

C-144

Jones, Brad A., EMNRD

From: Kim_Champlin@xtoenergy.com
Sent: Thursday, March 11, 2010 2:12 PM
To: Jones, Brad A., EMNRD
Subject: Fw: BGT P&A's

Brad,

The closure requests for the three locations listed below did go out in this afternoon's mail per our discussion 3/10/10. Should you have any questions once you receive them feel free to contact me. Thanks for your time on this.

OH Randel #8 API 30-045-24788 09F-26N-11W submitted September 2008
Quine GC #2 API 30-045-29704 31K-30N-12W submitted September 2008
Evensen #2 API 30-045-06318 19P-27N-10W submitted September 2008

Kim Champlin
XTO Energy Inc.
EHS Administrative Coordinator
San Juan Division
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(505) 330-8357 cell
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kim_champlin@xtoenergy.com



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

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
☐ Modification to an existing permit
☒ Closure plan only submitted for an existing permitted or non-permitted pit, closed-loop system, below-grade tank, or proposed alternative method

Instructions: Please submit one application (Form C-144) per individual pit, closed-loop system, below-grade tank or alternative request

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.
Operator: XTO ENERGY, INC. OGRID #: 5380
Address: #382 County Road 3100, Aztec, NM 87410
Facility or well name: OH Randel #8
API Number: 30-045-24788 OCD Permit Number: _____
U/L or Qtr/Qtr F Section 09 Township 26N Range 11W County: San Juan
Center of Proposed Design: Latitude 36.50505 Longitude 108.01219 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: Thickness _____ mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other _____
☐ String-Reinforced
Liner Seams: ☐ Welded ☐ Factory ☐ Other _____ Volume: _____ bbl Dimensions: L _____ x W _____ x D _____

3.
☐ **Closed-loop System:** Subsection H of 19.15.17.11 NMAC
Type of Operation: ☐ P&A ☐ Drilling a new well ☐ Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent)
☐ Drying Pad ☐ Above Ground Steel Tanks ☐ Haul-off Bins ☐ Other _____
☐ Lined ☐ Unlined Liner type: Thickness _____ mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other _____
Liner Seams: ☐ Welded ☐ Factory ☐ Other _____

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 Visible sidewalls, vault, automatic overflow shut off
Liner type: Thickness _____ mil ☐ 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, school, hospital, institution or church*)
- ☐ Four foot height, four strands of barbed wire evenly spaced between one and four feet
- ☐ Alternate. Please specify _____

7.

Netting: Subsection E of 19.15.17.11 NMAC (*Applies to permanent pits and permanent open top tanks*)

- ☐ Screen ☐ Netting ☐ Other _____
- ☐ Monthly inspections (If netting or screening is not physically feasible)

8.

Signs: Subsection C of 19.15.17.11 NMAC

- ☐ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers
- ☐ Signed in compliance with 19.15.3.103 NMAC

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 office for consideration of approval.
- ☐ Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

10.

Siting Criteria (regarding permitting): 19.15.17.10 NMAC

Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. Siting criteria does not apply to drying pads or 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	<input type="checkbox"/> Yes <input type="checkbox"/> 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). - Topographic map; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. (Applies to temporary, emergency, or cavitation pits and below-grade tanks) - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. (Applies to permanent pits) - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
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	<input type="checkbox"/> Yes <input type="checkbox"/> No
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	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within a 100-year floodplain. - FEMA map	<input type="checkbox"/> Yes <input type="checkbox"/> No

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)

13.

Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Climatological Factors Assessment
- ☐ Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Quality Control/Quality Assurance Construction and Installation Plan
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Nuisance or Hazardous Odors, including H₂S, 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

14.

Proposed Closure: 19.15.17.13 NMAC

Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

Type: ☐ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ P&A ☐ Permanent Pit ☒ Below-grade Tank ☐ Closed-loop System

☐ Alternative

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)

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

16.

Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only: (19.15.17.13.D NMAC)

Instructions: Please identify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two 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 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

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 closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for guidance.

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

☐ Yes ☐ No

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

18.

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 19.15.17.11 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 I of 19.15.17.13 NMAC

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

19.

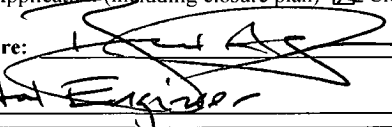
Operator Application Certification:

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): Kim Champlin Title: EH&S Administrative Coordinator
 Signature:  Date: March 11, 2010
 e-mail address: kim_champlin@xtoenergy.com Telephone: (505) 333-3100

20.

OCD Approval: ☐ Permit Application (including closure plan) ☒ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature:  Approval Date: 3/16/10

Title: Environmental Engineer OCD Permit Number: _____

21.

Closure Report (required within 60 days of closure completion): Subsection K of 19.15.17.13 NMAC

Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.

☐ Closure Completion Date: _____

22.

Closure Method:

☐ Waste Excavation and Removal ☐ On-Site Closure Method ☐ Alternative Closure Method ☐ Waste Removal (Closed-loop systems only)
☐ If different from approved plan, please explain.

23.

Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:

Instructions: Please identify the facility or facilities for where the liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than two facilities were utilized.

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Were the closed-loop system operations and associated activities performed on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please demonstrate compliance to the items below) ☐ No

Required for impacted areas which will not be used for future service and operations:

- ☐ Site Reclamation (Photo Documentation)
☐ Soil Backfilling and Cover Installation
☐ Re-vegetation Application Rates and Seeding Technique

24.

Closure Report Attachment Checklist: *Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.*

- ☐ Proof of Closure Notice (surface owner and division)
☐ Proof of Deed Notice (required for on-site closure)
☐ Plot Plan (for on-site closures and temporary pits)
☐ Confirmation Sampling Analytical Results (if applicable)
☐ Waste Material Sampling Analytical Results (required for on-site closure)
☐ Disposal Facility Name and Permit Number
☐ Soil Backfilling and Cover Installation
☐ Re-vegetation Application Rates and Seeding Technique
☐ Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude _____ Longitude _____ NAD: ☐ 1927 ☐ 1983

25.

Operator Closure Certification:

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): _____ Title: _____

Signature: _____ Date: _____

e-mail address: _____ Telephone: _____



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

**Pit Permit
Siting Criteria
Information Sheet**

Client:	XTO Energy
Project:	Pit Permits
Revised:	25-Sep-08
Prepared by:	Devin Hencmann

API#: 3004524788

USPLSS: 26N, 11W,09F

Name: RANDEL OH #8

Lat/Long: 36.50505/-108.01219

Depth to groundwater: >100'

Geologic formation: Nacimiento

Distance to closest continuously flowing watercourse: 13.1 miles N to the 'San Juan River'

Distance to closest significant watercourse, lakebed, playa lake, or sinkhole: 3 miles W to Gallegos Canyon

Permanent residence, school, hospital, institution or church within 300' No

Soil Type: Entisols

Annual 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

Within defined municipal fresh water well field No

Attached Documents: 27N 11W i-Waters pdf, 27N 12W i-Waters pdf

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 No-FEMA Zone 'X'

Additional Notes:

RANDEL OH #8 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 Nacimient 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 Nacimient Formation lies at the surface and grades into the Animas Formation to the west. Thickness of the Nacimient ranges from 418 to 2232 feet (Stone et al., 1983). Aquifers within the coarser and continuous sandstone bodies of the Nacimient 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

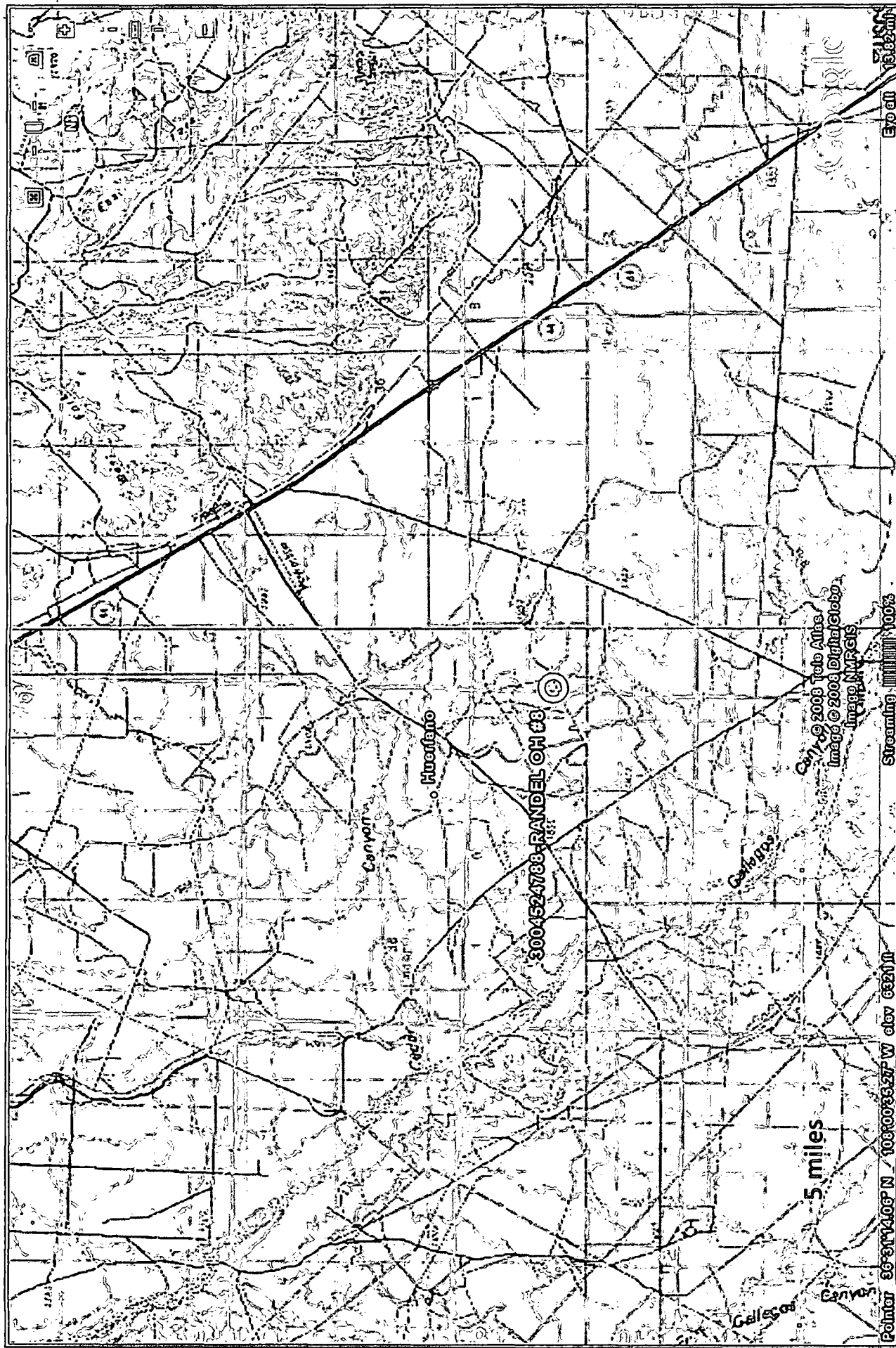
Depth to groundwater is estimated to be greater than 100 feet. This estimation is based on data from Stone and others (1983), the USGS Groundwater Atlas of the United States and depth to groundwater data published on the New Mexico State Engineer's iWaters Database website. Local topography and proximity 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 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 the relatively flat mesa top at an elevation of approximately 6347 feet and approximately 3 miles east of Gallegos Canyon. Broad shaly 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 over 500 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 produce 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.



TOPOGRAPHIC MAP	RANDEL OH #8 T26N, R11W, S09F San Juan county, NM	Lodestar Services, Inc PO Box 4465 Durango, CO 81302
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AERIAL PHOTOGRAPH

RANDEL OH #8
T26N, R11W, S09F
San Juan county, NM

Lodestar Services, Inc
PO Box 4465
Durango, CO 81302

New Mexico Office of the State Engineer
POD Reports and Downloads

POD / Surface Data ReportAvg Depth to Water ReportWater Column Report

WATER COLUMN REPORT 08/22/2008

(quarters are 1=NW 2=NE 3=SW 4=SE)
 (quarters are biggest to smallest)

POD Number	Tws	Rng	Sec	q	q	q	Zone	X	Y	Depth Well	Depth Water	Water Column	Water (in feet)
SJ 01787	27N	11W	07	2	2					650			
SJ 00077	27N	11W	26	2	1	3				1102	550	552	

Record Count: 2

WATER COLUMN REPORT 09/23/2008

(quarters are 1=NW 2=NE 3=SW 4=SE)
 (quarters are biggest to smallest)

POD Number	Tws	Rng	Sec	q	q	q	Zone	X	Y	Depth Well	Depth Water	Water Column	Water (in feet)
SJ 00034	27N	10W	08	2	2	3				238	170	88	

New Mexico Office of the State Engineer
POD Reports and Downloads

WATER COLUMN REPORT 08/22/2008

(quarters are 1=NW 2=NE 3=SW 4=SE)
 (quarters are biggest to smallest)

POD Number	Tws	Rng	Sec	q	q	q	Zone	X	Y	Depth Well	Depth Water	Water Column	Depth (in feet)
RG 76598	27N	12N	02	3	4	1				225	145	80	
SJ 00076	27N	12N	13	1	3	2				641	408	233	
SJ 00210	27N	12N	13	2	2	2				717	422	295	
SJ 00065	27N	12N	13	3	1	1				671	215	456	
SJ 00066	27N	12N	13	3	3	1				750	177	573	

Record Count: 5

WATER COLUMN REPORT 09/25/2008

(quarters are 1=NW 2=NE 3=SW 4=SE)
 (quarters are biggest to smallest)

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



APPROXIMATE SCALE



LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATE BY 100-YEAR FLOOD

- ZONE A** No base flood elevations determined.
- ZONE AE** Base flood elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined; for areas of residual fan flooding, velocities are determined.
- ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevation determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.
- OTHER AREAS** Areas determined to be outside 500-year flood plain.
- ZONE D** Areas in which flood hazards are undetermined.

- Flood Boundary
- Floodway Boundary
- Zone D Boundary
- Boundary Dividing Special Flood Hazard Zones

- Base Flood Elevation Line; Elevation in Feet
- Cross Section Line
- Base Flood Elevation in Feet Where Uniform Within Zone
- RM7 X Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



Lodestar Services, Inc
PO Box 4465
Durango, CO 81302

RANDEL OH #8
T26N, R11W, S09F
San Juan county, NM

i-Waters Ground Water Data
Map



<p>Lodestar Services, Inc PO Box 4465 Durango, CO 81302</p>	<p>RANDEL OH #8 T26N, R11W, S09F San Juan county, NM</p>	<p>Mines and Quarries Map</p>
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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

1. XTO will close below-grade tanks within the time periods provided in 19.15.17.13 NMAC, or by an earlier date that the division requires because of imminent danger to fresh water, public health or the environment.
2. XTO will close a below-grade tank that does not meet the requirements of Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC or is not included in Paragraph (5) of Subsection I of 19.15.17.11 NMAC within five years after June 16, 2008, if not retrofitted to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC.
3. XTO will close a permitted below-grade tank within 60 days of cessation of the below-grade tank's operation or as required by the transitional provisions of Subsection B of 19.15.17.17 NMAC in accordance with a closure plan that the appropriate division district office approves. The closure report will be filed on form C-144.
4. XTO will remove liquids and sludge from below-grade tanks prior to implementing a closure method and will dispose of the liquids and sludge in a division-approved facility. Approved facilities and waste streams include:
 - Envirotech Permit No. NM01-0011 and IEI Permit No. NM 01-0010B
 - Soil contaminated by exempt petroleum hydrocarbons
 - Produced sand, pit sludge and contaminated bottoms from storage of exempt wastes
 - Basin Disposal Permit No. NM01-005
 - Produced water
5. XTO will remove the below-grade tank and dispose of it in a division approved facility or recycle, reuse, or reclaim it in a manner that the appropriate division district office has approved prior to removal. Any associated liners will be removed, properly cleaned and disposed of per 19.15.9.712 NMAC at San Juan County Landfill. Documentation of the final disposition will be included in the closure report.
6. XTO will remove any on-site equipment associated with a below-grade tank unless the equipment is required for some other purpose.
7. XTO will test the soils beneath the below-grade tank to determine whether a release has occurred. At a minimum 5 point composite sample will be collected along with individual grab samples from any area that is wet, discolored or showing other evidence of a release. Samples will be

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.

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.