API# 30-015-29434

Jones, Brad A., EMNRD

From: Jones, Brad A., EMNRD
Sent: Thursday, June 14, 2012 2:38 PM
To: David_Luna@xtoenergy.com
Cc: Bratcher, Mike, EMNRD; Keith_Hebert@xtoenergy.com; 'Andrew Parker'; r@rthicksconsult.com
Subject: Nash Unit #29 C-144 Application Submittal for Modular Impoundment approval
Attachments: 2012 6-14 XTO Energy Inc. Nash Unit #29 Poseidon Concepts TP permit 2.pdf

David,

Please see the attached… it is a copy of your approval. Thank you and the effort of your consultants for working with OCD in order for the OCD to complete the approval process. OCD appreciates XTO's effort in resolving this matter. If you have any questions, please do not hesitate to contact me.

Brad

Brad A. Jones
Environmental Engineer
Environmental Bureau
NM Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505
E-mail: brad.a.jones@state.nm.us
Office: (505) 476-3487
Fax: (505) 476-3462

R. T. Hicks Consultants, Ltd.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

June 13, 2012

Mr. Mike Bratcher
NMOCD District 2
811 South First Street
Artesia, New Mexico 88210
Via E-mail

Mr. Brad Jones
NMOCD
1220 S. St. Francis Drive
Santa Fe, NM

RE: Nash Draw Unit #29 modular impoundment (Atlantis system) for temporary storage of treated produced water.

Dear Mike and Brad:

For the above-referenced modular impoundment, we are pleased to submit:

1. A C-144 Form
2. Supplemental information to support the C-144

Please contact me with any questions or comments at 505-266-5004

Sincerely,
R.T. Hicks Consultants

Andrew Parker

Andrew Parker

Copy: David Luna, XTO Energy

June 2012

C-144 Permit Package for Nash Draw Unit #29 - Temporary Storage of Treated Produced Water - Modular Impoundment Section 13 T23S R29E Eddy County NM

Prepared for XTO Energy Midland, Texas

Prepared by
R.T. Hicks Consultants, Ltd.
Albuquerque, New Mexico

C-144

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., 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
Revised August 1, 2011

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: 200 N. Loraine, Suite 800 Midland, TX 79701
Facility or well name: Nash Unit #29
API Number: 30-015-29434 OCD Permit Number:
U/L or Qtr/Qtr J Section 13 Township 23S Range 29E County: Eddy
Center of Proposed Design: Latitude N 32.30322 Longitude W 103.93719 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 X Other: Modular impoundment for temporary storage of treated produced water
☒ Lined ☐ Unlined Liner type: Thickness 30 mil ☒ LLDPE ☐ HDPE ☐ PVC ☒ Other Vertical steel foam-insulated panels that support liner
☐ String-Reinforced
Liner Seams: ☒ Welded ☒ Factory ☐ Other Volume: 41,000 bbl Dimensions: ~~L x W x D~~ Diameter: 157 ft. Height: 12 ft

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: ____ bbl Type of fluid:
Tank Construction material:
☐ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other
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 Modular impoundment walls are 12 feet high; no fencing necessary.

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 19.15.16.8 NMAC See photos in Appendix SSI-1

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	☐ Yes ☒ No SEE FIGURES 1a,1b
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 SEE FIGURE 2
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	☐ Yes ☒ No ☐ NA SEE FIGURE 3
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	☐ Yes ☐ No ☒ 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	☐ Yes ☒ No SEE FIGURE 4
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 SEE FIGURE 5
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No SEE FIGURE 6
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☒ No SEE FIGURE 7
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☒ Yes ☐ No SEE FIGURE 8
Within a 100-year floodplain. - FEMA map	☐ Yes ☒ No SEE FIGURE 9

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 H_2S, 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 Modular impoundment for temporary storage of treated produced water

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 indentify 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): David Luna Title: Operations Engineer

Signature: David Luna Date: 06/13/2012

e-mail address: David_Luna@xtoenergy.com Telephone: 432-620-6742

20.
OCD Approval: ☒ Permit Application (including closure plan) ☐ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature: ________ **Approval Date:** 6/14/12

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 indentify 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: ________

Survey Information

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

District I
PO Box 1980, Hobbs, NM 88241-1980
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505

Form C-102
Revised October 18, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30-015-29434	47545	NASH DRAW BRUSHY CANYON OIL POOL

4 Property Code	5 Property Name	6 Well Number
010735	NASH UNIT	29
7 OGRID No.	**8 Operator Name**	**9 Elevation**
021712	STRATA PRODUCTION	2991.

10 Surface Location

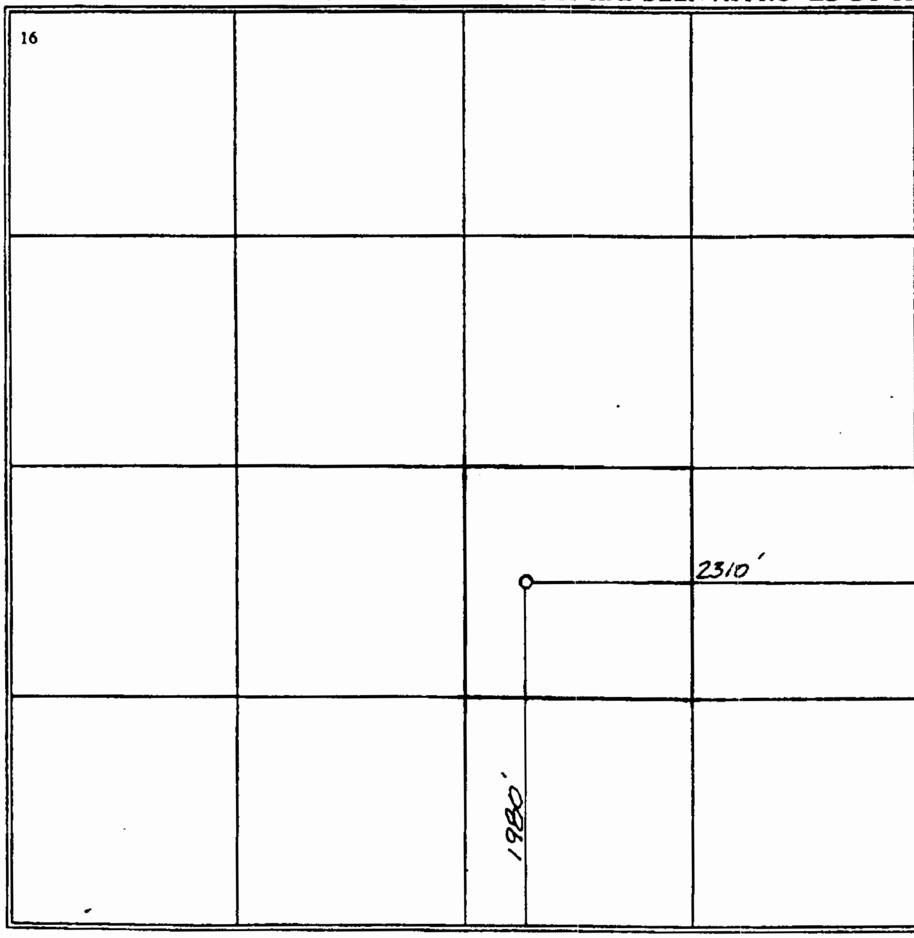
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	13	23-S	29-E		1980	SOUTH	2310	EAST	EDDY

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
40.00	N	U	

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief

Carol J. Garcia
Signature
CAROL J. GARCIA
Printed Name
PRODUCTION RECORDS MANAGER
Title
JANUARY 15, 1997
Date

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

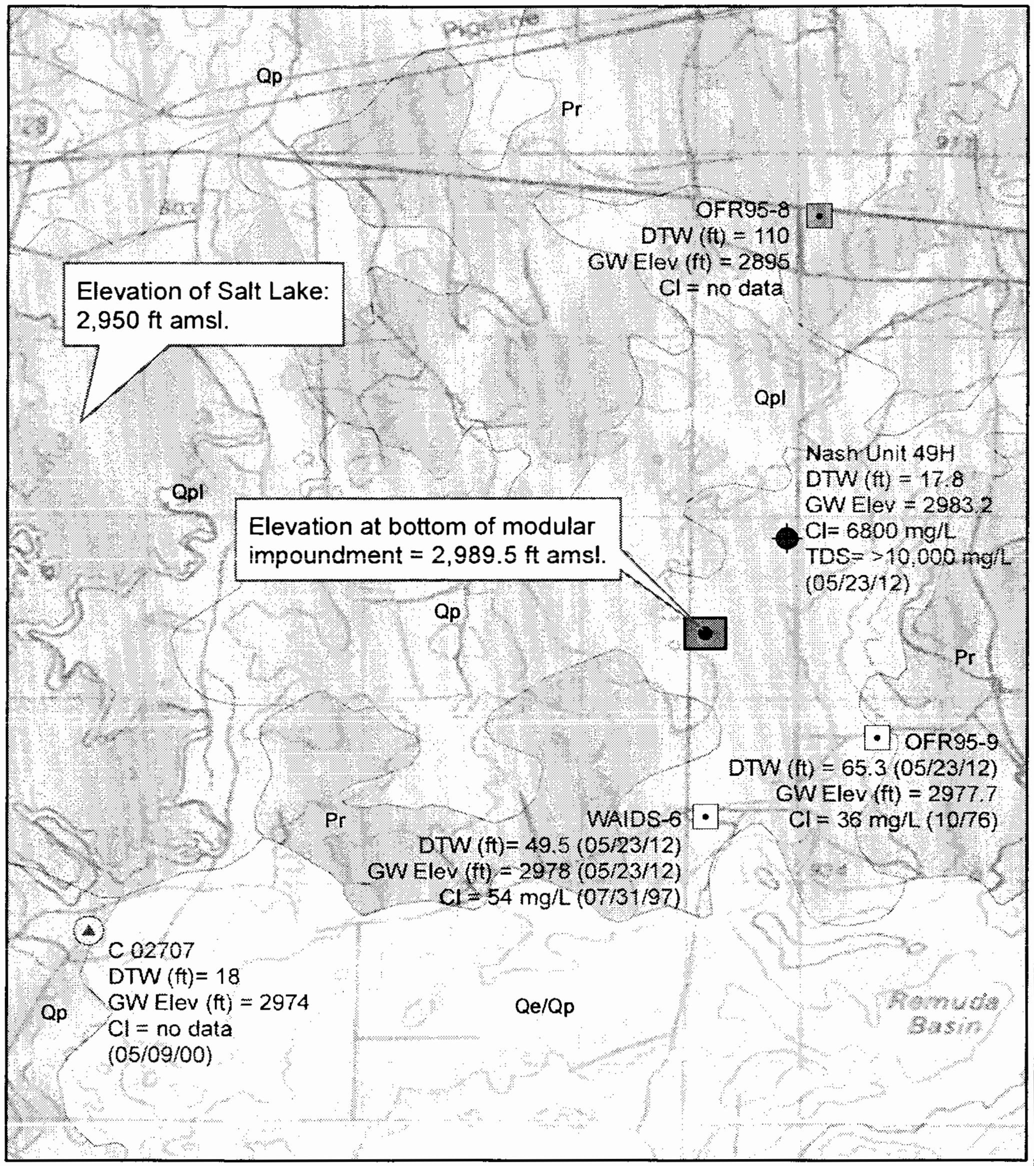
NOVEMBER 26, 1996
Date of Survey
Signature and Seal of Professional Surveyer:

Certificate Number NM PE&PS NO. 5412

Site Specific Information

- Figures 1 - 9
- Siting Compliance Demonstration
- Design and Construction Demonstration
- Operational Compliance
- Closure Requirements

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104



Legend

Location

Nash Draw 49H Conductor Pipe

Misc. Water Wells

Well Depth (ft)

No Data

< 150

150 - 350

OSE Water Wells

Well Depth (ft)

<150

Geology with description

Pqm, Paleozoic-Quartermaster Formation; red sandstone and siltstone; Upper Permian

Pqr, Paleozoic-Quartermaster and Rustler Formations; Upper Permian

Pr, Paleozoic-Ruster Formation; siltstone, gypsum, sandstone, and dolomite; Upper Permian

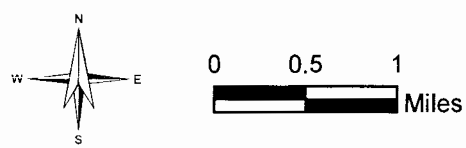
Qa, Quaternary Alluvium

Qe/Qp, Quaternary-Eolian Piedmont Deposits

Qoa, Quaternary-Older Alluvial Deposits

Qp, Quaternary-Piedmont Alluvial Deposits

Qpl, Quaternary-Lacustrine and Playa Deposits



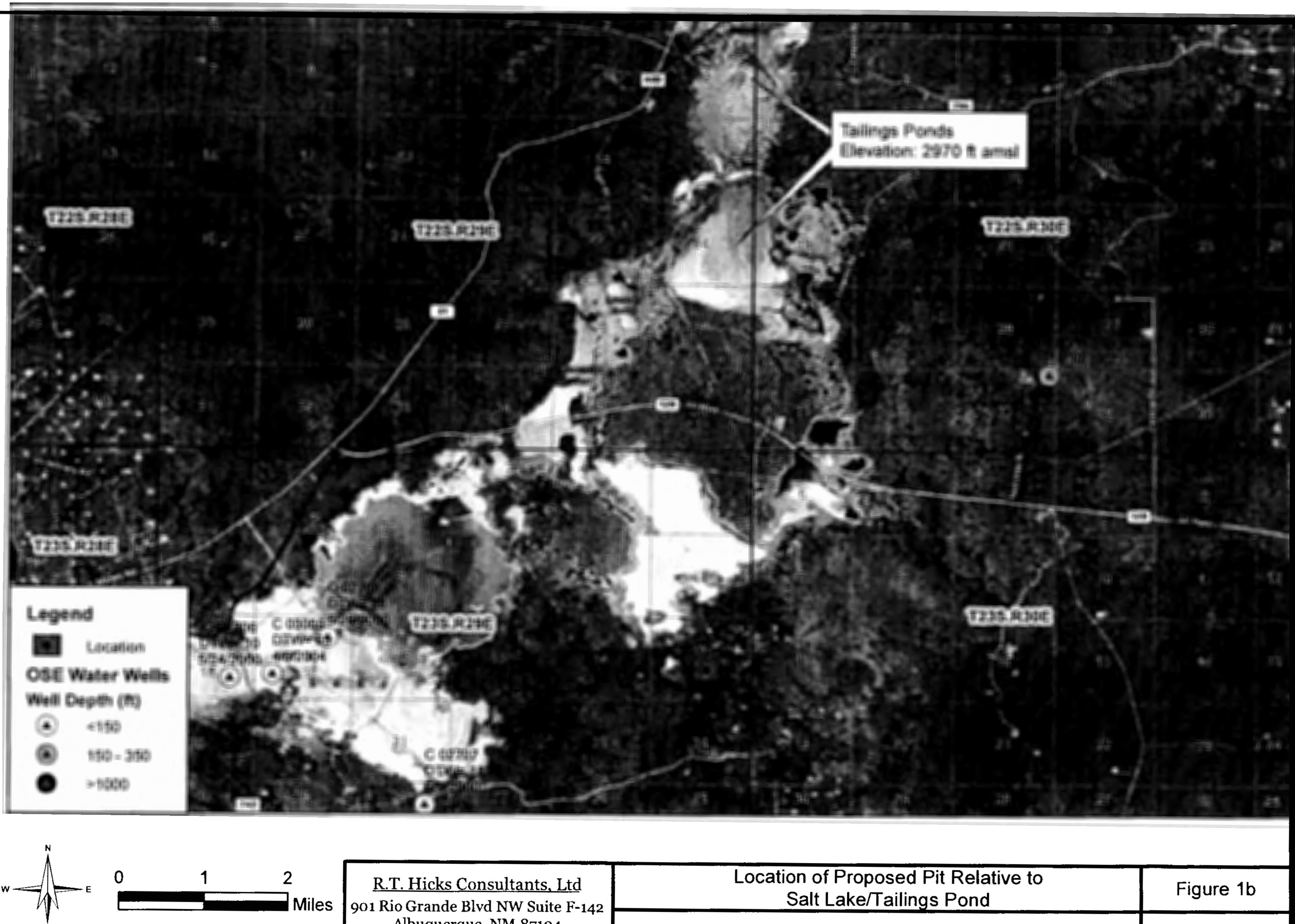
R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Nearyby Water Wells and Geology

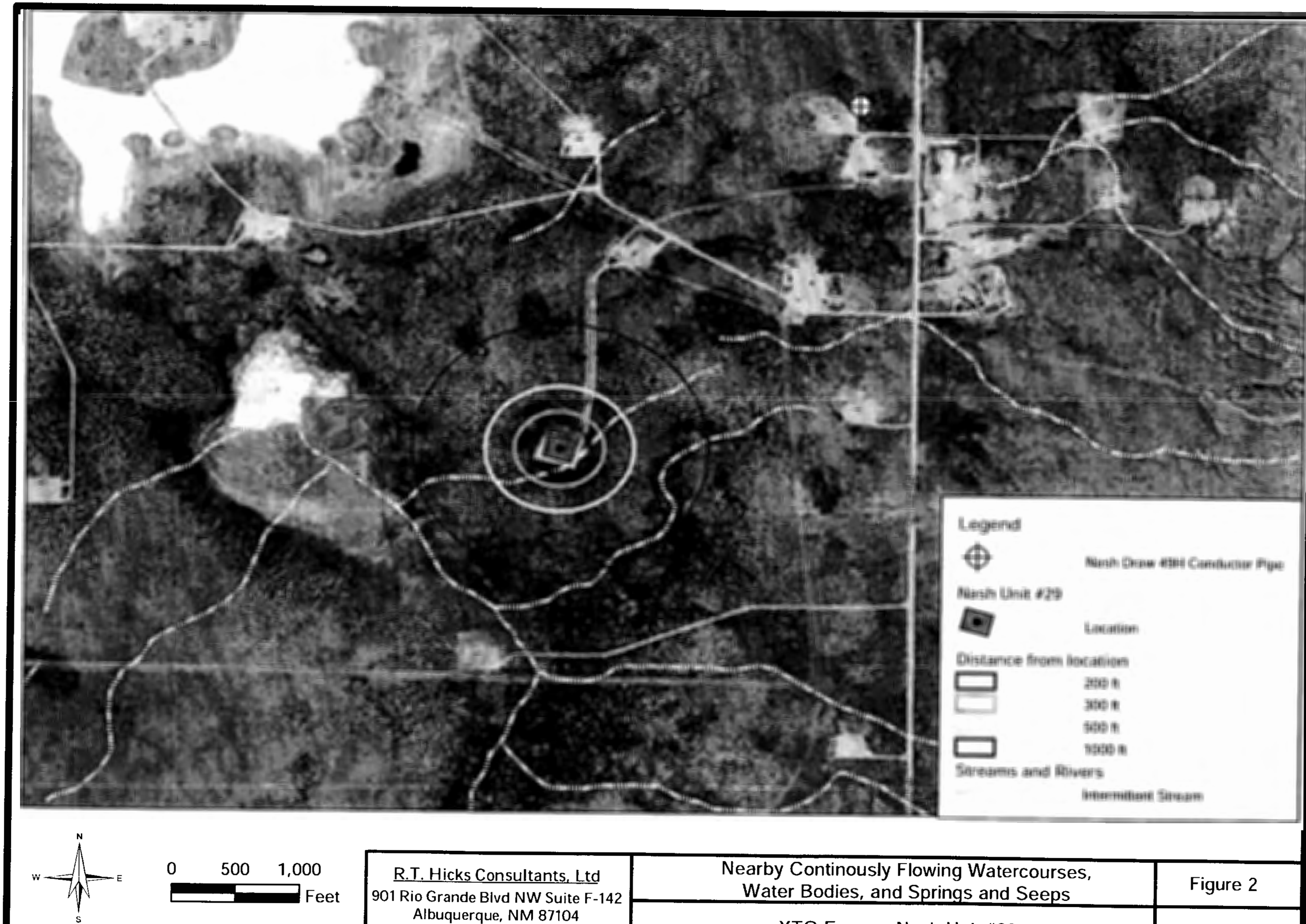
XTO Energy: Nash Unit #29

Figure 1a

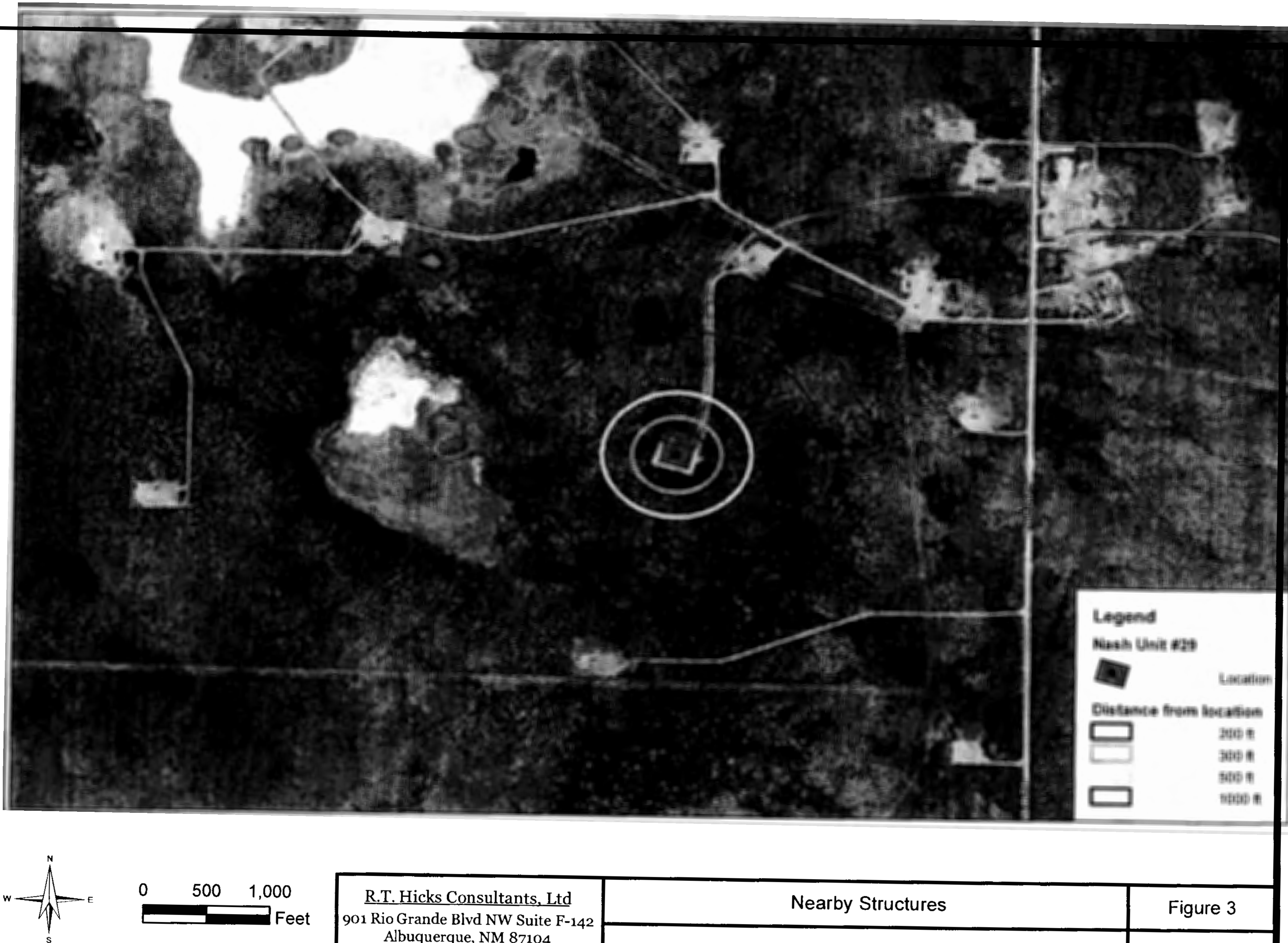
June 2012



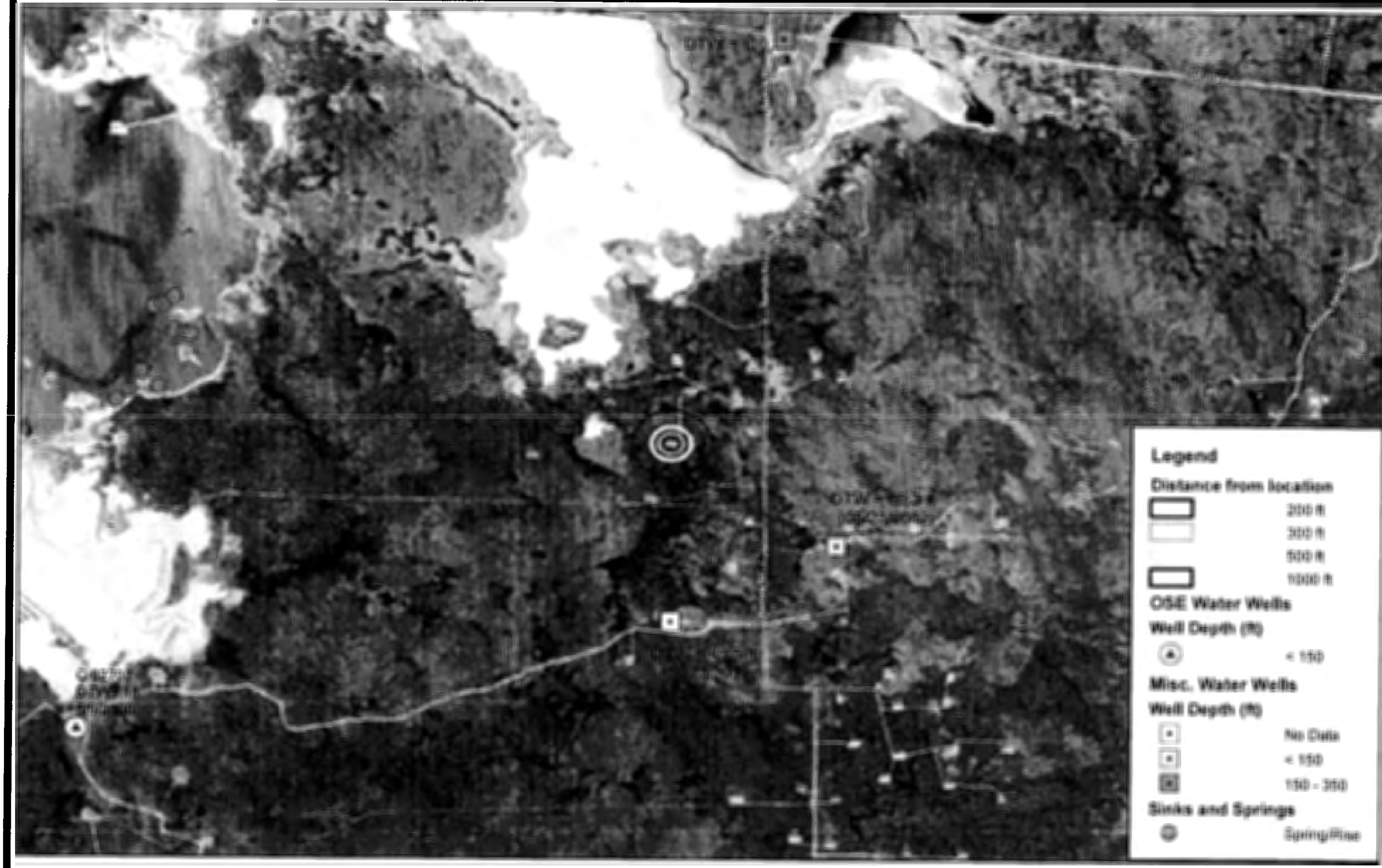
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Location of Proposed Pit Relative to Salt Lake/Tailings Pond	Figure 1b
	XTO Energy: Nash Unit #29	June 2012



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Continously Flowing Watercourses, Water Bodies, and Springs and Seeps	Figure 2
	XTO Energy: Nash Unit #29	June 2012



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Structures	Figure 3
	XTO Energy: Nash Unit #29	June 2012



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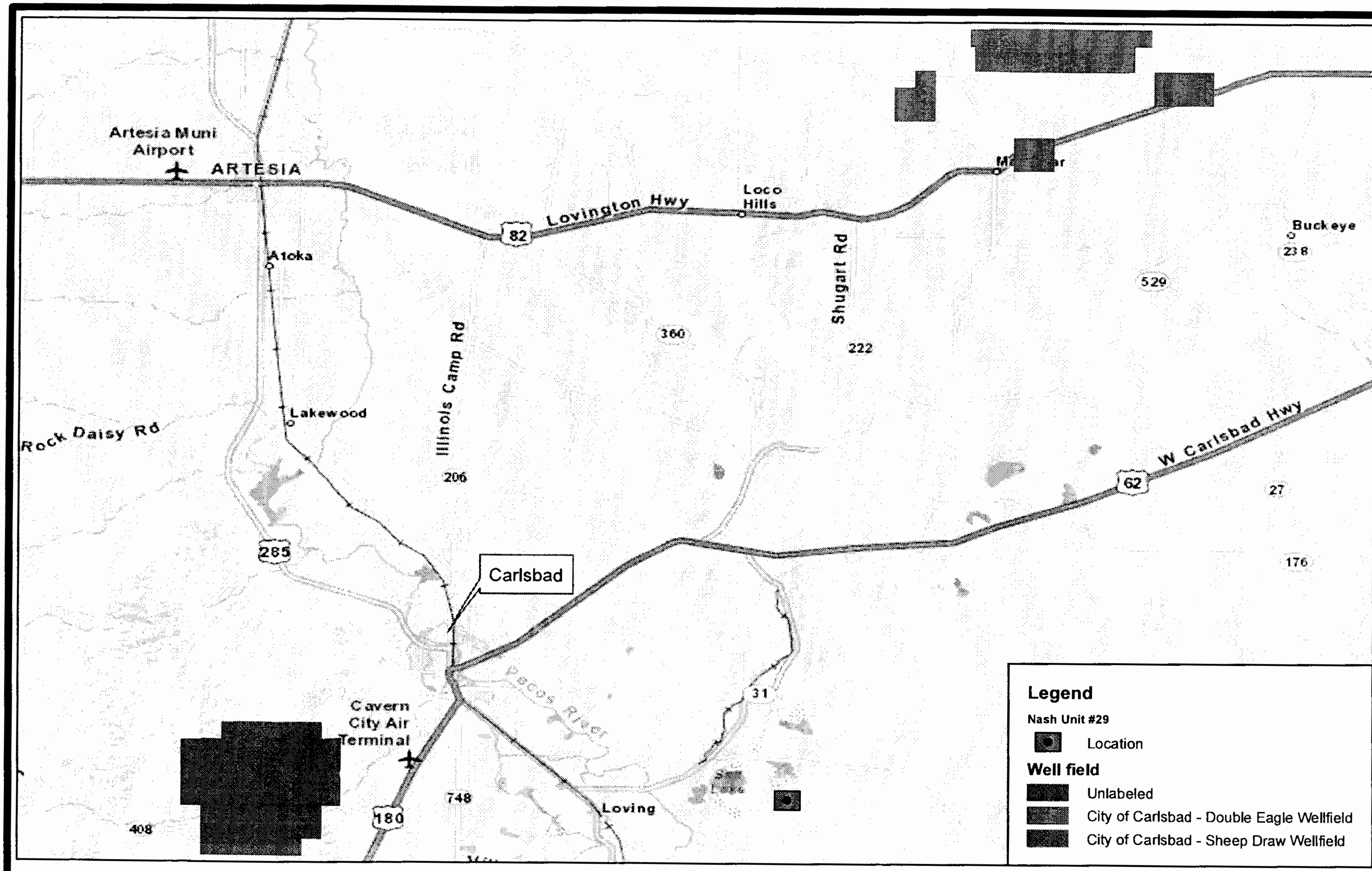
Nearby Fresh Water Springs or Wells	Figure 4
XTO Energy: Nash Unit #29	June 2012



Well field source: BLM Base Map Data January 2012

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Municipal Areas and Well Fields	Figure 5
	XTO Energy: Nash Unit #29	June 2012

U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands

May 10, 2012

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Wetlands

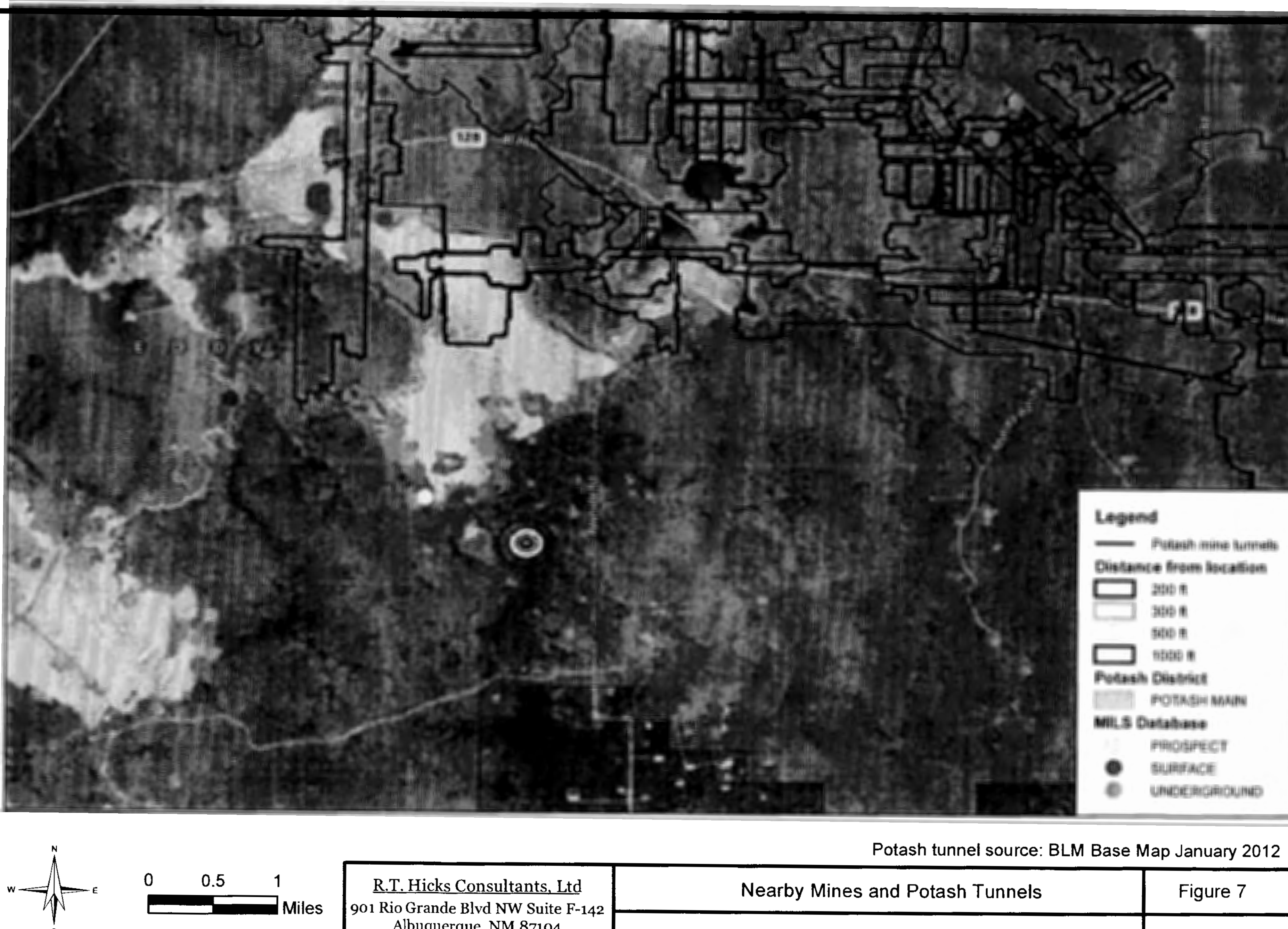
- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

- Herbaceous
- Forested/Shrub

User Remarks:

Figure 6



Potash tunnel source: BLM Base Map January 2012

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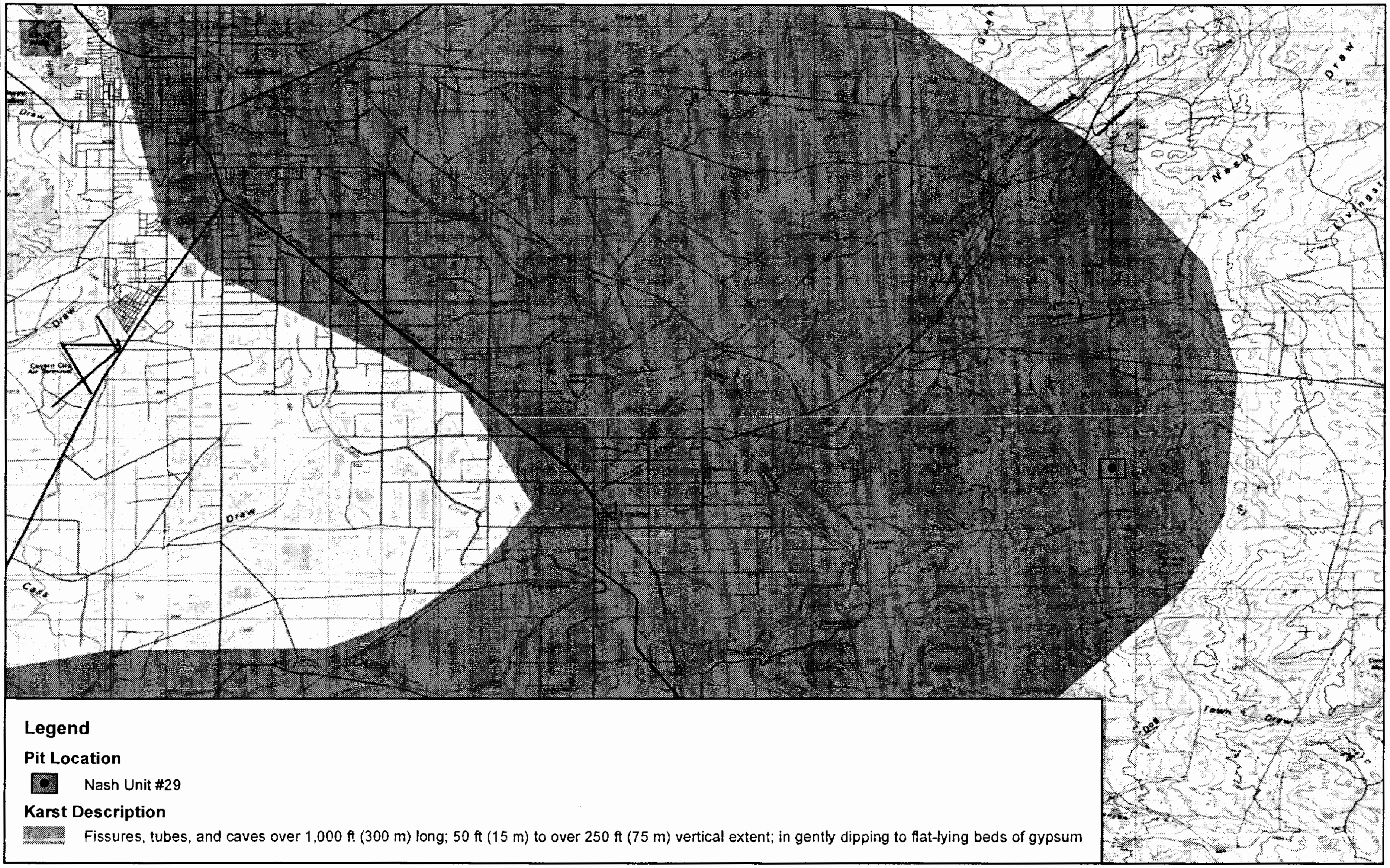
Nearby Mines and Potash Tunnels

Figure 7

XTO Energy: Nash Unit #29

June 2012



Legend

Pit Location

Nash Unit #29

Karst Description

Fissures, tubes, and caves over 1,000 ft (300 m) long; 50 ft (15 m) to over 250 ft (75 m) vertical extent; in gently dipping to flat-lying beds of gypsum

N W E S

0 1.5 3 Miles

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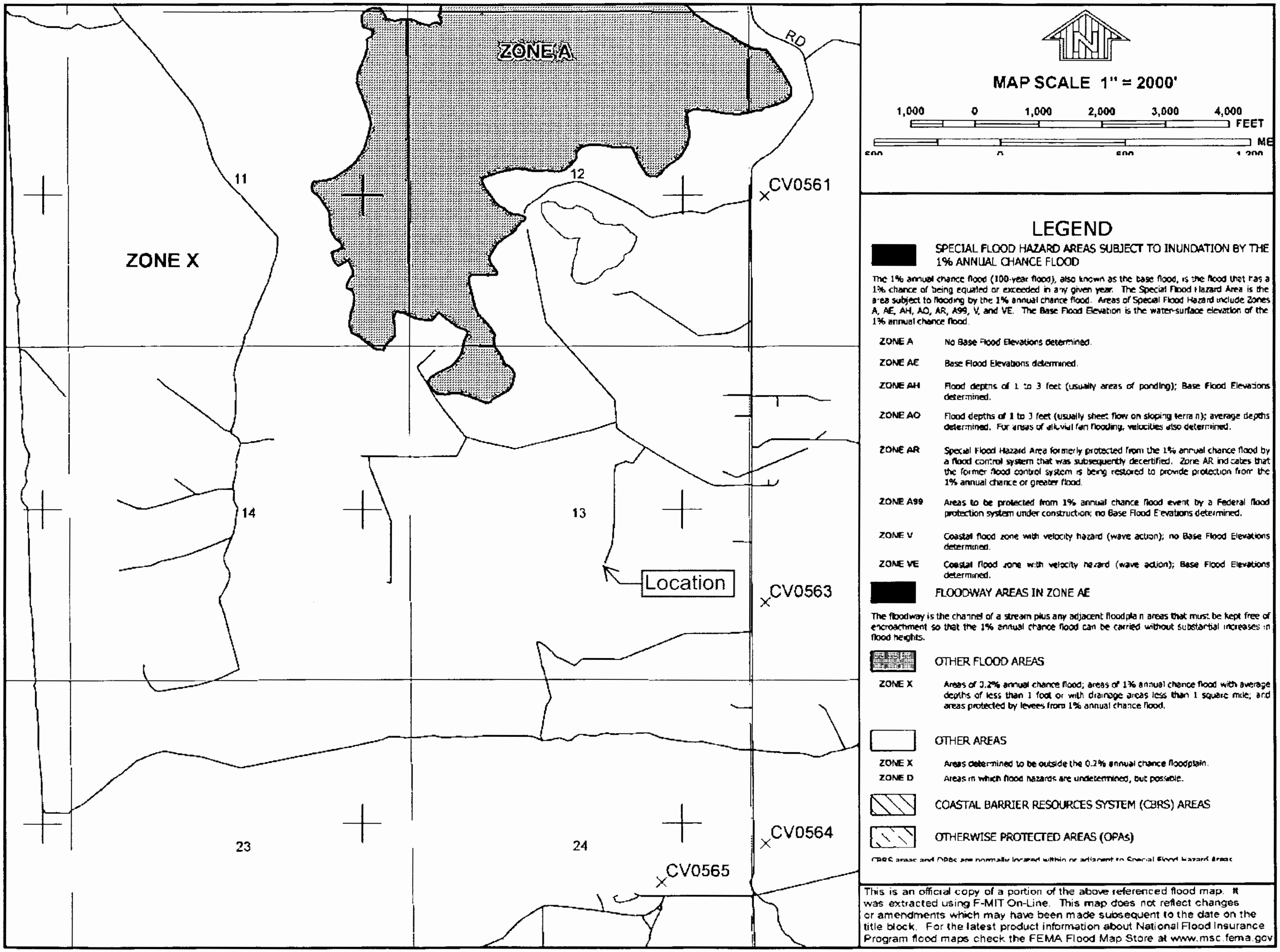
Nearby Unstable Areas	Figure 8
XTO Energy: Nash Unit #29	May 2012



FEMA Flood Map Figure 9

Siting Criteria (NMAC 19.15.17.10) with hydrogeologic report for depth to groundwater compliance demonstration

Figure 1a – 1b, Appendix SSI-1 (Site Visit Photos), and the hydrogeologic data presented below demonstrates that groundwater (fresh water as defined by NMOCD Rules that has a TDS < 10,000 mg/L) at the location is between 50 and 100 feet below the bottom of the temporary pit.

a. The location of the modular impoundment that shall temporarily store treated produced water is plotted as an orange rectangle with a black dot in the center (Figures 1a and 1b).
b. Water wells in the OSE database are shown as color coded circles as defined by the total depth of the well. OSE well labels include the permit number, depth to groundwater (ft) and date of measurement – some OSE wells are mis-located in the WATERS database as older wells are plotted in the center of the quarter quarter quarter of the Section Township and Range.
c. Water wells in the Go-Tech WAIDS database and Open File Report 95 are color coded squares defined by the total depth of the well as shown in Figures 1a and 1b. The closest fresh water well listed in publicly available databases is about 0.97 miles southeast of the modular impoundment.

Geology

The modular impoundment is located on Quaternary-Piedmont alluvial deposits (Figure 1a). The elevation at the bottom of the modular impoundment is 2,989.5 feet amsl. Underlying the alluvial deposits is the Rustler Formation that is composed of anhydrite, gypsum, interbedded sandy clay and shale, and irregular beds of dolomite. The Rustler overlies the Salado Formation.

The basal beds of the Rustler (Virginia Draw Member, Prv in OF-GM-77) consist of porous gypsum in a large part of Nash Draw and southwest to Malaga Bend. Hendrickson and Jones (1952) state that these basal beds commonly contain brine saturated with sodium chloride. The brackish groundwater within Nash Draw (in the alluvium and lower Rustler) flows southwest past what is mapped as a Salt Lake and discharges into the Pecos River near Malaga Bend.

Above the basal brine aquifer in the Rustler is the 35-foot thick unit of dolomitic limestone at the top of the lower part of the Rustler (probably the Culebra Dolomite, Prc). Fluid from this brackish aquifer is used by the potash mines to sluice tailings (Hendrickson and Jones, 1952).

Overlying the Rustler are Quaternary alluvial, lacustrine and piedmont deposits. Figure 1a shows that the modular impoundment lies on piedmont deposits (Qp) with playa/lacustrine deposits (Qpl) to the west and north and exposures of Rustler to the southeast and southwest.

Groundwater Elevations and Chemistry

Groundwater data from water wells near the modular impoundment location are shown on Figure 1a and 1b. Figure 2 shows that the Salt Lake/tailing pond, approximately 1,400 feet west of the modular impoundment location, is influenced by fluids from a nearby potash mine/mill (Figure

1b). In the upper central portion of the aerial photograph (Figure 1b); evidence of the tailings pile is clear – fluids emanating from the mill flow into the Salt Lake/tailing ponds along with occasional stormwater runoff. The fluids in the Salt Lake/tailings pond are a source of recharge to groundwater. As will be discussed below, TDS concentrations at Nash Unit #49H (3,250 feet to the east) provide evidence of the recharge effect on groundwater quality. The modular impoundment site is located even closer to the Salt Lake/tailings pond (about 1,400 feet east). Because concentrations will decrease continuously with distance from the Salt Lake/tailings pond due to dispersion, it is expected that concentrations in groundwater will be higher than those at Nash Unit #49H.

Water data within 1-mile
Hicks Consultants gauged and sampled groundwater from the recent drilling of the rathole (TD = 50 feet) at Nash Unit 49H, approximately 0.6 miles northeast of the modular impoundment. Brackish groundwater is present at 17.8 feet below ground surface (2,983.2 ft amsl). Chloride field titration exhibited 6,800 mg/L. A subsequent Hicks Consultants gauging event on May 23, 2012 of the conductor pipe at Nash Draw 49H exhibited TDS readings exceeding 10,000 ppm (Hanna pH/EC/TDS meter, model HI 87130).

Approximately 1-mile south of the modular impoundment is a water well (WAIDS-6) listed in Go-Tech's WAIDS database. This well is listed as a stock well completed within the Rustler formation; the WAIDS database provides no total depth or depth to groundwater data. However, the WAIDS reports a chloride concentration of 54 mg/L (07/31/1997). Hicks Consultants measured the depth to groundwater on May 23, 2012 at 49.5 feet below ground surface (2,978 ft amsl).

Approximately one mile southeast of the modular impoundment, Open File Report -95[3] describes a stock well (OFR95-9) completed within the Rustler formation with a depth to groundwater of 54.9 feet (10/1977) and a total well depth of 59.6 feet. The WAIDS database lists total depth of the well at 100 feet (12/10/76) with a chloride concentration of 36 mg/L. Hicks Consultants measured this well on May 23, 2012 with a depth to groundwater of 65.3 feet (2,977.7 feet amsl).

Water data beyond 1-mile
Approximately 2.3 miles north-northeast of the modular impoundment, New Mexico Bureau of Mines and Mineral Resources Open File Report -95 shows a well (OFR95-8) with a depth to groundwater of 110 feet below ground surface (2,895 ft amsl) and a total depth of 200 feet. Chloride data for this well does not exist. The difference between groundwater elevation at OFR95-8 and the bottom of the modular impoundment is approximately 95 feet. Therefore, we believe that groundwater that has the potential to be protectable (<10,000 mg/L TDS) exists between 50 and 100 feet below the modular impoundment.

Approximately three miles southwest of the modular impoundment, the OSE database describes well C 02707 with a depth to groundwater at 18 feet below ground surface (2,974 ft amsl) and a total depth of 40 feet. No chloride data exists for this well

[3] http://geoinfo.nmt.edu/publications/openfile/details.cfml?Volume=95

Approximately 4.8 miles west of the modular impoundment, the OSE database describes well C 02706 with a depth to groundwater at 10 feet below ground surface (2,942 ft amsl) and a total depth of 17 feet (Figure 1b). Water quality data from WAIDS database shows chloride concentrations ranging from 98,000 mg/L to 203,700 mg/L with an average concentration of 155,200 mg/L. The high chloride concentrations in groundwater within the alluvial sediments near the Salt Lake/tailings pond are consistent with the sources of this fluid.

Conclusion

The two wells and the rathole within 1-mile of the location (WAIDS-6, OFR95-9, Nash Unit #49H) suggest a local groundwater gradient to the southwest, consistent with local topography and regional southwest gradient (Hendrickson and Jones, 1952). Groundwater elevations in these wells range from 2,978 to 2,983 ft amsl and are considered to be within the same shallow groundwater zone less than 50 feet below ground surface. Subtracting the above groundwater elevations from the elevation of the bottom of the modular impoundment suggests that groundwater beneath the location is approximately 6 to 11 feet below ground surface.

Furthermore, TDS concentrations greater than 10,000 mg/L at Nash Unit #49H demonstrate that the shallow groundwater zone is impacted by the Salt Lake/tailing pond 3,250 feet to the west (Figure 2). The modular impoundment site is about 1,400 feet east from the Salt Lake/tailing pond, about 1,800 feet closer to the Salt Lake/tailing pond than Nash Unit #49. Because the concentration gradient from the Salt Lake/tailing pond will decrease continuously with distance from the pond due to dispersion, groundwater beneath the site will have higher concentrations than the groundwater at Nash Unit #49H. Groundwater exhibiting TDS concentrations greater than 10,000 mg/L is not defined as fresh water by 19.15.2.7.F (3) NMAC and is therefore not protectable. Because concentrations will be higher than those at Nash Unit #49H (TDS >10,000mg/L), the groundwater beneath the modular impoundment site is not protectable by 19.15.7.2.F(3) NMAC.

The next groundwater zone that may exist is between 50 to 100 feet below the modular impoundment. Evidence of this groundwater zone is exhibited at OFR95-8, 2.3 miles north of the location. Groundwater data at OFR95-8 suggest the difference between groundwater elevation at OFR95-8 and the bottom of the modular impoundment is approximately 95 feet. Therefore, we believe that groundwater that has the potential to be protectable (TDS < 10,000 mg/L) exists between 50 and 100 feet below the modular impoundment.

Siting Criteria Compliance Demonstration - continued (NMAC 19.15.17.10)

The information identified in Item 10, "Siting Criteria" of the C-144 is presented below. The descriptions below are associated with the maps presented in Figures 2-9, attached.

Figure 2 --- Demonstrates that the location is not 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).

a. Data from the USDA's National Hydraulic Dataset shows an intermittent stream (shown as a light blue dotted line in Figure 2) transecting the location.
b. Site reconnaissance identified no evidence of a watercourse as defined by NMAC 19.15.2.7. Photo 1, at right, shows the location of the "intermittent stream" identified by the USDA. As shown in Photo 1, no watercourse was identified having definite banks and beds with visible evidence of the occasional flow of water.
c. No other watercourses, water bodies, springs, or seeps exist with 200-feet of location.

Photo 1: Photo of USDA identified intermittent stream. No definite banks and beds with visible evidence of occasional flow of water were identified.

Figure 3 --- Demonstrates that the location is not within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. No nearby structures exist within 300 feet of location.

a. As shown on the aerial photograph, no structures exist within 300 feet of the location.
b. Site reconnaissance supports this conclusion.

Figure 4 --- Demonstrates that the location is not 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.

a. The closest spring is approximately 2.3 miles northwest located within the Salt Lake of the potash mining district.
b. The closest water well listed in public files is approximately 0.9-mile southeast of the location.

Figure 5 --- Demonstrates that the location is not 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.

a. The closest incorporated municipality is Loving, NM; approximately 9 miles west.
b. The closest well field is approximately 23.5-miles west of the location.

Figure 6 --- Demonstrates the location is not within 500 feet of wetlands.

a. The US Fish and Wildlife Wetlands Inventory does not identify wetlands within 500 feet of location.
b. Site reconnaissance identified no wetlands with 500 feet of location.

Figure 7 --- Shows that the location is within the Potash Mining District.

a. The closest potash mining tunnel is 1.5 miles north-northwest of the location. The closest surface mining location is 0.7 miles northwest. The MILS database lists the surface mine as a Prospect.
b. The construction of the modular impoundment will not require more than 18 inches excavation into the subsurface. The existing production pad consists of 6 inches of caliche on top of very dense clay (Photo 2). We conclude the construction of the modular impoundment will not compromise the subsurface integrity.

Photo 2: 6-inch caliche pad thickness. Dense clay underlies the pad.

Figure 8 --- Shows that the location may lie within an unstable area

a. The location is located within a known karst area identified by the USGS. Site reconnaissance observed no evidence of kart features (fissures, tubes, or caves) near the location.
b. The above ground modular impoundment will be placed upon a 6-inch caliche production pad. The production pad covers approximately 1.2 acres. Beneath the production pad is very dense clay.
c. The composition of the production pad and the underlying dense clay provides engineered surface stability to ensure that the modular impoundment's integrity is not compromised.

Figure 9 --- Demonstrates that the location is not within a 100-year floodplain.

a. The location is within Zone X of FEMA Flood Zone Designation. Zone X is defined as an area of minimal flood hazard and above the 500-year flood level.

Design and Construction Specifications (NMAC 19.15.17.11)

A. **General Specifications.** An operator shall design and construct a pit, closed-loop system, below-grade tank or sump to contain liquids and solids and prevent contamination of fresh water and protect public health and the environment.

Response –
XTO Energy shall construct a modular impoundment fluid storage system provided by Poseidon Concepts. The modular impoundment system model is the Atlantis[4]. Photo 3, right, is an example of Poseidon's modular impoundment. The modular impoundment shall be constructed according to manufacturer's specifications as described in Section 19.15.17.11.F, below. The modular impoundment is engineered to prevent contamination of fresh water and protect public health and the environment.

Photo 3: Example of Poseidon's fluid storage system.

The purpose of the modular impoundment is the temporary storage of treated produced water in a centralized location for six off-site well stimulations. The modular impoundment shall be constructed on an existing well pad currently used for operation and maintenance of the Nash Unit #29 well. XTO Energy shall restore the production pad to pre-existing condition prior to the installation of the modular impoundment.

B. Stockpiling of topsoil.

Response –
The modular impoundment shall be constructed on an existing production pad at Nash Unit #29. No additional surface disturbance shall occur. After modular impoundment closure, the production pad will remain in-place until proper abandonment of the production well.

C. Signs.

Response –
The existing sign at Nash Unit #29 production well, which is on the same production pad as the proposed location, shall be used. Photo 4 is a photograph of

Photo 4: Sign at Nash Unit #29 to be used in conjunction with the modular impoundment.

[4] http://poseidonconcepts.com/Customer-Centre/Models/index.php

the existing sign.

D. Fencing.

Response –
As described in Section 19.15.17.11.F, below, the modular impoundment is constructed with 12-foot high steel walls. In lieu of fencing to prevent unauthorized access and exclude entry of livestock, XTO Energy asks for administrative approve to use the modular impoundment's steel 12-foot high walls as an alternative to fencing. XTO Energy concludes that the 12-foot high steel walls are superior to fencing.

F. Temporary Pits. The operator shall design and construct a temporary pit in accordance with the following requirements.

(1) The operator shall design and construct a temporary system to ensure the confinement of liquids to prevent unauthorized releases.

Response -
The modular impoundment system is constructed from 5/8" thick steel welded to 4"x4"x144" vertical steel supports (see Photo 5) and is engineered to withstand the hydrostatic pressures exerted downwards and outwards by the weight of the fluid when full. The panels are connected with 1" thick steel plates that fit over solid steel "bosses" welded to the modular impoundment wall. These plates are then locked to the bosses with locking pins. The locking pins are secured with safety cotter pins (see Appendix SSI-2 for interlocking panel details and patent). The 30 mil LLDPE liner is then clamped to the top of these walls leaving an extra 2 feet of liner material hanging outside of the modular impoundment to provide a safety margin (Photo 6, below).

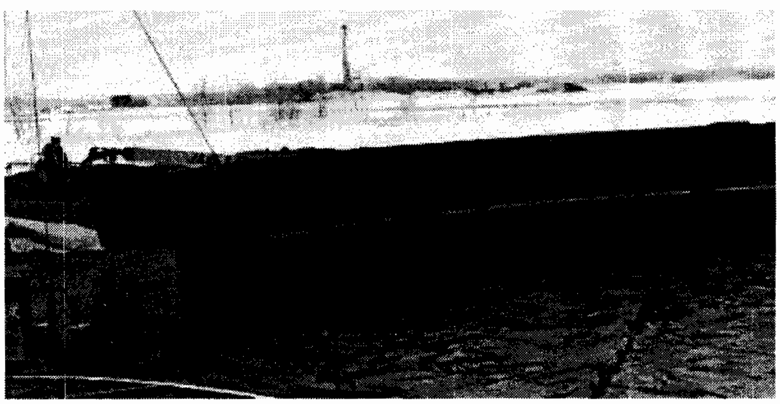


Photo 5: Interlocking panels of the modular impoundment.

The modular impoundment system was designed and engineered by Beck Engineering, Ltd for Poseidon Concepts. A letter from Beck Engineering (see Appendix SSI-2) is stamped by a Professional Engineer and confirms that the modular impoundment is structurally designed to resist all anticipated forces on the modular impoundment panels and panel connections from the start of erection to the complete filling of the modular impoundment. The modular impoundment is patented in Canada. Patent is pending for the United States. Therefore, Poseidon will not release schematics of the modular impoundment design until patenting in the United States is complete.

During installation, a representative from Poseidon shall be present. Appendix SSI-3 contains the set-up procedures. The set-up procedures were provided by Poseidon.

Photo 6: Clamping system holding liner in place. Spacing between clamping is 3-feet.

(2) A temporary pit shall have a properly constructed foundation and interior slopes consisting of a firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear. The operator shall construct a temporary pit so that the slopes are no steeper than two horizontal feet to one vertical foot (2H:1V). The appropriate division district office may approve an alternative to the slope requirement if the operator demonstrates that it can construct and operate the temporary pit in a safe manner to prevent contamination of fresh water and protect public health and the environment.

Response -
The modular impoundment shall be placed on the existing Nash Unit #29 production pad. The existing production pad is constructed of approximately 6-inches of caliche overlying very dense clay (see Photo 2).

Prior to installation, the production pad will be prepared to make it smooth and free of rocks. A minimum of 10 oz. per square foot nonwoven geotextile material from Brawler (product WID10, see Appendix SSI-2) shall be placed between the production pad and the liner of the modular impoundment to prevent liner rupture or tear from the underlying pad.

In lieu of slopes no greater than 2H:1V, XTO Energy asks for administrative approval for vertical slopes (steel walls) engineered for the modular impoundment. The modular impoundment's vertical steel walls are constructed from 5/8" thick steel welded to 4"x4"x144" vertical steel supports (see Photo 5) and is engineered to withstand the hydrostatic pressures exerted downward and outward by the weight of the fluid when full. The panels are connected with 1" thick steel plates that fit over solid steel "bosses" welded to the modular impoundment wall. These plates are then locked to the bosses with locking pins. The locking pins are secured with safety cotter pins. Modular impoundment integrity will not fail or collapse because of the engineered design specifications.

A sump area in the configuration of a "Y", with each leg approximately 15 feet long, shall be excavated into the production pad to accommodate the modular impoundment suction pipes. The sump area is excavated 18 inches below the elevation of the production pad. The sump walls shall be no greater than 2H:1V sloping on the sides of the sump area, and an additional layer of the 10 oz. per square foot nonwoven geotextile material, as well as visual inspection, after excavation but prior to installation, to be sure that the underlying soil represents a property constructed smooth foundation free of rocks.

(3) The operator shall design and construct a temporary pit with a geomembrane liner. The geomembrane liner shall consist of 20-mil string reinforced LLDPE or equivalent liner material that the appropriate division district office approves. 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.

Response –
In lieu of a 20-mil string reinforced LLDPE liner, XTO Energy asks for administrative approval for a stronger and thicker 30 mil LLDPE liner. The liner material used for the modular impoundment is a 30-mil LLDPE material provided by GSE. See Appendix SSI-2 for specifications and data sheets on the GSE 30 mil UltraFlex Smooth Geomembrane liner. The liner is resistant to petroleum hydrocarbons, salts and acidic, alkaline solutions, and ultraviolet light. The 30 mil GSE liner is equivalent to or better than a 20-mil string reinforced LLDPE liner.

(4) The operator shall minimize liner seams and orient them up and down, not across a slope. The operator shall use factory welded seams where possible. Prior to field seaming, the operator shall overlap liners four to six inches and orient seams parallel to the line of maximum slope, i.e., oriented along, not across, the slope. The operator shall minimize the number of field seams in corners and irregularly shaped areas. Qualified personnel shall perform field seaming. The operator shall weld field liner seams.

Response –
The liner is manufactured with factory welds and seams going in one direction. The east and west oriented liner panels have a maximum width of 25-feet with 5-inch seams (see liner seam orientation diagram in Appendix SSI-4). The interior panels shall be 24.6-feet wide; with the width of one of the two middle panels adjusted to ensure that the overall dimension of the liner is 190x190 feet. All factory welds are designed according to GSE manufacture specifications and are engineered to withstand the weight of the water.

The outermost east- west panel liner seams are approximately 7-feet on the north-south axis from the floor-wall junction of the modular impoundment. The seam pattern, panel widths, and seam orientation will minimize liner seams and will orientate the seams up and down, not across the slope (steel walls).

(5) Construction shall avoid excessive stress-strain on the liner.

Response -
In accordance with the set-up procedures (Appendix SSI-3), additional 10oz per square foot geotextile material is placed on any "pinch point" where the liner could either have direct contact with the walls or become pinched between walls and/or the walls and the ground, the sump area, and the C-clamps holding the liner to the top of the modular impoundment.

As shown on the liner seam orientation diagram in Appendix SSI-4, all of the seams of the 25-foot wide panels are in an east-west orientation. Hence, all of the seams run up and down the vertical slopes rather than across the slopes. On the north-south axis, the closest east-west seam to the bottom wall corner is 7-feet. This seam orientation prevents undue stresses and stain on the liner material and seams.

(6) Geotextile is required under the liner where needed to reduce localized stress-strain or protuberances that may otherwise compromise the liner's integrity.

Response –
A 10 oz. per square foot nonwoven geotextile shall be placed between the production pad and the liner and at pinch-points where the liner could either have direct contact with the walls or become pinched between walls and/or the walls and the ground, including the C-clamps holding the liner to the top of the modular impoundment. An additional second geotextile layer shall be placed between the sump areas and the LLDPE liner.

(7) The operator shall anchor the edges of all liners in the bottom of a compacted earth-filled trench. The anchor trench shall be at least 18 inches deep.

Response –
In lieu of an anchor trench, XTO Energy asks for administrative approval to use C-clamps to anchor the liner to the top of the modular impoundment (see Photo #6). The purpose of the clamps is to prevent the liner material from falling in and compromising the ability of the modular impoundment to contain fluids.

Each 3-foot clamp section is separated by three foot spacing. The sequence is repeated along the top of the modular impoundment. The liner overlaps the modular impoundment by at least 24 inches, providing a robust safety factor if the liner should need adjustment after installation.

(8) The operator shall ensure that the liner is protected from any fluid force or mechanical damage at any point of discharge into or suction from the lined temporary pit.

Response –
The intake pipe for the suction system will sit on the floor in the sump area. The suction intake is a 15-foot long pipe with legs (to prevent rotation) and has horizontal slots for the fluid that are 4-inches up the side of the pipe. The suction pipe riser is a 10-inch pipe that mounts to the top of the modular impoundment and descends down the exterior wall (Photo #7) and connects to a pump.

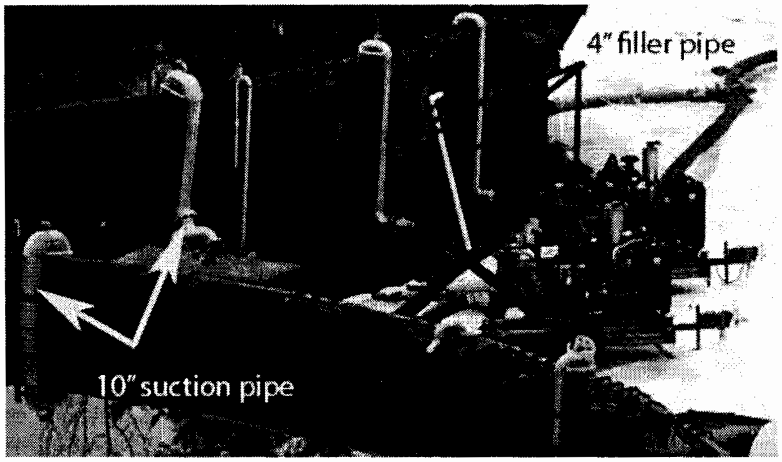


Photo 7: Photograph of the suction and filler pipes.

The 4-inch filler pipes mount to the top of the modular impoundment in similar fashion to the suction pipe. The discharge end of the filler pipe is 4-inches from the bottom of the modular impoundment.

One suction pipe and four filler pipes shall be installed on the modular impoundment.

(9) The operator shall design and construct a temporary pit to prevent run-on of surface water. A berm, ditch, proper sloping or other diversion shall surround a temporary pit to prevent run-on of surface water. During drilling operations, the edge of the temporary pit adjacent to the drilling or workover rig is not required to have run-on protection if the operator is using the temporary pit to collect liquids escaping from the drilling or workover rig and run-on will not result in a breach of the temporary pit.

Response -
A 2-foot high berm shall be constructed around the modular impoundment to prevent run-on of surface water. As there are no drilling or workover operations at the location, the berm will surround the entire modular impoundment. A 2-foot freeboard shall be maintained to prevent overflow.

(10) The volume of a temporary pit shall not exceed 10 acre-feet, including freeboard.

Response –
The volume (full capacity) of the modular impoundment plus the three 18-inch deep by 15-foot long sump areas is less than 42,000 bbls (about 5.5 acre-feet). During normal operation, the modular impoundment will hold less water to allow for 2-feet of freeboard.

Operational Requirements (NMAC 19.15.17.12)

Note: *The modular impoundment will contain treated produced water. Between well stimulations, the modular impoundment will contain enough treated produced water to hold down the liner. Weekly inspections shall occur when there is 1-foot depth or less of treated produced water in the modular impoundment. Daily inspections shall occur when there is greater than 1-foot depth of treated produced water in the modular impoundment.*

A. General Specifications. XTO Energy shall maintain and operate the modular impoundment according to manufacturer's operating and maintenance specifications as described in Section 19.15.17.12.B, below.

(1) The operator shall operate and maintain a pit to contain liquids and solids and maintain the integrity of the liner, liner system or secondary containment system, prevent contamination of fresh water and protect public health and the environment.

Response –
XTO Energy shall operate the modular impoundment for the temporary storage of treated produced water for off-site well stimulations. XTO Energy shall inspect the modular impoundment for liner integrity, to ensure that a 2-foot freeboard is maintained, and to inspect berm stability around the modular impoundment to protect from surface water run-on/run-off.

(2) The operator shall recycle, reuse, reclaim or dispose of all drilling fluids in a manner, approved by division rules, that prevents the contamination of fresh water and protects public health and the environment.

Response –
XTO Energy shall operate the modular impoundment for the temporary storage of treated produced water for off-site well stimulations. Unused treated produced water, if present, will be sent to XTO Energy's SWD-53 well for recycling or a division-approved disposal facility. Proper disposal of excess treated produced water prevents the contamination of fresh water and protects public health and the environment.

(3) The operator shall not discharge into or store any hazardous waste in a pit, closed-loop system, below-grade tank or sump.

Response –
XTO Energy shall operate the modular impoundment for the temporary storage of treated produced water for off-site well stimulations.. XTO Energy shall not discharge hazardous waste into the modular impoundment.

(4) If any pit liner's integrity is compromised, or if any penetration of the liner occurs above the liquid's surface, then the operator shall notify the appropriate division district office within 48 hours of the discovery and repair the damage or replace the liner.

Response –
If the liner integrity is found to be compromised during an inspection, XTO Energy shall notify the appropriate division district office within 48 hours of the discovery and repair the damage or replace the liner.

(5) If a pit, below-grade tank, closed-loop system or sump develops a leak, or if any penetration of the pit liner, below-grade tank, closed-loop system or sump occurs below the liquid's surface, then the operator shall remove all liquid above the damage or leak line within 48 hours, notify the appropriate division district office within 48 hours of the discovery and repair the damage or replace the pit liner, below-grade tank, closed-loop system or sump.

Response –
If the modular impoundment contains any volume of liquid and liner integrity is found to be compromised below the liquid's surface, XTO Energy shall remove all liquid above the damage or leak line within 48 hours, notify the appropriate division district office within 48 hours of the discovery and repair the damage or replace the modular impoundment.

(6) The injection or withdrawal of liquids from a pit shall be accomplished through a header, diverter or other hardware that prevents damage to the liner by erosion, fluid jets or impact from installation and removal of hoses or pipes.

Response –
Inspections shall verify that suction (intake), riser and filler pipes (see Photo #7) are intact and properly connected and secured.

The intake pipe for the suction system will sit on the floor in the sump area. The suction intake is a 15-foot long pipe with legs (to prevent rotation). The suction pipe riser is a 10-inch pipe that mounts to the top of the modular impoundment and descends down the exterior wall and connects to a pump.

The 4-inch filler pipes mount to the top of the modular impoundment in similar fashion to the suction pipe. The discharge end of the filler pipe is 4-inches from the bottom of the modular impoundment bottom to prevent damage to the liner by discharging operations.

(7) The operator shall operate and install a pit, below-grade tank or sump to prevent the collection of surface water run-on.

Response –
The modular impoundment's 12-foot high steel walls prevent the collection of surface water run-on. XTO Energy shall provide additional prevention to reduce

undercutting of the steel walls from surface water run-on by the construction of a 2-foot high berm along the bottom perimeter of the modular impoundment. Inspections shall verify that the berm surrounding the modular impoundment remains intact. Berm sections that lose integrity shall be repaired within 48 hours.

(8) The operator shall install, or maintain on site, an oil absorbent boom or other device to contain and remove oil from a pit's surface

Response –
XTO Energy shall verify that no oil is on the modular impoundment surface. If oil is observed, the oil shall be removed using an absorbent boom or other device and properly disposed at an approved facility.

B. Temporary pits. An operator shall maintain and operate a temporary pit in accordance with the following additional requirements

(1) Only fluids used or generated during the drilling or workover process may be discharged into a temporary pit. The operator shall maintain a temporary pit free of miscellaneous solid waste or debris. The operator shall use a tank made of steel or other material, which the appropriate division district office approves, to contain hydrocarbon-based drilling fluids. Immediately after cessation of a drilling or workover operation, the operator shall remove any visible or measurable layer of oil from the surface of a drilling or workover pit.

Response –
The modular impoundment shall be used for temporary storage of treated produced water for well stimulation. No other fluids other than treated produced water shall be discharged into the modular impoundment.

(2) The operator shall maintain at least two feet of freeboard for a temporary pit.

Response –
The modular impoundment shall be inspected daily by XTO Energy when containing more than 1-foot of treated produced water to ensure that a 2-foot freeboard is maintained.

(3) The operator shall inspect a temporary pit containing drilling fluids at least daily while the drilling or workover rig is on-site. Thereafter, the operator shall inspect the temporary pit weekly so long as liquids remain in the temporary pit. The operator shall maintain a log of such inspections and make the log available for the appropriate division district office's review upon request. The operator shall file a copy of the log with the appropriate division district office when the operator closes the temporary pit.

Response –

XTO Energy shall inspect the modular impoundment daily when containing more than 1-foot of treated produced water for: liner integrity, to ensure that a 2-foot freeboard is maintained, to prevent the presence of oil on the fluid surface, and to maintain berm stability around the modular impoundment to protect from surface water run-on/run-off. When less than one foot or less of treated produced water is present in the modular impoundment, XTO Energy shall inspect weekly. A log of these inspections shall be maintained by XTO Energy and made available upon division request. The log shall be filed with the modular impoundment closure report.

(4) The operator shall remove all free liquids from a temporary pit within 30 days from the date that the operator releases the drilling or workover rig. The operator shall note the date of the drilling or workover rig's release on form C-105 or C-103 upon well or workover completion. The appropriate division district office may grant an extension of up to three months.

Response –
The purpose of the modular impoundment is to provide fluid for six off-site well stimulations. The modular impoundment is not associated with a drilling or workover rig. The anticipated duration of the six stimulations is approximately 4 months. After the transfer of treated produced water to the 6th off-site well stimulation is complete, XTO Energy shall within 30-days remove remaining treated produced water from the modular impoundment. The modular impoundment is not associated with a drilling or workover rig. Therefore, XTO shall mark the transfer completion date on the C-144 and C-105 in lieu of rig release date.

Closure Requirements (NMAC 19.15.17.13)

A. Time requirements for closure per NMAC 19.15.17.13.

(7) An operator shall close any other permitted temporary pit within six months from the date that the operator releases the drilling or workover rig. The appropriate division district office may grant an extension not to exceed three months.

Response –
After the transfer of treated produced water to the 6^{th} off-site well stimulation is complete, XTO Energy shall within six months close the modular impoundment. The modular impoundment is not associated with any drilling or workover rig.

B. Closure methods for temporary pits.

(1) Waste Excavation and removal

a) The operator shall close the temporary pit by excavating all contents and, if applicable, synthetic pit liners and transferring those materials to a division-approved facility.

Response –
Prior to disassembly of the modular impoundment, any remaining treated produced water shall be removed and injected into XTO Energy's SWD-53 (API#: 3001539400).

After the remaining fluid is removed the liner material, geomembranes and non-reusable pipe (suction and filler pipes) shall be transported to one of the following division-approved facilities:

- Controlled Recovery, Inc NM-01-0006
- Lea Land, LLC NM-01-0035

Reusable pipes, pumps, and other components owned by Poseidon will be loaded onto Poseidon trailers and transported off site.

b) The operator shall test the soils beneath the temporary pit to determine whether a release has occurred.

i. For temporary pits where ground water is between 50 and 100 feet below the bottom of the temporary pit or for cavitation pits allowed pursuant to Subparagraph (a) of Paragraph (1) of Subsection A of 19.15.17.10 NMAC, the operator shall collect, at a minimum, a five point, composite sample; collect individual grab samples from any area that is wet, discolored or showing other evidence of a release; and analyze for benzene, total BTEX, TPH, the GRO and DRO combined fraction and chlorides to demonstrate that benzene, as determined by EPA SW-846 method 8021B or 8260B or other EPA method that the division approves, does not exceed 0.2 mg/kg; total BTEX, as determined by EPA SW-846 method 8021B or 8260B or other EPA method that the division approves, does not exceed 50 mg/kg; TPH, as determined by EPA SW-846 method 418.1 or other EPA method that the division approves, does not exceed 2500 mg/kg; the GRO and DRO combined fraction, as determined by EPA SW-846 method 8015M, does not exceed 500 mg/kg; and chlorides, as determined by EPA method 300.1, do not exceed 500 mg/kg or the background concentration, whichever is greater. The operator shall notify the division of its results on form C-141. The division may require additional delineation upon review of the results.

Response –
XTO Energy shall collect, at a minimum, a five point, composite sample; collect individual grab samples from any area that is wet, discolored or showing other evidence of a release; and analyze for benzene (EPA 8260B), total BTEX (EPA 8260B), TPH (EPA 418.1), the GRO and DRO combined fraction (EPA SW-846 method 8015M) and chlorides (EPA 300.1). XTO Energy shall notify the division of its results on form C-141.

c) If the operator or the division determines that a release has occurred, then the operator shall comply with 19.15.29 NMAC and 19.15.30 NMAC, as appropriate.

Response –
If the division or XTO Energy determines that a release has occurred, XTO Energy shall comply with 19.15.29 NMAC and 19.15.30 NMAC, as appropriate.

d) If the sampling program demonstrates that a release has not occurred or that any release does not exceed the concentrations specified in Subparagraph (b) of Paragraph (1) of Subsection B of 19.15.17.13 NMAC, then the operator shall backfill the temporary pit excavation with compacted, non-waste containing, earthen material; construct a division-prescribed soil cover; recontour and re-vegetate the site. The division-prescribed soil cover, recontouring and re-vegetation requirements shall comply with Subsections G, H and I of 19.15.17.13 NMAC.

Response –
The modular impoundment is an above ground modular impoundment, no backfilling is necessary except the "Y" shaped sump area that has an excavated depth of 18-inches. The sump area will be filled with dense clay and topped with 6-inches of caliche to match existing production pad construction and grade. In lieu of revegetation, XTO Energy asks division approval for the reclamation of the sump area to pre-existing conditions – an active production pad for the Nash Unit #29 well. See 19.15.17.13.G, below.

G. Reclamation of pit locations, on-site burial locations and drying pad locations.

(1) Once the operator has closed a pit or trench or is no longer using a drying pad, below-grade tank or an area associated with a closed-loop system, pit, trench or below-grade tank, the operator shall reclaim the pit location, drying pad location, below-grade tank location or trench location and all areas associated with the closed-loop system, pit, trench or below-grade tank including associated access roads to a safe and stable condition that blends with the surrounding undisturbed area. The operator shall substantially restore the impacted surface area to the condition that existed prior to oil and gas operations by placement of the soil cover as provided in Subsection H of 19.15.17.13 NMAC, recontour the location and associated areas to a contour that approximates the original contour and blends with the surrounding topography and re-vegetate according to Subsection I of 19.15.17.13 NMAC.

Response –
The modular impoundment is an above ground fluid storage system, no backfilling is necessary except the "Y" shaped sump area that has a depth of 18-inches. The sump area shall be reclaimed to pre-existing conditions, an active production pad for the Nash Unit #29 well. The sump area shall be backfilled with dense clay and topped with 6-inches of caliche to match existing production pad grade. Revegetation of the sump area shall occur during reclamation activities for Nash Unit #29 plugging and abandonment per agreement with BLM (Appendix SSI-5).

(2) The operator may propose an alternative to the re-vegetation requirement if the operator demonstrates that the proposed alternative effectively prevents erosion, and protects fresh water, human health and the environment. The proposed alternative shall be agreed upon by the surface owner. The operator shall submit the proposed alternative, with written documentation that the surface owner agrees to the alternative, to the division for approval.

Response –
In lieu of re-vegetation, XTO Energy asks the division to allow interim reclamation to pre-existing conditions - an operational production pad. Interim reclamation of the sump area shall consist of reclaiming the sump area to pre-existing production pad conditions by backfilling with dense clay and topping with 6-inches of caliche to match existing production pad grade. Re-vegetation shall occur during the plugging and abandonment of Nash Unit#29 per agreement with BLM (see Appendix SSI-5).

H. Soil cover designs.

(1) The soil cover for closures where the operator has removed the pit contents or remediated the contaminated soil to the division's satisfaction shall consist of the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater.

Response –
In lieu of soil cover, XTO Energy asks the division to allow interim reclamation to pre-

existing conditions - an operational production pad. Interim reclamation of the sump area shall consist of reclaiming the sump area to pre-existing production pad conditions by backfilling with dense clay and topping with 6-inches of caliche to match existing production pad grade. Soil cover shall occur during the plugging and abandonment of Nash Unit#29 per agreement with BLM (see Appendix SSI-5).

(3) The operator shall construct the soil cover to the site's existing grade and prevent ponding of water and erosion of the cover material.

Response –
In lieu of soil cover, XTO Energy asks the division to allow interim reclamation to pre-existing conditions - an operational production pad. Interim reclamation of the sump area shall consist of reclaiming the sump area to pre-existing production pad conditions by backfilling with dense clay and topping with 6-inches of caliche to match existing production pad grade. Proper soil cover construction shall occur during the plugging and abandonment of Nash Unit#29 per agreement with BLM (see Appendix SSI-5).

I. Re-vegetation.

Response –
In lieu of re-vegetation, XTO Energy asks the division to allow interim reclamation to pre-existing conditions - an operational production pad. Interim reclamation of the sump area shall consist of reclaiming the sump area to pre-existing production pad conditions by backfilling with dense clay and topping with 6-inches of caliche to match existing production pad grade. Re-vegetation shall occur during the plugging and abandonment of Nash Unit#29 per agreement with BLM (see Appendix SSI-5).

J. Closure notice.

(1) The operator shall notify the surface owner by certified mail, return receipt requested, that the operator plans to close a temporary pit, a permanent pit, a below-grade tank or where the operator has approval for on-site closure. Evidence of mailing of the notice to the address of the surface owner shown in the county tax records is sufficient to demonstrate compliance with this requirement.

Response –
XTO Energy shall notify the surface owner by certified mail, return receipt requested, that XTO Energy plans to close a modular impoundment.

(2) The operator of a temporary pit or below-grade tank or an operator who is approved for on-site closure shall notify the appropriate division district office verbally or by other means at least 72 hours, but not more than one week, prior to any closure operation. The notice shall include the operator's name and the location to be closed by unit letter, section, township and range. If the closure is associated with a particular well, then the notice shall also include the well's name, number and API number.
Response –

XTO Energy shall notify the appropriate division district office verbally or by other means at least 72 hours, but not more than one week, prior to any closure operation. The notice shall include the operator's name and the location to be closed by unit letter, section, township and range.

K. Closure report.

Within 60 days of closure completion, the operator shall submit a closure report on form C-144, with necessary attachments to document all closure activities including sampling results; information required by 19.15.17 NMAC; a plot plan; and details on back-filling, capping and covering, where applicable. In the closure report, the operator shall certify that all information in the report and attachments is correct and that the operator has complied with all applicable closure requirements and conditions specified in the approved closure plan. If the operator used a temporary pit, the operator shall provide a plat of the pit location on form C-105 within 60 days of closing the temporary pit.

Response –

Within 60 days, XTO Energy shall submit a closure report on form C-144 ,with necessary attachments documenting all closure activities including sampling results; information required by 19.15.17 NMAC; a plot plan; and details on back-filling the sump area, capping and covering back to pre-existing conditions. In the closure report, XTO Energy shall certify that all information in the report and attachments are correct and that the operator has complied with all applicable closure requirements and conditions specified in the approved closure plan. XTO Energy shall provide a plat of the pit location on form C-105 within 60 days of closing the modular impoundment.

Appendix SSI-1

Site Visit Photographs

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

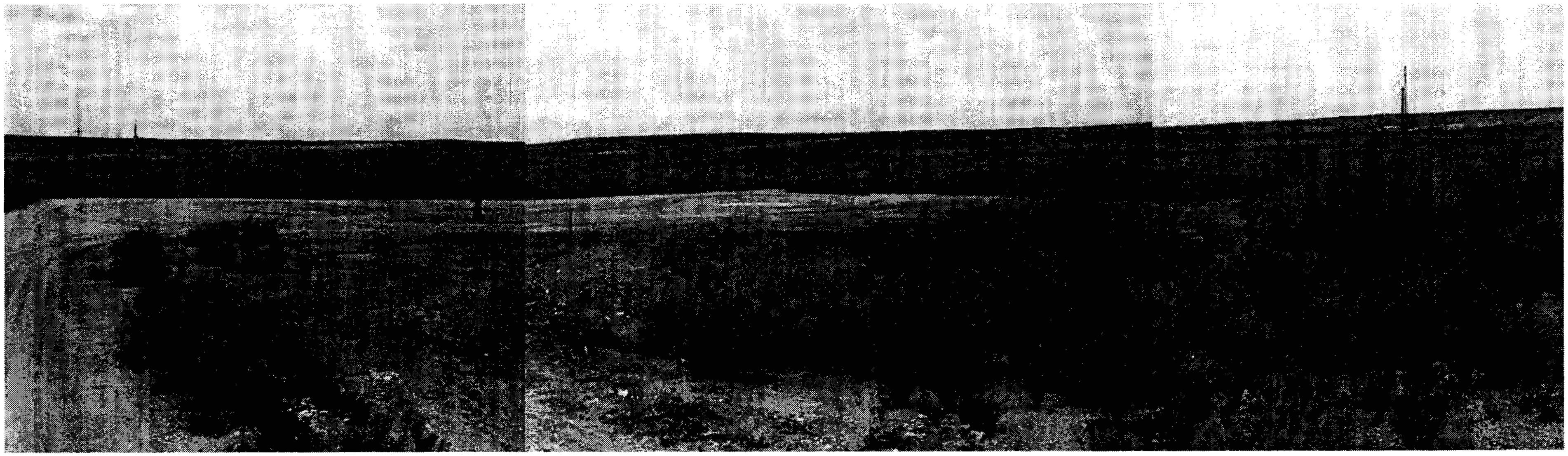
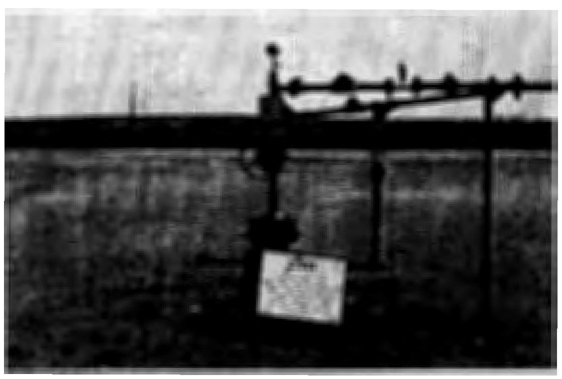


Photo-montage of Nash Unit #29 location looking south from a small rise. Temporary pit will lie on east (left) of the pad.

East portion of photo-montage Topography is very flat and site inspections found no evidence of a continuously-flowing arroyo on southeast portion of pad.



Photograph showing sign in compliance with NMOCD Rules.

Appendix SSI-2

- Canadian Patent
- Beck Engineering Letter
- Geotextile Specifications
- Liner Specifications

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Office de la propriété intellectuelle du Canada
Un organisme d'Industrie Canada

Canadian Intellectual Property Office
An Agency of Industry Canada

Brevet canadien / Canadian Patent

Le commissaire aux brevets a reçu une demande de délivrance de brevet visant une invention. Ladite requête satisfait aux exigences de la *Loi sur les brevets*. Le titre et la description de l'invention figurent dans le mémoire descriptif, dont une copie fait partie intégrante du présent document.

Le présent brevet confère à son titulaire et à ses représentants légaux, pour une période expirant vingt ans à compter de la date du dépôt de la demande au Canada, le droit, la faculté et le privilège exclusif de fabriquer, construire, exploiter et vendre à d'autres, pour qu'ils l'exploitent, l'objet de l'invenrion, sauf jugement en l'espèce rendu par un tribunal compétent, et sous réserve du paiement des taxes périodiques.

The Commissioner of Patents has received a petition for the grant of a patent for an invention. The requirements of the *Patent Act* have been complied with. The title and a description of the invention are contained in the specification, a copy of which forms an integral part of this document.

The present patent grants to its owner and to the legal representatives of its owner, for a term which expires twenty years from the filing date of the application in Canada, the exclusive right, privilege and liberty of making, constructing and using the invention and selling it to others to be used, subject to adjudication before any court of competent jurisdiction, and subject to the payment of maintenance fees.

BREVET CANADIEN — CANADIAN PATENT

2,692,016

Date à laquelle le brevet a été accordé et délivré	2011/07/19	Date on which the patent was granted and issued
Date du dépôt de la demande	2010/02/05	Filing date of the application
Date à laquelle la demande est devenue accessible au public pour consultation	2010/07/05	Date on which the application was made available for public inspection

Commissaire aux brevets / Commissioner of Patents

Canada

3256 (CIPO 91) 01/06

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CA 2692016 C 2011/07/19

(11)(21) **2 692 016**

(12) **BREVET CANADIEN**
CANADIAN PATENT

(13) **C**

(22) Date de dépôt/Filing Date: 2010/02/05

(41) Mise à la disp. pub./Open to Public Insp.: 2010/07/05

(45) Date de délivrance/Issue Date: 2011/07/19

(51) Cl.Int./Int.Cl. *B65D 5/42* (2006.01), *B65D 5/44* (2006.01)

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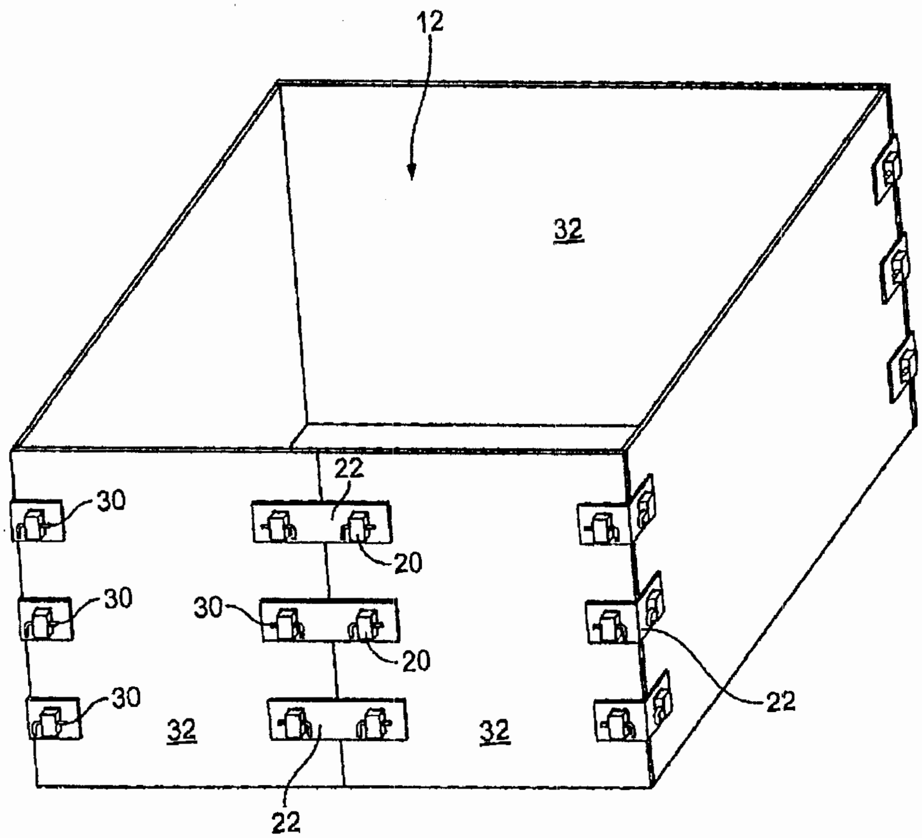
(54) Titre : ENSEMBLE DE FIXATION DE RECIPIENTS
(54) Title: CONTAINER FASTENING ASSEMBLY



(57) Abrégé/Abstract:
A connection arrangement for connection of vertically and/or horizontally arranged containers. Each of the containers provides bosses or projections over a collinear pair of which is placed a separate plate. The plate provides matched polygonal apertures to

(57) Abrégé(suite)/Abstract(continued):
receive the projections. Each of the projections provides an aperture there through to receive a retainer pin or bolt. the pin or bolt abuts the plate when engaged. The arrangement greatly expedites the separation of the containers when desired. The user need only tap out the retainer pin and pull off the plate. This obviates the use of fasteners which can freeze, rust or become otherwise inoperative or cumbersome.

CONTAINER FASTENING ASSEMBLY

TECHNICAL FIELD

The present invention relates to fasteners for modular containers/enclosures and more particularly , the present invention relate to a fastening assembly which is expeditiously removed and assembled to allow separation and assembly of the containers by the user without the need to unfasten bolts etc.

BACKGROUND OF THE INVENTION

Fastening assemblies of a broad variety have been used for some time in connecting modular containers and panels or segments making up the enclosures or containers. Contributory to the problem with the fastening arrangements known is that they are not designed for simplicity of use and with the least number of parts. It is well known that the nut and bolt or other mechanical arrangements are very often overly complex for the purpose of securing containers together. In the bolt system, the user is often faced with rusted connectors which are difficult if not impossible sometimes to disconnect. This often leads to complete destruction of the fastener and potential damage to the container which elevates costs for wasted time, materials and repairs.

As a further problem, the possibility of attempting to remove nuts from bolts etc. in inclement weather such as freezing weather becomes exceedingly difficult considering the clothing the user must wear to stay warm. The result is that the user often must at least remove hand protection to operate a wrench etc., thus introducing the possibility of frostbite or other exposure.

The prior art is replete with as many variations of fastening systems, all of which are not designed for user ease.

SUMMARY OF THE INVENTION

One object of the invention is to provide an improved fastening assembly for fastening adjacent containers.

A further object of one embodiment is to provide a connection assembly for connecting similar containers, comprising, in combination:

a first container and a second container in contact;

first cooperating engagement means projecting from each container of the containers, the first cooperating engagement means being in alignment on containers in contact;

second cooperating engagement means adapted for overlying releasable engagement with the first cooperating engagement means, the second cooperating means having a configuration matched in shape to the first cooperating engagement means, the first cooperating engagement means extending beyond the second cooperating engagement means when the second cooperating engagement means overlies the first cooperating engagement means;

third cooperating engagement means integral with the first cooperating engagement means; and

fourth cooperating engagement means adapted for releasable engagement with the third cooperating engagement means and for retaining the second cooperating engagement means when overlying the first cooperating engagement means, whereby when the first cooperating engagement means receives the second cooperating engagement means and the third cooperating engagement means receives the fourth cooperating engagement means, each container is connected and secured against substantial vertical and horizontal separation.

The arrangement has been found to be particularly simple to use in any weather conditions. The first cooperating engagement means in one embodiment comprises a polygonal boss or projection extending outwardly from each adjacently positioned container.

The second cooperating engagement means comprises, in one embodiment, a plate adapted to overly the bosses. The plate is provided with apertures matched in configuration to the bosses. It is preferred that the shape of the bosses and the plate apertures be selected from a polygonal repertoire; circular arrangements do not provide any protection for horizontal and/or vertical movement between adjacent containers. The polygonal shape is advantageous to avoid such potentially hazardous and damaging movement. Further, the distance between the bosses of contacted containers is identical to a vertical distance between the bosses of an individual container.

The bosses are horizontally and vertically collinear to allow any plate to be used over any projections.

With respect to the fourth cooperating engagement means, the same may comprise in one possible embodiment, a pin or L bolt which is simply inserted in to the aperture extending through each boss.

The arrangement is particularly convenient, since a user wishing to disconnect connected containers, simply pushes out the pin from each boss and pulls the plate free of the bosses.

A further object of one embodiment of the present invention is to provide a connection assembly for connecting similar containers, comprising, in combination:

a first container and a second container in contact;

a plurality of projections projecting from each container of the containers arranged in alignment on containers in contact;

a separate plate member adapted for overlying releasable engagement with the projections projecting from each container, the plate having apertures matched in shape to the projections, the projections extending beyond the plate when in overlying relation with the projections;

aperture means extending through the projections; and

retainer means adapted for releasable engagement with the aperture means, whereby when the projections receive the separate plate and the aperture means receives the retainer means, each container is connected and secured against substantial vertical and horizontal separation.

Yet another object of one embodiment of the present invention is to provide a modular container, comprising:

a plurality of separate container wall segments adapted for releasable connection with each other to form a container or enclosure;

first cooperating engagement means projecting from each container wall segment of the containers, the first cooperating engagement means being in alignment on each container wall segment;

second cooperating engagement means adapted for overlying releasable engagement with the first cooperating engagement means, the second cooperating means having a configuration matched in shape to the first cooperating engagement means, the first cooperating engagement means extending beyond the second cooperating engagement means when the second cooperating engagement means overlies the first cooperating engagement means;

third cooperating engagement means integral with the first cooperating engagement means; and

fourth cooperating engagement means adapted for releasable engagement with the third cooperating engagement means and for retaining the second cooperating engagement means when overlying the first cooperating engagement means, whereby when the first cooperating engagement means receives the second cooperating engagement means and the third cooperating engagement means receives the fourth cooperating engagement means, each container wall segment is connected forming a container or enclosure and secured against substantial vertical and horizontal separation.

Advantageously, the use of the cooperating engagement means significantly reduces the time required to assemble and disassemble the enclosure or container and presents a marked benefit over existing arrangements.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of the container arrangement and fastening assembly according to one embodiment;

Figure 2 is an enlarged view of the assembly illustrated in Figure 1;

Figure 3 is an enlarged view of Figure 2;

Figure 4 is a section along line 4-4 of Figure 3;

Figures 5A through 5D illustrate alternate embodiments of Figure 3;

Figure 6 is an illustration of an alternate embodiment of the present invention; and

Figure 7 is an illustration of yet another alternate embodiment of the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Referring now to Figure 1, shown is a perspective view of a first embodiment of the present invention. Numeral 10, generally refers to the arrangement. Large containers 12 for storage of, for example, water are desirably connected together for modulation at a site. The overall fastening assembly is referenced by numeral 14 and is more detailed in Figure 2.

Each container 12 is positioned for contact with an adjacent container 12 at an interface16. A wall or extension 18 is provided on each container 12 for abutment with a similar component from the adjacent container 12. Each wall 18 includes a plurality of projecting bosses 20 extending outwardly in parallel planar relation from wall 18. The bosses 20 function as a first cooperating engagement. The bosses 20 may be welded to the walls 18. The bosses 20 on an individual container 12 are arranged in collinear equidistant relation and are horizontally aligned when walls 18 are abutted between containers 12. The horizontal distance between bosses 20 of adjacent containers, in this embodiment is the same and this is true of the spacing of bosses on an individual container 12.

With reference to Figure 3, shown is an enlarged view of the arrangement. The bosses 20, shown in the example as having a rectangular shape, receive, in overlying relation, a second releasable cooperating engagement member 22. The member 22 is shown in the example as a plate. The plate 22 has spaced apart apertures 24 which receive the bosses 20. The boss 20 shape and aperture 24 are configured for cooperation.

Plate 22 may comprise a similar material of which the containers 12 are made, such as steel. The plate 22 is dimensioned to overlie the interface of abutment, referenced by numeral 16, of the adjacent containers 12. The plate is also dimensioned to be of a lesser thickness than the height of the bosses 20. In this manner, the plate 22 can be loosely retained on the bosses 20 in a parallel plane to the walls 18.

In order to further assist in retaining the plate 22 on the bosses 20, a third releasably engageable cooperating means in the form of an aperture 28 (chain line) cooperates with a fourth releasably engageable cooperating means in the form of, for example, a pin or L-bolt 30. As is illustrated in the example, the pin 30 is received within the aperture

28. The reception is such that the pin 30 abuts the surface of the plate 22. This relationship ensures that the plate 22 remains snugly against the walls 18. The former relationship is depicted in Figure 4.

The Figures illustrate the boss 20 shape as a rectangle. This is useful when combined with a keyed or matched configuration in the plate 22 to reduce if not eliminate any vertical or horizontal movement of connected containers. Any suitable polygonal shape is envisioned as a possibility. Figures 5A through 5D illustrate a number of variations for the plate 22 in terms of the apertures 24 being diamond, square, hexagonal and generally square in shape. The bosses 20 would obviously have a keyed shape for cooperation. In addition, Figures 5A through 5D show variations on the shape and disposition of the pins or L bolts 30. The pins or bolts may be inserted into the aperture 28 of the bosses 20 vertically, horizontally or angularly. Further, the pins may be of a varying dimension, i.e. conical, straight, or bent. As a further variation, the plate 22 may comprise any suitable shape variations of which are shown in Figures 5C and 5D with a generally dumbbell configuration. Other variations will be appreciated by those skilled.

Referring now to Figure 6, shown is another alternate embodiment of the present invention.

In this embodiment, two bosses 20, a pair from each container 12 are connected by a modified plate 22'. In this embodiment, two plates are joined by joining members 32, shown in the example to be vertical arms. Any suitable configuration to achieve this end is possible and will be appreciated by those skilled. Further, any number of bosses 20 may be connected.

Referring now to Figure 7, shown is a further variation of the present invention. In this embodiment, the container 12 is formed of a plurality of individual wall segments 32. Each segment includes the bosses 20 which cooperate with an adjacent segment 32 in a manner similar to that discussed with respect to the previous embodiments. Plate 22 joins the adjacent segments. Conveniently, the intersection of two segments at a corner can be easily accommodated by modifying plate 22 by a right angle bend as shown in the illustration. In situations where the angle required is acute or obtuse, the plate will be modified accordingly.

Although embodiments of the invention have been described above, it is not limited thereto and it will be apparent to those skilled in the art that numerous modifications form part of the present invention insofar as they do not depart from the spirit, nature and scope of the claimed and described invention.

WE CLAIM:

1. A connection assembly for connecting similar containers, comprising, in combination:

a first container and a second container in contact;

boss means integral with and projecting outwardly from an extension wall of each said container of said containers, said boss means being in horizontal alignment on containers to be connected;

a second cooperating engagement member for overlying releasable engagement with at least a pair of said boss means of containers to be connected, said second cooperating engagement member being independent of each said container, said second cooperating member having a configuration matched in shape to said boss means, said boss means extending beyond said second cooperating engagement member when said second cooperating engagement member overlies said boss means, said second cooperating engagement member when engaged with said boss means overlies a contact interface of connected containers;

third cooperating engagement means integral with said boss means; and

fourth cooperating engagement means adapted for releasable engagement with said third cooperating engagement means and for retaining said second cooperating engagement member when overlying said boss means, connection between containers being effected solely when said boss means receives said second cooperating engagement member and said third cooperating engagement means receives said fourth cooperating engagement means, each said container is connected and secured against substantial vertical and horizontal separation.

2. The combination as set forth in claim 1, wherein said second cooperating engagement member is separate and unconnected to each said container.

3. The combination as set forth in claim 1, wherein each container has a plurality of projecting boss means in vertical spaced relation.

4. The combination as set forth in claim 3, wherein said projecting boss means are in collinear arrangement.

5. The combination as set forth in claim 1, wherein said boss means of said first container and said second container are in a collinear arrangement.

6. The combination as set forth in claim 2, wherein said second cooperating engagement member comprises a removable plate.

7. The combination as set forth in claim 1, wherein a horizontal distance between said boss means between contacted containers is identical to a vertical distance between said boss means of an individual container of said first container and said second container.

8. The combination as set forth in claim 1, wherein at least a boss means between adjacent containers is connected.

9. The combination as set forth in claim 1, wherein said third cooperating engagement means comprises an aperture extending through said boss means.

10. The combination as set forth in claim 1, wherein said fourth cooperating engagement means comprises a separate member unconnected to said container.

11. The combination as set forth in claim 10, wherein said fourth cooperating engagement means comprises an L-shaped pin releasably connectable within said third cooperating engagement means.

12. The combination as set forth in claim 1, wherein said fourth cooperating engagement means, when engaged with said third cooperating engagement means, abuts said second cooperating engagement member.

13. The combination as set forth in claim 1, wherein said first container and said second container are arranged in horizontal disposition.

14. The combination as set forth in claim 1, wherein said first container and said second container are arranged in vertical disposition.

15. The combination as set forth in claim 1, wherein said boss means and said second cooperating engagement member have matched polygonal shapes.

16. A connection assembly for connecting similar containers, comprising, in combination:

a first container and a second container in contact;

a plurality of projections projecting from the walls of each container of said containers arranged in alignment on containers in contact;

a separate plate member for overlying releasable engagement with said projections projecting from each container, said separate plate member being independent of each said container, said plate having apertures matched in shape to said projections, said projections extending beyond said plate when in overlying relation with said projections;

aperture means extending through said projections; and

retainer means adapted for releasable engagement with said aperture means, connection between containers being effected solely when said projections receive said separate plate and said aperture means receives said retainer means, each said container is connected and secured against substantial vertical and horizontal separation.

17. A modular container, comprising:

a plurality of separate container wall segments adapted for releasable connection with each other to form a container or enclosure;

boss means projecting from each said container wall segment of said containers, said boss means being in alignment on each container wall segment;

a second cooperating engagement plate for overlying releasable engagement with at least a pair of said boss means of each juxtaposed wall, said second cooperating engagement member being independent of said container wall segments, said second cooperating plate having a configuration matched in shape to said boss means, said boss means extending beyond said second cooperating engagement means when said second cooperating engagement plate overlies said boss means of juxtaposed walls;

third cooperating engagement means integral with said boss means; and

fourth cooperating engagement means adapted for releasable engagement with said third cooperating engagement means and for retaining said second cooperating engagement member when overlying said first cooperating engagement means, formation of said container being effected solely by said boss means being received in said second cooperating engagement member and when said third cooperating engagement means is received in said fourth cooperating engagement means, whereby said container or enclosure is secured against substantial vertical and horizontal separation.

18. The container as set forth in claim 17, wherein said plate is planar.

19. The container as set forth in claim 17, wherein said plate is angular.

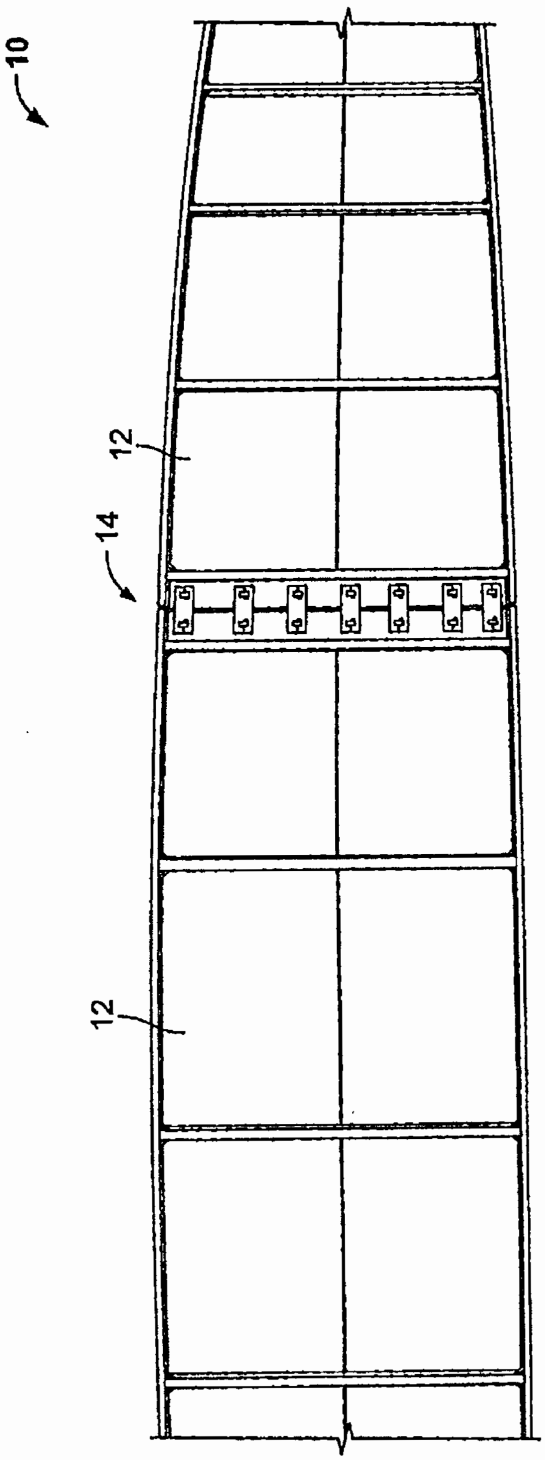


FIG. 1

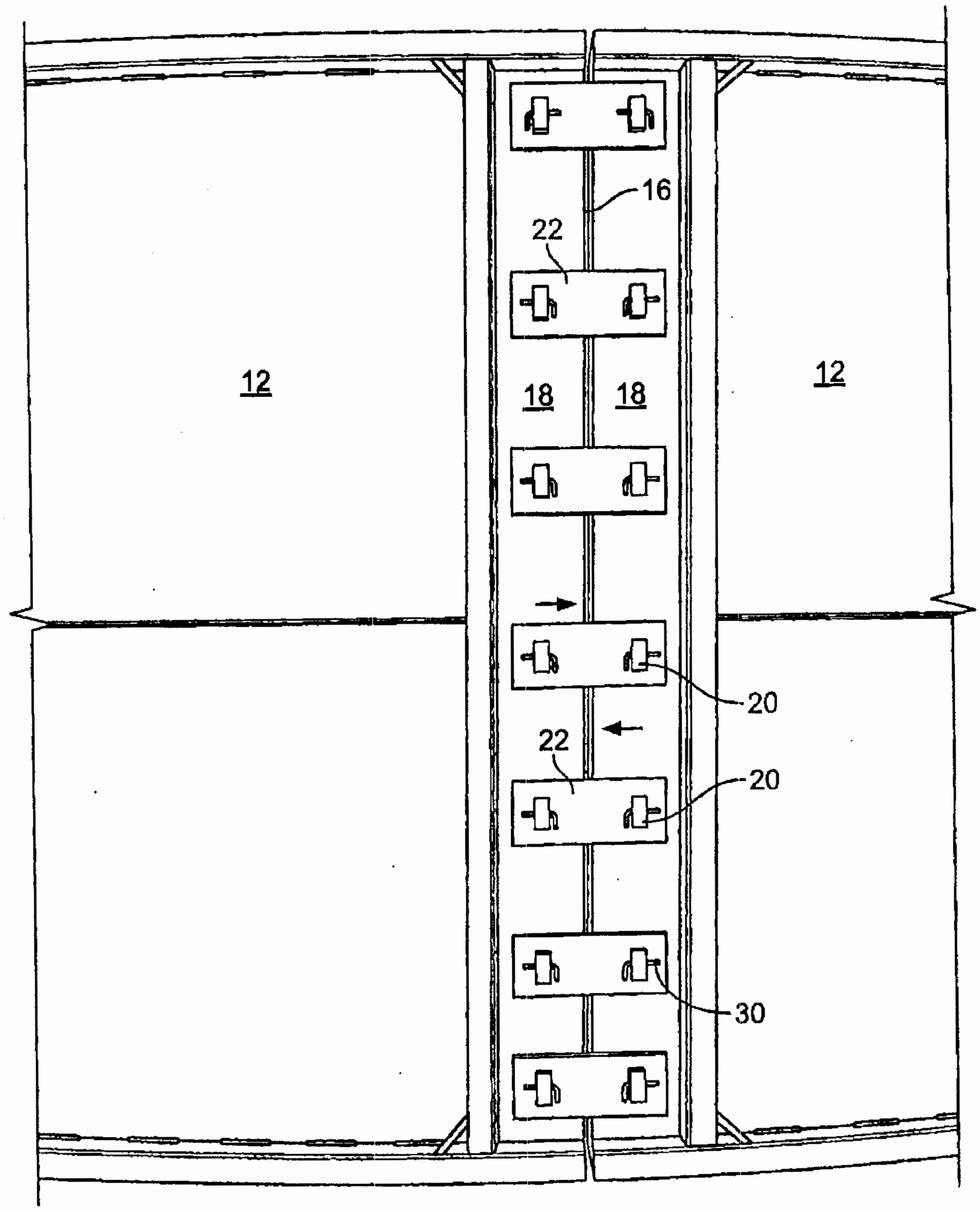


FIG. 2

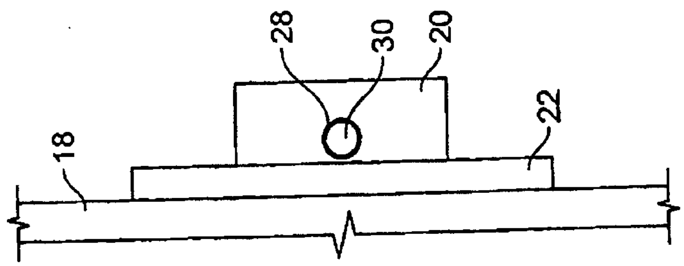


FIG. 4

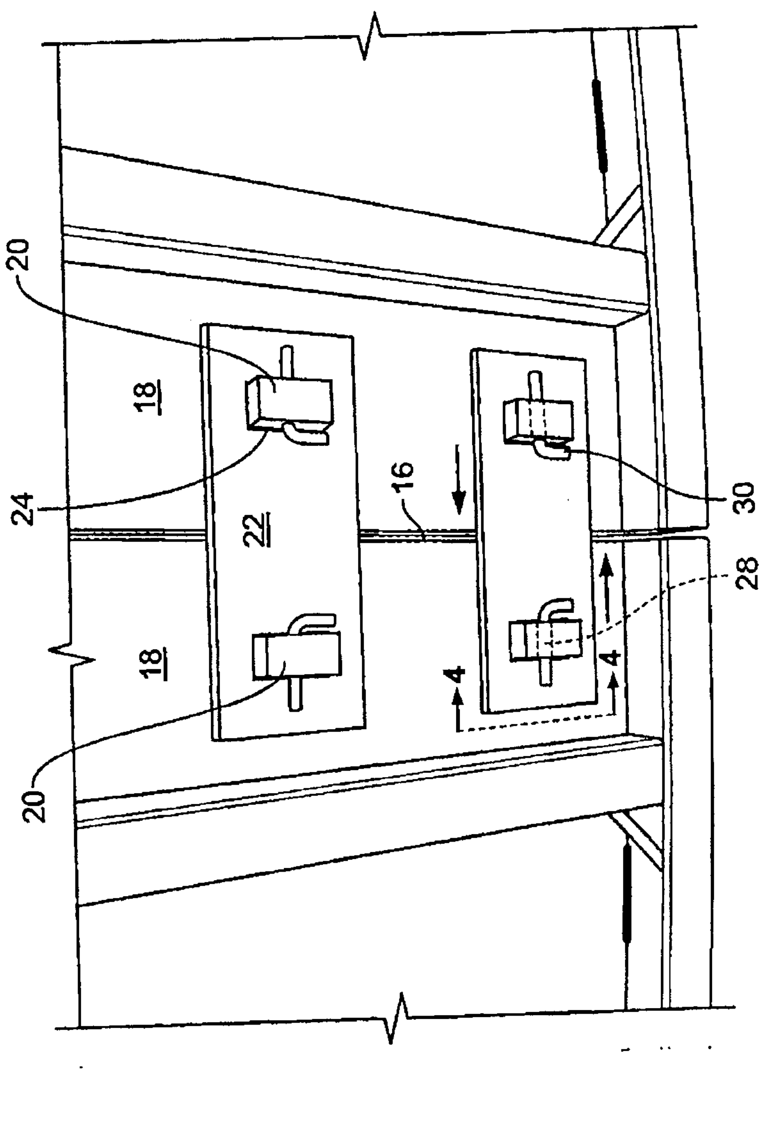


FIG. 3

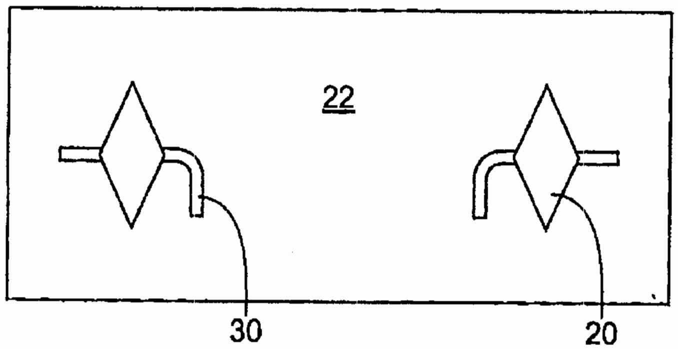


FIG. 5A

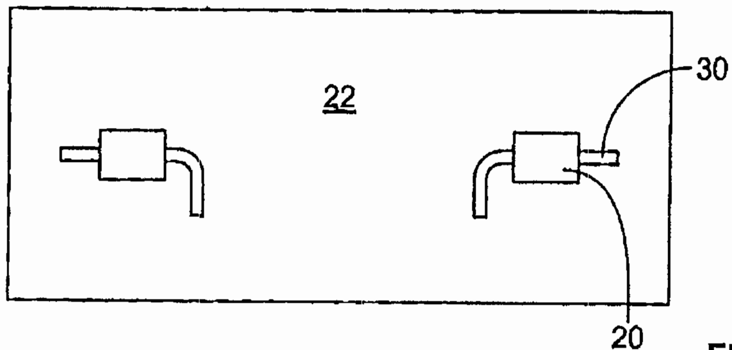


FIG. 5B

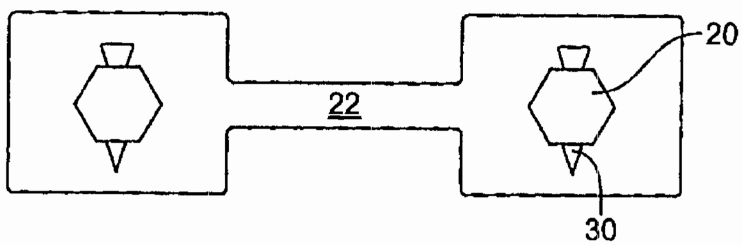


FIG. 5C

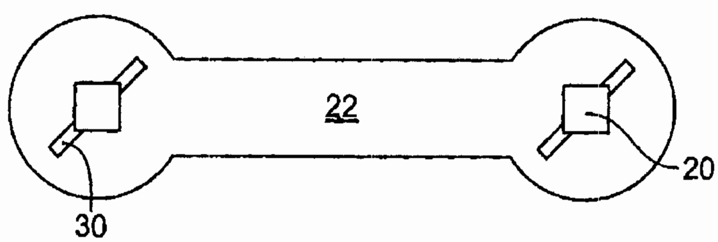


FIG. 5D

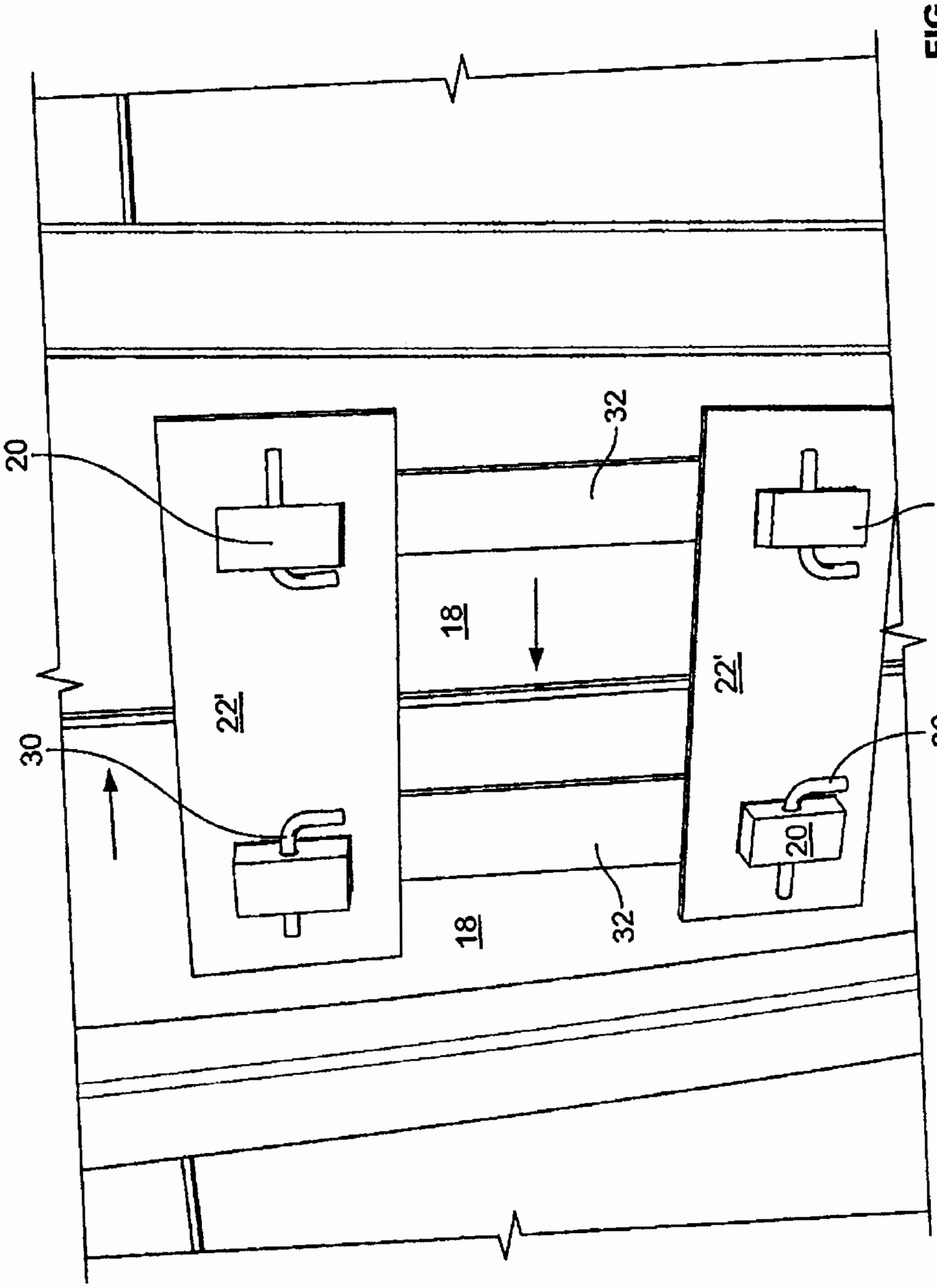


FIG. 6

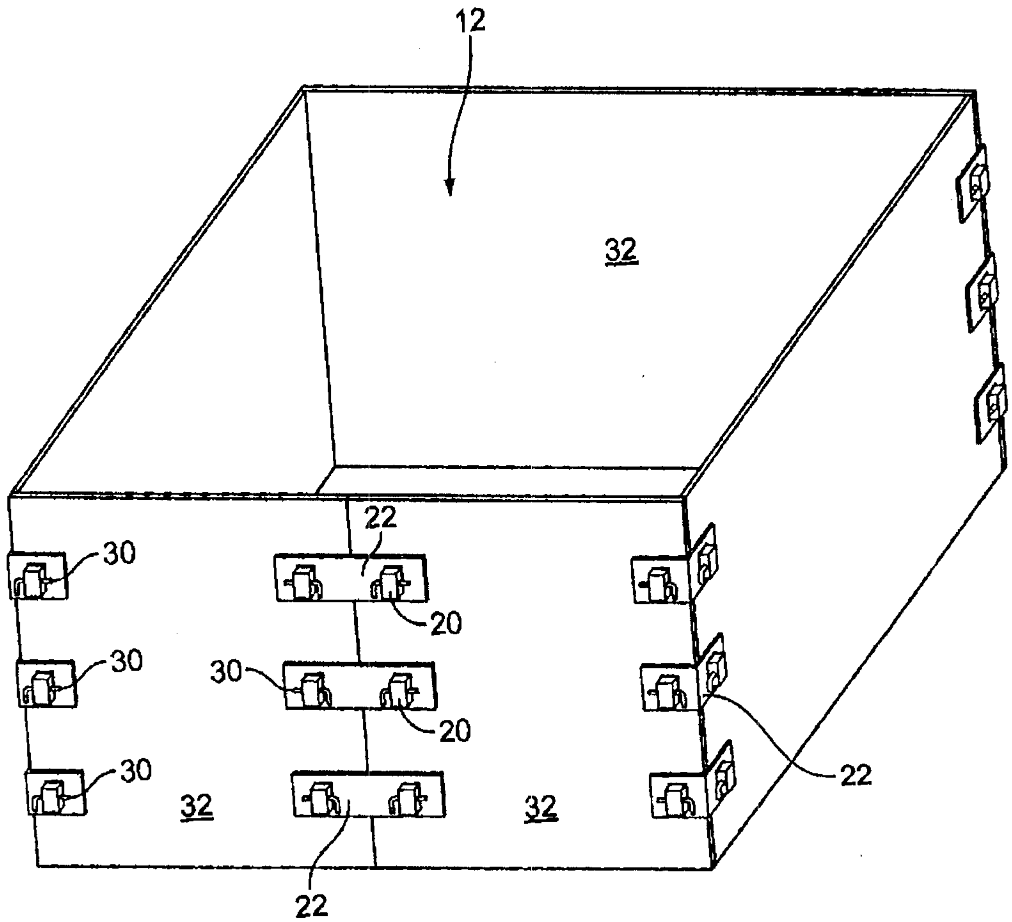


FIG. 7

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12/985,362 **CONTAINER FASTENING ASSEMBLY** **PCLP-003**

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Bibliographic Data

Application Number:	12/985,362	Customer Number:	-
Filing or 371 (c) Date:	01-06-2011	Status:	Docketed New Case - Ready for Examination
Application Type:	Utility	Status Date:	01-26-2012
Examiner Name:	EDWARDS, BRETT J	Location:	ELECTRONIC
Group Art Unit:	3781	Location Date:	-
Confirmation Number:	4194	Earliest Publication No:	US 2011-0194893 A1
Attorney Docket Number:	PCLP-003	Earliest Publication Date:	08-11-2011
Class / Subclass:	206/504	Patent Number:	-
First Named Inventor:	Cliff WIEBE , Calgary, (CA)	Issue Date of Patent:	-

Title of Invention: CONTAINER FASTENING ASSEMBLY

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Beck
ENGINEERING (1992) LTD.

August 26, 2011
Doc. 11341M1101

Poseidon Concepts Ltd.
1100, 645 - 7th Ave SW
Calgary, Alberta T2P 4G8

Attention: To Whom It May Concern

Re: Atlantis, Poseidon & Triton Modular Tanks

This letter confirms that Beck Engineering (1992) Ltd. has designed and engineered the Poseidon Concepts modular tanks. Specifically, Beck Engineering has designed and reviewed the $6500m^3$ "Atlantis", the $2900m^3$ "Poseidon" and the $1440m^3$ "Triton" models.

Beck Engineering has structurally designed the tank wall panels and panel connections to fully withstand all forces and stresses that the modular tank may be subject to during transport, erection, filling and emptying the tank. Hydrostatic forces, considering a specific gravity of 1.05 have been considered during design of all components. Further, the modular tanks system has been designed to withstand the forces and stresses generated by potential out-of-plumb and out-of-round installation conditions.

The modular tanks have been designed in accordance with accepted engineering principles with reference to CSA S16 "Limit States Design of Steel Structures" as applicable. The total (von Mises) stress condition has also been considered for all components within the modular tank system including the panel connections. All stresses within the modular tank system components have been limited to ensure a minimum Factor of Safety of 3.0 has been maintained throughout the modular system. Beck Engineering has also provided signed and sealed erection procedures and ground preparation requirements.

The Poseidon, Atlantis and Triton modular tanks models are structurally designed to resist all anticipated forces on the tank panels and panel connections from the start of erection to the complete filling of the tank. The modular tank systems have been designed considering all hydrostatic forces, the associated tension developed in the wall panels and the tension forces and associated out-of-plane and out-of-plumb forces developed within the panel connections. Further consideration has been given to the forces and stresses introduced during erection considering lifting and handling and wind forces during assembly.

Beck Engineering has provided Poseidon Concepts (via Open Range Energy Corp.) with signed and sealed drawings showing all required connection details and material specifications as necessary for fabrication of the 3 modular tank models described herein.

I trust this is the information you currently require. Beck Engineering would be pleased to provide further information as necessary within the limits of our confidentiality obligations to Poseidon Concepts.

Regards,
Beck Engineering (1992) Ltd.
APEGGA Permit No. 2042

PROFESSIONAL ENGINEER
MICHAEL HAYDEN
ALBERTA

Michael Hayden, P.Eng.

Aug 26/11

Unit 144, 2730 - 3rd Avenue N.E., Calgary, AB T2A 2L5 • Ph. (403) 279-6999 • Fax (403) 236-4803

TOUGH TARPS...NO BULL

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Miles City, Montana 59301
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(406) 234-7774 Fax
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8, 10 & 12 oz.
Nonwoven Geotextile

	WID8	WID10	WID12	
Property				**ASTM**
Weight	8 oz/yd^2	10 oz/yd^2	12 oz/yd^2	
Grab Tensile	205 lbs	250 lbs	300 lbs	D-4632
Grab Elongation	50%	50%	50%	D-4632
Trapezoidal Tear	80 lbs	100 lbs	115 lbs	D4533
Puncture Resistance	525 lbs	625 lbs	825 lbs	D-6241
UV Resistance After 500 hrs.	70% Strength Retained	70% Strength Retained	70% Strength Retained	D-4355
		Hydraulic		
Apparent Opening Size (AOS)[3]	80 US Std. Sieve	100 US Std. Sieve	100 US Std. Sieve	D-4751
Permittivity	1.5 sec^{-1}	1.2 sec^{-1}	1.0 sec^{-1}	D-4491
Water Flow Rate	110 gpm/ft^2	85 gpm/ft^2	75 gpm/ft^2	D-4491

These values are typical data and are not intended as limiting specifications.

Material Safety Data Sheet
May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910 1200. Standard must be consulted for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

GSE

IDENTITY *(as Used on Label and List)* *GSE Low Density Polyethylene Geomembrane (LLDPE)*	*Note: Blank spaces are not permitted. If any item is not applicable or no information is available, the space must be marked to indicate that.*

Section 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Manufacturer's name GSE Lining Technology	Emergency Telephone Number **1-800-435-2008** CHEMTREC (800) 424-9300
Address *(Number, Street, City, State and ZIP Code)*	Telephone Number for Information **1-800-435-2008**
19103 Gundle Rd	Date Prepared 1/1/1999
Houston, Texas 77073	Signature of Preparer *(optional)*

Section2 Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity, Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
PRODUCT NAME: LLDPE(ALL GRADES)	**None**	**None**	**None**	
CHEMICAL NAME:				
Polyethylene or Ethylene-Olefin Copolymer				
CHEMICAL FAMILY:				
Ethylene-Based Polymer				
PRODUCT DESCRIPTION:				
Odorless opaque white pellets or granules.				

This product is not hazardous as defined in 29 CFR1910.1200

Section 3 COMPOSITION/INFORMATION ON INGREDIENTS

POTENTIAL HEALTH EFFECTS EYE CONTACT: Particulates may scratch eye surfaces/cause mechanical irritation.

SKIN CONTACT:
Negligible hazard at ambient temperatures (-18 to +38 degrees C; 0 to 100 degrees F).
Exposure to hot material may cause thermal burns.

INHALATION:
Negligible hazard at ambient temperature (-18 to 38 Deg C; 0 to 100 Deg F)
Vapors and/or aerosols which may be formed at elevated temperatures may be irritating to eyes and respiratory tract.

INGESTION:
Minimal toxicity.

Section 4 FIRST AID MEASURES

EYE CONTACT:
This product is an inert solid. If in eye, remove as one would any foreign object.

SKIN CONTACT:
For hot product, immediately immerse in or flush the affected area with large amounts of cold water to dissipate heat. Cover with clean cotton sheeting or gauze and get prompt medical attention. No attempt should be made to remove material from skin or to remove contaminated clothing, as the damaged flesh can be easily torn.

INHALATION:
In case of adverse exposure to vapors and/or aerosols formed at elevated temperatures, immediately remove the affected victim from exposure. Administer artificial respiration if breathing is stopped. Keep at rest. Call for prompt medical attention.

INGESTION:
First aid is normally not required.

Liner

Product Description
The Liner geomembranes are economical lining materials made from blended/reprocessed resins selected for optimum performance at the lowest cost. Products are intended for use in gomembrane applications such as oil and gas reserve pits, temporary containment of frac water, backflow water high in salt concentration, seepage control, water containment and short-term protective covers. Prefabricated liners are also ideal for installation by contractors, owners, or agricultural operators.

Technical Data
Materials information is below.

Installation
Liner is flexible enough to be prefabricated at our facility into large panels (Up to 27,000 square feet at 30 mil). The prefabricated panel is accordion folded, rolled on a core, and delivered to the job site secured to a pallet. Prefabricated panels can often cover a small project with a single panel. Local labor forces are used to unroll and unfold the panels. Our entire primary field welding of liner is based on hot wedge welding technology. Field wedge welding Liner provides strong seams, and fast installations on large projects. Small welds and repairs can be completed with the Layfield Enviro Liner® welding kit.

9. Material Properties

19 Nov 2011	Series Typical Properties			
Style	**ASTM**	**20 mil**	**30 mil**	**40 mil**
Thickness (Nominal)	D5199	20 mil 0.50 mm	30 mil 0.75 mm	40 mil 1.0 mm
Tensile Strength at Break	D638	75 ppi 13.8 N/mm	114 ppi 21 N/mm	154 ppi 28.5 N/mm
Elongation	D638	800%	800%	800%
Tear Resistance	D1004	11 lbs 49 N	16 lbs 71 N	22 lbs 98 N
Puncture Resistance	D4833	30 lbs 130 N	45 lbs 200 N	60 lbs 270
Low Temperature Impact Resistance	D1790	-40°F -40°C	-40°F -40°C	-40°F -40°C
Dimensional Stability	D1204 Max Chng	<2.0%	<2.0%	<2.0%

10. Shop Seam Strengths

19 Nov 2011	Shop Seam Strengths			
Style	**ASTM**	**20 mil**	**30 mil**	**40 mil**
Heat Bonded Seam Strength	D6392 25.4 mm (1") Strip	25 ppi 4.4 N/mm	36 ppi 6.3 N/mm	48 ppi 8.4 N/mm
Heat Bonded Peel Adhesion Strength	D6392 25.4 mm (1") Strip	FTB 18 ppi 3.2 N/mm	FTB 29 ppi 5.1 N/mm	FTB 39 ppi 6.8 N/mm

The Pioneer of Geosynthetics
SINCE 1972

Product Data Sheet - OT

GSE 30 mil UltraFlex Smooth Geomembrane (Nominal)

GSE 30 mil UltraFlex is a smooth linear low density polyethylene (LLDPE) geomembrane manufactured with the highest quality resin specifically formulated for flexible geomembranes. This product is used in applications that require increased flexibility and elongation properties where differential or localized subgrade settlements may occur such as in a landfill closure application.

Product Specifications

TESTED PROPERTY	TEST METHOD	FREQUENCY	NOMINAL VALUE 30 mil
Thickness, (Nominal) mil (mm) with a tolerance +/- 10%	ASTM D 5199	every roll	27 (0.68)
Density, g/cm^3	ASTM D 1505	200,000 lb	0.92
Tensile Properties (each direction) Strength at Break, lb/in-width (N/mm) Elongation at Break, %	ASTM D 6693, Type IV Dumbell, 2 ipm G.L. 2.0 in (51 mm)	20,000 lb	 114 (20) 800
Tear Resistance, lb (N)	ASTM D 1004	45,000 lb	16 (70)
Puncture Resistance, lb (N)	ASTM D 4833	45,000 lb	42 (190)
Carbon Black Content[1], % (Range)	ASTM D 1603*/4218	20,000 lb	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lb	Note[1]
Oxidative Induction Time, min	ASTM D 3895, 200° C; O_2, 1 atm	200,000 lb	>140
TYPICAL ROLL DIMENSIONS			
Roll Length[2], ft (m)			1,120 (341)
Roll Width[2], ft (m)			22.5 (6.9)
Roll Area, ft^2 (m^2)			25,200 (2,341)

NOTES:
- [1]Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
- [2]Roll lengths and widths have a tolerance of ± 1%.
- GSE UltraFlex is available in rolls weighing approximately 3,900 lb (1,769 kg).
- All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77° C when tested according to ASTM D 746.
- *Modified.

OTDSUF R02/15/10

GSE

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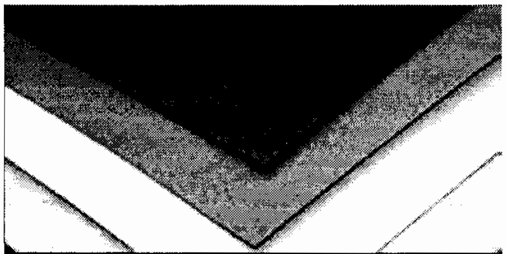
Technical Note

Chemical Resistance for Geomembrane Products



GSE geomembranes.

GSE geomembranes are made of high quality, virgin polyethylene which demonstrates excellent chemical resistance. GSE polyethylene geomembranes are resistant to a great number and combinations of chemicals. It is this property of (HDPE) high density polyethylene geomembranes that makes it the lining material of choice.

In order to gauge the durability of a material in contact with a chemical mixture, testing is required in which the material is exposed to the chemical environment in question. Chemical resistance testing is a very large and complex topic because of two factors. First, the number of specific media is virtually endless and second, there are many criteria such as tensile strength, hardness, etc. that may be used to assess a material's resistance to degradation.

The chemical resistance of polyethylene has been investigated by many people over the past few decades. We are able to draw from that work when making statements about the chemical resistance of today's polyethylene geomembranes. In addition to that, many tests have been performed that specifically use geomembranes and certain chemical mixtures. Naturally, however, every mixture of chemicals cannot be tested for. As a result of these factors, GSE published a chemical resistance chart, demonstrating general guidelines.

Polyethylene is, for practical purposes, considered impermeable. Be aware, however, that all materials are permeable to some extent. Permeability varies with concentration, temperature, pressure and type of permeant. The rates of permeation are usually so low, however, that they are insignificant. As a point of reference, polyethylene is commonly used for packaging of several types of materials. These include gasoline, motor oil, household cleaners (i.e. bleach), muratic acid, pesticides, insecticides, fungicides, and other highly concentrated chemicals. Also, you should be aware that there are some chemicals which may be absorbed by the material but only when present at very high concentrations. These include halogenated and/or aromatic hydrocarbons at greater than 50%; their absorption results in swelling and slight changes in physical properties such as increased tensile elongations. This includes many types of fuels and oils. Recognize that this action, however, does not affect the liner's ability to act as a barrier for the material it is containing.

Since polyethylene is a petroleum product, it can absorb other petroleum products. Like a sponge, the material becomes slightly thicker and more flexible but does not produce a hole or void. However, unlike a sponge, this absorption is not immediate. It takes a much longer time for a polyethylene liner to swell than it does for a sponge. The exact time it takes for swelling to occur depends on the particular constituents and concentrations of the contained media. However, a hole would not be produced. Also, this absorption is reversible and the material will essentially return to it's original state when the chemical is no longer in contact with the liner.

With regard to typical municipal landfills in the United States, legally allowable levels of chemicals have been demonstrated to have no adverse affect on polyethylene geomembrane performance. The very low levels of salts, metals and organic compounds do not damage polyethylene. A double-lined containment with a leachate (leak detection) removal system effectively prevents any significant, continuous exposure of the secondary membrane to these materials and for practical purposes makes the total liner system even more impermeable.

NORTH AMERICA 800.435.2008 281.443.8564 · EUROPE & AFRICA 49.40.767420 · ASIA PACIFIC 66.2.937.0091 · SOUTH AMERICA 56.2.595.4200 · MIDDLE EAST 20.23.828.8888

gseworld.com

GSE

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Technical Note

Chemical Resistance Chart

GSE is the world's leading supplier of high quality, polyethylene geomembranes. GSE polyethylene geomembranes are resistant to a great number and combinations of chemicals. Note that the effect of chemicals on any material is influenced by a number of variable factors such as temperature, concentration, exposed area and duration. Many tests have been performed that use geomembranes and certain specific chemical mixtures. Naturally, however, every mixture of chemicals cannot be tested for, and various criteria may be used to judge performance. Reported performance ratings may not apply to all applications of a given material in the same chemical. Therefore, these ratings are offered as a guide only.

Medium	Concentration	Resistance at: 20° C (68° F)	Resistance at: 60° C (140° F)
A			
Acetic acid	100%	S	L
Acetic acid	10%	S	S
Acetic acid anhydride	100%	S	L
Acetone	100%	L	L
Adipic acid	sat. sol.	S	S
Allyl alcohol	96%	S	S
Aluminum chloride	sat. sol.	S	S
Aluminum fluoride	sat. sol.	S	S
Aluminum sulfate	sat. sol.	S	S
Alum	sol.	S	S
Ammonia, aqueous	dil. sol.	S	S
Ammonia, gaseous dry	100%	S	S
Ammonia, liquid	100%	S	S
Ammonium chloride	sat. sol.	S	S
Ammonium fluoride	sol.	S	S
Ammonium nitrate	sat. sol.	S	S
Ammonium sulfate	sat. sol.	S	S
Ammonium sulfide	sol.	S	S
Amyl acetate	100%	S	L
Amyl alcohol	100%	S	L
Aniline	100%	S	L
Antimony trichloride	90%	S	S
Arsenic acid	sat. sol.	S	S
Aqua regia	HCl-HNO3	U	U
B			
Barium carbonate	sat. sol.	S	S
Barium chloride	sat. sol.	S	S
Barium hydroxide	sat. sol.	S	S
Barium sulfate	sat. sol.	S	S
Barium sulfide	sol.	S	S
Benzaldehyde	100%	S	L
Benzene	—	L	L
Benzoic acid	sat. sol.	S	S
Beer	—	S	S
Borax (sodium tetraborate)	sat. sol.	S	S
Boric acid	sat. sol.	S	S
Bromine, gaseous dry	100%	U	U
Bromine, liquid	100%	U	U
Butane, gaseous	100%	S	S
1-Butanol	100%	S	S
Butyric acid	100%	S	L
C			
Calcium carbonate	sat. sol.	S	S
Calcium chlorate	sat. sol.	S	S
Calcium chloride	sat. sol.	S	S
Calcium nitrate	sat. sol.	S	S
Calcium sulfate	sat. sol.	S	S
Calcium sulfide	dil. sol.	L	L
Carbon dioxide, gaseous dry	100%	S	S
Carbon disulfide	100%	L	U
Carbon monoxide	100%	S	S
Chloracetic acid	sol.	S	S
Carbon tetrachloride	100%	L	U
Chlorine, aqueous solution	sat. sol.	L	U
Chlorine, gaseous dry	100%	L	U
Chloroform	100%	U	U
Chromic acid	20%	S	L
Chromic acid	50%	S	L
Citric acid	sat. sol.	S	S

Medium	Concentration	Resistance at: 20° C (68° F)	Resistance at: 60° C (140° F)
Copper chloride	sat. sol.	S	S
Copper nitrate	sat. sol.	S	S
Copper sulfate	sat. sol.	S	S
Cresylic acid	sat. sol.	L	—
Cyclohexanol	100%	S	S
Cyclohexanone	100%	S	L
D			
Decahydronaphthalene	100%	S	L
Dextrine	sol.	S	S
Diethyl ether	100%	L	—
Dioctylphthalate	100%	S	L
Dioxane	100%	S	S
E			
Ethanediol	100%	S	S
Ethanol	40%	S	L
Ethyl acetate	100%	S	U
Ethylene trichloride	100%	U	U
F			
Ferric chloride	sat. sol.	S	S
Ferric nitrate	sol.	S	S
Ferric sulfate	sat. sol.	S	S
Ferrous chloride	sat. sol.	S	S
Ferrous sulfate	sat. sol.	S	S
Fluorine, gaseous	100%	U	U
Fluorosilicic acid	40%	S	S
Formaldehyde	40%	S	S
Formic acid	50%	S	S
Formic acid	98-100%	S	S
Furfuryl alcohol	100%	S	L
G			
Gasoline	—	S	L
Glacial acetic acid	96%	S	L
Glucose	sat. sol.	S	S
Glycerine	100%	S	S
Glycol	sol.	S	S
H			
Heptane	100%	S	U
Hydrobromic acid	50%	S	S
Hydrobromic acid	100%	S	S
Hydrochloric acid	10%	S	S
Hydrochloric acid	35%	S	S
Hydrocyanic acid	10%	S	S
Hydrofluoric acid	4%	S	S
Hydrofluoric acid	60%	S	L
Hydrogen	100%	S	S
Hydrogen peroxide	30%	S	L
Hydrogen peroxide	90%	S	U
Hydrogen sulfide, gaseous	100%	S	S
Lactic acid	100%	S	S
Lead acetate	sat. sol.	S	—
M			
Magnesium carbonate	sat. sol.	S	S
Magnesium chloride	sat. sol.	S	S
Magnesium hydroxide	sat. sol.	S	S
Magnesium nitrate	sat. sol.	S	S
Maleic acid	sat. sol.	S	S
Mercuric chloride	sat. sol.	S	S
Mercuric cyanide	sat. sol.	S	S
Mercuric nitrate	sol.	S	S

-Continued-

Medium	Concentration	Resistance at: 20° C (68° F)	Resistance at: 60° C (140° F)
Mercury	100%	S	S
Methanol	100%	S	S
Methylene chloride	100%	L	—
Milk	—	S	S
Molasses	—	S	S
N			
Nickel chloride	sat. sol.	S	S
Nickel nitrate	sat. sol.	S	S
Nickel sulfate	sat. sol.	S	S
Nicotinic acid	dil. sol.	S	—
Nitric acid	25%	S	S
Nitric acid	50%	S	U
Nitric acid	75%	U	U
Nitric acid	100%	U	U
O			
Oils and Grease	—	S	L
Oleic acid	100%	S	L
Orthophosphoric acid	50%	S	S
Orthophosphoric acid	95%	S	L
Oxalic acid	sat. sol.	S	S
Oxygen	100%	S	L
Ozone	100%	L	U
P			
Petroleum (kerosene)	—	S	L
Phenol	sol.	S	S
Phosphorus trichloride	100%	S	L
Photographic developer	cust. conc.	S	S
Picric acid	sat. sol.	S	—
Potassium bicarbonate	sat. sol.	S	S
Potassium bisulfide	sol.	S	S
Potassium bromate	sat. sol.	S	S
Potassium bromide	sat. sol.	S	S
Potassium carbonate	sat. sol.	S	S
Potassium chlorate	sat. sol.	S	S
Potassium chloride	sat. sol.	S	S
Potassium chromate	sat. sol.	S	S
Potassium cyanide	sol.	S	S
Potassium dichromate	sat. sol.	S	S
Potassium ferricyanide	sat. sol.	S	S
Potassium ferrocyanide	sat. sol.	S	S
Potassium fluoride	sat. sol.	S	S
Potassium hydroxide	10%	S	S
Potassium hydroxide	sol.	S	S
Potassium hypochlorite	sol.	S	L
Potassium nitrate	sat. sol.	S	S
Potassium orthophosphate	sat. sol.	S	S
Potassium perchlorate	sat. sol.	S	S
Potassium permanganate	20%	S	S
Potassium persulfate	sat. sol.	S	S
Potassium sulfate	sat. sol.	S	S
Potassium sulfite	sol.	S	S
Propionic acid	50%	S	S
Propionic acid	100%	S	L
Pyridine	100%	S	L
Q			
Quinol (Hydroquinone)	sat. sol.	S	S
S			
Salicylic acid	sat. sol.	S	S

Medium	Concentration	Resistance at: 20° C (68° F)	Resistance at: 60° C (140° F)
Silver acetate	sat. sol.	S	S
Silver cyanide	sat. sol.	S	S
Silver nitrate	sat. sol.	S	S
Sodium benzoate	sat. sol.	S	S
Sodium bicarbonate	sat. sol.	S	S
Sodium biphosphate	sat. sol.	S	S
Sodium bisulfite	sol.	S	S
Sodium bromide	sat. sol.	S	S
Sodium carbonate	sat. sol.	S	S
Sodium chlorate	sat. sol.	S	S
Sodium chloride	sat. sol.	S	S
Sodium cyanide	sat. sol.	S	S
Sodium ferricyanide	sat. sol.	S	S
Sodium ferrocyanide	sat. sol.	S	S
Sodium fluoride	sat. sol.	S	S
Sodium hydroxide	40%	S	S
Sodium hydroxide	sat. sol.	S	S
Sodium hypochlorite	15% active chlorine	S	S
Sodium nitrate	sat. sol.	S	S
Sodium nitrite	sat. sol.	S	S
Sodium orthophosphate	sat. sol.	S	S
Sodium sulfate	sat. sol.	S	S
Sodium sulfide	sat. sol.	S	S
Sulfur dioxide, dry	100%	S	S
Sulfur trioxide	100%	U	U
Sulfuric acid	10%	S	S
Sulfuric acid	50%	S	S
Sulfuric acid	98%	S	U
Sulfuric acid	fuming	U	U
Sulfurous acid	30%	S	S
T			
Tannic acid	sol.	S	S
Tartaric acid	sol.	S	S
Thionyl chloride	100%	L	U
Toluene	100%	L	U
Triethylamine	sol.	S	L
U			
Urea	sol.	S	S
Urine	—	S	S
W			
Water	—	S	S
Wine vinegar	—	S	S
Wines and liquors	—	S	S
X			
Xylenes	100%	L	U
Y			
Yeast	sol.	S	S
Z			
Zinc carbonate	sat. sol.	S	S
Zinc chloride	sat. sol.	S	S
Zinc (II) chloride	sat. sol.	S	S
Zinc (IV) chloride	sat. sol.	S	S
Zinc oxide	sat. sol.	S	S
Zinc sulfate	sat. sol.	S	S

Specific immersion testing should be undertaken to ascertain the suitability of chemicals not listed above with reference to special requirements.

NOTES:

(S) **Satisfactory**: Liner material is resistant to the given reagent at the given concentration and temperature. No mechanical or chemical degradation is observed.

(L) **Limited Application Possible**: Liner material may reflect some attack. Factors such as concentration, pressure and temperature directly affect liner performance against the given media. Application, however, is possible under less severe conditions, e.g. lower concentration, secondary containment, additional liner protections, etc.

(U) **Unsatisfactory:** Liner material is not resistant to the given reagent at the given concentration and temperature. Mechanical and/or chemical degradation is observed.

(–) **Not tested**

sat. sol. = Saturated aqueous solution, prepared at 20°C (68°F)

sol. = aqueous solution with concentration above 10% but below saturation level

dil. sol. = diluted aqueous solution with concentration below 10%

cust. conc. = customary service concentration

Appendix SSI-3

- Atlantis system set-up procedures

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

Steps for setting a tank

Prejob checklist

Get site info

Company rep name

Check site for level and ground material make-up

Where are tank and accessories coming from, who is shipping?

Inventory needed on site day of tank install

- Geo
- Liner
- Tank walls
- Piping (and all bolts, washers, nuts required)
- Ladders w/ fall arrestors
- Plate stands with plates, pins and safety pins
- Clamps

Tools needed

- Trackhoe with operator
- Boom truck or crane capable of reaching 7000 lbs at least 50 feet with operator
  - **On sites where acceptable – a 12,000 lb. telehandler with proper jig may be substituted for the crane/boom truck, (manbasket also recommended)
- Genie boom – min. 30 foot reach
- Laser level – for checking ground work prior to tank setup
- Wrenches for tightening plumbing
- Impact wrench for tightening clamps more quickly
- Wrecking bar for prying/moving plates
- Crowfoot bar for prying plates inserting pins
- Heavy duty liner bar at least 80 gauge probably 120 gauge steel pipe
- Marking paint and dispenser
- 300' tape measure
- Set of four 20 foot long, min. 8,000 lb. capacity two straps for pulling out liner.

Poseidon Concepts

Tank setting Procedures

Use proper safety procedures for all steps. Hoisted loads must have tag lines, genie operators will be harnessed properly and anchored, and all required PPE will be worn at all times.

- Check pad for rocks, sharp objects, irregularities, proper suction pits.
  - Suction pits should be deeper in the center than toward the edge of the tank. This will prevent air from being trapped and the suction box floating.
  - Y-trenches should be no less than 8" and nor more than 18" deep.
- Unroll geo-fabric (rough/rocky pad may require two layers of geo)
  - Overlap at least 1 foot unless using a one-piece fabricated geo
    Start on the downwind side when using single rolls
  - Paint circle for tank walls on top of the geo
- Setting liner
  - Paint stop lines to indicate how far to pull liner.
  - Set picker to boom out so you can unroll the liner with the trackhoe
  - Use laborers to unfold liner to the stop lines.
  - Square the liner up, if needed.
  - Repeat procedure, if double lined.
  - Fold liner back to center to allow room to place tank walls
  - Paint a circle as a top-of-wall guide for pulling liner, trim outside that line so it will hang at least two feet outside of the tank.
  - At this point it is very helpful to fill your y-trenches to weight down the liner.
- Placing tank walls (with crane)
  - If using a crane or boom truck, position to start placing tank panels
  - Back truck with panels within reach of the crane or pack with the trackhoe.
  - With a 4-point hook, lift panel, swing into place.
  - Picker will set panel on ground and reposition hooks to a four-point lift using the slide arms on the panels to stand upright and position it on the circle painted on the geo.
  - If using a telehandler, hook up to the four inside angled pick points. Then pick and carry to desired starting point. You will need to measure and paint a center reference to make setting panels easier for the telehandler operator.
  - Trackhoe will need to use thumb to "hold" panel in place until the next panel is attached.
  - Repeat steps with next panel, connect with plates, pins and safety pins. Trackhoe may release panel at this point unless high wind conditions exist, then should hold for at least three panels.
  - After connecting each panel, a 3 foot wide length of geo will be placed and secured to protect the liner from the seams of the tank.
  - Continue these steps until tank walls are all in place. Do not connect the last panel until liner-pulling crew has entered the tank, do not make the connections on the last seam until ladders are in place and liner pull is nearing completion.
  - Connect final panel.
- Pulling liner
  - Worker inside the tank straps liner, and hands to genie workers. Genie workers pull the liner so that the pull line is at the top of the wall. Worker inside tank will make sure the liner is to the wall of the tank

along the floor. Clamp the liner in place. (It is helpful in windy situations to be filling the tank as you are pulling liner to add weight and keep the wind from blowing it out.)

  - Continue procedure until the entire liner has been pulled over the wall and secured in place.
  - Clamps should be spaced and an adequate number put on the wall to minimize wind inside the tank behind the liner.
  - After liner is pulled and clamped, trim excess liner 2-3 feet outside of the tank. Trackhoe should clean up and prevent dispersion by covering with dirt, snow, etc.

- Assemble suction, piping and ladders and place over wall
  - Make sure all bolts, connections and clamps are securely fastened. Flexible suction needs to have TWO clamps on each end.
  - Place filler tubes and circulating pipes around tank as needed.
  - Leave all valves open to allow air to escape.
  - Make sure sure fall arrestors are in place and functional.
- Walk outside of tank, make sure all plates are in place, pins properly secured with safety pins in place.
- Check area for garbage, debris, tools, etc..

Appendix SSI-4

- Design diagram for liner seam orientation

R.T. Hicks Consultants, Ltd.
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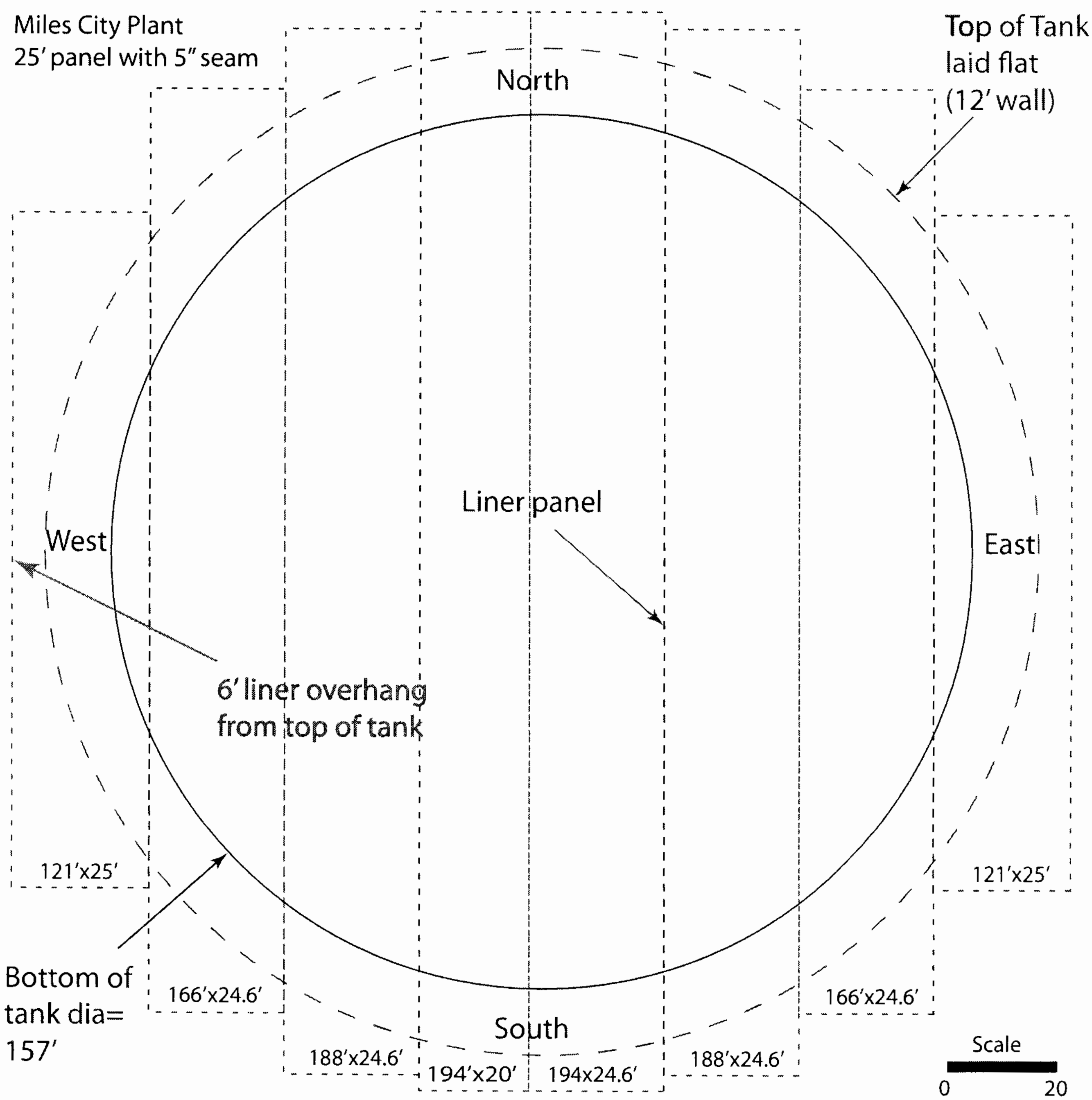
Albuquerque, NM 87104


Miles City Plant
25′ panel with 5″ seam
Top of Tank
laid flat
(12′ wall)
North
Liner panel
West
East
6′ liner overhang
from top of tank
121′x25′
121′x25′
166′x24.6′
166′x24.6′
188′x24.6′
188′x24.6′
194′x20′
194x24.6′
South
Bottom of
tank dia=
157′
Scale
0
20

Appendix SSI-5

- Reclamation section for BLM APD

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

ECIAL DRILLING STIPULATIOŃ

THE FOLLOWING DATA IS REQUIRED ON THE WELL SIGN

OPERATOR'S NAME STRATA PRODUCTION COMPANY WELL NO. & NAME #29 NASH UNIT
LOCATION 1980' F S L & 2310' F E L SEC. 13 , T. 23S., R. 29E .
LEASE NO. NM-17589 COUNTY EDDY STATE NEW MEXICO

The special stipulations check marked below are applicable to the above described well and approval of this application to drill is conditioned upon compliance with such stipulations in addition to the General Requirements. The permittee should be familiar with the General Requirements, a copy of which is available from a Bureau of Land Management office. EACH PERMITTEE HAS THE RIGHT OF ADMINISTRATIVE APPEAL TO THESE STIPULATIONS PURSUANT TO TITLE 43 CFR 3165.3 and 3165.4.

This permit is valid for a period of one year from the date of approval or until lease expiration or termination whichever is shorter.

I. SPECIAL ENVIRONMENT REQUIREMENTS

( ) Lesser Prairie Chicken (Stips attached)
( ) San Simon Swale (Stips attached)
( ) Floodplain (Stips attached)
( ) Other

II. ON LEASE - SURFACE REQUIREMENTS PRIOR TO DRILLING

(✓) The BLM will monitor construction of this drill site. Notify the (✓) Carlsbad Resource Area Office at (505) 887-6544 ( ) Hobbs Office at (505) 393-3612, at least 3 working days prior to commencing construction.

(✓) Roads and the drill pad for this well must be surfaced with 6 inches of compacted caliche.

( ) All topsoil and vegetation encountered during the construction of the drill site area will be stockpiled and made available for resurfacing of the disturbed area after completion of the drilling operation. Topsoil on the subject location is approximately ____ inches in depth. Approximately ______ cubic yards of topsoil material will be stockpiled for reclamation.

( ) Other

III. WELL COMPLETION REQUIREMENTS

( ) A Communitization Agreement covering the acreage dedicated to the well must be filed for approval with the BLM. The effective date of the agreement must be prior to any sales.

(✓) Surface Restoration: If the well is a producer, the reserve pit(s) will be backfilled when dry, and cut-and-fill slopes will be reduced to a slope of 3:1 or less. All areas of the pad not necessary for production must be re-contoured to resemble the original contours of the surrounding terrain, and topsoil must be re-distributed and re-seeded with a drill equipped with a depth indicator (set at a depth of 1/2 inch) with the following seed mixture, in pounds of Pure Live Side (PLS), per acre.

( ) A. Seed Mixture 1 (Loamy Site)
Lehmanns Lovegrass (Eragrostis lehmannlana) 1.0
Side Oats Grass (Bouteloua curtipendula) 5.0
Sand Dropseed (Sporobolus cryptandrus) 1.0

( ) B. Seed Mixture 2 (Sandy Sites)
Sand Dropseed (Sporobolus cryptandrus) 1.0
Sand Lovegrass (Eragrostis trichodes) 1.0
Plains Bristlegrass (Setaria magrostachya) 2.0

( ) C. Seed Mixture 3 (Shallow Sites)
Sideoats Grama (Boute curtipendula) 1.0
Lehmanns Lovegrass (Eragrostis lenmanniana) 1.0
or Boar Lovegrass (E. chloromalas)

(✓) D. Seed Mixture 4 ("Gyp" Sites)
Alkali Sacaton (Sporobolus airoides) 1.0
Four-Wing Saltbush (Atriplex canescens) 5.0

Seeding should be done either late in the fall (September 15 - November 15, before freeze up) or early as possible the following spring to take advantage of available ground moisture.

( ) Other

C. The reserve pit will be lined with a high quality plastic sheeting (5-7 mil thickness).

10. Plan for Restoration of the Surface:

A. Upon completion of the proposed operations, should the well be abandoned, the pit area, after allowed to dry, will be broken out and leveled. The original top soil will be returned to the entire location, and leveled and contoured to the original topography as nearly as possible.

All trash, garbage and pit lining will be removed in order to leave the location in an aesthetically pleasing condition. All pits will be filled and the location leveled within 120 days after abandonment.

B. The disturbed area will be revegetated by reseeding during the proper growing season with a seed mixture of native grasses as recommended by the BLM.

C. Three sides of the reserve pit will be fenced prior to and during drilling operations. At the time the rig is removed, the reserve pit will be fenced on the rig (fourth) side to prevent livestock or wildlife from being entrapped. The fencing will remain in place until the pit area is cleaned and leveled. No oil will be left on the surface of the fluid in the pit.

D. Upon completion of the proposed operations, should the well be productive, the reserve pit area will be treated as outlined above within the same prescribed time. The caliche from an area of the original drillsite not needed for production operations or facilities will be removed and used for construction of thicker pads or firewalls for the tank battery installation. Any additional caliche required for facilities will be obtained from a BLM approved caliche pit. Topsoil removed from the drillsite will be used to recontour the pit area and unused portions of the drill pad to the original natural level and reseeded as per BLM specifications.

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

June 13, 2012

Mr. Mike Bratcher
NMOCD District 2
811 South First Street
Artesia, New Mexico 88210
Via E-mail

Mr. Brad Jones
NMOCD
1220 S. St. Francis Drive
Santa Fe, NM

RE: Nash Draw Unit #29 modular impoundment (Atlantis system) for temporary storage of treated produced water.

Dear Mike and Brad:

For the above-referenced modular impoundment, we are pleased to submit:

1. A C-144 Form
2. Supplemental information to support the C-144

Please contact me with any questions or comments at 505-266-5004

Sincerely,
R.T. Hicks Consultants

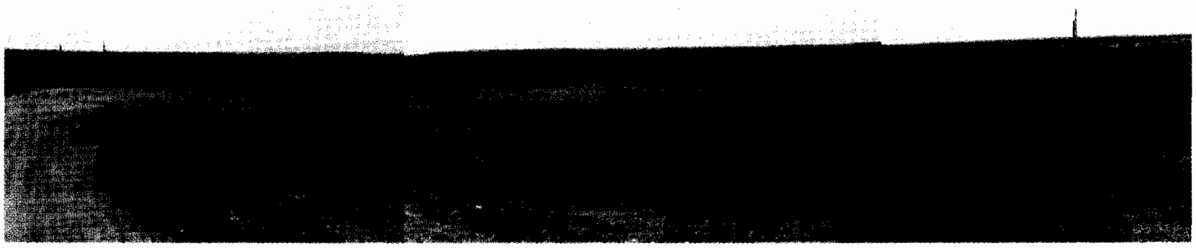
Andrew Parker

Andrew Parker

Copy: David Luna, XTO Energy

June 2012

C-144 Permit Package for Nash Draw Unit #29 - Temporary Storage of Treated Produced Water - Modular Impoundment Section 13 T23S R29E Eddy County NM



Prepared for XTO Energy Midland, Texas

Prepared by
R.T. Hicks Consultants, Ltd.
Albuquerque, New Mexico

C-144

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., 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
Revised August 1, 2011

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: [X] Permit of a pit, closed-loop system, below-grade tank, or proposed alternative method
[ ] Closure of a pit, closed-loop system, below-grade tank, or proposed alternative method
[ ] Modification to an existing permit
[ ] Closure plan only submitted for an existing permitted or non-permitted pit, closed-loop system, below-grade tank, or proposed alternative method

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

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

1.
Operator: XTO Energy,Inc OGRID #: 5380
Address: 200 N. Loraine, Suite 800 Midland, TX 79701
Facility or well name: Nash Unit #29
API Number: 30-015-29434 OCD Permit Number: ______
U/L or Qtr/Qtr J Section 13 Township 23S Range 29E County: Eddy
Center of Proposed Design: Latitude N 32.30322 Longitude W 103.93719 NAD: [ ] 1927 [X] 1983
Surface Owner: [X] Federal [ ] State [ ] Private [ ] Tribal Trust or Indian Allotment

2.
[X] **Pit:** Subsection F or G of 19.15.17.11 NMAC
Temporary: [ ] Drilling [ ] Workover
[ ] Permanent [ ] Emergency [ ] Cavitation [ ] P&A X Other: Modular impoundment for temporary storage of treated produced water
[X] Lined [ ] Unlined Liner type: Thickness 30 mil [X] LLDPE [ ] HDPE [ ] PVC [X] Other Vertical steel foam-insulated panels that support liner
[ ] String-Reinforced
Liner Seams: [X] Welded [X] Factory [ ] Other ______ Volume: 41,000 bbl Dimensions: ~~L x W x D~~ Diameter: 157 ft. Height: 12 ft

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: ______ bbl Type of fluid: ______
Tank Construction material: ______
[ ] Secondary containment with leak detection [ ] Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
[ ] Visible sidewalls and liner [ ] Visible sidewalls only [ ] Other ______
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 Modular impoundment walls are 12 feet high; no fencing necessary.

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 19.15.16.8 NMAC See photos in Appendix SSI-1

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	☐ Yes ☒ No SEE FIGURES 1a,1b
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 SEE FIGURE 2
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	☐ Yes ☒ No ☐ NA SEE FIGURE 3
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	☐ Yes ☐ No ☒ 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	☐ Yes ☒ No SEE FIGURE 4
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 SEE FIGURE 5
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No SEE FIGURE 6
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☒ No SEE FIGURE 7
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☒ Yes ☐ No SEE FIGURE 8
Within a 100-year floodplain. - FEMA map	☐ Yes ☒ No SEE FIGURE 9

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 H_2S, 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 Modular impoundment for temporary storage of treated produced water

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 indentify 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): David Luna Title: Operations Engineer

Signature: David Luna Date: 06/13/2012

e-mail address: David_Luna@xtoenergy.com Telephone: 432-620-6742

20.
OCD Approval: ☐ Permit Application (including closure plan) ☐ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature: ______ **Approval Date:** ______

Title: ______ **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 indentify 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: ______

Survey Information

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

District I
PO Box 1980, Hobbs, NM 88241-1980
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505

Form C-102
Revised October 18, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30-015-29434	47545	NASH DRAW BRUSHY CANYON OIL POOL

4 Property Code	5 Property Name	6 Well Number
010735	NASH UNIT	29
7 OGRID No.	**8 Operator Name**	**9 Elevation**
021712	STRATA PRODUCTION	2991.

10 Surface Location

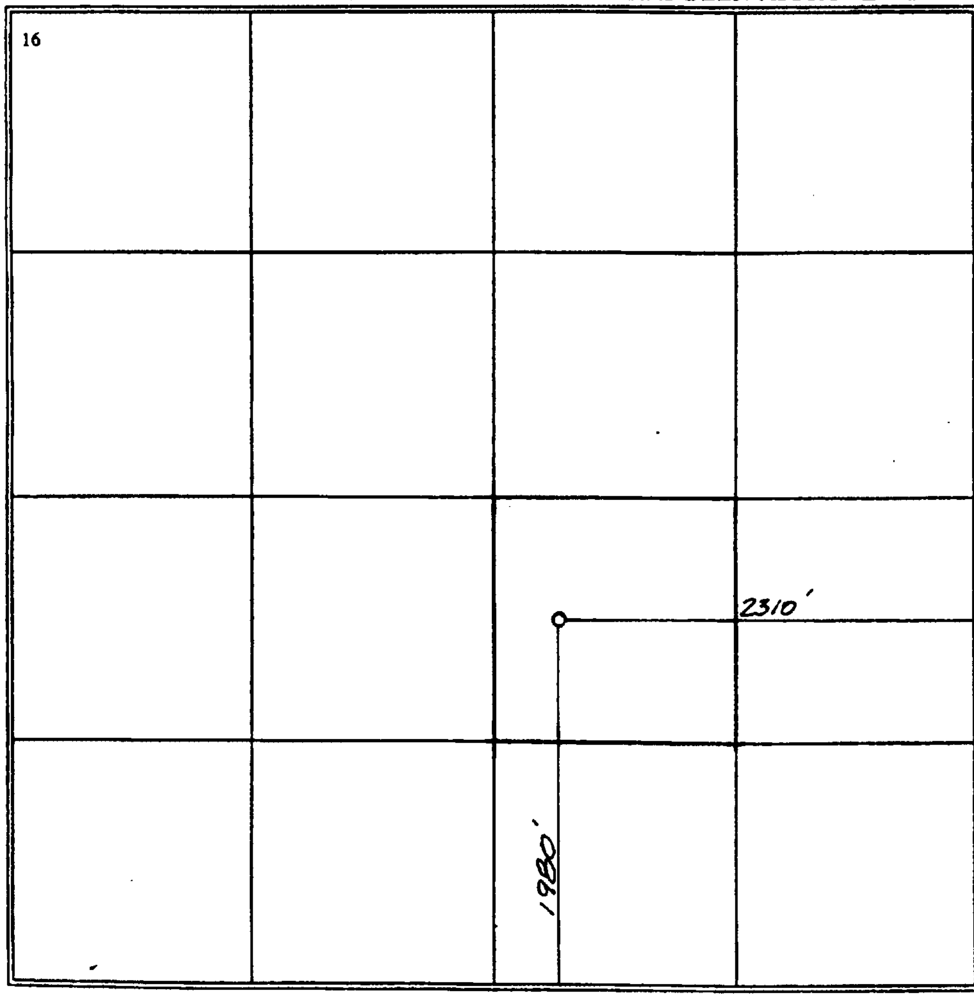
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	13	23-S	29-E		1980	SOUTH	2310	EAST	EDDY

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
40.00	N	U	

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief

Carol J. Garcia
Signature
CAROL J. GARCIA
Printed Name
PRODUCTION RECORDS MANAGER
Title
JANUARY 15, 1997
Date

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

NOVEMBER 26, 1996
Date of Survey
Signature and Seal of Professional Surveyer:

Certificate Number
NM PE&PS NO. 5412

Site Specific Information

- Figures 1 - 9
- Siting Compliance Demonstration
- Design and Construction Demonstration
- Operational Compliance
- Closure Requirements

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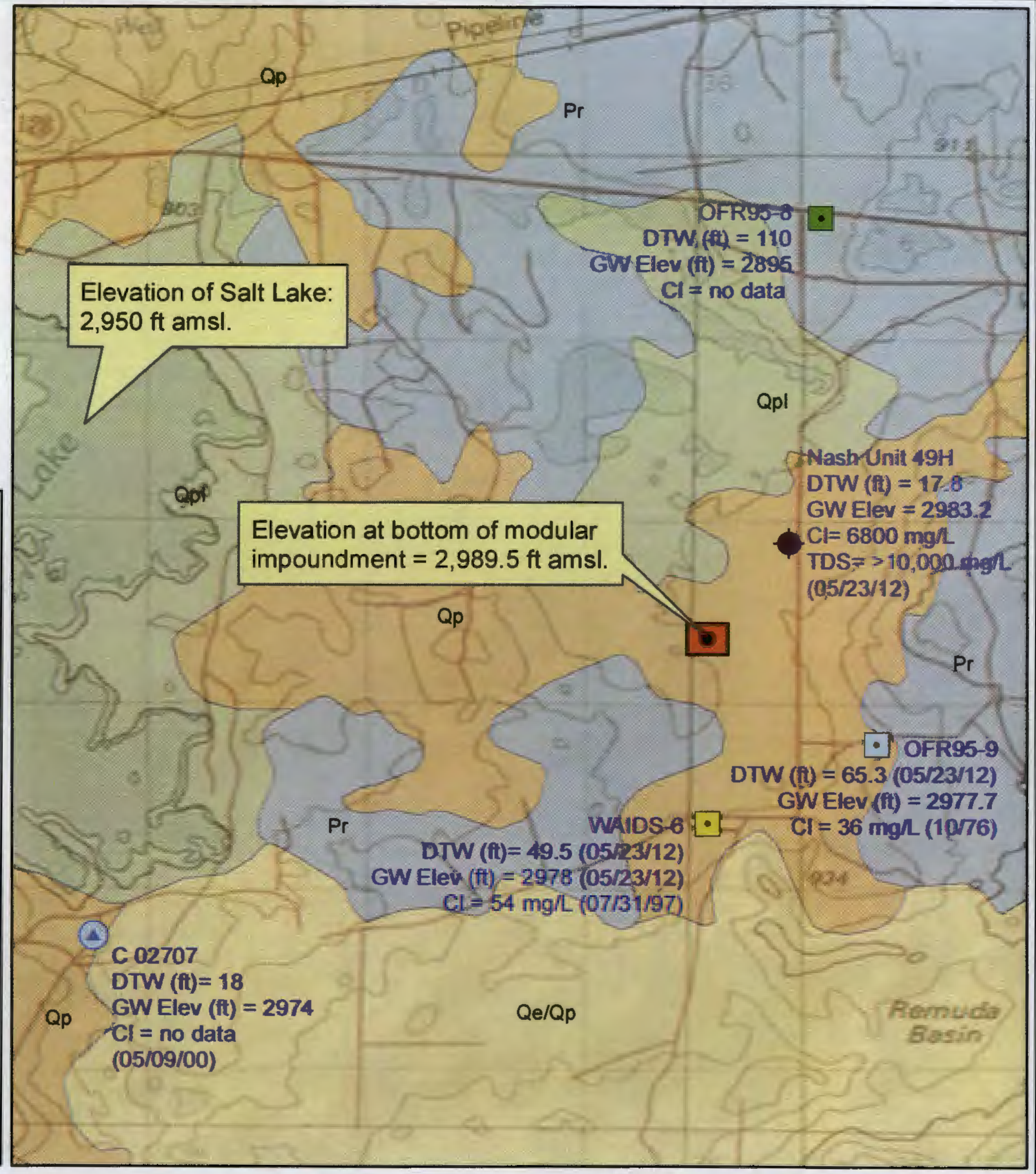
Albuquerque, NM 87104



Legend

Location

Nash Draw 49H Conductor Pipe

Misc. Water Wells

Well Depth (ft)

No Data

< 150

150 - 350

OSE Water Wells

Well Depth (ft)

<150

Geology with description

- Pqm, Paleozoic-Quartermaster Formation; red sandstone and siltstone; Upper Permian
- Pqr, Paleozoic-Quartermaster and Rustler Formations; Upper Permian
- Pr, Paleozoic-Ruster Formation; siltstone, gypsum, sandstone, and dolomite; Upper Permian
- Qa, Quaternary Alluvium
- Qe/Qp, Quaternary-Eolian Piedmont Deposits
- Qoa, Quaternary-Older Alluvial Deposits
- Qp, Quaternary-Piedmont Alluvial Deposits
- Qpl, Quaternary-Lacustrine and Playa Deposits

N
W E
S

0 0.5 1 Miles

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Ph: 505.266.5004

Nearyby Water Wells and Geology	Figure 1a
XTO Energy: Nash Unit #29	June 2012

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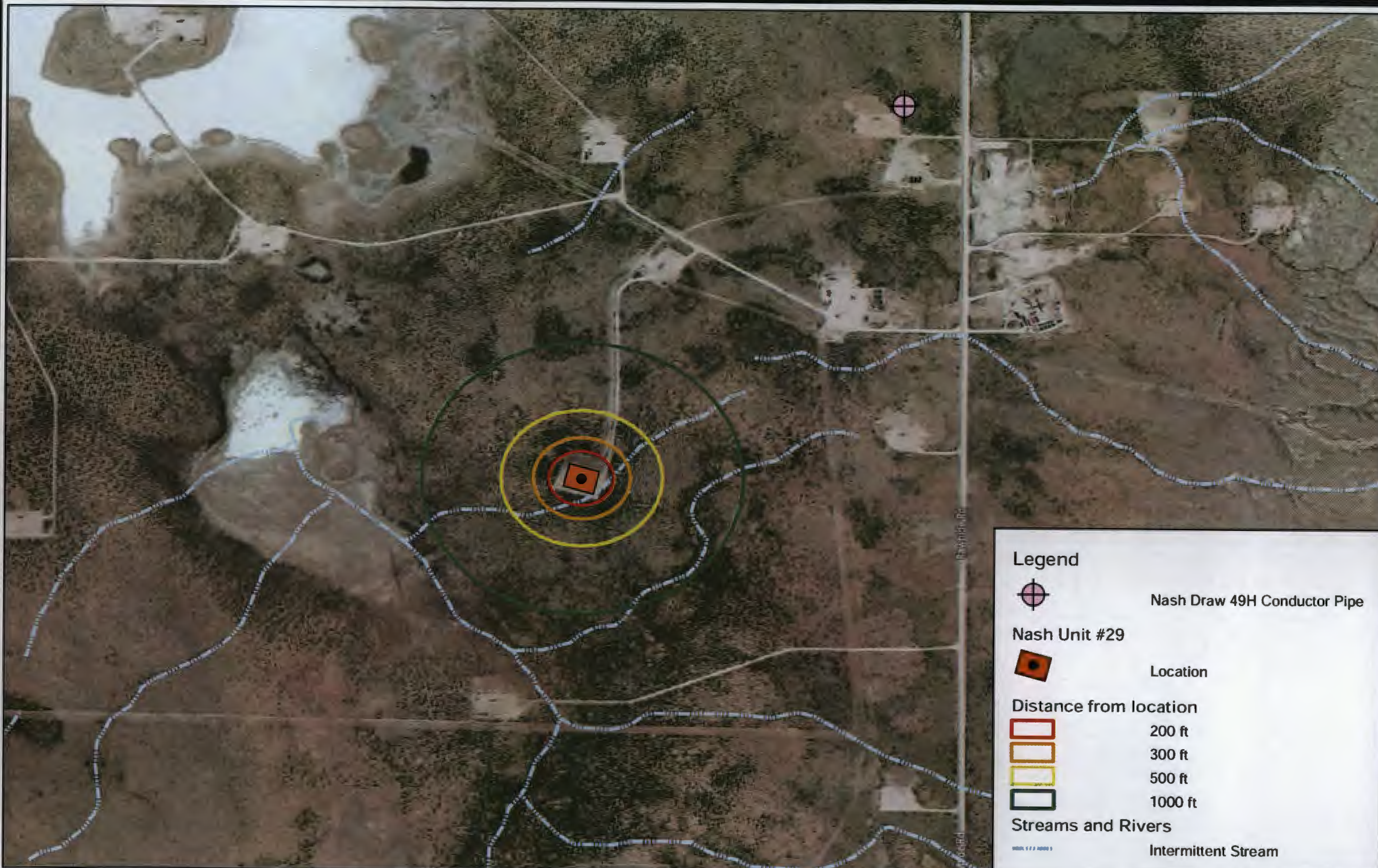
Albuquerque, NM 87104
Ph: 505.266.5004

Location of Proposed Pit Relative to Salt Lake/Tailings Pond	Figure 1b
XTO Energy: Nash Unit #29	June 2012



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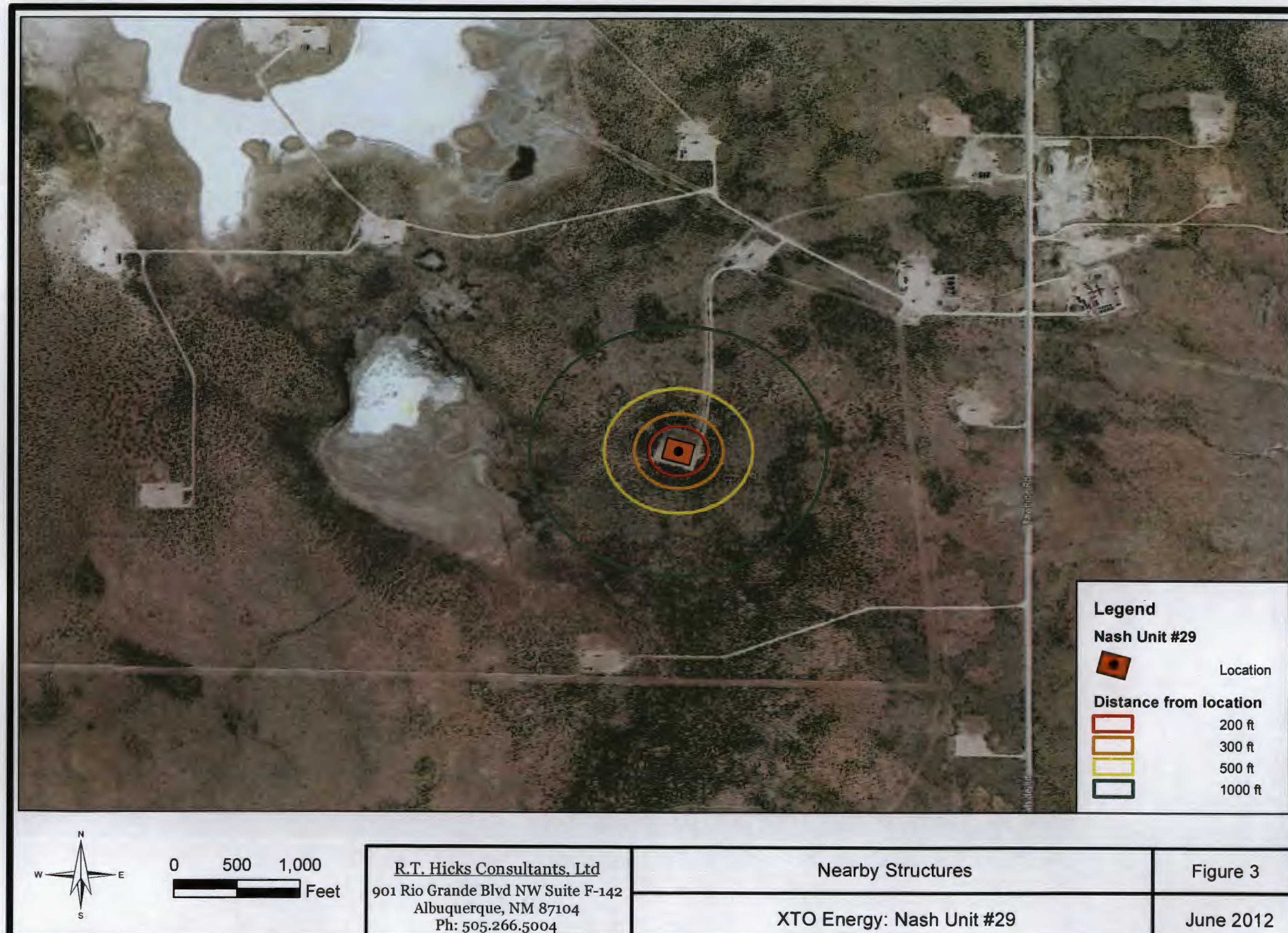
Nearby Continously Flowing Watercourses, Water Bodies, and Springs and Seeps

XTO Energy: Nash Unit #29

Figure 2

June 2012



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Albuquerque, NM 87104
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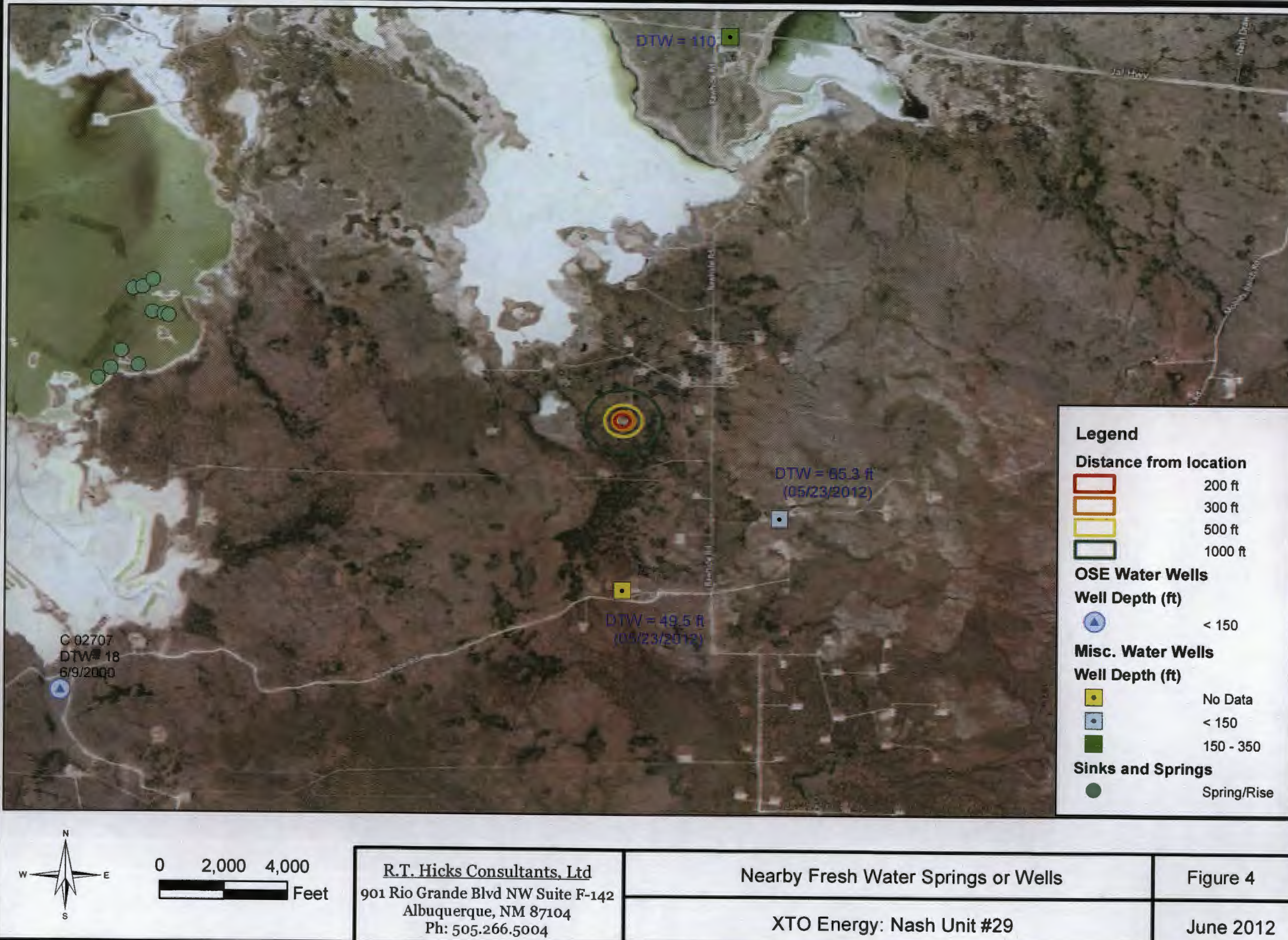
Nearby Structures

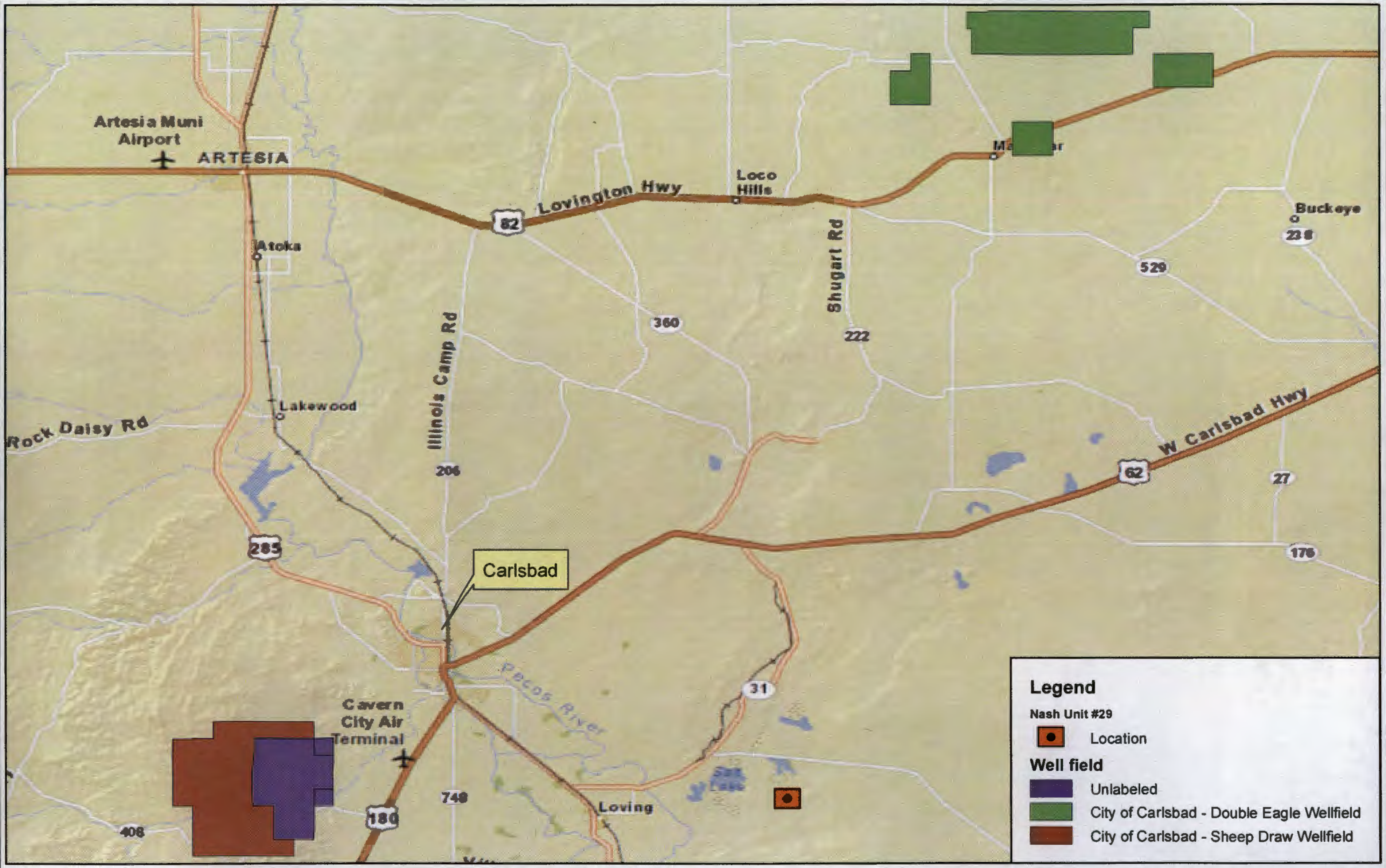
XTO Energy: Nash Unit #29

Figure 3

June 2012



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Fresh Water Springs or Wells	Figure 4
	XTO Energy: Nash Unit #29	June 2012



Well field source: BLM Base Map Data January 2012

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Municipal Areas and Well Fields	Figure 5
	XTO Energy: Nash Unit #29	June 2012

U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands

May 10, 2012

Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

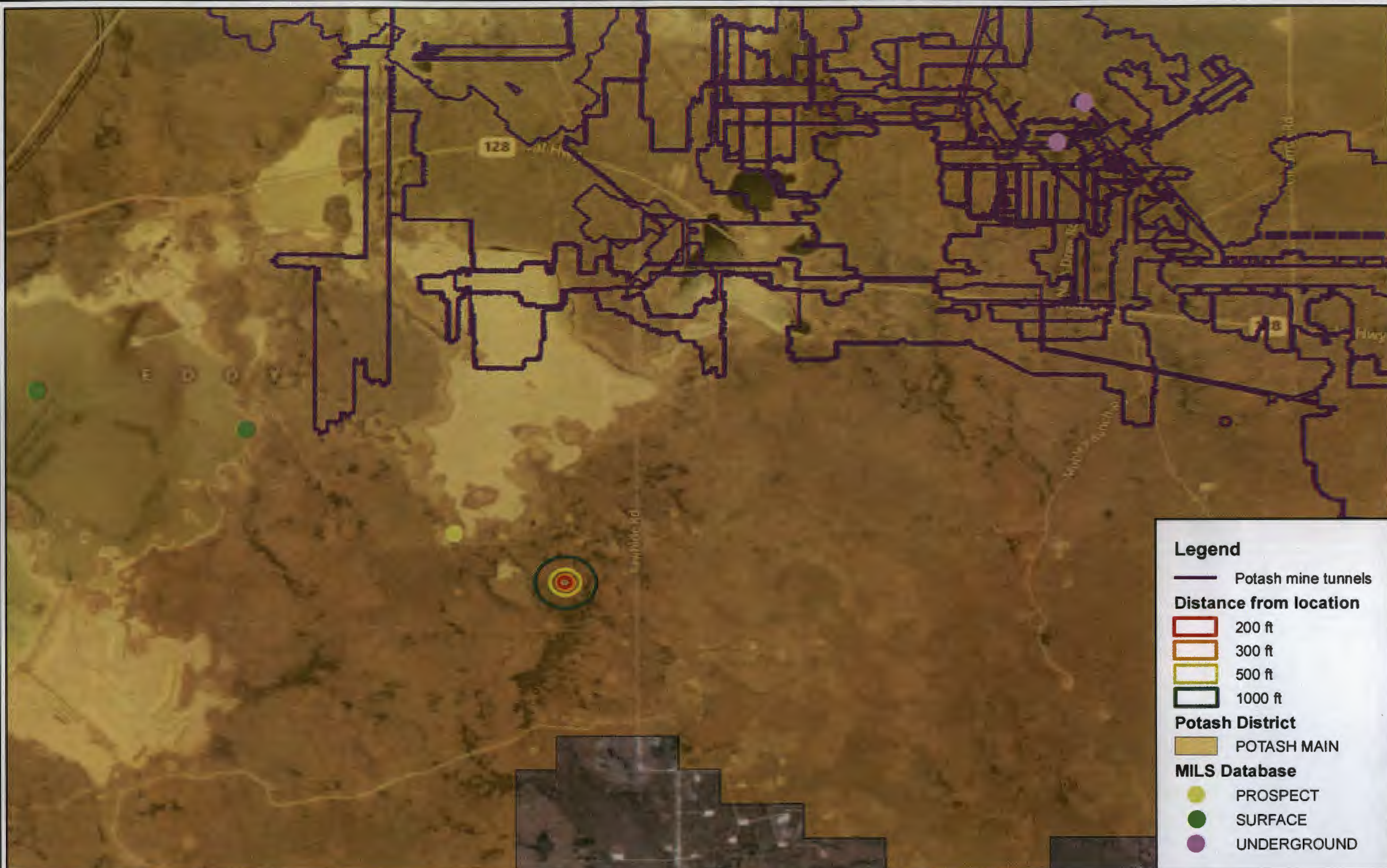
Riparian

- Herbaceous
- Forested/Shrub

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

Figure 6



Potash tunnel source: BLM Base Map January 2012

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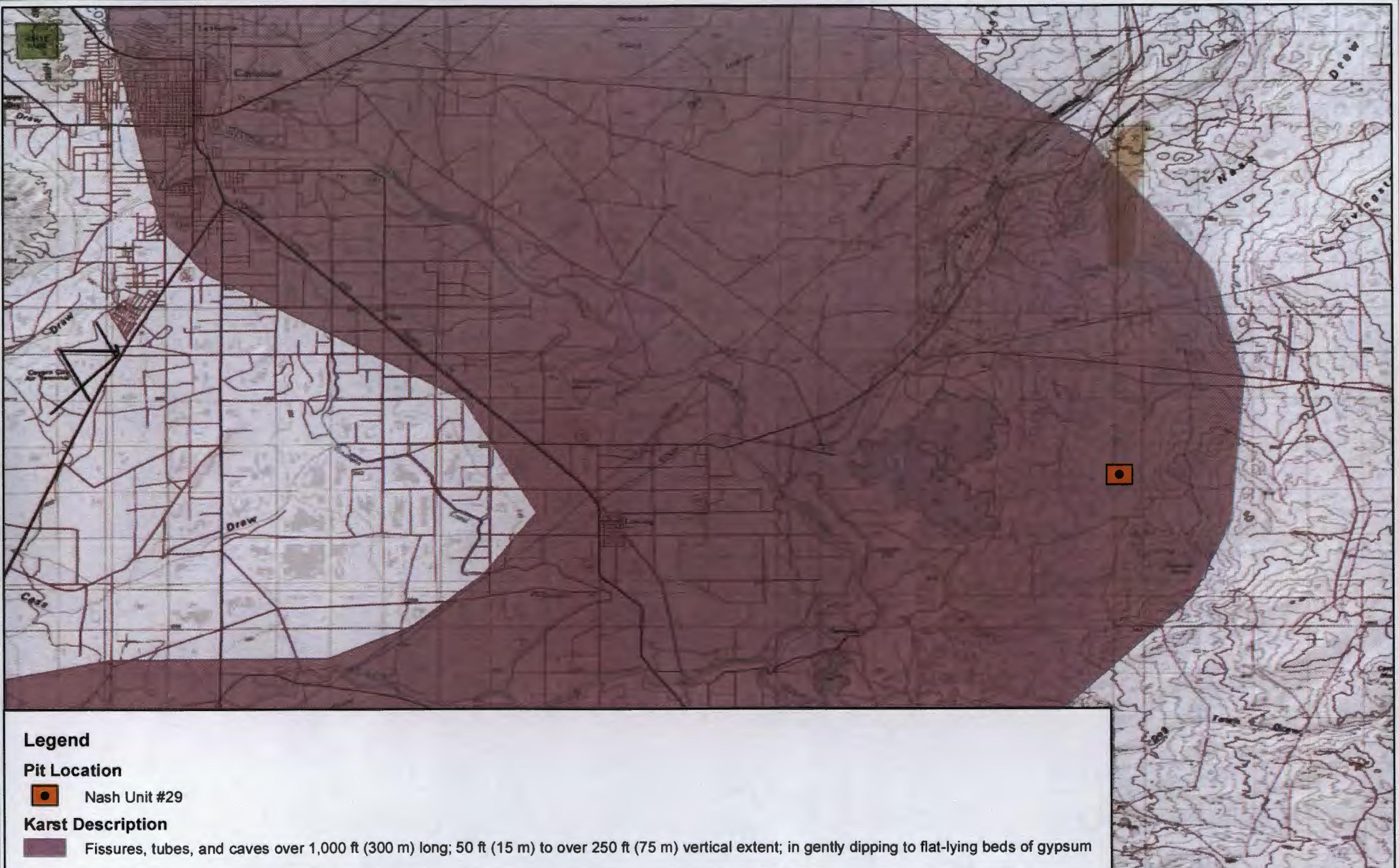
Albuquerque, NM 87104
Ph: 505.266.5004

Nearby Mines and Potash Tunnels

XTO Energy: Nash Unit #29

Figure 7

June 2012



Legend

Pit Location

Nash Unit #29

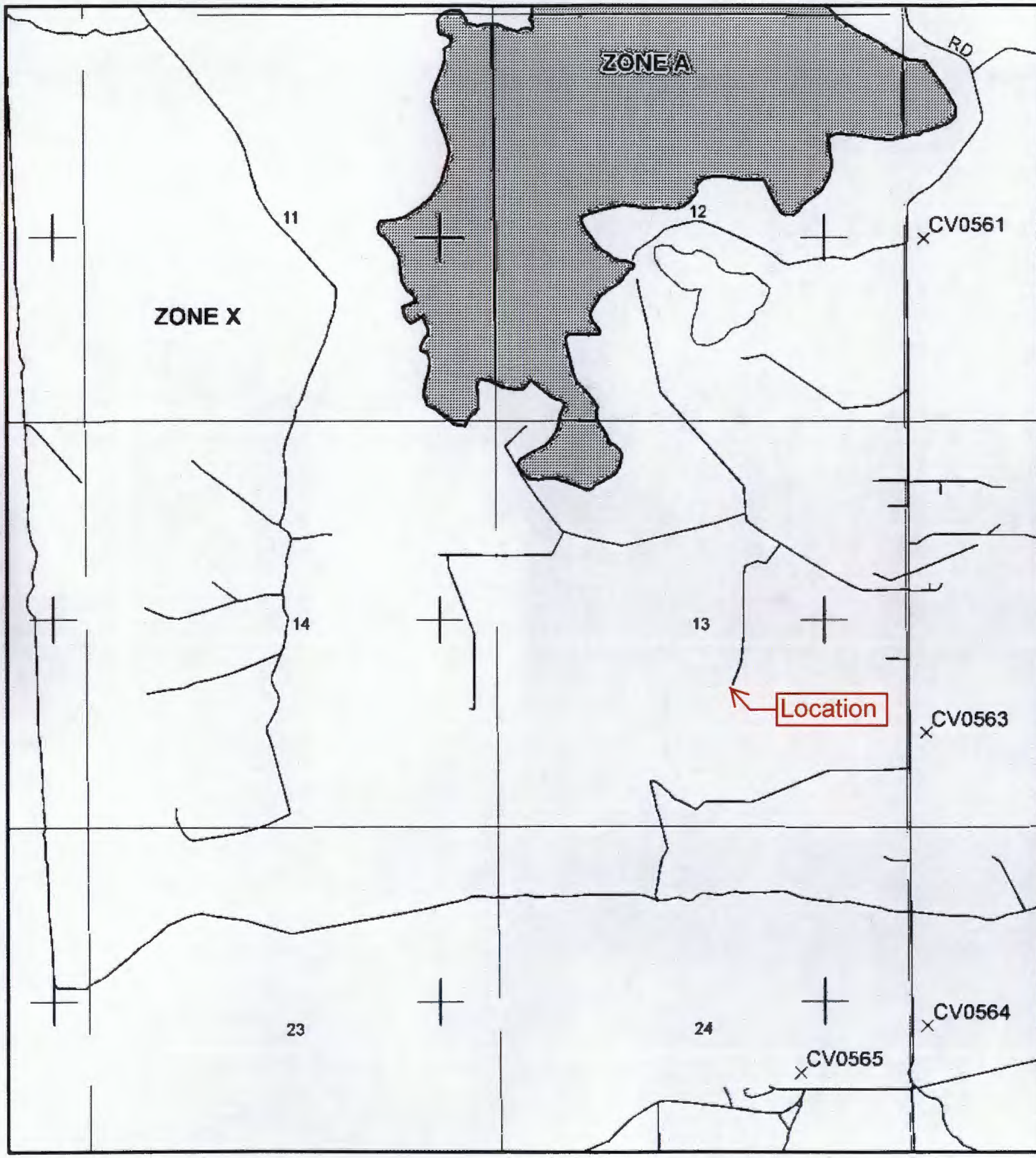
Karst Description

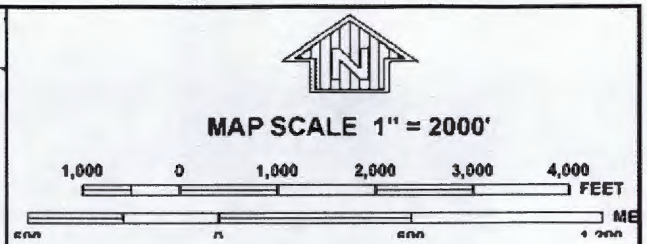
Fissures, tubes, and caves over 1,000 ft (300 m) long; 50 ft (15 m) to over 250 ft (75 m) vertical extent; in gently dipping to flat-lying beds of gypsum

N W E S

0 1.5 3 Miles

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Unstable Areas	Figure 8
	XTO Energy: Nash Unit #29	May 2012





LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance 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 alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

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

FEMA Flood Map Figure 9

Siting Criteria (NMAC 19.15.17.10) with hydrogeologic report for depth to groundwater compliance demonstration

Figure 1a – 1b, Appendix SSI-1 (Site Visit Photos), and the hydrogeologic data presented below demonstrates that groundwater (fresh water as defined by NMOCD Rules that has a TDS < 10,000 mg/L) at the location is between 50 and 100 feet below the bottom of the temporary pit.

a. The location of the modular impoundment that shall temporarily store treated produced water is plotted as an orange rectangle with a black dot in the center (Figures 1a and 1b).
b. Water wells in the OSE database are shown as color coded circles as defined by the total depth of the well. OSE well labels include the permit number, depth to groundwater (ft) and date of measurement – some OSE wells are mis-located in the WATERS database as older wells are plotted in the center of the quarter quarter quarter of the Section Township and Range.
c. Water wells in the Go-Tech WAIDS database and Open File Report 95 are color coded squares defined by the total depth of the well as shown in Figures 1a and 1b. The closest fresh water well listed in publicly available databases is about 0.97 miles southeast of the modular impoundment.

Geology

The modular impoundment is located on Quaternary-Piedmont alluvial deposits (Figure 1a). The elevation at the bottom of the modular impoundment is 2,989.5 feet amsl. Underlying the alluvial deposits is the Rustler Formation that is composed of anhydrite, gypsum, interbedded sandy clay and shale, and irregular beds of dolomite. The Rustler overlies the Salado Formation.

The basal beds of the Rustler (Virginia Draw Member, Prv in OF-GM-77) consist of porous gypsum in a large part of Nash Draw and southwest to Malaga Bend. Hendrickson and Jones (1952) state that these basal beds commonly contain brine saturated with sodium chloride. The brackish groundwater within Nash Draw (in the alluvium and lower Rustler) flows southwest past what is mapped as a Salt Lake and discharges into the Pecos River near Malaga Bend.

Above the basal brine aquifer in the Rustler is the 35-foot thick unit of dolomitic limestone at the top of the lower part of the Rustler (probably the Culebra Dolomite, Prc). Fluid from this brackish aquifer is used by the potash mines to sluice tailings (Hendrickson and Jones, 1952).

Overlying the Rustler are Quaternary alluvial, lacustrine and piedmont deposits. Figure 1a shows that the modular impoundment lies on piedmont deposits (Qp) with playa/lacustrine deposits (Qpl) to the west and north and exposures of Rustler to the southeast and southwest.

Groundwater Elevations and Chemistry

Groundwater data from water wells near the modular impoundment location are shown on Figure 1a and 1b. Figure 2 shows that the Salt Lake/tailing pond, approximately 1,400 feet west of the modular impoundment location, is influenced by fluids from a nearby potash mine/mill (Figure

1b). In the upper central portion of the aerial photograph (Figure 1b); evidence of the tailings pile is clear – fluids emanating from the mill flow into the Salt Lake/tailing ponds along with occasional stormwater runoff. The fluids in the Salt Lake/tailings pond are a source of recharge to groundwater. As will be discussed below, TDS concentrations at Nash Unit #49H (3,250 feet to the east) provide evidence of the recharge effect on groundwater quality. The modular impoundment site is located even closer to the Salt Lake/tailings pond (about 1,400 feet east). Because concentrations will decrease continuously with distance from the Salt Lake/tailings pond due to dispersion, it is expected that concentrations in groundwater will be higher than those at Nash Unit #49H.

Water data within 1-mile

Hicks Consultants gauged and sampled groundwater from the recent drilling of the rathole (TD = 50 feet) at Nash Unit 49H, approximately 0.6 miles northeast of the modular impoundment. Brackish groundwater is present at 17.8 feet below ground surface (2,983.2 ft amsl). Chloride field titration exhibited 6,800 mg/L. A subsequent Hicks Consultants gauging event on May 23, 2012 of the conductor pipe at Nash Draw 49H exhibited TDS readings exceeding 10,000 ppm (Hanna pH/EC/TDS meter, model HI 87130).

Approximately 1-mile south of the modular impoundment is a water well (WAIDS-6) listed in Go-Tech's WAIDS database. This well is listed as a stock well completed within the Rustler formation; the WAIDS database provides no total depth or depth to groundwater data. However, the WAIDS reports a chloride concentration of 54 mg/L (07/31/1997). Hicks Consultants measured the depth to groundwater on May 23, 2012 at 49.5 feet below ground surface (2,978 ft amsl).

Approximately one mile southeast of the modular impoundment, Open File Report -95[3] describes a stock well (OFR95-9) completed within the Rustler formation with a depth to groundwater of 54.9 feet (10/1977) and a total well depth of 59.6 feet. The WAIDS database lists total depth of the well at 100 feet (12/10/76) with a chloride concentration of 36 mg/L. Hicks Consultants measured this well on May 23, 2012 with a depth to groundwater of 65.3 feet (2,977.7 feet amsl).

Water data beyond 1-mile

Approximately 2.3 miles north-northeast of the modular impoundment, New Mexico Bureau of Mines and Mineral Resources Open File Report -95 shows a well (OFR95-8) with a depth to groundwater of 110 feet below ground surface (2,895 ft amsl) and a total depth of 200 feet. Chloride data for this well does not exist. The difference between groundwater elevation at OFR95-8 and the bottom of the modular impoundment is approximately 95 feet. Therefore, we believe that groundwater that has the potential to be protectable (<10,000 mg/L TDS) exists between 50 and 100 feet below the modular impoundment.

Approximately three miles southwest of the modular impoundment, the OSE database describes well C 02707 with a depth to groundwater at 18 feet below ground surface (2,974 ft amsl) and a total depth of 40 feet. No chloride data exists for this well

[3] http://geoinfo.nmt.edu/publications/openfile/details.cfml?Volume=95

Approximately 4.8 miles west of the modular impoundment, the OSE database describes well C 02706 with a depth to groundwater at 10 feet below ground surface (2,942 ft amsl) and a total depth of 17 feet (Figure 1b). Water quality data from WAIDS database shows chloride concentrations ranging from 98,000 mg/L to 203,700 mg/L with an average concentration of 155,200 mg/L. The high chloride concentrations in groundwater within the alluvial sediments near the Salt Lake/tailings pond are consistent with the sources of this fluid.

Conclusion

The two wells and the rathole within 1-mile of the location (WAIDS-6, OFR95-9, Nash Unit #49H) suggest a local groundwater gradient to the southwest, consistent with local topography and regional southwest gradient (Hendrickson and Jones, 1952). Groundwater elevations in these wells range from 2,978 to 2,983 ft amsl and are considered to be within the same shallow groundwater zone less than 50 feet below ground surface. Subtracting the above groundwater elevations from the elevation of the bottom of the modular impoundment suggests that groundwater beneath the location is approximately 6 to 11 feet below ground surface.

Furthermore, TDS concentrations greater than 10,000 mg/L at Nash Unit #49H demonstrate that the shallow groundwater zone is impacted by the Salt Lake/tailing pond 3,250 feet to the west (Figure 2). The modular impoundment site is about 1,400 feet east from the Salt Lake/tailing pond, about 1,800 feet closer to the Salt Lake/tailing pond than Nash Unit #49. Because the concentration gradient from the Salt Lake/tailing pond will decrease continuously with distance from the pond due to dispersion, groundwater beneath the site will have higher concentrations than the groundwater at Nash Unit #49H. Groundwater exhibiting TDS concentrations greater than 10,000 mg/L is not defined as fresh water by 19.15.2.7.F (3) NMAC and is therefore not protectable. Because concentrations will be higher than those at Nash Unit #49H (TDS >10,000mg/L), the groundwater beneath the modular impoundment site is not protectable by 19.15.7.2.F(3) NMAC.

The next groundwater zone that may exist is between 50 to 100 feet below the modular impoundment. Evidence of this groundwater zone is exhibited at OFR95-8, 2.3 miles north of the location. Groundwater data at OFR95-8 suggest the difference between groundwater elevation at OFR95-8 and the bottom of the modular impoundment is approximately 95 feet. Therefore, we believe that groundwater that has the potential to be protectable (TDS < 10,000 mg/L) exists between 50 and 100 feet below the modular impoundment.

Siting Criteria Compliance Demonstration - continued (NMAC 19.15.17.10)

The information identified in Item 10, "Siting Criteria" of the C-144 is presented below. The descriptions below are associated with the maps presented in Figures 2-9, attached.

Figure 2 --- Demonstrates that the location is not 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).

a. Data from the USDA's National Hydraulic Dataset shows an intermittent stream (shown as a light blue dotted line in Figure 2) transecting the location.
b. Site reconnaissance identified no evidence of a watercourse as defined by NMAC 19.15.2.7. Photo 1, at right, shows the location of the "intermittent stream" identified by the USDA. As shown in Photo 1, no watercourse was identified having definite banks and beds with visible evidence of the occasional flow of water.
c. No other watercourses, water bodies, springs, or seeps exist with 200-feet of location.

Photo 1: Photo of USDA identified intermittent stream. No definite banks and beds with visible evidence of occasional flow of water were identified.

Figure 3 --- Demonstrates that the location is not within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. No nearby structures exist within 300 feet of location.

a. As shown on the aerial photograph, no structures exist within 300 feet of the location.
b. Site reconnaissance supports this conclusion.

Figure 4 --- Demonstrates that the location is not 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.

a. The closest spring is approximately 2.3 miles northwest located within the Salt Lake of the potash mining district.
b. The closest water well listed in public files is approximately 0.9-mile southeast of the location.

Figure 5 --- Demonstrates that the location is not 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.

a. The closest incorporated municipality is Loving, NM; approximately 9 miles west.
b. The closest well field is approximately 23.5-miles west of the location.

Figure 6 --- Demonstrates the location is not within 500 feet of wetlands.

a. The US Fish and Wildlife Wetlands Inventory does not identify wetlands within 500 feet of location.
b. Site reconnaissance identified no wetlands with 500 feet of location.

Figure 7 --- Shows that the location is within the Potash Mining District.

a. The closest potash mining tunnel is 1.5 miles north-northwest of the location. The closest surface mining location is 0.7 miles northwest. The MILS database lists the surface mine as a Prospect.
b. The construction of the modular impoundment will not require more than 18 inches excavation into the subsurface. The existing production pad consists of 6 inches of caliche on top of very dense clay (Photo 2). We conclude the construction of the modular impoundment will not compromise the subsurface integrity.

Photo 2: 6-inch caliche pad thickness. Dense clay underlies the pad.

Figure 8 --- Shows that the location may lie within an unstable area

a. The location is located within a known karst area identified by the USGS. Site reconnaissance observed no evidence of kart features (fissures, tubes, or caves) near the location.
b. The above ground modular impoundment will be placed upon a 6-inch caliche production pad. The production pad covers approximately 1.2 acres. Beneath the production pad is very dense clay.
c. The composition of the production pad and the underlying dense clay provides engineered surface stability to ensure that the modular impoundment's integrity is not compromised.

Figure 9 --- Demonstrates that the location is not within a 100-year floodplain.

a. The location is within Zone X of FEMA Flood Zone Designation. Zone X is defined as an area of minimal flood hazard and above the 500-year flood level.

Design and Construction Specifications (NMAC 19.15.17.11)

A. **General Specifications.** An operator shall design and construct a pit, closed-loop system, below-grade tank or sump to contain liquids and solids and prevent contamination of fresh water and protect public health and the environment.

Response –
XTO Energy shall construct a modular impoundment fluid storage system provided by Poseidon Concepts. The modular impoundment system model is the Atlantis[4]. Photo 3, right, is an example of Poseidon's modular impoundment. The modular impoundment shall be constructed according to manufacturer's specifications as described in Section 19.15.17.11.F, below. The modular impoundment is engineered to prevent contamination of fresh water and protect public health and the environment.

Photo 3: Example of Poseidon's fluid storage system.

The purpose of the modular impoundment is the temporary storage of treated produced water in a centralized location for six off-site well stimulations. The modular impoundment shall be constructed on an existing well pad currently used for operation and maintenance of the Nash Unit #29 well. XTO Energy shall restore the production pad to pre-existing condition prior to the installation of the modular impoundment.

B. Stockpiling of topsoil.

Response –
The modular impoundment shall be constructed on an existing production pad at Nash Unit #29. No additional surface disturbance shall occur. After modular impoundment closure, the production pad will remain in-place until proper abandonment of the production well.

Photo 4: Sign at Nash Unit #29 to be used in conjunction with the modular impoundment.

C. Signs.

Response –
The existing sign at Nash Unit #29 production well, which is on the same production pad as the proposed location, shall be used. Photo 4 is a photograph of

[4] http://poseidonconcepts.com/Customer-Centre/Models/index.php

the existing sign.

D. Fencing.

Response –
As described in Section 19.15.17.11.F, below, the modular impoundment is constructed with 12-foot high steel walls. In lieu of fencing to prevent unauthorized access and exclude entry of livestock, XTO Energy asks for administrative approve to use the modular impoundment's steel 12-foot high walls as an alternative to fencing. XTO Energy concludes that the 12-foot high steel walls are superior to fencing.

F. Temporary Pits. The operator shall design and construct a temporary pit in accordance with the following requirements.

(1) The operator shall design and construct a temporary system to ensure the confinement of liquids to prevent unauthorized releases.

Response -
The modular impoundment system is constructed from 5/8" thick steel welded to 4"x4"x144" vertical steel supports (see Photo 5) and is engineered to withstand the hydrostatic pressures exerted downwards and outwards by the weight of the fluid when full. The panels are connected with 1" thick steel plates that fit over solid steel "bosses" welded to the modular impoundment wall. These plates are then locked to the bosses with locking pins. The locking pins are secured with safety cotter pins (see Appendix SSI-2 for interlocking panel details and patent). The 30 mil LLDPE liner is then clamped to the top of these walls leaving an extra 2 feet of liner material hanging outside of the modular impoundment to provide a safety margin (Photo 6, below).

Photo 5: Interlocking panels of the modular impoundment.

The modular impoundment system was designed and engineered by Beck Engineering, Ltd for Poseidon Concepts. A letter from Beck Engineering (see Appendix SSI-2) is stamped by a Professional Engineer and confirms that the modular impoundment is structurally designed to resist all anticipated forces on the modular impoundment panels and panel connections from the start of erection to the complete filling of the modular impoundment. The modular impoundment is patented in Canada. Patent is pending for the United States. Therefore, Poseidon will not release schematics of the modular impoundment design until patenting in the United States is complete.

During installation, a representative from Poseidon shall be present. Appendix SSI-3 contains the set-up procedures. The set-up procedures were provided by Poseidon.

Photo 6: Clamping system holding liner in place. Spacing between clamping is 3-feet.

(2) A temporary pit shall have a properly constructed foundation and interior slopes consisting of a firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear. The operator shall construct a temporary pit so that the slopes are no steeper than two horizontal feet to one vertical foot (2H:1V). The appropriate division district office may approve an alternative to the slope requirement if the operator demonstrates that it can construct and operate the temporary pit in a safe manner to prevent contamination of fresh water and protect public health and the environment.

Response -
The modular impoundment shall be placed on the existing Nash Unit #29 production pad. The existing production pad is constructed of approximately 6-inches of caliche overlying very dense clay (see Photo 2).

Prior to installation, the production pad will be prepared to make it smooth and free of rocks. A minimum of 10 oz. per square foot nonwoven geotextile material from Brawler (product WID10, see Appendix SSI-2) shall be placed between the production pad and the liner of the modular impoundment to prevent liner rupture or tear from the underlying pad.

In lieu of slopes no greater than 2H:1V, XTO Energy asks for administrative approval for vertical slopes (steel walls) engineered for the modular impoundment. The modular impoundment's vertical steel walls are constructed from 5/8" thick steel welded to 4"x4"x144" vertical steel supports (see Photo 5) and is engineered to withstand the hydrostatic pressures exerted downward and outward by the weight of the fluid when full. The panels are connected with 1" thick steel plates that fit over solid steel "bosses" welded to the modular impoundment wall. These plates are then locked to the bosses with locking pins. The locking pins are secured with safety cotter pins. Modular impoundment integrity will not fail or collapse because of the engineered design specifications.

A sump area in the configuration of a "Y", with each leg approximately 15 feet long, shall be excavated into the production pad to accommodate the modular impoundment suction pipes. The sump area is excavated 18 inches below the elevation of the production pad. The sump walls shall be no greater than 2H:1V sloping on the sides of the sump area, and an additional layer of the 10 oz. per square foot nonwoven geotextile material, as well as visual inspection, after excavation but prior to installation, to be sure that the underlying soil represents a property constructed smooth foundation free of rocks.

(3) The operator shall design and construct a temporary pit with a geomembrane liner. The geomembrane liner shall consist of 20-mil string reinforced LLDPE or equivalent liner material that the appropriate division district office approves. 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.

Response –
In lieu of a 20-mil string reinforced LLDPE liner, XTO Energy asks for administrative approval for a stronger and thicker 30 mil LLDPE liner. The liner material used for the modular impoundment is a 30-mil LLDPE material provided by GSE. See Appendix SSI-2 for specifications and data sheets on the GSE 30 mil UltraFlex Smooth Geomembrane liner. The liner is resistant to petroleum hydrocarbons, salts and acidic, alkaline solutions, and ultraviolet light. The 30 mil GSE liner is equivalent to or better than a 20-mil string reinforced LLDPE liner.

(4) The operator shall minimize liner seams and orient them up and down, not across a slope. The operator shall use factory welded seams where possible. Prior to field seaming, the operator shall overlap liners four to six inches and orient seams parallel to the line of maximum slope, i.e., oriented along, not across, the slope. The operator shall minimize the number of field seams in corners and irregularly shaped areas. Qualified personnel shall perform field seaming. The operator shall weld field liner seams.

Response –
The liner is manufactured with factory welds and seams going in one direction. The east and west oriented liner panels have a maximum width of 25-feet with 5-inch seams (see liner seam orientation diagram in Appendix SSI-4). The interior panels shall be 24.6-feet wide; with the width of one of the two middle panels adjusted to ensure that the overall dimension of the liner is 190x190 feet. All factory welds are designed according to GSE manufacture specifications and are engineered to withstand the weight of the water.

The outermost east- west panel liner seams are approximately 7-feet on the north-south axis from the floor-wall junction of the modular impoundment. The seam pattern, panel widths, and seam orientation will minimize liner seams and will orientate the seams up and down, not across the slope (steel walls).

(5) Construction shall avoid excessive stress-strain on the liner.

Response -
In accordance with the set-up procedures (Appendix SSI-3), additional 10oz per square foot geotextile material is placed on any "pinch point" where the liner could either have direct contact with the walls or become pinched between walls and/or the walls and the ground, the sump area, and the C-clamps holding the liner to the top of the modular impoundment.

As shown on the liner seam orientation diagram in Appendix SSI-4, all of the seams of the 25-foot wide panels are in an east-west orientation. Hence, all of the seams run up and down the vertical slopes rather than across the slopes. On the north-south axis, the closest east-west seam to the bottom wall corner is 7-feet. This seam orientation prevents undue stresses and stain on the liner material and seams.

(6) Geotextile is required under the liner where needed to reduce localized stress-strain or protuberances that may otherwise compromise the liner's integrity.

Response –
A 10 oz. per square foot nonwoven geotextile shall be placed between the production pad and the liner and at pinch-points where the liner could either have direct contact with the walls or become pinched between walls and/or the walls and the ground, including the C-clamps holding the liner to the top of the modular impoundment. An additional second geotextile layer shall be placed between the sump areas and the LLDPE liner.

(7) The operator shall anchor the edges of all liners in the bottom of a compacted earth-filled trench. The anchor trench shall be at least 18 inches deep.

Response –
In lieu of an anchor trench, XTO Energy asks for administrative approval to use C-clamps to anchor the liner to the top of the modular impoundment (see Photo #6). The purpose of the clamps is to prevent the liner material from falling in and compromising the ability of the modular impoundment to contain fluids.

Each 3-foot clamp section is separated by three foot spacing. The sequence is repeated along the top of the modular impoundment. The liner overlaps the modular impoundment by at least 24 inches, providing a robust safety factor if the liner should need adjustment after installation.

(8) The operator shall ensure that the liner is protected from any fluid force or mechanical damage at any point of discharge into or suction from the lined temporary pit.

Response –
The intake pipe for the suction system will sit on the floor in the sump area. The suction intake is a 15-foot long pipe with legs (to prevent rotation) and has horizontal slots for the fluid that are 4-inches up the side of the pipe. The suction pipe riser is a 10-inch pipe that mounts to the top of the modular impoundment and descends down the exterior wall (Photo #7) and connects to a pump.

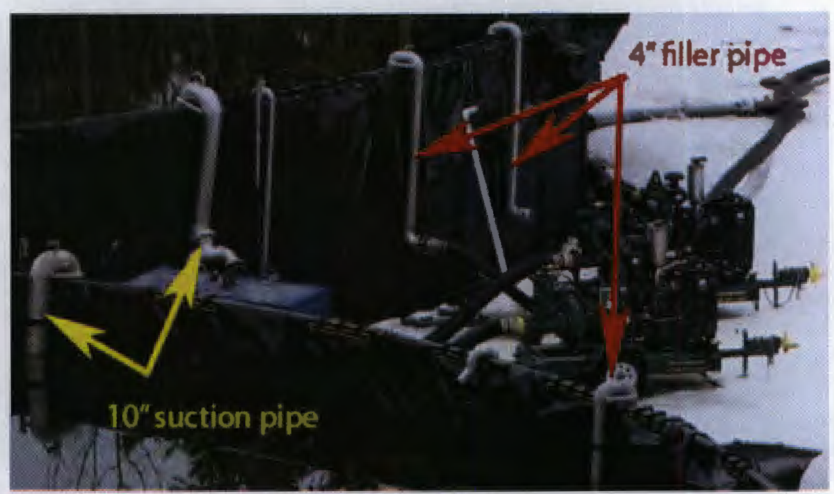


Photo 7: Photograph of the suction and filler pipes.

The 4-inch filler pipes mount to the top of the modular impoundment in similar fashion to the suction pipe. The discharge end of the filler pipe is 4-inches from the bottom of the modular impoundment.

One suction pipe and four filler pipes shall be installed on the modular impoundment.

(9) The operator shall design and construct a temporary pit to prevent run-on of surface water. A berm, ditch, proper sloping or other diversion shall surround a temporary pit to prevent run-on of surface water. During drilling operations, the edge of the temporary pit adjacent to the drilling or workover rig is not required to have run-on protection if the operator is using the temporary pit to collect liquids escaping from the drilling or workover rig and run-on will not result in a breach of the temporary pit.

Response -
A 2-foot high berm shall be constructed around the modular impoundment to prevent run-on of surface water. As there are no drilling or workover operations at the location, the berm will surround the entire modular impoundment. A 2-foot freeboard shall be maintained to prevent overflow.

(10) The volume of a temporary pit shall not exceed 10 acre-feet, including freeboard.

Response –
The volume (full capacity) of the modular impoundment plus the three 18-inch deep by 15-foot long sump areas is less than 42,000 bbls (about 5.5 acre-feet). During normal operation, the modular impoundment will hold less water to allow for 2-feet of freeboard.

Operational Requirements (NMAC 19.15.17.12)

Note: *The modular impoundment will contain treated produced water. Between well stimulations, the modular impoundment will contain enough treated produced water to hold down the liner. Weekly inspections shall occur when there is 1-foot depth or less of treated produced water in the modular impoundment. Daily inspections shall occur when there is greater than 1-foot depth of treated produced water in the modular impoundment.*

A. **General Specifications**. XTO Energy shall maintain and operate the modular impoundment according to manufacturer's operating and maintenance specifications as described in Section 19.15.17.12.B, below.

(1) The operator shall operate and maintain a pit to contain liquids and solids and maintain the integrity of the liner, liner system or secondary containment system, prevent contamination of fresh water and protect public health and the environment.

Response –
XTO Energy shall operate the modular impoundment for the temporary storage of treated produced water for off-site well stimulations. XTO Energy shall inspect the modular impoundment for liner integrity, to ensure that a 2-foot freeboard is maintained, and to inspect berm stability around the modular impoundment to protect from surface water run-on/run-off.

(2) The operator shall recycle, reuse, reclaim or dispose of all drilling fluids in a manner, approved by division rules, that prevents the contamination of fresh water and protects public health and the environment.

Response –
XTO Energy shall operate the modular impoundment for the temporary storage of treated produced water for off-site well stimulations. Unused treated produced water, if present, will be sent to XTO Energy's SWD-53 well for recycling or a division-approved disposal facility. Proper disposal of excess treated produced water prevents the contamination of fresh water and protects public health and the environment.

(3) The operator shall not discharge into or store any hazardous waste in a pit, closed-loop system, below-grade tank or sump.

Response –
XTO Energy shall operate the modular impoundment for the temporary storage of treated produced water for off-site well stimulations.. XTO Energy shall not discharge hazardous waste into the modular impoundment.

(4) If any pit liner's integrity is compromised, or if any penetration of the liner occurs above the liquid's surface, then the operator shall notify the appropriate division district office within 48 hours of the discovery and repair the damage or replace the liner.

Response –
If the liner integrity is found to be compromised during an inspection, XTO Energy shall notify the appropriate division district office within 48 hours of the discovery and repair the damage or replace the liner.

(5) If a pit, below-grade tank, closed-loop system or sump develops a leak, or if any penetration of the pit liner, below-grade tank, closed-loop system or sump occurs below the liquid's surface, then the operator shall remove all liquid above the damage or leak line within 48 hours, notify the appropriate division district office within 48 hours of the discovery and repair the damage or replace the pit liner, below-grade tank, closed-loop system or sump.

Response –
If the modular impoundment contains any volume of liquid and liner integrity is found to be compromised below the liquid's surface, XTO Energy shall remove all liquid above the damage or leak line within 48 hours, notify the appropriate division district office within 48 hours of the discovery and repair the damage or replace the modular impoundment.

(6) The injection or withdrawal of liquids from a pit shall be accomplished through a header, diverter or other hardware that prevents damage to the liner by erosion, fluid jets or impact from installation and removal of hoses or pipes.

Response –
Inspections shall verify that suction (intake), riser and filler pipes (see Photo #7) are intact and properly connected and secured.

The intake pipe for the suction system will sit on the floor in the sump area. The suction intake is a 15-foot long pipe with legs (to prevent rotation). The suction pipe riser is a 10-inch pipe that mounts to the top of the modular impoundment and descends down the exterior wall and connects to a pump.

The 4-inch filler pipes mount to the top of the modular impoundment in similar fashion to the suction pipe. The discharge end of the filler pipe is 4-inches from the bottom of the modular impoundment bottom to prevent damage to the liner by discharging operations.

(7) The operator shall operate and install a pit, below-grade tank or sump to prevent the collection of surface water run-on.

Response –
The modular impoundment's 12-foot high steel walls prevent the collection of surface water run-on. XTO Energy shall provide additional prevention to reduce

undercutting of the steel walls from surface water run-on by the construction of a 2-foot high berm along the bottom perimeter of the modular impoundment. Inspections shall verify that the berm surrounding the modular impoundment remains intact. Berm sections that lose integrity shall be repaired within 48 hours.

(8) The operator shall install, or maintain on site, an oil absorbent boom or other device to contain and remove oil from a pit's surface

Response –
XTO Energy shall verify that no oil is on the modular impoundment surface. If oil is observed, the oil shall be removed using an absorbent boom or other device and properly disposed at an approved facility.

B. Temporary pits. An operator shall maintain and operate a temporary pit in accordance with the following additional requirements

(1) Only fluids used or generated during the drilling or workover process may be discharged into a temporary pit. The operator shall maintain a temporary pit free of miscellaneous solid waste or debris. The operator shall use a tank made of steel or other material, which the appropriate division district office approves, to contain hydrocarbon-based drilling fluids. Immediately after cessation of a drilling or workover operation, the operator shall remove any visible or measurable layer of oil from the surface of a drilling or workover pit.

Response –
The modular impoundment shall be used for temporary storage of treated produced water for well stimulation. No other fluids other than treated produced water shall be discharged into the modular impoundment.

(2) The operator shall maintain at least two feet of freeboard for a temporary pit.

Response –
The modular impoundment shall be inspected daily by XTO Energy when containing more than 1-foot of treated produced water to ensure that a 2-foot freeboard is maintained.

(3) The operator shall inspect a temporary pit containing drilling fluids at least daily while the drilling or workover rig is on-site. Thereafter, the operator shall inspect the temporary pit weekly so long as liquids remain in the temporary pit. The operator shall maintain a log of such inspections and make the log available for the appropriate division district office's review upon request. The operator shall file a copy of the log with the appropriate division district office when the operator closes the temporary pit.

Response –

XTO Energy shall inspect the modular impoundment daily when containing more than 1-foot of treated produced water for: liner integrity, to ensure that a 2-foot freeboard is maintained, to prevent the presence of oil on the fluid surface, and to maintain berm stability around the modular impoundment to protect from surface water run-on/run-off. When less than one foot or less of treated produced water is present in the modular impoundment, XTO Energy shall inspect weekly. A log of these inspections shall be maintained by XTO Energy and made available upon division request. The log shall be filed with the modular impoundment closure report.

(4) The operator shall remove all free liquids from a temporary pit within 30 days from the date that the operator releases the drilling or workover rig. The operator shall note the date of the drilling or workover rig's release on form C-105 or C-103 upon well or workover completion. The appropriate division district office may grant an extension of up to three months.

Response –
The purpose of the modular impoundment is to provide fluid for six off-site well stimulations. The modular impoundment is not associated with a drilling or workover rig. The anticipated duration of the six stimulations is approximately 4 months. After the transfer of treated produced water to the 6th off-site well stimulation is complete, XTO Energy shall within 30-days remove remaining treated produced water from the modular impoundment. The modular impoundment is not associated with a drilling or workover rig. Therefore, XTO shall mark the transfer completion date on the C-144 and C-105 in lieu of rig release date.

Closure Requirements (NMAC 19.15.17.13)

A. Time requirements for closure per NMAC 19.15.17.13.

(7) An operator shall close any other permitted temporary pit within six months from the date that the operator releases the drilling or workover rig. The appropriate division district office may grant an extension not to exceed three months.

Response –
After the transfer of treated produced water to the 6th off-site well stimulation is complete, XTO Energy shall within six months close the modular impoundment. The modular impoundment is not associated with any drilling or workover rig.

B. Closure methods for temporary pits.

(1) Waste Excavation and removal

a) The operator shall close the temporary pit by excavating all contents and, if applicable, synthetic pit liners and transferring those materials to a division-approved facility.

Response –
Prior to disassembly of the modular impoundment, any remaining treated produced water shall be removed and injected into XTO Energy's SWD-53 (API#: 3001539400).

After the remaining fluid is removed the liner material, geomembranes and non-reusable pipe (suction and filler pipes) shall be transported to one of the following division-approved facilities:

- Controlled Recovery, Inc NM-01-0006
- Lea Land, LLC NM-01-0035

Reusable pipes, pumps, and other components owned by Poseidon will be loaded onto Poseidon trailers and transported off site.

b) The operator shall test the soils beneath the temporary pit to determine whether a release has occurred.

i. For temporary pits where ground water is between 50 and 100 feet below the bottom of the temporary pit or for cavitation pits allowed pursuant to Subparagraph (a) of Paragraph (1) of Subsection A of 19.15.17.10 NMAC, the operator shall collect, at a minimum, a five point, composite sample; collect individual grab samples from any area that is wet, discolored or showing other evidence of a release; and analyze for benzene, total BTEX, TPH, the GRO and DRO combined fraction and chlorides to demonstrate that benzene, as determined by EPA SW-846 method 8021B or 8260B or other EPA method that the division approves, does not exceed 0.2 mg/kg; total BTEX, as determined by EPA SW-846 method 8021B or 8260B or other EPA method that the division approves, does not exceed 50 mg/kg; TPH, as determined by EPA SW-846 method 418.1 or other EPA method that the division approves, does not exceed 2500 mg/kg; the GRO and DRO combined fraction, as determined by EPA SW-846 method 8015M, does not exceed 500 mg/kg; and chlorides, as determined by EPA method 300.1, do not exceed 500 mg/kg or the background concentration, whichever is greater. The operator shall notify the division of its results on form C-141. The division may require additional delineation upon review of the results.

Response –
XTO Energy shall collect, at a minimum, a five point, composite sample; collect individual grab samples from any area that is wet, discolored or showing other evidence of a release; and analyze for benzene (EPA 8260B), total BTEX (EPA 8260B), TPH (EPA 418.1), the GRO and DRO combined fraction (EPA SW-846 method 8015M) and chlorides (EPA 300.1). XTO Energy shall notify the division of its results on form C-141.

c) If the operator or the division determines that a release has occurred, then the operator shall comply with 19.15.29 NMAC and 19.15.30 NMAC, as appropriate.

Response –
If the division or XTO Energy determines that a release has occurred, XTO Energy shall comply with 19.15.29 NMAC and 19.15.30 NMAC, as appropriate.

d) If the sampling program demonstrates that a release has not occurred or that any release does not exceed the concentrations specified in Subparagraph (b) of Paragraph (1) of Subsection B of 19.15.17.13 NMAC, then the operator shall backfill the temporary pit excavation with compacted, non-waste containing, earthen material; construct a division-prescribed soil cover; recontour and re-vegetate the site. The division-prescribed soil cover, recontouring and re-vegetation requirements shall comply with Subsections G, H and I of 19.15.17.13 NMAC.

Response –
The modular impoundment is an above ground modular impoundment, no backfilling is necessary except the "Y" shaped sump area that has an excavated depth of 18-inches. The sump area will be filled with dense clay and topped with 6-inches of caliche to match existing production pad construction and grade. In lieu of revegetation, XTO Energy asks division approval for the reclamation of the sump area to pre-existing conditions – an active production pad for the Nash Unit #29 well. See 19.15.17.13.G, below.

G. Reclamation of pit locations, on-site burial locations and drying pad locations.

(1) Once the operator has closed a pit or trench or is no longer using a drying pad, below-grade tank or an area associated with a closed-loop system, pit, trench or below-grade tank, the operator shall reclaim the pit location, drying pad location, below-grade tank location or trench location and all areas associated with the closed-loop system, pit, trench or below-grade tank including associated access roads to a safe and stable condition that blends with the surrounding undisturbed area. The operator shall substantially restore the impacted surface area to the condition that existed prior to oil and gas operations by placement of the soil cover as provided in Subsection H of 19.15.17.13 NMAC, recontour the location and associated areas to a contour that approximates the original contour and blends with the surrounding topography and re-vegetate according to Subsection I of 19.15.17.13 NMAC.

Response –
The modular impoundment is an above ground fluid storage system, no backfilling is necessary except the "Y" shaped sump area that has a depth of 18-inches. The sump area shall be reclaimed to pre-existing conditions, an active production pad for the Nash Unit #29 well. The sump area shall be backfilled with dense clay and topped with 6-inches of caliche to match existing production pad grade. Revegetation of the sump area shall occur during reclamation activities for Nash Unit #29 plugging and abandonment per agreement with BLM (Appendix SSI-5).

(2) The operator may propose an alternative to the re-vegetation requirement if the operator demonstrates that the proposed alternative effectively prevents erosion, and protects fresh water, human health and the environment. The proposed alternative shall be agreed upon by the surface owner. The operator shall submit the proposed alternative, with written documentation that the surface owner agrees to the alternative, to the division for approval.

Response –
In lieu of re-vegetation, XTO Energy asks the division to allow interim reclamation to pre-existing conditions - an operational production pad. Interim reclamation of the sump area shall consist of reclaiming the sump area to pre-existing production pad conditions by backfilling with dense clay and topping with 6-inches of caliche to match existing production pad grade. Re-vegetation shall occur during the plugging and abandonment of Nash Unit#29 per agreement with BLM (see Appendix SSI-5).

H. Soil cover designs.

(1) The soil cover for closures where the operator has removed the pit contents or remediated the contaminated soil to the division's satisfaction shall consist of the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater.

Response –
In lieu of soil cover, XTO Energy asks the division to allow interim reclamation to pre-

existing conditions - an operational production pad. Interim reclamation of the sump area shall consist of reclaiming the sump area to pre-existing production pad conditions by backfilling with dense clay and topping with 6-inches of caliche to match existing production pad grade. Soil cover shall occur during the plugging and abandonment of Nash Unit#29 per agreement with BLM (see Appendix SSI-5).

(3) The operator shall construct the soil cover to the site's existing grade and prevent ponding of water and erosion of the cover material.

Response –
In lieu of soil cover, XTO Energy asks the division to allow interim reclamation to pre-existing conditions - an operational production pad. Interim reclamation of the sump area shall consist of reclaiming the sump area to pre-existing production pad conditions by backfilling with dense clay and topping with 6-inches of caliche to match existing production pad grade. Proper soil cover construction shall occur during the plugging and abandonment of Nash Unit#29 per agreement with BLM (see Appendix SSI-5).

I. Re-vegetation.

Response –
In lieu of re-vegetation, XTO Energy asks the division to allow interim reclamation to pre-existing conditions - an operational production pad. Interim reclamation of the sump area shall consist of reclaiming the sump area to pre-existing production pad conditions by backfilling with dense clay and topping with 6-inches of caliche to match existing production pad grade. Re-vegetation shall occur during the plugging and abandonment of Nash Unit#29 per agreement with BLM (see Appendix SSI-5).

J. Closure notice.

(1) The operator shall notify the surface owner by certified mail, return receipt requested, that the operator plans to close a temporary pit, a permanent pit, a below-grade tank or where the operator has approval for on-site closure. Evidence of mailing of the notice to the address of the surface owner shown in the county tax records is sufficient to demonstrate compliance with this requirement.

Response –
XTO Energy shall notify the surface owner by certified mail, return receipt requested, that XTO Energy plans to close a modular impoundment.

(2) The operator of a temporary pit or below-grade tank or an operator who is approved for on-site closure shall notify the appropriate division district office verbally or by other means at least 72 hours, but not more than one week, prior to any closure operation. The notice shall include the operator's name and the location to be closed by unit letter, section, township and range. If the closure is associated with a particular well, then the notice shall also include the well's name, number and API number.
Response –

XTO Energy shall notify the appropriate division district office verbally or by other means at least 72 hours, but not more than one week, prior to any closure operation. The notice shall include the operator's name and the location to be closed by unit letter, section, township and range.

K. Closure report.
Within 60 days of closure completion, the operator shall submit a closure report on form C-144, with necessary attachments to document all closure activities including sampling results; information required by 19.15.17 NMAC; a plot plan; and details on back-filling, capping and covering, where applicable. In the closure report, the operator shall certify that all information in the report and attachments is correct and that the operator has complied with all applicable closure requirements and conditions specified in the approved closure plan. If the operator used a temporary pit, the operator shall provide a plat of the pit location on form C-105 within 60 days of closing the temporary pit.

Response –
Within 60 days, XTO Energy shall submit a closure report on form C-144 ,with necessary attachments documenting all closure activities including sampling results; information required by 19.15.17 NMAC; a plot plan; and details on back-filling the sump area, capping and covering back to pre-existing conditions. In the closure report, XTO Energy shall certify that all information in the report and attachments are correct and that the operator has complied with all applicable closure requirements and conditions specified in the approved closure plan. XTO Energy shall provide a plat of the pit location on form C-105 within 60 days of closing the modular impoundment.

Appendix SSI-1

Site Visit Photographs

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

Photo-montage of Nash Unit #29 location looking south from a small rise. Temporary pit will lie on east (left) of the pad.

East portion of photo-montage Topography is very flat and site inspections found no evidence of a continuously-flowing arroyo on southeast portion of pad.

Photograph showing sign in compliance with NMOCD Rules.

Appendix SSI-2

- Canadian Patent
- Beck Engineering Letter
- Geotextile Specifications
- Liner Specifications

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

Office de la propriété intellectuelle du Canada

Un organisme d'Industrie Canada

Canadian Intellectual Property Office

An Agency of Industry Canada

Brevet canadien / Canadian Patent

Le commissaire aux brevets a reçu une demande de délivrance de brevet visant une invention. Ladite requête satisfait aux exigences de la *Loi sur les brevets*. Le titre et la description de l'invention figurent dans le mémoire descriptif, dont une copie fait partie intégrante du présent document.

Le présent brevet confère à son titulaire et à ses représentants légaux, pour une période expirant vingt ans à compter de la date du dépôt de la demande au Canada, le droit, la faculté et le privilège exclusif de fabriquer, construire, exploiter et vendre à d'autres, pour qu'ils l'exploitent, l'objet de l'invention, sauf jugement en l'espèce rendu par un tribunal compétent, et sous réserve du paiement des taxes périodiques.

The Commissioner of Patents has received a petition for the grant of a patent for an invention. The requirements of the *Patent Act* have been complied with. The title and a description of the invention are contained in the specification, a copy of which forms an integral part of this document.

The present patent grants to its owner and to the legal representatives of its owner, for a term which expires twenty years from the filing date of the application in Canada, the exclusive right, privilege and liberty of making, constructing and using the invention and selling it to others to be used, subject to adjudication before any court of competent jurisdiction, and subject to the payment of maintenance fees.

BREVET CANADIEN **2,692,016** CANADIAN PATENT

Français	Date	English
Date à laquelle le brevet a été accordé et délivré	2011/07/19	Date on which the patent was granted and issued
Date du dépôt de la demande	2010/02/05	Filing date of the application
Date à laquelle la demande est devenue accessible au public pour consultation	2010/07/05	Date on which the application was made available for public inspection

Commissaire aux brevets / Commissioner of Patents

Canada

3256 (CIPO 91) 01/06

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An agency of Industry Canada

CA 2692016 C 2011/07/19

(11)(21) 2 692 016

(12) BREVET CANADIEN
CANADIAN PATENT

(13) C

(22) Date de dépôt/Filing Date: 2010/02/05

(41) Mise à la disp. pub./Open to Public Insp.: 2010/07/05

(45) Date de délivrance/Issue Date: 2011/07/19

(51) Cl.Int./Int.Cl. *B65D 5/42* (2006.01), *B65D 5/44* (2006.01)

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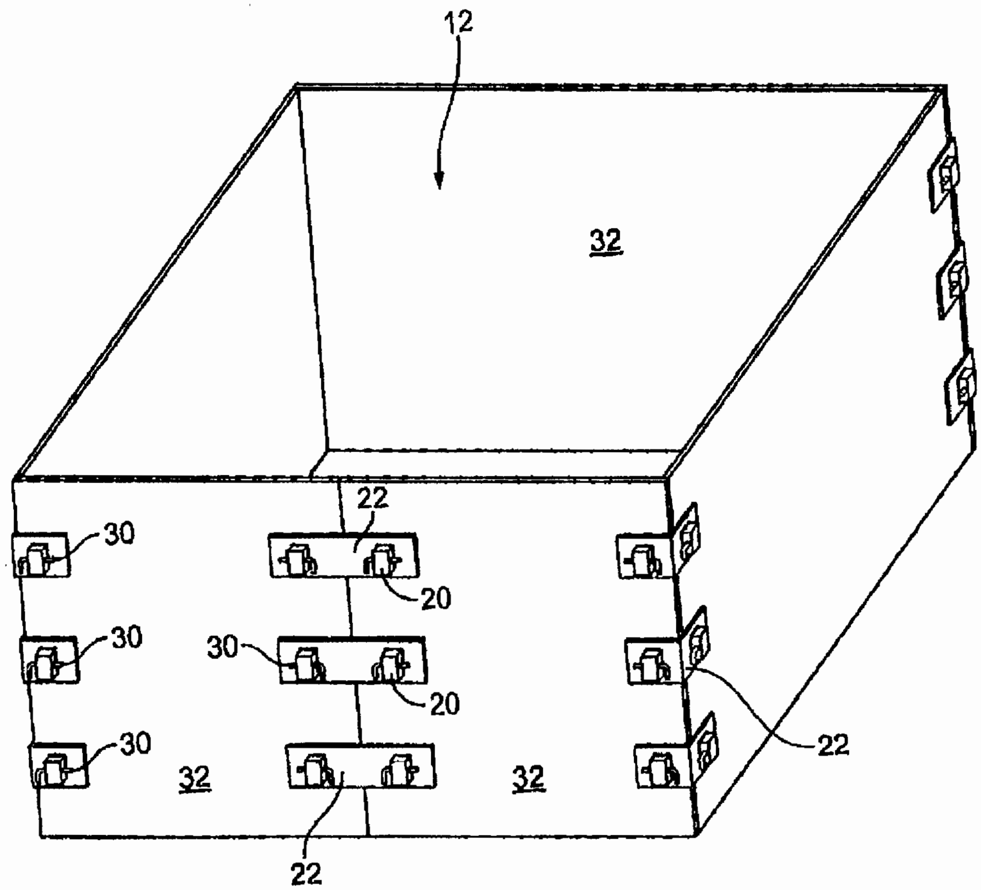
(54) Titre : ENSEMBLE DE FIXATION DE RECIPIENTS
(54) Title: CONTAINER FASTENING ASSEMBLY



(57) Abrégé/Abstract:
A connection arrangement for connection of vertically and/or horizontally arranged containers. Each of the containers provides bosses or projections over a collinear pair of which is placed a separate plate. The plate provides matched polygonal apertures to

(57) Abrégé(suite)/Abstract(continued):
receive the projections. Each of the projections provides an aperture there through to receive a retainer pin or bolt. the pin or bolt abuts the plate when engaged. The arrangement greatly expedites the separation of the containers when desired. The user need only tap out the retainer pin and pull off the plate. This obviates the use of fasteners which can freeze, rust or become otherwise inoperative or cumbersome.

CONTAINER FASTENING ASSEMBLY

TECHNICAL FIELD

The present invention relates to fasteners for modular containers/enclosures and more particularly , the present invention relate to a fastening assembly which is expeditiously removed and assembled to allow separation and assembly of the containers by the user without the need to unfasten bolts etc.

BACKGROUND OF THE INVENTION

Fastening assemblies of a broad variety have been used for some time in connecting modular containers and panels or segments making up the enclosures or containers. Contributory to the problem with the fastening arrangements known is that they are not designed for simplicity of use and with the least number of parts. It is well known that the nut and bolt or other mechanical arrangements are very often overly complex for the purpose of securing containers together. In the bolt system, the user is often faced with rusted connectors which are difficult if not impossible sometimes to disconnect. This often leads to complete destruction of the fastener and potential damage to the container which elevates costs for wasted time, materials and repairs.

As a further problem, the possibility of attempting to remove nuts from bolts etc. in inclement weather such as freezing weather becomes exceedingly difficult considering the clothing the user must wear to stay warm. The result is that the user often must at least remove hand protection to operate a wrench etc., thus introducing the possibility of frostbite or other exposure.

The prior art is replete with as many variations of fastening systems, all of which are not designed for user ease.

SUMMARY OF THE INVENTION

One object of the invention is to provide an improved fastening assembly for fastening adjacent containers.

A further object of one embodiment is to provide a connection assembly for connecting similar containers, comprising, in combination:

a first container and a second container in contact;

first cooperating engagement means projecting from each container of the containers, the first cooperating engagement means being in alignment on containers in contact;

second cooperating engagement means adapted for overlying releasable engagement with the first cooperating engagement means, the second cooperating means having a configuration matched in shape to the first cooperating engagement means, the first cooperating engagement means extending beyond the second cooperating engagement means when the second cooperating engagement means overlies the first cooperating engagement means;

third cooperating engagement means integral with the first cooperating engagement means; and

fourth cooperating engagement means adapted for releasable engagement with the third cooperating engagement means and for retaining the second cooperating engagement means when overlying the first cooperating engagement means, whereby when the first cooperating engagement means receives the second cooperating engagement means and the third cooperating engagement means receives the fourth cooperating engagement means, each container is connected and secured against substantial vertical and horizontal separation.

The arrangement has been found to be particularly simple to use in any weather conditions. The first cooperating engagement means in one embodiment comprises a polygonal boss or projection extending outwardly from each adjacently positioned container.

The second cooperating engagement means comprises, in one embodiment, a plate adapted to overly the bosses. The plate is provided with apertures matched in configuration to the bosses. It is preferred that the shape of the bosses and the plate apertures be selected from a polygonal repertoire; circular arrangements do not provide any protection for horizontal and/or vertical movement between adjacent containers. The polygonal shape is advantageous to avoid such potentially hazardous and damaging movement. Further, the distance between the bosses of contacted containers is identical to a vertical distance between the bosses of an individual container.

The bosses are horizontally and vertically collinear to allow any plate to be used over any projections.

With respect to the fourth cooperating engagement means, the same may comprise in one possible embodiment, a pin or L bolt which is simply inserted in to the aperture extending through each boss.

The arrangement is particularly convenient, since a user wishing to disconnect connected containers, simply pushes out the pin from each boss and pulls the plate free of the bosses.

A further object of one embodiment of the present invention is to provide a connection assembly for connecting similar containers, comprising, in combination:

a first container and a second container in contact;

a plurality of projections projecting from each container of the containers arranged in alignment on containers in contact;

a separate plate member adapted for overlying releasable engagement with the projections projecting from each container, the plate having apertures matched in shape to the projections, the projections extending beyond the plate when in overlying relation with the projections;

aperture means extending through the projections; and

retainer means adapted for releasable engagement with the aperture means, whereby when the projections receive the separate plate and the aperture means receives the retainer means, each container is connected and secured against substantial vertical and horizontal separation.

Yet another object of one embodiment of the present invention is to provide a modular container, comprising:

a plurality of separate container wall segments adapted for releasable connection with each other to form a container or enclosure;

first cooperating engagement means projecting from each container wall segment of the containers, the first cooperating engagement means being in alignment on each container wall segment;

second cooperating engagement means adapted for overlying releasable engagement with the first cooperating engagement means, the second cooperating means having a configuration matched in shape to the first cooperating engagement means, the first cooperating engagement means extending beyond the second cooperating engagement means when the second cooperating engagement means overlies the first cooperating engagement means;

third cooperating engagement means integral with the first cooperating engagement means; and

fourth cooperating engagement means adapted for releasable engagement with the third cooperating engagement means and for retaining the second cooperating engagement means when overlying the first cooperating engagement means, whereby when the first cooperating engagement means receives the second cooperating engagement means and the third cooperating engagement means receives the fourth cooperating engagement means, each container wall segment is connected forming a container or enclosure and secured against substantial vertical and horizontal separation.

Advantageously, the use of the cooperating engagement means significantly reduces the time required to assemble and disassemble the enclosure or container and presents a marked benefit over existing arrangements.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of the container arrangement and fastening assembly according to one embodiment;

Figure 2 is an enlarged view of the assembly illustrated in Figure 1;

Figure 3 is an enlarged view of Figure 2;

Figure 4 is a section along line 4-4 of Figure 3;

Figures 5A through 5D illustrate alternate embodiments of Figure 3;

Figure 6 is an illustration of an alternate embodiment of the present invention; and

Figure 7 is an illustration of yet another alternate embodiment of the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Referring now to Figure 1, shown is a perspective view of a first embodiment of the present invention. Numeral 10, generally refers to the arrangement. Large containers 12 for storage of, for example, water are desirably connected together for modulation at a site. The overall fastening assembly is referenced by numeral 14 and is more detailed in Figure 2.

Each container 12 is positioned for contact with an adjacent container 12 at an interface16. A wall or extension 18 is provided on each container 12 for abutment with a similar component from the adjacent container 12. Each wall 18 includes a plurality of projecting bosses 20 extending outwardly in parallel planar relation from wall 18. The bosses 20 function as a first cooperating engagement. The bosses 20 may be welded to the walls 18. The bosses 20 on an individual container 12 are arranged in collinear equidistant relation and are horizontally aligned when walls 18 are abutted between containers 12. The horizontal distance between bosses 20 of adjacent containers, in this embodiment is the same and this is true of the spacing of bosses on an individual container 12.

With reference to Figure 3, shown is an enlarged view of the arrangement. The bosses 20, shown in the example as having a rectangular shape, receive, in overlying relation, a second releasable cooperating engagement member 22. The member 22 is shown in the example as a plate. The plate 22 has spaced apart apertures 24 which receive the bosses 20. The boss 20 shape and aperture 24 are configured for cooperation.

Plate 22 may comprise a similar material of which the containers 12 are made, such as steel. The plate 22 is dimensioned to overlie the interface of abutment, referenced by numeral 16, of the adjacent containers 12. The plate is also dimensioned to be of a lesser thickness than the height of the bosses 20. In this manner, the plate 22 can be loosely retained on the bosses 20 in a parallel plane to the walls 18.

In order to further assist in retaining the plate 22 on the bosses 20, a third releasably engageable cooperating means in the form of an aperture 28 (chain line) cooperates with a fourth releasably engageable cooperating means in the form of, for example, a pin or L-bolt 30. As is illustrated in the example, the pin 30 is received within the aperture

28. The reception is such that the pin 30 abuts the surface of the plate 22. This relationship ensures that the plate 22 remains snugly against the walls 18. The former relationship is depicted in Figure 4.

The Figures illustrate the boss 20 shape as a rectangle. This is useful when combined with a keyed or matched configuration in the plate 22 to reduce if not eliminate any vertical or horizontal movement of connected containers. Any suitable polygonal shape is envisioned as a possibility. Figures 5A through 5D illustrate a number of variations for the plate 22 in terms of the apertures 24 being diamond, square, hexagonal and generally square in shape. The bosses 20 would obviously have a keyed shape for cooperation. In addition, Figures 5A through 5D show variations on the shape and disposition of the pins or L bolts 30. The pins or bolts may be inserted into the aperture 28 of the bosses 20 vertically, horizontally or angularly. Further, the pins may be of a varying dimension, i.e. conical, straight, or bent. As a further variation, the plate 22 may comprise any suitable shape variations of which are shown in Figures 5C and 5D with a generally dumbbell configuration. Other variations will be appreciated by those skilled.

Referring now to Figure 6, shown is another alternate embodiment of the present invention.

In this embodiment, two bosses 20, a pair from each container 12 are connected by a modified plate 22'. In this embodiment, two plates are joined by joining members 32, shown in the example to be vertical arms. Any suitable configuration to achieve this end is possible and will be appreciated by those skilled. Further, any number of bosses 20 may be connected.

Referring now to Figure 7, shown is a further variation of the present invention. In this embodiment, the container 12 is formed of a plurality of individual wall segments 32. Each segment includes the bosses 20 which cooperate with an adjacent segment 32 in a manner similar to that discussed with respect to the previous embodiments. Plate 22 joins the adjacent segments. Conveniently, the intersection of two segments at a corner can be easily accommodated by modifying plate 22 by a right angle bend as shown in the illustration. In situations where the angle required is acute or obtuse, the plate will be modified accordingly.

Although embodiments of the invention have been described above, it is not limited thereto and it will be apparent to those skilled in the art that numerous modifications form part of the present invention insofar as they do not depart from the spirit, nature and scope of the claimed and described invention.

WE CLAIM:

1. A connection assembly for connecting similar containers, comprising, in combination:

a first container and a second container in contact;

boss means integral with and projecting outwardly from an extension wall of each said container of said containers, said boss means being in horizontal alignment on containers to be connected;

a second cooperating engagement member for overlying releasable engagement with at least a pair of said boss means of containers to be connected, said second cooperating engagement member being independent of each said container, said second cooperating member having a configuration matched in shape to said boss means, said boss means extending beyond said second cooperating engagement member when said second cooperating engagement member overlies said boss means, said second cooperating engagement member when engaged with said boss means overlies a contact interface of connected containers;

third cooperating engagement means integral with said boss means; and

fourth cooperating engagement means adapted for releasable engagement with said third cooperating engagement means and for retaining said second cooperating engagement member when overlying said boss means, connection between containers being effected solely when said boss means receives said second cooperating engagement member and said third cooperating engagement means receives said fourth cooperating engagement means, each said container is connected and secured against substantial vertical and horizontal separation.

2. The combination as set forth in claim 1, wherein said second cooperating engagement member is separate and unconnected to each said container.

3. The combination as set forth in claim 1, wherein each container has a plurality of projecting boss means in vertical spaced relation.

4. The combination as set forth in claim 3, wherein said projecting boss means are in collinear arrangement.

5. The combination as set forth in claim 1, wherein said boss means of said first container and said second container are in a collinear arrangement.

6. The combination as set forth in claim 2, wherein said second cooperating engagement member comprises a removable plate.

7. The combination as set forth in claim 1, wherein a horizontal distance between said boss means between contacted containers is identical to a vertical distance between said boss means of an individual container of said first container and said second container.

8. The combination as set forth in claim 1, wherein at least a boss means between adjacent containers is connected.

9. The combination as set forth in claim 1, wherein said third cooperating engagement means comprises an aperture extending through said boss means.

10. The combination as set forth in claim 1, wherein said fourth cooperating engagement means comprises a separate member unconnected to said container.

11. The combination as set forth in claim 10, wherein said fourth cooperating engagement means comprises an L-shaped pin releasably connectable within said third cooperating engagement means.

12. The combination as set forth in claim 1, wherein said fourth cooperating engagement means, when engaged with said third cooperating engagement means, abuts said second cooperating engagement member.

13. The combination as set forth in claim 1, wherein said first container and said second container are arranged in horizontal disposition.

14. The combination as set forth in claim 1, wherein said first container and said second container are arranged in vertical disposition.

15. The combination as set forth in claim 1, wherein said boss means and said second cooperating engagement member have matched polygonal shapes.

16. A connection assembly for connecting similar containers, comprising, in combination:

a first container and a second container in contact;

a plurality of projections projecting from the walls of each container of said containers arranged in alignment on containers in contact;

a separate plate member for overlying releasable engagement with said projections projecting from each container, said separate plate member being independent of each said container, said plate having apertures matched in shape to said projections, said projections extending beyond said plate when in overlying relation with said projections;

aperture means extending through said projections; and

retainer means adapted for releasable engagement with said aperture means, connection between containers being effected solely when said projections receive said separate plate and said aperture means receives said retainer means, each said container is connected and secured against substantial vertical and horizontal separation.

17. A modular container, comprising:

a plurality of separate container wall segments adapted for releasable connection with each other to form a container or enclosure;

boss means projecting from each said container wall segment of said containers, said boss means being in alignment on each container wall segment;

a second cooperating engagement plate for overlying releasable engagement with at least a pair of said boss means of each juxtaposed wall, said second cooperating engagement member being independent of said container wall segments, said second cooperating plate having a configuration matched in shape to said boss means, said boss means extending beyond said second cooperating engagement means when said second cooperating engagement plate overlies said boss means of juxtaposed walls;

third cooperating engagement means integral with said boss means; and

fourth cooperating engagement means adapted for releasable engagement with said third cooperating engagement means and for retaining said second cooperating engagement member when overlying said first cooperating engagement means, formation of said container being effected solely by said boss means being received in said second cooperating engagement member and when said third cooperating engagement means is received in said fourth cooperating engagement means, whereby said container or enclosure is secured against substantial vertical and horizontal separation.

18. The container as set forth in claim 17, wherein said plate is planar.

19. The container as set forth in claim 17, wherein said plate is angular.

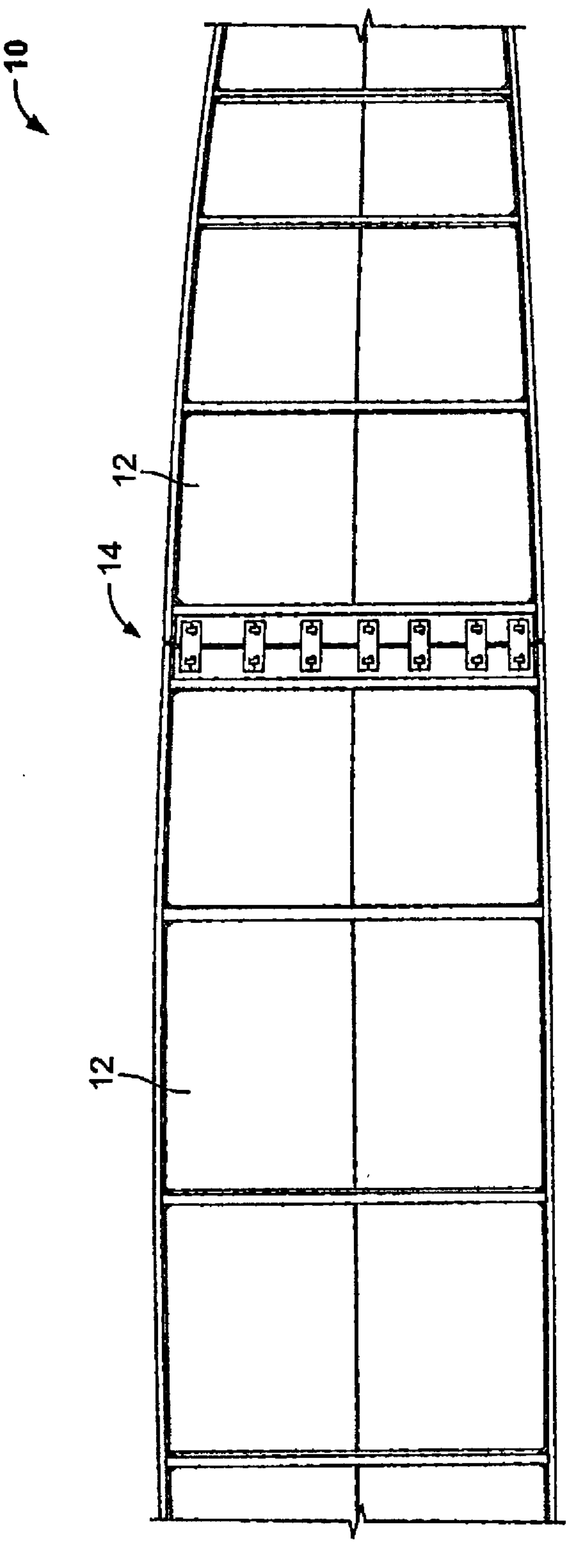


FIG. 1

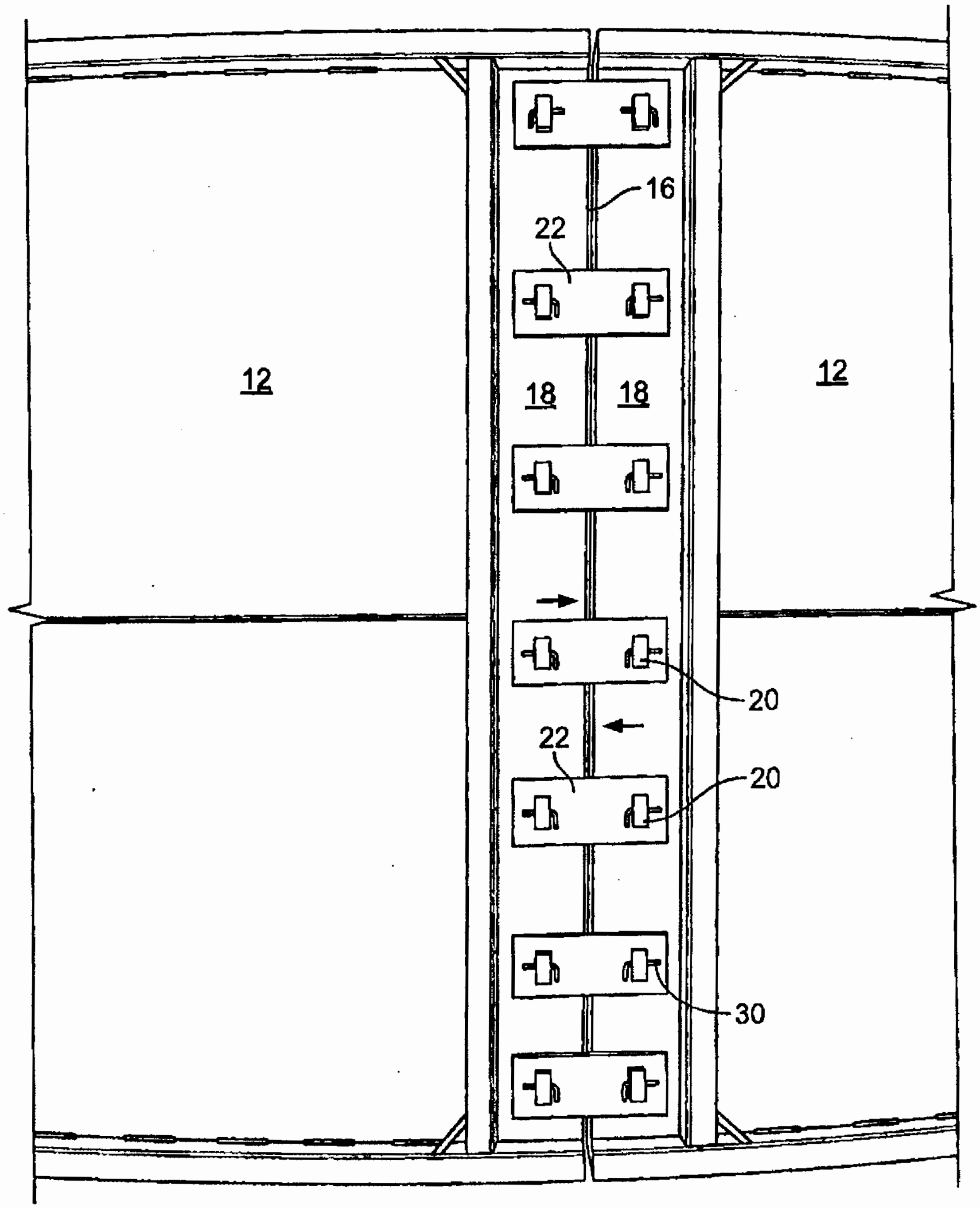


FIG. 2

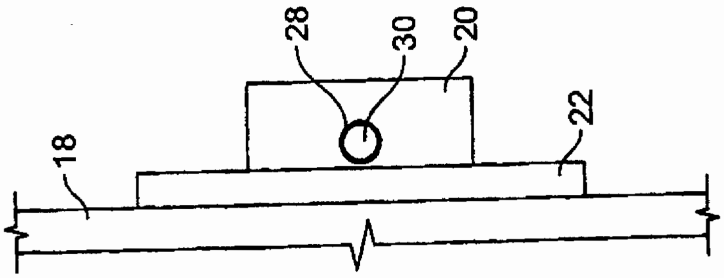


FIG. 4

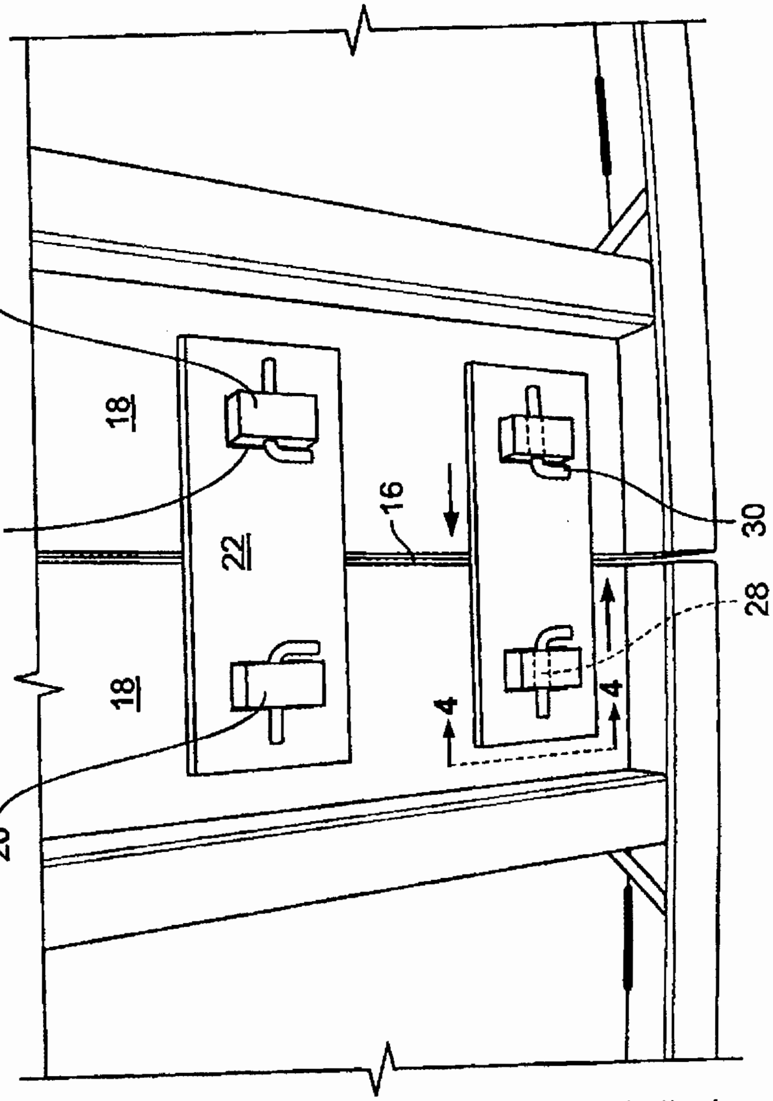


FIG. 3

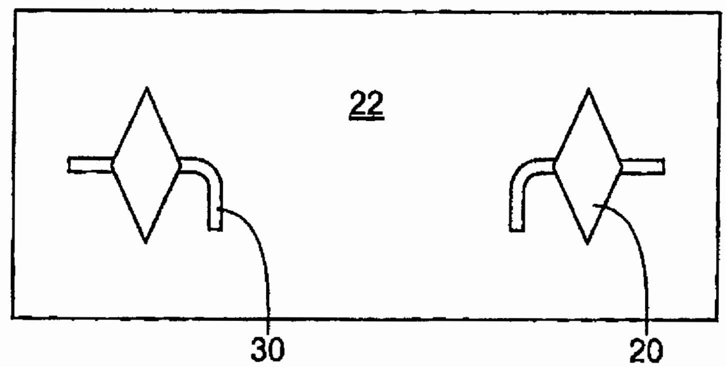


FIG. 5A

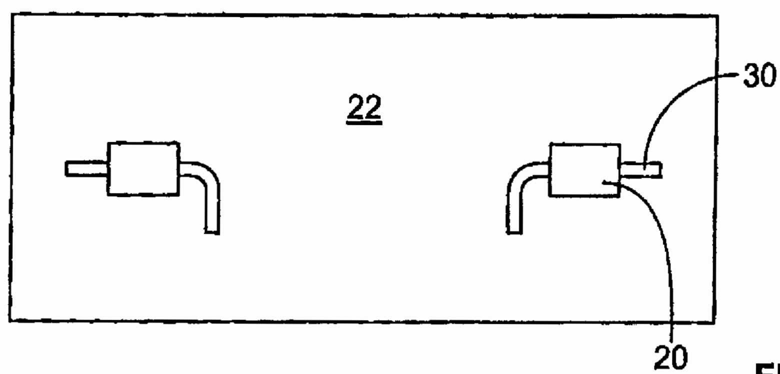


FIG. 5B

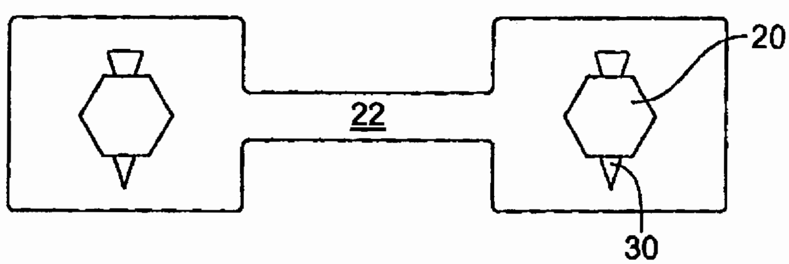


FIG. 5C

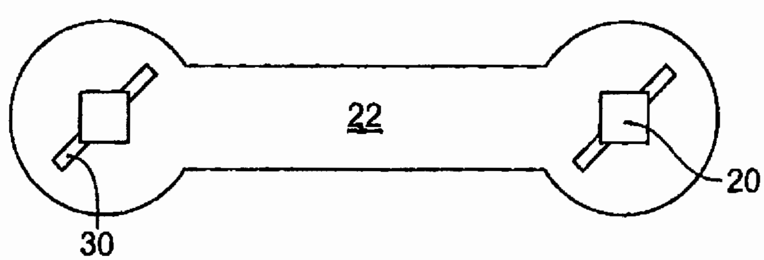


FIG. 5D

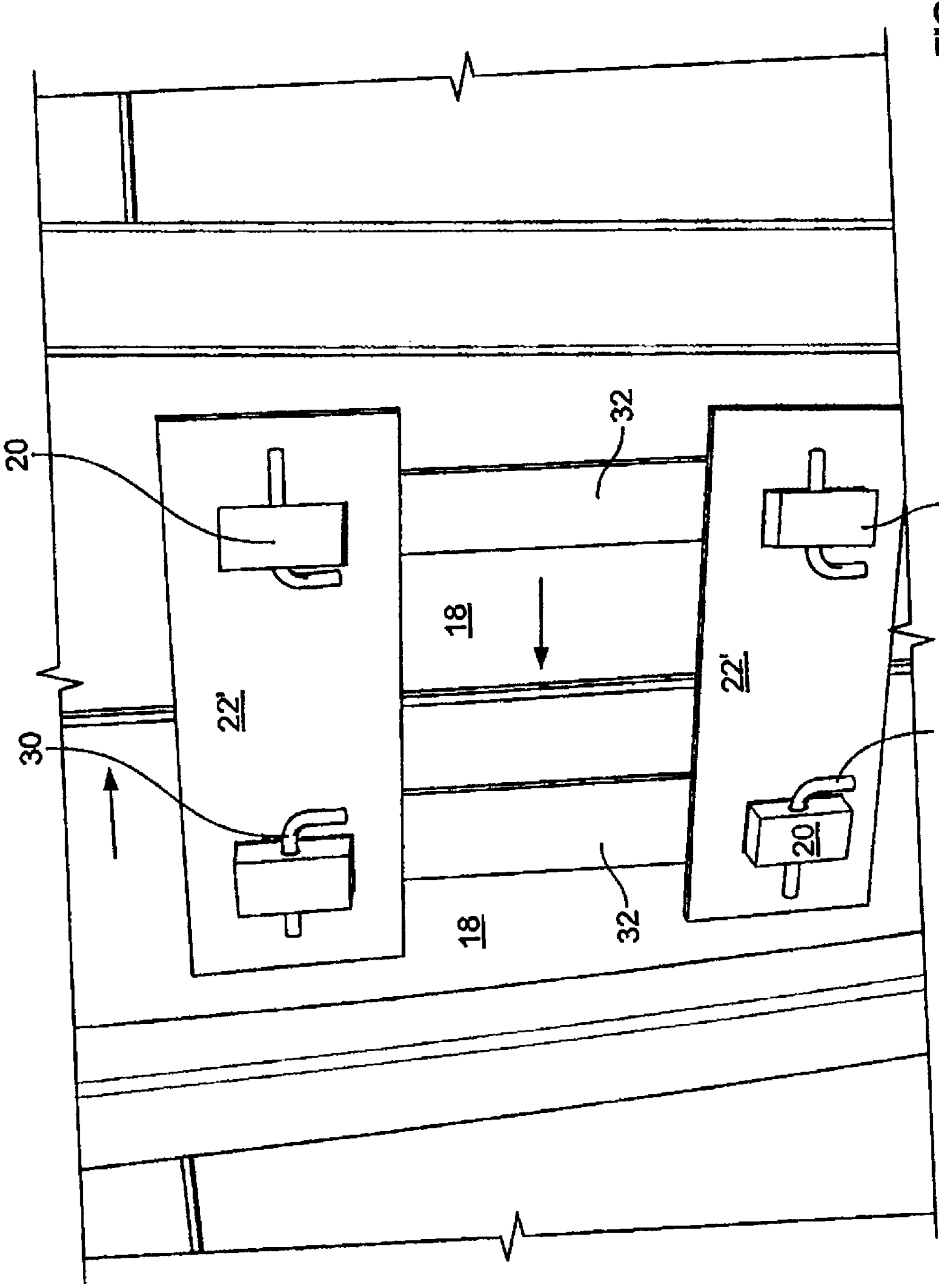


FIG. 6

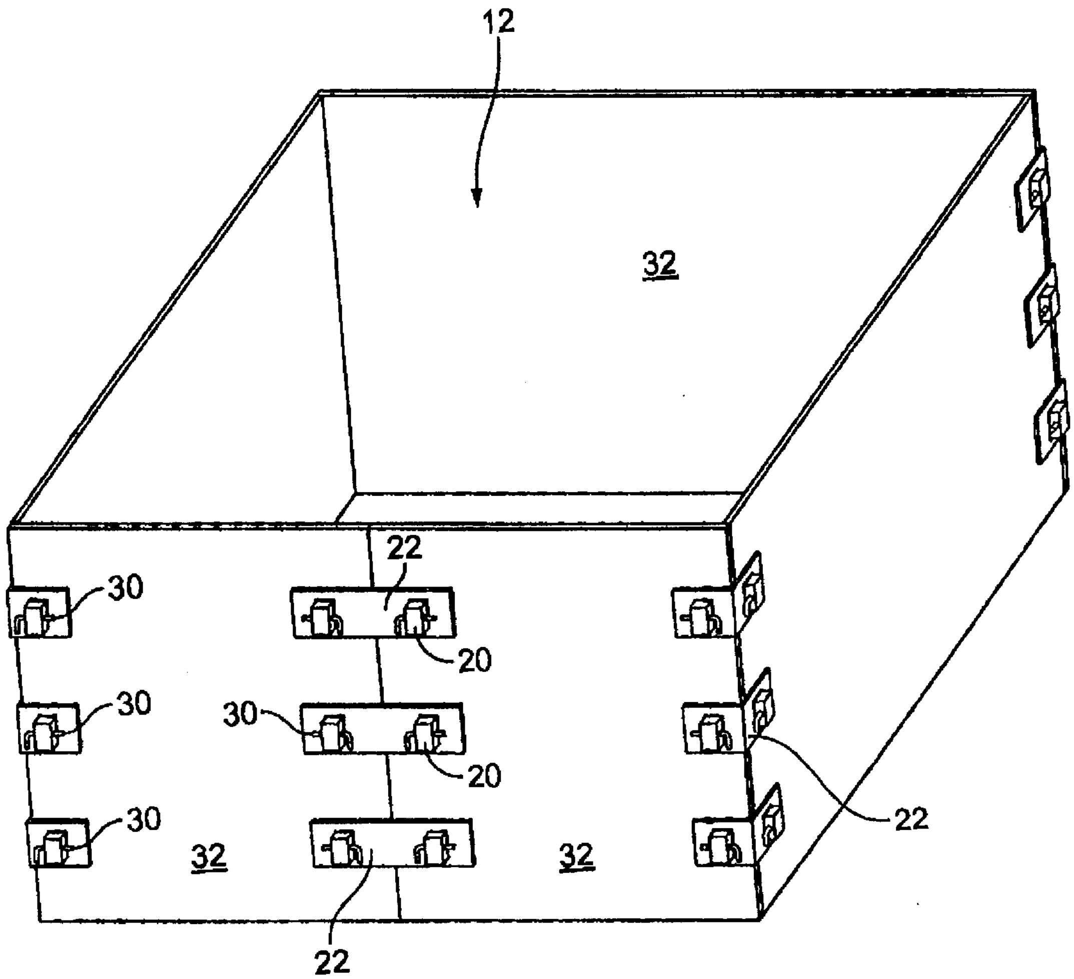


FIG. 7

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12/985,362 CONTAINER FASTENING ASSEMBLY PCLP-003

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Bibliographic Data

Application Number:	12/985,362	Customer Number:	-
Filing or 371 (c) Date:	01-06-2011	Status:	Docketed New Case - Ready for Examination
Application Type:	Utility	Status Date:	01-26-2012
Examiner Name:	EDWARDS, BRETT J	Location:	ELECTRONIC
Group Art Unit:	3781	Location Date:	-
Confirmation Number:	4194	Earliest Publication No:	US 2011-0194893 A1
Attorney Docket Number:	PCLP-003	Earliest Publication Date:	08-11-2011
Class / Subclass:	206/504	Patent Number:	-
First Named Inventor:	Cliff WIEBE , Calgary, (CA)	Issue Date of Patent:	-

Title of Invention: CONTAINER FASTENING ASSEMBLY

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Beck

ENGINEERING (1992) LTD.

August 26, 2011
Doc. 11341M1101

Poseidon Concepts Ltd.
1100, 645 - 7th Ave SW
Calgary, Alberta T2P 4G8

Attention: To Whom It May Concern

Re: Atlantis, Poseidon & Triton Modular Tanks

This letter confirms that Beck Engineering (1992) Ltd. has designed and engineered the Poseidon Concepts modular tanks. Specifically, Beck Engineering has designed and reviewed the $6500m^3$ "Atlantis", the $2900m^3$ "Poseidon" and the $1440m^3$ "Triton" models.

Beck Engineering has structurally designed the tank wall panels and panel connections to fully withstand all forces and stresses that the modular tank may be subject to during transport, erection, filling and emptying the tank. Hydrostatic forces, considering a specific gravity of 1.05 have been considered during design of all components. Further, the modular tanks system has been designed to withstand the forces and stresses generated by potential out-of-plumb and out-of-round installation conditions.

The modular tanks have been designed in accordance with accepted engineering principles with reference to CSA S16 "Limit States Design of Steel Structures" as applicable. The total (von Mises) stress condition has also been considered for all components within the modular tank system including the panel connections. All stresses within the modular tank system components have been limited to ensure a minimum Factor of Safety of 3.0 has been maintained throughout the modular system. Beck Engineering has also provided signed and sealed erection procedures and ground preparation requirements.

The Poseidon, Atlantis and Triton modular tanks models are structurally designed to resist all anticipated forces on the tank panels and panel connections from the start of erection to the complete filling of the tank. The modular tank systems have been designed considering all hydrostatic forces, the associated tension developed in the wall panels and the tension forces and associated out-of-plane and out-of-plumb forces developed within the panel connections. Further consideration has been given to the forces and stresses introduced during erection considering lifting and handling and wind forces during assembly.

Beck Engineering has provided Poseidon Concepts (via Open Range Energy Corp.) with signed and sealed drawings showing all required connection details and material specifications as necessary for fabrication of the 3 modular tank models described herein.

I trust this is the information you currently require. Beck Engineering would be pleased to provide further information as necessary within the limits of our confidentiality obligations to Poseidon Concepts.

Regards,
Beck Engineering (1992) Ltd.
APEGGA Permit No. 204[illegible]

PROFESSIONAL ENGINEER MICHAEL HAYDEN ALBERTA

Michael Hayden, P.Eng.

Aug 26/11

TOUGH TARPS...NO BULL

Western Industries Inc.
PO Box 428
Yellowstone Hill
Miles City, Montana 59301
(406) 234-1680
(406) 234-7774 Fax
(800) 488-3592

8, 10 & 12 oz.
Nonwoven Geotextile

Property				**ASTM**
Weight	8 oz/yd²	10 oz/yd²	12 oz/yd²	
Grab Tensile	205 lbs	250 lbs	300 lbs	D-4632
Grab Elongation	50%	50%	50%	D-4632
Trapezoidal Tear	80 lbs	100 lbs	115 lbs	D4533
Puncture Resistance	525 lbs	625 lbs	825 lbs	D-6241
UV Resistance After 500 hrs.	70% Strength Retained	70% Strength Retained	70% Strength Retained	D-4355
		Hydraulic		
Apparent Opening Size (AOS)[3]	80 US Std. Sieve	100 US Std. Sieve	100 US Std. Sieve	D-4751
Permittivity	1.5 sec^{-1}	1.2 sec^{-1}	1.0 sec^{-1}	D-4491
Water Flow Rate	110 gpm/ft²	85 gpm/ft²	75 gpm/ft²	D-4491

These values are typical data and are not intended as limiting specifications.

Material Safety Data Sheet May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910 1200. Standard must be consulted for specific requirements.	**U.S. Department of Labor** Occupational Safety and Health Administration (Non-Mandatory Form) Form Approved OMB No. 1218-0072
IDENTITY *(as Used on Label and List)* *GSE Low Density Polyethylene Geomembrane (LLDPE)*	*Note: Blank spaces are not permitted. If any item is not applicable or no information is available, the space must be marked to indicate that.*

Section 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Manufacturer's name GSE Lining Technology	Emergency Telephone Number **1-800-435-2008** CHEMTREC (800) 424-9300
Address *(Number, Street, City, State and ZIP Code)*	Telephone Number for Information **1-800-435-2008**
19103 Gundle Rd	Date Prepared 1/1/1999
Houston, Texas 77073	Signature of Preparer *(optional)*

Section2 Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity, Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
PRODUCT NAME: LLDPE (ALL GRADES)	**None**	**None**	**None**	
CHEMICAL NAME:				
Polyethylene or Ethylene-Olefin Copolymer				
CHEMICAL FAMILY:				
Ethylene-Based Polymer				
PRODUCT DESCRIPTION:				
Odorless opaque white pellets or granules.				

This product is not hazardous as defined in 29 CFR1910.1200

Section 3 COMPOSITION/INFORMATION ON INGREDIENTS

POTENTIAL HEALTH EFFECTS EYE CONTACT: Particulates may scratch eye surfaces/cause mechanical irritation.

SKIN CONTACT:

Negligible hazard at ambient temperatures (-18 to +38 degrees C; 0 to 100 degrees F).

Exposure to hot material may cause thermal burns.

INHALATION:

Negligible hazard at ambient temperature (-18 to 38 Deg C; 0 to 100 Deg F)

Vapors and/or aerosols which may be formed at elevated temperatures may be irritating to eyes and respiratory tract.

INGESTION:

Minimal toxicity.

Section 4 FIRST AID MEASURES

EYE CONTACT:

This product is an inert solid. If in eye, remove as one would any foreign object.

SKIN CONTACT:

For hot product, immediately immerse in or flush the affected area with large amounts of cold water to dissipate heat. Cover with clean cotton sheeting or gauze and get prompt medical attention. No attempt should be made to remove material from skin or to remove contaminated clothing, as the damaged flesh can be easily torn.

INHALATION:

In case of adverse exposure to vapors and/or aerosols formed at elevated temperatures, immediately remove the affected victim from exposure. Administer artificial respiration if breathing is stopped. Keep at rest. Call for prompt medical attention.

INGESTION:

First aid is normally not required.

Liner

Product Description
The Liner geomembranes are economical lining materials made from blended/reprocessed resins selected for optimum performance at the lowest cost. Products are intended for use in gomembrane applications such as oil and gas reserve pits, temporary containment of frac water, backflow water high in salt concentration, seepage control, water containment and short-term protective covers. Prefabricated liners are also ideal for installation by contractors, owners, or agricultural operators.

Technical Data
Materials information is below.

Installation
Liner is flexible enough to be prefabricated at our facility into large panels (Up to 27,000 square feet at 30 mil). The prefabricated panel is accordion folded, rolled on a core, and delivered to the job site secured to a pallet. Prefabricated panels can often cover a small project with a single panel. Local labor forces are used to unroll and unfold the panels. Our entire primary field welding of liner is based on hot wedge welding technology. Field wedge welding Liner provides strong seams, and fast installations on large projects. Small welds and repairs can be completed with the Layfield Enviro Liner® welding kit.

9. Material Properties

19 Nov 2011	Series Typical Properties			
Style	**ASTM**	**20 mil**	**30 mil**	**40 mil**
Thickness (Nominal)	D5199	20 mil 0.50 mm	30 mil 0.75 mm	40 mil 1.0 mm
Tensile Strength at Break	D638	75 ppi 13.8 N/mm	114 ppi 21 N/mm	154 ppi 28.5 N/mm
Elongation	D638	800%	800%	800%
Tear Resistance	D1004	11 lbs 49 N	16 lbs 71 N	22 lbs 98 N
Puncture Resistance	D4833	30 lbs 130 N	45 lbs 200 N	60 lbs 270
Low Temperature Impact Resistance	D1790	-40°F -40°C	-40°F -40°C	-40°F -40°C
Dimensional Stability	D1204 Max Chng	<2.0%	<2.0%	<2.0%

10. Shop Seam Strengths

19 Nov 2011	Shop Seam Strengths			
Style	**ASTM**	**20 mil**	**30 mil**	**40 mil**
Heat Bonded Seam Strength	D6392 25.4 mm (1") Strip	25 ppi 4.4 N/mm	36 ppi 6.3 N/mm	48 ppi 8.4 N/mm
Heat Bonded Peel Adhesion Strength	D6392 25.4 mm (1") Strip	FTB 18 ppi 3.2 N/mm	FTB 29 ppi 5.1 N/mm	FTB 39 ppi 6.8 N/mm

GSE

The Pioneer of Geosynthetics

Product Data Sheet - OT

GSE 30 mil UltraFlex Smooth Geomembrane (Nominal)

GSE 30 mil UltraFlex is a smooth linear low density polyethylene (LLDPE) geomembrane manufactured with the highest quality resin specifically formulated for flexible geomembranes. This product is used in applications that require increased flexibility and elongation properties where differential or localized subgrade settlements may occur such as in a landfill closure application.

Product Specifications

TESTED PROPERTY	TEST METHOD	FREQUENCY	NOMINAL VALUE 30 mil
Thickness, (Nominal) mil (mm) with a tolerance +/- 10%	ASTM D 5199	every roll	27 (0.68)
Density, g/cm^3	ASTM D 1505	200,000 lb	0.92
Tensile Properties (each direction) Strength at Break, lb/in-width (N/mm) Elongation at Break, %	ASTM D 6693, Type IV Dumbell, 2 ipm G.L. 2.0 in (51 mm)	20,000 lb	 114 (20) 800
Tear Resistance, lb (N)	ASTM D 1004	45,000 lb	16 (70)
Puncture Resistance, lb (N)	ASTM D 4833	45,000 lb	42 (190)
Carbon Black Content(1), % (Range)	ASTM D 1603*/4218	20,000 lb	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lb	Note(1)
Oxidative Induction Time, min	ASTM D 3895, 200° C; O_2, 1 atm	200,000 lb	>140
TYPICAL ROLL DIMENSIONS			
Roll Length(2), ft (m)			1,120 (341)
Roll Width(2), ft (m)			22.5 (6.9)
Roll Area, ft^2 (m^2)			25,200 (2,341)

NOTES:

- (1)Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
- (2)Roll lengths and widths have a tolerance of ±1%.
- GSE UltraFlex is available in rolls weighing approximately 3,900 lb (1,769 kg).
- All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77° C when tested according to ASTM D 746.
- *Modified.

OTDSUF R02/15/10

GSE

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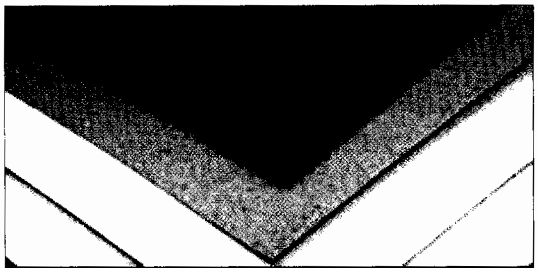
SINCE 1972

Technical Note

Chemical Resistance for Geomembrane Products



GSE geomembranes.

GSE geomembranes are made of high quality, virgin polyethylene which demonstrates excellent chemical resistance. GSE polyethylene geomembranes are resistant to a great number and combinations of chemicals. It is this property of (HDPE) high density polyethylene geomembranes that makes it the lining material of choice.

In order to gauge the durability of a material in contact with a chemical mixture, testing is required in which the material is exposed to the chemical environment in question. Chemical resistance testing is a very large and complex topic because of two factors. First, the number of specific media is virtually endless and second, there are many criteria such as tensile strength, hardness, etc. that may be used to assess a material's resistance to degradation.

The chemical resistance of polyethylene has been investigated by many people over the past few decades. We are able to draw from that work when making statements about the chemical resistance of today's polyethylene geomembranes. In addition to that, many tests have been performed that specifically use geomembranes and certain chemical mixtures. Naturally, however, every mixture of chemicals cannot be tested for. As a result of these factors, GSE published a chemical resistance chart, demonstrating general guidelines.

Polyethylene is, for practical purposes, considered impermeable. Be aware, however, that all materials are permeable to some extent. Permeability varies with concentration, temperature, pressure and type of permeant. The rates of permeation are usually so low, however, that they are insignificant. As a point of reference, polyethylene is commonly used for packaging of several types of materials. These include gasoline, motor oil, household cleaners (i.e. bleach), muratic acid, pesticides, insecticides, fungicides, and other highly concentrated chemicals. Also, you should be aware that there are some chemicals which may be absorbed by the material but only when present at very high concentrations. These include halogenated and/or aromatic hydrocarbons at greater than 50%; their absorption results in swelling and slight changes in physical properties such as increased tensile elongations. This includes many types of fuels and oils. Recognize that this action, however, does not affect the liner's ability to act as a barrier for the material it is containing.

Since polyethylene is a petroleum product, it can absorb other petroleum products. Like a sponge, the material becomes slightly thicker and more flexible but does not produce a hole or void. However, unlike a sponge, this absorption is not immediate. It takes a much longer time for a polyethylene liner to swell than it does for a sponge. The exact time it takes for swelling to occur depends on the particular constituents and concentrations of the contained media. However, a hole would not be produced. Also, this absorption is reversible and the material will essentially return to it's original state when the chemical is no longer in contact with the liner.

With regard to typical municipal landfills in the United States, legally allowable levels of chemicals have been demonstrated to have no adverse affect on polyethylene geomembrane performance. The very low levels of salts, metals and organic compounds do not damage polyethylene. A double-lined containment with a leachate (leak detection) removal system effectively prevents any significant, continuous exposure of the secondary membrane to these materials and for practical purposes makes the total liner system even more impermeable.

TNS ChemicalResistance R07/01/09

GSE

The Pioneer Of Geosynthetics

SINCE 1972

Chemical Resistance Chart

GSE is the world's leading supplier of high quality, polyethylene geomembranes. GSE polyethylene geomembranes are resistant to a great number and combinations of chemicals. Note that the effect of chemicals on any material is influenced by a number of variable factors such as temperature, concentration, exposed area and duration. Many tests have been performed that use geomembranes and certain specific chemical mixtures. Naturally, however, every mixture of chemicals cannot be tested for, and various criteria may be used to judge performance. Reported performance ratings may not apply to all applications of a given material in the same chemical. Therefore, these ratings are offered as a guide only.

Medium	Concentration	Resistance at: 20° C (68° F)	Resistance at: 60° C (140° F)
A			
Acetic acid	100%	S	L
Acetic acid	10%	S	S
Acetic acid anhydride	100%	S	L
Acetone	100%	L	L
Adipic acid	sat. sol.	S	S
Allyl alcohol	96%	S	S
Aluminum chloride	sat. sol.	S	S
Aluminum fluoride	sat. sol.	S	S
Aluminum sulfate	sat. sol.	S	S
Alum	sol.	S	S
Ammonia, aqueous	dil. sol.	S	S
Ammonia, gaseous dry	100%	S	S
Ammonia, liquid	100%	S	S
Ammonium chloride	sat. sol.	S	S
Ammonium fluoride	sol.	S	S
Ammonium nitrate	sat. sol.	S	S
Ammonium sulfate	sat. sol.	S	S
Ammonium sulfide	sol.	S	S
Amyl acetate	100%	S	L
Amyl alcohol	100%	S	L
Aniline	100%	S	L
Antimony trichloride	90%	S	S
Arsenic acid	sat. sol.	S	S
Aqua regia	HCI-HNO3	U	U
B			
Barium carbonate	sat. sol.	S	S
Barium chloride	sat. sol.	S	S
Barium hydroxide	sat. sol.	S	S
Barium sulfate	sat. sol.	S	S
Barium sulfide	sol.	S	S
Benzaldehyde	100%	S	L
Benzene	—	L	L
Benzoic acid	sat. sol.	S	S
Beer	—	S	S
Borax (sodium tetraborate)	sat. sol.	S	S
Boric acid	sat. sol.	S	S
Bromine, gaseous dry	100%	U	U
Bromine, liquid	100%	U	U
Butane, gaseous	100%	S	S
1-Butanol	100%	S	S
Butyric acid	100%	S	L
C			
Calcium carbonate	sat. sol.	S	S
Calcium chlorate	sat. sol.	S	S
Calcium chloride	sat. sol.	S	S
Calcium nitrate	sat. sol.	S	S
Calcium sulfate	sat. sol.	S	S
Calcium sulfide	dil. sol.	L	L
Carbon dioxide, gaseous dry	100%	S	S
Carbon disulfide	100%	L	U
Carbon monoxide	100%	S	S
Chloracetic acid	sol.	S	S
Carbon tetrachloride	100%	L	U
Chlorine, aqueous solution	sat. sol.	L	U
Chlorine, gaseous dry	100%	L	U
Chloroform	100%	U	U
Chromic acid	20%	S	L
Chromic acid	50%	S	L
Citric acid	sat. sol.	S	S
Copper chloride	sat. sol.	S	S
Copper nitrate	sat. sol.	S	S
Copper sulfate	sat. sol.	S	S
Cresylic acid	sat. sol.	L	—
Cyclohexanol	100%	S	S
Cyclohexanone	100%	S	L
D			
Decahydronaphthalene	100%	S	L
Dextrine	sol.	S	S
Diethyl ether	100%	L	—
Dioctylphthalate	100%	S	L
Dioxane	100%	S	S
E			
Ethanediol	100%	S	S
Ethanol	40%	S	L
Ethyl acetate	100%	S	U
Ethylene trichloride	100%	U	U
F			
Ferric chloride	sat. sol.	S	S
Ferric nitrate	sol.	S	S
Ferric sulfate	sat. sol.	S	S
Ferrous chloride	sat. sol.	S	S
Ferrous sulfate	sat. sol.	S	S
Fluorine, gaseous	100%	U	U
Fluorosilicic acid	40%	S	S
Formaldehyde	40%	S	S
Formic acid	50%	S	S
Formic acid	98-100%	S	S
Furfuryl alcohol	100%	S	L
G			
Gasoline	—	S	L
Glacial acetic acid	96%	S	L
Glucose	sat. sol.	S	S
Glycerine	100%	S	S
Glycol	sol.	S	S
H			
Heptane	100%	S	U
Hydrobromic acid	50%	S	S
Hydrobromic acid	100%	S	S
Hydrochloric acid	10%	S	S
Hydrochloric acid	35%	S	S
Hydrocyanic acid	10%	S	S
Hydrofluoric acid	4%	S	S
Hydrofluoric acid	60%	S	L
Hydrogen	100%	S	S
Hydrogen peroxide	30%	S	L
Hydrogen peroxide	90%	S	U
Hydrogen sulfide, gaseous	100%	S	S
Lactic acid	100%	S	S
Lead acetate	sat. sol.	S	—
M			
Magnesium carbonate	sat. sol.	S	S
Magnesium chloride	sat. sol.	S	S
Magnesium hydroxide	sat. sol.	S	S
Magnesium nitrate	sat. sol.	S	S
Maleic acid	sat. sol.	S	S
Mercuric chloride	sat. sol.	S	S
Mercuric cyanide	sat. sol.	S	S
Mercuric nitrate	sol.	S	S

-Continued-

Medium	Concentration	Resistance at: 20° C (68° F)	Resistance at: 60° C (140° F)
Mercury	100%	S	S
Methanol	100%	S	S
Methylene chloride	100%	L	—
Milk	—	S	S
Molasses	—	S	S
N			
Nickel chloride	sat. sol.	S	S
Nickel nitrate	sat. sol.	S	S
Nickel sulfate	sat. sol.	S	S
Nicotinic acid	dil. sol.	S	—
Nitric acid	25%	S	S
Nitric acid	50%	S	U
Nitric acid	75%	U	U
Nitric acid	100%	U	U
O			
Oils and Grease	—	S	L
Oleic acid	100%	S	L
Orthophosphoric acid	50%	S	S
Orthophosphoric acid	95%	S	L
Oxalic acid	sat. sol.	S	S
Oxygen	100%	S	L
Ozone	100%	L	U
P			
Petroleum (kerosene)	—	S	L
Phenol	sol.	S	S
Phosphorus trichloride	100%	S	L
Photographic developer	cust. conc.	S	S
Picric acid	sat. sol.	S	—
Potassium bicarbonate	sat. sol.	S	S
Potassium bisulfide	sol.	S	S
Potassium bromate	sat. sol.	S	S
Potassium bromide	sat. sol.	S	S
Potassium carbonate	sat. sol.	S	S
Potassium chlorate	sat. sol.	S	S
Potassium chloride	sat. sol.	S	S
Potassium chromate	sat. sol.	S	S
Potassium cyanide	sol.	S	S
Potassium dichromate	sat. sol.	S	S
Potassium ferricyanide	sat. sol.	S	S
Potassium ferrocyanide	sat. sol.	S	S
Potassium fluoride	sat. sol.	S	S
Potassium hydroxide	10%	S	S
Potassium hydroxide	sol.	S	S
Potassium hypochlorite	sol.	S	L
Potassium nitrate	sat. sol.	S	S
Potassium orthophosphate	sat. sol.	S	S
Potassium perchlorate	sat. sol.	S	S
Potassium permanganate	20%	S	S
Potassium persulfate	sat. sol.	S	S
Potassium sulfate	sat. sol.	S	S
Potassium sulfite	sol.	S	S
Propionic acid	50%	S	S
Propionic acid	100%	S	L
Pyridine	100%	S	L
Q			
Quinol (Hydroquinone)	sat. sol.	S	S
S			
Salicylic acid	sat. sol.	S	S

Medium	Concentration	Resistance at: 20° C (68° F)	Resistance at: 60° C (140° F)
Silver acetate	sat. sol.	S	S
Silver cyanide	sat. sol.	S	S
Silver nitrate	sat. sol.	S	S
Sodium benzoate	sat. sol.	S	S
Sodium bicarbonate	sat. sol.	S	S
Sodium biphosphate	sat. sol.	S	S
Sodium bisulfite	sol.	S	S
Sodium bromide	sat. sol.	S	S
Sodium carbonate	sat. sol.	S	S
Sodium chlorate	sat. sol.	S	S
Sodium chloride	sat. sol.	S	S
Sodium cyanide	sat. sol.	S	S
Sodium ferricyanide	sat. sol.	S	S
Sodium ferrocyanide	sat. sol.	S	S
Sodium fluoride	sat. sol.	S	S
Sodium hydroxide	40%	S	S
Sodium hydroxide	sat. sol.	S	S
Sodium hypochlorite	15% active chlorine	S	S
Sodium nitrate	sat. sol.	S	S
Sodium nitrite	sat. sol.	S	S
Sodium orthophosphate	sat. sol.	S	S
Sodium sulfate	sat. sol.	S	S
Sodium sulfide	sat. sol.	S	S
Sulfur dioxide, dry	100%	S	S
Sulfur trioxide	100%	U	U
Sulfuric acid	10%	S	S
Sulfuric acid	50%	S	S
Sulfuric acid	98%	S	U
Sulfuric acid	fuming	U	U
Sulfurous acid	30%	S	S
T			
Tannic acid	sol.	S	S
Tartaric acid	sol.	S	S
Thionyl chloride	100%	L	U
Toluene	100%	L	U
Triethylamine	sol.	S	L
U			
Urea	sol.	S	S
Urine	—	S	S
W			
Water	—	S	S
Wine vinegar	—	S	S
Wines and liquors	—	S	S
X			
Xylenes	100%	L	U
Y			
Yeast	sol.	S	S
Z			
Zinc carbonate	sat. sol.	S	S
Zinc chloride	sat. sol.	S	S
Zinc (II) chloride	sat. sol.	S	S
Zinc (IV) chloride	sat. sol.	S	S
Zinc oxide	sat. sol.	S	S
Zinc sulfate	sat. sol.	S	S

Specific immersion testing should be undertaken to ascertain the suitability of chemicals not listed above with reference to special requirements.

NOTES:

(S) **Satisfactory**: Liner material is resistant to the given reagent at the given concentration and temperature. No mechanical or chemical degradation is observed.

(L) **Limited Application Possible**: Liner material may reflect some attack. Factors such as concentration, pressure and temperature directly affect liner performance against the given media. Application, however, is possible under less severe conditions, e.g. lower concentration, secondary containment, additional liner protections, etc.

(U) **Unsatisfactory:** Liner material is not resistant to the given reagent at the given concentration and temperature. Mechanical and/or chemical degradation is observed.

(–) **Not tested**

sat. sol. = Saturated aqueous solution, prepared at 20°C (68°F)

sol. = aqueous solution with concentration above 10% but below saturation level

dil. sol. = diluted aqueous solution with concentration below 10%

cust. conc. = customary service concentration

Appendix SSI-3

- Atlantis system set-up procedures

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

Steps for setting a tank

Prejob checklist

Get site info

Company rep name

Check site for level and ground material make-up

Where are tank and accessories coming from, who is shipping?

Inventory needed on site day of tank install

Geo

Liner

Tank walls

Piping (and all bolts, washers, nuts required)

Ladders w/ fall arrestors

Plate stands with plates, pins and safety pins

Clamps

Tools needed

Trackhoe with operator

Boom truck or crane capable of reaching 7000 lbs at least 50 feet with operator

**On sites where acceptable – a 12,000 lb. telehandler with proper jig may be substituted for the crane/boom truck, (manbasket also recommended)

Genie boom – min. 30 foot reach

Laser level – for checking ground work prior to tank setup

Wrenches for tightening plumbing

Impact wrench for tightening clamps more quickly

Wrecking bar for prying/moving plates

Crowfoot bar for prying plates inserting pins

Heavy duty liner bar at least 80 gauge probably 120 gauge steel pipe

Marking paint and dispenser

300' tape measure

Set of four 20 foot long, min. 8,000 lb. capacity two straps for pulling out liner.

Poseidon Concepts

Tank setting Procedures

Use proper safety procedures for all steps. Hoisted loads must have tag lines, genie operators will be harnessed properly and anchored, and all required PPE will be worn at all times.

- Check pad for rocks, sharp objects, irregularities, proper suction pits.
  - Suction pits should be deeper in the center than toward the edge of the tank. This will prevent air from being trapped and the suction box floating.
  - Y-trenches should be no less than 8" and nor more than 18" deep.
- Unroll geo-fabric (rough/rocky pad may require two layers of geo)
  - Overlap at least 1 foot unless using a one-piece fabricated geo
    Start on the downwind side when using single rolls
  - Paint circle for tank walls on top of the geo
- Setting liner
  - Paint stop lines to indicate how far to pull liner.
  - Set picker to boom out so you can unroll the liner with the trackhoe
  - Use laborers to unfold liner to the stop lines.
  - Square the liner up, if needed.
  - Repeat procedure, if double lined.
  - Fold liner back to center to allow room to place tank walls
  - Paint a circle as a top-of-wall guide for pulling liner, trim outside that line so it will hang at least two feet outside of the tank.
  - At this point it is very helpful to fill your y-trenches to weight down the liner.
- Placing tank walls (with crane)
  - If using a crane or boom truck, position to start placing tank panels
  - Back truck with panels within reach of the crane or pack with the trackhoe.
  - With a 4-point hook, lift panel, swing into place.
  - Picker will set panel on ground and reposition hooks to a four-point lift using the slide arms on the panels to stand upright and position it on the circle painted on the geo.
  - If using a telehandler, hook up to the four inside angled pick points. Then pick and carry to desired starting point. You will need to measure and paint a center reference to make setting panels easier for the telehandler operator.
  - Trackhoe will need to use thumb to "hold" panel in place until the next panel is attached.
  - Repeat steps with next panel, connect with plates, pins and safety pins. Trackhoe may release panel at this point unless high wind conditions exist, then should hold for at least three panels.
  - After connecting each panel, a 3 foot wide length of geo will be placed and secured to protect the liner from the seams of the tank.
  - Continue these steps until tank walls are all in place. Do not connect the last panel until liner-pulling crew has entered the tank, do not make the connections on the last seam until ladders are in place and liner pull is nearing completion.
  - Connect final panel.
- Pulling liner
  - Worker inside the tank straps liner, and hands to genie workers. Genie workers pull the liner so that the pull line is at the top of the wall. Worker inside tank will make sure the liner is to the wall of the tank

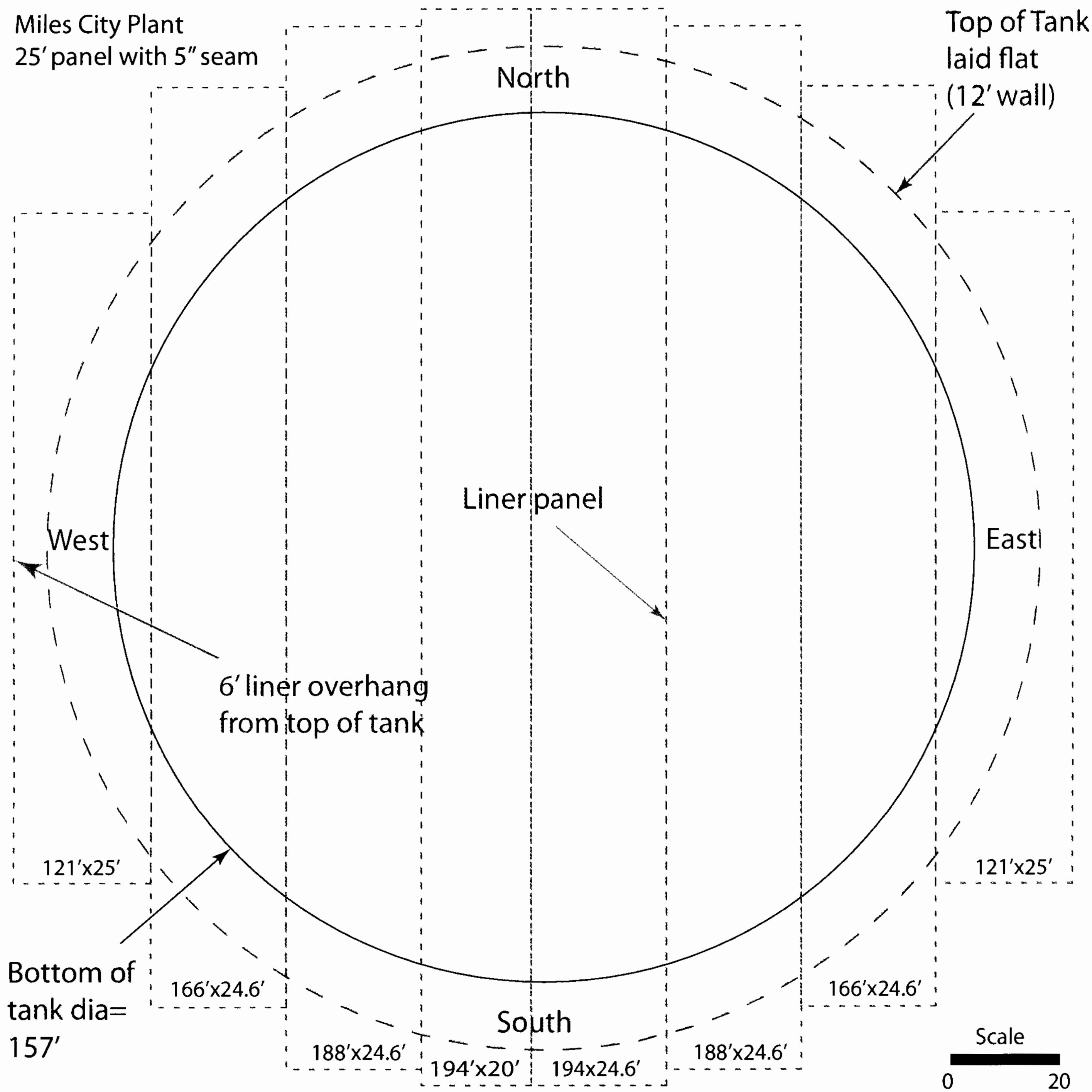
along the floor. Clamp the liner in place. (It is helpful in windy situations to be filling the tank as you are pulling liner to add weight and keep the wind from blowing it out.)

  - Continue procedure until the entire liner has been pulled over the wall and secured in place.
  - Clamps should be spaced and an adequate number put on the wall to minimize wind inside the tank behind the liner.
  - After liner is pulled and clamped, trim excess liner 2-3 feet outside of the tank. Trackhoe should clean up and prevent dispersion by covering with dirt, snow, etc.
- Assemble suction, piping and ladders and place over wall
  - Make sure all bolts, connections and clamps are securely fastened. Flexible suction needs to have TWO clamps on each end.
  - Place filler tubes and circulating pipes around tank as needed.
  - Leave all valves open to allow air to escape.
  - Make sure sure fall arrestors are in place and functional.
- Walk outside of tank, make sure all plates are in place, pins properly secured with safety pins in place.
- Check area for garbage, debris, tools, etc..

Appendix SSI-4

- Design diagram for liner seam orientation

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104



Miles City Plant
25′ panel with 5″ seam
Top of Tank
laid flat
(12′ wall)
North
Liner panel
West
East
6′ liner overhang
from top of tank
121′x25′
121′x25′
Bottom of
tank dia=
157′
166′x24.6′
166′x24.6′
188′x24.6′
188′x24.6′
South
194′x20′
194x24.6′
Scale
0
20

Appendix SSI-5

- Reclamation section for BLM APD

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

ECIAL DRILLING STIPULATION

THE FOLLOWING DATA IS REQUIRED ON THE WELL SIGN

OPERATOR'S NAME STRATA PRODUCTION COMPANY WELL NO. & NAME #29 NASH UNIT
LOCATION 1980' F S L & 2310' F E L SEC. 13 , T. 23S., R. 29E .
LEASE NO. NM-17589 COUNTY EDDY STATE NEW MEXICO

The special stipulations check marked below are applicable to the above described well and approval of this application to drill is conditioned upon compliance with such stipulations in addition to the General Requirements. The permittee should be familiar with the General Requirements, a copy of which is available from a Bureau of Land Management office. EACH PERMITTEE HAS THE RIGHT OF ADMINISTRATIVE APPEAL TO THESE STIPULATIONS PURSUANT TO TITLE 43 CFR 3165.3 and 3165.4.

This permit is valid for a period of one year from the date of approval or until lease expiration or termination whichever is shorter.

I. SPECIAL ENVIRONMENT REQUIREMENTS

( ) Lesser Prairie Chicken (Stips attached)
( ) San Simon Swale (Stips attached)
( ) Floodplain (Stips attached)
( ) Other

II. ON LEASE - SURFACE REQUIREMENTS PRIOR TO DRILLING

(✓) The BLM will monitor construction of this drill site. Notify the (✓) Carlsbad Resource Area Office at (505) 887-6544 ( ) Hobbs Office at (505) 393-3612, at least 3 working days prior to commencing construction.

(✓) Roads and the drill pad for this well must be surfaced with 6 inches of compacted caliche.

( ) All topsoil and vegetation encountered during the construction of the drill site area will be stockpiled and made available for resurfacing of the disturbed area after completion of the drilling operation. Topsoil on the subject location is approximately ____ inches in depth. Approximately ______ cubic yards of topsoil material will be stockpiled for reclamation.

( ) Other

III. WELL COMPLETION REQUIREMENTS

( ) A Communitization Agreement covering the acreage dedicated to the well must be filed for approval with the BLM. The effective date of the agreement must be prior to any sales.

(✓) Surface Restoration: If the well is a producer, the reserve pit(s) will be backfilled when dry, and cut-and-fill slopes will be reduced to a slope of 3:1 or less. All areas of the pad not necessary for production must be re-contoured to resemble the original contours of the surrounding terrain, and topsoil must be re-distributed and re-seeded with a drill equipped with a depth indicator (set at a depth of 1/2 inch) with the following seed mixture, in pounds of Pure Live Side (PLS), per acre.

( ) A. Seed Mixture 1 (Loamy Site)
Lehmanns Lovegrass (Eragrostis lehmanniana) 1.0
Side Oats Grass (Bouteloua curtipendula) 5.0
Sand Dropseed (Sporobolus cryptandrus) 1.0

( ) B. Seed Mixture 2 (Sandy Sites)
Sand Dropseed (Sporobolus cryptandrus) 1.0
Sand Lovegrass (Eragrostis trichodes) 1.0
Plains Bristlegrass (Setaria magrostachya) 2.0

( ) C. Seed Mixture 3 (Shallow Sites)
Sideoats Grama (Bouta curtipendula) 1.0
Lehmanns Lovegrass (Eragrostis lenmanniana) 1.0
or Boar Lovegrass (E. chloromalas)

(✓) D. Seed Mixture 4 ("Gyp" Sites)
Alkali Sacaton (Sporobolus airoides) 1.0
Four-Wing Saltbush (Atriplex canescens) 5.0

Seeding should be done either late in the fall (September 15 - November 15, before freeze up) or early as possible the following spring to take advantage of available ground moisture.

( ) Other

C. The reserve pit will be lined with a high quality plastic sheeting (5-7 mil thickness).

10. Plan for Restoration of the Surface:

A. Upon completion of the proposed operations, should the well be abandoned, the pit area, after allowed to dry, will be broken out and leveled. The original top soil will be returned to the entire location, and leveled and contoured to the original topography as nearly as possible.

All trash, garbage and pit lining will be removed in order to leave the location in an aesthetically pleasing condition. All pits will be filled and the location leveled within 120 days after abandonment.

B. The disturbed area will be revegetated by reseeding during the proper growing season with a seed mixture of native grasses as recommended by the BLM.

C. Three sides of the reserve pit will be fenced prior to and during drilling operations. At the time the rig is removed, the reserve pit will be fenced on the rig (fourth) side to prevent livestock or wildlife from being entrapped. The fencing will remain in place until the pit area is cleaned and leveled. No oil will be left on the surface of the fluid in the pit.

D. Upon completion of the proposed operations, should the well be productive, the reserve pit area will be treated as outlined above within the same prescribed time. The caliche from an area of the original drillsite not needed for production operations or facilities will be removed and used for construction of thicker pads or firewalls for the tank battery installation. Any additional caliche required for facilities will be obtained from a BLM approved caliche pit. Topsoil removed from the drillsite will be used to recontour the pit area and unused portions of the drill pad to the original natural level and reseeded as per BLM specifications.

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

March 15, 2013

Mr. Mike Bratcher
NMOCD District 2
811 South First Street
Artesia, New Mexico 88210

Mr. Brad Jones
NMOCD
1220 S. St. Francis Drive
Santa Fe, NM

RE: Nash Draw Unit #29 modular impoundment spill report. API No: 30-015-29434

Dear Sirs:

R.T. Hicks Consultants is pleased to submit the enclosed Form C-141 Release Notification and Correction Action on the behalf of XTO Energy.

The release from the modular impoundment was brought to our attention during the submittal of the C-144 Closure Report submitted to Mr. Bratcher, via email, on December 17, 2012.

We will revise the C-144 closure report to include results of the remediation plan that is the subject of this spill report. Included in the revision, per request of Mr. Jones, will be the inclusion of the entire C-144 permit application and correction to applicable dates and signatures.

We will submit the report to Mr. Jones with a copy to Mr. Bratcher. Both submittals will be delivered via certified mail/return receipt.

If you have any questions please contact me at 970-570-9535.

Sincerely,
R.T. Hicks Consultants
Durango Field Office

Andrew Parker

Andrew Parker

Cc: David Luna, XTO Energy, via email
Jennifer Van Curen, BLM - Carlsbad Field Office, via certified mail/return receipt

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., 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

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

[X] Initial Report ☐ Final Report

Name of Company XTO Energy, Inc	Contact David Luna
Address 200 N. Loraine, Suite 800 Midland, TX 79701	Telephone No. 432-620-6742
Facility Name Nash Unit #29	Facility Type Treated produced water modular impoundment

Surface Owner BLM	Mineral Owner	API No. 30-015-29434

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
J	13	23S	29E	1980	SOUTH	2310	EAST	EDDY

Latitude N 32.30322 **Longitude** W 103.93719

NATURE OF RELEASE

Type of Release Treated and non-treated produced water	Volume of Release < 5 bbls	Volume Recovered None
Source of Release Modular Impoundment - western edge	Date and Hour of Occurrence 8/27/12	Date and Hour of Discovery 8/27/12
Was Immediate Notice Given? ☐ Yes [X] No ☐ Not Required	If YES, To Whom? NA	
By Whom? NA	Date and Hour NA	
Was a Watercourse Reached? ☐ Yes [X] No	If YES, Volume Impacting the Watercourse. NA	

If a Watercourse was Impacted, Describe Fully.*

NA

Describe Cause of Problem and Remedial Action Taken.*

On August 27th, 2012 the modular impoundment liner detached from the top of the tank along the western edge releasing approximately 3 barrels of treated produced water. Mr. Randy Green of XTO Energy mobilized water haul trucks to the site and lowered the water level to prevent further leakage and reattached the liner to the top of the tank. The water was transferred to Nash Draw 49 H and Nash Draw Unit # 57 H. Soil sampling was conducted per C-144 closure requirements. The attached document presents the sampling results and proposes a remediation plan.

Describe Area Affected and Cleanup Action Taken.*

The release affected the southwest corner of the production pad, adjacent to the modular impoundment. The area of impact was approximately 15 X15 square feet. No cleanup action was taken due to limited access caused by the location of the modular impoundment along the edge of the production pad; beyond the modular impoundment heavy mesquite vegetation exists.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: David Luna	**OIL CONSERVATION DIVISION**	
Printed Name: David Luna	Approved by Environmental Specialist:	
Title: Operations Engineer	Approval Date:	Expiration Date:
E-mail Address: David_Luna@xtoenergy.com	Conditions of Approval:	Attached ☐
Date: 3/15/13 Phone: 432-620-6742		

* Attach Additional Sheets If Necessary

Soil Chemistry

On November 13, 2012, Hicks Consultants collected two 5-point soil samples on location for closure of the modular impoundment employed for hydraulic fracturing of five wells in 2012. On February 11, 2013 Hicks Consultants performed additional characterization to determine the vertical extent of chloride in soil near the western edge of the former modular impoundment, near the area of the reported release.

The location and chloride chemistry of the samples are presented on Plate 1. The chemistry is summarized in Table 1, below. Table 2 shows the lithology of the "Trench Sample". The laboratory certificate of analysis is attached.

The point samples for the Tank Composite and BG Composite were collected approximately two inches below the caliche pad/soil interface at a depth of approximately 1-foot. The Trench Sample consisted of discrete samples at 2, 4, and 6 foot depths.

Figure 1: Summary of soil chemistry

Sample ID	Date	Depth (ft)	Chloride mg/kg	EC uS/cm	Benzene mg/kg	BTEX mg/kg	TPH mg/kg	GRO/DRO mg/kg
NMAC 19.15.17.13.B(1).b			500 or background		0.2	50	2,500	500
Tank Composite	11/13/2012	1	7,500	NS	<0.49	ND	<20	<10
BG Composite	11/13/2012	1	3,000	NS	<0.49	ND	<20	<10
Trench Sample	2/11/2013	2	3,480	8,010	NS	NS	NS	NS
Trench Sample	2/11/2013	4	2,120	3,020	NS	NS	NS	NS
Trench Sample	2/11/2013	6	2,000	7,050	NS	NS	NS	NS

Notes
1. ND = non-detect
2 NS = not sampled

Figure 2: Lithology of Trench Sample

Depth (ft)	Description
0 - 1	Caliche pad
1 - 4	Top soil (loamy sand), dark brown, moist
4 - 6	Top soil, reddish brown, moist
6	Medim sand w/caliche, hard, brown, moist

Note: native hard caliche was observed below 6 feet.

The Tank Composite sample with a chloride concentration of 7,500 mg/kg indicates production activities have impacted the western half of the caliche pad. The BG Composite sample has a chloride concentration comparable to the Trench Sample at the 2 foot depth (3,480 mg/kg). Soil chloride concentrations at the Trench Sample that is within the area of the Tank Composite sample show chloride concentrations are decreasing with depth, from 3,480 mg/kg at 2 feet to 2,000 mg/kg at 6 feet and indicate that the majority of chloride impairment is limited to the production pad surface.

The chemistry and lithology of the Trench Sample suggests that:

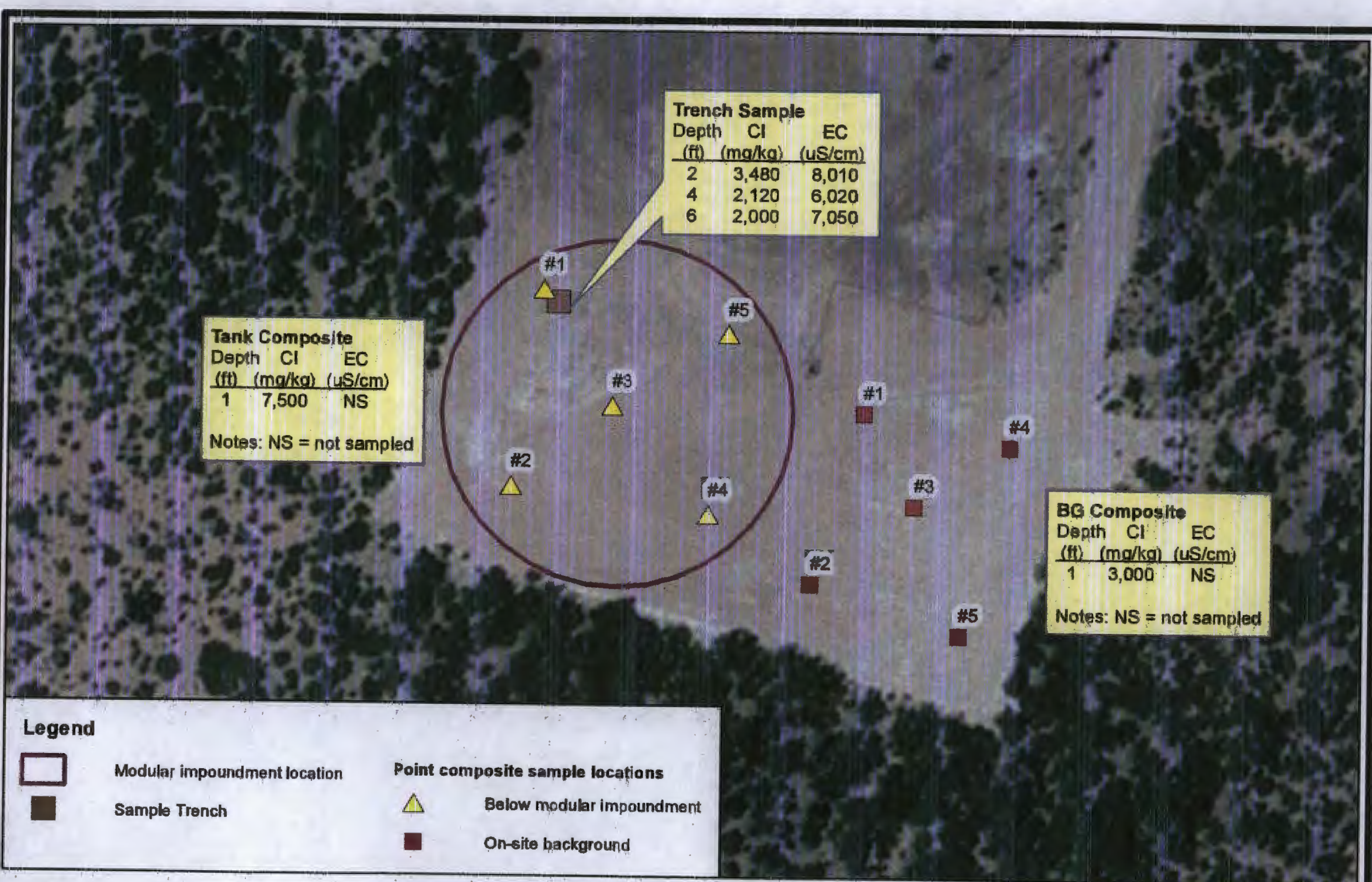
- the moist soil at a depth of 6 feet, which exhibits 2,000 mg/kg chloride, is likely impacted by shallow groundwater wicking up from the underlying brine groundwater zone,
- the moist soil near the surface (Trench Sample) is likely from recent precipitation events and past releases at the site, and
- soil at depths from 1 to 5 feet below surface have chloride and EC concentrations that will support vegetation. Re-vegetating the impacted area is included in the remediation plan and also satisfies BLM's request for interim reclamation.

The remediation plan is presented below.

Remediation Plan

XTO Energy proposes to excavate and dispose of the western third (30%) of the caliche pad that was in contact with the modular impoundment. The 30% area includes the release area and out beyond to the edge of the caliche pad. Plate 2 identifies the area proposed for remediation. The excavated material will be transported to R360 or equivalent for proper disposal.

The remediated area will be contoured and seeded using BLM Seed Mixture Type 4 with Giant Sacaton seed added to the mixture. The excavated area is also subject to BLM's interim reclamation plan.



N W E S

0 35 70 Feet

R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Chloride Concentrations in Soil

XTO Energy: Nash Unit 29
API: 30-015-29434

Plate 1

March 2013

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Reclamation Area	Plate 2
	XTO Energy: Nash Unit 29 API: 30-015-29434	March 2013

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 29, 2012

Andrew Parker
R.T. Hicks Consultants, LTD
901 Rio Grande Blvd. NW
Suite F-142
Albuquerque, NM 87104
TEL: (505) 266-5004
FAX (505) 266-0745

RE: XTO Energy Nash Unit 29 OrderNo.: 1211653

Dear Andrew Parker:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/14/2012 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Date Reported: **11/29/2012**

CLIENT: R.T. Hicks Consultants, LTD
Project: XTO Energy Nash Unit 29
Lab ID: 1211653-001 **Matrix:** SOIL

Client Sample ID: Tank Composite
Collection Date: 11/13/2012
Received Date: 11/14/2012 10:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/20/2012 6:22:22 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/20/2012 6:22:22 AM
Surr: DNOP	102	77.6-140		%REC	1	11/20/2012 6:22:22 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/16/2012 2:32:25 PM
Surr: BFB	108	84-116		%REC	1	11/16/2012 2:32:25 PM
EPA METHOD 300.0: ANIONS						Analyst: **JRR**
Chloride	7500	300		mg/Kg	200	11/20/2012 6:54:44 PM
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
Toluene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
Ethylbenzene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
Methyl tert-butyl ether (MTBE)	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
1,2,4-Trimethylbenzene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
1,3,5-Trimethylbenzene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
1,2-Dichloroethane (EDC)	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
1,2-Dibromoethane (EDB)	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
Naphthalene	ND	0.097		mg/Kg	1	11/21/2012 7:19:43 PM
1-Methylnaphthalene	ND	0.19		mg/Kg	1	11/21/2012 7:19:43 PM
2-Methylnaphthalene	ND	0.19		mg/Kg	1	11/21/2012 7:19:43 PM
Acetone	ND	0.73		mg/Kg	1	11/21/2012 7:19:43 PM
Bromobenzene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
Bromodichloromethane	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
Bromoform	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
Bromomethane	ND	0.15		mg/Kg	1	11/21/2012 7:19:43 PM
2-Butanone	ND	0.49		mg/Kg	1	11/21/2012 7:19:43 PM
Carbon disulfide	ND	0.49		mg/Kg	1	11/21/2012 7:19:43 PM
Carbon tetrachloride	ND	0.097		mg/Kg	1	11/21/2012 7:19:43 PM
Chlorobenzene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
Chloroethane	ND	0.097		mg/Kg	1	11/21/2012 7:19:43 PM
Chloroform	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
Chloromethane	ND	0.15		mg/Kg	1	11/21/2012 7:19:43 PM
2-Chlorotoluene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
4-Chlorotoluene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
cis-1,2-DCE	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
cis-1,3-Dichloropropene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
1,2-Dibromo-3-chloropropane	ND	0.097		mg/Kg	1	11/21/2012 7:19:43 PM
Dibromochloromethane	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
Dibromomethane	ND	0.097		mg/Kg	1	11/21/2012 7:19:43 PM
1,2-Dichlorobenzene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: Tank Composite
Project: XTO Energy Nash Unit 29
Collection Date: 11/13/2012
Lab ID: 1211653-001
Matrix: SOIL
Received Date: 11/14/2012 10:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
1,3-Dichlorobenzene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
1,4-Dichlorobenzene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
Dichlorodifluoromethane	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
1,1-Dichloroethane	ND	0.097		mg/Kg	1	11/21/2012 7:19:43 PM
1,1-Dichloroethene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
1,2-Dichloropropane	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
1,3-Dichloropropane	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
2,2-Dichloropropane	ND	0.097		mg/Kg	1	11/21/2012 7:19:43 PM
1,1-Dichloropropene	ND	0.097		mg/Kg	1	11/21/2012 7:19:43 PM
Hexachlorobutadiene	ND	0.097		mg/Kg	1	11/21/2012 7:19:43 PM
2-Hexanone	ND	0.49		mg/Kg	1	11/21/2012 7:19:43 PM
Isopropylbenzene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
4-Isopropyltoluene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
4-Methyl-2-pentanone	ND	0.49		mg/Kg	1	11/21/2012 7:19:43 PM
Methylene chloride	ND	0.15		mg/Kg	1	11/21/2012 7:19:43 PM
n-Butylbenzene	ND	0.15		mg/Kg	1	11/21/2012 7:19:43 PM
n-Propylbenzene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
sec-Butylbenzene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
Styrene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
tert-Butylbenzene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
1,1,1,2-Tetrachloroethane	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
1,1,2,2-Tetrachloroethane	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
Tetrachloroethene (PCE)	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
trans-1,2-DCE	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
trans-1,3-Dichloropropene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
1,2,3-Trichlorobenzene	ND	0.097		mg/Kg	1	11/21/2012 7:19:43 PM
1,2,4-Trichlorobenzene	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
1,1,1-Trichloroethane	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
1,1,2-Trichloroethane	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
Trichloroethene (TCE)	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
Trichlorofluoromethane	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
1,2,3-Trichloropropane	ND	0.097		mg/Kg	1	11/21/2012 7:19:43 PM
Vinyl chloride	ND	0.049		mg/Kg	1	11/21/2012 7:19:43 PM
Xylenes, Total	ND	0.097		mg/Kg	1	11/21/2012 7:19:43 PM
Surr: 1,2-Dichloroethane-d4	93.2	70-130		%REC	1	11/21/2012 7:19:43 PM
Surr: 4-Bromofluorobenzene	92.4	70-130		%REC	1	11/21/2012 7:19:43 PM
Surr: Dibromofluoromethane	90.7	70-130		%REC	1	11/21/2012 7:19:43 PM
Surr: Toluene-d8	101	70-130		%REC	1	11/21/2012 7:19:43 PM
EPA METHOD 418.1: TPH						Analyst: **LRW**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	11/21/2012

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Project: XTO Energy Nash Unit 29
Lab ID: 1211653-002 **Matrix:** SOIL

Client Sample ID: BG Composite
Collection Date: 11/13/2012
Received Date: 11/14/2012 10:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/20/2012 8:28:08 AM
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	11/20/2012 8:28:08 AM
Surr: DNOP	98.6	77.6-140		%REC	1	11/20/2012 8:28:08 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/16/2012 3:01:11 PM
Surr: BFB	101	84-116		%REC	1	11/16/2012 3:01:11 PM
EPA METHOD 300.0: ANIONS						Analyst: **JRR**
Chloride	3000	150		mg/Kg	100	11/20/2012 7:07:09 PM
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
Toluene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
Ethylbenzene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
Methyl tert-butyl ether (MTBE)	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
1,2,4-Trimethylbenzene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
1,3,5-Trimethylbenzene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
1,2-Dichloroethane (EDC)	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
1,2-Dibromoethane (EDB)	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
Naphthalene	ND	0.099		mg/Kg	1	11/21/2012 7:48:47 PM
1-Methylnaphthalene	ND	0.20		mg/Kg	1	11/21/2012 7:48:47 PM
2-Methylnaphthalene	ND	0.20		mg/Kg	1	11/21/2012 7:48:47 PM
Acetone	ND	0.74		mg/Kg	1	11/21/2012 7:48:47 PM
Bromobenzene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
Bromodichloromethane	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
Bromoform	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
Bromomethane	ND	0.15		mg/Kg	1	11/21/2012 7:48:47 PM
2-Butanone	ND	0.49		mg/Kg	1	11/21/2012 7:48:47 PM
Carbon disulfide	ND	0.49		mg/Kg	1	11/21/2012 7:48:47 PM
Carbon tetrachloride	ND	0.099		mg/Kg	1	11/21/2012 7:48:47 PM
Chlorobenzene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
Chloroethane	ND	0.099		mg/Kg	1	11/21/2012 7:48:47 PM
Chloroform	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
Chloromethane	ND	0.15		mg/Kg	1	11/21/2012 7:48:47 PM
2-Chlorotoluene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
4-Chlorotoluene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
cis-1,2-DCE	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
cis-1,3-Dichloropropene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
1,2-Dibromo-3-chloropropane	ND	0.099		mg/Kg	1	11/21/2012 7:48:47 PM
Dibromochloromethane	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
Dibromomethane	ND	0.099		mg/Kg	1	11/21/2012 7:48:47 PM
1,2-Dichlorobenzene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: BG Composite
Project: XTO Energy Nash Unit 29
Collection Date: 11/13/2012
Lab ID: 1211653-002
Matrix: SOIL
Received Date: 11/14/2012 10:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
1,3-Dichlorobenzene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
1,4-Dichlorobenzene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
Dichlorodifluoromethane	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
1,1-Dichloroethane	ND	0.099		mg/Kg	1	11/21/2012 7:48:47 PM
1,1-Dichloroethene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
1,2-Dichloropropane	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
1,3-Dichloropropane	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
2,2-Dichloropropane	ND	0.099		mg/Kg	1	11/21/2012 7:48:47 PM
1,1-Dichloropropene	ND	0.099		mg/Kg	1	11/21/2012 7:48:47 PM
Hexachlorobutadiene	ND	0.099		mg/Kg	1	11/21/2012 7:48:47 PM
2-Hexanone	ND	0.49		mg/Kg	1	11/21/2012 7:48:47 PM
Isopropylbenzene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
4-Isopropyltoluene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
4-Methyl-2-pentanone	ND	0.49		mg/Kg	1	11/21/2012 7:48:47 PM
Methylene chloride	ND	0.15		mg/Kg	1	11/21/2012 7:48:47 PM
n-Butylbenzene	ND	0.15		mg/Kg	1	11/21/2012 7:48:47 PM
n-Propylbenzene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
sec-Butylbenzene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
Styrene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
tert-Butylbenzene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
1,1,1,2-Tetrachloroethane	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
1,1,2,2-Tetrachloroethane	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
Tetrachloroethene (PCE)	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
trans-1,2-DCE	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
trans-1,3-Dichloropropene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
1,2,3-Trichlorobenzene	ND	0.099		mg/Kg	1	11/21/2012 7:48:47 PM
1,2,4-Trichlorobenzene	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
1,1,1-Trichloroethane	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
1,1,2-Trichloroethane	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
Trichloroethene (TCE)	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
Trichlorofluoromethane	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
1,2,3-Trichloropropane	ND	0.099		mg/Kg	1	11/21/2012 7:48:47 PM
Vinyl chloride	ND	0.049		mg/Kg	1	11/21/2012 7:48:47 PM
Xylenes, Total	ND	0.099		mg/Kg	1	11/21/2012 7:48:47 PM
Surr: 1,2-Dichloroethane-d4	94.2	70-130		%REC	1	11/21/2012 7:48:47 PM
Surr: 4-Bromofluorobenzene	87.7	70-130		%REC	1	11/21/2012 7:48:47 PM
Surr: Dibromofluoromethane	91.6	70-130		%REC	1	11/21/2012 7:48:47 PM
Surr: Toluene-d8	105	70-130		%REC	1	11/21/2012 7:48:47 PM
EPA METHOD 418.1: TPH						Analyst: **LRW**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	11/21/2012

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

WO#: **1211653**

Hall Environmental Analysis Laboratory, Inc.

29-Nov-12

Client: R.T. Hicks Consultants, LTD

Project: XTO Energy Nash Unit 29

Sample ID **MB-4894** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBS** Batch ID: **4894** RunNo: **7001**

Prep Date: **11/19/2012** Analysis Date: **11/19/2012** SeqNo: **202928** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID **LCS-4894** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSS** Batch ID: **4894** RunNo: **7001**

Prep Date: **11/19/2012** Analysis Date: **11/19/2012** SeqNo: **202929** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1211653**

29-Nov-12

Client: R.T. Hicks Consultants, LTD

Project: XTO Energy Nash Unit 29

Sample ID **MB-4901** SampType: **MBLK** TestCode: **EPA Method 418.1: TPH**
Client ID: **PBS** Batch ID: **4901** RunNo: **7021**
Prep Date: **11/19/2012** Analysis Date: **11/21/2012** SeqNo: **203589** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	20								

Sample ID **LCS-4901** SampType: **LCS** TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS** Batch ID: **4901** RunNo: **7021**
Prep Date: **11/19/2012** Analysis Date: **11/21/2012** SeqNo: **203590** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	100	20	100.0	0	104	80	120			

Sample ID **LCSD-4901** SampType: **LCSD** TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS02** Batch ID: **4901** RunNo: **7021**
Prep Date: **11/19/2012** Analysis Date: **11/21/2012** SeqNo: **203591** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	100.0	0	106	80	120	1.28	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1211653**

29-Nov-12

Client: R.T. Hicks Consultants, LTD
Project: XTO Energy Nash Unit 29

Sample ID **MB-4900** SampType: **MBLK** TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **PBS** Batch ID: **4900** RunNo: **6989**
Prep Date: **11/19/2012** Analysis Date: **11/20/2012** SeqNo: **202423** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.9		10.00		98.8	77.6	140			

Sample ID **LCS-4900** SampType: **LCS** TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **4900** RunNo: **6989**
Prep Date: **11/19/2012** Analysis Date: **11/20/2012** SeqNo: **202424** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	10	50.00	0	102	47.4	122			
Surr: DNOP	4.0		5.000		80.2	77.6	140			

Sample ID **1211653-001AMS** SampType: **MS** TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **Tank Composite** Batch ID: **4900** RunNo: **6989**
Prep Date: **11/19/2012** Analysis Date: **11/20/2012** SeqNo: **202426** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	10	50.97	0	106	12.6	148			
Surr: DNOP	4.8		5.097		94.6	77.6	140			

Sample ID **1211653-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **Tank Composite** Batch ID: **4900** RunNo: **6989**
Prep Date: **11/19/2012** Analysis Date: **11/20/2012** SeqNo: **202569** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	53	10	51.18	0	104	12.6	148	0.773	22.5	
Surr: DNOP	5.1		5.118		98.8	77.6	140	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1211653**

29-Nov-12

Client: R.T. Hicks Consultants, LTD

Project: XTO Energy Nash Unit 29

Sample ID **MB-4851** SampType: **MBLK** TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **PBS** Batch ID: **4851** RunNo: **6951**
Prep Date: **11/15/2012** Analysis Date: **11/16/2012** SeqNo: **202014** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	990		1000		99.3	84	116			

Sample ID **LCS-4851** SampType: **LCS** TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **LCSS** Batch ID: **4851** RunNo: **6951**
Prep Date: **11/15/2012** Analysis Date: **11/16/2012** SeqNo: **202015** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.3	74	117			
Surr: BFB	1000		1000		104	84	116			

Sample ID **1211653-001AMS** SampType: **MS** TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **Tank Composite** Batch ID: **4851** RunNo: **6951**
Prep Date: **11/15/2012** Analysis Date: **11/16/2012** SeqNo: **202020** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	4.9	24.63	0	118	70	130			
Surr: BFB	1100		985.2		109	84	116			

Sample ID **1211653-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **Tank Composite** Batch ID: **4851** RunNo: **6951**
Prep Date: **11/15/2012** Analysis Date: **11/16/2012** SeqNo: **202021** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	5.0	24.75	0	118	70	130	0.0876	22.1	
Surr: BFB	1100		990.1		109	84	116	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

WO#: 1211653

Hall Environmental Analysis Laboratory, Inc.

29-Nov-12

Client: R.T. Hicks Consultants, LTD
Project: XTO Energy Nash Unit 29

Sample ID **mb-4851** SampType: **MBLK** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBS** Batch ID: **4851** RunNo: **7060**
Prep Date: **11/15/2012** Analysis Date: **11/21/2012** SeqNo: **204634** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.10								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.10								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.10								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1211653

29-Nov-12

Client: R.T. Hicks Consultants, LTD

Project: XTO Energy Nash Unit 29

Sample ID **mb-4851**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**	
Client ID: **PBS**	Batch ID: **4851**	RunNo: **7060**	
Prep Date: **11/15/2012**	Analysis Date: **11/21/2012**	SeqNo: **204634**	Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		93.2	70	130			
Surr: 4-Bromofluorobenzene	0.45		0.5000		89.4	70	130			
Surr: Dibromofluoromethane	0.46		0.5000		92.3	70	130			
Surr: Toluene-d8	0.52		0.5000		103	70	130			

Sample ID **lcs-4851**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**	
Client ID: **LCSS**	Batch ID: **4851**	RunNo: **7060**	
Prep Date: **11/15/2012**	Analysis Date: **11/21/2012**	SeqNo: **204635**	Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.050	1.000	0	101	70	130			
Toluene	1.1	0.050	1.000	0	108	80	120			
Chlorobenzene	1.0	0.050	1.000	0	101	70	130			
1,1-Dichloroethene	1.1	0.050	1.000	0	110	74	124			
Trichloroethene (TCE)	0.88	0.050	1.000	0	87.9	70	130			
Surr: 1,2-Dichloroethane-d4	0.48		0.5000		96.4	70	130			
Surr: 4-Bromofluorobenzene	0.43		0.5000		86.1	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1211653**

29-Nov-12

Client: R.T. Hicks Consultants, LTD

Project: XTO Energy Nash Unit 29

Sample ID **lcs-4851** SampType: **LCS** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSS** Batch ID: **4851** RunNo: **7060**
Prep Date: **11/15/2012** Analysis Date: **11/21/2012** SeqNo: **204635** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	0.47		0.5000		93.7	70	130			
Surr: Toluene-d8	0.51		0.5000		103	70	130			

Sample ID **1211653-002ams** SampType: **MS** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **BG Composite** Batch ID: **4851** RunNo: **7060**
Prep Date: **11/15/2012** Analysis Date: **11/21/2012** SeqNo: **204638** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.049	0.9804	0	92.9	80.9	118			
Toluene	0.95	0.049	0.9804	0	97.4	69.5	119			
Chlorobenzene	0.87	0.049	0.9804	0	88.9	75.7	115			
1,1-Dichloroethene	0.99	0.049	0.9804	0.01122	100	68.6	126			
Trichloroethene (TCE)	0.81	0.049	0.9804	0	82.4	68.7	115			
Surr: 1,2-Dichloroethane-d4	0.47		0.4902		96.4	70	130			
Surr: 4-Bromofluorobenzene	0.42		0.4902		85.6	70	130			
Surr: Dibromofluoromethane	0.47		0.4902		95.4	70	130			
Surr: Toluene-d8	0.50		0.4902		102	70	130			

Sample ID **1211653-002amsd** SampType: **MSD** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **BG Composite** Batch ID: **4851** RunNo: **7060**
Prep Date: **11/15/2012** Analysis Date: **11/21/2012** SeqNo: **204639** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.049	0.9891	0	93.3	80.9	118	1.30	20	
Toluene	0.98	0.049	0.9891	0	98.8	69.5	119	2.28	20	
Chlorobenzene	0.88	0.049	0.9891	0	89.3	75.7	115	1.32	20	
1,1-Dichloroethene	1.0	0.049	0.9891	0.01122	99.6	68.6	126	0.357	24.8	
Trichloroethene (TCE)	0.82	0.049	0.9891	0	83.3	68.7	115	1.99	20	
Surr: 1,2-Dichloroethane-d4	0.47		0.4946		95.9	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.41		0.4946		83.4	70	130	0	0	
Surr: Dibromofluoromethane	0.48		0.4946		96.6	70	130	0	0	
Surr: Toluene-d8	0.51		0.4946		104	70	130	0	0	

Sample ID **mb-4881** SampType: **MBLK** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBS** Batch ID: **4881** RunNo: **7060**
Prep Date: **11/19/2012** Analysis Date: **11/21/2012** SeqNo: **204640** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		93.5	70	130			
Surr: 4-Bromofluorobenzene	0.44		0.5000		88.8	70	130			
Surr: Dibromofluoromethane	0.46		0.5000		92.1	70	130			
Surr: Toluene-d8	0.51		0.5000		103	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

WO#: **1211653**

Hall Environmental Analysis Laboratory, Inc.

29-Nov-12

Client: R.T. Hicks Consultants, LTD
Project: XTO Energy Nash Unit 29

Sample ID **lcs-4881** SampType: **LCS** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSS** Batch ID: **4881** RunNo: **7060**
Prep Date: **11/19/2012** Analysis Date: **11/21/2012** SeqNo: **204641** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		94.6	70	130			
Surr: 4-Bromofluorobenzene	0.45		0.5000		89.1	70	130			
Surr: Dibromofluoromethane	0.46		0.5000		92.8	70	130			
Surr: Toluene-d8	0.53		0.5000		106	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name:	RT HICKS	Work Order Number: 1211653	
Received by/date:	MG 11/14/12		
Logged By:	Anne Thorne	11/14/2012 10:50:00 AM	Ann Thorne
Completed By:	Anne Thorne	11/19/2012	Ann Thorne
Reviewed By:	A 11/19/12		

Chain of Custody

1. Were seals intact? — Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? — Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? — Client

Log In

4. Coolers are present? (see 19. for cooler specific information) — Yes ☐ No ☐ NA ☑
5. Was an attempt made to cool the samples? — Yes ☑ No ☐ NA ☐
6. Were all samples received at a temperature of >0° C to 6.0°C — Yes ☑ No ☐ NA ☐
7. Sample(s) in proper container(s)? — Yes ☑ No ☐
8. Sufficient sample volume for indicated test(s)? — Yes ☑ No ☐
9. Are samples (except VOA and ONG) properly preserved? — Yes ☑ No ☐
10. Was preservative added to bottles? — Yes ☐ No ☑ NA ☐
11. VOA vials have zero headspace? — Yes ☐ No ☐ No VOA Vials ☑
12. Were any sample containers received broken? — Yes ☐ No ☑
13. Does paperwork match bottle labels? — Yes ☑ No ☐
    (Note discrepancies on chain of custody)
14. Are matrices correctly identified on Chain of Custody? — Yes ☑ No ☐
15. Is it clear what analyses were requested? — Yes ☑ No ☐
16. Were all holding times able to be met? — Yes ☑ No ☐
    (If no, notify customer for authorization.)

# of preserved bottles checked for pH: ______ (<2 or >12 unless noted)
Adjusted? ______
Checked by: ______

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? — Yes ☐ No ☐ NA ☑

Person Notified: ______ Date ______
By Whom: ______ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: ______
Client Instructions: ______

18. Additional remarks:

19. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Not Present			

Chain-of-Custody Record

Client: R.T. Hicks Consultants

Mailing Address: on file

Phone #: 505.266.5004

email or Fax#: andrew@rthicksconsult.com

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other ______

☐ EDD (Type) ______

Turn-Around Time:
☒ Standard ☐ Rush ______

Project Name: XTO Energy Nash Unit #29

Project #:

Project Manager: Andrew Packer

Sampler: Andrew Packer

[illegible]

Sample [illegible]

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. [illegible]	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO$_3$, NO$_2$, PO$_4$, SO$_4$) 300.1	8081 Pesticides / 8082 PCB's	8260B ~~(VOA)~~	8270 (Semi-VOA)					Air Bubbles (Y or N)
11.13.12	1254	soil	tank # 1 @ 8"	4oz glass	ice																	
"	1256	"	tank # 2 @ 8"	"	"																	
"	1259	"	tank # 3 @ 8"	"	"																	
"	1303	"	tank # 4 @ 8"	"	"																	
"	1305	"	tank # 5 @ 8"	"	"																	
"	1311	"	BG # 1 @ 8"	"	"																	
"	1314	"	BG # 2 @ 8"	"	"																	
"	1317	"	BG # 3 @ 8"	"	"																	
"	1325	"	BG # 4 @ 8"	"	"																	
"	1327	"	BG # 5 @ 8"	"	"																	
"			Tank composite *			-001			X	X				X		X						
			BG composite **			-002			X	X				X		X						

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/14	10.50	[signature]	[signature]	11/14/12	10:50
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:
* Do not analyze point samples tank #1 - #5
** Do not analyze point samples BG #1 → 5
Lab composite Tank #1-5; Lab composite BG #1-5

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

February 18, 2013

ANDREW PARKER

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: XTO NASH UNIT 29

Enclosed are the results of analyses for samples received by the laboratory on 02/13/13 7:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

R T HICKS CONSULTANTS
ANDREW PARKER
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

Received:	02/13/2013	Sampling Date:	02/11/2013
Reported:	02/18/2013	Sampling Type:	Soil
Project Name:	XTO NASH UNIT 29	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	UNIT 'J', SEC. 13, T23S, R29E		

Sample ID: SAMPLE TRENCH @ 2' BGS (H300404-01)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3480**	16.0	02/18/2013	ND	448	112	400	0.00	

Conductivity 120.1 **uS/cm** **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Conductivity*	**8010**	1.00	02/15/2013		476	95.2	500	0.752	

Sample ID: SAMPLE TRENCH @ 4' BGS (H300404-02)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2120**	16.0	02/18/2013	ND	416	104	400	3.77	

Conductivity 120.1 **uS/cm** **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Conductivity*	**6020**	1.00	02/15/2013		476	95.2	500	0.752	

Sample ID: SAMPLE TRENCH @ 6' BGS (H300404-03)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2000**	16.0	02/18/2013	ND	416	104	400	3.77	

Conductivity 120.1 **uS/cm** **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Conductivity*	**7050**	1.00	02/15/2013		476	95.2	500	0.752	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

Cardinal Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: R.T. Hicks Consultants
Project Manager: Andrew Parker
Address:
City: State: Zip:
Phone #: Fax #:
Project #: Project Owner: Murchison
Project Name: XTO Nash Unit 29
Project Location: Unit 'J', Sec. 13, T23S, R29E
Sampler Name: Kristin Pope

BILL TO
P.O. #:
Company: R.T. Hicks
Attn:
Address:
City:
State: Zip:
Phone #:
Fax #:

Lab I.D. (FOR LAB USE ONLY)	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME	Cl-	EC
H300404																
1	Sample trench @ 2' BGS	X	1			X							2.11.13	0840	X	X
2	Sample trench @ 4' BGS	X	1			X							"	0842	X	X
3	Sample trench @ 6' BGS	X	1			X							"	0850	X	X

(Matrix: GROUNDWATER through OTHER; Preserv: ACID/BASE through OTHER; Sampling: DATE, TIME; Analysis Request: Cl-, EC)

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. [illegible]

Relinquished By: Kristin Pope
Date: 2.13.13
Time: 0900
Received By: [illegible signature]

Relinquished By:
Date:
Time:
Received By:

Delivered By: (Circle One)
Sampler - UPS - Bus - Other:

Sample Condition
Cool: ☑ Yes ☐ No
Intact: ☑ Yes ☐ No

CHECKED BY: (Initials) KP

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:
email analyses to:
andrew@rthicksconsult.com
kristin@ "

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

5.5° #26

R. T. Hicks Consultants, Ltd.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

January 28, 2013

Mr. Brad Jones
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

RE: Closure Report for Part 34 Use Permit for Treating Produced Water using CleanWave™ Technology.
- Operator: XTO Energy
- Location: Nash Unit #4. (API No. 30-015-21777)
  Sec 13, T23S, R29E, Unit A

Dear Mr. Jones:

R.T. Hicks consultants is pleased to submit this Closure Report for the above referenced location on the behalf of XTO Energy. Closure activities were performed in accordance with the approved letter application dated May 22, 2012 (Appendix A). The location of the CleanWave system is shown on Plate 1.

On June 20th, 2012, XTO Energy began sending treated water from Halliburton's CleanWave system, located at Nash Unit #4, to the Poseidon Modular Impoundment (Poseidon tank) located at Nash Unit #29. On June 25, 2012, the first well, Nash Unit 39H, was fractured using treated water. On September 26, 2012, the last well, Nash Unit 49, was fractured using treated water. The transfer completion date, in lieu of rig release date, was October 5, 2012.

Closure activities for the CleanWave system began on October 5, 2012. All remaining fluid in the CleanWave System was sent to the Poseidon modular impoundment for fracturing the last well. Residual sludge in the CleanWave System was removed for proper disposal. Operation logs for the CleanWave system are presented in Appendix B and indicate no releases of treated produced water occurred at the location of the Haliburton CleanWave System.

On December 11, 2012, after the remaining CleanWave system was removed off location, we mobilized to the location and restored the surface to pre-existing conditions. Approximately ten gallons of unused filtration granules (Figure 1, Appendix C) were removed from the surface prior to surface restoration. We observed no additional evidence of a release from the CleanWave system.

Using a backhoe, we removed containment berms and graded the site to match surrounding and existing grade. The caliche from the containment berms were re-used to reinforce existing containment berms on location. Figures 2 through 4 show location restoration activities to pre-existing conditions.

Please contact Andrew Parker at 970-570-9535 if you have any questions or comments.

Sincerely,
R.T. Hicks Consultants
Durango Field Office

Andrew Parker (AP) 2/28/2013

Andrew Parker

Copy: David Luna, XTO Energy (via email)
Donald Martinez, State Land Office (via email)

PLATES

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Location of CleanWave System	Plate 1
	XTO Energy: Halliburton CleanWave Closure Report Nash Unit #4	January 2013

APPENDIX A

Susana Martinez
Governor

John Bemis
Cabinet Secretary

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

Jami Bailey
Division Director
Oil Conservation Division

May 23, 2012

David Luna
XTO Energy, Inc.
200 N. Loraine, Ste. 800
Midland, Texas 79705

RE: Request For Temporary Approval To Treat, Store And Use Produced Water
EPWM-010
XTO Energy, Inc.
Location: Unit A, Section 13, Township 23 South, Range 29 East, NMPM
Eddy County, New Mexico

Dear Mr. Luna:

The Oil Conservation Division (OCD) has reviewed XTO Energy, Inc's (XTO) request, dated May 22, 2012, to treat produced water utilizing Halliburton Energy Services, Inc.'s (HESI) CleanWave™ water treatment technology, and to temporarily store the treated produced water onsite in existing above-grade tanks, prior to transport via a pipeline to a centralized storage location for distribution and reuse for six scheduled hydraulic fracturing operations. Based upon the information provided in the May 22, 2012 request, OCD understands that this project is expected to take approximately 120 days.

This request is hereby approved with the following understandings and conditions:

1. XTO shall comply with all applicable requirements of the Produced Water Rule (19.15.34 NMAC), the Oil and Gas Act (Chapter 70, Article 2 NMSA 1978), and all conditions specified in this temporary approval and shall operate and close the project in accordance with the May 22, 2012 request;

2. XTO shall store, treat, and use produced water only as proposed in its May 22, 2012 request. XTO shall submit a modification request and obtain OCD's approval prior to the installation of additional tanks or other structures within the boundaries of the facility, initiating any changes in the storage, treatment, or use of the produced water (treated or untreated), or the disposition of any unused produced water;

3. XTO shall locate the mobile HESI CleanWave™ water treatment system onto XTO's Nash Unit #4 (API 30-015-21777) well pad within Unit A of Section 13, Township 23 South, Range 29 East, NMPM, Eddy County, New Mexico;

4. XTO shall only store, treat, and use produced water from tank battery associated with XTO's Nash 53 SWD (API 30-015-39400), located within Unit H of Section 13, Township 23 South, Range 29 East, NMPM, Eddy County, New Mexico. XTO shall submit a modification request and obtain OCD's approval prior to switching to a new source of the produced water for treatment;

5. XTO shall ensure that the HESI CleanWave™ water treatment system is properly operated and monitored to prevent unauthorized releases;

6. XTO will transport the treated produced water to an off-site centralized collection impoundment, located on XTO's Nash Draw Unit #29 well pad within Unit J of Section 13, Township 23 South, Range 29 East, NMPM, Eddy County, New Mexico, for distribution and reuse for six scheduled hydraulic fracturing operations as identified in the May 22, 2012 request.

7. <u>XTO shall obtain a separate permit from OCD for the off-site impoundment prior to transporting treated produced water via the pipeline</u>;

8. XTO shall report all unauthorized discharges, spills, leaks, and releases of produced water or other oil field waste pursuant to 19.15.29 NMAC;

9. XTO shall <u>not</u> manage any oil field waste at the produced water treatment site on the ground in pits, ponds, below-grade tanks or land application units without an OCD approved permit;

10. XTO shall not discharge any treated or untreated produced water on the ground, to ground water, or into any surface water body;

11. XTO shall ensure that liquid oil field waste (e.g. sludge) and produced water (treated or untreated) is transported using an OCD permitted (C-133 Authorization to Move Produced Water) hauler;

12. XTO shall dispose of its solid and semi-solid oil field waste, including, but not limited to, sludge, flocculants, treatment filters, membranes, *etc.*, at R360 Permian Basin, LLC's Surface Waste Management Facility (NM1-006/R-9166) as proposed in its May 22, 2012 request. XTO shall retain records (OCD Form C-138) documenting all oil field waste removed from the site. The records shall indicate the facility name and permit number of the OCD approved facility in which the oil field waste is disposed;

13. XTO shall dispose of any unused, treated or untreated produced water at XTO's Nash 53 SWD (API 30-015-39400);

14. XTO shall restore the impacted surface area to the condition that existed prior to initiating the approved operations and complete the closure activities, including the submittal of a closure report, as proposed in its May 22, 2012 request; and

15. XTO shall submit a report of the volumes of produced water diverted (treated and used) in barrels to the OCD's Environmental Bureau within 30 days after the project is completed.

OCD understands that the above approved activities will occur sometime during the period of June 2012 through October 2012. **This temporary approval shall expire May 23, 2013.** Temporary approval may be revoked or suspended for violation of any applicable provisions and/or conditions. OCD may administratively modify this temporary approval at any time, if it determines that an emergency exists requiring emergency response operations to abate immediate threats to fresh water, public health, and the environment.

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

If there are any questions regarding this matter, please do not hesitate to contact Mr. Brad A. Jones of my staff at (505) 476-3487 or brad.a.jones@state.nm.us.

Sincerely,

Jami Bailey
Director

JB/baj

cc: OCD District II Office, Artesia

APPENDIX B

Appendix B
Table B-2

Date:	6/4/2012		**Report Number:**	1
			Unit Number:	8

Client:	XTO		Shift Onsite Time:	NA	am/pm
Location:	NASH		Shift Offsite Time:	NA	am/pm
Site Contact:	BO JACKSON		System Run Time:	1	Total hrs.
Site Contact:			Present Onsite Activities:	Treating Produced Water	

RIG UP

Processing Hrs Today:	1 hrs	**Cumulative Processing Hrs:**	1 hrs
BBLS Processed Today:	1 bbls	**Cumulative BBLS Processed:**	1 bbls
BBLS/Hr Processed:	**1**	**Cumulative BBLS/Hr Processed:**	**1.0 bbl/hr**

Lead Operator:	Paul Worley
Crew:	
Visitors:	
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
NA		NA	NA	NA
NA		NA	NA	NA
NA		NA	NA	NA
NA		NA	NA	NA
NA		NA	NA	NA
NA		NA	NA	NA

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	0	0	YES
Sodium Hydroxide	0	0	0	YES

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	OXY

NO

Additional Comments

MOVED EQUIPMENT TO LOCATION... CUSTOMER SAID IT WOULD TAKE 3 DAYS BEFORE HE COULD HAVE ANY WATER FOR US TO PROCESS.

Date:	6/5/2012	**Report Number:**	2
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	7:00 AM	am/pm
Location:	Nash 29	Shift Offsite Time:	4:00 PM	am/pm
Site Contact:	Bo Jackson	System Run Time:		Total hrs.
Site Contact:		Present Onsite Activities:	Rig Up Equipment	

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	0 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	0 bbls
BBLS/Hr Processed:	**#DIV/0!**	**Cumulative BBLS/Hr Processed:**	**#DIV/0!**

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	
	Kevin Wilson
	Special Service hands
Visitors:	Bo Wells
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
06:00				
08:00				
10:00				
12:00				
14:00				
16:00				

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,000	4,000	NO
Sodium Hydroxide	0	3,800	3,800	NO

Were there any abnormal operational issues onsite?

None

Are there any additional supplies/equipment needed? If so, what items and when?

2 frac tanks will be delivered to location tomorrow.

Have there been any changes to the current schedule, including volumes needed by client?

Poseidon tank will be delivered to location possible end of the week. Could be a days delay with rig up.

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

N/A

Additional Comments

Rigged up Halliburton equipment along with 2 ea. weir tanks. Will complete rig up when the 2 frac tanks arrives tomorrow. Need to contact the electricians to complete the wiring from transformers to units. Will return to location tomorrow AM to complete rigging up equipment.

Date:	6/6/2012	**Report Number:**	3	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	7:00 AM	am/pm
Location:	Nash 29	Shift Offsite Time:	6:00 PM	am/pm
Site Contact:	Bo Jackson	System Run Time:		Total hrs.
Site Contact:		Present Onsite Activities:	Rig Up Equipment	

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	0 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	0 bbls
BBLS/Hr Processed:	**#DIV/0!**	**Cumulative BBLS/Hr Processed:**	**#DIV/0!**

Lead Supervisor:	Paul Worley
Lead Operator	Chad Edwards
Crew	Kevin Wilson
	Reginald White S.S.
	Reginald Neal S.S.
	Christopher Perry S.S.
	John Larson S.S.
Visitors:	Bo Wells
Visitors:	Bo Jackson
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
06:00				
08:00				
10:00				
12:00				
14:00				
16:00				

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	2,000	2,000	NO
Sodium Hydroxide	0	3,800	3,800	NO

Were there any abnormal operational issues onsite?

None

Are there any additional supplies/equipment needed? If so, what items and when?

settling tanks arrived around 5:30 pm

Have there been any changes to the current schedule, including volumes needed by client?

Poseidon tank will be delivered to location possible end of the week. Could be a days delay with rig up.

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

Arrived on location at 8:00 am, completed and reviewed JSA..... Continued riggiing up Halliburton equipment along with weir tanks, called Basic energy asked about settling tanks they are still looking for some.Called electrician and told him what all to bring to location and he said he was on his way.Called to confirm Acid and Caustic delivery in the morning.they will be here around 6:00 am. Frac tanks for settling tanks

Appendix B
Table B-2

Date:	6/7/2012	**Report Number:**	4
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00 AM	am/pm
Location:	Nash 29	Shift Offsite Time:	6:00 PM	am/pm
Site Contact:	Bo Jackson	System Run Time:		Total hrs.
Site Contact:		Present Onsite Activities:	Rig Up Equipment	

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	0 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	0 bbls
BBLS/Hr Processed:	**#DIV/0!**	**Cumulative BBLS/Hr Processed:**	**#DIV/0!**

Lead Supervisor:	Paul Worley
Lead Operator	Chad Edwards
Crew	Reginald White S.S.
	Reginald Neal S.S.
	Christopher Perry S.S.
Visitors:	Bo Wells
Visitors:	Bo Jackson
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
06:00				
08:00				
10:00				
12:00				
14:00				
16:00				

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	2,000	2,000	NO
Sodium Hydroxide	0	3,800	3,800	NO

Were there any abnormal operational issues onsite?
None

Are there any additional supplies/equipment needed? If so, what items and when?
None

Have there been any changes to the current schedule, including volumes needed by client?
Poseidon tank will be delivered to location possibly on Tuesday after the permits are approved.

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

Arrived on location at 6:00 am, completed and reviewed JSA..... We recieved both settling tanks and rigged them up..... We also had electrician finish electrical and checked rotation on all equipment .. We recieved the acid from reagent around 2:00 PM. We are completly rigged up and waiting on caustic to arrive in the morning and start processing water... Took samples of the dirty water and am very confident

Date:	6/7/2012	**Report Number:**	4	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	8:00 AM	am/pm
Location:	Nash 29	Shift Offsite Time:	12:00 PM	am/pm
Site Contact:	Bo Jackson	System Run Time:		Total hrs.
Site Contact:		Present Onsite Activities:	Rig Up Equipment	

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	0 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	0 bbls
BBLS/Hr Processed:	**#DIV/0!**	**Cumulative BBLS/Hr Processed:**	**#DIV/0!**

Lead Supervisor:	Paul Worley
Lead Operator	Chad Edwards
Crew	Reginald White S.S.
	Reginald Neal S.S.
	Christopher Perry S.S.
Visitors:	
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
06:00				
08:00				
10:00				
12:00				
14:00				
16:00				

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	2,000	2,000	NO
Sodium Hydroxide	0	3,800	3,800	NO

Were there any abnormal operational issues onsite?

None

Are there any additional supplies/equipment needed? If so, what items and when?

None

Have there been any changes to the current schedule, including volumes needed by client?

Poseidon tank will be delivered to location possibly on Saturday after the permits are approved.

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

Arrived on location at 700 am, completed and reviewed JSA..... We finished cleaning up and getting ready to process water. We also waited for caustic and got a call from caustic driver; he said he had some trouble and would not arrive until late Friday evening, I told him to call me when he got his 10 hour break and I would meet him at store on the way to location..Went ahead and released everyone until Monday morning.

Appendix B
Table B-2

Date:	6/9/2012	**Report Number:**	5
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	4:00 AM	am/pm
Location:	Nash 29	Shift Offsite Time:	2:00 PM	am/pm
Site Contact:	Bo Jackson	System Run Time:	7	Total hrs.
Site Contact:		Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	7 hrs	**Cumulative Processing Hrs:**	7 hrs
BBLS Processed Today:	2,908 bbls	**Cumulative BBLS Processed:**	2,908 bbls
BBLS/Hr Processed:	**415.4285714**	**Cumulative BBLS/Hr Processed:**	**415.4 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	

Readings:	flow back	Volts/Amps	pH	Turbidity
06:00		110	6.73	0.134
08:00		110	6.54	0.765
10:00		110	6.85	0.443
12:00		110	6.52	0.691
14:00		110	6.91	0.346
16:00				

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	140	1,900	1,760	NO
Sodium Hydroxide	190	2,500	2,310	NO

Visitors:	BO JACKSON
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

None

Are there any additional supplies/equipment needed? If so, what items and when?

None

Have there been any changes to the current schedule, including volumes needed by client?

Poseidon tank did not show up today but want to get a head start on the frac.... Water was looking very clean.

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

Arrived on location at 3:00 am, completed and reviewed JSA..... Driver with Brentag called me at 1:30 am said he had his 10 hour break. Driver arrived on locstion at 4:45.... Caustic was unloaded and I started filling settling and weir tanks around 7:00 am .made a couple of adjustments to the Caustic and water was looking great .... So I kept running the water and made a couple of adjustments to the acid and

Appendix B
Table B-2

Date:	6/10/2012		**Report Number:**	6
			Unit Number:	8

Client:	XTO		Shift Onsite Time:	4:00 AM	am/pm
Location:	Nash 29		Shift Offsite Time:	1:00 PM	am/pm
Site Contact:	Bo Jackson		System Run Time:	6	Total hrs.
Site Contact:	Paul Worley		Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	6 hrs	**Cumulative Processing Hrs:**	13 hrs
BBLS Processed Today:	2,544 bbls	**Cumulative BBLS Processed:**	5,452 bbls
BBLS/Hr Processed:	**424**	**Cumulative BBLS/Hr Processed:**	**419.4 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	
Visitors:	BO JACKSON
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
06:00		120	7.24	1.3
08:00		120	6.68	0.876
10:00		120	6.93	0.557
12:00		120	6.88	0.942
14:00				
16:00				

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	175	1,900	1,725	NO
Sodium Hydroxide	220	2,500	2,280	NO

Were there any abnormal operational issues onsite?

None

Are there any additional supplies/equipment needed? If so, what items and when?

None

Have there been any changes to the current schedule, including volumes needed by client?

Poseidon tank is suppose to be here Wednesday or Thursday of next week.

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

N/A

Additional Comments

Arrived on location at 3:40 am, Completed and reviewed JSA. ... Started processing water at around 4:30 am made several adjustments to caustic ,acid and EC Cells.. The water looked good and clear when sample was taken and after it sat for a few minutes had a slight yellow tint to it.... Tried adjusting chemicals and polarity on cells but yellow tint still came back.. There is a lot of salt in the water and the PH was around

Date:	6/11/2012		**Report Number:**	7
			Unit Number:	8

Client:	XTO	Shift Onsite Time:	N/A	am/pm
Location:	Nash 29	Shift Offsite Time:	N/A	am/pm
Site Contact:	Bo Jackson	System Run Time:	0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	13 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	5,452 bbls
BBLS/Hr Processed:	**#DIV/0!**	**Cumulative BBLS/Hr Processed:**	**419.4 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	
Visitors:	BO JACKSON
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
06:00				
08:00				
10:00				
12:00				
14:00				
16:00				

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	1,725	1,725	NO
Sodium Hydroxide	0	2,280	2,280	NO

Were there any abnormal operational issues onsite?

None

Are there any additional supplies/equipment needed? If so, what items and when?

None

Have there been any changes to the current schedule, including volumes needed by client?

Poseidon tank is suppose to be here Wednesday or Thursday of next week.

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

N/A

Additional Comments

All tanks are full ,waiting on poseidon tanks.

Appendix B
Table B-2

Date:	6/12/2012	**Report Number:**	7	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	N/A	am/pm
Location:	Nash 29	Shift Offsite Time:	N/A	am/pm
Site Contact:	Bo Jackson	System Run Time:	0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	13 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	5,452 bbls
BBLS/Hr Processed:	**#DIV/0!**	**Cumulative BBLS/Hr Processed:**	**419.4 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	
Visitors:	BO JACKSON
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
06:00				
08:00				
10:00				
12:00				
14:00				
16:00				

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	1,725	1,725	NO
Sodium Hydroxide	0	2,280	2,280	NO

Were there any abnormal operational issues onsite?

None

Are there any additional supplies/equipment needed? If so, what items and when?

None

Have there been any changes to the current schedule, including volumes needed by client?

Poseidon tank is suppose to be here Wednesday or Thursday of next week.

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

All tanks are full ,waiting on Poseidon tanks.. Filled all dirty tanks Bo Jackson showed me where to get more water to fill dirty tanks and I filled them using pumps on different locations.

Date:	6/13/2012	Report Number:	8
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	N/A	am/pm
Location:	Nash 29	Shift Offsite Time:	N/A	am/pm
Site Contact:	Bo Jackson	System Run Time:	0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	0 hrs	Cumulative Processing Hrs:	13 hrs
BBLS Processed Today:	0 bbls	Cumulative BBLS Processed:	5,452 bbls
BBLS/Hr Processed:	#DIV/0!	Cumulative BBLS/Hr Processed:	419.4 bbl/hr

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	
Visitors:	BO JACKSON
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
06:00				
08:00				
10:00				
12:00				
14:00				
16:00				

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	1,725	1,725	NO
Sodium Hydroxide	0	2,280	2,280	NO

Were there any abnormal operational issues onsite?

None

Are there any additional supplies/equipment needed? If so, what items and when?

None

Have there been any changes to the current schedule, including volumes needed by client?

Poseidon tank is suppose to be here anytime now.

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

All tanks are full ,waiting on Poseidon tank............Called customer and let him know I was on location this morning everything wass good and offered my services while I was on location... Bo Jackson said that all is good,

Date:	6/14/2012	Report Number:	9
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	N/A	am/pm
Location:	Nash 29	Shift Offsite Time:	N/A	am/pm
Site Contact:	Bo Jackson	System Run Time:	0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	0 hrs	Cumulative Processing Hrs:	13 hrs
BBLS Processed Today:	0 bbls	Cumulative BBLS Processed:	5,452 bbls
BBLS/Hr Processed:	#DIV/0!	Cumulative BBLS/Hr Processed:	419.4 bbl/hr

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	
Visitors:	
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
06:00				
08:00				
10:00				
12:00				
14:00				
16:00				

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	1,725	1,725	NO
Sodium Hydroxide	0	2,280	2,280	NO

Were there any abnormal operational issues onsite?

None

Are there any additional supplies/equipment needed? If so, what items and when?

None

Have there been any changes to the current schedule, including volumes needed by client?

Poseidon tank is suppose to be here maybe on Monday.

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

N/A

Additional Comments

All tanks are full ,waiting on Poseidon tank..

Date:	6/15/2012

Report Number:	10
Unit Number:	8

STAND BY WAITING ON TANK

Client:	XTO
Location:	Nash 29
Site Contact:	Bo Jackson
Site Contact:	Paul Worley

Shift Onsite Time:	N/A	am/pm
Shift Offsite Time:	N/A	am/pm
System Run Time:	0	Total hrs.
Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	0 hrs
BBLS Processed Today:	0 bbls
BBLS/Hr Processed:	#DIV/0!

Cumulative Processing Hrs:	13 hrs
Cumulative BBLS Processed:	5,452 bbls
Cumulative BBLS/Hr Processed:	419.4 bbl/hr

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	

Readings:	flow back	Volts/Amps	pH	Turbidity
06:00				
08:00				
10:00				
12:00				
14:00				
16:00				

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	1,725	1,725	NO
Sodium Hydroxide	0	2,280	2,280	NO

Visitors:	
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

None

Are there any additional supplies/equipment needed? If so, what items and when?

None

Have there been any changes to the current schedule, including volumes needed by client?

Poseidon tank is suppose to be here maybe on Monday.

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*		XTO

N/A

Additional Comments

All tanks are full ,waiting on Poseidon tank..

Date:	6/16/2012	Report Number:	11
		Unit Number:	8

STAND BY WAITING ON TANK

Client:	XTO	Shift Onsite Time:	N/A	am/pm
Location:	Nash 29	Shift Offsite Time:	N/A	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	0 hrs	Cumulative Processing Hrs:	13 hrs
BBLS Processed Today:	0 bbls	Cumulative BBLS Processed:	5,452 bbls
BBLS/Hr Processed:	#DIV/0!	Cumulative BBLS/Hr Processed:	419.4 bbl/hr

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	
Visitors:	
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
06:00				
08:00				
10:00				
12:00				
14.00				
16:00				

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	1,725	1,725	NO
Sodium Hydroxide	0	2,280	2,280	NO

Were there any abnormal operational issues onsite?

None

Are there any additional supplies/equipment needed? If so, what items and when?

None

Have there been any changes to the current schedule, including volumes needed by client?

Poseidon tank is suppose to be here on Monday and we are suppose to start filling it on Monday afternoon.

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*		XTO

N/A

Additional Comments

All tanks are full ,waiting on Poseidon tank..

Date:	6/17/2012

Report Number:	12
Unit Number:	8

STAND BY WAITING ON TANK

Client:	XTO
Location:	Nash 29
Site Contact:	Bo Jackson
Site Contact:	Paul Worley

Shift Onsite Time:	N/A	am/pm
Shift Offsite Time:	N/A	am/pm
	0	Total hrs.
Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	0 hrs
BBLS Processed Today:	0 bbls
BBLS/Hr Processed:	#DIV/0!

Cumulative Processing Hrs:	13 hrs
Cumulative BBLS Processed:	5,452 bbls
Cumulative BBLS/Hr Processed:	419.4 bbl/hr

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	

Readings:	flow back	Volts/Amps	pH	Turbidity
06:00				
08:00				
10:00				
12:00				
14:00				
16:00				

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	1,725	1,725	NO
Sodium Hydroxide	0	2,280	2,280	NO

Visitors:	
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

None

Are there any additional supplies/equipment needed? If so, what items and when?

None

Have there been any changes to the current schedule, including volumes needed by client?

Poseidon tank should arrive on Monday.

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

N/A

Additional Comments

All tanks are full ,waiting on Poseidon tank..

Date:	6/18/2012	**Report Number:**	13
		Unit Number:	8

STAND BY WAITING ON TANK

Client:	XTO	Shift Onsite Time:	N/A	am/pm
Location:	Nash 29	Shift Offsite Time:	N/A	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	13 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	5,452 bbls
BBLS/Hr Processed:	**#DIV/0!**	**Cumulative BBLS/Hr Processed:**	**419.4 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	Ken Erler
Crew	Adam Pollard
Visitors:	
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
06:00				
08:00				
10:00				
12:00				
14:00				
16:00				

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	1,725	1,725	NO
Sodium Hydroxide	0	2,280	2,280	NO

Were there any abnormal operational issues onsite?

None

Are there any additional supplies/equipment needed? If so, what items and when?

None

Have there been any changes to the current schedule, including volumes needed by client?

Poseidon tank arrived around 3:00 PM and we waited until 8:00,walls were not up yet.

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

N/A

Additional Comments

All tanks are full ,waiting on Poseidon tank to be installed.

Date:	6/19/2012		**Report Number:**	14
			Unit Number:	8

STAND BY WAITING ON TANK

Client:	XTO		Shift Onsite Time:	6:00	am/pm
Location:	Nash 29		Shift Offsite Time:	N/A	am/pm
e Contact:	Bo Jackson			0	Total hrs.
e Contact:	Paul Worley		esent Onsite Activities:	PROCESS WATER	

rocessing Hrs Today	0	hrs	**Cumulative Processing Hrs:**	13	hrs
BLS Processed Toda	0	bbls	**Cumulative BBLS Processed:**	5,452	bbls
BBLS/Hr Processed:	**#DIV/0!**		**Cumulative BBLS/Hr Processed:**	**419.4**	**bbl/hr**

Supervisor:	Paul Worley
d Operator	Adam Pollard
Crew	
Visitors:	
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
06:00				
08:00				
10:00				
12:00				
14:00				
16:00				

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	1,725	1,725	NO
Sodium Hydro	0	2,280	2,280	NO

Were there any abnormal operational issues onsite?

None

Are there any additional supplies/equipment needed? If so, what items and when?

None

Have there been any changes to the current schedule, including volumes needed by client?

Waiting on Poseidon tank to be completely

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

N/A

Additional Comments

All tanks are full ,waiting on Poseidon tank to be complete

Date:	6/20/2012	Report Number:	15
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	5:00	am/pm
Location:	Nash 29	Shift Offsite Time:	9:00 PM	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	0 hrs	Cumulative Processing Hrs:	13 hrs
BBLS Processed Today:	0 bbls	Cumulative BBLS Processed:	5,452 bbls
BBLS/Hr Processed:	#DIV/0!	Cumulative BBLS/Hr Processed:	419.4 bbl/hr

Lead Supervisor:	Paul Worley
Lead Operator	Adam Pollard
Crew	
Visitors:	BO JACKSON
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
06:00				
08:00				
10:00				
12:00				
14:00				
16:00				

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	1,725	1,725	YES
Sodium Hydroxide	0	2,280	2,280	YES

Were there any abnormal operational issues onsite?

YES.... TRIED PUMPING TO MAIN CLEAN TANK AND PRESSURED UP ON LINES TOO FAR TO PUMP WITH OUR PUMP... CALLED BO JACKSON AND HE HOOKED UP ANOTHER PUMP.

Are there any additional supplies/equipment needed? If so, what items and when?

YES FITTINGS FOR 6500 GAL.ACID AND CAUSTIC TANKS.

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

N/A

Additional Comments

ARRIVED ON LOCATION AT 5:00 AM REVIEWED JSA WAITED ON POSEIDON TANK.. FINALLY READY FOR WATER BUT OUR PUMP WOULD NOT PUSH WATER THAT FAR... WAITED TO HOOK UP OTHER PUMP.. XTO CALLED OUT ELECTRICIAN AND HOOKED UP BIG PUMP COMING OFF OF CLEAN TANKS.

Date:	6/21/2012	Report Number:	16
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	5:30	am/pm
Location:	Nash 29	Shift Offsite Time:	5:00 PM	am/pm
Site Contact:	Bo Jackson		9	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	9 hrs	Cumulative Processing Hrs:	13 hrs
BBLS Processed Today:	3,828 bbls	Cumulative BBLS Processed:	5,452 bbls
BBLS/Hr Processed:	**425.3333333**	Cumulative BBLS/Hr Processed:	**419.4 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	Adam Pollard
Crew	Ken Erler
Visitors:	BO JACKSON
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
07:30		100	7.23	1.36
09:30		100	6.98	1.23
11:30		100	6.43	1.05
13:30		100	6.23	0.98
15:30		100	6.76	1.31
16:30		100	6.81	1.03

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	213	1,725	1,512	YES
Sodium Hydroxide	295	2,280	1,985	YES

Were there any abnormal operational issues onsite?
NO

Are there any additional supplies/equipment needed? If so, what items and when?
NO

Have there been any changes to the current schedule, including volumes needed by client?
NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

ARRIVED AT LOCATION AT 5:30 AM. COMPLETED AND REVIEWED JSA. STARTED PROCESSING WATER TO FILL THE CLEAN TANKS. EVERYTHING WENT VERY WELL WITH US ONLY HAVING TO MAKE MINOR ADJUSTMENTS TO THE CAUSTIC AND ACID. ALL THE CLEAN TANKS ARE FULL.

Date:	6/22/2012	**Report Number:**	17
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	5:30	am/pm
Location:	Nash 29	Shift Offsite Time:	12:00 AM	am/pm
Site Contact:	Bo Jackson		11	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	11 hrs	**Cumulative Processing Hrs:**	33 hrs
BBLS Processed Today:	3,555 bbls	**Cumulative BBLS Processed:**	12,835 bbls
BBLS/Hr Processed:	**323.1818182**	**Cumulative BBLS/Hr Processed:**	**388.9 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	Adam Pollard
Crew	Ken Erler
	Ray Lee
	Eddy McGruder
Visitors:	BO JACKSON
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
07:30		100	6.57	1.63
09:30		100	6.87	1.87
11:30		100	6.43	1.19
13:30		100	7.02	1.98
15:30		100	7.1	1.32
16:30		100	6.79	1.27

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	197	1,512	1,315	YES
Sodium Hydroxide	262	1,985	1,723	YES

Were there any abnormal operational issues onsite?

HAD TO REPLACE ACID PUMP

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

ARRIVED ON LOCATION AT 5:30 AM. COMPLETED AND REVIEWED JSA. STARTED PROCESSING WATER. HAD SMALL PROBLEM WITH ACID PUMP SHUTTING DOWN THROUGH OUT THE DAY, SO WE HAD TO CHANGE IT OUT. OTHER THEN THAT EVERYTHING WENT GOOD. WE HAD TO MAKE SMALL ADJUSTMENTS TO THE CAUSTIC AND ACID THROUGH OUT THE DAY.

Date:	6/23/2012	**Report Number:**	18
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	5:00	am/pm
Location:	Nash 29	Shift Offsite Time:	5:00 AM	am/pm
Site Contact:	Bo Jackson		23	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	23 hrs	**Cumulative Processing Hrs:**	56 hrs
BBLS Processed Today:	7,541 bbls	**Cumulative BBLS Processed:**	20,376 bbls
BBLS/Hr Processed:	**327.8695652**	**Cumulative BBLS/Hr Processed:**	**363.9 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	Adam Pollard
Crew	Ken Erler
	Ray Lee
	Eddy McGruder
Visitors:	BO JACKSON
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
07:00		100	7.23	1.98
13:00		100	6.97	1.76
19:00		100	6.72	1.56
23:00		100	7.15	1.87
2:00		100	6.45	1.45
4:00		100	6.81	1.51

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	416	1,315	899	YES
Sodium Hydroxide	590	1,723	1,133	YES

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

ARRIVED AT LOCATION AT 5:00 AM. COMPLETED AND REVIEWED JSA. STARTED PROCESSING WATER TO FILL THE CLEAN TANKS. EVERYTHING WENT VERY WELL WITH US ONLY HAVING TO MAKE MINOR ADJUSTMENTS TO THE CAUSTIC AND ACID. WE RAN ALL NIGHT TO MAKE SURE WE HAD ENOUGH WATER.

Date:	6/24/2012	**Report Number:**	19
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	5:00	am/pm
Location:	Nash 29	Shift Offsite Time:	1:30 PM	am/pm
Site Contact:	Bo Jackson		8	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	8 hrs	**Cumulative Processing Hrs:**	64 hrs
BBLS Processed Today:	3,806 bbls	**Cumulative BBLS Processed:**	24,182 bbls
BBLS/Hr Processed:	**475.75**	**Cumulative BBLS/Hr Processed:**	**377.8 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	Adam Pollard
Crew	Ken Erler
	Ray Lee
	Eddy McGruder
Visitors:	BO JACKSON
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
07:00		100	6.89	1.89
09:00		100	7.03	1.45
11:00		100	7.09	1.76
13:00		100	6.97	1.94
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	213	899	686	YES
Sodium Hydroxide	295	1,133	838	YES

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

ARRIVED AT LOCATION AT 5:00 AM. COMPLETED AND REVIEWED JSA. STARTED PROCESSING WATER TO FILL THE CLEAN TANKS. EVERYTHING WENT VERY WELL. WE ONLY MADE MINOR ADJUSTMENTS TO THE CAUSTIC AND ACID.

Date:	6/25/2012
Report Number:	20
Unit Number:	8

Client:	XTO
Location:	Nash 29
Site Contact:	Bo Jackson
Site Contact:	Paul Worley

Shift Onsite Time:	6:00	am/pm
Shift Offsite Time:	5:00 PM	am/pm
	11	Total hrs.
Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	4 hrs
BBLS Processed Today:	1,450 bbls
BBLS/Hr Processed:	**362.5**

Cumulative Processing Hrs:	75 hrs
Cumulative BBLS Processed:	25,632 bbls
Cumulative BBLS/Hr Processed:	**341.8 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	Adam Pollard
Crew	Ken Erler
	Ray Lee
	Eddy McGruder

Readings:	flow back	Volts/Amps	pH	Turbidity
07:00		100	6.97	1.67
09:00		100	7.13	1.89
11:00		100	6.89	1.45
12:30		100	6.57	1.72
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	115	5,686	5,571	RECEIVED 5000 GALS
Sodium Hydroxide	150	220	70	YES

Visitors:	BO JACKSON
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?
NO

Are there any additional supplies/equipment needed? If so, what items and when?
NO

Have there been any changes to the current schedule, including volumes needed by client?
NO

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*		XTO

N/A

Additional Comments

WE ARRIVED AT LOCATION AT 6:00 AM. COMPLETED AND REVIEWED JSA. INSTALLED CLEANED CELLS AND STARTED PROCESSING WATER. MADE SMALL ADJUSTMENTS TO THE CAUSTIC AND ACID. TOMORROW WE HAVE SCHEDULED A SLUDGE PULL. WE ALSO RECEIVED 5,000 GALLONS OF ACID AND ARE EXPECTING A LOAD OF CAUSTIC TOMORROW. EVERYTHING WENT VERY WELL TODAY.

Date:	6/26/2012		**Report Number:**	21
			Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00	am/pm
Location:	Nash 29	Shift Offsite Time:	5:00 PM	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

MAINTENANCE

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	75 hrs
BBLS Processed Today:	1,450 bbls	**Cumulative BBLS Processed:**	25,632 bbls
BBLS/Hr Processed:	**#DIV/0!**	**Cumulative BBLS/Hr Processed:**	**341.8 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	

Readings:	flow back	Volts/Amps	pH	Turbidity
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,686	5,686	CEIVED 5000 GA
Sodium Hydroxide	0	1,000	1,000	YES

Visitors:	BO JACKSON
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

WE ARRIVED AT LOCATION AT 6:00 AM. COMPLETED AND REVIEWED ,PULLED SLUDGE RECEIVED CAUSTIC AND DRAINED ALL LINES.... THERE WAS ALMOST 12,000 BBLS LEFT IN STORAGE TANK...EVERYTHING WENT VERY WELL TODAY.

Appendix B
Table B-2

Date:	6/27/2012

Report Number:	22
Unit Number:	8

Client:	XTO
Location:	Nash 29
Site Contact:	Bo Jackson
Site Contact:	Paul Worley

Shift Onsite Time:	6:00	am/pm
Shift Offsite Time:	5:00 PM	am/pm
	0	Total hrs.
Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	0 hrs
BBLS Processed Today:	1,450 bbls
BBLS/Hr Processed:	#DIV/0!

Cumulative Processing Hrs:	75 hrs
Cumulative BBLS Processed:	25,632 bbls
Cumulative BBLS/Hr Processed:	341.8 bbl/hr

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	

Readings:	flow back	Volts/Amps	pH	Turbidity
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,686	5,686	CEIVED 5000 GA
Sodium Hydroxide	0	1,000	1,000	YES

Visitors:	BO JACKSON
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		Company:	XTO

N/A

Additional Comments

ARRIVED ON LOCATION AT 7:00 AM CHECKED ALL VALVES AND TANKS INCLUDING POSIEDON TANK ..EVERYTHING LOOKED GOOD.........BASIC WAS HAULING CLEANED WATER TO FRAC JOB.

Appendix B
Table B-2

Date:	6/28/2012	**Report Number:**	23
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	N/A	am/pm
Location:	Nash 29	Shift Offsite Time:	N/A	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

STAND BY

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	75 hrs
BBLS Processed Today:	1,450 bbls	**Cumulative BBLS Processed:**	25,632 bbls
BBLS/Hr Processed:	**#DIV/0!**	**Cumulative BBLS/Hr Processed:**	**341.8 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	
Visitors:	BO JACKSON
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,686	5,686	CEIVED 5000 GA
Sodium Hydroxide	0	1,000	1,000	YES

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

SPOKE WITH BO JACKSON AND WE AGREED ON STARTING BACK UP ON THE 9TH OF JULY FOR THE FRAC ON THE 20TH... DUE TO POSSIBLE BACTERIA GROWTH WE WILL WAIT UNTIL CLOSER TO THE FRAC DATE...

Date:	6/29/2012	Report Number:	24
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	N/A	am/pm
Location:	Nash 29	Shift Offsite Time:	N/A	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

STAND BY

Processing Hrs Today:	0 hrs	Cumulative Processing Hrs:	75 hrs
BBLS Processed Today:	1,450 bbls	Cumulative BBLS Processed:	25,632 bbls
BBLS/Hr Processed:	**#DIV/0!**	Cumulative BBLS/Hr Processed:	**341.8 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	

Readings:	flow back	Volts/Amps	pH	Turbidity
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,686	5,686	CEIVED 5000 GA
Sodium Hydroxide	0	1,000	1,000	YES

Visitors:	BO JACKSON
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

N/A

Additional Comments

SPOKE WITH BO JACKSON AND WE AGREED ON STARTING BACK UP ON THE 9TH OF JULY FOR THE FRAC ON THE 20TH... DUE TO POSSIBLE BACTERIA GROWTH WE WILL WAIT UNTIL CLOSER TO THE FRAC DATE...

Appendix B
Table B-2

Date:	6/30/2012	Report Number:	25
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	N/A	am/pm
Location:	Nash 29	Shift Offsite Time:	N/A	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

STAND BY

Processing Hrs Today:	0 hrs	Cumulative Processing Hrs:	75 hrs
BBLS Processed Today:	0 bbls	Cumulative BBLS Processed:	25,632 bbls
BBLS/Hr Processed:	#DIV/0!	Cumulative BBLS/Hr Processed:	341.8 bbl/hr

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	
Visitors:	BO JACKSON
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	120	5,686	5,566	CEIVED 5000 GA
Sodium Hydroxide	100	1,000	900	YES

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

N/A

Additional Comments

SPOKE WITH BO JACKSON AND WE AGREED ON STARTING BACK UP ON THE 9TH OF JULY FOR THE FRAC ON THE 20TH... DUE TO POSSIBLE BACTERIA GROWTH WE WILL WAIT UNTIL CLOSER TO THE FRAC DATE...

Appendix B
Table B-2

Date:	7/1/2012	**Report Number:**	26
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	3:00	am/pm
Location:	Nash 29	Shift Offsite Time:	9:30 PM	am/pm
Site Contact:	Bo Jackson		6	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	6 hrs	**Cumulative Processing Hrs:**	81 hrs
BBLS Processed Today:	1,650 bbls	**Cumulative BBLS Processed:**	28,932 bbls
BBLS/Hr Processed:	**275**	**Cumulative BBLS/Hr Processed:**	**357.2 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	RAY LEE
Crew	EDDIE MCGRUBER
Visitors:	
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
0500		100	6.67	0.87
0700		100	6.73	0.98
0900		100	6.91	1.03
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	120	5,686	5,566	CEIVED 5000 GA
Sodium Hydroxide	100	1,000	900	YES

Were there any abnormal operational issues onsite?
NO

Are there any additional supplies/equipment needed? If so, what items and when?
NO

Have there been any changes to the current schedule, including volumes needed by client?
NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

ARRIVED ON LOCATION AT 3:00 PM REVEIWED JSA.. DAVID LUNA CALLED ME AROUND 12:00 AM SAID THAT DIRTY TANKS WERE FULL AND WE NEEDED TO RUN WATER TO GET TANKS DOWN. AFTER INVESTIGATING , FOUND OUT THAT A VALVE WAS LEAKING AND WAS GOING INTO THE DIRTY TANKS... WE GOT THE DIRTY TANKS DOWN TO 9' AND LARRY ONEAL SAID THAT WOULD HOLD THEM OVER UNTIL BO JACKSON GETS BACK TO FIX VALVE. EVERYTHING WENT WELL WITH MINOR ADJUSTMENTS TO CHEMICAL.

Date:	7/2/2012	Report Number:	27	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	N/A	am/pm
Location:	Nash 29	Shift Offsite Time:	N/A	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

STAND BY

Processing Hrs Today:	0 hrs	Cumulative Processing Hrs:	75 hrs
BBLS Processed Today:	0 bbls	Cumulative BBLS Processed:	25,632 bbls
BBLS/Hr Processed:	#DIV/0!	Cumulative BBLS/Hr Processed:	341.8 bbl/hr

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	

Readings:	flow back	Volts/Amps	pH	Turbidity
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,556	5,556	
Sodium Hydroxide	0	900	900	

Visitors:	BO JACKSON
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?
NO

Are there any additional supplies/equipment needed? If so, what items and when?
NO

Have there been any changes to the current schedule, including volumes needed by client?
NO

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

N/A

Additional Comments

SPOKE WITH BO JACKSON AND WE AGREED ON STARTING BACK UP ON THE 9TH OF JULY FOR THE FRAC ON THE 20TH... DUE TO POSSIBLE BACTERIA GROWTH WE WILL WAIT UNTIL CLOSER TO THE FRAC DATE...

Appendix B
Table B-2

Date:	7/3/2012		**Report Number:**	28
			Unit Number:	8

Client:	XTO	Shift Onsite Time:	N/A	am/pm
Location:	Nash 29	Shift Offsite Time:	N/A	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

STAND BY

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	75 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	25,632 bbls
BBLS/Hr Processed:	**#DIV/0!**	**Cumulative BBLS/Hr Processed:**	**341.8 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	

Readings:	flow back	Volts/Amps	pH	Turbidity
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,566	5,566	
Sodium Hydroxide	0	900	900	

Visitors:	BO JACKSON
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?
NO

Are there any additional supplies/equipment needed? If so, what items and when?
NO

Have there been any changes to the current schedule, including volumes needed by client?
NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

CHECKED ON LINES VALVES AND TANKS..TOOK SAMPLES TO HOBBS LAB TO CHECK FOR BACTERIA GROWTH.

Date:	7/4/2012	Report Number:	29
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	N/A	am/pm
Location:	Nash 29	Shift Offsite Time:	N/A	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

STAND BY

Processing Hrs Today:	0 hrs	Cumulative Processing Hrs:	75 hrs
BBLS Processed Today:	0 bbls	Cumulative BBLS Processed:	25,632 bbls
BBLS/Hr Processed:	#DIV/0!	Cumulative BBLS/Hr Processed:	341.8 bbl/hr

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	

Readings:	flow back	Volts/Amps	pH	Turbidity
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,566	5,566	
Sodium Hydroxide	0	900	900	

Visitors:	BO JACKSON
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*		XTO

N/A

Additional Comments

STARTING BACK UP ON THE 9TH OF JULY FOR THE FRAC ON THE 20TH... DUE TO POSSIBLE BACTERIA GROWTH WE WILL WAIT UNTIL CLOSER TO THE FRAC DATE...

Date:	7/5/2012	Report Number:	30	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	N/A	am/pm
Location:	Nash 29	Shift Offsite Time:	N/A	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

STAND BY

Processing Hrs Today:	0 hrs	Cumulative Processing Hrs:	75 hrs
BBLS Processed Today:	0 bbls	Cumulative BBLS Processed:	25,632 bbls
BBLS/Hr Processed:	#DIV/0!	Cumulative BBLS/Hr Processed:	341.8 bbl/hr

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	
Visitors:	BO JACKSON
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,566	5,566	
Sodium Hydroxide	0	900	900	

Were there any abnormal operational issues onsite?
NO

Are there any additional supplies/equipment needed? If so, what items and when?
NO

Have there been any changes to the current schedule, including volumes needed by client?
NO

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*		XTO

N/A

Additional Comments

STARTING BACK UP ON THE 9TH OF JULY FOR THE FRAC ON THE 20TH... DUE TO POSSIBLE BACTERIA GROWTH WE WILL WAIT UNTIL CLOSER TO THE FRAC DATE...

Date:	7/6/2012	Report Number:	31	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	N/A	am/pm
Location:	Nash 29	Shift Offsite Time:	N/A	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

STAND BY

Processing Hrs Today:	0 hrs	Cumulative Processing Hrs:	75 hrs
BBLS Processed Today:	0 bbls	Cumulative BBLS Processed:	25,632 bbls
BBLS/Hr Processed:	#DIV/0!	Cumulative BBLS/Hr Processed:	341.8 bbl/hr

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	

Readings:	flow back	Volts/Amps	pH	Turbidity
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,566	5,566	
Sodium Hydroxide	0	900	900	

Visitors:	BO JACKSON
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

N/A

Additional Comments

STARTING BACK UP ON THE 9TH OF JULY FOR THE FRAC ON THE 20TH... DUE TO POSSIBLE BACTERIA GROWTH WE WILL WAIT UNTIL CLOSER TO THE FRAC DATE...

Date:	7/7/2012	Report Number:	32
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	N/A	am/pm
Location:	Nash 29	Shift Offsite Time:	N/A	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

STAND BY

Processing Hrs Today:	0 hrs	Cumulative Processing Hrs:	75 hrs
BBLS Processed Today:	0 bbls	Cumulative BBLS Processed:	25,632 bbls
BBLS/Hr Processed:	#DIV/0!	Cumulative BBLS/Hr Processed:	341.8 bbl/hr

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	

Readings:	flow back	Volts/Amps	pH	Turbidity
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,566	5,566	
Sodium Hydroxide	0	900	900	

Visitors:	BO JACKSON
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

STARTING BACK UP ON THE 9TH OF JULY FOR THE FRAC ON THE 20TH... DUE TO POSSIBLE BACTERIA GROWTH WE WILL WAIT UNTIL CLOSER TO THE FRAC DATE...

Date:	7/8/2012	Report Number:	33	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	N/A	am/pm
Location:	Nash 29	Shift Offsite Time:	N/A	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

STAND BY

Processing Hrs Today:	0 hrs	Cumulative Processing Hrs:	75 hrs
BBLS Processed Today:	0 bbls	Cumulative BBLS Processed:	25,632 bbls
BBLS/Hr Processed:	#DIV/0!	Cumulative BBLS/Hr Processed:	341.8 bbl/hr

Lead Supervisor:	Paul Worley
Lead Operator	
Crew	

Readings:	flow back	Volts/Amps	pH	Turbidity
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,566	5,566	
Sodium Hydroxide	0	900	900	

Visitors:	BO JACKSON
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

N/A

Additional Comments

STARTING BACK UP ON THE 9TH OF JULY FOR THE FRAC ON THE 20TH... DUE TO POSSIBLE BACTERIA GROWTH WE WILL WAIT UNTIL CLOSER TO THE FRAC DATE..

Appendix B
Table B-2

Date:	7/9/2012		Report Number:	34
			Unit Number:	8

Client:	XTO		Shift Onsite Time:	6:00	am/pm
Location:	Nash 29		Shift Offsite Time:	6:00 PM	am/pm
Site Contact:	Bo Jackson			4	Total hrs.
Site Contact:	Paul Worley		Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	4 hrs	Cumulative Processing Hrs:	85 hrs
BBLS Processed Today:	1,650 bbls	Cumulative BBLS Processed:	30,505 bbls
BBLS/Hr Processed:	**412.5**	Cumulative BBLS/Hr Processed:	**358.9 bbl/hr**

		Readings:	flow back	Volts/Amps	pH	Turbidity
Lead Supervisor:	Paul Worley	0200		100	6.35	1.16
Lead Operator	ADAM POLLARD	0400		100	6.65	0.57
Crew	REGGIE WHITE	0500		100	6.9	0.78
	CHRIS ONEAL	N/A		N/A	N/A	N/A
		N/A		N/A	N/A	N/A
		N/A		N/A	N/A	N/A

		Chemical	Usage	Start Inv.	End Inv.	On Order
		HcL Acid	150	5,566	5,416	
		Sodium Hydroxide	130	900	770	YES
Visitors:	BO JACKSON					
Visitors:	BO WELLS					
Visitors:						

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

N/A

Additional Comments

ARRIVED ON LOCATION AT 6:00 AM REVEIWED JSA.. EMPLOYEES HAD SOME TROUBLE WITH SOME VALVES AND WE WERE ON OUR WAY UP FROM KILGORE TRIED TO FIX OVER THE PHONE AND COULD NOT... EMPLOYEES WERE INSTRUCTED TO WAIT UNTIL WE ARRIVED. WE GOT VALVE PROBLEMS FIXED AND STARTED PROCESSING AROUND 1:30 PM AFTER PROBLEM WITH VALVES EVERYTHING WENT WELL AND WE MADE MINOR ADJUSTMENTS TO CHEMICALS.. THERE IS A LITTLE OVER 11,000 BBLS IN POISIDEN TANK AND WATER LOOKS GOOD IN TANK... WE WILL TREAT WITH BE-6 IN THE MORNING JUST AS A PRECAUTION.

Appendix B
Table B-2

Date:	7/10/2012	**Report Number:**	35	
		Unit Number:	8	

Client:	XTO	Shift Onsite Time:	6:00	am/pm
Location:	Nash 29	Shift Offsite Time:	6:00 PM	am/pm
Site Contact:	Bo Jackson		8	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	8 hrs	**Cumulative Processing Hrs:**	93 hrs
BBLS Processed Today:	3,363 bbls	**Cumulative BBLS Processed:**	33,868 bbls
BBLS/Hr Processed:	**420.375**	**Cumulative BBLS/Hr Processed:**	**364.2 bbl/hr**

		Readings:	flow back	Volts/Amps	pH	Turbidity
Lead Supervisor:	Paul Worley	800		100	7.1	1.34
Lead Operator	ADAM POLLARD	1000		100	6.89	1.22
Crew	REGGIE WHITE	1200		100	6.65	0.98
	CHRIS ONEAL	1400		100	6.65	1.35
		0:00		N/A	N/A	N/A
		0:00		N/A	N/A	N/A

		Chemical	Usage	Start Inv.	End Inv.	On Order
		HcL Acid	200	5,416	5,216	
		Sodium Hydroxide	185	770	585	YES
Visitors:						
Visitors:	BO WELLS					
Visitors:						

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

N/A

Additional Comments

ARRIVED ON LOCATION AT 6:00 AM REVEIWED JSA..STARTED PROCESSING WATER AT 7:00 AM FILLED CLEAN TANKS UP AND WAITED FOR SOME IMPROVEMENTS TO THE PUMP THAT GOES TO POISIDEN TANK. WE LET SMALL PUMP RUN WATER TO IT.. EVERYTHING WENT WELL AND WE MADE SMALL ADJUSTMENTS TO CHEMICALS. WE ALSO GATHERED AND DROPPED OFF SAMPLES FOR HOUSTON AND HOBBS LAB.

Appendix B
Table B-2

Date:	7/11/2012		Report Number:	36
			Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00	am/pm
Location:	Nash 29	Shift Offsite Time:	6:00 PM	am/pm
Site Contact:	Bo Jackson		4	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	4 hrs	Cumulative Processing Hrs:	97 hrs
BBLS Processed Today:	1,980 bbls	Cumulative BBLS Processed:	35,848 bbls
BBLS/Hr Processed:	**495**	Cumulative BBLS/Hr Processed:	**369.6 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	ADAM POLLARD
Crew	CHRIS ONEAL
Visitors:	
Visitors:	BO WELLS
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
800		100	6.85	1.67
1000		100	6.76	1.55
1200		100	6.9	1.89
1400		100	6.85	1.66
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	235	5,416	5,181	
Sodium Hydroxide	205	3,800	3,595	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

N/A

Additional Comments

ARRIVED ON LOCATION AT 6:00 AM REVEIWED JSA..STARTED PROCESSING WATER AT 7:00 AM .RAN OUT OF CAUSTIC AND WAITED A COUPLE OF HOURS....CAUSTIC ARRIVED AND EVERYTHING WENT WELL WITH MINOR ADJUSTMENTS TO CHEMICALS.

Date:	7/12/2012	Report Number:	37	
		Unit Number:	8	

Client:	XTO	Shift Onsite Time:	6:00	am/pm
Location:	Nash 29	Shift Offsite Time:	8:00 PM	am/pm
Site Contact:	Bo Jackson		8	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	8 hrs	Cumulative Processing Hrs:	105 hrs
BBLS Processed Today:	3,362 bbls	Cumulative BBLS Processed:	39,210 bbls
BBLS/Hr Processed:	**420.25**	Cumulative BBLS/Hr Processed:	**373.4 bbl/hr**

Lead Supervisor:	PAUL WORLEY
Lead Operator	ADAM POLLARD
Crew	CHRIS ONEAL
	REGGIE WHITE
Visitors:	
Visitors:	BO WELLS
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
800		110	7.1	2.56
1000		110	7.43	1.89
1200		110	6.67	0.98
1400		110	6.63	1.45
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	355	5,181	4,826	
Sodium Hydroxide	420	3,595	3,175	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

N/A

Additional Comments

ARRIVED ON LOCATION AT 6:00 AM REVEIWED JSA..STARTED PROCESSING WATER AT 7:00 AM WE FILLED CLEAN TANKS AND HAD SOME BACK PRESSURE ON SAND FILTERS BECAUSE THE SMALL PUMPE WENT DOWN ONXTO TRANFER PUMP WENT DOWN WE HAD TO WAIT FOR CLEAN TANKS TO GO DOWN TO KEEP FILLING. THERE WAS TO MUCH BACK PRESSURE ON SAND FILTERS AND BLEW SOME OF THE GASKETS.. WE HAD TO REPAIR THEM...XTO COMPANY MAN WAS CALLED AND THEY ARE GOING TO GET A BIGGER PUMP TO TRANSFER WATER. THE SINGLE PUMP ON XTO SIDE IS TOO SMALL TO KEEP UP WITH US.OTHER THAN THE WAITING AND REPAIRS EVERYTHING ELSE WENT WELL AND WE MADE MINOR ADJUSTMENTS TO CHEMICALS.

Appendix B
Table B-2

Date:	7/13/2012	Report Number:	38
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	2:00	am/pm
Location:	Nash 29	Shift Offsite Time:	7:00 PM	am/pm
Site Contact:	Bo Jackson		10	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	10 hrs	Cumulative Processing Hrs:	107 hrs
BBLS Processed Today:	4,704 bbls	Cumulative BBLS Processed:	40,552 bbls
BBLS/Hr Processed:	**470.4**	Cumulative BBLS/Hr Processed:	**379.0 bbl/hr**

Lead Supervisor:	PAUL WORLEY
Lead Operator	ADAM POLLARD
Crew	CHRIS ONEAL
	REGGIE WHITE
Visitors:	
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
800		110	7.21	0.76
1000		110	6.87	0.87
1200		110	6.95	1.24
1400		110	6.34	2.34
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	345	5,181	4,836	
Sodium Hydroxide	380	3,595	3,215	

Were there any abnormal operational issues onsite?
NO

Are there any additional supplies/equipment needed? If so, what items and when?
NO

Have there been any changes to the current schedule, including volumes needed by client?
NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

ARRIVED ON LOCATION AT 2:00 AM REVEIWED JSA..STARTED PROCESSING WATER AT 3:00 AM... WE HAD TO WAIT SEVERAL HOURS FOR PUMP TO TRANFER WATER FROM CLEAN TANKS TO PIT TANK... EVERYTHING ELSE WENT WELL WITH MINOR ADJUSTMENTS TO CHEMICALS .... WE ALSO TREATED TANKS WITH BE6 FOR ANY POSSIBLE BACTERIA GROWTH.

Date:	7/14/2012		**Report Number:**	39	
			Unit Number:	8	
Client:	XTO		Shift Onsite Time:	5:00	am/pm
Location:	Nash 29		Shift Offsite Time:	7:00 PM	am/pm
Site Contact:	Bo Jackson			10	Total hrs.
Site Contact:	Paul Worley		Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	10 hrs	**Cumulative Processing Hrs:**	117 hrs
BBLS Processed Today:	4,321 bbls	**Cumulative BBLS Processed:**	44,843 bbls
BBLS/Hr Processed:	**432.1**	**Cumulative BBLS/Hr Processed:**	**383.3 bbl/hr**

Lead Supervisor:	PAUL WORLEY
Lead Operator	ADAM POLLARD
Crew	CHRIS ONEAL
	REGGIE WHITE
Visitors:	LARRY ONEAL
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
800		100	7.24	0.89
1000		100	6.98	1.31
1200		100	6.54	1.87
1400		100	6.88	1.63
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	380	5,181	4,801	
Sodium Hydroxide	410	3,595	3,185	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

N/A

Additional Comments

ARRIVED ON LOCATION AT 5:00 AM REVEIWED JSA..STARTED PROCESSING WATER AT 5:15 AM… WE HAD TO WAIT SEVERAL HOURS FOR PUMP TO TRANFER WATER FROM CLEAN TANKS TO PIT TANK… EVERYTHING ELSE WENT WELL WITH MINOR ADJUSTMENTS TO CHEMICALS ….

Date:	7/15/2012	**Report Number:**	40
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00	am/pm
Location:	Nash 29	Shift Offsite Time:	6:00 PM	am/pm
Site Contact:	Bo Jackson		9	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	9 hrs	**Cumulative Processing Hrs:**	126 hrs
BBLS Processed Today:	4,273 bbls	**Cumulative BBLS Processed:**	49,116 bbls
BBLS/Hr Processed:	**474.7777778**	**Cumulative BBLS/Hr Processed:**	**389.8 bbl/hr**

Lead Supervisor:	PAUL WORLEY
Lead Operator	ADAM POLLARD
Crew	CHRIS ONEAL
	REGGIE WHITE
Visitors:	LARRY ONEAL
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
800		100	6.75	1.65
1000		100	6.56	1.97
1200		100	6.87	1.88
1400		100	6.93	1.53
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	320	4,801	4,481	
Sodium Hydroxide	385	3,185	2,800	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

ARRIVED ON LOCATION AT 6:00 AM REVEIWED JSA..STARTED PROCESSING WATER AT 6:15 AM... WE HAD TO WAIT SEVERAL HOURS FOR PUMP TO TRANFER WATER FROM CLEAN TANKS TO PIT TANK... FILLED CLEAN TANKS AND SHUT DOWN FOR PUMP TO CATCH UP....EVERYTHING ELSE WENT WELL WITH MINOR ADJUSTMENTS TO CHEMICALS .... POISIDEN TANK HAS APPROX.35,000 BBLS. IN IT AS OF TODAY.

Date:	7/16/2012	Report Number:	41	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	6:00	am/pm
Location:	Nash 29	Shift Offsite Time:	4:00 PM	am/pm
Site Contact:	Bo Jackson		7	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	7 hrs	**Cumulative Processing Hrs:**	133 hrs
BBLS Processed Today:	3,852 bbls	**Cumulative BBLS Processed:**	52,968 bbls
BBLS/Hr Processed:	**550.2857143**	**Cumulative BBLS/Hr Processed:**	**398.3 bbl/hr**

Lead Supervisor:	PAUL WORLEY
Lead Operator	CHRIS ONEAL
Crew	REGGIE WHITE
	REGGIE WHITE
Visitors:	LARRY ONEAL
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
800		100	6.35	0.87
1000		100	6.43	1.23
1200		100	7.12	2.1
1400		100	6.97	1.87
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	260	4,481	4,221	
Sodium Hydroxide	285	2,800	2,515	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

ARRIVED ON LOCATION AT 6:00 AM REVEIWED JSA..STARTED PROCESSING WATER AT 6:30 AM... ... FILLED CLEAN TANKS AND SHUT DOWN FOR PUMP TO CATCH UP....EVERYTHING ELSE WENT WELL WITH MINOR ADJUSTMENTS TO CHEMICALS .... POISIDEN TANK HAS APPROX.35,000 BBLS. IN IT AS OF TODAY.

Date:	7/17/2012	**Report Number:**	42	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	6:00	am/pm
Location:	Nash 29	Shift Offsite Time:	2:00 PM	am/pm
Site Contact:	Bo Jackson		6	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	6 hrs	**Cumulative Processing Hrs:**	139 hrs
BBLS Processed Today:	2,352 bbls	**Cumulative BBLS Processed:**	55,320 bbls
BBLS/Hr Processed:	**392**	**Cumulative BBLS/Hr Processed:**	**398.0 bbl/hr**

Lead Supervisor:	PAUL WORLEY
Lead Operator	CHRIS ONEAL
Crew	REGGIE WHITE
Visitors:	LARRY ONEAL
Visitors:	JAMIE HARRIS
Visitors:	STEVEN TIPDEN

Readings:	flow back	Volts/Amps	pH	Turbidity
800		100	6.75	1.32
1000		100	7.12	1.45
1200		100	6.88	0.98
N/A		N/A	N/A	N/A
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	205	4,221	4,016	
Sodium Hydroxide	180	2,515	2,335	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

ARRIVED ON LOCATION AT 6:00 AM REVEIWED JSA..STARTED PROCESSING WATER AT 6:30 AM.... ... FILLED CLEAN TANKS AND SHUT DOWN FOR PUMP TO CATCH UP.... POSIEDEN TANK IS 14" FROM THE TOP AND SHOULD HAVE AROUND 37,280 BBLS... CALLED THE MANUFACTURER FOR TANK HE RECOMMENDED WE STAY AROUND 12" FROM THE TOP... EVERYTHING ELSE WENT WELL WITH MINOR ADJUSTMENTS TO CHEMICAL

Appendix B
Table B-2

Date:	7/18/2012	**Report Number:**	43
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00	am/pm
Location:	Nash 29	Shift Offsite Time:	6:00 PM	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

STAND BY WAITING ON FRAC

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	139 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	55,320 bbls
BBLS/Hr Processed:	**#DIV/0!**	**Cumulative BBLS/Hr Processed:**	**398.0 bbl/hr**

Lead Supervisor:	PAUL WORLEY
Lead Operator	
Crew	
Visitors:	
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
800		N/A	N/A	N/A
1000		N/A	N/A	N/A
1200		N/A	N/A	N/A
N/A		N/A	N/A	N/A
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,016	4,016	
Sodium Hydroxide	0	2,335	2,335	

Were there any abnormal operational issues onsite?
NO

Are there any additional supplies/equipment needed? If so, what items and when?
NO

Have there been any changes to the current schedule, including volumes needed by client?
NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

WAITING ON FRAC TO START.....POSIEDEN TANK IS 14" FROM THE TOP AND SHOULD HAVE AROUND 37,280 BBLS...THE MANUFACTURER FOR TANK HE RECOMMENDED WE STAY AROUND 12" FROM THE TOP...

Date:	7/19/2012	**Report Number:**	44
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	16:00	am/pm
Location:	Nash 29	Shift Offsite Time:	9:00 PM	am/pm
Site Contact:	Bo Jackson		3	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	3 hrs	**Cumulative Processing Hrs:**	142 hrs
BBLS Processed Today:	1,141 bbls	**Cumulative BBLS Processed:**	56,461 bbls
BBLS/Hr Processed:	**380.3333333**	**Cumulative BBLS/Hr Processed:**	**397.6 bbl/hr**

Lead Supervisor:	PAUL WORLEY
Lead Operator	CHRIS PERRY
Crew	
Visitors:	
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
800		100	7.2	2.34
1000		N/A	N/A	N/A
1200		N/A	N/A	N/A
N/A		N/A	N/A	N/A
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	145	4,016	3,871	
Sodium Hydroxide	120	2,335	2,215	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

GOT A CALL FROM BO JACKSON THAT THE DIRTY TANKS WERE FULL AND I TOLD HIM WE WOULD BE OUT TO GET THEM EMPTY…WE ARRIVED ON LOCATION AROUND 4 PM AND GOT TANKS DOWN SO THEY WOULD NOT OVER FLOW ANYMORE. EVERYTHING WENT WELL.

Date:	7/20/2012	Report Number:	45
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	9:00	am/pm
Location:	Nash 29	Shift Offsite Time:	5:00 PM	am/pm
Site Contact:	Bo Jackson		7	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	7 hrs	Cumulative Processing Hrs:	149 hrs
BBLS Processed Today:	2,136 bbls	Cumulative BBLS Processed:	58,597 bbls
BBLS/Hr Processed:	305.1428571	Cumulative BBLS/Hr Processed:	393.3 bbl/hr

Lead Supervisor:	PAUL WORLEY
Lead Operator	CHRIS PERRY
Crew	
Visitors:	
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
1200		100	6.82	1.43
1400		100	6.66	1.65
1600		100	6.54	N/A
N/A		N/A	N/A	N/A
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	220	3,871	3,651	
Sodium Hydroxide	180	2,215	2,035	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

N/A

Additional Comments

CONTINUE PROCESSING DIRTY WATER TO GET TANKS LOW ENOUGH TO SWAP OUT SOME VALVES THAT LEAK...WE ARRIVED ON LOCATION AROUND 6 AM AND GOT TANKS DOWN SO THEY WOULD NOT OVER FLOW ANYMORE. EVERYTHING WENT WELL........... GOT TANKS DOWN TO 5 FOOT AND CALLED BO JACKSON TO LET HIM KNOW THAT WE WERE GETTING TO THE OIL.HE SAID FOR US TO STOP THERE.

Appendix B
Table B-2

Date:	7/21/2012	Report Number:	46	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	9:00	am/pm
Location:	Nash 29	Shift Offsite Time:	5:00 PM	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

STAND BY

Processing Hrs Today:	0 hrs	Cumulative Processing Hrs:	149 hrs
BBLS Processed Today:	0 bbls	Cumulative BBLS Processed:	58,597 bbls
BBLS/Hr Processed:	#DIV/0!	Cumulative BBLS/Hr Processed:	393.3 bbl/hr

Lead Supervisor:	PAUL WORLEY
Lead Operator	
Crew	
Visitors:	
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
1200		N/A	N/A	N/A
1400		N/A	N/A	N/A
1600		N/A	N/A	N/A
N/A		N/A	N/A	N/A
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	3,651	3,651	
Sodium Hydroxide	0	2,035	2,035	

Were there any abnormal operational issues onsite?
NO

Are there any additional supplies/equipment needed? If so, what items and when?
NO

Have there been any changes to the current schedule, including volumes needed by client?
NO

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

N/A

Additional Comments
STAND BY WAITING ON FRAC.

Date:	7/22/2012	**Report Number:**	47
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	9:00	am/pm
Location:	Nash 29	Shift Offsite Time:	5:00 PM	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

STAND BY

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	149 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	58,597 bbls
BBLS/Hr Processed:	**#DIV/0!**	**Cumulative BBLS/Hr Processed:**	**393.3 bbl/hr**

Lead Supervisor:	PAUL WORLEY
Lead Operator	
Crew	

Readings:	flow back	Volts/Amps	pH	Turbidity
1200		N/A	N/A	N/A
1400		N/A	N/A	N/A
1600		N/A	N/A	N/A
N/A		N/A	N/A	N/A
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	3,651	3,651	
Sodium Hydroxide	0	2,035	2,035	

Visitors:	
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

STAND BY WAITING ON FRAC.

Date:	7/23/2012	**Report Number:**	48	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	9:00	am/pm
Location:	Nash 29	Shift Offsite Time:	5:00 PM	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

STAND BY

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	149 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	58,597 bbls
BBLS/Hr Processed:	**#DIV/0!**	**Cumulative BBLS/Hr Processed:**	**393.3 bbl/hr**

Lead Supervisor:	PAUL WORLEY
Lead Operator	
Crew	

Readings:	flow back	Volts/Amps	pH	Turbidity
1200		N/A	N/A	N/A
1400		N/A	N/A	N/A
1600		N/A	N/A	N/A
N/A		N/A	N/A	N/A
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	3,651	3,651	
Sodium Hydroxide	0	2,035	2,035	

Visitors:	
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

STAND BY WAITING ON FRAC.

Appendix B
Table B-2

Date:	7/24/2012
Report Number:	49
Unit Number:	8

Client:	XTO
Location:	Nash 29
Site Contact:	Bo Jackson
Site Contact:	Paul Worley

Shift Onsite Time:	9:00	am/pm
Shift Offsite Time:	5:00 PM	am/pm
	0	Total hrs.
Present Onsite Activities:	PROCESS WATER	

STAND BY

Processing Hrs Today:	0 hrs
BBLS Processed Today:	0 bbls
BBLS/Hr Processed:	#DIV/0!

Cumulative Processing Hrs:	149 hrs
Cumulative BBLS Processed:	58,597 bbls
Cumulative BBLS/Hr Processed:	393.3 bbl/hr

Lead Supervisor:	PAUL WORLEY
Lead Operator	
Crew	
Visitors:	
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
1200		N/A	N/A	N/A
1400		N/A	N/A	N/A
1600		N/A	N/A	N/A
N/A		N/A	N/A	N/A
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	3,651	3,651	
Sodium Hydroxide	0	2,035	2,035	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

N/A

Additional Comments

STAND BY WAITING ON FRAC.

Appendix B
Table B-2

Date:	7/25/2012		**Report Number:**	50
			Unit Number:	8

Client:	XTO		**Shift Onsite Time:**	9:00	am/pm
Location:	Nash 29		**Shift Offsite Time:**	5:00 PM	am/pm
Site Contact:	Bo Jackson			0	Total hrs.
Site Contact:	Paul Worley		**Present Onsite Activities:**	PROCESS WATER	

STAND BY

Processing Hrs Today:	0 hrs		**Cumulative Processing Hrs:**	149 hrs
BBLS Processed Today:	0 bbls		**Cumulative BBLS Processed:**	58,597 bbls
BBLS/Hr Processed:	**#DIV/0!**		**Cumulative BBLS/Hr Processed:**	**393.3 bbl/hr**

Lead Supervisor:	PAUL WORLEY
Lead Operator	
Crew	
Visitors:	
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
1200		N/A	N/A	N/A
1400		N/A	N/A	N/A
1600		N/A	N/A	N/A
N/A		N/A	N/A	N/A
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	3,651	3,651	
Sodium Hydroxide	0	2,035	2,035	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

N/A

Additional Comments

STAND BY WAITING ON FRAC.

Date:	7/26/2012	**Report Number:**	51
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	9:00	am/pm
Location:	Nash 29	Shift Offsite Time:	5:00 PM	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

STAND BY

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	149 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	58,597 bbls
BBLS/Hr Processed:	#DIV/0!	**Cumulative BBLS/Hr Processed:**	**393.3 bbl/hr**

Lead Supervisor:	PAUL WORLEY
Lead Operator	
Crew	
Visitors:	
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
1200		N/A	N/A	N/A
1400		N/A	N/A	N/A
1600		N/A	N/A	N/A
N/A		N/A	N/A	N/A
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	3,651	3,651	
Sodium Hydroxide	0	2,035	2,035	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

N/A

Additional Comments

STAND BY WAITING ON FRAC.

Appendix B
Table B-2

Date:	8/1/2012	Report Number:	52
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	11:00	am/pm
Location:	Nash 29	Shift Offsite Time:	4:00 PM	am/pm
Site Contact:	Bo Jackson		0	Total hrs.
Site Contact:	Jason Distall	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	149 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	58,597 bbls
BBLS/Hr Processed:	**#DIV/0!**	**Cumulative BBLS/Hr Processed:**	**393.3 bbl/hr**

Lead Supervisor:	Jason Distall
Lead Operator	
Crew	Eddie McGruder
	Sammy Dean
	Ray Lee
Visitors:	
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
1200		N/A	N/A	N/A
1400		N/A	N/A	N/A
1600		N/A	N/A	N/A
N/A		N/A	N/A	N/A
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	3,651	3,651	
Sodium Hydroxide	67	2,035	1,968	

Were there any abnormal operational issues onsite?

NO

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

N/A

Additional Comments

Filled weir and settling tanks to resume recycle operations 8-02-2012

Date:	8/2/2012	**Report Number:**	53	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	5:30	am/pm
Location:	Nash 29	Shift Offsite Time:	4:00 PM	am/pm
Site Contact:	Bo Jackson		10.5	Total hrs.
Site Contact:	Jason Distall	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	3 hrs	**Cumulative Processing Hrs:**	152 hrs
BBLS Processed Today:	1,392 bbls	**Cumulative BBLS Processed:**	59,989 bbls
BBLS/Hr Processed:	**464**	**Cumulative BBLS/Hr Processed:**	**394.7 bbl/hr**

Lead Supervisor:	Jason Distall
Lead Operator	
Crew	Eddie McGruder
	Sammy Dean
	Ray Lee
Visitors:	
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
1200		20v 100a	7.05	3.32
1400		N/A	N/A	N/A
1600		20v 100a	7.03	3.27
N/A		N/A	N/A	N/A
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	143	3,651	3,508	
Sodium Hydroxide	117	1,968	1,851	

Were there any abnormal operational issues onsite?

Yes, the power source was fluctuating, the lost power.

Are there any additional supplies/equipment needed? If so, what items and when?

NO

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

No

Additional Comments

Starting recycling water. had several power surges from supply side. Finally lost power. Contacted Bo Jackson with XTO. He said he would send out electrician 08:00 on 8-03-2012. Operation was shut down for the day.

Appendix B
Table B-2

Date:	8/3/2012	**Report Number:**	54	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	5:30	am/pm
Location:	Nash 29	Shift Offsite Time:	4:00 PM	am/pm
Site Contact:	Bo Jackson		10.5	Total hrs.
Site Contact:	Chad Edwards	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	6 hrs	**Cumulative Processing Hrs:**	158 hrs
BBLS Processed Today:	3,351 bbls	**Cumulative BBLS Processed:**	63,340 bbls
BBLS/Hr Processed:	**558.5**	**Cumulative BBLS/Hr Processed:**	**400.9 bbl/hr**

Lead Supervisor:	Chad Edwards
Lead Operator	Jason Distall
Crew	Eddie McGruder
	Sammy Dean
	Ray Lee

Readings:	flow back	Volts/Amps	pH	Turbidity
1200		20v 100a	6.99	3.29
1400		N/A	N/A	N/A
1500		20v 100a	7.03	3.18
N/A		N/A	N/A	N/A
0:00		N/A	N/A	N/A
0:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	345	3,508	3,163	
Sodium Hydroxide	361	1,851	1,490	

Visitors:	Bo Jackson
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

Yes, supply list will be complete tomorrow.

Have there been any changes to the current schedule, including volumes needed by client?

We are limited to approximately 2,000 bbls/day incoming produced water do to power outages.

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

No

Additional Comments

Water is treating very consistent, an occasional minor adjustment is needed. Increased rate to 410 gpm without effecting the water quality. Due to power outages in the area, Bo Jackson reported that XTO is currently only producing about 2,000 bbls/day. We had to shut down operation at 15:45. Tanks will be filling overnight. Not sure how much we will be able to treat tomorrow with limited produced water coming in.

Date:	8/4/2012	**Report Number:**	55	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	2:30	am/pm
Location:	Nash 29	Shift Offsite Time:	2:00 PM	am/pm
Site Contact:	Bo Jackson		11.5	Total hrs.
Site Contact:	Chad Edwards	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	8.75 hrs	**Cumulative Processing Hrs:**	166.75 hrs
BBLS Processed Today:	4,903 bbls	**Cumulative BBLS Processed:**	68,243 bbls
BBLS/Hr Processed:	**560.3428571**	**Cumulative BBLS/Hr Processed:**	**409.3 bbl/hr**

Lead Supervisor:	Chad Edwards
Lead Operator	Jason Distall
Crew	Eddie McGruder
	Sammy Dean
	Ray Lee
	Ken Ehler
	Adam Pollard
	Eli Tangura
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
06:00		20v 100a	7.1	4.25
10:00		20v 100a	7.08	4.03
12:30		20v 100a	7.03	3.25
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	505	3,163	2,658	
Sodium Hydroxide	508	1,490	982	

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

No, supplies on order

Have there been any changes to the current schedule, including volumes needed by client?

We are limited to approximately 2,000 bbls/day incoming produced water do to power outages, however, Bo Jackson expects that to change and hopes to have tanks full by 2:30 am.

Has client provided any operational feedback (positive or negative)?

Person:	Bo Jackson	***Company:***	XTO

Bo is pleased with our operation and understands that we are currently limited by our incoming supply of produced water. He has been working on returning rate up to a possible 6,000 bbls/day.

Additional Comments

There were no chemical adjustments needed today.Both pH and turbidity are stable. We had to shut down treating at 12:45. Bo indicated that we will continue to receive reduced rates of produced water depending on electric company. Crew remained on location to perform housekeeping. Crew will arive on location at 02:00 anticipating full tanks. We are currently at 19,000 bbls in the poseidon tank with an additional 2,000 at recycle location. We will complete recycling for the upcoming frac ahead of schedule as long as the incoming produced water rate returns.

Appendix B
Table B-2

Date:	8/5/2012	Report Number:	56
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00	am/pm
Location:	Nash 29	Shift Offsite Time:	4:00 PM	am/pm
Site Contact:	Bo Jackson		11.5	Total hrs.
Site Contact:	Chad Edwards	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	6 hrs	Cumulative Processing Hrs:	172.75 hrs
BBLS Processed Today:	3,263 bbls	Cumulative BBLS Processed:	71,506 bbls
BBLS/Hr Processed:	**543.8333333**	Cumulative BBLS/Hr Processed:	**413.9 bbl/hr**

Lead Supervisor:	Chad Edwards
Lead Operator	
Crew	Eddie McGruder
	Sammy Dean
	Ray Lee
	Ken Ehler
	Adam Pollard
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
08:00		20v 100a	7.1	5.12
10:00		20v 100a	7.09	4.03
12:30		20v 100a	7.11	4.05
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	326	2,658	2,332	
Sodium Hydroxide	331	982	651	

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

No, supplies on order

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

Additional Comments

Water is processing well. Incoming rate tomorrow should be about 4500 bbls.

Appendix B
Table B-2

Date:	8/6/2012	**Report Number:**	57	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	5:30	am/pm
Location:	Nash 29	Shift Offsite Time:	7:30 PM	am/pm
Site Contact:	Bo Jackson		11.5	Total hrs.
Site Contact:	Chad Edwards	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	10.5 hrs	**Cumulative Processing Hrs:**	183.25 hrs
BBLS Processed Today:	5,060 bbls	**Cumulative BBLS Processed:**	76,566 bbls
BBLS/Hr Processed:	**481.9047619**	**Cumulative BBLS/Hr Processed:**	**417.8 bbl/hr**

Lead Supervisor:	Chad Edwards
Lead Operator	Sammy Dean
Crew	Eddie McGruder
	Ray Lee
	Chris Ray
	Reginald White
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
08:00		20v 100a	7.1	2.58
10:00		20v 100a	7.01	2.25
14:00		20v 100a	7.05	2.06
16:00		20v 100a	7.09	1.89
N/A		20v 100a	7	1.92
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	512	2,332	1,820	
Sodium Hydroxide	379	651	272	

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

Supplies have been ordered and will begin receiving tomorrow

Have there been any changes to the current schedule, including volumes needed by client?

We will be running a split shift on a trial basis tomorrow. Bo Jackson will be out Friday-Monday; so in order to capture as much water as possible, we will run morning and evening shifts at his suggestion.

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

Additional Comments

We have a total of 28,100 bbls treated to date for the upcoming frac on the 9th. Should have no trouble completing the needed volume. Also, we will continue to run after reaching the 35,000 bbls needed until all tanks are full. This should help get a jumpstart on the following frac which will be tight given limited incoming produced water.

Appendix B
Table B-2

Date:	8/7/2012		**Report Number:**	58
			Unit Number:	8

Client:	XTO		Shift Onsite Time:	6:00	am/pm
Location:	Nash 29		Shift Offsite Time:	12:00 PM	am/pm
Site Contact:	Bo Jackson			18	Total hrs.
Site Contact:	Paul Worley		Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	11 hrs	**Cumulative Processing Hrs:**	194 hrs
BBLS Processed Today:	5,560 bbls	**Cumulative BBLS Processed:**	82,126 bbls
BBLS/Hr Processed:	**505.4545455**	**Cumulative BBLS/Hr Processed:**	**423.3 bbl/hr**

		Readings:	flow back	Volts/Amps	pH	Turbidity
Lead Supervisor:	Paul Worley	08:00		100	6.89	1.43
Lead Operator	Sammy Dean	10:00		100	6.93	0.89
Crew	Eddie McGruder	14:00		100	7.12	0.93
	Ray Lee	16:00		100	7.24	1.23
	Chris Ray	18:00		100	7.1	1.56
	Reginald White	N/A		N/A	N/A	N/A

		Chemical	Usage	Start Inv.	End Inv.	On Order
		HcL Acid	375	3,750	3,375	eceived 4000 gal
		Sodium Hydroxide	420	1,200	780	Yes
Visitors:	Bo Jackson					
Visitors:						
Visitors:						

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

Have there been any changes to the current schedule, including volumes needed by client?

SPLIT SHIFTS TO LET DIRTY TANKS FILL IN BETWEEN SHIFTS.

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

Additional Comments

ARRIVED ON LOCATION AT 6 AM REVIEWED JSA ....RAN AS MUCH WATER AS WE COULD FROM DIRTY TANKS AND THEN SHUT DOWN ....NIGHT SHIFT ARRIVED AND CONTINUED CLEANING UNTIL THEY RAN OUT OF DIRTY WATER.EVERYTHING WENT WELL WITH MINOR ADJUSTMENTS TO THE CHEMICALS...WE WILL HAVE PLENTY OF WATER FOR FRAC ON THE 9th.

Appendix B
Table B-2

Date:	8/8/2012	**Report Number:**	59
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00	am/pm
Location:	Nash 29	Shift Offsite Time:	1:00 AM	am/pm
Site Contact:	Bo Jackson		19	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	12 hrs	**Cumulative Processing Hrs:**	206 hrs
BBLS Processed Today:	4,126 bbls	**Cumulative BBLS Processed:**	86,252 bbls
BBLS/Hr Processed:	**343.8333333**	**Cumulative BBLS/Hr Processed:**	**418.7 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	Ken Erler
Crew	Eddie McGruder
	Ray Lee
	Chris Perry
	Reginald White
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
08:00		100	7.21	1.87
10:00		100	7.45	0.78
14:00		100	6.89	0.69
16:00		100	7.33	0.56
18:00		100	7.1	1.34
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	300	3,750	3,450	ceived 4000 gal
Sodium Hydroxide	335	3,280	2,945	ceived 2500 gal

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

Have there been any changes to the current schedule, including volumes needed by client?

SPLIT SHIFTS TO LET DIRTY TANKS FILL IN BETWEEN SHIFTS.

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

Additional Comments

ARRIVED ON LOCATION AT 6 AM REVIEWED JSA ....RAN AS MUCH WATER AS WE COULD FROM DIRTY TANKS AND THEN SHUT DOWN ....NIGHT SHIFT ARRIVED AND CONTINUED CLEANING UNTIL THEY RAN OUT OF DIRTY WATER.EVERYTHING WENT WELL WITH MINOR ADJUSTMENTS TO THE CHEMICALS.

Appendix B
Table B-2

Date:	8/9/2012
Report Number:	60
Unit Number:	8

Client:	XTO
Location:	Nash 29
Site Contact:	Bo Jackson
Site Contact:	Paul Worley

Shift Onsite Time:	6:00	am/pm
Shift Offsite Time:	1:00 AM	am/pm
	12	Total hrs.
Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	8 hrs
BBLS Processed Today:	3,441 bbls
BBLS/Hr Processed:	**430.125**

Cumulative Processing Hrs:	214 hrs
Cumulative BBLS Processed:	89,693 bbls
Cumulative BBLS/Hr Processed:	**419.1 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Chris Perry
	Reginald White

Readings:	flow back	Volts/Amps	pH	Turbidity
08:00		100	6.97	1.87
10:00		100	6.78	0.78
19:00		100	7.23	0.69
21:00		100	6.89	0.56
22:00		100	6.76	1.23
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	351	3,450	3,099	no
Sodium Hydroxide	374	2,945	2,571	no

Visitors:	Bo Jackson
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

Have there been any changes to the current schedule, including volumes needed by client?

SPLIT SHIFTS TO LET DIRTY TANKS FILL IN BETWEEN SHIFTS.

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

Additional Comments

ARRIVED ON LOCATION AT 6 AM REVIEWED JSA ....RAN AS MUCH WATER AS WE COULD FROM DIRTY TANKS AND THEN SHUT DOWN ....NIGHT SHIFT ARRIVED AND CONTINUED CLEANING UNTIL THEY RAN OUT OF DIRTY WATER.EVERYTHING WENT WELL WITH MINOR ADJUSTMENTS TO THE CHEMICALS.

Appendix B
Table B-2

Date:	8/10/2012	**Report Number:**	61
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00	am/pm
Location:	Nash 29	Shift Offsite Time:	4:00 PM	am/pm
Site Contact:	Bo Jackson		9	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	9 hrs	**Cumulative Processing Hrs:**	223 hrs
BBLS Processed Today:	3,990 bbls	**Cumulative BBLS Processed:**	93,683 bbls
BBLS/Hr Processed:	**443.3333333**	**Cumulative BBLS/Hr Processed:**	**420.1 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Chris Perry
	Reginald White
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
08:00		100	6.76	1.35
10:00		100	6.23	1.67
12:00		100	7.12	1.98
14:00		100	6.52	1.32
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	359	2,748	2,389	no
Sodium Hydroxide	403	2,197	1,794	no

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

Have there been any changes to the current schedule, including volumes needed by client?

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

Additional Comments

ARRIVED ON LOCATION AT 6 AM REVIEWED JSA ....RAN AS MUCH WATER AS WE COULD FROM DIRTY TANKS AND THEN SHUT DOWN ....EVERYTHING WENT WELL WITH MINOR ADJUSTMENTS TO THE CHEMICALS.

Appendix B
Table B-2

Date:	8/11/2012	**Report Number:**	62
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00	am/pm
Location:	Nash 29	Shift Offsite Time:	6:00 PM	am/pm
Site Contact:	Bo Jackson		10	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	10 hrs	**Cumulative Processing Hrs:**	233 hrs
BBLS Processed Today:	4,279 bbls	**Cumulative BBLS Processed:**	97,962 bbls
BBLS/Hr Processed:	**427.9**	**Cumulative BBLS/Hr Processed:**	**420.4 bbl/hr**

		Readings:	flow back	Volts/Amps	pH	Turbidity
Lead Supervisor:	Paul Worley	08:00		100	6.87	1.97
Lead Operator	Eddie McGruder	10:00		100	6.43	1.89
Crew	Ray Lee	12:00		100	6.97	1.78
	Chris Perry	14:00		100	6.89	1.43
	Reginald White	16:00		100	6.76	1.56
		N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	385	2,389	2,004	no
Sodium Hydroxide	411	1,794	1,383	no

Visitors:	Bo Jackson
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?
No

Are there any additional supplies/equipment needed? If so, what items and when?

Have there been any changes to the current schedule, including volumes needed by client?

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

Additional Comments

ARRIVED ON LOCATION AT 6 AM REVIEWED JSA ....PROCESSED AS MUCH WATER AS WE COULD FROM DIRTY TANKS ....EVERYTHING WENT WELL WITH MINOR ADJUSTMENTS TO THE CHEMICALS.

Appendix B
Table B-2

Date:	8/12/2012	**Report Number:**	63
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00	am/pm
Location:	Nash 29	Shift Offsite Time:	6:00 PM	am/pm
Site Contact:	Bo Jackson		16 hrs	Total hrs.
Site Contact:	Paul Worley	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	16 hrs	**Cumulative Processing Hrs:**	239 hrs
BBLS Processed Today:	3,359 bbls	**Cumulative BBLS Processed:**	101,321 bbls
BBLS/Hr Processed:	**209.9375**	**Cumulative BBLS/Hr Processed:**	**423.9 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Chris Perry
	Reginald White

Readings:	flow back	Volts/Amps	pH	Turbidity
08:00		100	6.87	1.97
10:00		100	6.43	1.89
12:00		100	6.97	1.78
14:00		100	6.89	1.43
16:00		100	6.76	1.56
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	350	2,004	1,654	no
Sodium Hydroxide	411	1,794	1,383	no

Visitors:	Bo Jackson
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

Have there been any changes to the current schedule, including volumes needed by client?

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

Additional Comments

Performed our morning JSA, consist of trips, falls, 3 point contact when climbing up and down steps and ladders. Make sure we use proper PPE when handling chemicals. It is hot make sure we drink plenty of fluids if feel weak go find a place to sit down. Worked on unit did housekeeping.

Appendix B
Table B-2

Date:	8/13/2012		**Report Number:**	64
			Unit Number:	8

Client:	XTO	**Shift Onsite Time:**	6:00	am/pm
Location:	Nash 29	**Shift Offsite Time:**	6:00 PM	am/pm
Site Contact:	Bo Jackson		12 hrs	Total hrs.
Site Contact:	Paul Worley	**Present Onsite Activities:**	PROCESS WATER	

Processing Hrs Today:	12 hrs	**Cumulative Processing Hrs:**	235 hrs
BBLS Processed Today:	4,735 bbls	**Cumulative BBLS Processed:**	106,056 bbls
BBLS/Hr Processed:	**394.5833333**	**Cumulative BBLS/Hr Processed:**	**451.3 bbl/hr**

Lead Supervisor:	Paul Worley
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Chris Perry
	Reginald White
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
08:00		100	6.87	1.97
10:00		100	6.43	1.89
12:00		100	6.97	1.78
14:00		100	6.89	1.43
16:00		100	6.76	1.56
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	405	2,004	1,599	no
Sodium Hydroxide	411	1,794	1,383	no

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

Have there been any changes to the current schedule, including volumes needed by client?

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

Additional Comments

Performed our morning JSA, Weather conditions some rain , slippery and muddy. Proper PPE when handling chemicals. Watch out for your co-workers. When lifting use the buddy system. XTO wells keep going down, have a crew working on them.

Appendix B
Table B-2

Date:	8/14/2012	**Report Number:**	65
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00	am/pm
Location:	Nash 29	Shift Offsite Time:	6:00 PM	am/pm
Site Contact:	Bo Jackson		14 hrs	Total hrs.
Site Contact:	Sammy Deam	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	14 hrs	**Cumulative Processing Hrs:**	251 hrs
BBLS Processed Today:	6,008 bbls	**Cumulative BBLS Processed:**	112,064 bbls
BBLS/Hr Processed:	**429.1428571**	**Cumulative BBLS/Hr Processed:**	**446.5 bbl/hr**

		Readings:	flow back	Volts/Amps	pH	Turbidity
Lead Supervisor:	Sammy Dean	08:00		100	6.87	1.97
Lead Operator	Eddie McGruder	10:00		100	6.43	1.89
Crew	Ray Lee	12:00		100	6.97	1.78
	Chris Perry	14:00		100	6.89	1.43
	Reginald White	16:00		100	6.76	1.56
		N/A		N/A	N/A	N/A

		Chemical	Usage	Start Inv.	End Inv.	On Order
		HcL Acid	525	2,004	1,479	no
		Sodium Hydroxide	598	1,794	1,196	no
Visitors:	Bo Jackson					
Visitors:						
Visitors:						

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

Have there been any changes to the current schedule, including volumes needed by client?

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

Additional Comments

Performed our morning JSA, Proper PPE when handling chemicals. Team work help each other out know where our musting area is. XTO Still trying to get wells back up and online. Placed an order for Caustic will not be here till Friday morning.

Appendix B
Table B-2

Date:	8/15/2012	**Report Number:**	66
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00	am/pm
Location:	Nash 29	Shift Offsite Time:	6:00 PM	am/pm
Site Contact:	Bo Jackson		16 hrs	Total hrs.
Site Contact:	Sammy Deam	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	16 hrs	**Cumulative Processing Hrs:**	267 hrs
BBLS Processed Today:	7,282 bbls	**Cumulative BBLS Processed:**	119,346 bbls
BBLS/Hr Processed:	**455.125**	**Cumulative BBLS/Hr Processed:**	**447.0 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Chris Perry
	Reginald White
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
08:00		100	6.87	1.97
10:00		100	6.43	1.89
12:00		100	6.97	1.78
14:00		100	6.89	1.43
16:00		100	6.76	1.56
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	525	2,004	1,479	no
Sodium Hydroxide	598	1,794	1,196	no

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

Have there been any changes to the current schedule, including volumes needed by client?

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

Additional Comments

Performed our morning JSA, Proper PPE when handling chemicals. Watch out for each other. Keep a clean path to shower trailer. XTO has some pumps up and going. Received 2 totes of Caustic from Hobbs Yard.

Appendix B
Table B-2

Date:	8/16/2012	Report Number:	67
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00	am/pm
Location:	Nash 29	Shift Offsite Time:	6:00 PM	am/pm
Site Contact:	Bo Jackson		11 hrs	Total hrs.
Site Contact:	Sammy Deam	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	11 hrs	Cumulative Processing Hrs:	278 hrs
BBLS Processed Today:	3,056 bbls	Cumulative BBLS Processed:	121,402 bbls
BBLS/Hr Processed:	277.8181818	Cumulative BBLS/Hr Processed:	436.7 bbl/hr

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Chris Perry
	Reginald White
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
08:00		100	6.87	1.97
10:00		100	6.43	1.89
12:00		100	6.97	1.78
14:00		100	6.89	1.43
16:00		100	6.76	1.56
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	355	1,479	1,124	no
Sodium Hydroxide	266	1,196	930	Yes

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

Have there been any changes to the current schedule, including volumes needed by client?

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*		XTO

Additional Comments

Performed our morning JSA, Proper PPE when chemicals. Pick up all extra hose laying around. Receive 1 tote of Caustic from Third Party Vendor G&K. Had to repair 4 " valve screws broke off. Bought to C Clamps to fix valve. Acid arrive to location. Third party truck broke down on location.

Appendix B
Table B-2

Date:	8/17/2012	**Report Number:**	68
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00	am/pm
Location:	Nash 29	Shift Offsite Time:	6:00 PM	am/pm
Site Contact:	Bo Jackson		4 hrs	Total hrs.
Site Contact:	Sammy Deam	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	4 hrs	**Cumulative Processing Hrs:**	282 hrs
BBLS Processed Today:	1,009 bbls	**Cumulative BBLS Processed:**	122,411 bbls
BBLS/Hr Processed:	**252.25**	**Cumulative BBLS/Hr Processed:**	**434.1 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Chris Perry
	Reginald White
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
08:00		100	6.87	1.97
10:00		100	6.43	1.89
12:00		100	6.97	1.78
14:00		100	6.89	1.43
16:00		100	6.76	1.56
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	150	1,124	974	no
Sodium Hydroxide	130	3,930	3,800	Yes

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

Have there been any changes to the current schedule, including volumes needed by client?

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

Additional Comments

Performed our morning JSA, Proper PPE when handling chemicals. Caustic will not show up until Monday 08-20-2012. Replace the Yardney Media Filter box on the Brown Bear. Raining watch walking area muddy and slippery

Appendix B
Table B-2

Date:	8/18/2012	**Report Number:**	69
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00	am/pm
Location:	Nash 29	Shift Offsite Time:	6:00 PM	am/pm
Site Contact:	Bo Jackson		6 hrs	Total hrs.
Site Contact:	Sammy Deam	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	6 hrs	**Cumulative Processing Hrs:**	288 hrs
BBLS Processed Today:	2,885 bbls	**Cumulative BBLS Processed:**	125,296 bbls
BBLS/Hr Processed:	**480.8333333**	**Cumulative BBLS/Hr Processed:**	**435.1 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Chris Perry
	Reginald White

Readings:	flow back	Volts/Amps	pH	Turbidity
08:00		100	6.87	1.97
10:00		100	6.43	1.89
12:00		100	6.97	1.78
14:00		100	6.89	1.43
16:00		100	6.76	1.56
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	305	974	669	yes
Sodium Hydroxide	250	3,800	3,550	No

Visitors:	Bo Jackson
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

Have there been any changes to the current schedule, including volumes needed by client?

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

Additional Comments

Performed our morning JSA Proper PPE drink plenty of fluid. Watch out for each other.

Appendix B
Table B-2

Date:	8/19/2012

Report Number:	70
Unit Number:	8

Client:	XTO
Location:	Nash 29
Site Contact:	Bo Jackson
Site Contact:	Sammy Deam

Shift Onsite Time:	6:00	am/pm
Shift Offsite Time:	6:00 PM	am/pm
	4 hrs	Total hrs.
Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	4 hrs
BBLS Processed Today:	1,009 bbls
BBLS/Hr Processed:	252.25

Cumulative Processing Hrs:	292 hrs
Cumulative BBLS Processed:	126,305 bbls
Cumulative BBLS/Hr Processed:	432.6 bbl/hr

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Chris Perry
	Reginald White

Readings:	flow back	Volts/Amps	pH	Turbidity
08:00		100	6.87	1.97
10:00		100	6.43	1.89
12:00		100	6.97	1.78
14:00		100	6.89	1.43
16:00		100	6.76	1.56
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	125	3,669	3,544	yes
Sodium Hydroxide	150	3,550	3,400	No

Visitors:	Bo Jackson
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

Have there been any changes to the current schedule, including volumes needed by client?

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*		XTO

Additional Comments

Shut down due to cracked 4" Tee .Shut down system to fix leak. Returned to processing water

Appendix B
Table B-2

Date:	8/20/2012

Report Number:	71
Unit Number:	8

Client:	XTO
Location:	Nash 29
Site Contact:	Bo Jackson
Site Contact:	Sammy Deam

Shift Onsite Time:	6:00	am/pm
Shift Offsite Time:	6:00 PM	am/pm
	12 hrs	Total hrs.
Present Onsite Activities:	Maintenance	

Maint on Unit

Processing Hrs Today:	0 hrs
BBLS Processed Today:	0 bbls
BBLS/Hr Processed:	#DIV/0!

Cumulative Processing Hrs:	292 hrs
Cumulative BBLS Processed:	126,305 bbls
Cumulative BBLS/Hr Processed:	432.6 bbl/hr

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Chris Perry
	Reginald White

Readings:	flow back	Volts/Amps	pH	Turbidity
08:00		100	6.87	1.97
10:00		100	6.43	1.89
12:00		100	6.97	1.78
14:00		100	6.89	1.43
16:00		100	6.76	1.56
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	3,544	3,544	yes
Sodium Hydroxide	0	3,400	3,400	No

Visitors:	Bo Jackson
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

Have there been any changes to the current schedule, including volumes needed by client?

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

Additional Comments

Replace 4 " line on Brown bear waiting for glue to cure. Continue operations 8/21

Appendix B
Table B-2

Date:	8/21/2012		**Report Number:**	72
			Unit Number:	8

Client:	XTO	Shift Onsite Time:	5:00	am/pm
Location:	Nash 29	Shift Offsite Time:	11:00 PM	am/pm
Site Contact:	Bo Jackson		18 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	8 hrs	**Cumulative Processing Hrs:**	300 hrs
BBLS Processed Today:	3,208 bbls	**Cumulative BBLS Processed:**	129,513 bbls
BBLS/Hr Processed:	**401**	**Cumulative BBLS/Hr Processed:**	**431.7 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Chris Perry
Crew	Reginald White
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
16:30		110	7.54	0.64
18:30		110	7	1.67
20:30		110	7.02	1.67
22:30		110	7.34	1.25
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	400	5,300	4,900	No
Sodium Hydroxide	350	2,980	2,630	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

No

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

No

Additional Comments

Presiding tank is full, will not send nomore water to this tank till date of frac job. Started filling holding tanks.

Appendix B
Table B-2

Date:	8/22/2012	**Report Number:**	73
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	9:00	am/pm
Location:	Nash 29	Shift Offsite Time:	4:00 PM	am/pm
Site Contact:	Bo Jackson		7 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	3 hrs	**Cumulative Processing Hrs:**	303 hrs
BBLS Processed Today:	1,419 bbls	**Cumulative BBLS Processed:**	130,932 bbls
BBLS/Hr Processed:	**473**	**Cumulative BBLS/Hr Processed:**	**432.1 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Chris Perry
Crew	Reginald White

Readings:	flow back	Volts/Amps	pH	Turbidity
11:30		110	7.69	1.94
13:30		110	6.98	0.44
15:30		110	7	1.67
15:44		110	6.89	0.24
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	200	4,900	4,700	No
Sodium Hydroxide	175	2,630	2,455	No

Visitors:	Bo Jackson
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

No

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

No

Additional Comments

Poseidon tank is full, will not send more water to this tank till date of frac job. Started filling holding tanks.

Appendix B
Table B-2

Date:	8/23/2012

Report Number:	74
Unit Number:	8

Client:	XTO
Location:	Nash 29
Site Contact:	Bo Jackson
Site Contact:	Sammy Dean

Shift Onsite Time:	10:00	am/pm
Shift Offsite Time:	7:00 PM	am/pm
	9 hrs	Total hrs.
Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	5 hrs
BBLS Processed Today:	2,648 bbls
BBLS/Hr Processed:	**529.6**

Cumulative Processing Hrs:	308 hrs
Cumulative BBLS Processed:	133,580 bbls
Cumulative BBLS/Hr Processed:	**433.7 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Chris Perry
Crew	Reginald White
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
13:00		110	6.44	1.05
15:00		110	7.03	0.381
17:00		110	7.14	0.668
18:00		110	7	0.553
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	150	4,700	4,550	No
Sodium Hydroxide	375	2,455	2,080	No

Were there any abnormal operational issues onsite?

Rain and wind

Are there any additional supplies/equipment needed? If so, what items and when?

No

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

No

Additional Comments

Filled holding tanks to 13 feet as per Bo Jackson's instructions. All tanks are full waiting for Frac date.

Date:	8/24/2012	**Report Number:**	75
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	10:00	am/pm
Location:	Nash 29	Shift Offsite Time:	7:00 PM	am/pm
Site Contact:	Bo Jackson		9 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	PROCESS WATER	

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	308 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	133,580 bbls
BBLS/Hr Processed:	**0**	**Cumulative BBLS/Hr Processed:**	**433.7 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Chris Perry
Crew	Reginald White
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
13:00		N/A	N/A	N/A
15:00		N/A	N/A	N/A
17:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,700	4,550	No
Sodium Hydroxide	0	2,455	2,080	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

No

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

No

Additional Comments

Fixed 4" line for system one on Brown Bear. Spoke with Mr. Bo Jackson, about how Oil got into Poseidon tank. He is not for sure, but do know that there was 3 rd party trucks taking water from XTO Nash Draw Unit # 47 H and unloading it in Poseidon tank. Do not know if those trucks was clean before doing this. Took samples of influent and enfluent, took to Hobbs Yard to be sent to Houston. Poseidon tank is at 136.5" at this time. Recommend to not suck Poseidon tank no lower than 10 inches for frac job.

Appendix B
Table B-2

Date:	8/25/2012	Report Number:	76
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	8:00	am/pm
Location:	Nash 29	Shift Offsite Time:	5:00 AM	am/pm
Site Contact:	Bo Jackson		9 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Maintenance	

Processing Hrs Today:	0 hrs	Cumulative Processing Hrs:	308 hrs
BBLS Processed Today:	0 bbls	Cumulative BBLS Processed:	133,580 bbls
BBLS/Hr Processed:	0	Cumulative BBLS/Hr Processed:	433.7 bbl/hr

Lead Supervisor:	Sammy Dean
Lead Operator	Chris Perry
Crew	Reginald White
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
13:00		N/A	N/A	N/A
15:00		N/A	N/A	N/A
17:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,700	4,550	No
Sodium Hydroxide	0	2,455	2,080	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

No

Have there been any changes to the current schedule, including volumes needed by client?

NO

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

No

Additional Comments

Did not run today all equipment is filled. Water in weir tanks is clear. Trying to get a pressure washer to clean out Brown Bear.

Appendix B
Table B-2

Date:	8/26/2012		Report Number:	77
			Unit Number:	8

Client:	XTO	Shift Onsite Time:	10:00	am/pm
Location:	Nash 29	Shift Offsite Time:	7:00 PM	am/pm
Site Contact:	Bo Jackson		9 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Maintenance	

Processing Hrs Today:	0 hrs	Cumulative Processing Hrs:	308 hrs
BBLS Processed Today:	0 bbls	Cumulative BBLS Processed:	133,580 bbls
BBLS/Hr Processed:	0	Cumulative BBLS/Hr Processed:	433.7 bbl/hr

Lead Supervisor:	Sammy Dean
Lead Operator	Chris Perry
Crew	Reginald White
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
13:00		N/A	N/A	N/A
15:00		N/A	N/A	N/A
17:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,700	4,550	No
Sodium Hydroxide	0	2,455	2,080	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

No

Have there been any changes to the current schedule, including volumes needed by client?

Standy- by as per customer request

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*		XTO

No

Additional Comments

Did not run today all equipment is filled. Water in weir tanks is clear. Trying to get a pressure washer to clean out Brown Bear.

Appendix B
Table B-2

Date:	8/27/2012	**Report Number:**	78
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	8:00	am/pm
Location:	Nash 29	Shift Offsite Time:	5:00 AM	am/pm
Site Contact:	Bo Jackson		9 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Maintenance	

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	308 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	133,580 bbls
BBLS/Hr Processed:	**0**	**Cumulative BBLS/Hr Processed:**	**433.7 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Chris Perry
Crew	Reginald White
Visitors:	Bo Jackson
Visitors:	Todd Cage
Visitors:	Arron Karcher

Readings:	flow back	Volts/Amps	pH	Turbidity
13:00		N/A	N/A	N/A
15:00		N/A	N/A	N/A
17:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,700	4,550	No
Sodium Hydroxide	0	2,455	2,080	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

No

Have there been any changes to the current schedule, including volumes needed by client?

Standy- by as per customer request

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

No

Additional Comments

Did not run today all equipment is filled. Water in weir tanks is clear. Still to get a pressure washer to clean out Brown Bear. Poseidon tank has started leaking from seams. Mr. Randy Green, is going to have some of the water transferred to XTO Nash Draw 49 H and some to XTO Nash Draw Unit # 57 H.

Appendix B
Table B-2

Date:	8/28/2012	**Report Number:**	79
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	8:00	am/pm
Location:	Nash 29	Shift Offsite Time:	5:00	am/pm
Site Contact:	Bo Jackson		9 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Maintenance	

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	308 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	133,580 bbls
BBLS/Hr Processed:	**0**	**Cumulative BBLS/Hr Processed:**	**433.7 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Chris Perry
Crew	Reginald White
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
13:00		N/A	N/A	N/A
15:00		N/A	N/A	N/A
17:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,700	4,550	No
Sodium Hydroxide	0	2,455	2,080	No

Were there any abnormal operational issues onsite?
Poseidon tank off location developed 2 leaks. Operation has been on standby until leaks can be repaired

Are there any additional supplies/equipment needed? If so, what items and when?
No

Have there been any changes to the current schedule, including volumes needed by client?
Standby as per customer request

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

No

Additional Comments

Did not process water today. All tanks are full. Poseidon tank under repair with 2 leaks So complete repairs 8/30/12.

Appendix B
Table B-2

Date:	8/29/2012	**Report Number:**	80
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	8:00	am/pm
Location:	Nash 29	Shift Offsite Time:	5:00	am/pm
Site Contact:	Bo Jackson		9 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Maintenance	

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	308 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	133,580 bbls
BBLS/Hr Processed:	**0**	**Cumulative BBLS/Hr Processed:**	**433.7 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Chris Perry
Crew	Reginald White
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
13:00		N/A	N/A	N/A
15:00		N/A	N/A	N/A
17:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,700	4,550	No
Sodium Hydroxide	0	2,455	2,080	No

Were there any abnormal operational issues onsite?

Poseidon tank off location developed 2 leaks. Operation has been on standby until leaks can be repaired

Are there any additional supplies/equipment needed? If so, what items and when?

No

Have there been any changes to the current schedule, including volumes needed by client?

Standby as per customer request

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

No

Additional Comments

Did not process water today. All tanks are full. Poseidon tank under repair with 2 leaks So complete repairs 8/31/12. Mr. Jackson advised we should be able to start cleaning water on Friday 31st Day Of August 2012, sometime that evening.

Appendix B
Table B-2

Date:	8/30/2012

Report Number:	81
Unit Number:	8

Client:	XTO
Location:	Nash 29
Site Contact:	Bo Jackson
Site Contact:	Sammy Dean

Shift Onsite Time:	8:00	am/pm
Shift Offsite Time:	5:00	am/pm
	9 hrs	Total hrs.
Present Onsite Activities:	Maintenance	

Processing Hrs Today:	0 hrs
BBLS Processed Today:	0 bbls
BBLS/Hr Processed:	**0**

Cumulative Processing Hrs:	308 hrs
Cumulative BBLS Processed:	133,580 bbls
Cumulative BBLS/Hr Processed:	**433.7 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Chris Perry
Crew	Reginald White

Readings:	flow back	Volts/Amps	pH	Turbidity
13:00		N/A	N/A	N/A
15:00		N/A	N/A	N/A
17:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
N/A		N/A	N/A	N/A
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,700	4,550	No
Sodium Hydroxide	0	2,455	2,080	No

Visitors:	Bo Jackson
Visitors:	
Visitors:	

Were there any abnormal operational issues onsite?

Poseidon tank off location developed 2 leaks. Operation has been on standby until leaks can be repaired

Are there any additional supplies/equipment needed? If so, what items and when?

No

Have there been any changes to the current schedule, including volumes needed by client?

Standby as per customer request

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*		XTO

No

Additional Comments

Did not process water today. All tanks are full. Poseidon tank under repair with 2 leaks So complete repairs 8/31/12. Mr. Jackson advised we should be able to start cleaning water on Friday 31st Day Of August 2012, sometime that evening.

Appendix B
Table B-2

Date:	8/31/2012

Report Number:	82
Unit Number:	8

Client:	XTO
Location:	Nash 29
Site Contact:	Bo Jackson
Site Contact:	Sammy Dean

Shift Onsite Time:	12:00:00PM	am/pm
Shift Offsite Time:	0:00	am/pm
	12 hrs	Total hrs.
Present Onsite Activities:	Processing Water	

Processing Hrs Today:	10 hrs
BBLS Processed Today:	5,125 bbls
BBLS/Hr Processed:	**512.5**

Cumulative Processing Hrs:	318 hrs
Cumulative BBLS Processed:	138,705 bbls
Cumulative BBLS/Hr Processed:	**436.2 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Chris Perry
Crew	Reginald White
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
14:00		110	5.31	0.116
16:00		110	6.54	0.864
18:00		110	7.01	0.747
20:00		110	6.57	1.8
22:00		110	7.2	2.12
N/A		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,550	4,200	No
Sodium Hydroxide	0	2,080	1,800	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

No

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

No

Additional Comments

Poseidon tank has been repaired. We started running water today, there are no issues at this time. We will run through out the night or till dirty tanks level is down to 4 inches.

Appendix B
Table B-2

Date:	9/1/2012		**Report Number:**	83
			Unit Number:	8

Client:	XTO	Shift Onsite Time:	12:00:00AM	am/pm
Location:	Nash 29	Shift Offsite Time:	21:00	am/pm
Site Contact:	Bo Jackson		11 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Processing Water	

Processing Hrs Today:	9 hrs	**Cumulative Processing Hrs:**	327 hrs
BBLS Processed Today:	6,101 bbls	**Cumulative BBLS Processed:**	139,681 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**427.2 bbl/hr**

		Readings:	flow back	Volts/Amps	pH	Turbidity
Lead Supervisor:	Sammy Dean	00:00		110	6.8	0.886
Lead Operator	Chris Perry	02:00		110	7	0.968
Crew	Reginald White	13:00		110	7.65	1.11
		15:00		110	7.26	1.26
		17:00		110	6.8	1.57
		19:00		110	6.654	2.47
		21:00		110	6.75	2.23
		Chemical	Usage	Start Inv.	End Inv.	On Order
		HcL Acid	0	4,200	3,800	No
		Sodium Hydroxide	0	1,800	1,500	Yes
Visitors:	Bo Jackson					
Visitors:						
Visitors:						

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

No

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

No

Additional Comments

Received about 600 gallons of Caustic from Oxy Location. Order a load of caustic to be here on 09/06/2012.

Appendix B
Table B-2

Date:	9/2/2012	**Report Number:**	84	
		Unit Number:	8	

Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 29	Shift Offsite Time:	18:00	am/pm
Site Contact:	Bo Jackson		12 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Processing Water	

Processing Hrs Today:	8 hrs	**Cumulative Processing Hrs:**	335 hrs
BBLS Processed Today:	4,483 bbls	**Cumulative BBLS Processed:**	138,063 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**412.1 bbl/hr**

Lead Supervisor:	Sammy Dean	Readings:	flow back	Volts/Amps	pH	Turbidity
Lead Operator	Kenneth Erler	08:00		108	7.56	1.15
Crew	Fermin Valdez	10:00		108	7.35	1.12
		12:00		108	7.89	1.37
		14:00		108	7.46	1.24
		16:00:00 PM		108	6.8	1.57
		18:00:00 PM		108	6.654	2.47
		Chemical	Usage	Start Inv.	End Inv.	On Order
		HcL Acid	0	3,800	3,500	No
		Sodium Hydroxide	0	1,500	1,200	Yes
Visitors:	Bo Jackson					
Visitors:						
Visitors:						

Were there any abnormal operational issues onsite?
No

Are there any additional supplies/equipment needed? If so, what items and when?
No

Have there been any changes to the current schedule, including volumes needed by client?
No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

No

Additional Comments

Keep losing power. Going to try and run till we are down to 4".

Appendix B
Table B-2

Date:	9/3/2012	**Report Number:**	85
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 29	Shift Offsite Time:	19:00	am/pm
Site Contact:	Bo Jackson		11 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Processing Water	

Processing Hrs Today:	6 hrs	**Cumulative Processing Hrs:**	341 hrs
BBLS Processed Today:	4,394 bbls	**Cumulative BBLS Processed:**	137,974 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**404.6 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Kenneth Erler
Crew	Fermin Valdez
	Eddie MrGruder
	Ray Lee
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
08:00		108	6.86	0.886
10:00		108	6.9	0.965
12:00		108	7.54	1.116
14:00		108	7.68	1.24
16:00:00 PM		108	7.43	1.032

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	3,500	3,200	No
Sodium Hydroxide	0	1,200	900	Yes

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

No

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

No

Additional Comments

Appendix B
Table B-2

Date:	9/4/2012	Report Number:	86
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 29	Shift Offsite Time:	18:00	am/pm
Site Contact:	Bo Jackson		12 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Processing Water	

Processing Hrs Today:	9 hrs	Cumulative Processing Hrs:	350 hrs
BBLS Processed Today:	4,844 bbls	Cumulative BBLS Processed:	138,424 bbls
BBLS/Hr Processed:	**512.5**	Cumulative BBLS/Hr Processed:	**395.5 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Kenneth Erler
Crew	Fermin Valdez
	Ray Lee
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
08:00		108	7.89	2.12
10:00		108	6.9	0.892
12:00		108	7.35	0.992
14:00		108	7.55	1.69
16:00:00 PM		108	7.12	1.21

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	3,200	2,900	No
Sodium Hydroxide	0	900	600	Yes

Were there any abnormal operational issues onsite?
No

Are there any additional supplies/equipment needed? If so, what items and when?
No

Have there been any changes to the current schedule, including volumes needed by client?
No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

No

Additional Comments

Appendix B
Table B-2

Date:	9/5/2012	**Report Number:**	87	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 29	Shift Offsite Time:	0:00	am/pm
Site Contact:	Bo Jackson		18 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Processing Water	

Processing Hrs Today:	12 hrs	**Cumulative Processing Hrs:**	362 hrs
BBLS Processed Today:	5,113 bbls	**Cumulative BBLS Processed:**	163,640 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**452.0 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Kenneth Erler
Crew	Fermin Valdez
	Ray Lee
	Adam Pollard
	Eddie McGruder
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
08:00		108	6.54	0.158
10:00		108	6.84	0.872
12:00		108	7.25	1.01
14:00		108	7.35	1.15
20:00		108	7.21	1.21
22:00		108	7.85	1.52

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	2,900	2,500	No
Sodium Hydroxide	0	600	1,425	Yes

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

No

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

No

Additional Comments

Performed JAS everyone aware of their task for today. Worked on house keeping. Took 4 totes of Caustic from yard. Load of Caustic will arrive tomorrow evening around 1800 hours NMT.

Appendix B
Table B-2

Date:	9/6/2012		**Report Number:**	88
			Unit Number:	8

Client:	XTO		Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 29		Shift Offsite Time:	0:00	am/pm
Site Contact:	Bo Jackson			18 hrs	Total hrs.
Site Contact:	Sammy Dean		Present Onsite Activities:	Processing Water	

Processing Hrs Today:	6 hrs	**Cumulative Processing Hrs:**	368 hrs
BBLS Processed Today:	2,786 bbls	**Cumulative BBLS Processed:**	166,426 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**452.2 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Kenneth Erler
Crew	Fermin Valdez
	Ray Lee
	Adam Pollard
	Eddie McGruder
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
08:00		108	7.21	0.897
10:00		108	6.54	0.123
12:00		108	7.54	0.998
14:00				
20:00				
22:00				

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	2,500	2,350	Yes
Sodium Hydroxide	0	1,425	6,200	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

No

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

No

Additional Comments

Caustic arrived to location around 5:00 pm. Brown bear System 1 and system 2 blinded off. Ordered load of acid to be on location on 09-07-2012.

Appendix B
Table B-2

Date:	9/7/2012		Report Number:		89	
			Unit Number:		8	
Client:	XTO		Shift Onsite Time:		6:00:00AM	am/pm
Location:	Nash 29		Shift Offsite Time:		0:00	am/pm
Site Contact:	Bo Jackson				18 hrs	Total hrs.
Site Contact:	Sammy Dean		Present Onsite Activities:		Processing Water	

Processing Hrs Today:	12 hrs	Cumulative Processing Hrs:	380 hrs
BBLS Processed Today:	6,480 bbls	Cumulative BBLS Processed:	172,906 bbls
BBLS/Hr Processed:	**512.5**	Cumulative BBLS/Hr Processed:	**455.0 bbl/hr**

		Readings:	flow back	Volts/Amps	pH	Turbidity
Lead Supervisor:	Sammy Dean	10:00		108	6.75	0.456
Lead Operator	Kenneth Erler	12:00		108	6.89	0.573
Crew	Fermin Valdez	14:00		108	6.69	0.654
	Ray Lee	16:00		108	7.32	0.768
	Adam Pollard	18:00		108	7.78	1.189
	Eddie McGruder	20:00		108	7.5	0.975
		22:00		108	7.25	0.9
		Chemical	Usage	Start Inv.	End Inv.	On Order
		HcL Acid	0	2,350	1,900	Yes
		Sodium Hydroxide	0	6,200	5,800	No
Visitors:	Bo Jackson					
Visitors:						
Visitors:						

Were there any abnormal operational issues onsite?
Brown bear went down, went to Odessa picked up another unit.

Are there any additional supplies/equipment needed? If so, what items and when?
No

Have there been any changes to the current schedule, including volumes needed by client?
No

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

No

Additional Comments

Went to Odessa and picked up another Brown Bear Unit. Acid did not show up PO was never create. Acid will be on location at 0800 hours on 09-07-2012. XTO is hauling in fresh water for this Frac Job.

Appendix B
Table B-2

Date:	9/8/2012

Report Number:	90
Unit Number:	8

Client:	XTO
Location:	Nash 29
Site Contact:	Bo Jackson
Site Contact:	Sammy Dean

Shift Onsite Time:	6:00:00AM	am/pm
Shift Offsite Time:	0:00	am/pm
	18 hrs	Total hrs.
Present Onsite Activities:	Processing Water	

Processing Hrs Today:	16 hrs
BBLS Processed Today:	6,480 bbls
BBLS/Hr Processed:	**512.5**

Cumulative Processing Hrs:	396 hrs
Cumulative BBLS Processed:	179,386 bbls
Cumulative BBLS/Hr Processed:	**453.0 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Kenneth Erler
Crew	Fermin Valdez
	Ray Lee
	Adam Pollard
	Eddie McGruder
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		108	7.12	0.789
12:00		108	7.34	0.889
14:00		108	7.54	0.987
16:00		108	7.32	0.785
18:00		108	7.43	0.975
20:00		108	7.5	1.189
22:00		108	7.25	1.115
Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	6,400	6,000	NO
Sodium Hydroxide	0	5,800	5,550	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

No

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

No

Additional Comments

Peformed JSA, started raining throughout the night. Posidon Tank is filled for next Frac.

Appendix B
Table B-2

Date:	9/9/2012	Report Number:	91
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 29	Shift Offsite Time:	18:00	am/pm
Site Contact:	Bo Jackson		12 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Processing Water	

Processing Hrs Today:	3 hrs	Cumulative Processing Hrs:	399 hrs
BBLS Processed Today:	1,230 bbls	Cumulative BBLS Processed:	180,616 bbls
BBLS/Hr Processed:	**512.5**	Cumulative BBLS/Hr Processed:	**452.7 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Kenneth Erler
Crew	Eddie McGruder
	Ray Lee
	Adam Pollard
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		108	7.56	0.895
12:00		108	6.89	0.437
13:00		108	7.32	0.875
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	6,000	5,950	NO
Sodium Hydroxide	0	5,550	5,400	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

No

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		Company:		XTO

No

Additional Comments

Peformed JSA, filled holding tanks. Did maintenance and house keeping on units.

Appendix B
Table B-2

Date:	9/10/2012	**Report Number:**	92	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49	Shift Offsite Time:	18:00	am/pm
Site Contact:	Bo Jackson		12 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Processing Water	

Processing Hrs Today:	4 hrs	**Cumulative Processing Hrs:**	403 hrs
BBLS Processed Today:	2,277 bbls	**Cumulative BBLS Processed:**	182,893 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**453.8 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Kenneth Erler
Crew	Eddie McGruder
	Ray Lee
	Adam Pollard
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		110	7	0.198
12:00		110	7.43	0.089
13:00		N/A	N/A	N/A
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,950	5,800	NO
Sodium Hydroxide	0	5,400	5,250	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

Additional Comments

We have 2 weeks to catch next job, we will need approximately 34,000 lbs.

Appendix B
Table B-2

Date:	9/11/2012

Report Number:	93
Unit Number:	8

Client:	XTO
Location:	Nash 49
Site Contact:	Bo Jackson
Site Contact:	Sammy Dean

Shift Onsite Time:	6:00:00AM	am/pm
Shift Offsite Time:	1:00 PM	am/pm
	5 hrs	Total hrs.
Present Onsite Activities:	Processing Water	

Processing Hrs Today:	1 hrs
BBLS Processed Today:	935 bbls
BBLS/Hr Processed:	**512.5**

Cumulative Processing Hrs:	404 hrs
Cumulative BBLS Processed:	183,828 bbls
Cumulative BBLS/Hr Processed:	**455.0 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Ray Lee
Crew	Eddie McGruder
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		110	7	0.198
12:00		N/A	N/A	N/A
13:00		N/A	N/A	N/A
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,800	5,750	NO
Sodium Hydroxide	0	5,250	5,200	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

Additional Comments

Fulled Sludge and cleaned tanks.

Appendix B
Table B-2

Date:	9/12/2012
Report Number:	94
Unit Number:	8

Client:	XTO
Location:	Nash 49
Site Contact:	Bo Jackson
Site Contact:	Sammy Dean

Shift Onsite Time:	6:00:00AM	am/pm
Shift Offsite Time:	18:00:00 PM	am/pm
	12 hrs	Total hrs.
Present Onsite Activities:	Processing Water	

Processing Hrs Today:	6 hrs
BBLS Processed Today:	2,513 bbls
BBLS/Hr Processed:	**512.5**

Cumulative Processing Hrs:	410 hrs
Cumulative BBLS Processed:	186,341 bbls
Cumulative BBLS/Hr Processed:	**454.5 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Ray Lee
Crew	Eddie McGruder
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		110	7	0.198
12:00		110	7.65	0.285
14:00		110	7.24	1.893
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,750	5,500	NO
Sodium Hydroxide	0	5,200	5,000	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

Additional Comments

Performed JSA dkrink plenty of fluid and watch out for each other.

Appendix B
Table B-2

Date:	9/13/2012		**Report Number:**	95
			Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49	Shift Offsite Time:	18:00:00 PM	am/pm
Site Contact:	Bo Jackson		12 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Processing Water	

Processing Hrs Today:	6 hrs	**Cumulative Processing Hrs:**	416 hrs
BBLS Processed Today:	2,206 bbls	**Cumulative BBLS Processed:**	188,547 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**453.2 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Ray Lee
Crew	Eddie McGruder
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		110	6.89	1.785
12:00		110	7.24	0.896
14:00		110	7.13	0.987
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,750	5,500	NO
Sodium Hydroxide	0	5,200	5,000	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

Additional Comments

Performed JSA drink plenty of fluid and watch out for each other.

Appendix B
Table B-2

Date:	9/14/2012	**Report Number:**	96
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49	Shift Offsite Time:	18:00:00 PM	am/pm
Site Contact:	Bo Jackson		12 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Processing Water	

Processing Hrs Today:	6 hrs	**Cumulative Processing Hrs:**	416 hrs
BBLS Processed Today:	2,206 bbls	**Cumulative BBLS Processed:**	188,547 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**453.2 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Adam Pollard
Crew	Ray Lee
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		110	6.89	1.785
12:00		110	7.24	0.896
14:00		110	7.13	0.987
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,750	5,500	NO
Sodium Hydroxide	0	5,200	5,000	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

Additional Comments

Performed JSA drink plenty of fluid and watch out for each other.

Appendix B
Table B-2

Date:	9/15/2012		**Report Number:**	97
			Unit Number:	8

Client:	XTO		Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49		Shift Offsite Time:	18:00:00 PM	am/pm
Site Contact:	Bo Jackson			12 hrs	Total hrs.
Site Contact:	Sammy Dean		Present Onsite Activities:	Maintenance	

Processing Hrs Today:	0 hrs		**Cumulative Processing Hrs:**	416 hrs
BBLS Processed Today:	0 bbls		**Cumulative BBLS Processed:**	188,547 bbls
BBLS/Hr Processed:	**512.5**		**Cumulative BBLS/Hr Processed:**	**453.2 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Adam Pollard
Crew	Ray Lee
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		N/A	N/A	N/A
12:00		N/A	N/A	N/A
14:00		N/A	N/A	N/A
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,500	5,500	NO
Sodium Hydroxide	0	5,000	5,000	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

Additional Comments

Maintenance and Repair

Appendix B
Table B-2

Date:	9/16/2012	**Report Number:**	98	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49	Shift Offsite Time:	18:00:00 PM	am/pm
Site Contact:	Bo Jackson		12 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Maintenance	

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	416 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	188,547 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**453.2 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Adam Pollard
Crew	Ray Lee
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		N/A	N/A	N/A
12:00		N/A	N/A	N/A
14:00		N/A	N/A	N/A
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,500	5,500	NO
Sodium Hydroxide	0	5,000	5,000	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

XTO pump is down, trying to gravity feed clean water from holding tanks to Poseidon Tank.

Additional Comments

Maintenance and Repair Waiting on XTO to tell us to start running again.

Appendix B
Table B-2

Date:	9/17/2012		**Report Number:**	99
			Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49	Shift Offsite Time:	18:00:00 PM	am/pm
Site Contact:	Bo Jackson		12 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Maintenance	

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	416 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	188,547 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**453.2 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
Visitors:	Bo Jackson
Visitors:	
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		N/A	N/A	N/A
12:00		N/A	N/A	N/A
14:00		N/A	N/A	N/A
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,500	5,500	NO
Sodium Hydroxide	0	5,000	5,000	No

Were there any abnormal operational issues onsite?
No

Are there any additional supplies/equipment needed? If so, what items and when?
PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?
No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

XTO pump is down, trying to gravity feed clean water from holding tanks to Poseidon Tank.

Additional Comments

Maintenance and Repair Waiting on XTO to tell us to start running again.

Appendix B
Table B-2

Date:	9/18/2012	**Report Number:**	100
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49	Shift Offsite Time:	18:00:00 PM	am/pm
Site Contact:	Bo Jackson		12 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Maintenance	

Processing Hrs Today:	8 hrs	**Cumulative Processing Hrs:**	424 hrs
BBLS Processed Today:	3,005 bbls	**Cumulative BBLS Processed:**	191,552 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**451.8 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
Visitors:	Bo Jackson
Visitors:	Select Services
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		110	6.89	0.785
12:00		110	7.54	0.983
14:00		110	7.85	1.891
16:00		110	7.36	0.985
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,500	5,200	NO
Sodium Hydroxide	0	5,000	4,750	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

Additional Comments

Select Services will use teir pump to pump water from holding tanks to Poseidon Tank.

Date:	9/19/2012	Report Number:	101	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49	Shift Offsite Time:	14:00:00 PM	am/pm
Site Contact:	Bo Jackson		8 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Maintenance	

Processing Hrs Today:	3 hrs	Cumulative Processing Hrs:	427 hrs
BBLS Processed Today:	1,366 bbls	Cumulative BBLS Processed:	192,918 bbls
BBLS/Hr Processed:	512.5	Cumulative BBLS/Hr Processed:	451.8 bbl/hr

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
Visitors:	Bo Jackson
Visitors:	Select Services
Visitors:	Bo Wells

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		110	6.89	0.785
12:00		110	7.54	0.983
14:00		110	7.85	1.891
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,200	5,100	NO
Sodium Hydroxide	0	4,750	4,700	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

Additional Comments

Select Services will use teir pump to pump water from holding tanks to Poseidon Tank.

Appendix B
Table B-2

Date:	9/20/2012	**Report Number:**	102	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49	Shift Offsite Time:	20:00:00 PM	am/pm
Site Contact:	Bo Jackson		14 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Maintenance	

Processing Hrs Today:	8 hrs	**Cumulative Processing Hrs:**	435 hrs
BBLS Processed Today:	4,476 bbls	**Cumulative BBLS Processed:**	197,394 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**453.8 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
Visitors:	Bo Jackson
Visitors:	Select Services
Visitors:	Bo Wells

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		110	7.78	1.90
12:00		110	7.13	.483
14:00		110	7.09	.319
16:00		110	7	0.209
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	5,100	4,800	NO
Sodium Hydroxide	0	4,700	4,400	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

Additional Comments

JSA performed, did maintenance on units and housekeeping.

Appendix B
Table B-2

Date:	9/21/2012	**Report Number:**	103
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49	Shift Offsite Time:	20:00:00 PM	am/pm
Site Contact:	Bo Jackson		14 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Maintenance	

Processing Hrs Today:	2 hrs	**Cumulative Processing Hrs:**	437 hrs
BBLS Processed Today:	1,967 bbls	**Cumulative BBLS Processed:**	199,361 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**456.2 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Christopher Perry
Visitors:	Bo Jackson
Visitors:	Select Services
Visitors:	Bo Wells

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		110	7.2	1.15
12:00		N/A	N/A	N/A
14:00		N/A	N/A	N/A
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,800	4,750	NO
Sodium Hydroxide	0	4,400	4,350	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

Additional Comments

JSA performed, did maintenance on units and housekeeping.

Appendix B
Table B-2

Date:	9/22/2012	Report Number:	104
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49	Shift Offsite Time:	12:00 PM	am/pm
Site Contact:	Bo Jackson		14 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Maintenance	

Processing Hrs Today:	4 hrs	Cumulative Processing Hrs:	441 hrs
BBLS Processed Today:	2,982 bbls	Cumulative BBLS Processed:	202,343 bbls
BBLS/Hr Processed:	**512.5**	Cumulative BBLS/Hr Processed:	**458.8 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Christopher Perry
Visitors:	Bo Jackson
Visitors:	Select Services
Visitors:	Bo Wells

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		110	6.84	1.67
12:00		110	7.35	1.02
14:00		N/A	N/A	N/A
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,750	4,600	NO
Sodium Hydroxide	0	4,350	4,200	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

Additional Comments

JSA performed, did maintenance on units and housekeeping. Filled holding tanks to 13' waiting on select well service to come out and transfer water to poseidon tank.

Appendix B
Table B-2

Date:	9/23/2012	**Report Number:**	105
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49	Shift Offsite Time:	12:00 PM	am/pm
Site Contact:	Bo Jackson		14 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Maintenance	

Processing Hrs Today:	2 hrs	**Cumulative Processing Hrs:**	443 hrs
BBLS Processed Today:	1,441 bbls	**Cumulative BBLS Processed:**	203,784 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**460.0 bbl/hr**

Lead Supervisor:	Sammy Dean	Readings:	flow back	Volts/Amps	pH	Turbidity
Lead Operator	Eddie McGruder	10:00		110	6.79	1.91
Crew	Ray Lee	12:00		N/A	N/A	N/A
	Christopher Perry	14:00		N/A	N/A	N/A
		16:00		N/A	N/A	N/A
		18:00		N/A	N/A	N/A
		20:00		N/A	N/A	N/A
		Chemical	Usage	Start Inv.	End Inv.	On Order
		HcL Acid	0	4,600	4,500	NO
		Sodium Hydroxide	0	4,200	4,100	No
Visitors:	Bo Jackson					
Visitors:	Select Services					
Visitors:	Bo Wells					

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

Additional Comments

JSA performed, did maintenance on units and housekeeping. Filled holding tanks to 13' waiting on select well service to come out and transfer water to poseidon tank.

Appendix B
Table B-2

Date:	9/24/2012	Report Number:	106
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49	Shift Offsite Time:	12:00 PM	am/pm
Site Contact:	Bo Jackson		14 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Process Water/Maintenance	

Processing Hrs Today:	2 hrs	**Cumulative Processing Hrs:**	445 hrs
BBLS Processed Today:	1,156 bbls	**Cumulative BBLS Processed:**	204,940 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**460.5 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Christopher Perry
	Reginald White
Visitors:	Bo Jackson
Visitors:	Select Services
Visitors:	Bo Wells

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		110	7.54	0.897
12:00		N/A	N/A	N/A
14:00		N/A	N/A	N/A
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,500	4,450	NO
Sodium Hydroxide	0	4,100	4,050	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*		XTO

Additional Comments

JSA performed, did maintenance on units and housekeeping. Filled holding tanks to 13' waiting on select well service to come out and transfer water to poseidon tank.

Date:	9/25/2012

Report Number:	107
Unit Number:	8

Client:	XTO
Location:	Nash 49
Site Contact:	Bo Jackson
Site Contact:	Sammy Dean

Shift Onsite Time:	6:00:00AM	am/pm
Shift Offsite Time:	12:00 PM	am/pm
	6 hrs	Total hrs.
Present Onsite Activities:	Maintenance	

Processing Hrs Today:	0 hrs
BBLS Processed Today:	0 bbls
BBLS/Hr Processed:	512.5

Cumulative Processing Hrs:	445 hrs
Cumulative BBLS Processed:	204,940 bbls
Cumulative BBLS/Hr Processed:	460.5 bbl/hr

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Christopher Perry
	Reginald White

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		N/A	N/A	N/A
12:00		N/A	N/A	N/A
14:00		N/A	N/A	N/A
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,450	4,450	NO
Sodium Hydroxide	0	4,050	4,050	No

Visitors:	Bo Jackson
Visitors:	Select Services
Visitors:	Bo Wells

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

Additional Comments

JSA performed, did maintenance on units and housekeeping.

Appendix B
Table B-2

Date:	9/26/2012	**Report Number:**	108
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49	Shift Offsite Time:	12:00 PM	am/pm
Site Contact:	Bo Jackson		6 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Process Water/Maintenance	

Processing Hrs Today:	4 hrs	**Cumulative Processing Hrs:**	449 hrs
BBLS Processed Today:	2,970 bbls	**Cumulative BBLS Processed:**	207,910 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**463.1 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Christopher Perry
	Reginald White

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		110	7.10	3.31
12:00		110	7.65	1.96
14:00		N/A	N/A	N/A
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,450	4,200	NO
Sodium Hydroxide	0	4,050	3,800	No

Visitors:	Bo Jackson
Visitors:	Select Services
Visitors:	Bo Wells

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

Additional Comments

JSA performed, did maintenance on units and housekeeping. Process Water waiting on select to transfer water from holding tanks to Poseidon Tank.

Appendix B
Table B-2

Date:	9/27/2012	**Report Number:**	109
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49	Shift Offsite Time:	12:00 PM	am/pm
Site Contact:	Bo Jackson		6 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Process Water/Maintenance	

Processing Hrs Today:	2 hrs	**Cumulative Processing Hrs:**	451 hrs
BBLS Processed Today:	1,045 bbls	**Cumulative BBLS Processed:**	208,955 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**463.3 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Christopher Perry
	Reginald White

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		110	7.54	1.19
12:00		N/A	N/A	N/A
14:00		N/A	N/A	N/A
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,200	4,100	NO
Sodium Hydroxide	0	3,800	3,700	No

Visitors:	Bo Jackson
Visitors:	Select Services
Visitors:	Bo Wells

Were there any abnormal operational issues onsite?
No

Are there any additional supplies/equipment needed? If so, what items and when?
PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?
No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

Additional Comments

JSA performed, did maintenance on units and housekeeping. Process Water waiting on select to transfer water from holding tanks to Poseidon Tank.Filled up Poseidon Tank Frac Job started today have enough water for job.

Appendix B
Table B-2

Date:	9/28/2012	**Report Number:**	110
		Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49	Shift Offsite Time:	12:00 PM	am/pm
Site Contact:	Bo Jackson		6 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Maintenance	

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	451 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	208,955 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**463.3 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Christopher Perry
	Reginald White
Visitors:	Bo Jackson
Visitors:	Select Services
Visitors:	Bo Wells

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		N/A	N/A	N/A
12:00		N/A	N/A	N/A
14:00		N/A	N/A	N/A
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,100	4,100	NO
Sodium Hydroxide	0	3,700	3,700	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

Additional Comments

JSA Performed waiting on XTO to schedule the sludge pull. House cleaning working on units.

Appendix B
Table B-2

Date:	9/29/2012		**Report Number:**	111
			Unit Number:	8

Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49	Shift Offsite Time:	12:00 PM	am/pm
Site Contact:	Bo Jackson		6 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Maintenance	

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	451 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	208,955 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**463.3 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Christopher Perry
	Reginald White

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		N/A	N/A	N/A
12:00		N/A	N/A	N/A
14:00		N/A	N/A	N/A
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,100	4,100	NO
Sodium Hydroxide	0	3,700	3,700	No

Visitors:	Bo Jackson
Visitors:	Select Services
Visitors:	Bo Wells

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***		XTO

Additional Comments

JSA Performed waiting on XTO to schedule the sludge pull. House cleaning working on units.

Date:	9/30/2012	**Report Number:**	112	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49	Shift Offsite Time:	12:00 PM	am/pm
Site Contact:	Bo Jackson		6 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Maintenance	

Processing Hrs Today:	0 hrs	**Cumulative Processing Hrs:**	451 hrs
BBLS Processed Today:	0 bbls	**Cumulative BBLS Processed:**	208,955 bbls
BBLS/Hr Processed:	**512.5**	**Cumulative BBLS/Hr Processed:**	**463.3 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Eddie McGruder
Crew	Ray Lee
	Christopher Perry
	Reginald White
Visitors:	Bo Jackson
Visitors:	Select Services
Visitors:	Bo Wells

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		N/A	N/A	N/A
12:00		N/A	N/A	N/A
14:00		N/A	N/A	N/A
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,100	4,100	NO
Sodium Hydroxide	0	3,700	3,700	No

Were there any abnormal operational issues onsite?

No

Are there any additional supplies/equipment needed? If so, what items and when?

PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?

No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

Additional Comments

JSA Performed waiting on XTO to schedule the sludge pull. House cleaning working on units.

Appendix B
Table B-2

Date:	10/1/2012
Report Number:	113
Unit Number:	8

Client:	XTO
Location:	Nash 49
Site Contact:	Bo Jackson
Site Contact:	Sammy Dean

Shift Onsite Time:	6:00:00AM	am/pm
Shift Offsite Time:	12:00 PM	am/pm
	6 hrs	Total hrs.
Present Onsite Activities:	Maintenance	

Processing Hrs Today:	0 hrs
BBLS Processed Today:	0 bbls
BBLS/Hr Processed:	**512.5**

Cumulative Processing Hrs:	451 hrs
Cumulative BBLS Processed:	208,955 bbls
Cumulative BBLS/Hr Processed:	**463.3 bbl/hr**

Lead Supervisor:	Sammy Dean
Lead Operator	Christopher Perry
Crew	Reginald White
Visitors:	Bo Jackson
Visitors:	Select Services
Visitors:	Bo Wells

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		N/A	N/A	N/A
12:00		N/A	N/A	N/A
14:00		N/A	N/A	N/A
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,100	4,100	NO
Sodium Hydroxide	0	3,700	3,700	No

Were there any abnormal operational issues onsite?
No

Are there any additional supplies/equipment needed? If so, what items and when?
PVC SCH 80

Have there been any changes to the current schedule, including volumes needed by client?
No

Has client provided any operational feedback (positive or negative)?

Person:		***Company:***	XTO

Additional Comments

JSA performed Started sludge pull today did not finished. Will continue pulling sludge on Tuesday 10/02/2012. Bo Jackson will get an electrician out on location tomorrow to unpluged all the electricity.

Appendix B
Table B-2

Date:	10/5/2012	Report Number:	114	
		Unit Number:	8	
Client:	XTO	Shift Onsite Time:	6:00:00AM	am/pm
Location:	Nash 49	Shift Offsite Time:	12:00 PM	am/pm
Site Contact:	Bo Jackson		6 hrs	Total hrs.
Site Contact:	Sammy Dean	Present Onsite Activities:	Rig Down	

Rig down units

Processing Hrs Today:	0 hrs	Cumulative Processing Hrs:	0 hrs
BBLS Processed Today:	0 bbls	Cumulative BBLS Processed:	208,955 bbls
BBLS/Hr Processed:	512.5	Cumulative BBLS/Hr Processed:	#DIV/0!

Lead Supervisor:	Sammy Dean
Lead Operator	Christopher Perry
Crew	Reginald White
Visitors:	Bo Jackson
Visitors:	Robert Rink
Visitors:	

Readings:	flow back	Volts/Amps	pH	Turbidity
10:00		N/A	N/A	N/A
12:00		N/A	N/A	N/A
14:00		N/A	N/A	N/A
16:00		N/A	N/A	N/A
18:00		N/A	N/A	N/A
20:00		N/A	N/A	N/A

Chemical	Usage	Start Inv.	End Inv.	On Order
HcL Acid	0	4,100	4,100	NO
Sodium Hydroxide	0	3,700	3,700	No

Were there any abnormal operational issues onsite?

Are there any additional supplies/equipment needed? If so, what items and when?

Have there been any changes to the current schedule, including volumes needed by client?

Operation completed

Has client provided any operational feedback (positive or negative)?

Person:		*Company:*	XTO

Additional Comments

Ooeration Completed. Rig down Equipment

APPENDIX C

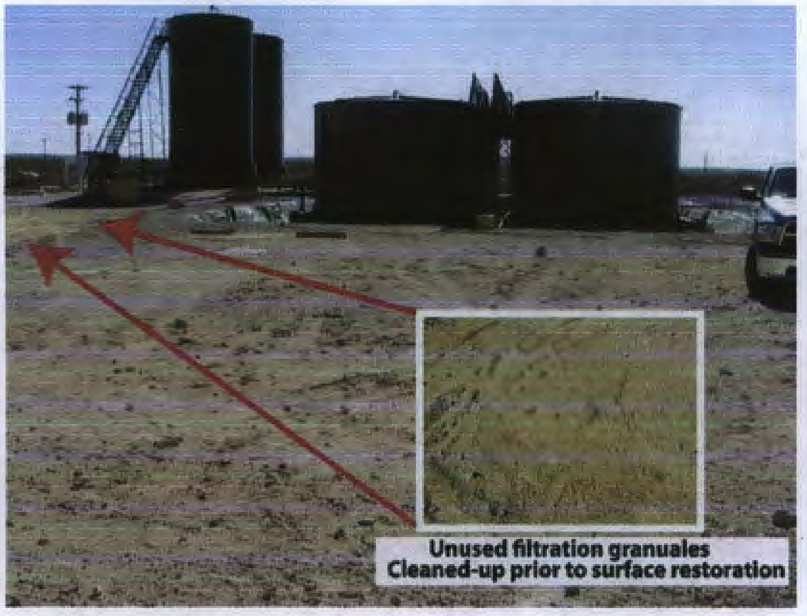


Figure 1: Photograph of filtration granules used in the CleanWave system. The granules were cleaned-up prior to surface restoration.

Figure 2: Grading of former containment berms. The former berms were either thin spread on location or placed around location to reinforce existing berms (Figure 3).

Figure 3: Re-using material from former containment berms from the CleanWave system to reinforce existing containment berms.

Figure 4: Location graded to pre-existing conditions. Nash Unit #4 is at left; Nash Unit #53SWD at right. Photograph is viewing south.