Distica IV 100 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505 CUJ FEB 15 AM 11	- 1220 South St. Francis Dr.	Form C-144 July 21, 2008 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.
	osed-Loop System, Below-Grade 7	Tank, or
Proposed Alter	native Method Permit or Closure F	Plan Application
Existing BGT Closure	of a pit, closed-loop system, below-grade tank, o of a pit, closed-loop system, below-grade tank, o cation to an existing permit plan only submitted for an existing permitted or of alternative method	or proposed alternative method
Instructions: Please submit one applicati	ion (Form C-144) per individual pit, closed-loop syste	em, below-grade tank or alternative request
	relieve the operator of liability should operations result in f its responsibility to comply with any other applicable go	
1. Operator: <u>XTO Energy, Inc.</u>	OGRID #:	5380
	M 87410	
Facility or well name: <u>Martin Gas Com F #1R</u>		
	OCD Permit Number:	
U/L or Qtr/Qtr <u>F</u> Section <u>14</u>	Township <u>27N</u> Range <u>10W</u> Cou	inty: <u>San Juan</u>
Center of Proposed Design: Latitude36.577301	Longitude <u>107.868932</u>	NAD: 🔲 1927 🔀 1983
Surface Owner: 🛛 Federal 🗋 State 🗋 Private 🗋	Tribal Trust or Indian Allotment	
String-Reinforced	&A mil 🔲 LLDPE 💭 HDPE 💭 PVC 💭 Ot	
Liner Seams: Welded Factory Other	Volume:bbl	Dimensions: L x W x D
intent) Drying Pad Above Ground Steel Tanks	ell Workover or Drilling (Applies to activities whi Haul-off Bins Other mil LLDPE HDPE PVC	
4. Below-grade tank: Subsection 1 of 19.15.17.	11 NMAC	
	uid: <u>Produced Water</u>	
Tank Construction material: <u>Steel</u>		
	Visible sidewalls, liner, 6-inch lift and automatic ov	erflow shut-off
	alls only 🛛 Other <u>Visible sidewalls, vaulted, auton</u>	
_	□ HDPE □ PVC □ Other	
5.		
Alternative Method:		

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

6. Fencing: Subsection D of 19.15.17.11 NMAC (Applies to permanent pits, temporary pits, and below-grade tanks)	
Chain link, six feet in height, two strands of barbed wire at top (Required if located within 1000 feet of a permanent residence institution or church)	school, 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. Sinner Subservice C of 10.15.17.11 NMAC	
Signs: Subsection C of 19.15.17.11 NMAC 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers	
\boxtimes Signed in compliance with 19.15.3.103 NMAC	
9. Administrative Approvals and Exceptions:	
Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance. Please check a box if one or more of the following is requested, if not leave blank:	
Administrative approval(s): Requests must be submitted to the appropriate division district or the Santa Fe Environmenta	Bureau office for
consideration of approval. Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.	
10.	
Siting Criteria (regarding permitting): 19.15.17.10 NMAC Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendation material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for considered Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. Siting criteria does not app above-grade tanks associated with a closed-loop system.	he appropriate district tion of approval.
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II. 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. Mydrogeologic 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 19.15.17.12 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. <u>Closed-loop Systems Permit Application Attachment Checklist</u>: Subsection B of 19.15.17.9 NMAC <i>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.</i> 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
Previously Approved Design (attach copy of design) API Number:
Previously Approved Operating and Maintenance Plan API Number: (Applies only to closed-loop system that use
above ground steel tanks or haul-off bins and propose to implement waste removal for closure)
13. Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached. Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC Climatological Factors Assessment Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC Quality Control/Quality Assurance Construction and Installation Plan Operating and Maintenance 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 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) Image: Closure Method Closed-loop Systems)
 ^{15.} Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached. Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings) Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

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16.		
Waste Removal Closure For Closed-loop Systems That Utilize Above Ground St. Instructions: Please indentify the facility or facilities for the disposal of liquids, dri facilities are required.		
Disposal Facility Name: D	sposal Facility Permit Number:	
Disposal Facility Name: D	sposal Facility Permit Number:	
Will any of the proposed closed-loop system operations and associated activities occu	r on or in areas that will not be used for future serve	vice and operations?
Required for impacted areas which will not be used for future service and operations. Soil Backfill and Cover Design Specifications based upon the appropriate regulation Plan - based upon the appropriate requirements of Subsection I of Site Reclamation Plan - based upon the appropriate requirements of Subsection	quirements of Subsection H of 19.15.17.13 NMA f 19.15.17.13 NMAC	C
^{17.} Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC Instructions: Each siting criteria requires a demonstration of compliance in the clo provided below. Requests regarding changes to certain siting criteria may require a considered an exception which must be submitted to the Santa Fe Environmental B demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for	dministrative approval from the appropriate dist ureau 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 of	btained 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 of	btained 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 of	btained from nearby wells	□ Yes □ No □ NA
 Within 300 feet of a continuously flowing watercourse, or 200 feet of any other signifiake (measured from the ordinary high-water mark). Topographic map; Visual inspection (certification) of the proposed site 	icant watercourse or lakebed, sinkhole, or playa	🗌 Yes 🗌 No
Within 300 feet from a permanent residence, school, hospital, institution, or church in - Visual inspection (certification) of the proposed site; Aerial photo; Satellite in		Yes No
Within 500 horizontal feet of a private, domestic fresh water well or spring that less the watering purposes, or within 1000 horizontal feet of any other fresh water well or spring - NM Office of the State Engineer - iWATERS database; Visual inspection (ce	ng, in existence at the time of initial application.	🗌 Yes 🗌 No
Within incorporated municipal boundaries or within a defined municipal fresh water v adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval		Yes No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual i	nspection (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	d 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
 18. On-Site Closure Plan Checklist: (19.15.17.13 NMAC) Instructions: Each of the f by a check mark in the box, that the documents are attached. Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of Superior of Surface Owner Notice - based upon the appropriate requirements of Superior Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate approach on the appropriate requirements of Superior Construction/Design Plan of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the approximation of Burial Trench (if applicable) based upon the ap	ements of 19.15.17.10 NMAC absection F of 19.15.17.13 NMAC	an. Please indicate,

Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC

Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
 Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
 Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)
 Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

Re-vegetation Plan - based upon the appropriate requirements of Subsection 1 of 19.15.17.13 NMAC

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

19		
Operator Application Certification:		
I hereby certify that the information submitted with this applica	tion is true, accurate and complete to th	e best of my knowledge and belief.
	Title:	Environmental Representative
Signature: Kim Champler	Date:0	2/11/2009
		(505) 333-3100
OCD Approval: Permit Application (including closure pla	n) Closure Plan (only) OCD	Conditions (see attachment)
OCD Representative Signature:		Approval Date:
Title:	OCD Permit Numl	ber:
^{21.} Closure Report (required within 60 days of closure completi Instructions: Operators are required to obtain an approved clo The closure report is required to be submitted to the division w section of the form until an approved closure plan has been ob	osure plan prior to implementing any c ithin 60 days of the completion of the	closure activities and submitting the closure report. closure activities. Please do not complete this
	Closure Com	oletion Date:
 22. Closure Method: Waste Excavation and Removal On-Site Closure Meth If different from approved plan, please explain. 	hod Alternative Closure Method	Waste Removal (Closed-loop systems only)
^{23.} Closure Report Regarding Waste Removal Closure For Clos Instructions: Please indentify the facility or facilities for when two facilities were utilized.		
Disposal Facility Name:	Disposal Facility Pe	ermit Number:
Disposal Facility Name:	Disposal Facility Pe	ermit Number:
Were the closed-loop system operations and associated activities Yes (If yes, please demonstrate compliance to the items b		be used for future service and operations?
Required for impacted areas which will not be used for future set Site Reclamation (Photo Documentation) Soil Backfilling and Cover Installation Re-vegetation Application Rates and Seeding Technique	ervice and operations:	
 24. Closure Report Attachment Checklist: Instructions: Each of 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 Disposal Facility Name and Permit Number Soil Backfilling and Cover Installation Re-vegetation Application Rates and Seeding Technique Site Reclamation (Photo Documentation) 	r on-site closure)	
On-site Closure Location: Latitude	Longitude	NAD: 1927 1983
25. Operator Closure Certification: I hereby certify that the information and attachments submitted belief. I also certify that the closure complies with all applicable Name (Print):	e closure requirements and conditions s	and complete to the best of my knowledge and pecified in the approved closure plan.
Signature:		
e-mail address:	Telephone:	

STATE OF HEW MEXICO CHERGY AND MINERALS DEPARTMENT

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OIL CONSERVATION DIVISION

SANTA FE, NEW MEXICO 87501

perator	Lease			Well No.
AMOCO PRODUCTION COMPANY	MARTI	N "F"		1R
	nahip Range	Cour		
F 14	27N	10W	San Ju an	
tual Footage Location of Well:				
1850 feet from the North	line and 1520	feet from	the West	line
ound Lovel Elev: Producing Formation	Pool			Dedicated Acreage:
6140 Dakota	Bas	in Dakota		320 Acree
 Outline the acreage dedicated If more than one lease is dedi interest and royalty). 				
 3. If more than one lease of different dated by communitization, unitization. Yes No If answer 			the interests	of all owners been consoli-
If answer is "no," list the owner this form if necessary.) No allowable will be assigned to forced-pooling, or otherwise) or us sion.	the well until all interests	s have been cons	olidated (by c	ommunitization, unitization,
	i			CERTIFICATION
4			Charal	y certify that the information con-
	1			herein is true and complete to the
-				my knowledge and bellef.
1350.		We y	Dal	H Shoemaker
				. H. SHOEMAKER
		SU		ISTRICT ENGINEER
1520'		P	Compony	
, e			AMOC	O PRODUCTION COMPANY
			Date	
Sec.			F	EBRUARY 22,1983
	14		shown notes under is tru	by certify that the well location on this plat was plotted from field of actual surveys mode by me o my supervision, and that the same e and correct to the hest of my age and belief.
			Register	and Surveyor B. Kerr Jr.

				VTO F
Aladam Cart	n he	Pit Permit	Client:	XTO Energy
Lodestar Service		Siting Criteria	Project:	tank permitting
PO Bes 4465, Duran	pa, CD 81302	-	Revised:	30-Jan-09
V		Information	Prepared by:	Trevor Ycas
API#:	3	0-045-25625	USPLSS:	27N 10W 14 F
Name:	MARTIN GA	AS COM F No. 001R	Lat/Long:	36.577301°, -107.868932°
Depth to groundwater:		depth < 50'	Geologic formation:	Nacimiento Formation (Tn)
Distance to closest continuously flowing watercourse:	~9 miles	N to 'San Juan River';	site elevation: 1872m/6135'	
Distance to closest significant watercourse, lakebed, playa lake, or sinkhole:		Armenta Canyon' tributary 100' E to 'Armenta Canyon'		
-			Soil Type:	Alfisol / Entisol
Permanent residence, school, hospital, institution or church within 300'		NO		
			Annual	Navajo Reservoir: 11.90", Aztec: 9.77",
			Precipitation:	Farmington (FAA): 8.21", Bloomfield: 8.71
Domestic fresh water well or spring within 500'		NO	Precipitation Notes:	Historical daily max. precip.: 4.0" (Bloomfield)
Any other fresh water well or spring within 1000'		NO		
Within incorporated municipal boundaries		NO	Attached Documents:	26N09W_iWaters.pdf, 26N10W_iWaters.pdf, 26N11W_iWaters.pdf, 27N09W_iWaters.pdf, 27N10W_iwaters.pdf, 27N11W_iwaters.pdf, 28N09W_iWaters.pdf, 28N10W_iWaters.pdf, 28N11W_iWaters.pdf
Within defined municipal fresh water well field		NO	FM3500640550B_30 045-25625.jpg	30-045-25625_gEarth-iWaters.jpg, 30-045-25625_gEarth- PLS.jpg ,30-045-25625_topo-PLS.jpg
Wetland within 500'	Margaret a	NO	Mining Activity:	None Near NM NRD-MMD MinesMillQuarries 30-045-25625.jpg
Within unstable area		NO		NM_NKU-MMD_MINESMIIIQuarries_30-045-25025.jpg
Within 100 year flood plain		NO		
Additional Notes:				
drains to 'San Juan River' via 'Armenta Canyon'	Armenta	a tributary canyon to Canyon, ~0-1m above st stream channel		headwaters of Armenta Canyon, NNE of Angel Peak & Wof Harris Mesa

MARTIN GAS COM F No. 001R API#: 30-045-25625 Below Ground Tank Hydrogeologic Report for Siting Criteria

General Geology and Hydrology

The San Juan Basin is a typical Rocky Mountain basin with a gently dipping southern flank and a steeply dipping northern flank. Asymmetrically layered Tertiary sandstones and shales, along with Quaternary alluvial deposits, dominate surficial geology (Dane and Bachman, 1965). The proposed pit location will be located in the southern Armenta Canyon region of the San Juan Basin. The predominant geologic formation is the Nacimiento Formation of Tertiary age, which underlies surface soils and is often exposed (Dane and Bachman, 1965). Deposits of Quaternary alluvial and aeolian sands occur prominently near the surface of the area, especially near streams and washes. Cretaceous and Tertiary sandstones, as well as Quaternary alluvial deposits serve as the primary aquifers in the San Juan basin (Stone et al., 1983). In most of the proposed area, the Nacimiento Formation lies at the surface and grades into the Animas Formation to the west. Thickness of the Nacimiento ranges from 418 to 2232 feet (Stone et al., 1983).

Aquifers within the coarser and continuous sandstone bodies of the Nacimiento Formation are between 0 and 1000' deep in this section of the basin (Stone et al., 1983). Groundwater within these aquifers flows toward the San Juan River. The prominent soil type at the proposed site are entisols and aridisols, which are defined as soils that exhibit little to no any profile development (www.emnrd.state.nm.us). 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 and prohibits effective recharge to the underlying aquifers. Dry and arid weather further prohibit active recharge. The climate of the region is arid, averaging 8 to 12 inches of rainfall annually. As is typical of the southwestern United States monsoonal weather patterns, most precipitation falls from August through October. The heaviest rainfall occurs in the summer in isolated, intense cloudbursts. November through June is relatively dry. Snow generally falls from December to mid-February and averages less than one-half inch in depth. However, most recharge occurs during the winter months during snowmelt periods from the upper elevations (Western Regional Climate Center <u>www.wrcc.dri.edu</u>). The predominant vegetation is sagebrush and grasses with a more restricted pinon-juniper association (Dick-Peddie, 1993). However, vegetation is very sparse and discontinuous.

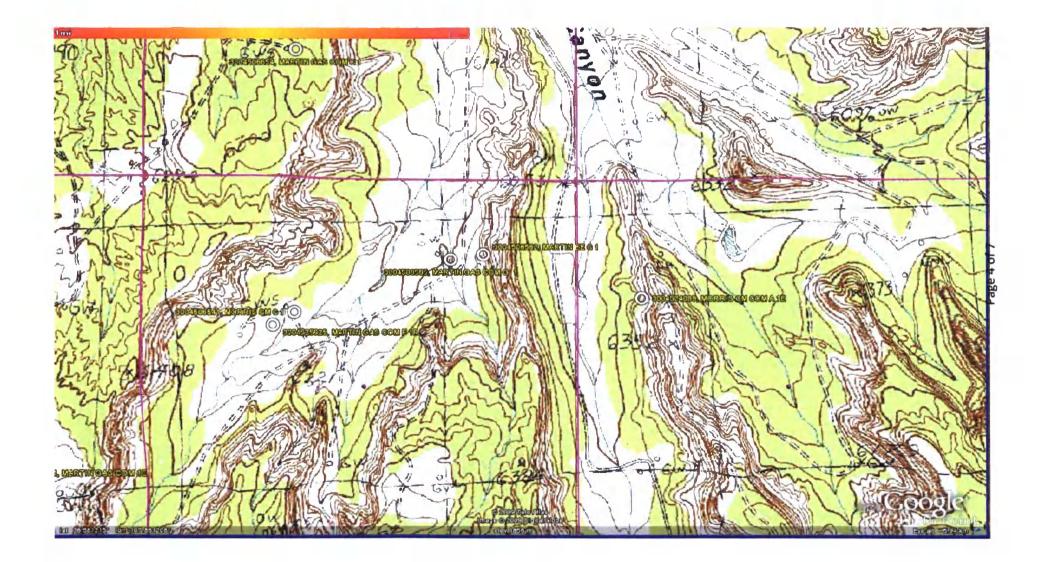
Site Specific Hydrogeology

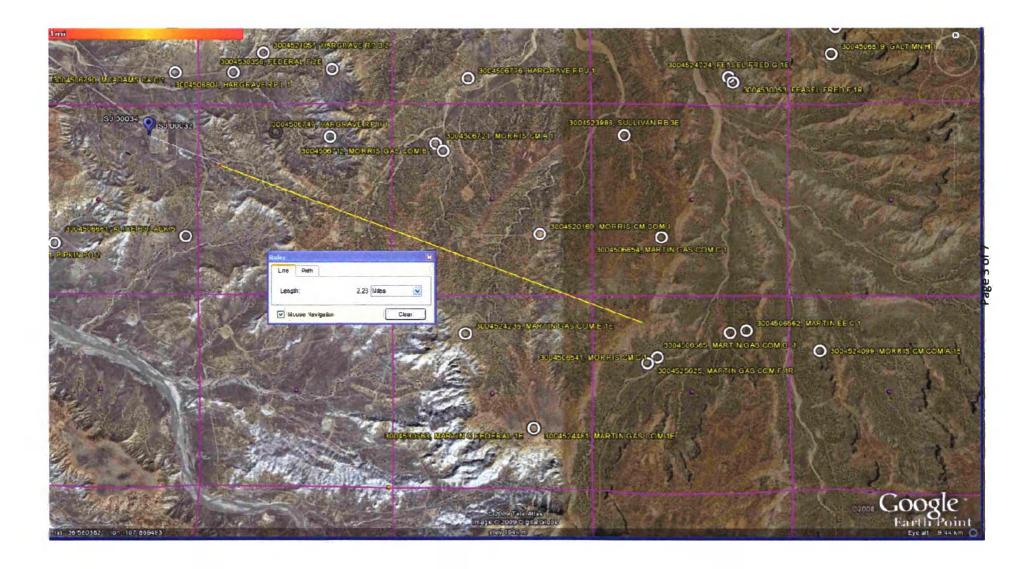
Depth to groundwater is estimated to be less than 50 feet. This estimation is based on data from Stone and others (1983), the USGS Groundwater Atlas of the United States and depth to groundwater data published on the New Mexico State Engineer's iWaters Database website. Local topography and proximity 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 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 on relatively flat ground in Armenta Canyon, where deeply eroded sandstone-capped mesas and slope-forming mudstones occur in a sparsely vegetated and arid badlands-type setting. Broad shalely hills are interspersed with occasional sandstone outcrops, and systems of dry washes and their tributaries are evident on the attached aerial image. The pit is situated at an elevation of approximately 6135 feet. The proposed site is located approximately 160 feet west of the Armenta tributary system, and 1900 feet southwest of Armenta Canyon Wash.

Groundwater is expected to be shallow within Armenta Wash. The elevation change of approximately 3 feet from the nearest wash to the pit suggests that groundwater at the proposed site is less than 50 feet deep. State iWaters data points are sparsely distributed in this region. There are two iWaters data points approximately 2.2 miles to the northwest of the site, at an elevation of approximately 5985 feet. Depth to groundwater within the wells is 60 feet and 170 feet below ground surface. A map showing the location of wells in reference to the proposed pit location is attached.





Township: 28N	Range: 10W	Sections:	
NAD27 X:	Y:	Zone:	Search Radius:
County: B	asin:		Number: Suffix:
Owner Name: (First)	(Last)		─ ○Non-Domestic ○Domestic ●All
POD / Surface	Data Report Avg	Depth to Water F	Report Water Column Report

WATER COLUMN REPORT 08/08/2008

	(quarters are 1=NW 2=NE	3=SW 4=SE)						
	(quarters are biggest to	smallest)			Depth	Depth	Water (in	feet)
POD Number	Tws Rng Sec q q q	Zone	х	Y	Well	Water	Column	

No Récords found, try again

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-	Fownship: 28N	Range: 09W	Sections:	
NA	D27 X:	Y:	Zone:	Search Radius:
County:	Bas	sin:	E	Number: Suffix:
Owner Name:	(First)	(Last)		─ ○Non-Domestic ○Domestic ●Al
	POD / Surface D	ata Report Avg [Depth to Water F	Report Water Column Report

Now Marias Office of the State Engineer

WATER COLUMN REPORT 08/06/2008

							3=SW 4=SE smallest			Depth	Depth	Water	(in feet)
POD Number	Tws	Rng	Sec	q	q	q	Zone	Х	Y	Well	Water	Column	
SJ 03746 POD1	28N	09W	20	1	2	3				190	40	150	
SJ 00018	2.8 N	09W	20	3	1	4				135	71	64	
SJ 02800	28N	09W	24	4	2	3				200			

Record Count: 3

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T	wnship: 27N	Range: 11W	Sections:		
NAD	27 X:	Y:	Zone:	Search Radius:	
County:	B	asin:		Number: Suffix:	
Owner Name:	First)	(Last	t)	─ ○Non-Domestic ○Dom	nestic 💿 All
F	OD / Surface	Data Report Av	g Depth to Water	Report Water Column Report	

WATER COLUMN REPORT 08/06/2008

						3=SW 4=SE) o smallest)			Depth	Depth	Water	(in feet)
POD Number	Tws	Rng	Sec	q	q q	Zone	x	Y	Well	Water	Column	
SJ 01787	27N	11W	0.7	2	2				650			
SJ 00077	27N	11W	26	2	1 3				1102	550	552	

Record Count: 2

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	Township: 27N	Range: 10W	Sections:	
NA	027 X:	Y:	Zone:	Search Radius:
County:	Basi	in:	1.175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175 - 175	Number: Suffix:
Owner Name:	(First)	(Last)	1	── ○Non-Domestic ○Domestic ●
	POD / Surface Da	ata Report Avg	Depth to Water	Report Water Column Report

WATER COLUMN REPORT 08/06/2008

							3=SW 4=SE) smallest)			Depth	Depth	Water	(in feet)
POD Number	Tws	Rng	Sec	P	P	P	Zone	х	Y	Well	Water	Column	
SJ 00032	27N	10W	08	2	2	3				235	60	175	
SJ 00033	27N	10W	08	2	2	3				204			
SJ 00034	27N	10W	08	2	2	3				235	170	65	

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Record Count: 3

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Township: 27N Range: DSW Sections:
NAD27 X: Y: Zone: Search Radius:
County: Basin: Suffix: Suffix:
Owner Name: (First) (Last) ONon-Domestic ODomestic ® All
POD / Surface Data Report Avg Depth to Water Report Water Column Report
Clear Form WATERS Menu Hotp

			(quarters ar	a 1=NW 2=NE 3=SW 4=SE	1						
	(acre ft per annum)		(quarters ar	a biggest to smallest	X Y are	in Feet		UTM are in Meters)	Start	Finish	Depth Dept
DB File Nbr	Use Diversion Owner	POD Number	Source	Tws Rng Sec q q q	Zone	x	¥	UTM Zone Easting Northing	Date	Date	Well Water

No Records found, try again

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То	wnship: 26N	Range: 11W	Sections:		
NAD	27 X:	Y:	Zone:	Search R	adius:
County:	Bas	in:		Number:	Suffix:
Owner Name: (First)	(Las	t)	O Non-Don	nestic ODomestic Al
F	OD / Surface Da	ata Report Av	g Depth to Water	Report Water C	olumn Report

or Cat. CANA. E

WATER COLUMN REPORT 08/11/2008

							3=SW 4=SE) smallest)			Depth	Depth	Water	(in feet)
POD Number	Tws	Rng	Sec	q	q	q	Zone	x	Y.	Well	Water	Column	
SJ 01626	26N	11W	16	4	3					255	200	55	
SJ 02734	26N	11W	35	4	3 2	2				275	165	110	

Record Count: 2

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	Cownship: 26N	Range: 10W	Sections:		
NA	027 X:	Y:	Zone:	Search	Radius:
County:	Ba	asin:		Number:	Suffix:
Owner Name:	(First)	(Las	t)	O Non-Dor	nestic ODomestic 🧕
	POD / Surface I	Data Report Av	g Depth to Water	Report Water (Column Report

WATER COLUMN REPORT 08/08/2008

	-					3=SW 4=9 smalles			Depth	Depth	Water	(in feet)
POD Number	Tw	s Rng	Sec	q i	P P	Zone	x	Y	Well	Water	Column	
SJ 00193	261	N 10W	13	4	2				2287	500	1787	
SJ 00194	2 61	N 10W	25	4	1				2105	500	1605	

Record Count: 2

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Т	ownship: 261	N Range: 09W	Sections:	
NAD	27 X:	Y:	Zone:	Search Radius:
County:	E	Basin:	13 101	Number: Suffix:
Owner Name:	(First)	(Las	st)	- ONON-Domestic ODomestic OA
	POD / Surface	Data Report A	vg Depth to Water F	Report Water Column Report

CAL + CANA + E. 0.00

WATER COLUMN REPORT 08/08/2008

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						3=SW 4=SE smallest	-		Depth	Depth	Water	(in feet)
POD Number	Tws	Rng	Sec	qq	PI	Zone	x	Y	Well	Water	Column	
SJ 02961	26N	09W	01	2 2	2 3				1500			
SJ 02962	26N	09W	01	3 2	2 3				1500			
SJ 01756	26N	09W	11	2 2	2 3				75	40	35	
SJ 03811 POD1	26N	09W	12	3 3	3				348	175	173	
SJ 00412	26N	09W	16	4 2	2				202	65	137	
SJ 00214	26N	0'9W	26	24	2				946	230	716	
SJ 00064	26N	09W	26	4 2	2 1				490	215	275	
SJ 00063	26N	09W	26	4 2	2 3				479	234	245	

Record Count: 8

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5	ownship: 28N	Range: 11W	Sections:		
NAI	027 X:	Y:	Zone:	Search R	adius:
County:	Bas	sin:		Number:	Suffix:
Owner Name:	(First)	(Last)	O Non-Dom	estic ODomestic Al
	POD / Surface D	ata Report Ave	g Depth to Water	Report Water Co	olumn Report

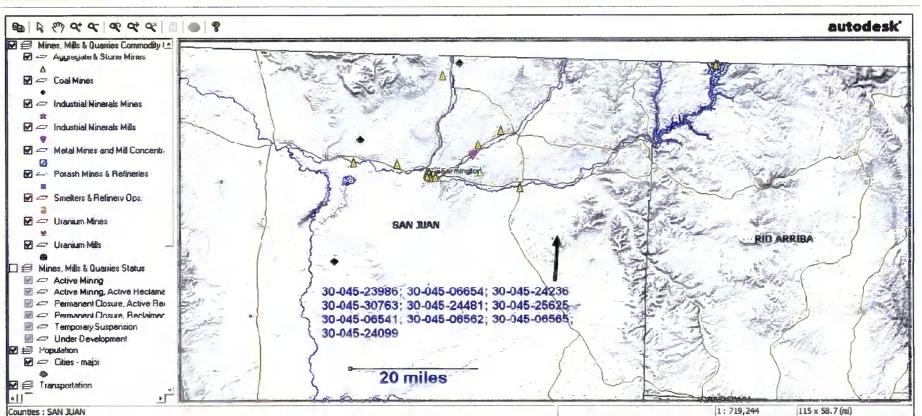
WATER COLUMN REPORT 08/06/2008

(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are biggest to smallest)									Depth	Depth	Water	(in feet)
POD Number	Tws	Rng S	Sec	q	P P	Zone	x	Y	Well	Water	Column	
SJ 03193	28N	11W (07	3	4 3				80	35	45	
SJ 02916	28N	11W (07	3	4 4				98	70	28	

Record Count: 2

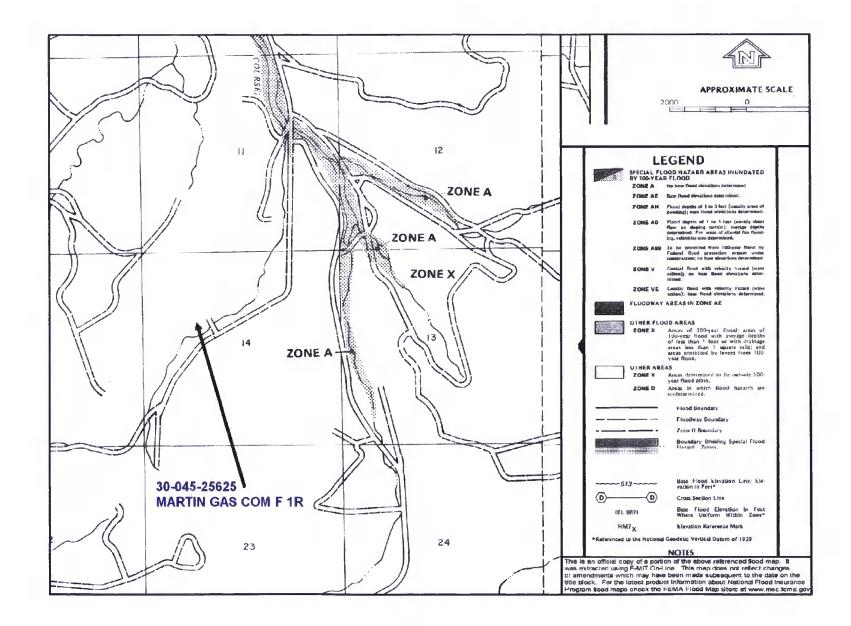
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Mines, Mills and Quarries Web Map

Page 6 of 7



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

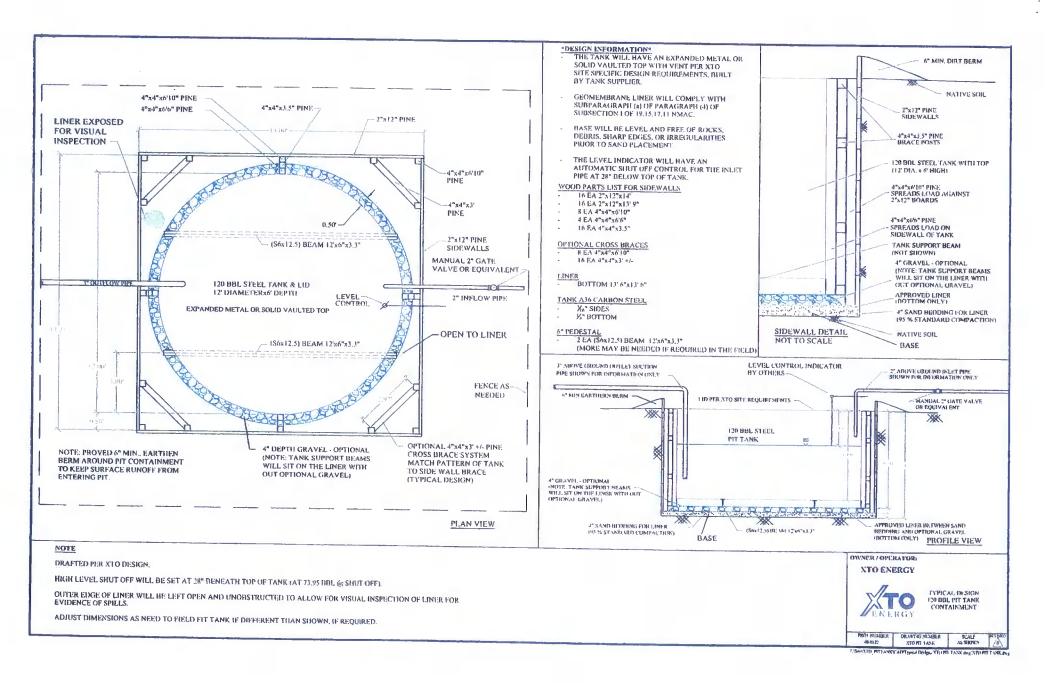
- 1. XTO will design and construct below-grade tanks to contain liquids and solids and prevent contamination of fresh water and protect public health and environment.
- 2. XTO will post a well sign, in compliance with 19.15.3.103 NMAC, on the existing well site operated by XTO where the existing below-grade 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.
- 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

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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

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

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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.

Well Nan	10'				A DI No.					
wen nam	ie.			API No.:						
Legals	Sec:		Township:	Range:						
ХТО			Any visible		Collection of					
Inspector's	Inspection			Any visible signs of	surface	Visible layer	Any visible signs	Free		
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		
Notes:	Provide Do	tailed Descri	ntion							
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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

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- 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.
- 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 divisionapproved 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

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

