tanks   Captavaries (St.)     Dry
X  Below-grade tank: Subsection I of 19.15.17.11 NMAC  Volume: 120 bbl Type of fluid: Produced Water OIL CONS. DIV. DISE 3
Tank Construction material: Steel  Secondary containment with leak detection Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☒ Other Visible sidewalls, secondary containment, automatic overflow shut off
Liner type: Thicknessmil
5. Alternative Method:
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.
·

6.  Fencing: Subsection D of 19.15.17.11 NMAC (Applies to permanent pits, temporary pits, and below-grade tanks)									
Chain link, six feet in height, two strands of barbed wire at top (Required if located within 1000 feet of a permanent residence, school, standard of the strandard of the stran	hospital,								
institution or church)  [X] Four foot height, four strands of harhed wire evenly spaced between one and four feet									
Four foot height, four strands of barbed wire evenly spaced between one and four feet  Alternate. Please specify									
7.									
Netting: Subsection E of 19.15.17.11 NMAC (Applies to permanent pits and permanent open top tanks)									
☐ Screen ☐ Netting ☐ Other									
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									
El organo in companio with 15/15/5/105 Private									
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	office for								
consideration of approval. Fencing- Hogwire  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 accep material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate the complex control of the c	table source priate district								
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	pproval.								
above-grade tanks associated with a closed-loop system.	ing paus 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 X 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									
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.	Yes No								
(Applies to temporary, emergency, or cavitation pits and below-grade tanks)  - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	∐ NA								
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)	X NA								
<ul> <li>Visual inspection (certification) of the proposed site; Aerial photo; Satellite image</li> <li>Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock</li> </ul>	Yes X No								
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									
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	☐ ICS ☑ IVO								
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	☐ Yes 🛛 No								
Society; Topographic map Within a 100-year floodplain.									
- FEMA map	Yes X 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   Previously Approved Design (attach copy of design)   API Number: or Permit Number:
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:   (Applies only to closed-loop system that use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)
13.   Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC   Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.   Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC   Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC   Climatological Factors Assessment   Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC   Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC   Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC   Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC   Quality Control/Quality Assurance Construction and Installation Plan   Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC   Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC   Nuisance or Hazardous Odors, including H <sub>2</sub> S, Prevention Plan   Emergency Response Plan   Oil Field Waste Stream Characterization   Monitoring and Inspection Plan   Erosion Control Plan   Erosion Control Plan   Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC
14.   Proposed Closure: 19.15.17.13 NMAC   Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.    Type:   Drilling   Workover   Emergency   Cavitation   P&A   Permanent Pit   Below-grade Tank   Closed-loop System   Alternative
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 Stee Instructions: Please indentify the facility or facilities for the disposal of liquids, drill facilities are required.	Tanks or Haul-off Bins Only: (19.15.17.13. Eing fluids and drill cuttings. Use attachment if n	NMAC) nore than two								
Disposal Facility Name: Dis	Disposal Facility Permit Number:									
Disposal Facility Name: Disposal Facility Permit Number:										
Will any of the proposed closed-loop system operations and associated activities occur on or in areas that will not be used for future service and operations?  Yes (If yes, please provide the information below)  No										
Required for impacted areas which will not be used for future service and operations:  Soil Backfill and Cover Design Specifications based upon the appropriate req Re-vegetation Plan - based upon the appropriate requirements of Subsection I of Site Reclamation Plan - based upon the appropriate requirements of Subsection C	19.15.17.13 NMAC	2								
Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC Instructions: Each siting criteria requires a demonstration of compliance in the clos provided below. Requests regarding changes to certain siting criteria may require acconsidered an exception which must be submitted to the Santa Fe Environmental Budemonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for g	ministrative approval from the appropriate disti reau 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 ob	ained 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 ob	ained 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 obtained from nearby wells										
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significal lake (measured from the ordinary high-water mark).  - Topographic map; Visual inspection (certification) of the proposed site	ant watercourse or lakebed, sinkhole, or playa	☐ Yes ☐ No								
Within 300 feet from a permanent residence, school, hospital, institution, or church in e 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										
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										
Within 500 feet of a wetland.  - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site										
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 & Society; Topographic map	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 following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.  Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC  Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC  Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of 19.15.17.11 NMAC  Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.13 NMAC  Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC  Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC  Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC  Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)  Soil Cover Design - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC  Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC										

Operator Application Certification:  I hereby certify that the information submitted with this application is true, accur-	ate and complete to th	e hest of my knowledge and helief
Name (Print): Kim Champlin	Title:	Environmental Representative
Signature: Kim Champlin	Date:	August 26, 2008
		(505) 333-3100
20. OCD Approval: ☑ Permit Application (including closure plan) ☐ Closure Pl	lan (only) 🔲 OCD	Conditions (see attachment)
OCD Representative Signature:	the state of the s	Approval Date: 10-7-08
Title: Enviro/spec	OCD Permit Num	ber:
Closure Report (required within 60 days of closure completion): Subsection Instructions: Operators are required to obtain an approved closure plan prior to The closure report is required to be submitted to the division within 60 days of to section of the form until an approved closure plan has been obtained and the closure plan prior to the plan has been obtained and the closure plan prior to the plan prior	to implementing any of the completion of the losure activities have to	closure activities and submitting the closure report. closure activities. Please do not complete this been completed.
	Closure Com	pietion Date:
Closure Method:  Waste Excavation and Removal On-Site Closure Method Alternal If different from approved plan, please explain.	ative Closure Method	☐ Waste Removal (Closed-loop systems only)
23.  Closure Report Regarding Waste Removal Closure For Closed-loop Systems Instructions: Please indentify the facility or facilities for where the liquids, dril two facilities were utilized.		
Disposal Facility Name:	Disposal Facility Po	ermit Number:
Disposal Facility Name:	Disposal Facility Pe	ermit Number:
Were the closed-loop system operations and associated activities performed on or Yes (If yes, please demonstrate compliance to the items below) No	in areas that will not	be used for future service and operations?
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	ions:	
Closure Report Attachment Checklist: Instructions: Each of the following it	ems must be attached	to the closure report. Please indicate, by a check
mark in the box, that the documents are attached.  Proof of Closure Notice (surface owner and division)  Proof of Deed Notice (required for on-site closure)  Plot Plan (for on-site closures and temporary pits)  Confirmation Sampling Analytical Results (if applicable)  Waste Material Sampling Analytical Results (required for on-site closure)  Disposal Facility Name and Permit Number  Soil Backfilling and Cover Installation  Re-vegetation Application Rates and Seeding Technique  Site Reclamation (Photo Documentation)		
	ude	NAD: □1927 □ 1983
Operator Closure Certification:  I hereby certify that the information and attachments submitted with this closure rebelief. I also certify that the closure complies with all applicable closure requirem		
Name (Print):	Title:	
Signature:	Date:	
e-mail address:	Telephone:	

# NEW MEXICO OIL CONSERVATION COMMISSION Well Location and Acreage Dedication Plat

SECTION A.				Date	
- •	lf Oil Corporation		Lease Apach		***
	Unit Letter				NMPM
	Feet From			_	Line
				ed Acreage **** N 3,2/.4	/ Acres
Name of Produci	ing Formation		Pool		· · <u></u>
<ol> <li>Is the Operat</li> </ol>	tor th <b>e onl</b> y owner* in th	e dedicated acre	age outlined on the pla	t below? Yes 👢 💎 No 🖫	
	er to question One is "Nor otherwise? Yes			e of Consolidated by commun	
3. If the answe	er to question Two is "N	lo," list all the c	owners and their respec	ctive interests below.	
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SECTION B.				OIL CON 1961	:
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# Pit Permit Siting Criteria Information Sheet

Client:	XTO Energy	
Project:	Pit Permits	
Revised:	8/20/2008	
Prepared by:	Ashley Ager	

To bux 4400, but angu,	00 01302	Information Shee	t Prepared by:	Ashley Ager
API#:		30-039-05514	USPLSS:	T24N, R5W,S18D
Name:	Ар	eache Fedeeral 14	Lat/Long:	36.318189045, -107.408735963
Depth to groundwater:		>100'	Geologic formation:	San Jose Formation
Distance to closest continuously flowing watercourse:		es to the San Juan river		
Distance to closest significant watercourse, lakebed, playa lake, or sinkhole:	1,800	ft N to Canada Larga small (211ftx140ft) pond		
Permanent residence, school, hospital, institution or church within 300'		No	Soil Type:	Entisol
			Annual Precipitation:	10.88 inches
Domestic fresh water well or spring within 500'		No	Precipitation Notes:	No significant precip event on record
Any other fresh water well or spring within 1000'		No		
Within incorporated municipal boundaries Within defined		No	Attached Documents:	
municipal fresh water well field		No		
Wetland within 500'		No	Mining Activity:	None
Within unstable area		No		
Within 100 year flood plain		FEMA data available		:
Additional Notes:			1	

## Apache Federal #14 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 situated on the Jicarilla Apache Reservation towards the southern terminus of Largo Canyon. Regional topography is composed of mesas dissected by deep, narrow canyons and arroyos. The cliff-forming sandstones are more resistant than the shales, but eventually weather into their composite sands; the shale weathers into silts and clays, resulting in a highly erodible landscape and an abundant sediment supply (Brister and Hoffman, 2002). Accumulations of talus and colluvial sediment at the base of the canyon walls form steep to gentle slopes that transition into flat-bottomed arroyos within the canyons. The predominant geologic formation at the proposed site is the San Jose Formation of Teritary Age, which is exposed as interbedded sandstones and mudstones (Dane and Bachman, 1965). Thickness of the San Jose Formation ranges from 200 to 2700 feet (Stone et al., 1983) and generally increases towards the center and eastern portions of the basin.

Cretaceous and Tertiary sandstones, as well as Quaternary alluvial deposits serve as the primary aquifers in the San Juan Basin (Stone et al., 1983). Aquifers within the San Jose Formation occur in alluvial and fluvial sandstone deposits. Reported discharge from 46 water wells completed in the San Jose Formation ranges from 0.15 to 61 gallons per minute, with a median of 5 gallons per minute (Stone et al., 1983). Most of the wells provide water for livestock and domestic use.

The prominent soil type at the proposed site is Entisol, meaning there is little to no soil development and it is basically unaltered from the parent rock material (www.emnrd.state.nm.us). What soil exists is very sandy, highly permeable and easily eroded. 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 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

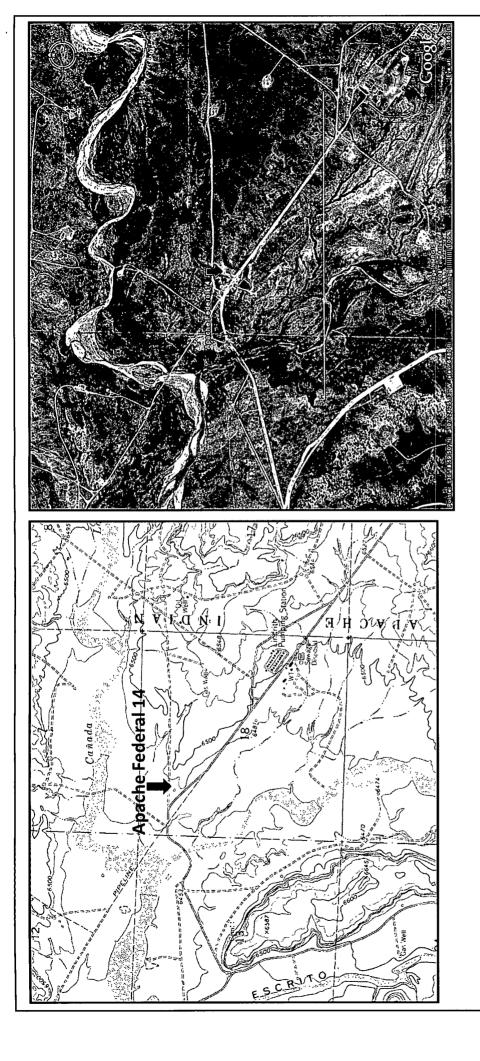
Depth to groundwater is estimated to be greater than 100 feet. This estimation is based on data from Stone and others (1983), the USGS Groundwater Atlas of the United States and depth to groundwater data published on the New Mexico State Engineer's iWaters Database website. Local topography and proximity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

Beds of water-yielding sandstone are present in the San Jose Formation, which are fluvial and alluvial in origin and are interbedded with siltstone and mudstone. Porous sandstones form the principal aquifers, while relatively impermeable shales form confining units between the aquifers (Stone et al., 1983). Outcrops of sandstone are dissected by deep, narrow canyons and their tributaries, as shown on the attached aerial image.

This rural site location does not contain an abundant amount of groundwater elevation data. Groundwater data available from the NM State Engineer's iWaters Database for wells near the proposed site are attached. Wells located at similar elevations along Largo Canyon and Canada Larga contain groundwater greater than 200 feet deep.

The site in question is located at an elevation of approximately 6467 feet. It is approximately 1800 feet south of Canada Larga, where groundwater is estimated to be shallow. However, the distance between the site and the wash suggests groundwater at the site is much deeper.

There is a pond located 340 feet south of the site. The pond is evident on aerial photographs, but does not appear on topographic maps. It is not noted on the New Mexico State Engineer's iWaters database. The pond is likely manmade and associated with oil and gas operations in the area.



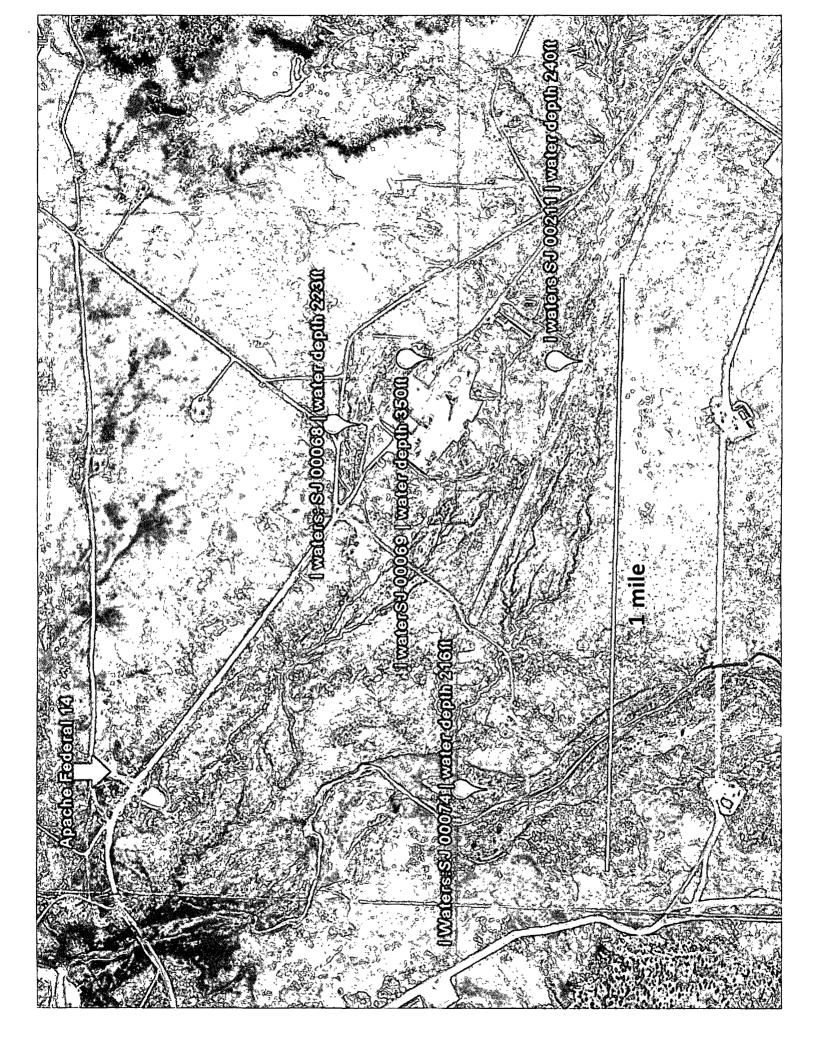
TOPOGRAPHIC MAP AND AERIAL PHOTOGRAPH

Rio Arriba county, NM Apache Federal 14 T24N, R5W, S18D

Lodestar Services, Inc

PO Box 4465 Durango, CO 81302





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

POD / Surface Data ReportAvg Depth to Water ReportWater Column Report

#### WATER COLUMN REPORT 08/19/2008

## (quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are biggest to					smalles	smallest)			Depth	Water	(in	feet)				
PO	D Number	T.	ws	Rng	Sec	q	q	q	Zone	x	Y	Well	Water	Column		
SJ	00074	2	4 N	05W	18	3	3	2				1004	216	788		
SJ	00068	2	4 N	05W	18	4	2	1				789	223	566		
SJ	00069	2	4 N	05W	18	4	2	1				795	350	445		
SJ	00211	2	4 N	05W	18	4	4	4				800	240	560		

Record Count: 4

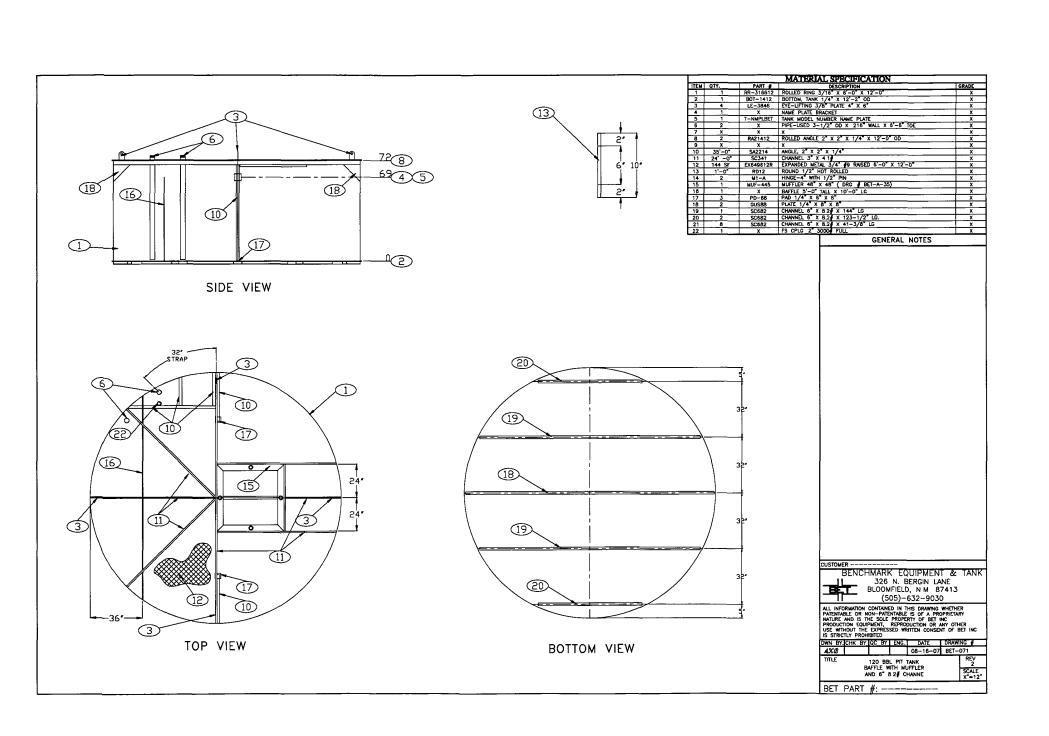
# XTO Energy Inc. San Juan Basin

# · Below Grade Tank Design and Construction Plan

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 (BGT) which does not conform to this plan.

#### General Plan

- XTO will design and construct a BGT to contain liquids and solids and prevent contamination of fresh water and protect public heath and environment.
- Prior to constructing the pit, topsoil will be stockpiled in the construction zone for later use in restoration.
- 3. XTO will post a well sign, in compliance with 19.15.3.103 NMAC, on the well site prior to construction of the BGT. 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.
- 4. XTO shall construct all new fences utilizing 48" steel mesh field-fence (hogwire) on the bottom with two strands of barbed wire on top, or with a pipe top rail. A 6' chain link fence topped with three stands of barbed wire will be used if the well location is within 1000' of a permanent residence, school, hospital, institution or church.
- 5. XTO shall construct an expanded metal covering on top of the BGT.
- 6. XTO will ensure that a BGT is constructed of materials resistant to the BGT's particular contents and resistant to damage from sunlight.
- 7. The BGT 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.
- 8. XTO will construct a BGT in a manner that prevents the collection of surface water run-on.
- 8. XTO will construct and use BGT that does not have double walls. The BGT sidewalls will be open for visual inspection for leaks, the BGT bottom will be elevated a minimum of 6" above the underlying ground surface and the BGT will be underlain with a geomembrane liner to divert leaked liquid to a location that can be visually inspected.
- 9. XTO will equip BGT's designed in this manner with a properly functioning automatic high-level shut-off control device and manual controls to prevent overflows.
- 10. The geomembrane liner shall consist of 30-mil flexible PVC or 60-mil HDPE liner, or an equivalent liner material that the appropriate division district office approves. The geomembrane liner shall have a hydraulic conductivity greater that 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 acidic and alkaline solutions. The liner material shall be resistant to ultraviolet light. Liner compatibility shall comply with EPA SW-846 method 9090A.
- 11. The general specifications for design and construction are attached.



# XTO Energy Inc. San Juan Basin Below Grade Tank Maintenance and Operating Plan

In accordance with Rule 19.15.17.11 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 (BGT) which does not conform to this plan.

#### **General Plan**

- 1. XTO will operate and maintain a BGT to contain liquids and solids and prevent contamination of fresh water and protect public heath and environment.
- 2. XTO will not allow a BGT to overflow or allow surface water run-on to enter the BGT.
- 3. XTO will continuously remove any visible or measurable layer of oil from the fluid surface of a BGT in order to prevent significant accumulation of oil.
- 4. XTO will inspect the BGT monthly and maintain written records for five years.
- 5. XTO will maintain adequate freeboard to prevent overtopping of the BGT.

# XTO Energy Inc. San Juan Basin Below Grade Tank Closure Plan

In accordance with Rule 19.15.17.11 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 (BGT) which does not conform to this plan.

#### General Plan

- XTO will close a BGT 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 an existing BGT 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 BGT within 60 days of cessation of the BGT'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 a BGT prior to implementing a closure method and will dispose of the liquids and sludge in a division-approved facility.
- 5. XTO will remove the BGT and dispose of it in a division approved facility or recycle, reuse, or reclaim it in a manner that the appropriate division district office approves.
- 6. XTO will remove any on-site equipment associated with a BGT unless the equipment is required for some other purpose.
- 7. XTO will test the solids beneath the BGT 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 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 will be given to the Aztec Division District III office between 72 hours and one week of closure via email or verbally. The notification will include the following:
  - i. Operator's name
  - Location by Unit Letter, Section, Township, and Range. Well name and API number.

- 11. All closure activities will include proper documentation and be available for review upon request and will be submitted to OCD within 60 days of closure of the BGT. Closure report will be filed on form C-144 and incorporate the following:
  - i. Details on capping and covering, where applicable
  - ii. Inspection reports
  - iii. Sampling results
- 12. 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.
- 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.
- 14. A minimum of 4' of cover shall be achieved and the cover shall include 1' of suitable material to establish vegetation at the site, or the background thickness of topsoil, whichever is greater.
- 15. The surface owner shall be notified of XTO's proposal to close the BGT as per the approved closure plan using certified mail, return receipt requested.