Form C-144 July 21, 2008

District I	State of New Mexico
1625 N. French Dr., Hobbs, NM 88240	Energy Minerals and Natural Resources
District II 1301 W. Grand Avenue, Artesia, NM 88210	Department
District III	Dil Conservation Division
District IV	1220 South St. Francis Dr.
1220 S. St. Francis Dr., Santa Fe, NM 87505	PM 12 45 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

Prop	osed Alternative Method Pe	rmit or Closure Plan	Application
Type of action Existing BGT below-grade ta	Permit of a pit, closed-loop system Closure of a pit, closed-loop system Modification to an existing perm Closure plan only submitted for nk, or proposed alternative method	tem, below-grade tank, or pronit	oposed alternative method
Instructions: Please subn	nit one application (Form C-144) per indiv	idual pit, closed-loop system, be	elow-grade tank or alternative request
	request does not relieve the operator of liabili ve the operator of its responsibility to comply		ution of surface water, ground water or the nental authority's rules, regulations or ordinances.
Operator: XTO Energy Inc		OGRID #:	5380

Address: #382 County Road 3100, Aztec, NM 87410
Facility or well name: Florance D #14
API Number: 30-045-06347 OCD Permit Number:
U/L or Qtr/Qtr M Section 21 Township 27N Range 08W County: San Juan
Center of Proposed Design: Latitude36.554770 Longitude107.696150 NAD: ☐1927 ☒ 1983
Surface Owner: ☑ Federal ☐ State ☐ Private ☐ Tribal Trust or Indian Allotment
2.
Pit: Subsection F or G of 19.15.17.11 NMAC
Temporary: Drilling Workover
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A
Lined Unlined Liner type: Thicknessmil 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: 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: 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.

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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 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 of	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	table novemen
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 the complex control of the control of the complex control of the complex control of the c	
office 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.	
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).	☐ Yes ☒ No
- 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 ☐ NA
(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) Visual inspection (certification) of the proposed site; Aerial photo; Satellite image 	⊠ NA
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock	☐ Yes ⊠ 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.	
- 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.	☐ Yes ⊠ No
- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	
Within a 100-year floodplain FEMA map	☐ Yes ⊠ No

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11. Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.
Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC
and 19.15.17.13 NMAC
☐ Previously Approved Design (attach copy of design) API Number: or Permit Number:
12.
Closed-loop Systems Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.
Geologic and Hydrogeologic Data (only for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9 Siting Criteria Compliance Demonstrations (only for on-site closure) - based upon the appropriate requirements of 19.15.17.10 NMAC Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC
Previously Approved Design (attach copy of design) API Number:
Previously Approved Operating and Maintenance Plan API Number: (Applies only to closed-loop system that use
above ground steel tanks or haul-off bins and propose to implement waste removal for closure)
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 Cilimatological 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 ₂ 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
<u>Proposed Closure</u> : 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 I of 19.15.17.13 NMAC
Site Reclamation 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 Steel Tanks or Haul-off Bins Only: (19.15.17.13.I 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 service and operation Yes (If yes, please provide the information below) No					
Required for impacted areas which will not be used for future service and operations: Soil Backfill and Cover Design Specifications based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC	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 closure plan. Recommendations of acceptable sour provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate disting considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Justif demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for guidance.	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 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 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 obtained from nearby wells	☐ Yes ☐ No ☐ NA				
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - 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					
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				
On-Site Closure Plan Checklist: (19.15.17.13 NMAC) Instructions: Each of the following items must be attached to the closure plan 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. 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 cann 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	s true, accurate and complete to the	ne best of my knowledge and belief.
Name (Print): Kim Champlin	Title:	Environmental Representative
Signature: Kim Champlin	Date:	12/11/08
	Telephone:	(505) 333-3100
20. OCD Approval: Permit Application (including closure plan)	Closure Plan (only) \(\square \) OCD	Conditions (see attachment)
OCD Representative Signature:		
Title:		ber:
Closure Report (required within 60 days of closure completion): Instructions: Operators are required to obtain an approved closure The closure report is required to be submitted to the division within section of the form until an approved closure plan has been obtained	plan prior to implementing any of the days of the completion of the dand the closure activities have	closure activities and submitting the closure report. closure activities. Please do not complete this
		piction Batc.
22. Closure Method: ☐ Waste Excavation and Removal ☐ On-Site Closure Method ☐ If different from approved plan, please explain.	☐ Alternative Closure Method	☐ Waste Removal (Closed-loop systems only)
Closure Report Regarding Waste Removal Closure For Closed-lo Instructions: Please indentify the facility or facilities for where the two facilities were utilized.	op Systems That Utilize Above liquids, drilling 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 Po	ermit Number:
Disposal Facility Name:		ermit Number:
Were the closed-loop system operations and associated activities performed Yes (If yes, please demonstrate compliance to the items below)	ormed on or in areas that will not	
Required for impacted areas which will not be used for future service Site Reclamation (Photo Documentation) Soil Backfilling and Cover Installation Re-vegetation Application Rates and Seeding Technique	and operations:	
Closure Report Attachment Checklist: Instructions: Each of the smark 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-si Disposal Facility Name and Permit Number Soil Backfilling and Cover Installation Re-vegetation Application Rates and Seeding Technique Site Reclamation (Photo Documentation)	te closure)	
On-site Closure Location: Latitude	Longitude	NAD: □1927 □ 1983
Operator Closure Certification: I hereby certify that the information and attachments submitted with the belief. I also certify that the closure complies with all applicable closure.	nis closure report is true, accurate are requirements and conditions s	and complete to the best of my knowledge and epecified in the approved closure plan.
Name (Print):	Title:	
Signature:	Date:	
e-mail address:	Telephone:	

FEBRUARY 6, 1958

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El Paso Matural Gas Company

Original Signed D. C. John See

Farmington, New Mexico

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Particular New Mexico

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A Lodestar Service	s Inc P	it Permit	Project:	tank permitting
10 Bez 4465, Durang	CiAi	ng Criteria	Revised:	22-Aug-08
TU Dex 4403, Der ang	, w 01302	nation Sheet		Trevor Ycas
V				
API#:	30-045-06	347	USPLSS:	27N 08W 21 M
Name:	FLORANCE D	No. 014	Lat/Long:	36.554770, -107.696150
Depth to groundwater:	>100'		Geologic formation:	Nacimiento Formation (Tn)
Distance to closest continuously flowing watercourse:	~13 miles NW to 'Sa	an Juan River'		
Distance to closest significant watercourse, lakebed, playa lake, or sinkhole:	9372' E to 'Can	on Largo'		
			Soil Type:	Rockland
Permanent residence, school, hospital, institution or church within 300'	NO		·	
_			Annual Precipitation:	Bloomfield: 8.71", Navajo RSVR: 11.11", Governador: 11.98"
Domestic fresh water well or spring within 500'	NO		Precipitation Notes:	Extreme historical daily max: 4.19", Bloomfield
Any other fresh water well or spring within 1000'	NO		•	
Within incorporated municipal boundaries	NO		Attached Documents:	26N07W_iWaters.pdf, 26N08W_iWaters.pdf, 26N09W_iWaters.pdf, 27N07W_iWaters.pdf, 27N08W_iwaters.pdf
Within defined municipal fresh water well field	NO		FM3500640750B_FL ORANCE-D-No- 014.jpg	Florance D #14C.Revised plats.pdf, FLORANCE-D-No- 014_gEarth-PLS.jpg, FLORANCE-D-No-014_topo-PLS.jpg, FLORANCE-D-No-014_gEarth-iWaters.jpg
Wetland within 500'	NO		Mining Activity:	None Near
Within unstable area	NO			
Within 100 year flood plain	NO - FEMA Z	one 'X'		
Additional Notes:				
drains to 'Canon Largo'	located near the cliffband(~4		1914m elevation	located in 'Onofre Jaquez Canyon'

Florance D #14 Below Grade 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 in the Blanco Mesa region of the San Juan Basin near the upper reaches of Onofre Jaquez Canyon. 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 particular 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 is rockland, which is defined as sparse soil cover, intermixed with exposed parent rock, exhibiting little to no profile development (www.emnrd.state.nm.us). Any soils present 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 and prohibits effective recharge to the underlying aquifers.

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

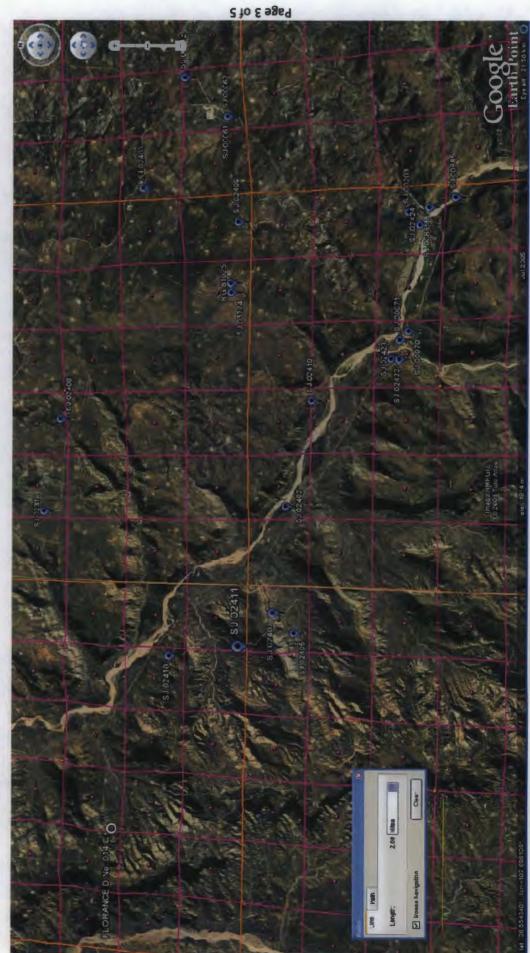
The predominant vegetation is sagebrush and grasses with a more restricted pinon-juniper association (Dick-Peddie, 1993).

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. Specifically, data from NM iWaters sites numbered SJ02405 (100' depth to water) and RG62248 (147' depth to water) and site elevation in reference to adjacent channel features are used to deduce a reasonable approximation for depth to groundwater.

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

The site in question is located at an elevation of 6280 feet in the uppermost extent of Onofre Jacquez Canyon, where mesa-forming San Jose sandstones are slowly being eroded to expose shales and thinner sandstones of the Nacimiento Formation. Prominent, stepped mesas are interspersed with systems of dry washes and their tributaries as evident on the attached aerial image. Onofre Jaquez Canyon is a tributary of Largo Canyon, which is approximately 9370 feet west of the proposed site. Groundwater is expected to be shallow within Largo Canyon. But an elevation difference between the site and the base of Largo Canyon of roughly 380 feet suggest groundwater is deeper at the proposed site. Additionally, groundwater wells located at similar elevations along Largo Canyon tributaries contain groundwater between 100 and 147' feet deep. A map showing the location of wells in reference to the proposed pit location is attached. Groundwater data available from the NM State Engineer's iWaters Database for wells near the proposed site are also attached.



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WATER COLUMN REPORT 08/07/2008

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WATER COLUMN REPORT 08/06/2008

	(quarters	are	THE	3	A L	1	SW 4=SE							
	(quarters are biggest to smallest)	are	big	ges	t t	0	nallest)			Depth	Depth	Water	(in	feet)
POD Number	TWS	Rng	Sec	0	0	Z	one	×	×	Well	Water	Column		
7 02409	26N	MLO	01	1 2	7					700	400	300		
1 02402	26N	MLO	05	3	7					36	18	18		
1 00071	26N	MLO	15	4 1	7					365	26	339		
J 00070	26N	07W	15	4	3					335	22	313		
7 02406	26N	ML0	30	3	1					280	180	100		

Record Count: 5

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nge: 08W Sections:	Y: Zone:		(Last)	aport Avg Depth to	Clear Form WATERS Menu Help
Township: 27N Range: 08W	727 X:	Basin:	: (First)	POD / Surface Data Report	٥
	NAI	County:	Owner Name:		

WATER COLUMN REPORT 08/04/2008

	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are biggest to smallest)	are	1=N	3 0	ZHN	E O	=SW 4=SE) smallest)			Depth		Water	in (in	feet)
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			Domestic (A)	F	
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Sections:	Zone:	Number:		POD / Surface Data Report Avg Depth to Water Report Water Column Report	Clear Form iWATERS Menu Help
Township: 27N Range: 07W	X:	Basin:	(Last)	e Data Report Avg	Clear Form
Township: 27	NAD27 X:	County:	Owner Name: (First)	POD / Surface	

WATER COLUMN REPORT 08/04/2008

Pod Number Tws Rng Sec q q q Zone X Well Water Column RG 81025 27N 07W 35 4 3 3 200195 560 465 95 SJ 02314 27N 07W 17 3 3 355 320 1133 SJ 02408 27N 07W 21 2 1 3 400 300 100 SJ 03274 27N 07W 35 4 3 3 450 300 100 SJ 02408 27N 07W 35 4 3 3 450 250 250 300		(quarters	are	LIEN	W 2	=NE	3=SW 4=SE	•						
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	J 02404	27N	07W	35	4 3	6				550	250	300		

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Tov	NAD27 X:	County:	Owner Name: (F	8	

WATER COLUMN REPORT 08/08/2008

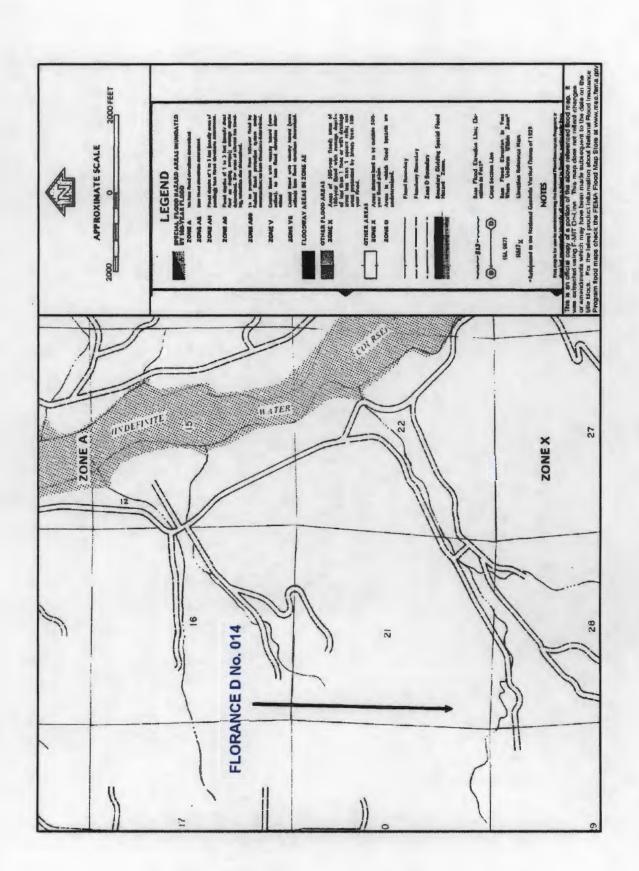
	(quarters	are	1=N	3	=NE	3=SW 4=SE	•						
		are	big	96	it to	smallest	•		Depth	Depth	Water	(in	feet)
POD Number	Tws	Rng	Sec	5	5	Zone	×	×	Well	Water	Column		
SJ 02961	26N	M60	01	2	3				1500				
SJ 02962	26N	M60	01	3	3				1500		1		
SJ 01756	26N	M60	11	2	3				75	40	35		
SJ 03811 POD1	26N	M60	12	3	3				348	175	173		
SJ 00412	26N	M60	16	4 2					202	65	137		
SJ 00214	26N	M60	26	2 4	4 2				946	230	716		
SJ 00064	26N	M60	26	4 2	1				490	215	275		
SJ 00063		M60	26	4	3				479	234	245		

Record Count: 8

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

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

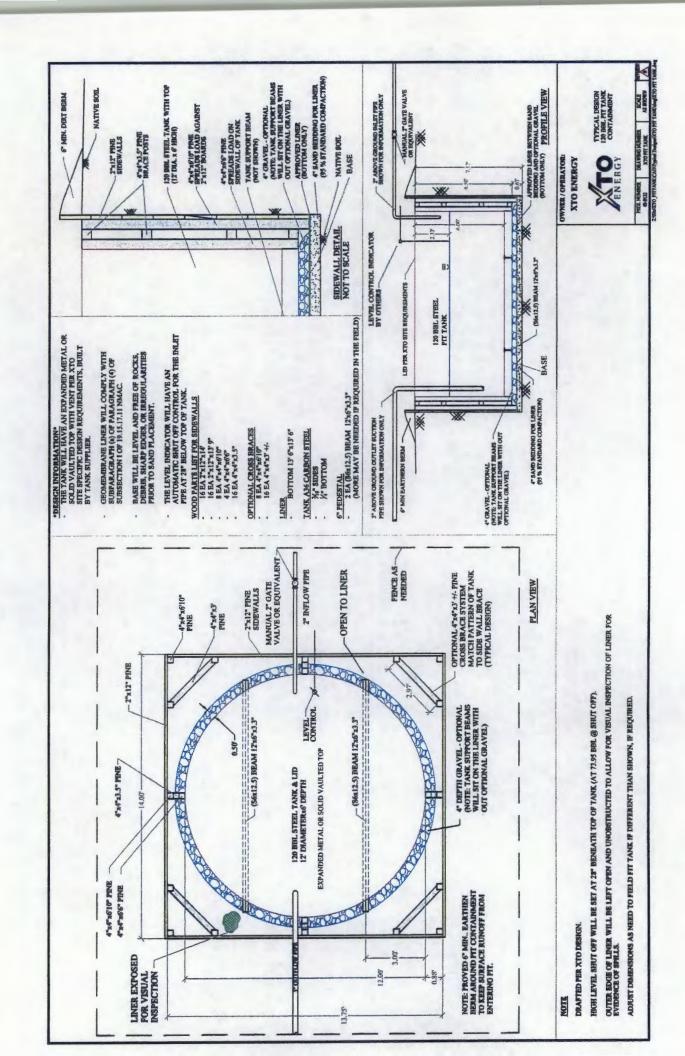
General Plan

- 1. XTO will design and construct below-grade tanks to contain liquids and solids and prevent contamination of fresh water and protect public health and environment.
- 2. XTO will post a well sign, in compliance with 19.15.3.103 NMAC, on the existing well site operated by XTO where the existing below-grade tank is located. The sign will list the Operator on record as the operator, the location of the well site by unit letter, section, township, range, and emergency telephone numbers.
- 3. XTO is requesting approval of an alternative fencing to be used on below-grade tank locations. Below-grade tank locations will be fenced utilizing 48" steel mesh field-fence (hogwire) with pipe railing along the top. A 6' chain link fence will be utilized around the well pad if the well site is within a city limits or ¼ mile of a permanent residence, school, hospital, institution or church. Below-grade tanks located within 1000' of a permanent residence, school, hospital, institution or church will be fenced by 6' chain link fence with at least two strands of barbed wire at the top. All gates associated with below-grade tanks will remain closed and locked when responsible individuals are not on site.
- 4. XTO shall construct below-grade tanks with an expanded metal covering or solid vaulted top on the top of the below-grade tank.
- 5. XTO will ensure that below-grade tanks are constructed of materials resistant to the below-grade tank's particular contents and resistant to damage from sunlight. Tanks will be constructed of A36 carbon steel with 3/16" sides and ½" 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 belowgrade 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

- XTO will operate and maintain below-grade tanks to contain liquids and solids, maintain the
 integrity of the liner and secondary containment system, prevent contamination of fresh water and
 protect public health and the environment. Fluid levels will be monitored weekly and high levels
 will be removed as necessary. Monthly inspections will be conducted to monitor integrity of
 below-grade tank systems and below-grade tanks will be equipped with automatic high-level
 shut-off devices.
- 2. XTO will not allow below-grade tanks to overflow and will use berms and/or diversion ditch to prevent surface run on to enter the below-grade tank. Below-grade tanks will be equipped with automatic high-level shut-off control devices as well as manually operated shut-off valves. See attached drawing for vault design and placement of diversion berms and shut-off devices.
- 3. XTO will continuously remove any visible or measurable layer of oil from the fluid surface of below-grade tanks in order to prevent significant accumulation of oil.
 - 4. XTO will inspect the below-grade tank monthly and maintain written records for five years. Monthly inspections will consist of documenting the following: (see attached template),

Well Name

API#

Sec., Twn., Rng.

XTO Inspector's name

Inspection date and time

Visible tears in liner

Visible signs of tank overflow

Collection of surface run on

Visible layer of oil

Visible signs of tank leak

Estimated freeboard

- 5. XTO will maintain adequate freeboard to prevent over topping of the below-grade tank. High level shut-off devices control the freeboard at an average of 28" beneath the top of the tank.
- 6. XTO will not discharge into or store any hazardous waste in any below-grade tank.
- 7. If a below-grade tank develops a leak, or if any penetration of a below-grade tank occurs below the liquids surface, XTO will remove all liquids above the damage or leak line within 48 hours,

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

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

		MONTH	LY BELOV	MONTHLY BELOW GRADE TANK INSPECTION FORM	INSPECTIO	N FORM		
Well Name:					API No.:			
Legals	Sec:		Township:		Range:			
XTO Inspector's Name	Inspection	Inspection	Any visible liner tears (Y/N)	Any visible signs of tank overflows (Y/N)	Collection of surface run on (Y/N)	Visible layer of oil (Y/N)	Any visible signs of a tank leak (Y/N)	Freeboard Est. (ft)
Notes:	Provide Det	Provide Detailed Description:	tion:					
NIBO.	•					į		

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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

- 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.