' <u>District I'</u> 1625 N. French Dr., Hobbs, NM 88240 <u>District II</u> 1301 W. Grand Avenue, Artesia, NM 88210 <u>District III</u> 1000 Rio Brazos Road, Aztec, NM 87410

1220 S. St. Francis Dr., Santa Fe, NM 87505

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

Santa Fe, NM 87505

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.

Pit, Closed-Loop System, Below-Grade Tank, or								
Proposed Alternative Method Permit or Closure Plan Application								
Type of action: Permit of a pit, closed-loop system, below-grade tank, or proposed alternative method								
Closure of a pit, closed-loop system, below-grade tank, or proposed alternative method								
Existing BGT  Modification to an existing permit  Closure plan only submitted for an existing permitted or non-permitted pit, closed-loop system,								
below-grade tank, or proposed alternative method								
Instructions: Please submit one application (Form C-144) per individual pit, closed-loop system, below-grade tank or alternative request								
Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.								
Operator: OGRID #-								
Operator:OGRID #:								
Facility or well name: GGGGGG F F FFFFFF A A GG GGG								
Facility or well name: SCOTT E FEDERAL 22 #23  API Number: OCD Permit Number: OCD Permit Number:								
U/L or Qtr/Qtr Section 22 Township 27NRange 11W County: San Juan								
Center of Proposed Design: Latitude $36.55688$ Longitude $107.99432$ NAD: $\square 1927 \square 1983$								
Surface Owner:   Federal State Private Tribal Trust or Indian Allotment								
$\overline{X}$								
Pit: Subsection F or G of 19.15.17.11 NMAC								
Temporary: Drilling Workover								
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   CED 2008								
□ Lined □ Unlined Liner type: Thicknessmil □ LLDPE □ HDPE □ PVC □ Other								
String-Reinforced								
Liner Seams: Welded Factory Other Volume: bbl Dimension No. x W x D								
3. OIL CONS. DIV. DIST. 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 approximation or notice of intent)								
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 Other								
XBelow-grade tank: Subsection I of 19.15.17.11 NMAC								
Volume: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 Visible sidewalls, vaulted, automatic high level shut off  Liner type: Thicknessmil ☐ HDPE ☐ PVC ☐ Other								
s.  Alternative Method:								

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

6							
Fencing: Subsection D of 19.15.17.11 NMAC (Applies to permanent pits, temporary pits, and below-grade tanks)							
Chain link, six feet in height, two strands of barbed wire at top (Required if located within 1000 feet of a permanent residence, school, hinstitution or church)	nospital,						
Institution or church)  If your foot height, four strands of barbed wire evenly spaced between one and four feet							
Alternate. Please specify							
7.							
Netting: Subsection E of 19.15 17.11 NMAC (Applies to permanent pits and permanent open top tanks)							
Screen Netting Other							
Monthly inspections (If netting or screening is not physically feasible)							
8. Signs: Subsection C of 19.15.17.11 NMAC							
12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers							
☑ Signed in compliance with 19.15.3.103 NMAC							
9							
Administrative Approvals and Exceptions:  Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.							
Please check a box if one or more of the following is requested, if not leave blank:							
Administrative approval(s): Requests must be submitted to the appropriate division district or the Santa Fe Environmental Bureau o consideration of approval.	ffice for						
Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.							
10.							
Siting Criteria (regarding permitting): 19.15.17.10 NMAC Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of accept	table source						
material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the approp	riate district						
office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of ap Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. Siting criteria does not apply to dryin	ng pads or						
above-grade tanks associated with a closed-loop system.	☐ Yes ⊠ No						
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							
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							
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. (Applies to permanent puts)	☐ Yes ☐, No ☑ NA						
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	[] V. [] N.						
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application.  - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ⊠ No						
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance	☐ Yes ⊠ No						
adopted pursuant to NMSA 1978, Section 3-27-3, as amended.  - Written confirmation or verification from the municipality; Written approval obtained from the municipality							
Within 500 feet of a wetland.	☐ Yes ⊠ No						
- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site							
Within the area overlying a subsurface mine.  - 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						

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 19.15.17.12 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   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.   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.   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.   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.   Instructions: Each of the following items must be attached.   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.
Previously Approved Design (attach copy of design) API Number: or Permit Number:
Closed-loop Systems Permit Application Attachment Checklist: Subsection B of 19.15 17.9 NMAC  Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.  Geologic and Hydrogeologic Data (only for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9  Siting Criteria Compliance Demonstrations (only for on-site closure) - based upon the appropriate requirements of 19.15.17.10 NMAC  Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC  Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC  Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC
Previously Approved Design (attach copy of design)  API Number.
Previously Approved Operating and Maintenance Plan API Number:(Applies only to closed-loop system that use
above ground steel tanks or haul-off bins and propose to implement waste removal for closure)
Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.  Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC  Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC  Climatological Factors Assessment  Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC  Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC  Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC  Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC  Quality Control/Quality Assurance Construction and Installation Plan  Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC  Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC  Nuisance or Hazardous Odors, including H <sub>2</sub> S, Prevention Plan  Emergency Response Plan  Oil Field Waste Stream Characterization  Monitoring and Inspection Plan  Erosion Control Plan  Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC
Proposed Closure: 19.15.17.13 NMAC Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.
Type: Drilling Workover Emergency Cavitation P&A Permanent Pit Below-grade Tank Closed-loop System Alternative Proposed Closure Method Waste Excavation and Removal Waste Removal (Closed-loop systems only) On-site Closure Method (Only for temporary pits and closed-loop systems) In-place Burial On-site Trench Burial Alternative Closure Method (Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)
Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.  □ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC  □ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC  □ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)  □ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC  □ Re-vegetation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only: (19.15.17.13.13.13.13.13.13.13.13.13.13.13.13.13.	NMAC) nore than two								
Disposal Facility Name: Disposal Facility Permit Number:									
Disposal Facility Name Disposal Facility Permit Number:									
Will any of the proposed closed-loop system operations and associated activities occur on or in areas that will not be used for future service and operations?  Yes (If yes, please provide the information below) No									
Required for impacted areas which will not be used for future service and operations:  Soil Backfill and Cover Design Specifications based upon the appropriate 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									
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 distriction 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.	ict 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									
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 <sup>2</sup> 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									
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. Please indicate, by a check mark in the box, that the documents are attached.  Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC  Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC  Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of 19.15.17.11 NMAC  Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.13 NMAC  Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC  Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC  Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC  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 I of 19.15.17.13 NMAC  Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC									

Operator Application Certification:  I hereby certify that the information submitted with this application is true, acc	urate and complete to the	ne best of my knowledge and belief.
Name (Print): Kim Champlin	Title:	Environmental Representative
Signature: him Champlin	Date:	9-8-08
e-mail address: kim_champlin@xtoenergy.com		(505) 333-3100
OCD Approval: Permit Application (including closure plan) Closure	. •	, , , , , , , , , , , , , , , , , , ,
OCD Representative Signature: Deputy Oil & Gas Inspector,		Approval Date: <u>4/25/2012</u>
Title: District #3	OCD Permit Num	ber:
Closure Report (required within 60 days of closure completion): Subsection Instructions: Operators are required to obtain an approved closure plan prion The closure report is required to be submitted to the division within 60 days of section of the form until an approved closure plan has been obtained and the	r to implementing any f the completion of the	closure activities and submitting the closure report. closure activities. Please do not complete this
	Closure Com	pletion Date:
22.  Closure Method:  Waste Excavation and Removal On-Site Closure Method Alter If different from approved plan, please explain.	rnative Closure Method	☐ Waste Removal (Closed-loop systems only)
Closure Report Regarding Waste Removal Closure For Closed-loop System Instructions: Please indentify the facility or facilities for where the liquids, detwo facilities were utilized.  Disposal Facility Name:	rilling fluids and drill c	Ground Steel Tanks or Haul-off Bins Only: cuttings were disposed. Use attachment if more than
Disposal Facility Name:		ermit Number:
Were the closed-loop system operations and associated activities performed on  Yes (If yes, please demonstrate compliance to the items below) No		
Required for impacted areas which will not be used for future service and oper.  Site Reclamation (Photo Documentation)  Soil Backfilling and Cover Installation  Re-vegetation Application Rates and Seeding Technique	ations:	
Closure Report Attachment Checklist: Instructions: Each of the following mark in the box, that the documents are attached.  Proof of Closure Notice (surface owner and division)  Proof of Deed Notice (required for on-site closure)  Plot Plan (for on-site closures and temporary pits)  Confirmation Sampling Analytical Results (if applicable)  Waste Material Sampling Analytical Results (required for on-site closure)  Disposal Facility Name and Permit Number  Soil Backfilling and Cover Installation  Re-vegetation Application Rates and Seeding Technique  Site Reclamation (Photo Documentation)  On-site Closure Location: Latitude	e)	
Operator Closure Certification:  I hereby certify that the information and attachments submitted with this closure belief. I also certify that the closure complies with all applicable closure requires.	re report is true, accurate	e and complete to the best of my knowledge and
Name (Print):		spectified in the approved closure plan.
Signature:		
e-mail address:	Telephone:	

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

Form C-102 Revised 1-1-89

#### OIL CONSERVATION DIVISION P.O. Box 2088

Santa Fe, New Mexico 87504-2088

DISTRICT II P.O. Drawer DD, Ariesia, NM \$8210

DISTRICT | P.O. BOX 1980, Hobbs, NM 88240

DISTRICT III
1000 Rio Brazos Rd., Aziec, NM 87410

WELL LOCATION AND ACREAGE DEDICATION PLAT

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# Lodestar Services, Inc.

## Pit Permit Siting Criteria

Client:	XTO Energy
Project:	Pit Permits
Revised:	27-Aug-08
Prepared by:	Devin Hencmann

PO Box 4465, Durango, CO 81302		Siting Criteria	Revised:	27-Aug-08 Devin Hencmann			
		Information Shee	t Prepared by:				
API#:[	is in the ta	3004528256	USPLSS:	27N, 11W, 22K			
Name:	SCOTT E FEDERAL 22 #23		Lat/Long:	36.55688, -107.99432			
Depth to groundwater:	•	>100'	Geologic formation:	Naciemento			
Distance to closest continuously flowing watercourse:	10 miles	to the 'San juan River'					
Distance to closest significant watercourse, lakebed, playa lake, or sinkhole:	2.24 m	illes to Ceder Canyon					
	`		Soil Type:	Entisols			
Permanent residence, school, hospital, institution or church within 300'		No					
	× .		Annuai Precipitation:	Bloomfield: 8.71" , Farmington: 8.21", Otis: 10.41"			
Domestic fresh water well or spring within 500'		No	Precipitation Notes:	Historical daily max: Bloomfield (4.19")			
Any other fresh water well or spring within 1000'		No	· .				
Within incorporated municipal boundaries		No	Attached Documents:	27N 11W i-Waters pdf,27N 12W i-Waters pdf			
Within defined municipal fresh water well field		No		Topo map pdf, Aerial pdf, Mines and Quarries Map pdf,i-Waters Ground Water Data Map pdf, FEMA flood zone map pdf			
Wetland within 500'	• .	No	Mining Activity:	None			
Within unstable area		No					
Within 100 year flood plain	N	o-FEMA Zone 'X'					
Additional Notes:			· · · · · · · · · · · · · · · · · · ·				
		o edge of center-pivot rigated cropland					

#### SCOTT E FEDERAL 22 #23 Below Ground Tank Hydrogeologic Report for Siting Criteria

#### General Geology and Hydrology

The San Juan Basin is a typical Rocky Mountain basin with a gently dipping southern flank and a steeply dipping northern flank. Asymmetrically layered Tertiary sandstones and shales, along with Quaternary alluvial deposits, dominate surficial geology (Dane and Bachman, 1965). The proposed pit location will be located in the northernmost Bisti region of the San Juan Basin within an area dominated by irrigated fields of the Navajo Indian Irrigation Project. The predominant geologic formation is the Nacimiento Formation of Tertiary age, which underlies surface soils and is often exposed (Dane and Bachman, 1965). Deposits of Quaternary alluvial and aeolian sands occur prominently near the surface of the area, especially near streams and washes.

Cretaceous and Tertiary sandstones, as well as Quaternary alluvial deposits serve as the primary aquifers in the San Juan basin (Stone et al., 1983). In most of the proposed area, the Nacimiento Formation lies at the surface and grades into the Animas Formation to the west. Thickness of the Nacimiento ranges from 418 to 2232 feet (Stone et al., 1983). Aquifers within the coarser and continuous sandstone bodies of the Nacimiento Formation are between 0 and 1000' deep in this section of the basin (Stone et al., 1983). Groundwater within these aquifers flows toward the San Juan River.

The prominent soil type at the proposed site are entisols 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.

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

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

#### Site Specific Hydrogeology

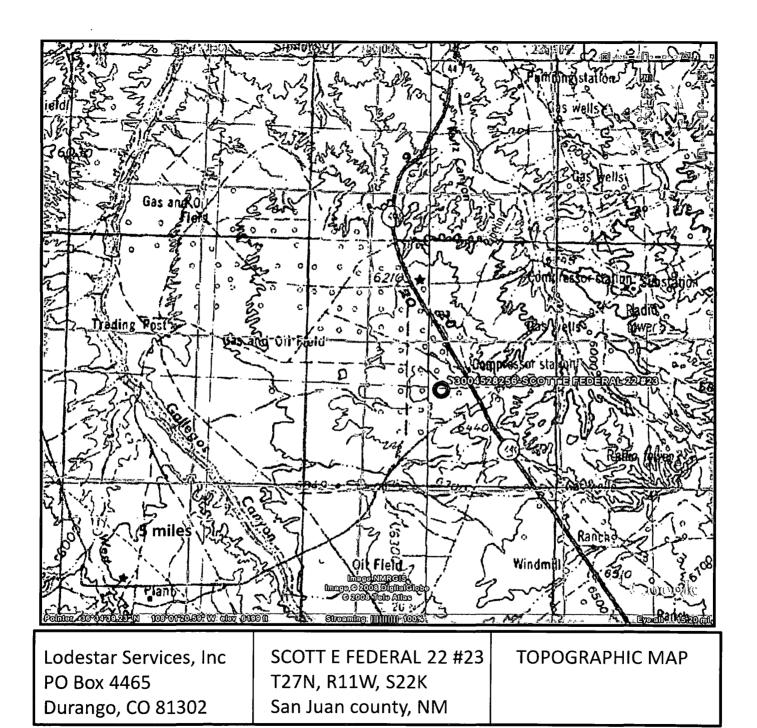
Depth to groundwater is estimated to be greater than 100 feet. This estimation is based on data from Stone and others (1983), the USGS Groundwater Atlas of the United States and depth to groundwater data published on the New Mexico State Engineer's iWaters Database website. Local topography and proximity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

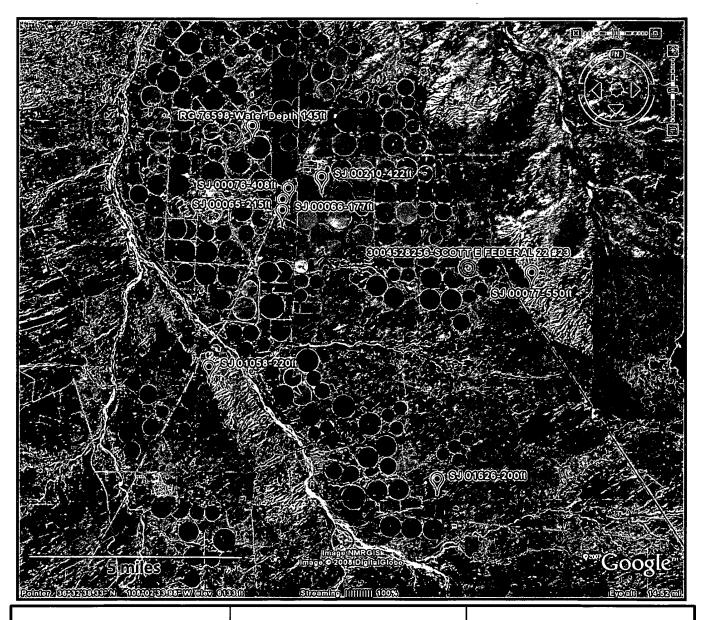
Beds of water-yielding sandstone are present in the Nacimiento Formation, which are fluvial in origin and are interbedded with siltstone, shale and coal. Porous sandstones form the principal aquifers, while relatively impermeable shales form confining units between the aquifers (Stone et al., 1983).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

The site in question is located on the relatively flat mesa top at an elevation of approximately 6387 feet and approximately 6.7 miles east of Gallegos Canyon. Broad shalely hills are interspersed with occasional sandstone outcrops, and systems of dry washes and their tributaries are evident on the attached aerial image. Groundwater is expected to be shallow within Gallegos Canyon. But the significant distance between the Canyon and the site, as well as an elevation difference of almost 740 feet suggest groundwater is greater than 100 feet at the proposed site.

Lined channels associated with the Navajo Irrigation Project supply water for the fields surrounding the proposed site, which are characterized by center-pivot irrigation patterns. During spring and summer, irrigation practices often produces shallow perched aquifers that are not defined in published literature. These shallow zones of water are not continuous and are not saturated year round.

Groundwater data available from the NM State Engineer's iWaters Database for wells near the proposed site are attached. Wells located at similar elevations within the irrigated area contain groundwater greater than 100 feet deep. A map showing the location of wells in reference to the proposed pit location is attached.





Lodestar Services, Inc PO Box 4465 Durango, CO 81302 SCOTT E FEDERAL 22 #23 T27N, R11W, S22K San Juan county, NM i-Waters Ground Water Data Map

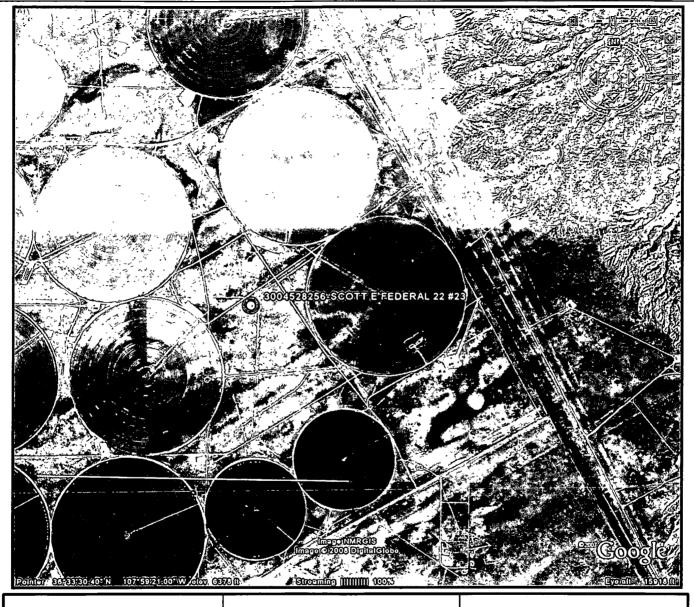
#### New Mexico Office of the State Engineer POD Reports and Downloads

#### ${\bf POD} \, / \, Surface \, {\bf Data} \, \, Report Avg \, \, {\bf Depth} \, \, to \, \, Water \, \, Report Water \, \, {\bf Column} \, \, Report$

#### WATER COLUMN REPORT 03/22/2008

	· -	s are 1=NW 2=1 s are biggest		•		Depth	Depth	Water	(in feet)
POD Number SJ 01787	Tws	Rng Sec q q :		X	Ā	Well 650	Water	Column	(=== = ===,
SJ 00077		11W 37 2 2 11W 26 2 1 3	3			1102	550	552	

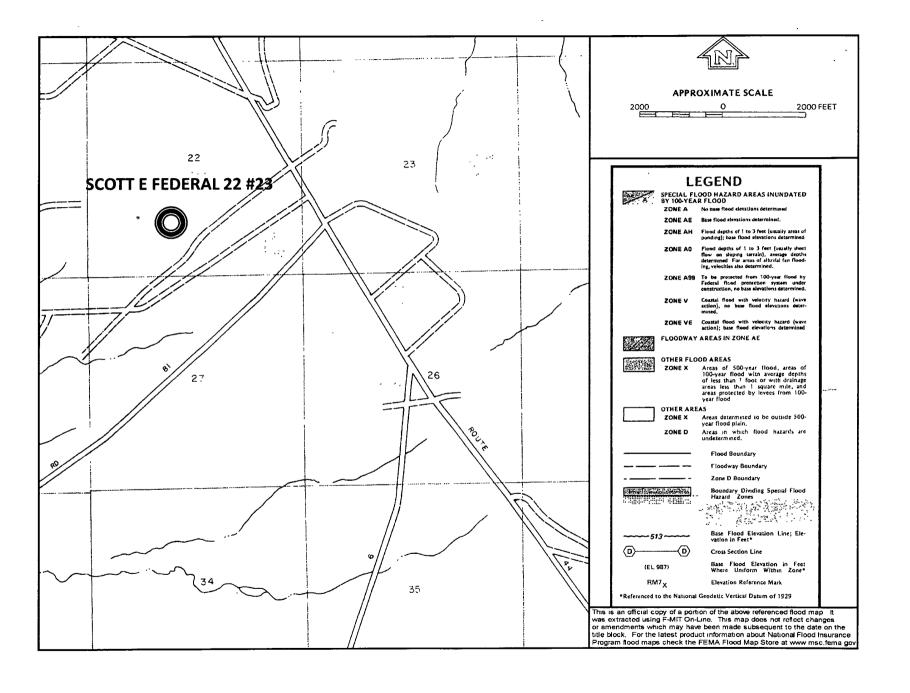
Record Count: 2



Lodestar Services, Inc PO Box 4465 Durango, CO 81302 SCOTT E FEDERAL 22 #23 T27N, R11W, S22K San Juan county, NM AERIAL PHOTOGRAPH



Lodestar Services, Inc PO Box 4465 Durango, CO 81302 SCOTT E FEDERAL 22 #23 T27N, R11W, S22K San Juan county, NM Mines and Quarries Map



### XTO Energy Inc. San Juan Basin Below Grade Tank Design and Construction Plan

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

#### General Plan

- 1. XTO will design and construct a BGT to contain liquids and solids and prevent contamination of fresh water and protect public heath and environment.
- Prior to constructing the pit, topsoil will be stockpiled in the construction zone for later use in restoration.
- 3. XTO will post a well sign, in compliance with 19.15.3.103 NMAC, on the well site prior to construction of the BGT. The sign will list the Operator on record as the operator, the location of the well site by unit letter, section, township, range, and emergency telephone numbers.
- 4. XTO shall construct all new fences utilizing 48" steel mesh field-fence (hogwire) on the bottom with two strands of barbed wire on top, or with a pipe top rail. A 6' chain link fence topped with three stands of barbed wire will be used if the well location is within 1000' of a permanent residence, school, hospital, institution or church.
- 5. XTO shall construct an expanded metal covering on top of the BGT.
- 6. XTO will ensure that a BGT is constructed of materials resistant to the BGT's particular contents and resistant to damage from sunlight.
- 7. The BGT system will have a properly constructed foundation consisting of a level base free of rocks, debris, sharp edges or irregularities to prevent punctures, cracks or indentations of the liner or tank bottom.
- 8. XTO will construct a berm and/or diversion ditch in a manner that prevents the collection of surface water run-on.
- 9. XTO will construct and use BGT that does not have double walls. The BGT sidewalls will be open for visual inspection for leaks, the BGT bottom will be elevated a minimum of 6" above the underlying ground surface and the BGT will be underlain with a geomembrane liner to divert leaked liquid to a location that can be visually inspected.
- 10. XTO will equip BGT's designed in this manner with a properly functioning automatic high-level shut-off control device and manual controls to prevent overflows.
- 11. The geomembrane liner shall consist of 30-mil flexible PVC or 60-mil HDPE liner, or an equivalent liner material that the appropriate division district office approves. The geomembrane liner shall have a hydraulic conductivity greater that 1 x 10-9 cm/sec. The geomembrane liner shall be composed of an impervious, synthetic material that is resistant to petroleum hydrocarbons, salts and acidic and alkaline solutions. The liner material shall be resistant to ultraviolet light. Liner compatibility shall comply with EPA SW-846 method 9090A.
- 12. The general specifications for design and construction are attached.

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

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

#### **General Plan**

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

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

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

#### General Plan

- XTO will close a BGT within the time periods provided in 19.15.17.13 NMAC, or by an earlier date that the division requires because of imminent danger to fresh water, public health or the environment.
- 2. XTO will close an existing BGT that does not meet the requirements of Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC or is not included in Paragraph (5) of Subsection I of 19.15.17.11 NMAC within five years after June 16, 2008, if not retrofitted to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC.
- 3. XTO will close a permitted BGT within 60 days of cessation of the BGT's operation or as required by the transitional provisions of Subsection B of 19.15.17.17 NMAC in accordance with a closure plan that the appropriate division district office approves. The closure report will be filed on form C-144.
- 4. XTO will remove liquids and sludge from a BGT prior to implementing a closure method and will dispose of the liquids and sludge in a division-approved facility.
- 5. XTO will remove the BGT and dispose of it in a division approved facility or recycle, reuse, or reclaim it in a manner that the appropriate division district office approves.
- 6. XTO will remove any on-site equipment associated with a BGT unless the equipment is required for some other purpose.
- 7. XTO will test the solids beneath the BGT to determine whether a release has occurred. At a minimum 5 point composite sample will be collected along with individual grab samples from any area that is wet, discolored or showing other evidence of a release. Samples will be analyzed for BTEX, TPH and chlorides to demonstrate that the benzene concentration, as determined by EPA SW-846 methods 8021B or 8260B or EPA method that the division approves, does not exceed 0.2 mg/kg; total BTEX concentration, as determined by EPA SW-846 methods 8021B or 8260B or other EPA method that the division approves, does not exceed 50 mg/kg; the TPH concentration, as determined by EPA method 418.1 or other EPA method that the division approves, does not exceed 100mg/kg; and the chloride concentration, as determined by EPA method 300.1 or other EPA method that the division approves, does not exceed 250 mg/kg, or the background concentration, whichever is greater. XTO will notify the division of its results on form C-141.
- 8. If XTO or the division determines that a release has occurred, XTO will comply with 19.15.3.116 NMAC and 19.15.1.19NMAC as appropriate.
- 9. If the sampling program demonstrates that a release has not occurred or that any release does not exceed the concentrations specified in Paragraph (4) of Subsection E of 19.15.17.13 NMAC, XTO will backfill the excavation with compacted, non-waste containing, earthen material; construct a division prescribed soil cover; recontour and re-vegetate the site.
- 10. Notice of Closure will be given to the Aztec Division District III office between 72 hours and one week of closure via email or verbally. The notification will include the following:
  - i. Operator's name
  - Location by Unit Letter, Section, Township, and Range. Well name and API number.

- 11. All closure activities will include proper documentation and be available for review upon request and will be submitted to OCD within 60 days of closure of the BGT. Closure report will be filed on form C-144 and incorporate the following:
  - i. Details on capping and covering, where applicable
  - ii. Inspection reports
  - iii. Sampling results
- 12. Re-contouring of location will match fit, shape, line, form and texture of the surrounding area. Re-shaping will include drainage control, prevent ponding, and prevent erosion. Natural drainages will be unimpeded and water bars and/or silt traps will be placed in areas where needed to prevent erosion on a large scale. Final re-contour shall have a uniform appearance with smooth surface, fitting the natural landscape.
- 13. XTO will seed the disturbed areas the first growing season after the operator closes the pit.

  Seeding will be accomplished via drilling on the contour whenever practical or by other division-approved methods. BLM or Forest Service stipulated seed mixes will be used on federal lands. Vegetative cover will equal 70% of the native perennial vegetative cover (un-impacted) consisting of at least three native plant species, including at least one grass, but not including noxious weeds, and maintain that cover through two successive growing seasons. Repeat seeding or planting will be continued until successful vegetative growth occurs.
- 14. A minimum of 4' of cover shall be achieved and the cover shall include 1' of suitable material to establish vegetation at the site, or the background thickness of topsoil, whichever is greater.
- 15. The surface owner shall be notified of XTO's proposal to close the BGT as per the approved closure plan using certified mail, return receipt requested.