

# Carlsbad Field Office OCD Artesia

FORM APPROVED  
OMB No. 1004-0137  
Expires: January 31, 2018

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

## APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM017056
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input checked="" type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement. Name and No. NASH / NMNM070992X
2. Name of Operator XTO ENERGY INCORPORATED		8. Lease Name and Well No. NASH UNIT 301H 303152
3a. Address 2277 Springwoods Village Parkway Spring TX 77389	3b. Phone No. (include area code) (432)620-6700	9. API Well No. 30-015-45500
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface NENE / 140 FNL / 630 FEL / LAT 32.297335 / LONG -103.91434 At proposed prod. zone SESE / 1120 FSL / 990 FEL / LAT 32.329967 / LONG -103.915521		10. Field and Pool, or Exploratory FORTY NINER RIDGE BONE SPRING 86526
14. Distance in miles and direction from nearest town or post office*		11. Sec., T. R. M. or Blk. and Survey or Area SEC 19 / T23S / R30E / NMP
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 140 feet		12. County or Parish EDDY
16. No of acres in lease 160		13. State NM
17. Spacing Unit dedicated to this well 360		
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 50 feet		20. BLM/BIA Bond No. in file FED: UTB000138
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3114 feet	22. Approximate date work will start* 10/01/2018	23. Estimated duration 90 days
24. Attachments		

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

- |  |   |
|--|---|
| 1. Well plat certified by a registered surveyor.   | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan.  | 5. Operator certification.  |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be requested by the BLM.            |

25. Signature (Electronic Submission)	Name (Printed/Typed) Stephanie Rabadue / Ph: (432)620-6714	Date 06/25/2018
Title Regulatory Coordinator		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 11/20/2018
Title Assistant Field Manager Lands & Minerals		
Office CARLSBAD		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

NM OIL CONSERVATION  
ARTESIA DISTRICT

NOV 29 2018

RECEIVED

(Continued on page 2)

APPROVED WITH CONDITIONS

Approval Date: 11/20/2018

\*(Instructions on page 2)

RWP/2-4-18

## INSTRUCTIONS

**GENERAL:** This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

**ITEM 1:** If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

**ITEM 4:** Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

**ITEM 14:** Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal agency offices.

**ITEMS 15 AND 18:** If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

**ITEM 22:** Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

**ITEM 24:** If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

## NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48( d) provide that you be furnished the following information in connection with information required by this application.

**AUTHORITY:** 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

**PRINCIPAL PURPOSES:** The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

**ROUTINE USE:** Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

**EFFECT OF NOT PROVIDING INFORMATION:** Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM connects this information to an evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

**BURDEN HOURS STATEMENT:** Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

## **Additional Operator Remarks**

### **Location of Well**

1. SHL: NENE / 140 FNL / 630 FEL / TWSP: 23S / RANGE: 30E / SECTION: 19 / LAT: 32.297335 / LONG: -103.91434 ( TVD: 0 feet, MD: 0 feet )

PPP: SESE / 330 FSL / 990 FEL / TWSP: 23S / RANGE: 30E / SECTION: 18 / LAT: 32.298628 / LONG: -103.915507 ( TVD: 10482 feet, MD: 11000 feet )

BHL: SESE / 1120 FSL / 990 FEL / TWSP: 23S / RANGE: 30E / SECTION: 6 / LAT: 32.329967 / LONG: -103.915521 ( TVD: 10482 feet, MD: 22228 feet )

## **BLM Point of Contact**

Name: Priscilla Perez

Title: Legal Instruments Examiner

Phone: 5752345934

Email: pperez@blm.gov

## **Review and Appeal Rights**

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b>	<b>XTO Energy Incorporated</b>
<b>LEASE NO.:</b>	<b>NMNM-017056</b>
<b>WELL NAME &amp; NO.:</b>	<b>Nash Unit 301H</b>
<b>SURFACE HOLE FOOTAGE:</b>	<b>0140' FNL &amp; 0630' FEL</b>
<b>BOTTOM HOLE FOOTAGE</b>	<b>1120' FSL &amp; 0990' FEL Sect. 06, T. 23 S., R 30 E.</b>
<b>LOCATION:</b>	<b>Section 19, T. 23 S., R 30 E., NMPM</b>
<b>COUNTY:</b>	<b>County, New Mexico</b>

### **Commercial Well Determination**

A commercial well determination shall be submitted after production has been established for at least six months.

### **Unit Wells**

The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

### **A. DRILLING OPERATIONS REQUIREMENTS**

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☐ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,  
(575) 361-2822

1. **Hydrogen Sulfide (H<sub>2</sub>S) monitors shall be installed prior to drilling out the surface shoe. If H<sub>2</sub>S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.
4. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

## **B. CASING**

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

**Centralizers required on surface casing per Onshore Order 2.III.B.1.f.**

### **Wait on cement (WOC) for Potash Areas:**

After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least **24 hours**. WOC time will be recorded in the driller's log.

**Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.**

**No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.**

**R-111-P-Potash**

**High Cave/Karst**

**Possibility of water flows in the Salado and Castile.**

**Possibility of lost circulation in the Rustler, Delaware, and Bone Spring Lime.**

**A MINIMUM OF TWO CASING STRINGS CEMENTED TO SURFACE IS REQUIRED IN HIGH CAVE/KARST AREAS. THE CEMENT MUST BE IN A SOLID SHEATH. THEREFORE, ONE INCH OPERATIONS ARE NOT SUFFICIENT TO PROTECT CAVE KARST RESOURCES. A CASING DESIGN THAT HAS A ONE INCH JOB PERFORMED DOES NOT COUNT AS A SOLID SHEATH. IF THE PRIMARY CEMENT JOB ON THE SURFACE CASING DOES NOT CIRCULATE, THEN THE NEXT TWO CASING STRINGS MUST BE CEMENTED TO SURFACE.**

1. The 18-5/8 inch surface casing shall be set at approximately 385 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. If salt is encountered, set casing at least 25 feet above the salt.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

**Formation below the 18-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.**

**13-3/8" Intermediate casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.**

2. The minimum required fill of cement behind the 13-3/8 inch intermediate casing is:
  - ☐ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst and potash. Excess calculates to negative 16% - Additional cement will be required.**

**Formation below the 13-3/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.**

**9-5/8" Intermediate casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.**

3. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:

- ☐ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash.**

**Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.**

**Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.**

4. The minimum required fill of cement behind the 5-1/2 inch production casing is:

- ☐ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

5. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

6. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

## **C. PRESSURE CONTROL**

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API 53.



2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be psi. **5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**
4. The appropriate BLM office shall be notified a minimum of hours in advance for a representative to witness the tests.
  - a. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.
  - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
  - c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
  - d. The results of the test shall be reported to the appropriate BLM office.
  - e. All tests are required to be recorded on a calibrated test chart. **A copy of the**

**BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

- f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

**D. DRILL STEM TEST**

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

**E. WASTE MATERIAL AND FLUIDS**

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**JAM 101518**

**PECOS DISTRICT  
SURFACE USE  
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	XTO ENERGY INCORPORATED
LEASE NO.:	NMNM017056
WELL NAME & NO.:	301H- NASH UNIT
SURFACE HOLE FOOTAGE:	140'/N & 630'/E
BOTTOM HOLE FOOTAGE	1120'/S & 990'/E
LOCATION:	Section.19.,T23S., R.30E., NMP
COUNTY:	EDDY County, New Mexico

**TABLE OF CONTENTS**

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
  - Cave/Karst
  - Hydrology
  - Scheer's Beehive Cactus
- ☐ **Construction**
  - Notification
  - Topsoil
  - Closed Loop System
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- ☐ **Road Section Diagram**
- ☒ **Production (Post Drilling)**
  - Well Structures & Facilities
  - Pipelines
  - Electric Lines
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**

**Approval Date: 11/20/2018**

## **I. GENERAL PROVISIONS**

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

## **II. PERMIT EXPIRATION**

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

## **III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES**

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

## **IV. NOXIOUS WEEDS**

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

## **V. SPECIAL REQUIREMENT(S)**

### **Cave/Karst Surface Mitigation**

The following stipulations will be applied to minimize impacts during construction, drilling and production:

#### **Construction:**

In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

#### **No Blasting:**

No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

#### **Pad Berming:**

- The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.
- The compacted berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g., caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised. (Any access road crossing the berm cannot be lower than the berm height.)
- Following a rain event, all fluids will vacuumed off of the pad and hauled off-site and disposed at a proper disposal facility.

#### **Tank Battery Liners and Berms:**

Tank battery locations and all facilities will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing, or equivalent, to prevent

tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

**Leak Detection System:**

A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating valves and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

**Automatic Shut-off Systems:**

Automatic shut off, check valves, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

**Cave/Karst Subsurface Mitigation**

The following stipulations will be applied to protect cave/karst and ground water concerns:

**Rotary Drilling with Fresh Water:**

Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

**Directional Drilling:**

Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

**Lost Circulation:**

ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

**Abandonment Cementing:**

Upon well abandonment in cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

### **Pressure Testing:**

The operator will perform annual pressure monitoring on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

### **FLOWLINES (SURFACE):**

- Flowlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize the possibility of leaks and spills from entering karst systems.
- If a void is encountered alignments may be rerouted to avoid the karst feature and lessen; the potential of subsidence or collapse of karst features, buildup of toxic or combustible gas, or other possible impacts to cave and karst resources from the buried pipeline.
- Regular monitoring is required to quickly identify leaks for their immediate and proper treatment.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

### **Hydrology:**

The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank or 24 hour

production, whichever is greater. Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

A leak detection plan will be submitted to the BLM Carlsbad Field Office for approval prior to pipeline installation. The method could incorporate gauges to detect pressure drops, situating valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

**Scheer's Beehive Cactus:**

Project field participants will be trained in identification of the relevant BLM special status plant species, and any suspected observations of the relevant species will be reported (via an e-mail including an image and GPS coordinates for each observation) to the Authorized Officer as soon as possible.

BLM special status plant surveys would be required for subsequent actions tiered from this analysis when the impacts effects zones of the proposed actions intersect SSPS potential habitat that has not been surveyed within three years prior to the notice of application for the proposed action. If occupied habitat is observed within the impacts effects zones for the proposed action(s), the proposed action(s) will avoid occupied habitat and mitigate anticipated impacts as determined appropriate for the conservation of the species by the Authorized Officer in coordination with a native plant conservation specialist. Such mitigation measures may include, but are not limited to, the following practices:

- 1) Restricting development within 990 feet of occupied habitat.
- 2) Adjusting the location of the disturbance to be at least 990 feet from the edge of occupied or suitable habitat and ideally outside of the plant consideration area.
- 3) Minimizing the area of disturbance.
- 4) Using dust abatement measures.
- 5) Using signs, fencing, and other deterrents to reduce possible human disturbance.
- 6) Requiring construction to occur outside of the blooming season (i.e., construction could occur November through March), involving possibly delaying the project by more than 60 days.
- 7) Requiring specialized reclamation procedures (e.g., separating soil and subsoil layers with barriers to reclaim in the correct order and additional emphasis on forbs in seed mixes to promote pollinator habitat).
- 8) Conducting long-term monitoring of the species and/or habitat.
- 9) Using a qualified, independent third-party contractor to provide general oversight and assure compliance with project terms and conditions.
- 10) Conducting non-native or invasive species monitoring and control.



## **VI. CONSTRUCTION**

### **A. NOTIFICATION**

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

### **B. TOPSOIL**

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

### **C. CLOSED LOOP SYSTEM**

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

### **D. FEDERAL MINERAL MATERIALS PIT**

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

### **E. WELL PAD SURFACING**

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

### **F. EXCLOSURE FENCING (CELLARS & PITS)**

**Exclosure Fencing**

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

**G. ON LEASE ACCESS ROADS****Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

**Surfacing**

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

**Crowning**

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

**Ditching**

Ditching shall be required on both sides of the road.

**Turnouts**

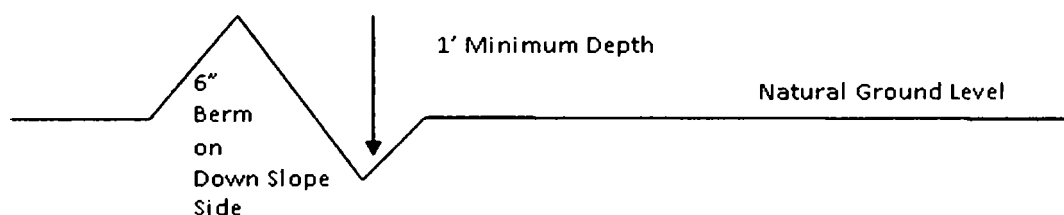
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

**Drainage**

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outslowing and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

#### **Cross Section of a Typical Lead-off Ditch**



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

#### **Formula for Spacing Interval of Lead-off Ditches**

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

#### **Cattle guards**

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

#### **Fence Requirement**

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

#### **Public Access**

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

### Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

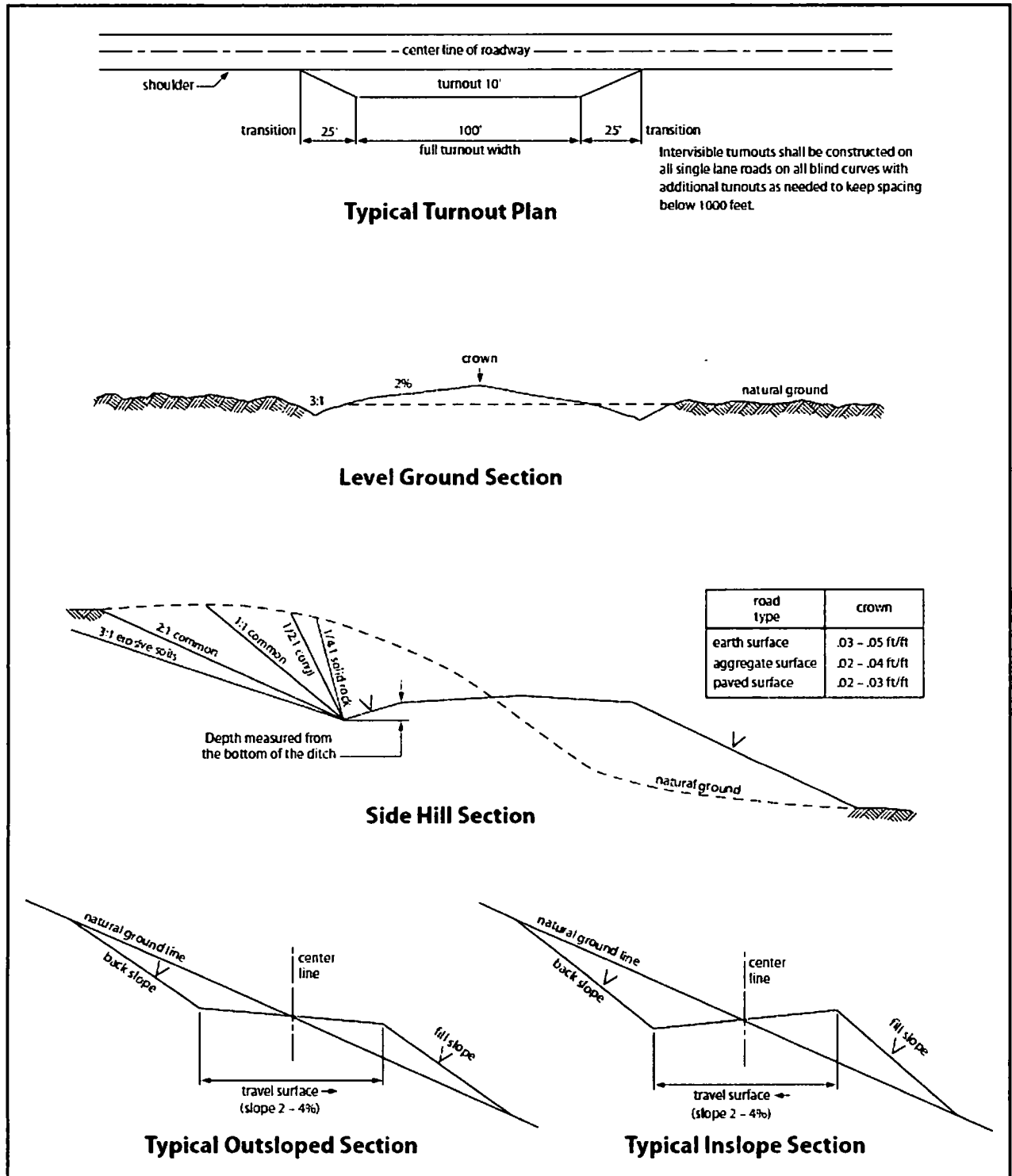


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

## **VII. PRODUCTION (POST DRILLING)**

### **A. WELL STRUCTURES & FACILITIES**

#### **Placement of Production Facilities**

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

#### **Exclosure Netting (Open-top Tanks)**

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

#### **Chemical and Fuel Secondary Containment and Exclosure Screening**

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

#### **Open-Vent Exhaust Stack Exclosures**

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

#### **Containment Structures**

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

#### **Painting Requirement**

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

#### **VRM Facility Requirement**

Low-profile tanks not greater than eight-feet-high shall be used.

### **B. PIPELINES**

#### **STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES**

**A copy of the application (Grant, Sundry Notice, APD) and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.**

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to

activity of the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
- b. Activities of other parties including, but not limited to:
  - (1) Land clearing.
  - (2) Earth-disturbing and earth-moving work.
  - (3) Blasting.
  - (4) Vandalism and sabotage.
- c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any responsibility as provided herein.

6. All construction and maintenance activity will be confined to the authorized right-of-way width of 20 feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline must be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline must be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity will be

confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.

8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline will be "snaked" around hummocks and dunes rather than suspended across these features.

9. The pipeline shall be buried with a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land



shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

16. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, powerline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

17. Surface pipelines must be less than or equal to 4 inches and a working pressure below 125 psi.

18. Special Stipulations:

**Karst:**

- Flowlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize the possibility of leaks and spills from entering karst systems.
- If a void is encountered alignments may be rerouted to avoid the karst feature and lessen; the potential of subsidence or collapse of karst features, buildup of toxic or combustible gas, or other possible impacts to cave and karst resources from the buried pipeline.
- Regular monitoring is required to quickly identify leaks for their immediate and proper treatment.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

**C. ELECTRIC LINES**

**STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES**

**A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.**

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.

5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrence shall be placed on all vertical poles that extend past the cross arms.

6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

10. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

11. Special Stipulations:

- For reclamation remove poles, lines, transformer, etc. and dispose of properly.
- Fill in any holes from the poles removed.

## **VIII. INTERIM RECLAMATION**

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

## **IX. FINAL ABANDONMENT & RECLAMATION**

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

### **Seed Mixture 1 for Loamy Sites**

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)\* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed shall be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed shall be planted using a drill equipped with a depth regulator to ensure proper depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture shall be evenly and uniformly planted over the disturbed area (small/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed shall be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre shall be doubled. The seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed\* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains lovegrass ( <i>Eragrostis intermedia</i> )	0.5
Sand dropseed ( <i>Sporobolus cryptandrus</i> )	1.0
Sideoats grama ( <i>Bouteloua curtipendula</i> )	5.0
Plains bristlegrass ( <i>Setaria macrostachya</i> )	2.0

\*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

## Operator Certification Data Report

11/25/2018

### Operator Certification

*I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.*

**NAME:** Stephanie Rabadue

**Signed on:** 06/15/2018

**Title:** Regulatory Coordinator

**Street Address:** 500 W. Illinois St, Ste 100

**City:** Midland

**State:** TX

**Zip:** 79701

**Phone:** (432)620-6714

**Email address:** stephanie\_rabadue@xtoenergy.com

### Field Representative

**Representative Name:**

**Street Address:**

**City:**

**State:**

**Zip:**

**Phone:**

**Email address:**



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

## Application Data Report

11/25/2018

APD ID: 10400031536

Submission Date: 06/25/2018

Operator Name: XTO ENERGY INCORPORATED

Highlighted data  
reflects the most  
recent changes

Well Name: NASH UNIT

Well Number: 301H

Show Final Text

Well Type: OIL WELL

Well Work Type: Drill

### Section 1 - General

APD ID: 10400031536

Tie to previous NOS?

Submission Date: 06/25/2018

BLM Office: CARLSBAD

User: Stephanie Rabadue

Title: Regulatory Coordinator

Federal/Indian APD: FED

Is the first lease penetrated for production Federal or Indian? FED

Lease number: NMNM017056

Lease Acres: 160

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? YES

Federal or Indian agreement: FEDERAL

Agreement number: NMNM070992X

Agreement name:

Keep application confidential? NO

Permitting Agent? NO

APD Operator: XTO ENERGY INCORPORATED

Operator letter of designation:

### Operator Info

Operator Organization Name: XTO ENERGY INCORPORATED

Operator Address: 2277 Springwoods Village Parkway

Zip: 77389

Operator PO Box:

Operator City: Spring

State: TX

Operator Phone: (432)620-6700

Operator Internet Address: Richard\_redus@xtoenergy.com

### Section 2 - Well Information

Well in Master Development Plan? NO

Mater Development Plan name:

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: NASH UNIT

Well Number: 301H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: FORTY NINER  
RIDGE BONE SPRING

Pool Name:

Is the proposed well in an area containing other mineral resources? USEABLE WATER,POTASH

Operator Name: XTO ENERGY INCORPORATED

Well Name: NASH UNIT

Well Number: 301H

Describe other minerals:

Is the proposed well in a Helium production area? N Use Existing Well Pad? YES New surface disturbance? Y

Type of Well Pad: MULTIPLE WELL

Multiple Well Pad Name: NASH Number: 1  
UNIT

Well Class: HORIZONTAL

Number of Legs: 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: DELINEATION

Describe sub-type:

Distance to town:

Distance to nearest well: 50 FT

Distance to lease line: 140 FT

Reservoir well spacing assigned acres Measurement: 360 Acres

Well plat: Nash\_Unit\_301H\_C102\_20180625064327.pdf

Well work start Date: 10/01/2018

Duration: 90 DAYS

### Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NAVD88

Survey number:

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	140	FNL	630	FEL	23S	30E	19	Aliquot NENE	32.29733 5	- 103.9143 4	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 017056	311 4	0	0
KOP Leg #1	140	FNL	630	FEL	23S	30E	19	Aliquot NENE	32.29733 5	- 103.9143 4	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 017056	- 681 9	995 0	993 3
PPP Leg #1	330	FSL	990	FEL	23S	30E	18	Aliquot SESE	32.29862 8	- 103.9155 07	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 055686 3	- 736 8	110 00	104 82





U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

## Drilling Plan Data Report

11/25/2018

APD ID: 10400031536

Submission Date: 06/25/2018

Operator Name: XTO ENERGY INCORPORATED

Well Name: NASH UNIT

Well Number: 301H

Well Type: OIL WELL

Well Work Type: Drill

Highlighted data  
reflects the most  
recent changes

Show Final Text

### Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	PERMIAN	3114	0	0	OTHER : Quaternary	NONE	No
2	RUSTLER	2793	281	281	SILTSTONE	USEABLE WATER	No
3	TOP SALT	2698	376	376	SALT	POTASH,OTHER : Produced Water	No
4	BASE OF SALT	-85	3159	3159	SALT	POTASH,OTHER : Produced Water	No
5	DELAWARE	-311	3385	3385	SANDSTONE	NATURAL GAS,OIL,OTHER : Produced Water	No
6	CHERRY CANYON	-1166	4240	4240	SANDSTONE	NATURAL GAS,OIL,OTHER : Produced Water	No
7	BRUSHY CANYON	-2781	5855	5855	SANDSTONE	NATURAL GAS,OIL,OTHER : Produced Water	No
8	BONE SPRING	-4068	7142	7142	SANDSTONE	NATURAL GAS,OIL,OTHER : Produced Water	No
9	BONE SPRING 1ST	-5086	8160	8160	SANDSTONE	NATURAL GAS,OIL,OTHER : Produced Water	No
10	BONE SPRING 2ND	-5458	8532	8532	SANDSTONE	NATURAL GAS,OIL,OTHER : Produced Water	Yes
11	BONE SPRING 3RD	-6215	9289	9289	SANDSTONE	NATURAL GAS,OIL,POTASH,OTH ER : Produced Water	Yes

### Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 10482

**Equipment:** The blow out preventer equipment (BOP) for this well consists of a 13-5/8" minimum 5M Hydril and a 13-5/8" minimum 5M Double Ram BOP.

**Requesting Variance?** YES

**Variance request:** A variance is requested to allow use of a flex hose as the choke line from the BOP to the Choke Manifold. If this hose is used, a copy of the manufacturer's certification and pressure test chart will be kept on the rig. Attached is an example of a certification and pressure test chart. The manufacturer does not require anchors. XTO requests to utilize centralizers only in the curve after the KOP and only a minimum of one every other joint.

**Testing Procedure:** All BOP testing will be done by an independent service company. Annular pressure tests will be limited to 50% of the working pressure. When nipping up, the BOP test will be limited to 5,000 psi. All BOP tests will include a low pressure test as per BLM regulations. The 3M BOP diagram is attached. Blind rams will be function tested each trip, pipe

Operator Name: XTO ENERGY INCORPORATED

Well Name: NASH UNIT

Well Number: 301H

rams will be function tested each day.

**Choke Diagram Attachment:**

Nash\_Unit\_5MCM\_20180615231829.pdf

**BOP Diagram Attachment:**

Nash\_Unit\_5MBOP\_20180615231838.pdf

**Section 3 - Casing**

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	20	18.625	NEW	API	N	0	385	0	385			385	H-40	87.5	STC	1.46	1.72	DRY	7.93	DRY	7.93
2	INTERMEDIATE	17.5	13.375	NEW	API	N	0	3350	0	3350			3350	J-55	68	BUTT	1.85	1.69	DRY	5	DRY	5
3	INTERMEDIATE	12.25	9.625	NEW	API	N	0	7100	0	7100			7100	J-55	40	LTC	1.24	1.12	DRY	1.78	DRY	1.78
4	PRODUCTION	8.75	5.5	NEW	API	N	0	22228	0	10482			22228	P-110	17	BUTT	1.73	1.12	DRY	2.13	DRY	2.13

**Casing Attachments**

Casing ID: 1 String Type: SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Nash\_Unit\_301H\_Csg\_20180913123754.pdf

**Operator Name:** XTO ENERGY INCORPORATED

**Well Name:** NASH UNIT

**Well Number:** 301H

#### Casing Attachments

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**Casing ID:** 2      **String Type:**INTERMEDIATE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Nash\_Unit\_301H\_Csg\_20180913123804.pdf

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**Casing ID:** 3      **String Type:**INTERMEDIATE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Nash\_Unit\_301H\_Csg\_20180913123818.pdf

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**Casing ID:** 4      **String Type:**PRODUCTION

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Nash\_Unit\_301H\_Csg\_20180913123826.pdf

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#### Section 4 - Cement

Operator Name: XTO ENERGY INCORPORATED

Well Name: NASH UNIT

Well Number: 301H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	385	390	1.35	14.8	526.5	100	HalCem-C	2% CaCl

INTERMEDIATE	Lead		0	3350	880	1.92	12.8	1689.6	100	EconoCem	+ 5% salt + 5% Kol-Seal
INTERMEDIATE	Tail				235	1.33	14.8	312.55	100	HalCem-C	none
INTERMEDIATE	Lead		0	7100	1810	1.92	9.96	3475.2	100	EconoCem	+ 5% salt + 5% Kol-Seal
INTERMEDIATE	Tail				511	1.33	14.8	679.63	100	HalCem-C	none
PRODUCTION	Lead		0	22228	1050	2.81	11	2948.4	30	NeoCem	None
PRODUCTION	Tail				4130	1.4	13.2	5782	50	HalCem-H	+ 0.5% LAP-1 + 0.25% CFR-3 + 5 pps Kol-Seal + 0.25 pps D-air 5000

### Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

**Describe what will be on location to control well or mitigate other conditions:** The necessary mud products for weight addition and fluid loss control will be on location at all times.

**Describe the mud monitoring system utilized:** A Pason or Totco will be used to detect changes in loss or gain of mud volume.

### Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
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**Operator Name:** XTO ENERGY INCORPORATED

**Well Name:** NASH UNIT

**Well Number:** 301H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	385	OTHER : FW/Native	8.5	8.8							A mud test will be performed every 24 hours to determine: density, viscosity, strength, filtration and pH as necessary. Use available solids controls equipment to help keep mud weight down after mud up. Rig up solids control equipment to operate as a closed loop system
7100	2661 6	OIL-BASED MUD	8.7	9.2							
385	3350	OTHER : Brine/Gel Sweeps	9.8	10.2							
3350	7100	OTHER : OBM	8.7	9.2							

### Section 6 - Test, Logging, Coring

**List of production tests including testing procedures, equipment and safety measures:**

Open hole logging to include Density/Neutron/PE/Dual Laterlog/Spectral Gamma from kick-off point to intermediate casing shoe.

**List of open and cased hole logs run in the well:**

CBL,CNL,DS,GR

**Coring operation description for the well:**

No coring will take place on this well.

### Section 7 - Pressure

**Anticipated Bottom Hole Pressure:** 5178

**Anticipated Surface Pressure:** 2871.96

**Anticipated Bottom Hole Temperature(F):** 160

**Anticipated abnormal pressures, temperatures, or potential geologic hazards?** NO

**Describe:**

Potential loss of circulation through the Capitan Reef.

**Contingency Plans geohazards description:**

The necessary mud products for weight addition and fluid loss control will be on location at all times. A Pason or Totco will be used to detect changes in loss or gain of mud volume. A mud test will be performed every 24 hours to determine: density, viscosity, strength, filtration and pH as necessary. Use available solids controls equipment to help keep mud weight down

**Operator Name:** XTO ENERGY INCORPORATED

**Well Name:** NASH UNIT

**Well Number:** 301H

after mud up. Rig up solids control equipment to operate as a closed loop system. Lost circulation could occur but is not expected to be a serious problem in this area and hole seepage will be compensated for by additions of small amounts of LCM in the drilling fluid.

**Contingency Plans geohazards attachment:**

**Hydrogen Sulfide drilling operations plan required? YES**

**Hydrogen sulfide drilling operations plan:**

Nash\_Unit\_H2S\_Plan\_20180615214116.pdf

Nash\_Unit\_H2S\_Dia\_P2\_20180615214125.pdf

## **Section 8 - Other Information**

**Proposed horizontal/directional/multi-lateral plan submission:**

Nash\_Unit\_301H\_DD\_20180625064236.pdf

**Other proposed operations facets description:**

A variance is requested to allow use of a flex hose as the choke line from the BOP to the Choke Manifold. If this hose is used, a copy of the manufacturer's certification and pressure test chart will be kept on the rig. Attached is an example of a certification and pressure test chart. The manufacturer does not require anchors.

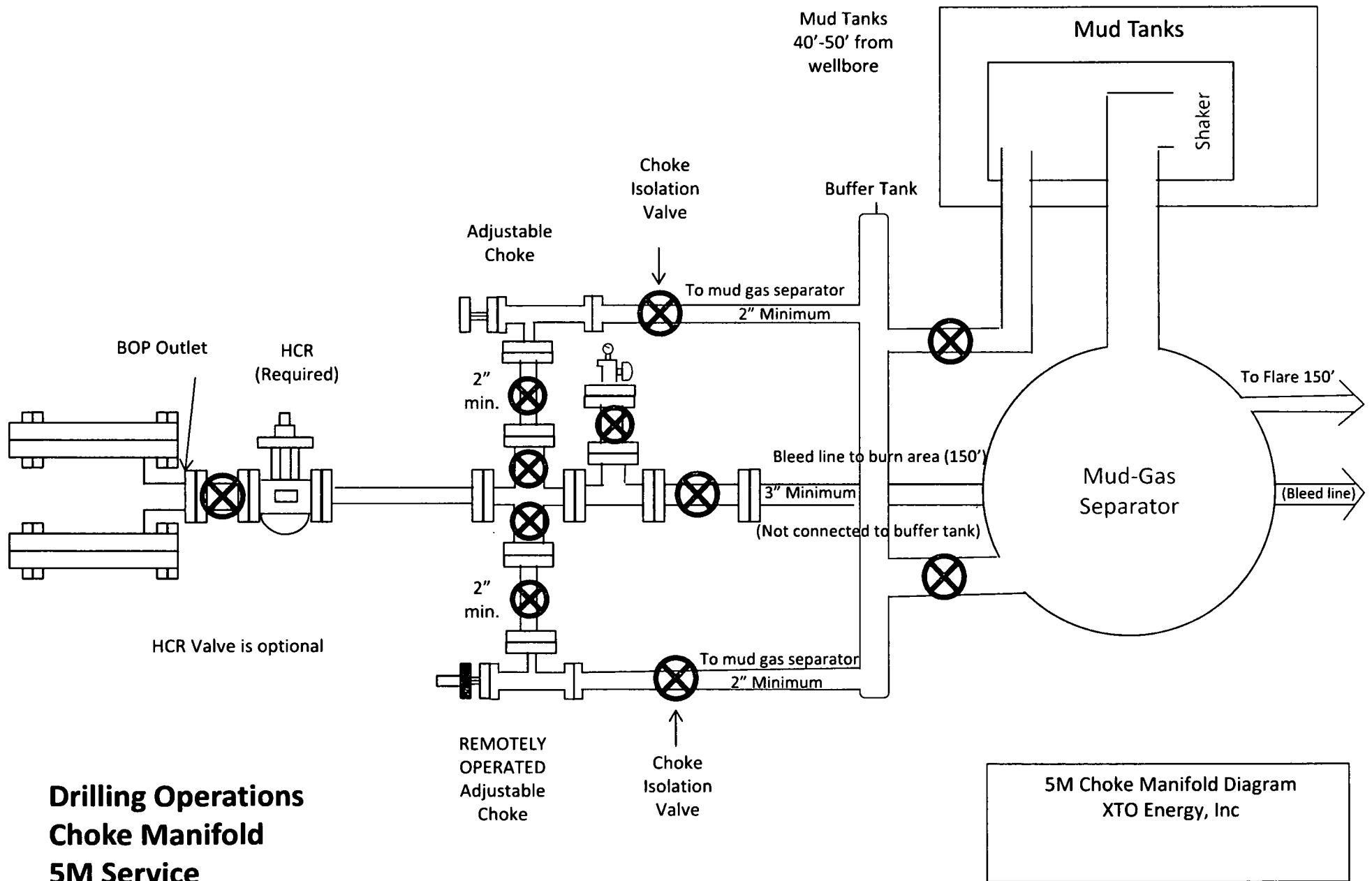
XTO requests to utilize centralizers only in the curve after the KOP and only a minimum of one every other joint.

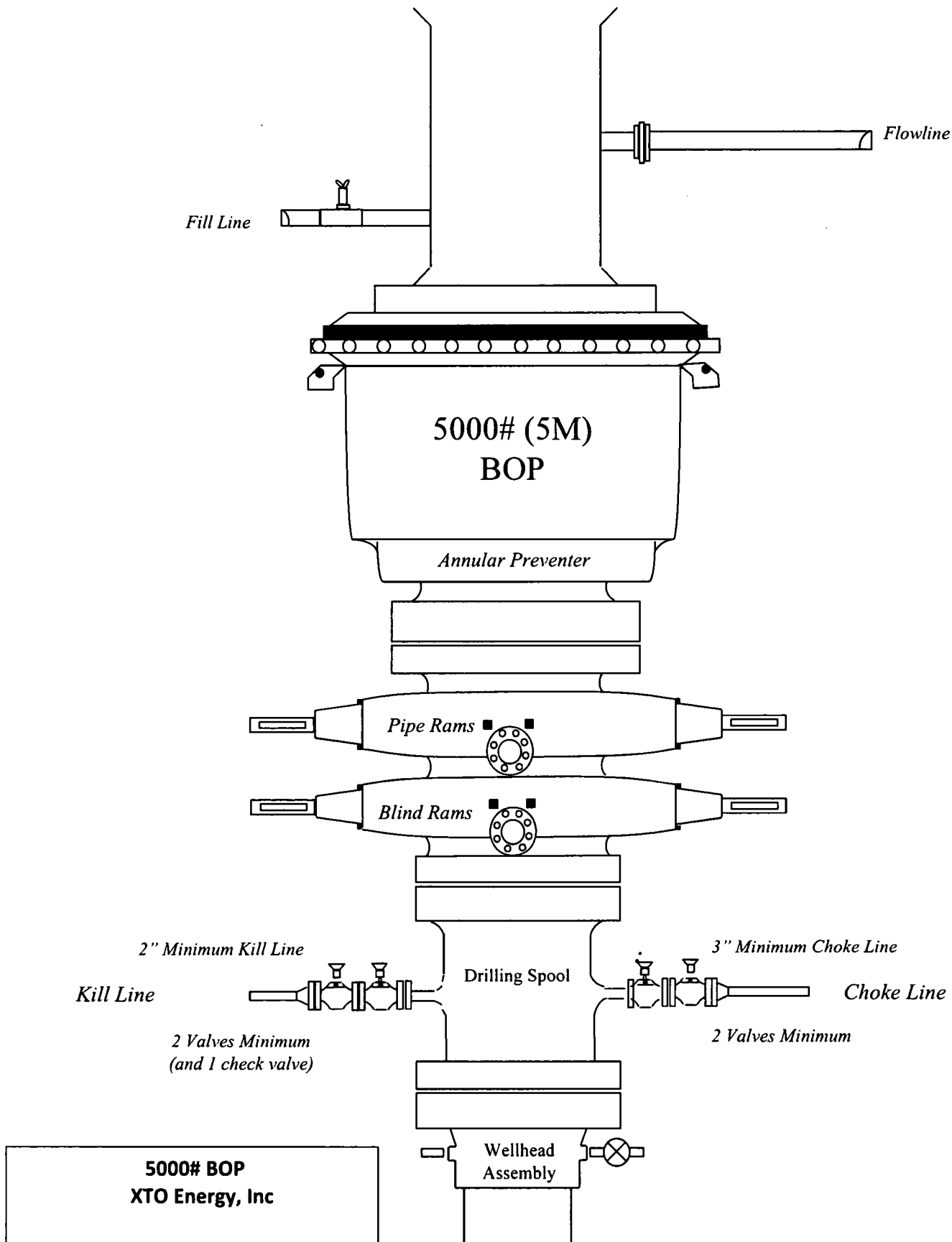
**Other proposed operations facets attachment:**

Nash\_Unit\_301H\_GCP\_20180625064244.pdf

**Other Variance attachment:**

Nash\_Unit\_FH\_20180615214401.pdf







XTO Energy Inc.  
Nash Unit 203H  
Projected TD: 25171' MD / 9051' TVD  
SHL: 610' FNL & 1905' FEL, SECTION 19, T23S, R30E  
BHL: 200' FNL & 1650' FEL, SECTION 6, T23S, R30E  
Eddy County, NM

**1. CASING PROGRAM:**

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
20"	0'-385'	18-5/8"	87.5#	STC	H-40	New	1.72	1.46	7.93
17-1/2"	0'-3350'	13-3/8"	48#	STC	H-40	New	9.82	8.27	13.71
12-1/4"	0'-7100'	9-5/8"	36#	LTC	J-55	New	3.34	1.92	4.21
8-3/4"	0' - 25171'	5-1/2"	17#	BTC	P-110	New	1.12	1.73	2.13

- XTO requests to utilize centralizers only in the curve after the KOP and only a minimum of one every other joint.
- 2/3 evacuation used as per offset drilling data.
- 5-1/2" tension calculated using vertical hanging weight plus the lateral weight multiplied by a friction factor of 0.35

**WELLHEAD:**

*Permanent Wellhead – GE RSH Multibowl System*

- A. Starting Head: 13-5/8" 5M top flange x 13-3/8" SOW bottom
- B. Tubing Head: 13-5/8" 5M bottom flange x 7-1/16" 10M top flange
  - Wellhead will be installed by manufacturer's representatives.
  - Manufacturer will monitor welding process to ensure appropriate temperature of seal.
  - Manufacturer will witness installation of test plug for initial test.
  - Operator will test the 9-5/8" casing to 70% of casing burst before drilling out.

XTO Energy Inc.  
Nash Unit 204H  
Projected TD: 25413' MD / 9254' TVD  
SHL: 610' FNL & 1955' FEL, SECTION 19, T23S, R30E  
BHL: 200' FNL & 2310' FEL, SECTION 6, T23S, R30E  
Eddy County, NM

**1. CASING PROGRAM:**

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
20"	0'-385'	18-5/8"	87.5#	STC	H-40	New	1.72	1.46	7.93
17-1/2"	0'-3350'	13-3/8"	48#	STC	H-40	New	9.82	8.27	13.71
12-1/4"	0'-7100'	9-5/8"	36#	LTC	J-55	New	3.34	1.92	4.21
8-3/4"	0' - 25413'	5-1/2"	17#	BTC	P-110	New	1.12	1.73	2.13

- XTO requests to utilize centralizers only in the curve after the KOP and only a minimum of one every other joint.
- 2/3 evacuation used as per offset drilling data.
- 5-1/2" tension calculated using vertical hanging weight plus the lateral weight multiplied by a friction factor of 0.35

**WELLHEAD:**

Permanent Wellhead – GE RSH Multibowl System

- A. Starting Head: 13-5/8" 5M top flange x 13-3/8" SOW bottom
- B. Tubing Head: 13-5/8" 5M bottom flange x 7-1/16" 10M top flange
  - Wellhead will be installed by manufacturer's representatives.
  - Manufacturer will monitor welding process to ensure appropriate temperature of seal.
  - Manufacturer will witness installation of test plug for initial test.
  - Operator will test the 9-5/8" casing to 70% of casing burst before drilling out.

XTO Energy Inc.  
Nash Unit 302H  
Projected TD: 26616' MD / 10407' TVD  
SHL: 660' FNL & 1955' FEL, SECTION 19, T23S, R30E  
BHL: 200' FNL & 2310' FEL, SECTION 6, T23S, R30E  
Eddy County, NM

**1. CASING PROGRAM:**

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
20"	0'-385'	18-5/8"	87.5#	STC	H-40	New	1.72	1.46	7.93
17-1/2"	0'-3350'	13-3/8"	48#	STC	H-40	New	9.82	8.27	13.71
12-1/4"	0'-7100'	9-5/8"	36#	LTC	J-55	New	3.34	1.92	4.21
8-3/4"	0' - 26616'	5-1/2"	17#	BTC	P-110	New	1.12	1.73	2.13

- XTO requests to utilize centralizers only in the curve after the KOP and only a minimum of one every other joint.
- 2/3 evacuation used as per offset drilling data.
- 5-1/2" tension calculated using vertical hanging weight plus the lateral weight multiplied by a friction factor of 0.35

**WELLHEAD:**

Permanent Wellhead – GE RSH Multibowl System

A. Starting Head: 13-5/8" 5M top flange x 13-3/8" SOW bottom

B. Tubing Head: 13-5/8" 5M bottom flange x 7-1/16" 10M top flange

- Wellhead will be installed by manufacturer's representatives.
- Manufacturer will monitor welding process to ensure appropriate temperature of seal.
- Manufacturer will witness installation of test plug for initial test.
- Operator will test the 9-5/8" casing to 70% of casing burst before drilling out.

**DRILLING PLAN: BLM COMPLIANCE**  
**(Supplement to BLM 3160-3)**

XTO Energy Inc.  
Nash Unit 301H

Projected TD: 22228' MD / 10482' TVD  
SHL: 140' FNL & 630' FEL, SECTION 19, T23S, R30E  
BHL: 1120' FSL & 990' FEL, SECTION 6, T23S, R30E  
Eddy County, NM

**CASING PROGRAM:**

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
20"	0'-385'	18-5/8"	87.5#	STC	H-40	New	1.72	1.46	7.93
17-1/2"	0' – 3350'	13-3/8"	68	BTC	J-55	New	1.69	1.85	5.00
12-1/4"	0' – 7310'	9-5/8"	40	LTC	J-55	New	1.55	1.24	1.78
8-3/4"	0' – 22228'	5-1/2"	17#	BTC	P-110	New	1.12	1.73	2.13

- XTO requests to utilize centralizers only in the curve after the KOP and only a minimum of one every other joint.
- 2/3 evacuation used as per offset drilling data.
- 5-1/2" tension calculated using vertical hanging weight plus the lateral weight multiplied by a friction factor of 0.35

**WELLHEAD:**

*Permanent Wellhead – GE RSH Multibowl System*

- A. Starting Head: 13-5/8" 5M top flange x 13-3/8" SOW bottom
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  - Wellhead will be installed by manufacturer's representatives.
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**DRILLING PLAN: BLM COMPLIANCE**  
**(Supplement to BLM 3160-3)**

XTO Energy Inc.

Nash Unit 301H

Projected TD: 22228' MD / 10482' TVD

SHL: 140' FNL & 630' FEL, SECTION 19, T23S, R30E

BHL: 1120' FSL & 990' FEL, SECTION 6, T23S, R30E

Eddy County, NM

**CASING PROGRAM:**

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
20"	0'-385'	18-5/8"	87.5#	STC	H-40	New	1.72	1.46	7.93
17-1/2"	0' – 3350'	13-3/8"	68	BTC	J-55	New	1.69	1.85	5.00
12-1/4"	0' – 7310'	9-5/8"	40	LTC	J-55	New	1.55	1.24	1.78
8-3/4"	0' – 22228'	5-1/2"	17#	BTC	P-110	New	1.12	1.73	2.13

- XTO requests to utilize centralizers only in the curve after the KOP and only a minimum of one every other joint.
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- 5-1/2" tension calculated using vertical hanging weight plus the lateral weight multiplied by a friction factor of 0.35

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*Permanent Wellhead – GE RSH Multibowl System*

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- Manufacturer will witness installation of test plug for initial test.
- Operator will test the 9-5/8" casing to 70% of casing burst before drilling out.

**DRILLING PLAN: BLM COMPLIANCE**  
**(Supplement to BLM 3160-3)**

XTO Energy Inc.  
Nash Unit 301H

Projected TD: 22228' MD / 10482' TVD  
SHL: 140' FNL & 630' FEL, SECTION 19, T23S, R30E  
BHL: 1120' FSL & 990' FEL, SECTION 6, T23S, R30E  
Eddy County, NM

**CASING PROGRAM:**

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
20"	0'-385'	18-5/8"	87.5#	STC	H-40	New	1.72	1.46	7.93
17-1/2"	0' - 3350'	13-3/8"	68	BTC	J-55	New	1.69	1.85	5.00
12-1/4"	0' - 7310'	9-5/8"	40	LTC	J-55	New	1.55	1.24	1.78
8-3/4"	0' - 22228'	5-1/2"	17#	BTC	P-110	New	1.12	1.73	2.13

- XTO requests to utilize centralizers only in the curve after the KOP and only a minimum of one every other joint.
- 2/3 evacuation used as per offset drilling data.
- 5-1/2" tension calculated using vertical hanging weight plus the lateral weight multiplied by a friction factor of 0.35

**WELLHEAD:**

*Permanent Wellhead – GE RSH Multibowl System*

- A. Starting Head: 13-5/8" 5M top flange x 13-3/8" SOW bottom
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- Wellhead will be installed by manufacturer's representatives.
  - Manufacturer will monitor welding process to ensure appropriate temperature of seal.
  - Manufacturer will witness installation of test plug for initial test.
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**DRILLING PLAN: BLM COMPLIANCE**  
(Supplement to BLM 3160-3)

XTO Energy Inc.  
Nash Unit 301H

Projected TD: 22228' MD / 10482' TVD  
SHL: 140' FNL & 630' FEL, SECTION 19, T23S, R30E  
BHL: 1120' FSL & 990' FEL, SECTION 6, T23S, R30E  
Eddy County, NM

**CASING PROGRAM:**

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
20"	0'-385'	18-5/8"	87.5#	STC	H-40	New	1.72	1.46	7.93
17-1/2"	0' – 3350'	13-3/8"	68	BTC	J-55	New	1.69	1.85	5.00
12-1/4"	0' – 7310'	9-5/8"	40	LTC	J-55	New	1.55	1.24	1.78
8-3/4"	0' – 22228'	5-1/2"	17#	BTC	P-110	New	1.12	1.73	2.13

- XTO requests to utilize centralizers only in the curve after the KOP and only a minimum of one every other joint.
- 2/3 evacuation used as per offset drilling data.
- 5-1/2" tension calculated using vertical hanging weight plus the lateral weight multiplied by a friction factor of 0.35

**WELLHEAD:**

*Permanent Wellhead – GE RSH Multibowl System*

- A. Starting Head: 13-5/8" 5M top flange x 13-3/8" SOW bottom
- B. Tubing Head: 13-5/8" 5M bottom flange x 7-1/16" 10M top flange
- Wellhead will be installed by manufacturer's representatives.
  - Manufacturer will monitor welding process to ensure appropriate temperature of seal.
  - Manufacturer will witness installation of test plug for initial test.
  - Operator will test the 9-5/8" casing to 70% of casing burst before drilling out.



## **HYDROGEN SULFIDE (H<sub>2</sub>S) CONTINGENCY PLAN**

**Assumed 100 ppm ROE = 3000'**

100 ppm H<sub>2</sub>S concentration shall trigger activation of this plan.

### **Emergency Procedures**

In the event of a release of gas containing H<sub>2</sub>S, the first responder(s) must

- Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- Evacuate any public places encompassed by the 100 ppm ROE.
- Be equipped with H<sub>2</sub>S monitors and air packs in order to control the release.
- Use the "buddy system" to ensure no injuries occur during the response
- Take precautions to avoid personal injury during this operation.
- Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- Have received training in the
  - o Detection of H<sub>2</sub>S, and
  - o Measures for protection against the gas,
  - o Equipment used for protection and emergency response.

### **Ignition of Gas source**

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO<sub>2</sub>). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally, the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever this is an ignition of the gas.

### **Characteristics of H<sub>2</sub>S and SO<sub>2</sub>**

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H <sub>2</sub> S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO <sub>2</sub>	2.21 Air = 1	2 ppm	N/A	1000 ppm

### **Contacting Authorities**

XTO Energy, Inc. personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. (Operator Name)'s response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).



## **CARLSBAD OFFICE – EDDY & LEA COUNTIES**

3104 E. Greene St., Carlsbad, NM 88220  
Carlsbad, NM

575-887-7329

### **XTO Energy, Inc. PERSONNEL:**

Kendall Decker, Drilling Manager	903-521-6477
Milton Turman, Drilling Superintendent	817-524-5107
Jeff Raines, Construction Foreman	432-557-3159
Toady Sanders, EH & S Manager	903-520-1601
Wes McSpadden, Production Foreman	575-441-1147

### **SHERIFF DEPARTMENTS:**

Eddy County	575-887-7551
Lea County	575-396-3611

### **NEW MEXICO STATE POLICE:**

575-392-5588

### **FIRE DEPARTMENTS:**

	911
Carlsbad	575-885-2111
Eunice	575-394-2111
Hobbs	575-397-9308
Jal	575-395-2221
Lovington	575-396-2359

### **HOSPITALS:**

	911
Carlsbad Medical Emergency	575-885-2111
Eunice Medical Emergency	575-394-2112
Hobbs Medical Emergency	575-397-9308
Jal Medical Emergency	575-395-2221
Lovington Medical Emergency	575-396-2359

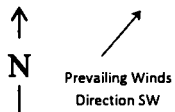
### **AGENT NOTIFICATIONS:**

#### **For Lea County:**

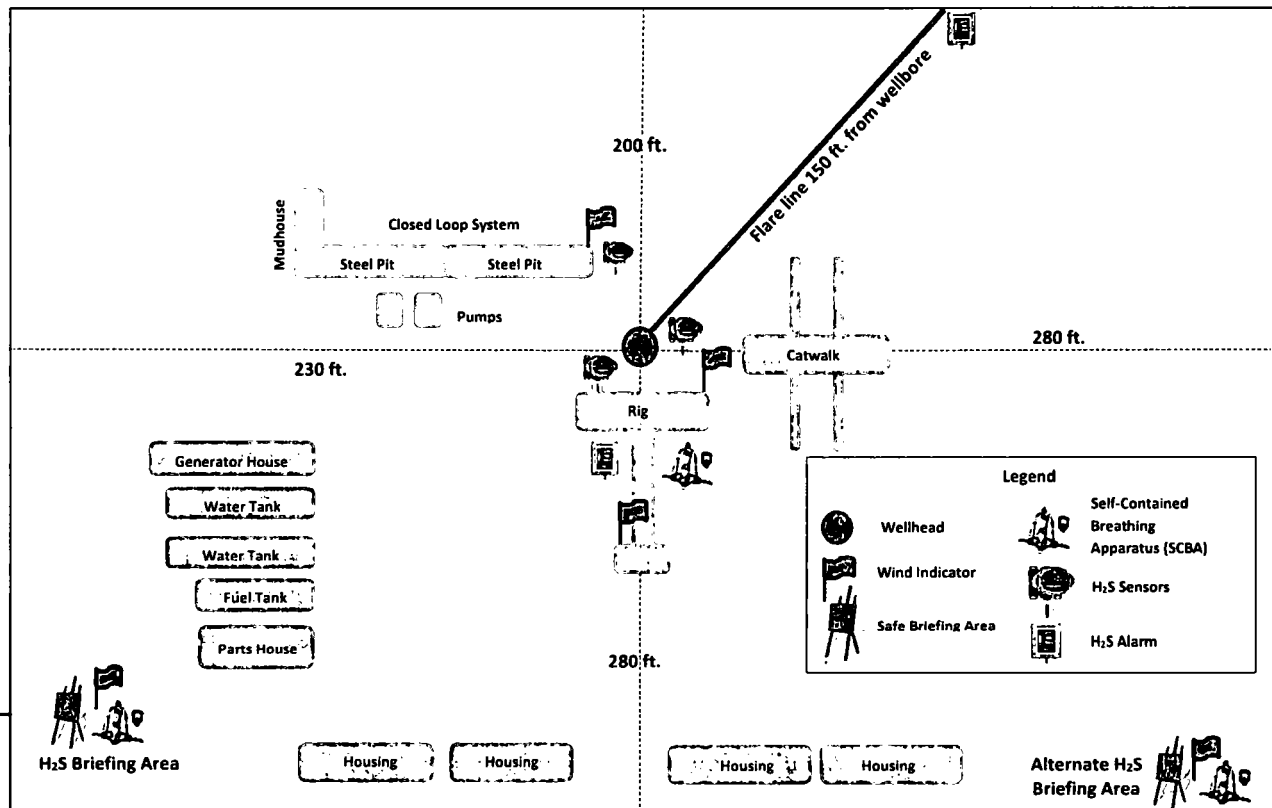
Bureau of Land Management – Hobbs	575-393-3612
New Mexico Oil Conservation Division – Hobbs	575-393-6161

#### **For Eddy County:**

Bureau of Land Management - Carlsbad	575-234-5972
New Mexico Oil Conservation Division - Artesia	575-748-1283



## H2S Briefing Areas and Alarm Locations



# XTO Energy Inc.

## HALLIBURTON

Sperry Drilling

Project: Eddy County, NM (NAD27)  
Site: Nash Unit  
Well: Nash Unit 301H  
Wellbore: Wellbore #1  
Plan: Plan 1  
Rig: GL3114\*+25ft=3139ft(KB)

### SURFACE LOCATION

US State Plane 1927 (Exact solution)  
New Mexico East 3001  
Elevation: Plat @ 3139.00usft (GL3114\*+25ft=3139ft(KB))  
Northing 472096.30 Easting 629616.90 Latitude 32° 17' 49.964 N Longitude 103° 54' 49.860 W

### WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

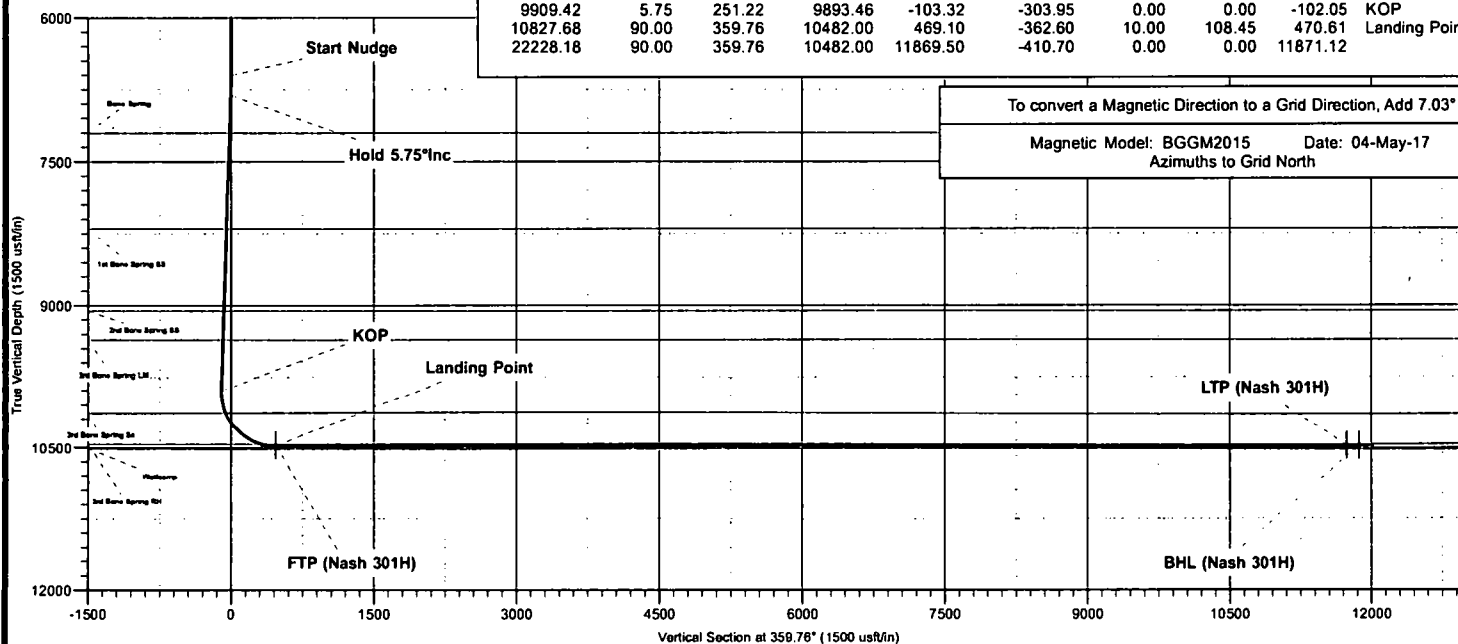
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BHL (Nash 301H)	10482.00	11869.50	-410.70	483965.80	629208.20	32° 19' 47.441 N	103° 54' 54.105 W
FTP (Nash 301H)	10482.00	469.10	-362.60	472565.40	629254.30	32° 17' 54.621 N	103° 54' 54.063 W
LTP (Nash 301H)	10482.00	11739.50	-410.20	483835.80	629208.70	32° 19' 48.154 N	103° 54' 54.105 W

### SECTION DETAILS

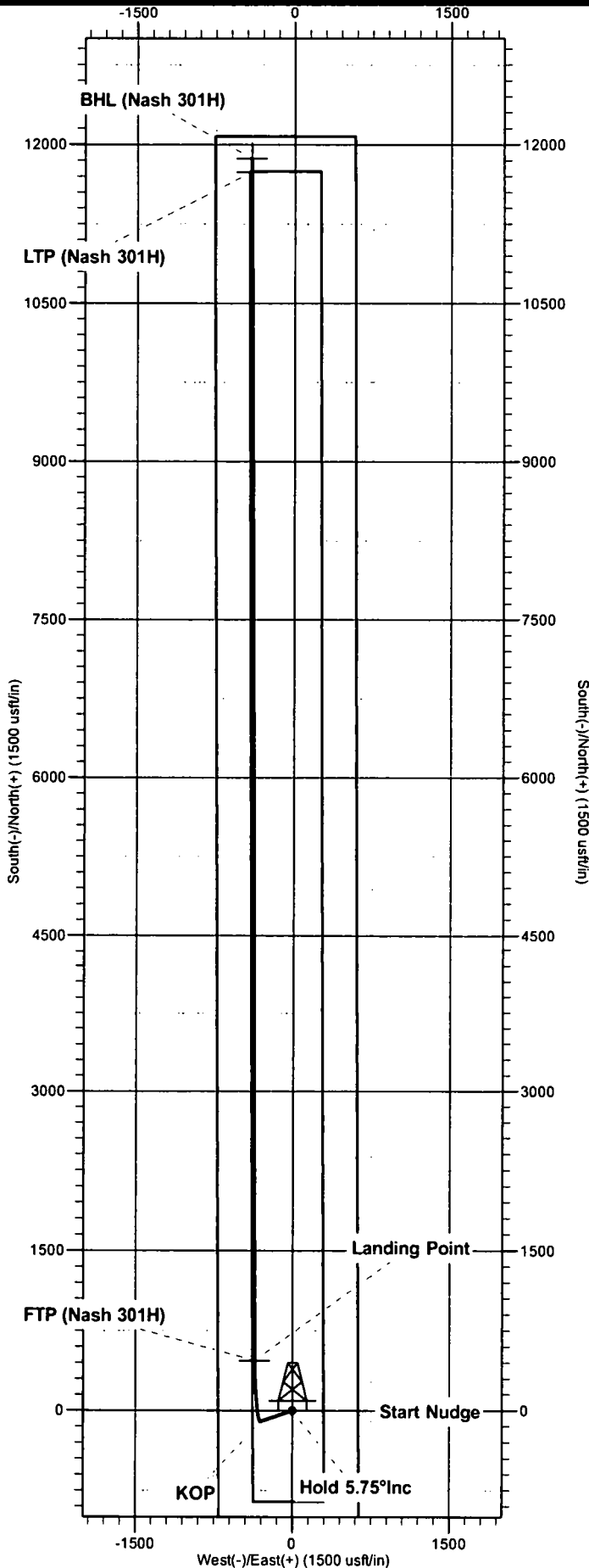
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6602.00	0.00	0.00	6602.00	0.00	0.00	0.00	0.00	0.00	Start Nudge
6813.61	5.75	251.22	6813.25	-3.42	-10.05	2.72	251.22	-3.38	Hold 5.75°Inc
9909.42	5.75	251.22	9893.46	-103.32	-303.95	0.00	0.00	-102.05	KOP
10827.68	90.00	359.76	10482.00	469.10	-362.60	10.00	108.45	470.61	Landing Point
22228.18	90.00	359.76	10482.00	11869.50	-410.70	0.00	0.00	11871.12	

To convert a Magnetic Direction to a Grid Direction, Add 7.03°

Magnetic Model: BGGM2015 Date: 04-May-17  
Azimuths to Grid North



**Project:** Eddy County, NM (NAD27)  
**Site:** Nash Unit  
**Well:** Nash Unit 301H  
**Wellbore:** Wellbore #1  
**Plan:** Plan 1  
**Rig:** GL3114'+25ft=3139ft(KB)



# **XTO Energy Inc.**

**Eddy County, NM (NAD27)**

**Nash Unit**

**Nash Unit 301H**

**Wellbore #1**

**Plan: Plan 1**

## **Sperry Drilling Services Proposal Report**

**10 May, 2017**

Well Coordinates: 472,096.30 N, 629,616.90 E (32° 17' 49.96" N, 103° 54' 49.86" W)

Ground Level: 3,114.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Centered on Well Nash Unit 301H

Plat @ 3139.00usft (GL3114'+25ft=3139ft(KB))

N

Grid

API US Survey Feet

Version: 5000.1 Build: 81

**HALLIBURTON**

**HALLIBURTON****Plan Report for Nash Unit 301H - Plan 1**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
246.00	0.00	0.00	246.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Rustler</b>										
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
404.00	0.00	0.00	404.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Top Salt</b>										
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,228.18	0.00	0.00	2,228.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>BHL</b>										
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,198.00	0.00	0.00	3,198.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Base Salt</b>										
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,421.00	0.00	0.00	3,421.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Delaware</b>										
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,281.00	0.00	0.00	4,281.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Cherry Canyon</b>										
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**HALLIBURTON****Plan Report for Nash Unit 301H - Plan 1**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,912.00	0.00	0.00	5,912.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Brushy Canyon</b>										
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,602.00	0.00	0.00	6,602.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Nudge</b>										
6,700.00	2.67	251.22	6,699.96	-0.73	-2.16	-0.72	2.72	2.72	0.00	251.22
6,800.00	5.38	251.22	6,799.71	-2.99	-8.80	-2.96	2.72	2.72	0.00	0.00
6,813.61	5.75	251.22	6,813.25	-3.42	-10.05	-3.38	2.72	2.72	0.00	0.00
<b>Hold 5.75°Inc</b>										
6,900.00	5.75	251.22	6,899.21	-6.21	-18.25	-6.13	0.00	0.00	0.00	0.00
7,000.00	5.75	251.22	6,998.71	-9.43	-27.75	-9.32	0.00	0.00	0.00	0.00
7,100.00	5.75	251.22	7,098.20	-12.66	-37.24	-12.50	0.00	0.00	0.00	0.00
7,200.00	5.75	251.22	7,197.70	-15.89	-46.73	-15.69	0.00	0.00	0.00	0.00
7,208.34	5.75	251.22	7,206.00	-16.16	-47.53	-15.96	0.00	0.00	0.00	0.00
<b>Bone Spring</b>										
7,300.00	5.75	251.22	7,297.19	-19.11	-56.23	-18.88	0.00	0.00	0.00	0.00
7,400.00	5.75	251.22	7,396.69	-22.34	-65.72	-22.07	0.00	0.00	0.00	0.00
7,500.00	5.75	251.22	7,496.19	-25.57	-75.21	-25.25	0.00	0.00	0.00	0.00
7,600.00	5.75	251.22	7,595.68	-28.80	-84.71	-28.44	0.00	0.00	0.00	0.00
7,700.00	5.75	251.22	7,695.18	-32.02	-94.20	-31.63	0.00	0.00	0.00	0.00
7,800.00	5.75	251.22	7,794.67	-35.25	-103.69	-34.82	0.00	0.00	0.00	0.00
7,900.00	5.75	251.22	7,894.17	-38.48	-113.19	-38.00	0.00	0.00	0.00	0.00
8,000.00	5.75	251.22	7,993.67	-41.70	-122.68	-41.19	0.00	0.00	0.00	0.00
8,100.00	5.75	251.22	8,093.16	-44.93	-132.17	-44.38	0.00	0.00	0.00	0.00
8,200.00	5.75	251.22	8,192.66	-48.16	-141.67	-47.56	0.00	0.00	0.00	0.00
8,210.39	5.75	251.22	8,203.00	-48.49	-142.65	-47.90	0.00	0.00	0.00	0.00
<b>1st Bone Spring SS</b>										
8,300.00	5.75	251.22	8,292.15	-51.39	-151.16	-50.75	0.00	0.00	0.00	0.00
8,400.00	5.75	251.22	8,391.65	-54.61	-160.65	-53.94	0.00	0.00	0.00	0.00
8,500.00	5.75	251.22	8,491.15	-57.84	-170.15	-57.13	0.00	0.00	0.00	0.00
8,600.00	5.75	251.22	8,590.64	-61.07	-179.64	-60.31	0.00	0.00	0.00	0.00
8,700.00	5.75	251.22	8,690.14	-64.29	-189.13	-63.50	0.00	0.00	0.00	0.00
8,800.00	5.75	251.22	8,789.63	-67.52	-198.63	-66.69	0.00	0.00	0.00	0.00
8,900.00	5.75	251.22	8,889.13	-70.75	-208.12	-69.88	0.00	0.00	0.00	0.00
9,000.00	5.75	251.22	8,988.63	-73.98	-217.61	-73.06	0.00	0.00	0.00	0.00
9,071.74	5.75	251.22	9,060.00	-76.29	-224.42	-75.35	0.00	0.00	0.00	0.00
<b>2nd Bone Spring SS</b>										
9,100.00	5.75	251.22	9,088.12	-77.20	-227.11	-76.25	0.00	0.00	0.00	0.00
9,200.00	5.75	251.22	9,187.62	-80.43	-236.60	-79.44	0.00	0.00	0.00	0.00
9,300.00	5.75	251.22	9,287.11	-83.66	-246.09	-82.63	0.00	0.00	0.00	0.00

**HALLIBURTON****Plan Report for Nash Unit 301H - Plan 1**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
9,377.28	5.75	251.22	9,364.00	-86.15	-253.43	-85.09	0.00	0.00	0.00	0.00
<b>3rd Bone Spring LM</b>										
9,400.00	5.75	251.22	9,386.61	-86.88	-255.59	-85.81	0.00	0.00	0.00	0.00
9,500.00	5.75	251.22	9,486.11	-90.11	-265.08	-89.00	0.00	0.00	0.00	0.00
9,600.00	5.75	251.22	9,585.60	-93.34	-274.57	-92.19	0.00	0.00	0.00	0.00
9,700.00	5.75	251.22	9,685.10	-96.57	-284.07	-95.38	0.00	0.00	0.00	0.00
9,800.00	5.75	251.22	9,784.59	-99.79	-293.56	-98.56	0.00	0.00	0.00	0.00
9,909.42	5.75	251.22	9,893.46	-103.32	-303.95	-102.05	0.00	0.00	0.00	0.00
<b>KOP</b>										
9,950.00	5.90	292.04	9,933.85	-103.20	-307.81	-101.91	10.00	0.35	100.57	108.45
10,000.00	9.05	322.90	9,983.44	-99.09	-312.56	-97.78	10.00	6.31	61.73	67.83
10,050.00	13.38	336.07	10,032.48	-90.66	-317.28	-89.33	10.00	8.65	26.33	37.20
10,100.00	18.05	342.71	10,080.60	-77.97	-321.94	-76.62	10.00	9.35	13.28	24.28
10,150.00	22.86	346.66	10,127.44	-61.12	-326.48	-59.75	10.00	9.62	7.90	17.88
10,158.23	23.66	347.16	10,135.00	-57.95	-327.22	-56.58	10.00	9.71	6.10	14.17
<b>3rd Bone Spring Ss</b>										
10,200.00	27.73	349.29	10,172.63	-40.22	-330.89	-38.84	10.00	9.75	5.09	13.71
10,250.00	32.64	351.18	10,215.84	-15.45	-335.12	-14.05	10.00	9.82	3.79	11.79
10,300.00	37.57	352.62	10,256.73	13.01	-339.15	14.43	10.00	9.86	2.89	10.16
10,350.00	42.52	353.78	10,295.00	44.94	-342.94	46.38	10.00	9.89	2.31	8.97
10,400.00	47.47	354.73	10,330.34	80.11	-346.47	81.56	10.00	9.91	1.91	8.09
10,450.00	52.43	355.54	10,362.51	118.23	-349.70	119.70	10.00	9.92	1.63	7.42
10,500.00	57.40	356.25	10,391.24	159.03	-352.62	160.51	10.00	9.93	1.42	6.89
10,550.00	62.37	356.89	10,416.32	202.19	-355.20	203.68	10.00	9.94	1.27	6.48
10,600.00	67.34	357.47	10,437.56	247.38	-357.42	248.88	10.00	9.94	1.16	6.16
10,650.00	72.31	358.01	10,454.79	294.26	-359.26	295.77	10.00	9.95	1.08	5.92
10,695.99	76.89	358.48	10,467.00	338.57	-360.62	340.08	10.00	9.95	1.02	5.73
<b>3rd Bone Spring RH</b>										
10,700.00	77.29	358.52	10,467.90	342.48	-360.72	343.99	10.00	9.95	1.00	5.60
10,750.00	82.27	359.01	10,476.77	391.66	-361.77	393.17	10.00	9.95	0.98	5.60
10,800.00	87.24	359.49	10,481.33	441.43	-362.42	442.94	10.00	9.95	0.96	5.51
10,827.68	90.00	359.76	10,482.00	469.10	-362.60	470.61	10.00	9.95	0.95	5.46
<b>Landing Point</b>										
10,900.00	90.00	359.76	10,482.00	541.42	-362.91	542.93	0.00	0.00	0.00	5.46
11,000.00	90.00	359.76	10,482.00	641.42	-363.33	642.93	0.00	0.00	0.00	0.00
11,100.00	90.00	359.76	10,482.00	741.41	-363.75	742.93	0.00	0.00	0.00	0.00
11,200.00	90.00	359.76	10,482.00	841.41	-364.17	842.93	0.00	0.00	0.00	0.00
11,300.00	90.00	359.76	10,482.00	941.41	-364.59	942.93	0.00	0.00	0.00	0.00
11,400.00	90.00	359.76	10,482.00	1,041.41	-365.02	1,042.93	0.00	0.00	0.00	0.00
11,500.00	90.00	359.76	10,482.00	1,141.41	-365.44	1,142.93	0.00	0.00	0.00	0.00
11,600.00	90.00	359.76	10,482.00	1,241.41	-365.86	1,242.93	0.00	0.00	0.00	0.00
11,700.00	90.00	359.76	10,482.00	1,341.41	-366.28	1,342.93	0.00	0.00	0.00	0.00
11,800.00	90.00	359.76	10,482.00	1,441.41	-366.71	1,442.93	0.00	0.00	0.00	0.00
11,900.00	90.00	359.76	10,482.00	1,541.41	-367.13	1,542.93	0.00	0.00	0.00	0.00
12,000.00	90.00	359.76	10,482.00	1,641.41	-367.55	1,642.93	0.00	0.00	0.00	0.00
12,100.00	90.00	359.76	10,482.00	1,741.41	-367.97	1,742.93	0.00	0.00	0.00	0.00
12,200.00	90.00	359.76	10,482.00	1,841.40	-368.40	1,842.93	0.00	0.00	0.00	0.00
12,300.00	90.00	359.76	10,482.00	1,941.40	-368.82	1,942.93	0.00	0.00	0.00	0.00
12,400.00	90.00	359.76	10,482.00	2,041.40	-369.24	2,042.93	0.00	0.00	0.00	0.00
12,500.00	90.00	359.76	10,482.00	2,141.40	-369.66	2,142.93	0.00	0.00	0.00	0.00
12,600.00	90.00	359.76	10,482.00	2,241.40	-370.09	2,242.93	0.00	0.00	0.00	0.00
12,700.00	90.00	359.76	10,482.00	2,341.40	-370.51	2,342.93	0.00	0.00	0.00	0.00
12,800.00	90.00	359.76	10,482.00	2,441.40	-370.93	2,442.93	0.00	0.00	0.00	0.00
12,900.00	90.00	359.76	10,482.00	2,541.40	-371.35	2,542.93	0.00	0.00	0.00	0.00
13,000.00	90.00	359.76	10,482.00	2,641.40	-371.77	2,642.93	0.00	0.00	0.00	0.00
13,100.00	90.00	359.76	10,482.00	2,741.40	-372.20	2,742.93	0.00	0.00	0.00	0.00
13,200.00	90.00	359.76	10,482.00	2,841.40	-372.62	2,842.93	0.00	0.00	0.00	0.00
13,300.00	90.00	359.76	10,482.00	2,941.40	-373.04	2,942.93	0.00	0.00	0.00	0.00
13,400.00	90.00	359.76	10,482.00	3,041.39	-373.46	3,042.93	0.00	0.00	0.00	0.00



## Plan Report for Nash Unit 301H - Plan 1

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
13,500.00	90.00	359.76	10,482.00	3,141.39	-373.89	3,142.93	0.00	0.00	0.00	0.00
13,600.00	90.00	359.76	10,482.00	3,241.39	-374.31	3,242.93	0.00	0.00	0.00	0.00
13,700.00	90.00	359.76	10,482.00	3,341.39	-374.73	3,342.93	0.00	0.00	0.00	0.00
13,800.00	90.00	359.76	10,482.00	3,441.39	-375.15	3,442.93	0.00	0.00	0.00	0.00
13,900.00	90.00	359.76	10,482.00	3,541.39	-375.58	3,542.93	0.00	0.00	0.00	0.00
14,000.00	90.00	359.76	10,482.00	3,641.39	-376.00	3,642.93	0.00	0.00	0.00	0.00
14,100.00	90.00	359.76	10,482.00	3,741.39	-376.42	3,742.93	0.00	0.00	0.00	0.00
14,200.00	90.00	359.76	10,482.00	3,841.39	-376.84	3,842.93	0.00	0.00	0.00	0.00
14,300.00	90.00	359.76	10,482.00	3,941.39	-377.27	3,942.93	0.00	0.00	0.00	0.00
14,400.00	90.00	359.76	10,482.00	4,041.39	-377.69	4,042.93	0.00	0.00	0.00	0.00
14,500.00	90.00	359.76	10,482.00	4,141.38	-378.11	4,142.93	0.00	0.00	0.00	0.00
14,600.00	90.00	359.76	10,482.00	4,241.38	-378.53	4,242.93	0.00	0.00	0.00	0.00
14,700.00	90.00	359.76	10,482.00	4,341.38	-378.95	4,342.93	0.00	0.00	0.00	0.00
14,800.00	90.00	359.76	10,482.00	4,441.38	-379.38	4,442.93	0.00	0.00	0.00	0.00
14,900.00	90.00	359.76	10,482.00	4,541.38	-379.80	4,542.93	0.00	0.00	0.00	0.00
15,000.00	90.00	359.76	10,482.00	4,641.38	-380.22	4,642.93	0.00	0.00	0.00	0.00
15,100.00	90.00	359.76	10,482.00	4,741.38	-380.64	4,742.93	0.00	0.00	0.00	0.00
15,200.00	90.00	359.76	10,482.00	4,841.38	-381.07	4,842.93	0.00	0.00	0.00	0.00
15,300.00	90.00	359.76	10,482.00	4,941.38	-381.49	4,942.93	0.00	0.00	0.00	0.00
15,400.00	90.00	359.76	10,482.00	5,041.38	-381.91	5,042.93	0.00	0.00	0.00	0.00
15,500.00	90.00	359.76	10,482.00	5,141.38	-382.33	5,142.93	0.00	0.00	0.00	0.00
15,600.00	90.00	359.76	10,482.00	5,241.37	-382.76	5,242.93	0.00	0.00	0.00	0.00
15,700.00	90.00	359.76	10,482.00	5,341.37	-383.18	5,342.93	0.00	0.00	0.00	0.00
15,800.00	90.00	359.76	10,482.00	5,441.37	-383.60	5,442.93	0.00	0.00	0.00	0.00
15,900.00	90.00	359.76	10,482.00	5,541.37	-384.02	5,542.93	0.00	0.00	0.00	0.00
16,000.00	90.00	359.76	10,482.00	5,641.37	-384.44	5,642.93	0.00	0.00	0.00	0.00
16,100.00	90.00	359.76	10,482.00	5,741.37	-384.87	5,742.93	0.00	0.00	0.00	0.00
16,200.00	90.00	359.76	10,482.00	5,841.37	-385.29	5,842.93	0.00	0.00	0.00	0.00
16,300.00	90.00	359.76	10,482.00	5,941.37	-385.71	5,942.93	0.00	0.00	0.00	0.00
16,400.00	90.00	359.76	10,482.00	6,041.37	-386.13	6,042.93	0.00	0.00	0.00	0.00
16,500.00	90.00	359.76	10,482.00	6,141.37	-386.56	6,142.93	0.00	0.00	0.00	0.00
16,600.00	90.00	359.76	10,482.00	6,241.37	-386.98	6,242.93	0.00	0.00	0.00	0.00
16,700.00	90.00	359.76	10,482.00	6,341.36	-387.40	6,342.93	0.00	0.00	0.00	0.00
16,800.00	90.00	359.76	10,482.00	6,441.36	-387.82	6,442.93	0.00	0.00	0.00	0.00
16,900.00	90.00	359.76	10,482.00	6,541.36	-388.25	6,542.93	0.00	0.00	0.00	0.00
17,000.00	90.00	359.76	10,482.00	6,641.36	-388.67	6,642.93	0.00	0.00	0.00	0.00
17,100.00	90.00	359.76	10,482.00	6,741.36	-389.09	6,742.93	0.00	0.00	0.00	0.00
17,200.00	90.00	359.76	10,482.00	6,841.36	-389.51	6,842.93	0.00	0.00	0.00	0.00
17,300.00	90.00	359.76	10,482.00	6,941.36	-389.94	6,942.93	0.00	0.00	0.00	0.00
17,400.00	90.00	359.76	10,482.00	7,041.36	-390.36	7,042.93	0.00	0.00	0.00	0.00
17,500.00	90.00	359.76	10,482.00	7,141.36	-390.78	7,142.93	0.00	0.00	0.00	0.00
17,600.00	90.00	359.76	10,482.00	7,241.36	-391.20	7,242.93	0.00	0.00	0.00	0.00
17,700.00	90.00	359.76	10,482.00	7,341.36	-391.62	7,342.93	0.00	0.00	0.00	0.00
17,800.00	90.00	359.76	10,482.00	7,441.35	-392.05	7,442.93	0.00	0.00	0.00	0.00
17,900.00	90.00	359.76	10,482.00	7,541.35	-392.47	7,542.93	0.00	0.00	0.00	0.00
18,000.00	90.00	359.76	10,482.00	7,641.35	-392.89	7,642.93	0.00	0.00	0.00	0.00
18,100.00	90.00	359.76	10,482.00	7,741.35	-393.31	7,742.93	0.00	0.00	0.00	0.00
18,200.00	90.00	359.76	10,482.00	7,841.35	-393.74	7,842.93	0.00	0.00	0.00	0.00
18,300.00	90.00	359.76	10,482.00	7,941.35	-394.16	7,942.93	0.00	0.00	0.00	0.00
18,400.00	90.00	359.76	10,482.00	8,041.35	-394.58	8,042.93	0.00	0.00	0.00	0.00
18,500.00	90.00	359.76	10,482.00	8,141.35	-395.00	8,142.93	0.00	0.00	0.00	0.00
18,600.00	90.00	359.76	10,482.00	8,241.35	-395.43	8,242.93	0.00	0.00	0.00	0.00
18,700.00	90.00	359.76	10,482.00	8,341.35	-395.85	8,342.93	0.00	0.00	0.00	0.00
18,800.00	90.00	359.76	10,482.00	8,441.35	-396.27	8,442.93	0.00	0.00	0.00	0.00
18,900.00	90.00	359.76	10,482.00	8,541.35	-396.69	8,542.93	0.00	0.00	0.00	0.00
19,000.00	90.00	359.76	10,482.00	8,641.34	-397.12	8,642.93	0.00	0.00	0.00	0.00
19,100.00	90.00	359.76	10,482.00	8,741.34	-397.54	8,742.93	0.00	0.00	0.00	0.00
19,200.00	90.00	359.76	10,482.00	8,841.34	-397.96	8,842.93	0.00	0.00	0.00	0.00
19,300.00	90.00	359.76	10,482.00	8,941.34	-398.38	8,942.93	0.00	0.00	0.00	0.00
19,400.00	90.00	359.76	10,482.00	9,041.34	-398.80	9,042.93	0.00	0.00	0.00	0.00

**HALLIBURTON****Plan Report for Nash Unit 301H - Plan 1**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
19,500.00	90.00	359.76	10,482.00	9,141.34	-399.23	9,142.93	0.00	0.00	0.00	0.00
19,600.00	90.00	359.76	10,482.00	9,241.34	-399.65	9,242.93	0.00	0.00	0.00	0.00
19,700.00	90.00	359.76	10,482.00	9,341.34	-400.07	9,342.93	0.00	0.00	0.00	0.00
19,800.00	90.00	359.76	10,482.00	9,441.34	-400.49	9,442.93	0.00	0.00	0.00	0.00
19,900.00	90.00	359.76	10,482.00	9,541.34	-400.92	9,542.93	0.00	0.00	0.00	0.00
20,000.00	90.00	359.76	10,482.00	9,641.34	-401.34	9,642.93	0.00	0.00	0.00	0.00
20,100.00	90.00	359.76	10,482.00	9,741.33	-401.76	9,742.93	0.00	0.00	0.00	0.00
20,200.00	90.00	359.76	10,482.00	9,841.33	-402.18	9,842.93	0.00	0.00	0.00	0.00
20,300.00	90.00	359.76	10,482.00	9,941.33	-402.61	9,942.93	0.00	0.00	0.00	0.00
20,400.00	90.00	359.76	10,482.00	10,041.33	-403.03	10,042.93	0.00	0.00	0.00	0.00
20,500.00	90.00	359.76	10,482.00	10,141.33	-403.45	10,142.93	0.00	0.00	0.00	0.00
20,600.00	90.00	359.76	10,482.00	10,241.33	-403.87	10,242.93	0.00	0.00	0.00	0.00
20,700.00	90.00	359.76	10,482.00	10,341.33	-404.29	10,342.93	0.00	0.00	0.00	0.00
20,800.00	90.00	359.76	10,482.00	10,441.33	-404.72	10,442.93	0.00	0.00	0.00	0.00
20,900.00	90.00	359.76	10,482.00	10,541.33	-405.14	10,542.93	0.00	0.00	0.00	0.00
21,000.00	90.00	359.76	10,482.00	10,641.33	-405.56	10,642.93	0.00	0.00	0.00	0.00
21,100.00	90.00	359.76	10,482.00	10,741.33	-405.98	10,742.93	0.00	0.00	0.00	0.00
21,200.00	90.00	359.76	10,482.00	10,841.32	-406.41	10,842.93	0.00	0.00	0.00	0.00
21,300.00	90.00	359.76	10,482.00	10,941.32	-406.83	10,942.93	0.00	0.00	0.00	0.00
21,400.00	90.00	359.76	10,482.00	11,041.32	-407.25	11,042.93	0.00	0.00	0.00	0.00
21,500.00	90.00	359.76	10,482.00	11,141.32	-407.67	11,142.93	0.00	0.00	0.00	0.00
21,600.00	90.00	359.76	10,482.00	11,241.32	-408.10	11,242.93	0.00	0.00	0.00	0.00
21,700.00	90.00	359.76	10,482.00	11,341.32	-408.52	11,342.93	0.00	0.00	0.00	0.00
21,800.00	90.00	359.76	10,482.00	11,441.32	-408.94	11,442.93	0.00	0.00	0.00	0.00
21,900.00	90.00	359.76	10,482.00	11,541.32	-409.36	11,542.93	0.00	0.00	0.00	0.00
22,000.00	90.00	359.76	10,482.00	11,641.32	-409.79	11,642.93	0.00	0.00	0.00	0.00
22,100.00	90.00	359.76	10,482.00	11,741.32	-410.21	11,742.93	0.00	0.00	0.00	0.00
22,200.00	90.00	359.76	10,482.00	11,841.32	-410.63	11,842.93	0.00	0.00	0.00	0.00
22,228.18	90.00	359.76	10,482.00	11,869.50	-410.70	11,871.12	0.00	0.00	0.00	0.00

**Plan Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
2,228.18	2,228.18	0.00	0.00	BHL
6,602.00	6,602.00	0.00	0.00	Start Nudge
6,813.61	6,813.25	-3.42	-10.05	Hold 5.75°Inc
9,909.42	9,893.46	-103.32	-303.95	KOP
10,827.68	10,482.00	469.10	-362.60	Landing Point

**Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (usft)	+E/-W (usft)	Start TVD (usft)
User	No Target (Freehand)	359.76	Slot	0.00	0.00	0.00

**Survey tool program**

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	22,228.18	Plan 1	MWD+SC

**HALLIBURTON****Plan Report for Nash Unit 301H - Plan 1****Formation Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
246.00	246.00	Rustler		0.00	
404.00	404.00	Top Salt		0.00	
3,198.00	3,198.00	Base Salt		0.00	
3,421.00	3,421.00	Delaware		0.00	
4,281.00	4,281.00	Cherry Canyon		0.00	
5,912.00	5,912.00	Brushy Canyon		0.00	
7,208.34	7,206.00	Bone Spring		0.00	
8,210.39	8,203.00	1st Bone Spring SS		0.00	
9,071.74	9,060.00	2nd Bone Spring SS		0.00	
9,377.28	9,364.00	3rd Bone Spring LM		0.00	
10,158.23	10,135.00	3rd Bone Spring Ss		0.00	
10,695.99	10,467.00	3rd Bone Spring RH		0.00	

***Targets associated with this wellbore***

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
BHL (Nash 301H)	10,482.00	11,869.50	-410.70	Point
LTP (Nash 301H)	10,482.00	11,739.50	-410.20	Point
FTP (Nash 301H)	10,482.00	469.10	-362.60	Point

**Directional Difficulty Index**

Average Dogleg over Survey:	0.44 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 10,812.83 usft
Net Tortousity applicable to Plans:	0.44 °/100usft	Directional Difficulty Index:	6.724

**Audit Info**

## North Reference Sheet for Nash Unit - Nash Unit 301H - Wellbore #1

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to Plat @ 3139.00usft (GL3114'+25ft=3139ft(KB)). Northing and Easting are relative to Nash Unit 301H

Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 3001 using datum NAD 1927 (NADCON CONUS), ellipsoid Clarke 1866

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is -104.33°, Longitude Origin: 0° 0' 0.000 E°, Latitude Origin: 0° 0' 0.000 N°

False Easting: 500,000.00usft, False Northing: 0.00usft, Scale Reduction: 0.99992833

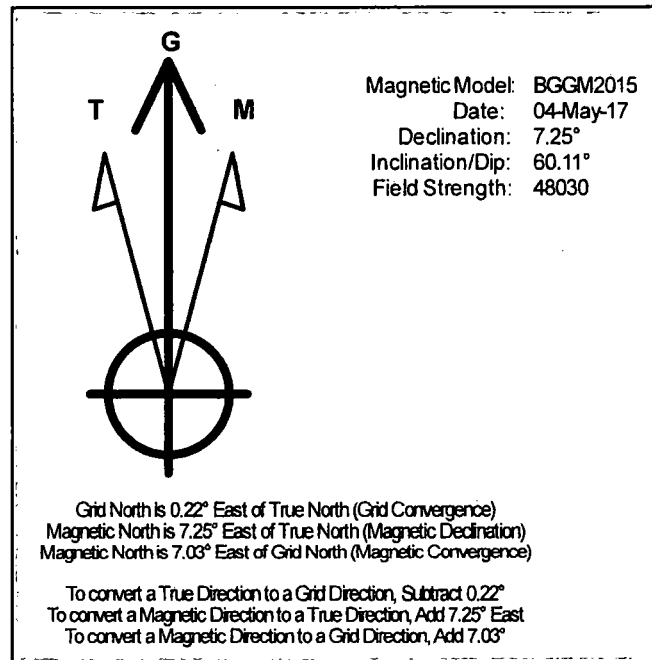
Grid Coordinates of Well: 472,096.30 usft N, 629,616.90 usft E

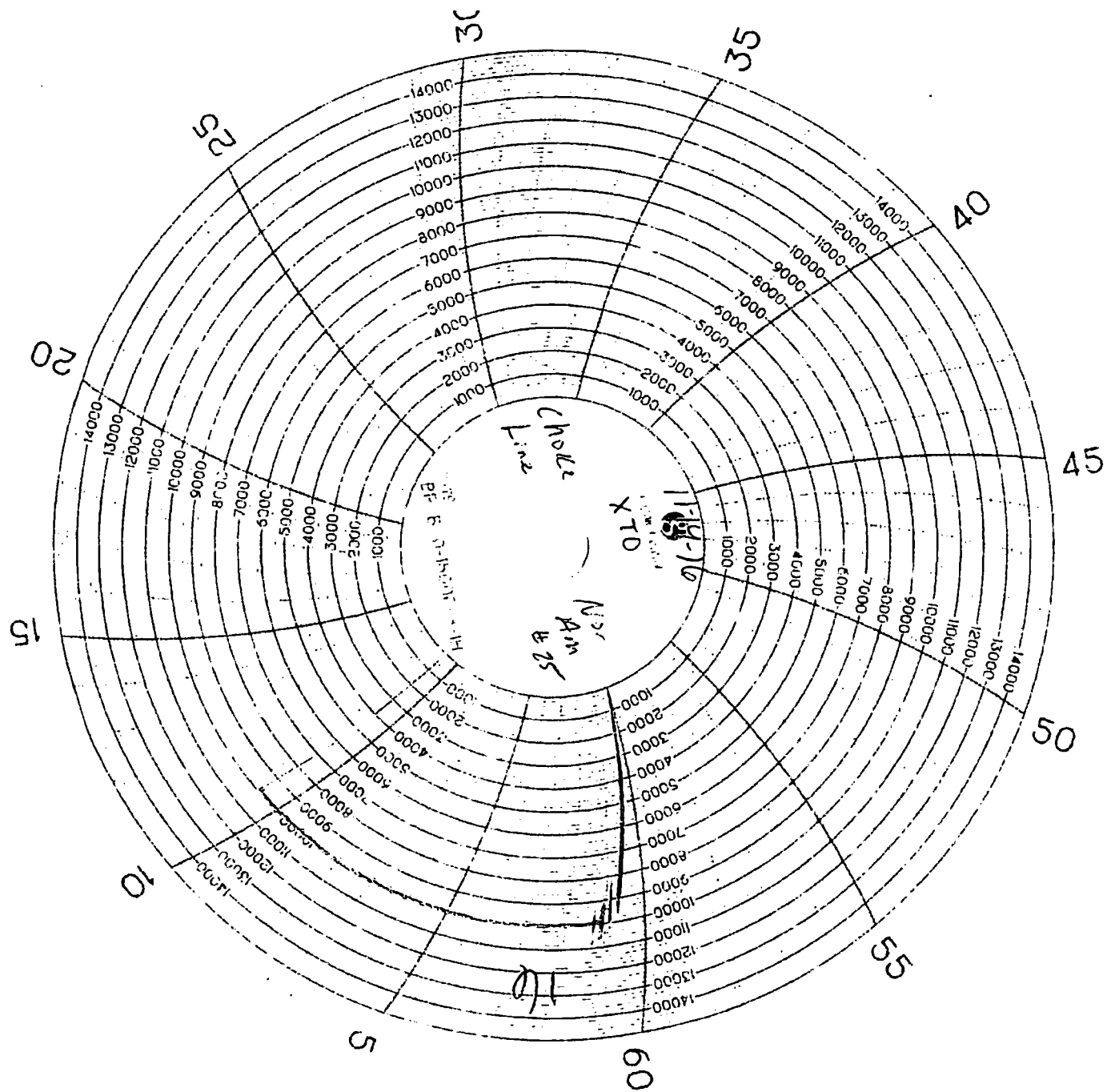
Geographical Coordinates of Well: 32° 17' 49.96" N, 103° 54' 49.86" W

Grid Convergence at Surface is: 0.22°

Based upon Minimum Curvature type calculations, at a Measured Depth of 22,228.18usft  
the Bottom Hole Displacement is 11,876.60usft in the Direction of 358.02° (Grid).

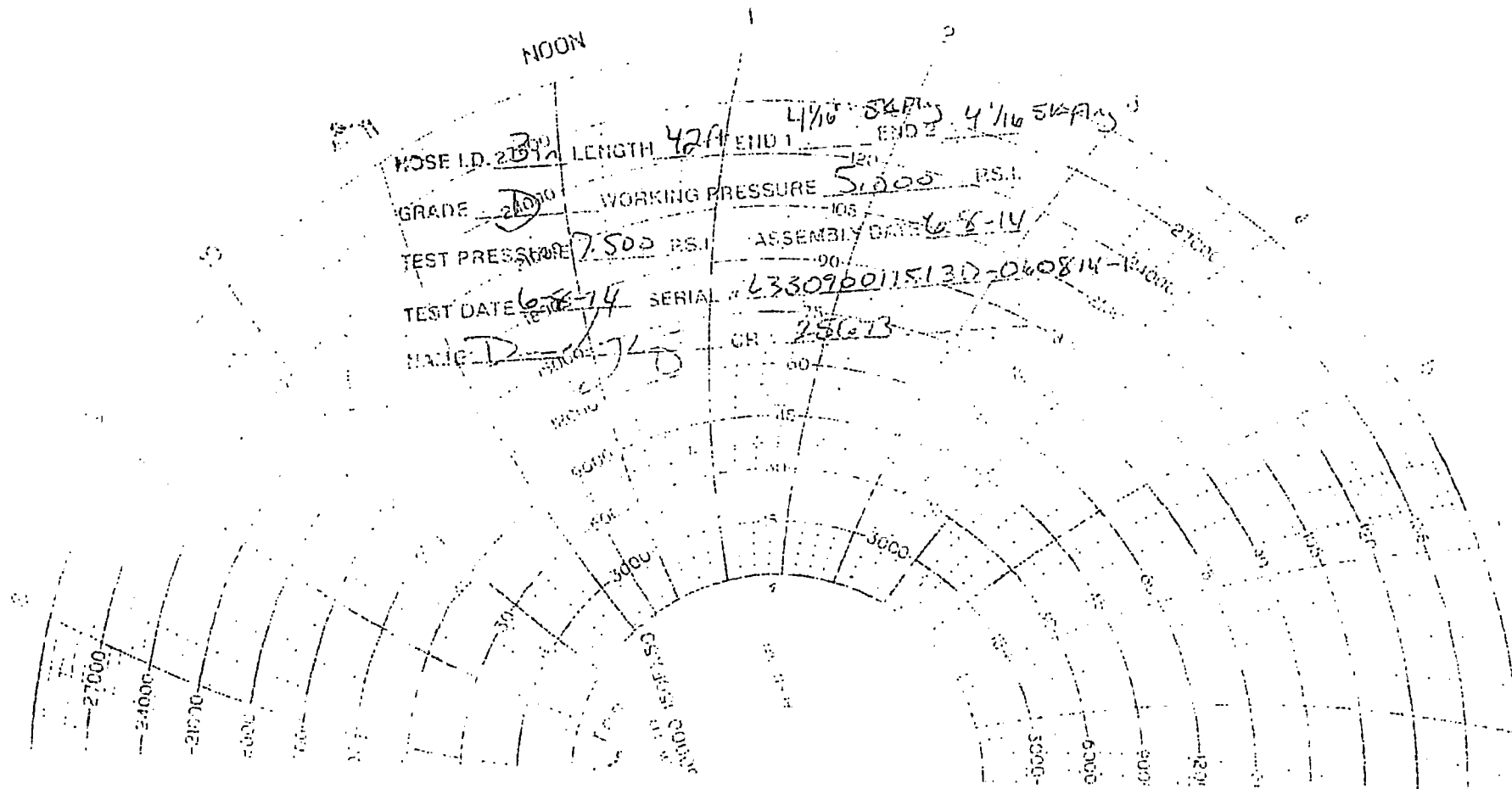
Magnetic Convergence at surface is: -7.03° ( 4 May 2017, , BGGM2015)





NOON

NOSE I.D. 2 3/4 LENGTH 42 ft END 1 4 1/16 5KPA END 2 4 1/16 5KPA  
GRADE D WORKING PRESSURE 5,000 P.S.I.  
TEST PRESSURE 7,500 P.S.I. ASSEMBLY DATE 6-8-14  
TEST DATE 6-8-14 SERIAL L33096011513D-060814-14000  
NAME D-745 CR 286B





U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

## SUPO Data Report

11/25/2018

APD ID: 10400031536

Submission Date: 06/25/2018

Operator Name: XTO ENERGY INCORPORATED

Well Name: NASH UNIT

Well Number: 301H

Well Type: OIL WELL

Well Work Type: Drill

highlighted data  
reflects the most  
recent changes.

[Show Final Text](#)

### Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Nash\_Unit\_301H\_Exist\_Road\_20180625063548.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT

Row(s) Exist? YES

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

### Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

Nash\_Unit\_Roads\_20180615094148.pdf

New road type: RESOURCE

Length: 2068.2 Feet

Width (ft.): 30

Max slope (%): 2

Max grade (%): 3

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 14

**New road access erosion control:** The access road will be constructed and maintained as necessary to prevent soil erosion and accommodate all-weather traffic. The road will be crowned and ditched with water turnouts installed as necessary to provide for proper drainage along with access road route.

**New road access plan or profile prepared?** NO

**New road access plan attachment:**

**Operator Name:** XTO ENERGY INCORPORATED

**Well Name:** NASH UNIT

**Well Number:** 301H

**Access road engineering design?** NO

**Access road engineering design attachment:**

**Access surfacing type:** OTHER

**Access topsoil source:** ONSITE

**Access surfacing type description:** Surface material will be native caliche

**Access onsite topsoil source depth:** 6

**Offsite topsoil source description:**

**Onsite topsoil removal process:** Approximately 6 inches of topsoil (root zone) will be stripped from the proposed access road prior to any further construction activity. The topsoil that was stripped will be spread along the edge of the road and within the ditch. The topsoil will be seeded with the proper seed mix designated by the BLM.

**Access other construction information:** Construction, reclamation, and/or routine maintenance will not be conducted during periods when the soil conditions for construction could lead to impacts to the surrounding environment, or when watershed damage is likely to occur as a result of these activities.

**Access miscellaneous information:** Nash Unit is accessed from State Highway 128 and County Road #793 (Rawhide Road). Go South on County Road #793 (Rawhide Road) for approximately 3.4 miles. Turn right and go West approximately .1 miles to the location. Transportation Plan identifying existing roads that will be used to access the project area is included from John West Surveying marked as, 'Vicinity Map.' There are multiple existing access roads to the proposed Nash Unit well locations. All equipment and vehicles will be confined to the routes shown on the Vicinity Map as provided by John West Surveying. Maintenance of the access roads will continue until abandonment and reclamation of the well pads is completed.

**Number of access turnouts:** 0

**Access turnout map:**

### Drainage Control

**New road drainage crossing:** OTHER

**Drainage Control comments:** The access road and associated drainage structures will be constructed and maintained in accordance with road guidelines contained in the joint BLM/USFS publication: Surface Operating Standards for Oil and Gas Exploration and Development, The Gold Book, Fourth Edition and/or BLM Manual Section 9113 concerning road construction standards on projects subject to federal jurisdiction.

**Road Drainage Control Structures (DCS) description:** No drainage control structures were identified at onsite. Drainage control structures will be applied for as-needed and be in accordance with road guidelines contained in the joint BLM/USFS publication: Surface Operating Standards for Oil and Gas Exploration and Development, The Gold Book, Fourth Edition and/or BLM Manual Section 9113 concerning road construction standards on projects subject to federal jurisdiction.

**Road Drainage Control Structures (DCS) attachment:**

### Access Additional Attachments

**Additional Attachment(s):**

### Section 3 - Location of Existing Wells

**Existing Wells Map?** YES

**Attach Well map:**

Nash\_Unit\_1\_Mile\_20180615094211.pdf



**Operator Name:** XTO ENERGY INCORPORATED

**Well Name:** NASH UNIT

**Well Number:** 301H

**Existing Wells description:**

#### Section 4 - Location of Existing and/or Proposed Production Facilities

**Submit or defer a Proposed Production Facilities plan?** SUBMIT

**Production Facilities description:** Production Facilities. One 600' x 565' pad was staked with the BLM for construction and use as the Nash Unit 18 Central Tank Battery (CTB). The pad is located in Section 18-23S-30E, NMPM, Eddy County, New Mexico. A plat of the proposed facility is attached. Only the area necessary to maintain facilities will be disturbed. A 3160-5 sundry notification will be submitted after construction with a site-security diagram and layout of the facility with associated equipment. Surface & Buried Flowlines. In the event the wells are found productive, 1 - 4" composite flexpipe or steel flowlines with a maximum safety pressure rating of 750psi (operating pressure: 125psi) will be laid on the surface within proposed lease road corridors from the proposed wells to Nash Unit 18 CTB where the oil, gas, and water will be metered and appropriately separated. High pressure gas lines will be buried beneath the surface flowlines per well pad within the proposed lease road corridors for gas lift. Oil will be hauled from the CTB location by truck following existing and proposed lease roads. The distance of proposed flowlines per well will be approximately 10,410' or less per well based on the location of the well pad in conjunction with the facility location. All flowlines will follow proposed lease road corridors. A plat of the proposed surface and buried flowline route for the lease is attached. Gas Pipeline. A gas purchaser has been identified and will be building to XTO Energy, Incorporated's CTB. Disposal Facilities. Produced water will be hauled from location to a commercial disposal facility as needed. Once wells are drilled and completed, a 3160-5 sundry notification will be submitted to BLM in compliance with Onshore Order 7. Flare. There is 1 flare associated with the Nash Unit development project. The flare stack will be 50'x50', be located on the approved CTB pad, and will be sized and rated based on anticipated reserves and recovery of gas throughout the development area with 150' of distance between all facility equipment, road and well pad locations for safety purposes. Aboveground Structures. All permanent (on site six months or longer) aboveground structures constructed or installed on location and not subject to safety requirements will be painted earth-tone colors such as 'shale green' that reduce the visual impacts of the built environment. Containment Berms. Containment berms will be constructed completely around any production facilities designed to hold fluids. The containment berms will be constructed of compacted subsoil, be sufficiently impervious, hold 1 ½ times the capacity of the largest tank and away from cut or fill areas. Electrical. XTO Energy, Inc is not applying for electrical with this application. Electrical will be applied for via Right-of-Way with the Bureau of Land Management in conjunction with the New Mexico State Land Office.

**Production Facilities map:**

Nash\_Unit\_18\_CTB\_20180615094242.pdf

Nash\_Unit\_FL\_20180615094251.pdf

#### Section 5 - Location and Types of Water Supply

##### Water Source Table

**Water source use type:** INTERMEDIATE/PRODUCTION CASING, STIMULATION, SURFACE CASING

**Water source type:** OTHER

**Describe type:** Fresh Water; in Section 6, T25S-R29E

**Source latitude:**

**Source longitude:**

**Source datum:**

**Water source permit type:** PRIVATE CONTRACT,PRIVATE CONTRACT,PRIVATE CONTRACT

**Source land ownership:** FEDERAL

**Water source transport method:** TRUCKING,TRUCKING,TRUCKING

**Operator Name:** XTO ENERGY INCORPORATED

**Well Name:** NASH UNIT

**Well Number:** 301H

**Source transportation land ownership:** FEDERAL

**Water source volume (barrels):** 335000

**Source volume (acre-feet):** 43.179188

**Source volume (gal):** 14070000

**Water source use type:** INTERMEDIATE/PRODUCTION CASING,  
STIMULATION, SURFACE CASING

**Water source type:** OTHER

**Describe type:** Fresh Water; Section 21-23S-30E

**Source latitude:**

**Source longitude:**

**Source datum:**

**Water source permit type:** PRIVATE CONTRACT

**Source land ownership:** FEDERAL

**Water source transport method:** TRUCKING

**Source transportation land ownership:** FEDERAL

**Water source volume (barrels):** 335000

**Source volume (acre-feet):** 43.179188

**Source volume (gal):** 14070000

**Water source and transportation map:**

Nash\_Unit\_301H\_Wtr\_20180625063658.pdf

**Water source comments:** The well will be drilled using a combination of water mud systems as outlined in the Drilling Program. The water will be obtained from a 3rd party vendor and hauled to the anticipated pit in Section 13 by transport truck using the existing and proposed roads depicted in the attached exhibits. No water well will be drilled on the location. Water for drilling, completion and dust control will be purchased from the following company: Select Energy Services [Rockhouse Water] Water for drilling, completion and dust control will be supplied by Select Energy Services for sale to XTO Energy, inc. from Section 21-23S-30E, Eddy County, New Mexico. In the event that Select Energy Services does not have the appropriate water for XTO at time of drilling and completion, then XTO water will come from Intrepid Potash Company with the location of the water being in Section 6, T25S-R29E, Eddy County, New Mexico. Anticipated water usage for drilling includes an estimated 35,000 barrels of water to drill a horizontal well in a combination of fresh water and brine as detailed in the mud program in the drilling plans. These volumes are calculated for ~1.5bbls per foot of hole drilled with excess to accommodate any lost circulation or wash out that may occur. Actual water volumes used during operations will depend on the depth of the well, length of horizontal sections, and the losses that may occur during the operation. Temporary water flowlines will be permitted via ROW approval letter and proper grants as-needed based on drilling and completion schedules as needed. Well completion is expected to require approximately 300,000 barrels of water per horizontal well. Actual water volumes used during operations will depend on the depth of the well and length of horizontal sections.

**New water well?** NO

**New Water Well Info**

**Well latitude:**

**Well Longitude:**

**Well datum:**

**Well target aquifer:**

**Est. depth to top of aquifer(ft):**

**Est thickness of aquifer:**

**Aquifer comments:**

**Aquifer documentation:**

**Well depth (ft):**

**Well casing type:**

**Operator Name:** XTO ENERGY INCORPORATED

**Well Name:** NASH UNIT

**Well Number:** 301H

**Well casing outside diameter (in.):**

**Well casing inside diameter (in.):**

**New water well casing?**

**Used casing source:**

**Drilling method:**

**Drill material:**

**Grout material:**

**Grout depth:**

**Casing length (ft.):**

**Casing top depth (ft.):**

**Well Production type:**

**Completion Method:**

**Water well additional information:**

**State appropriation permit:**

**Additional information attachment:**

## Section 6 - Construction Materials

**Construction Materials description:** Construction, reclamation, and/or routine maintenance will not be conducted during periods when the soil conditions for construction could lead to impacts to the surrounding environment, or when watershed damage is likely to occur as a result of these activities. Any construction material that may be required for surfacing of the drill pad and access road will be from a contractor having a permitted source of materials within the general area. No construction materials will be removed from federal lands without prior approval from the appropriate surface management agency. All roads and well pads will be constructed of 6" rolled and compacted caliche. Anticipated Caliche Locations: Pit 1: State Caliche Pit 613-Eddy, Sec-2-24S-33E Pit 2: Federal Caliche Pit, Section 34-T23S-R29E

**Construction Materials source location attachment:**

## Section 7 - Methods for Handling Waste

**Waste type:** DRILLING

**Waste content description:** Cuttings

**Amount of waste:** 2100 pounds

**Waste disposal frequency :** One Time Only

**Safe containment description:** The well will be drilled utilizing a closed-loop mud system. Drill cuttings will be held in roll-off style mud boxes.

**Safe containmant attachment:**

**Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL

**Disposal type description:**

**Disposal location description:** R360 Environmental Solutions 4507 W Carlsbad Hwy, Hobbs, NM 88240 (575) 393-1079

**Waste type:** SEWAGE

**Waste content description:** Human Waste

**Amount of waste:** 250 gallons

**Waste disposal frequency :** Weekly

**Safe containment description:** Portable, self-contained toilets will be provided for human waste disposal. Upon completion of drilling and completion activities, or as required, the toilet holding tanks will be pumped and the contents thereof disposed of in an approved sewage disposal facility. All state and local laws and regulations pertaining to the disposal of human and solid waste will be complied with. This equipment will be properly maintained during the drilling and completion operations

**Operator Name:** XTO ENERGY INCORPORATED

**Well Name:** NASH UNIT

**Well Number:** 301H

and will be removed when all operations are complete.

**Safe containmant attachment:**

**Waste disposal type:** HAUL TO COMMERCIAL FACILITY      **Disposal location ownership:** COMMERCIAL

**Disposal type description:**

**Disposal location description:** A licensed 3rd party contractor will be used to haul and dispose of human waste.

**Waste type:** DRILLING

**Waste content description:** Fluid

**Amount of waste:** 500                      barrels

**Waste disposal frequency :** One Time Only

**Safe containment description:** Steel mud pits

**Safe containmant attachment:**

**Waste disposal type:** HAUL TO COMMERCIAL FACILITY      **Disposal location ownership:** COMMERCIAL

**Disposal type description:**

**Disposal location description:** R360 Environmental Solutions 4507 W Carlsbad Hwy, Hobbs, NM 88240 (575) 393-1079

**Waste type:** GARBAGE

**Waste content description:** Garbage, junk and non-flammable waste materials

**Amount of waste:** 250                      pounds

**Waste disposal frequency :** Weekly

**Safe containment description:** All garbage, junk and non-flammable waste materials will be contained in a self-contained, portable dumpster or trash cage, to prevent scattering and will be removed and deposited in an approve sanitary landfill. Immediately after drilling all debris and other waste materials on and around the well location not contained in the trash cage will be cleaned up and removed from the location. No potentially adverse materials or substances will be left on the location.

**Safe containmant attachment:**

**Waste disposal type:** HAUL TO COMMERCIAL FACILITY      **Disposal location ownership:** COMMERCIAL

**Disposal type description:**

**Disposal location description:** A licensed 3rd party vendor will be contracted to haul and safely dispose of garbage, junk and non-flammable waste materials.

### Reserve Pit

**Reserve Pit being used?** NO

**Temporary disposal of produced water into reserve pit?**

**Reserve pit length (ft.)**

**Reserve pit width (ft.)**

**Reserve pit depth (ft.)**

**Reserve pit volume (cu. yd.)**

**Operator Name:** XTO ENERGY INCORPORATED

**Well Name:** NASH UNIT

**Well Number:** 301H

**Is at least 50% of the reserve pit in cut?**

**Reserve pit liner**

**Reserve pit liner specifications and installation description**

### Cuttings Area

**Cuttings Area being used?** NO

**Are you storing cuttings on location?** YES

**Description of cuttings location** Cuttings. The well will be drilled utilizing a closed-loop mud system. Drill cuttings will be held in roll-off style mud boxes and taken to a New Mexico Oil Conservation Division (NMOCD) approved disposal site. Drilling Fluids. These will be contained in steel mud pits and then taken to a NMOCD approved commercial disposal facility. Produced Fluids. Water produced from the well during completion will be held temporarily in steel tanks and then taken to a NMOCD approved commercial disposal facility. Oil produced during operations will be stored in tanks until sold.

**Cuttings area length (ft.)**

**Cuttings area width (ft.)**

**Cuttings area depth (ft.)**

**Cuttings area volume (cu. yd.)**

**Is at least 50% of the cuttings area in cut?**

**WCuttings area liner**

**Cuttings area liner specifications and installation description**

### Section 8 - Ancillary Facilities

**Are you requesting any Ancillary Facilities?:** NO

**Ancillary Facilities attachment:**

**Comments:**

### Section 9 - Well Site Layout

**Well Site Layout Diagram:**

Nash\_Unit\_301H\_Well\_20180625063834.pdf

**Comments:**

**Operator Name:** XTO ENERGY INCORPORATED

**Well Name:** NASH UNIT

**Well Number:** 301H

## Section 10 - Plans for Surface Reclamation

**Type of disturbance:** New Surface Disturbance

**Multiple Well Pad Name:** NASH UNIT

**Multiple Well Pad Number:** 1

### Recontouring attachment:

Nash\_Unit\_Int\_Rec\_P3\_20180615094543.pdf

Nash\_Unit\_Int\_Rec\_P1\_20180615094527.pdf

Nash\_Unit\_Int\_Rec\_P6\_20180615094551.pdf

Nash\_Unit\_Int\_Rec\_P2\_20180615094535.pdf

Nash\_Unit\_Int\_Rec\_P7\_20180615094559.pdf

**Drainage/Erosion control construction:** All compacted areas to be seeded will be ripped to a minimum depth of 18 inches with a minimum furrow spacing of 2 feet, followed by recontouring the surface and then evenly spreading the stockpiled topsoil. Prior to seeding, the seedbed will be scarified to a depth of no less than 4-6 inches.

**Drainage/Erosion control reclamation:** Erosion features are equal to or less than surrounding area and erosion control is sufficient so that water naturally infiltrates into the soil and gullying, headcutting, slumping, and deep or excessive rills (greater than 3 inches) are not observed.

<b>Well pad proposed disturbance (acres):</b> 26.3	<b>Well pad interim reclamation (acres):</b> 11.92	<b>Well pad long term disturbance (acres):</b> 14.38
<b>Road proposed disturbance (acres):</b> 1.42	<b>Road interim reclamation (acres):</b> 0	<b>Road long term disturbance (acres):</b> 1.42
<b>Powerline proposed disturbance (acres):</b> 0	<b>Powerline interim reclamation (acres):</b> 0	<b>Powerline long term disturbance (acres):</b> 0
<b>Pipeline proposed disturbance (acres):</b> 0	<b>Pipeline interim reclamation (acres):</b> 0	<b>Pipeline long term disturbance (acres):</b> 0
<b>Other proposed disturbance (acres):</b> 0	<b>Other interim reclamation (acres):</b> 0	<b>Other long term disturbance (acres):</b> 0
<b>Total proposed disturbance:</b> 27.72	<b>Total interim reclamation:</b> 11.92	<b>Total long term disturbance:</b> 16.626

### Disturbance Comments:

**Reconstruction method:** The original stock piled topsoil will be spread over the areas being reclaimed and the original landform will be restored for all disturbed areas including well pads, production facilities, roads, pipelines, and utility corridors as close as possible to the original topography. The location will then be ripped and seeded.

**Topsoil redistribution:** The original stock piled topsoil will be spread over the areas being reclaimed and the original landform will be restored for all disturbed areas including well pads, production facilities, roads, pipelines, and utility corridors as close as possible to the original topography. The location will then be ripped and seeded.

**Soil treatment:** A self-sustaining, vigorous, diverse, native (or otherwise approved) plant community will be established on the site with a density sufficient to control erosion and invasion by non-native plants and to re-establish wildlife habitat or forage production. At a minimum, the established plant community will consist of species included in the seed mix and/or desirable species occurring in the surrounding natural vegetation.

**Existing Vegetation at the well pad:** • Environmental Setting. According to the Natural Resources Conservation Service online database, the project area soils consist of Reeves soils. These soils are associated with the Loamy ecological site (R042CX007NM) which typically supports black and blue grama and tobosa grasslands with an even distribution of yucca, mesquite, American tarbush, cholla, and creosote. The current vegetative community consists of mesquite, creosote, soapweed yucca, broom snakeweed, javelin bush, and desert grasses and forbs. The project area lies on a heavily eroded and rocky terrain near a deep arroyo. The project area is situated approximately 1.6 miles of Remuda Basin and 7.2 miles east of the Pecos River.

**Existing Vegetation at the well pad attachment:**

**Operator Name:** XTO ENERGY INCORPORATED

**Well Name:** NASH UNIT

**Well Number:** 301H

**Existing Vegetation Community at the road:** • Environmental Setting. According to the Natural Resources Conservation Service online database, the project area soils consist of Reeves soils. These soils are associated with the Loamy ecological site (R042CX007NM) which typically supports black and blue grama and tobosa grasslands with an even distribution of yucca, mesquite, American tarbush, cholla, and creosote. The current vegetative community consists of mesquite, creosote, soapweed yucca, broom snakeweed, javelin bush, and desert grasses and forbs. The project area lies on a heavily eroded and rocky terrain near a deep arroyo. The project area is situated approximately 1.6 miles of Remuda Basin and 7.2 miles east of the Pecos River.

**Existing Vegetation Community at the road attachment:**

**Existing Vegetation Community at the pipeline:** • Environmental Setting. According to the Natural Resources Conservation Service online database, the project area soils consist of Reeves soils. These soils are associated with the Loamy ecological site (R042CX007NM) which typically supports black and blue grama and tobosa grasslands with an even distribution of yucca, mesquite, American tarbush, cholla, and creosote. The current vegetative community consists of mesquite, creosote, soapweed yucca, broom snakeweed, javelin bush, and desert grasses and forbs. The project area lies on a heavily eroded and rocky terrain near a deep arroyo. The project area is situated approximately 1.6 miles of Remuda Basin and 7.2 miles east of the Pecos River.

**Existing Vegetation Community at the pipeline attachment:**

**Existing Vegetation Community at other disturbances:** • Environmental Setting. According to the Natural Resources Conservation Service online database, the project area soils consist of Reeves soils. These soils are associated with the Loamy ecological site (R042CX007NM) which typically supports black and blue grama and tobosa grasslands with an even distribution of yucca, mesquite, American tarbush, cholla, and creosote. The current vegetative community consists of mesquite, creosote, soapweed yucca, broom snakeweed, javelin bush, and desert grasses and forbs. The project area lies on a heavily eroded and rocky terrain near a deep arroyo. The project area is situated approximately 1.6 miles of Remuda Basin and 7.2 miles east of the Pecos River.

**Existing Vegetation Community at other disturbances attachment:**

**Non native seed used?** NO

**Non native seed description:**

**Seedling transplant description:**

**Will seedlings be transplanted for this project?** NO

**Seedling transplant description attachment:**

**Will seed be harvested for use in site reclamation?** NO

**Seed harvest description:**

**Seed harvest description attachment:**

## Seed Management

### Seed Table

**Seed type:**

**Seed source:**

**Seed name:**

**Source name:**

**Source address:**

**Operator Name:** XTO ENERGY INCORPORATED

**Well Name:** NASH UNIT

**Well Number:** 301H

**Source phone:**

**Seed cultivar:**

**Seed use location:**

**PLS pounds per acre:**

**Proposed seeding season:**

Seed Summary	
Seed Type	Pounds/Acre

**Total pounds/Acre:**

**Seed reclamation attachment:**

**Operator Contact/Responsible Official Contact Info**

**First Name:** Jeff

**Last Name:** Raines

**Phone:** (432)620-4349

**Email:** jeffrey\_raines@xtoenergy.com

**Seedbed prep:** Initial seedbed preparation will consist of recontouring to the appropriate interim or final reclamation standard. All compacted areas to be seeded will be ripped to a minimum depth of 18 inches with a minimum furrow spacing of 2 feet, followed by recontouring the surface and then evenly spreading the stockpiled topsoil. Prior to seeding, the seedbed will be scarified to a depth of no less than 4-6 inches. If the site is to be broadcast seeded, the surface will be left rough enough to trap seed and snow, control erosion, and increase water infiltration.

**Seed BMP:** If broadcast seeding is to be used and is delayed, final seedbed preparation will consist of contour cultivating to a depth of 4-6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting in order to break the soil crust and create seed germination micro-sites.

**Seed method:** Seeding will be conducted no more than two weeks following completion of final seedbed preparation. A certified weed-free seed mix designed by the BLM to meet reclamation standards will be used. If the site is harrowed or dragged, seed will be covered by no more than 0.25 inch of soil.

**Existing invasive species?** NO

**Existing invasive species treatment description:**

**Existing invasive species treatment attachment:**

**Weed treatment plan description:** Weed control for all phases will be through the use of approved pesticides and herbicides according to applicable State, Federal and local laws.

**Weed treatment plan attachment:**

**Monitoring plan description:** Monitoring of invasive and noxious weeds will be visual and as-needed. If it is determined additional methods are required to monitor invasive and noxious weeds, appropriate BLM authorities will be contacted with a plan of action for approval prior to implementation.

**Monitoring plan attachment:**

**Success standards:** 100% compliance with applicable regulations.

**Pit closure description:** There will be no reserve pit as each well will be drilled utilizing a closed loop mud system. The closed loop system will meet the NMOCD requirements 19.15.17.

**Pit closure attachment:**

**Section 11 - Surface Ownership**



**Operator Name:** XTO ENERGY INCORPORATED

**Well Name:** NASH UNIT

**Well Number:** 301H

**Disturbance type:** OTHER

**Describe:** Flowline

**Surface Owner:** BUREAU OF LAND MANAGEMENT

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:**

**USFS Ranger District:**

**Disturbance type:** WELL PAD

**Describe:**

**Surface Owner:** BUREAU OF LAND MANAGEMENT

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:**

**USFS Ranger District:**

**Operator Name:** XTO ENERGY INCORPORATED

**Well Name:** NASH UNIT

**Well Number:** 301H

**Disturbance type:** NEW ACCESS ROAD

**Describe:**

**Surface Owner:** BUREAU OF LAND MANAGEMENT, STATE GOVERNMENT

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:** NEW MEXICO STATE LAND OFFICE

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:**

**USFS Ranger District:**

**Disturbance type:** EXISTING ACCESS ROAD

**Describe:**

**Surface Owner:** BUREAU OF LAND MANAGEMENT, STATE GOVERNMENT

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:** NEW MEXICO STATE LAND OFFICE

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:**

**USFS Ranger District:**

**Operator Name:** XTO ENERGY INCORPORATED

**Well Name:** NASH UNIT

**Well Number:** 301H

### Section 12 - Other Information

**Right of Way needed?** NO

**Use APD as ROW?**

**ROW Type(s):**

#### ROW Applications

**SUPO Additional Information:**

**Use a previously conducted onsite?** YES

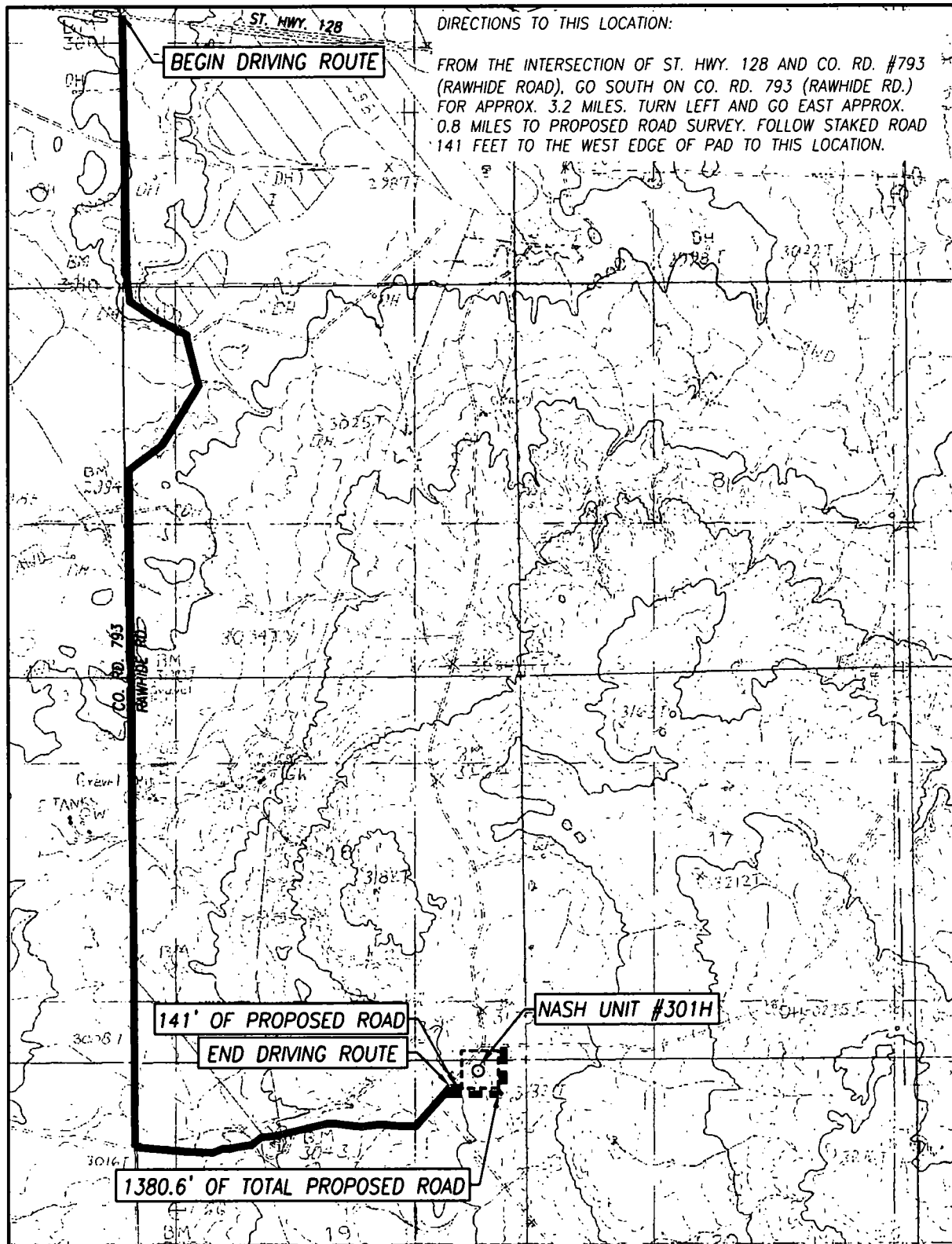
**Previous Onsite information:** Onsite performed by: Brooke Wilson. BLM Attendees: Brooke Wilson, Jim Goodbar, Jim Rutley, Chelsea Dugan

#### Other SUPO Attachment

Nash\_Unit\_SUPO\_20180615095010.pdf

Nash\_Unit\_DI\_20180615095021.pdf

# TOPOGRAPHICAL AND ACCESS ROAD MAP



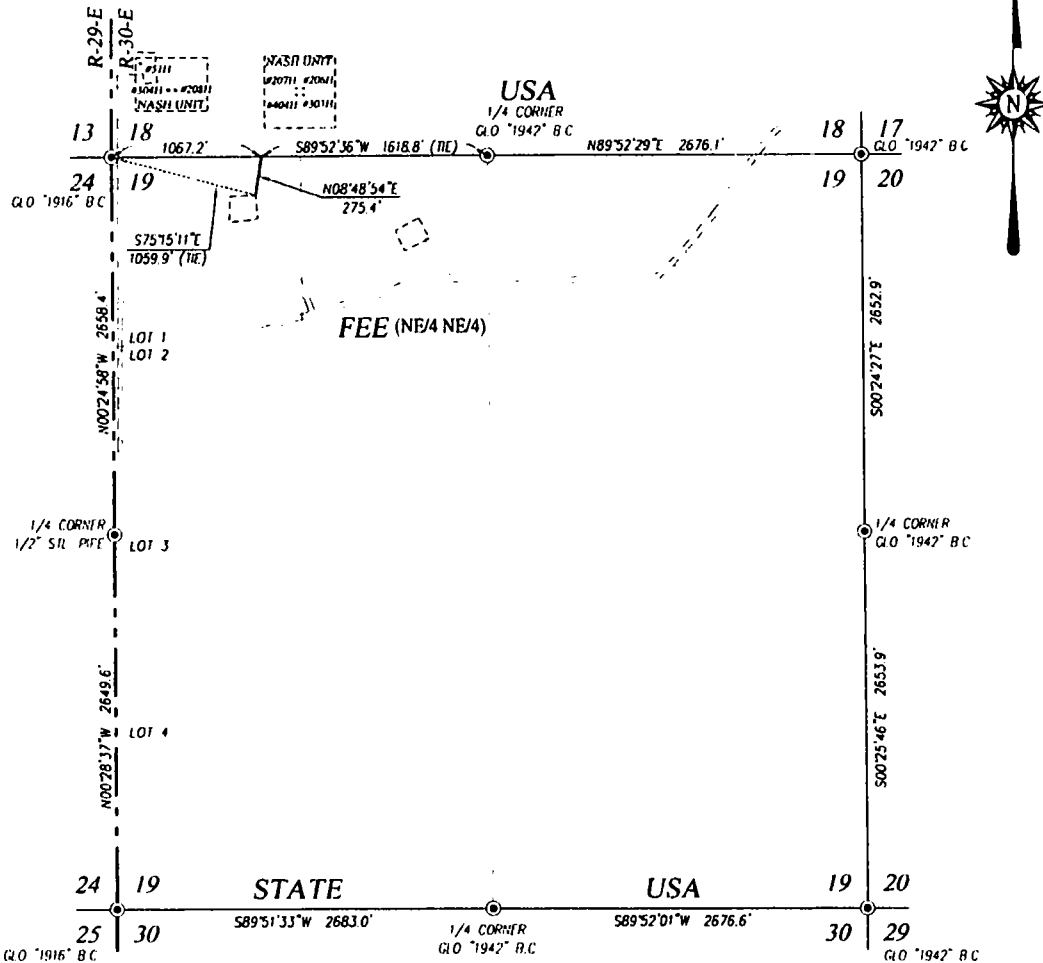
SEC. 19 TWP. 23-S RGE. 30-E  
COUNTY EDDY STATE NEW MEXICO  
DESCRIPTION 140' FNL & 630' FEL  
ELEVATION 3114'  
OPERATOR XTO ENERGY  
LEASE NASH UNIT  
U.S.G.S. TOPOGRAPHIC MAP  
REMUDA BASIN, N.M. SURVEY N.M.P.M.

SCALE: 1" = 2000'

CONTOUR INTERVAL:  
REMUDA BASIN, N.M. - 10'



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TBPLS# 10021000



### DESCRIPTION

A STRIP OF LAND 30.0 FEET WIDE CROSSING STATE OF NEW MEXICO LAND IN SECTION 19, TOWNSHIP 23 SOUTH, RANGE 30 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO, AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT IN LOT 1, WHICH LIES S75°15'11"E 1059.9 FEET FROM THE NORTHWEST CORNER; THEN N08°48'54"E 275.4 FEET TO A POINT ON THE NORTH LINE, WHICH LIES S89°52'36"W 1618.8 FEET FROM THE NORTH QUARTER CORNER OF SAID SECTION 19.

SAID STRIP OF LAND BEING 275.4 FEET OR 16.69 RODS IN LENGTH, CONTAINING 0.190 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

LOT 1 16.69 RODS OR 0.190 ACRES

### NOTE

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES

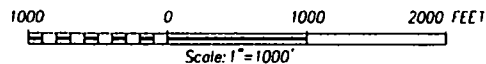
I, RONALD J. EIDSON, NEW MEXICO PROFESSIONAL SURVEYOR No. 5239, DO HEREBY CERTIFY THAT THIS SURVEY WAS PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

RONALD J. EIDSON

DATE: 01/24/2018

### LEGEND

● DENOTES FOUND CORNER AS NOTED



## XTO ENERGY

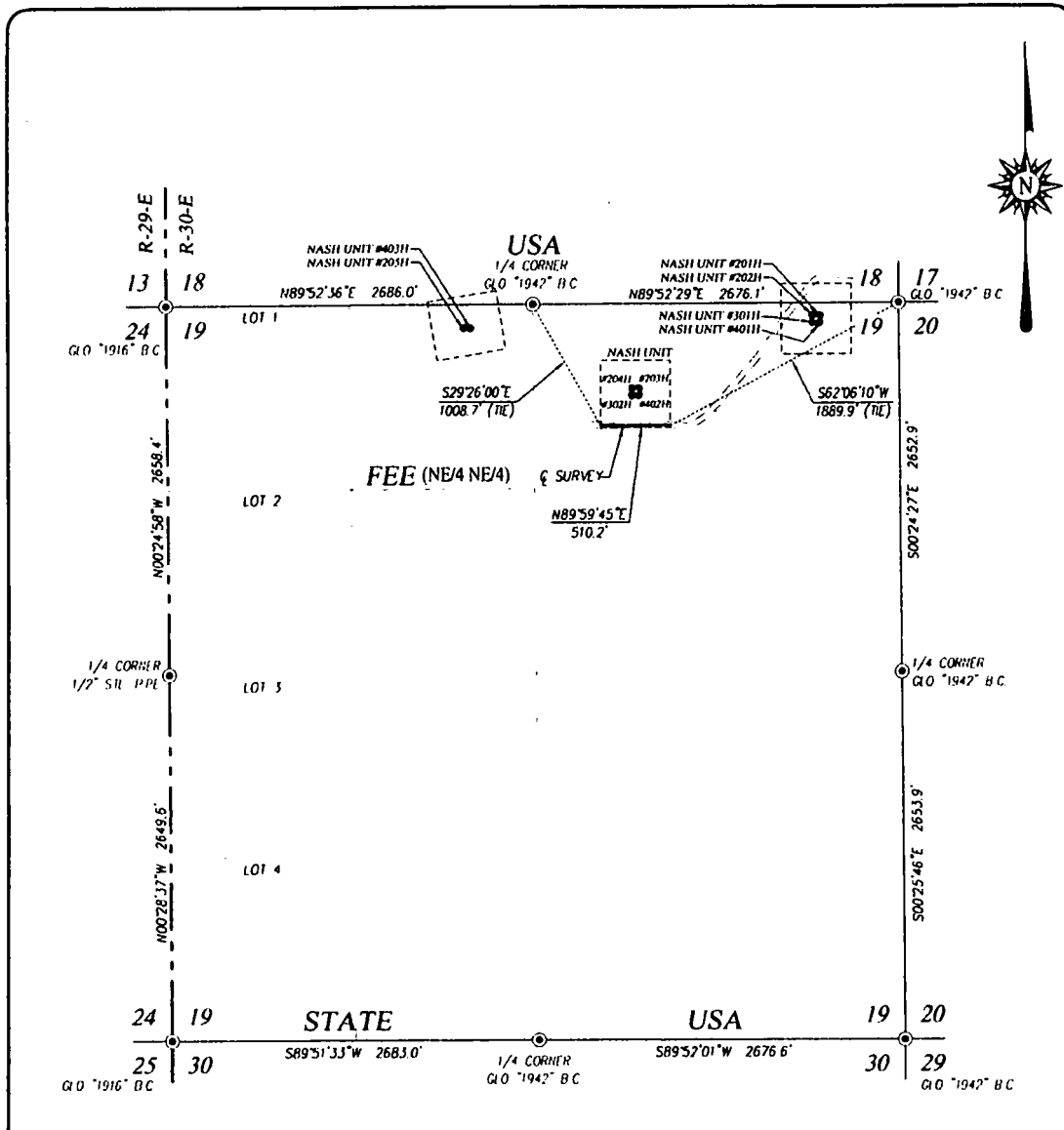
SURVEY FOR AN ACCESS ROAD FOR  
THE NASH UNIT #206H, #207H, #303H & #404H  
CROSSING SECTION 19,  
TOWNSHIP 23 SOUTH, RANGE 30 EAST, N.M.P.M.  
EDDY COUNTY, NEW MEXICO



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SINCE 1946  
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1BPLS# 10021000

Survey Date: 3/09/17	CAD Date: 1/17/18	Drawn By: LSL
W.O. No.: 18130046	Rev.	Rel. W.O.: 17110158





#### DESCRIPTION

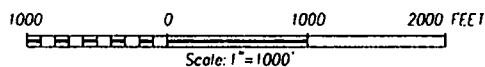
SURVEY OF A STRIP OF LAND 30.0 FEET WIDE AND 510.2 FEET OR 0.097 MILES IN LENGTH CROSSING USA LAND IN SECTION 19, TOWNSHIP 23 SOUTH, RANGE 30 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO, AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

#### NOTE

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES

#### LEGEND

● DENOTES FOUND CORNER AS NOTED



I, RONALD J. EIDSON, NEW MEXICO PROFESSIONAL SURVEYOR No. 3239, DO HEREBY CERTIFY THAT THIS SURVEY WAS PLANNED AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

RONALD J. EIDSON

DATE: 01/24/2018



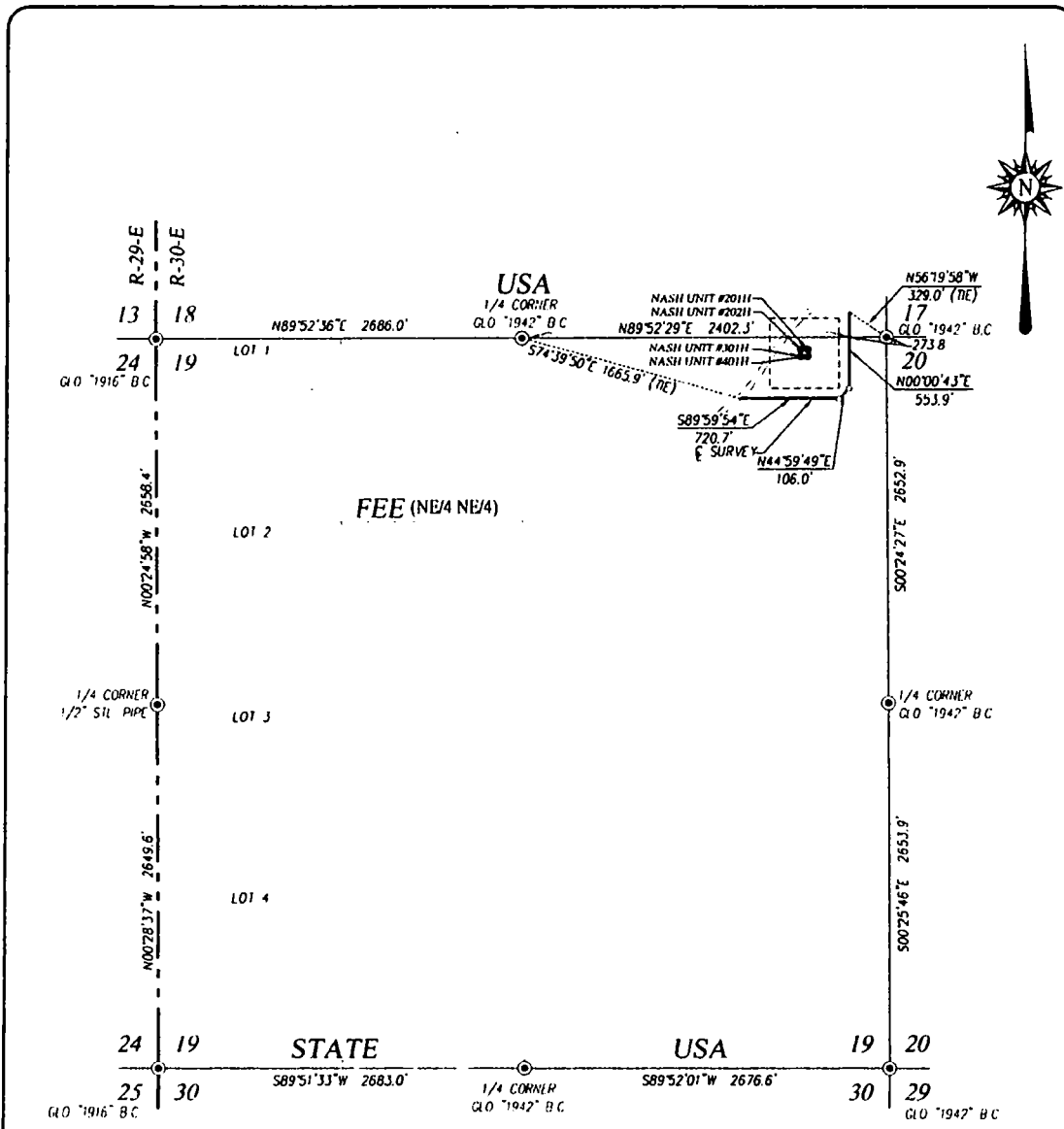
PROVIDING SURVEYING SERVICES  
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TBPLS# 10021000

## XTO ENERGY

SURVEY FOR AN ACCESS ROAD FOR  
THE NASH UNIT #203H, #204H, #302H & #402H  
CROSSING SECTION 19,  
TOWNSHIP 23 SOUTH, RANGE 30 EAST, N.M.P.M.  
EDDY COUNTY, NEW MEXICO

Survey Date: 3/09/17	CAD Date: 1/17/18	Drawn By: LSL
W.O. No.: 18130046	Rev.	Rel. W.O.: 17110158

Sheet 1 of 1



#### DESCRIPTION

SURVEY OF A STRIP OF LAND 30.0 FEET WIDE AND 1380.6 FEET OR 0.261 MILES IN LENGTH CROSSING USA LAND IN SECTIONS 18 & 19, TOWNSHIP 23 SOUTH, RANGE 30 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO, AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

#### NOTE

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

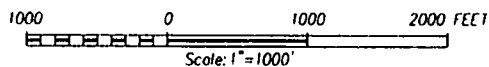
I, RONALD J. EIDSON, NEW MEXICO PROFESSIONAL SURVEYOR No. 5239, DO HEREBY CERTIFY THAT THIS SURVEY WAS MADE AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

RONALD J. EIDSON

DATE: 01/24/2018

#### LEGEND

⊙ DENOTES FOUND CORNER AS NOTED



## XTO ENERGY

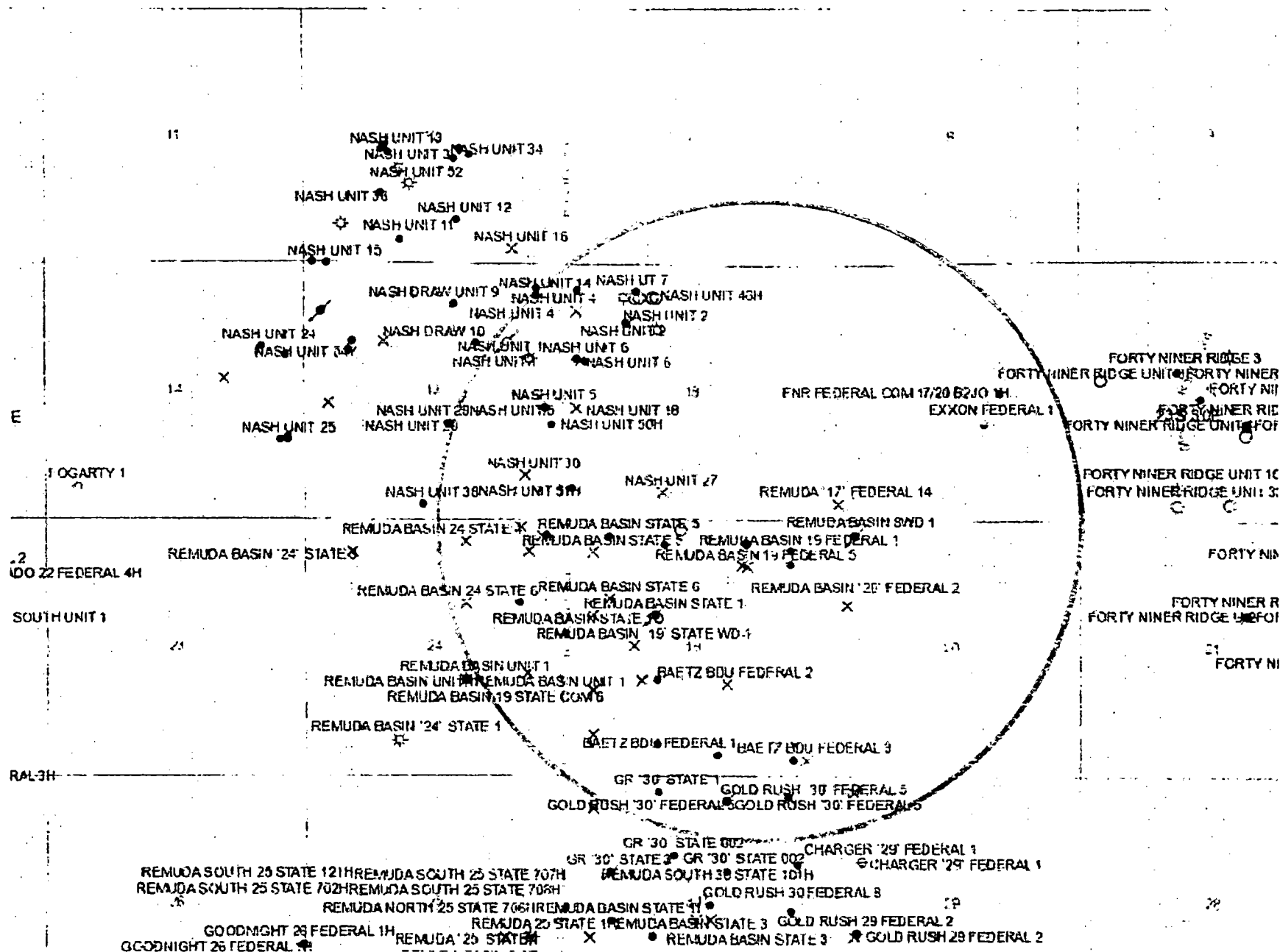
**SURVEY FOR AN ACCESS ROAD  
CROSSING SECTION 18 & 19,  
TOWNSHIP 23 SOUTH, RANGE 30 EAST, N.M.P.M.  
EDDY COUNTY, NEW MEXICO**

Survey Date: 3/09/17	CAD Date: 1/24/18	Drawn By: LSL
W.O. No.: 18130046	Rev.:	Rel. W.O.: 17110158

Sheet 1 of 1

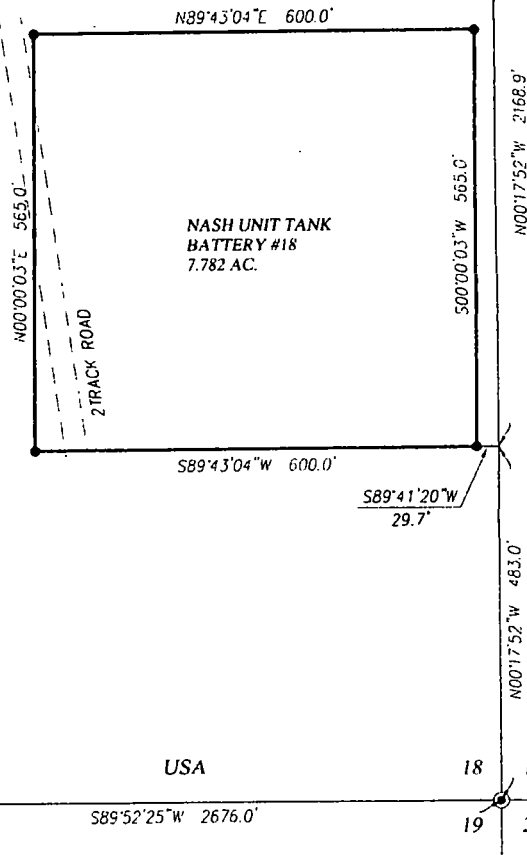


### 1-Mile Radius Map





1/4 COR.  
GLO  
"1942" BC



USA

1/4 COR.  
GLO "1916" B.C.

#### DESCRIPTION:

SURVEY FOR THE NASH UNIT TANK BATTERY #18 TRACT SITUATED IN THE SOUTHEAST QUARTER OF SECTION 18, TOWNSHIP 23 SOUTH, RANGE 30 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER WHICH LIES N00°17'52"W 483.0 FEET AND S89°41'20"W 29.7 FEET FROM THE SOUTHEAST CORNER; THEN S89°43'04"W 600.0 FEET; THEN N00°00'03"E 565.0 FEET; THEN N89°43'04"E 600.0 FEET; THEN S00°00'03"W 565.0 FEET TO THE POINT OF BEGINNING AND CONTAINING 7.782 ACRES MORE OR LESS.

#### NOTE

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

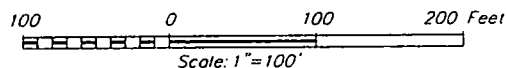
I, RONALD J. EIDSON, NEW MEXICO PROFESSIONAL SURVEYOR No. 3239, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH THIS WAS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

RONALD J. EIDSON

DATE: 4/20/2018

#### LEGEND

⊙ DENOTES FOUND CORNER AS NOTED



## XTO ENERGY

SURVEY FOR THE NASH UNIT TANK BATTERY #18  
SITUATED IN THE SE/4 OF SECTION 18,  
TOWNSHIP 23 SOUTH, RANGE 30 EAST, N.M.P.M.  
EDDY COUNTY, NEW MEXICO



PROVIDING SURVEYING SERVICES  
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TBPLS# 10021000

Survey Date: 03/27/18

CAD Date: 04/13/18

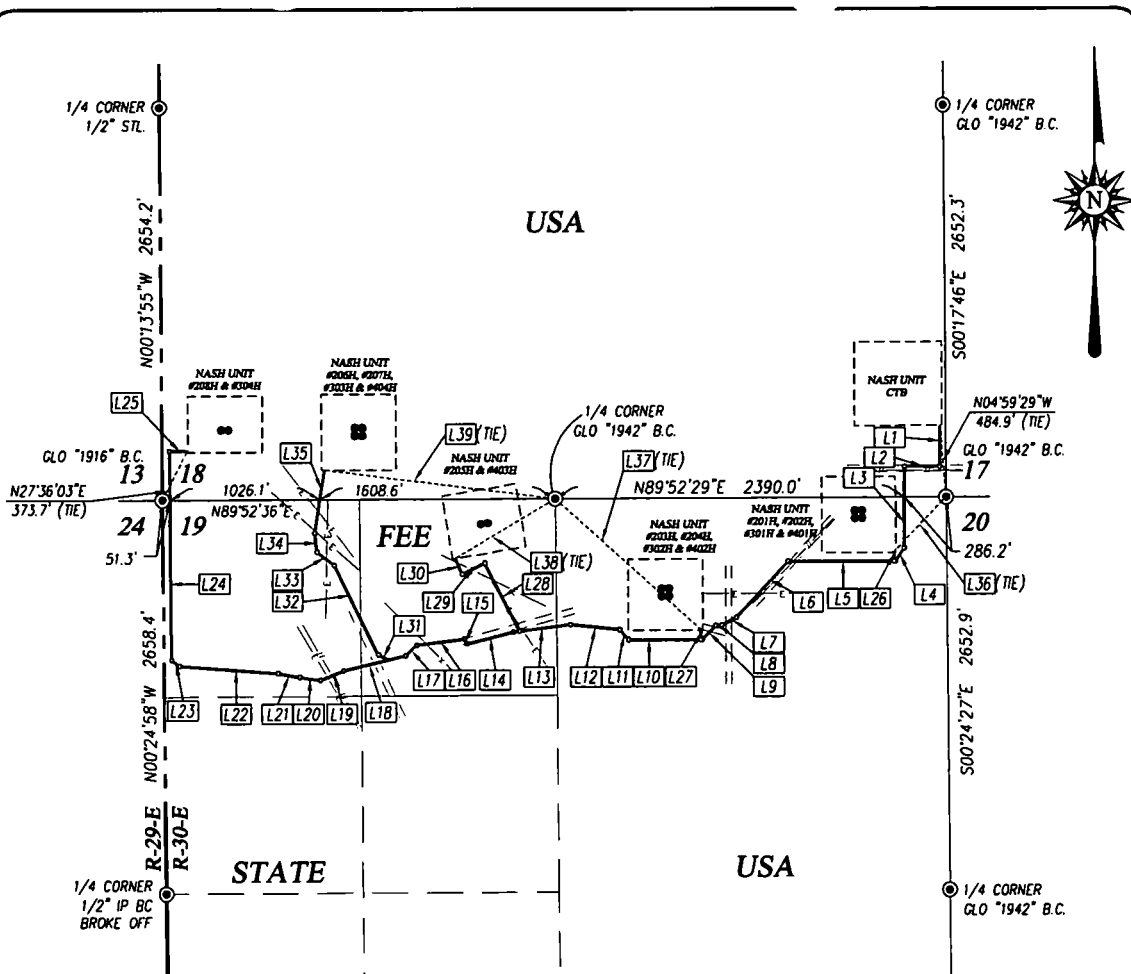
Drawn By: LSL

W.O. No.: 18130432

Rev.:

Rel. W.O.:

Sheet 1 of 1



LINE TABLE

LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE
L1	S00°00'32"W	276.8'	L14	S75°52'16"W	328.2'	L27	N03°25'17"E	60.1'
L2	N89°56'20"W	242.2'	L15	N25°07'34"W	37.2'	L28	N27°07'15"W	517.1'
L3	S00°28'41"W	550.7'	L16	S82°33'08"W	329.2'	L29	S64°02'01"W	172.2'
L4	S34°32'19"W	105.7'	L17	S47°25'02"W	104.2'	L30	N24°16'55"W	116.3'
L5	S89°59'03"W	737.2'	L18	S76°34'19"W	435.7'	L31	N62°42'32"W	78.5'
L6	S43°03'08"W	519.7'	L19	S68°09'08"W	170.3'	L32	N26°20'51"W	674.5'
L7	S62°37'11"W	110.6'	L20	N81°22'08"W	143.8'	L33	N53°08'59"W	147.6'
L8	S87°04'38"W	42.8'	L21	N79°47'40"W	150.3'	L34	N06°45'16"W	127.9'
L9	S44°18'37"W	132.5'	L22	N85°53'15"W	674.8'	L35	N08°49'41"E	432.8'
L10	S89°59'00"W	501.8'	L23	N53°54'20"W	69.0'	L36(NE)	S44°03'11"W	518.5'
L11	N41°40'40"W	91.8'	L24	N00°28'02"W	1411.6'	L37(NE)	S48°15'52"E	1334.3'
L12	N84°12'07"W	338.0'	L25	S89°55'20"E	124.6'	L38(NE)	S59°28'48"W	793.2'
L13	S82°56'33"W	393.6'	L26	N00°32'34"W	60.1'	L39(TIE)	N82°52'36"W	1589.8'

NOTE

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM, "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

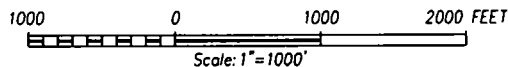
I, RONALD J. EIDSON, NEW MEXICO PROFESSIONAL SURVEYOR No. 3239, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH THIS SURVEY WAS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT THIS IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

RONALD J. EIDSON *Ronald J. Eidson*

DATE: 05/08/2018

LEGEND

● DENOTES FOUND CORNER AS NOTED



**XTO ENERGY**

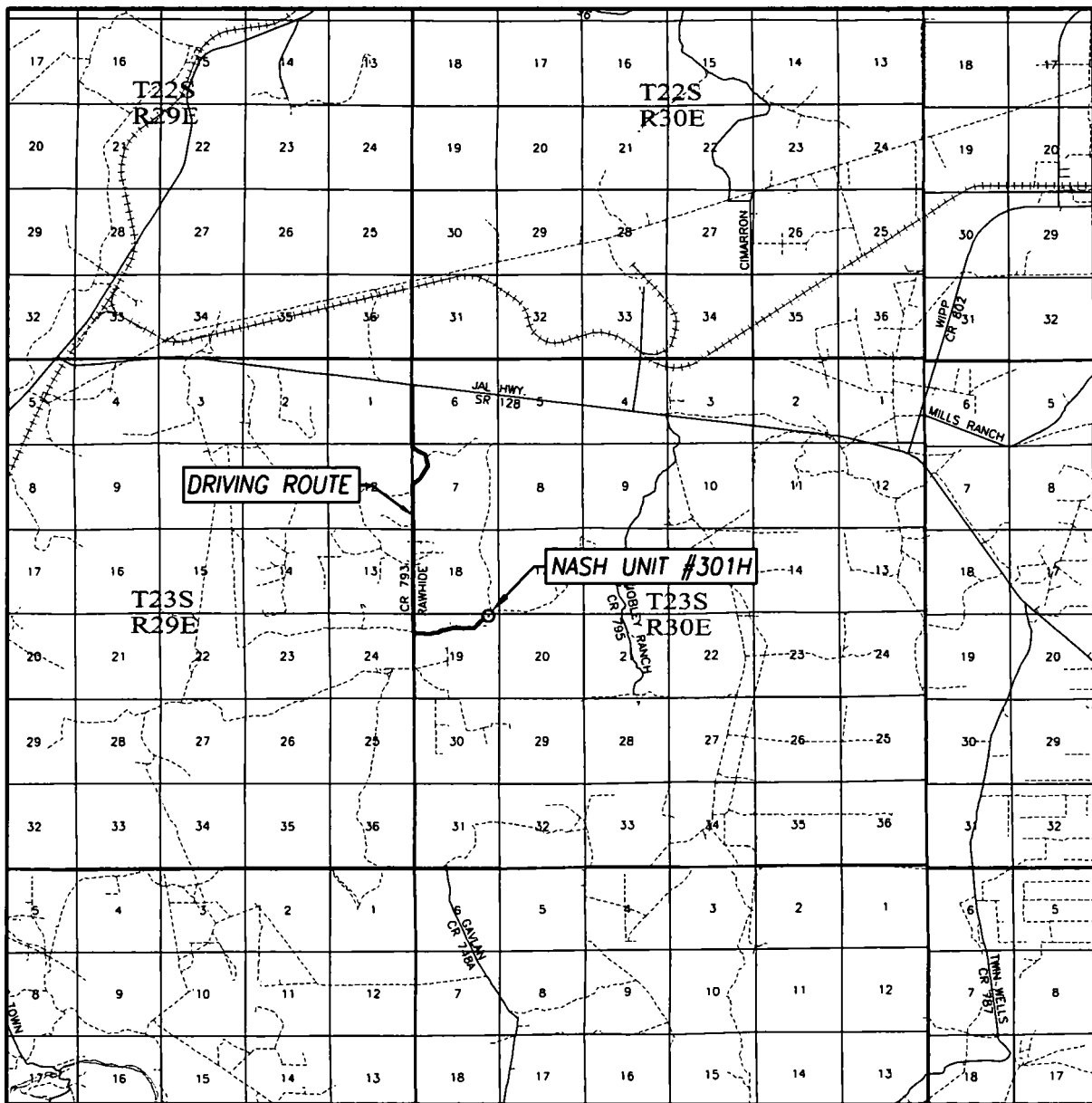
**SURVEY FOR BURIED & SURFACE FLOWLINES  
TO THE NASH UNIT WELLS  
IN SECTIONS 18 & 19,  
TOWNSHIP 23 SOUTH, RANGE 29 EAST, N.M.P.M.  
EDDY COUNTY, NEW MEXICO**

Survey Date: 04/10/18 CAD Date: 04/26/18 Drawn By: LSL  
W.O. No.: 18110435 Rev.: 05/08/18 Rel. W.O.: Sheet 1 of 1



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TBPLS# 10021000

# VICINITY MAP



SCALE: 1" = 2 MILES

DRIVING ROUTE: SEE TOPOGRAPHICAL AND ACCESS ROAD MAP

SEC. 19 TWP. 23-S RGE. 30-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 140' FNL & 630' FEL

ELEVATION 3114'

OPERATOR XTO ENERGY

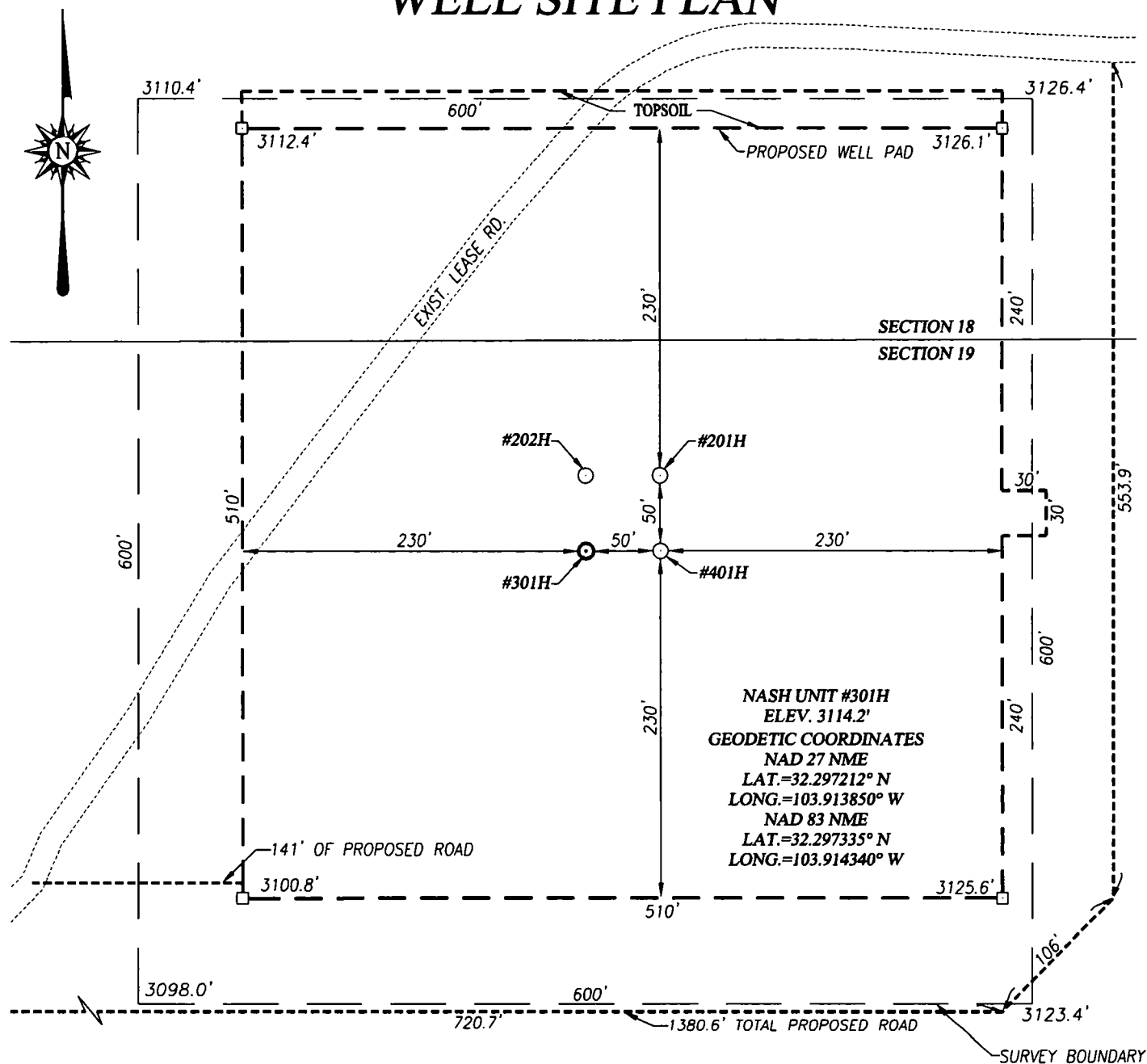
LEASE NASH UNIT

PROVIDING SURVEYING SERVICES  
SINCE 1946

**JOHN WEST SURVEYING COMPANY**

412 N. DAL PASO HOBBS, N.M. 88240  
(575) 393-3117 [www.jwsc.biz](http://www.jwsc.biz)  
TBPLS# 10021000

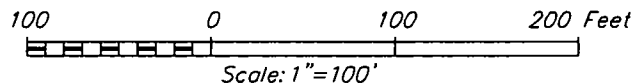
# WELL SITE PLAN



NOTE:  
SEE "TOPOGRAPHICAL AND ACCESS ROAD  
MAP" FOR PROPOSED ROAD LOCATION.

## DIRECTIONS TO THIS LOCATION:

FROM THE INTERSECTION OF ST. HWY. 128 AND CO. RD. #793  
(RAWHIDE ROAD), GO SOUTH ON CO. RD. 793 (RAWHIDE RD.)  
FOR APPROX. 3.2 MILES. TURN LEFT AND GO EAST APPROX.  
0.8 MILES TO PROPOSED ROAD SURVEY. FOLLOW STAKED ROAD  
141 FEET TO THE WEST EDGE OF PAD TO THIS LOCATION.



## XTO ENERGY

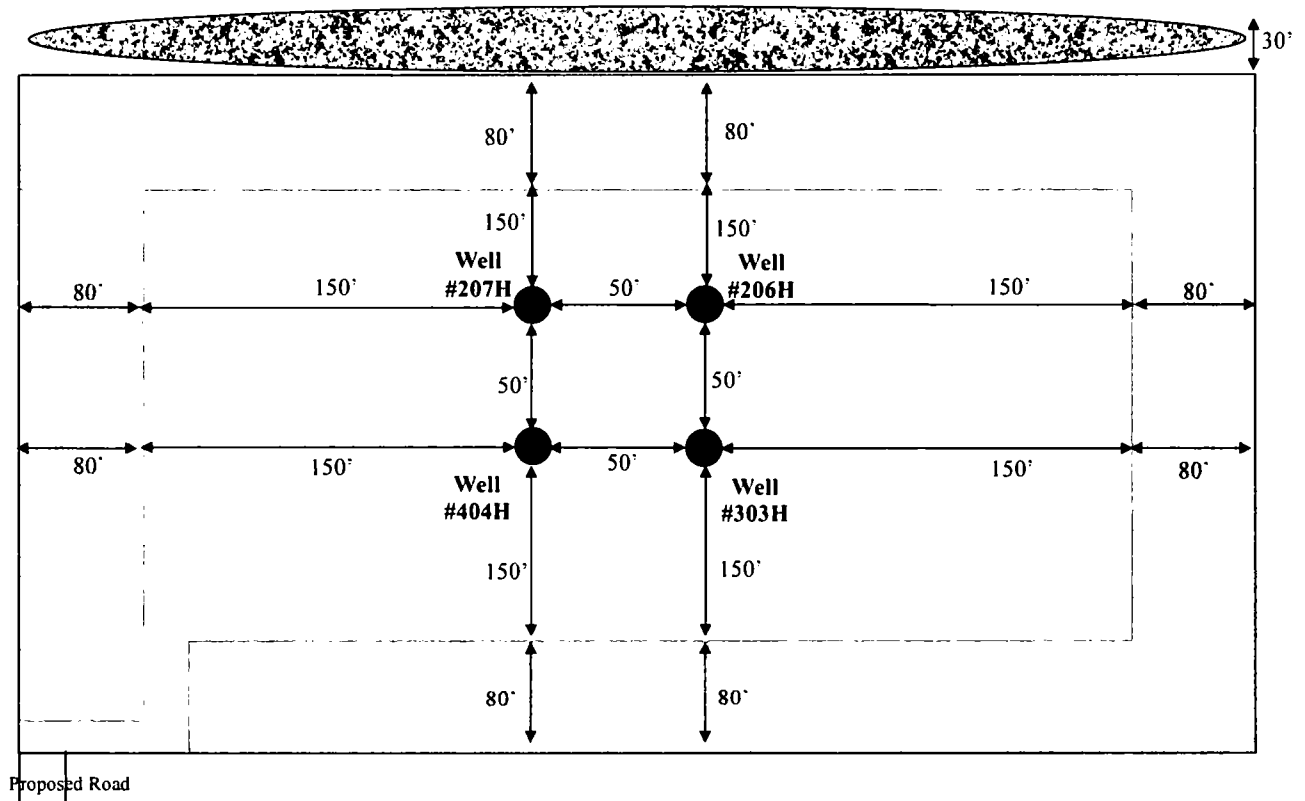
**NASH UNIT #301H WELL**  
**LOCATED 140 FEET FROM THE NORTH LINE**  
**AND 630 FEET FROM THE EAST LINE OF SECTION 19,**  
**TOWNSHIP 23 SOUTH, RANGE 30 EAST, N.M.P.M.,**  
**EDDY COUNTY, NEW MEXICO**



PROVIDING SURVEYING SERVICES  
SINCE 1946  
**JOHN WEST SURVEYING COMPANY**  
412 N. DAL PASO HOBBS, N.M. 88240  
(575) 393-3117 [www.jwsc.biz](http://www.jwsc.biz)  
TBPLS# 10021000

Survey Date: 3/09/17	CAD Date: 3/22/17	Drawn By: ACK
W.O. No.: 17110157	Rev: .	Rel. W.O.: .
		Sheet 1 of 1

**Interim Reclamation Diagram**  
 Nash Unit #207H, 206H, 303H, 404H  
 V-Door East (All Wells)



Wellbore



Interim Reclamation

**LEGEND**

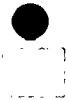
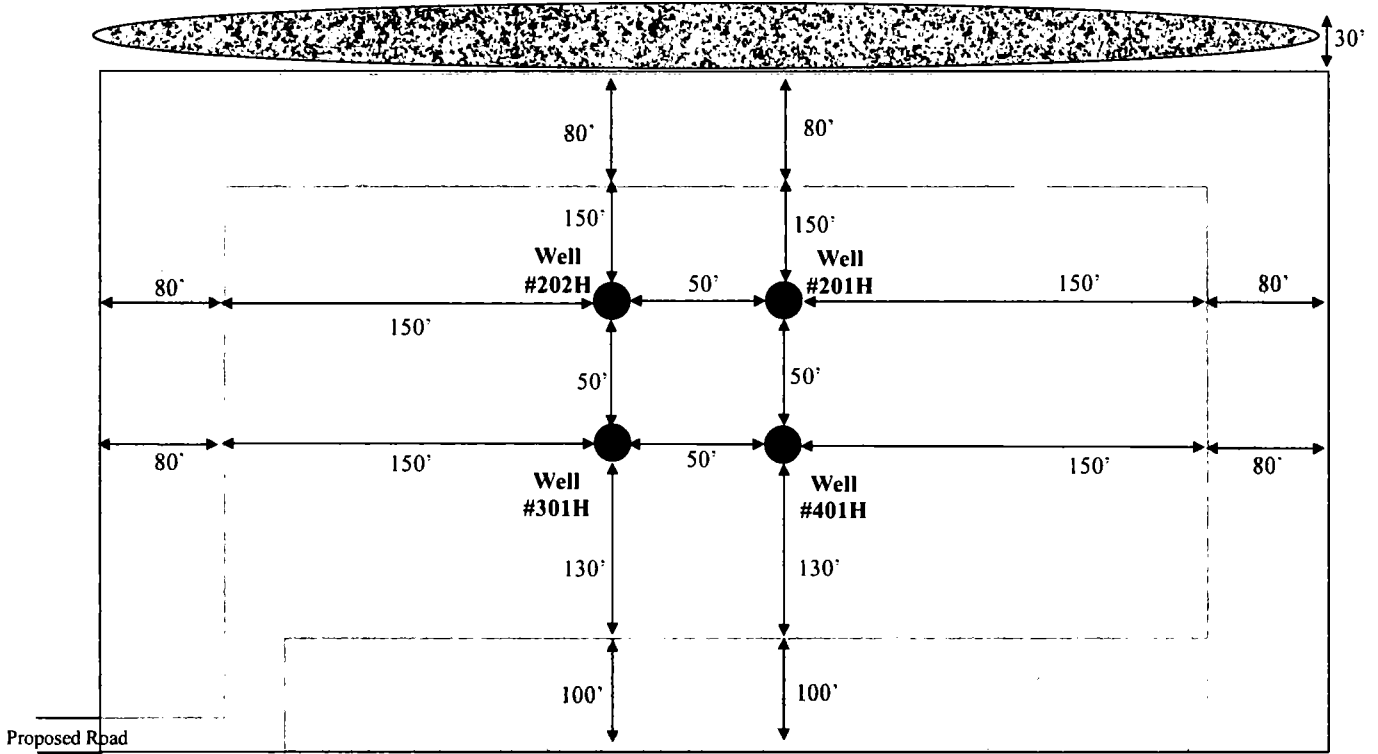


Ditch & Berm



Topsoil

**Interim Reclamation Diagram**  
 Nash Unit #201H, 202H, 301H, 401H  
 V-Door East (All Wells)



Wellbore

Interim Reclamation

**LEGEND**



Ditch & Berm

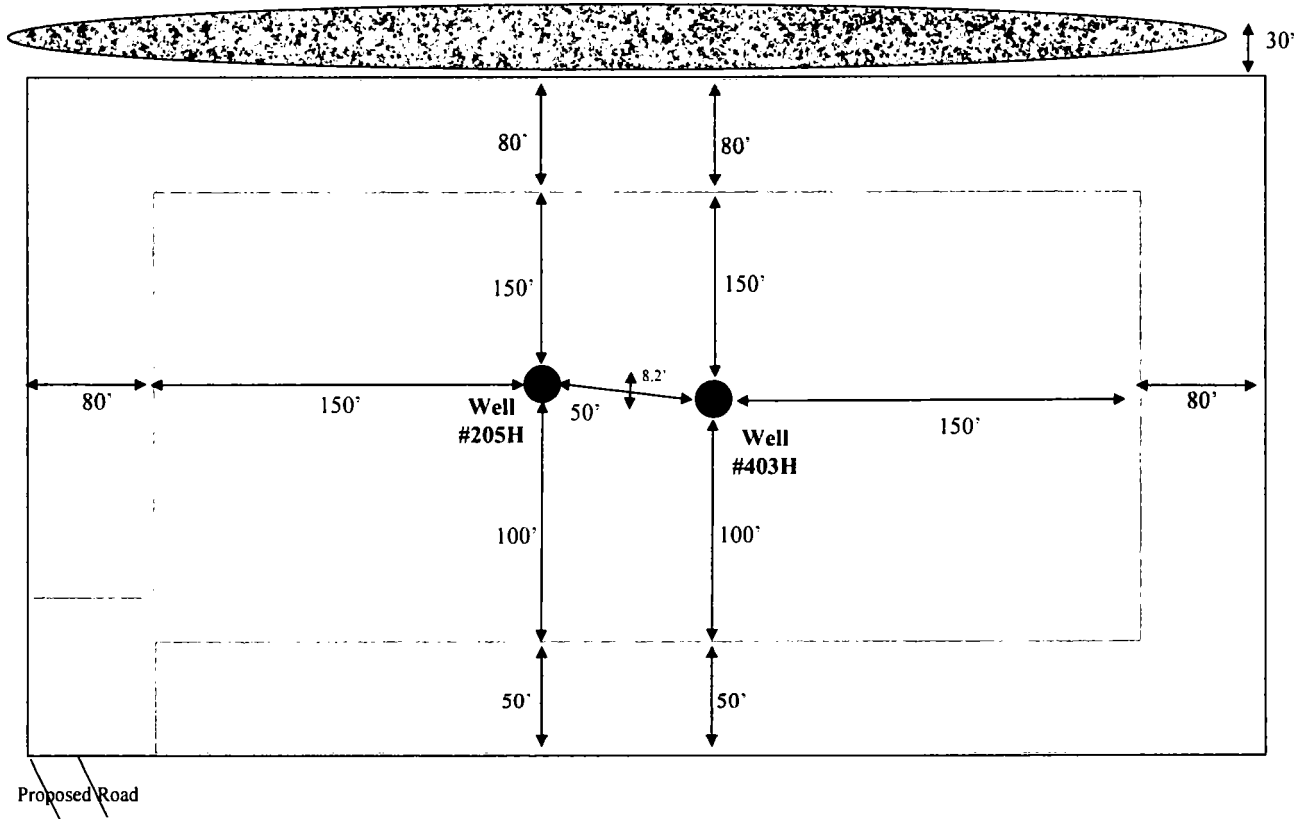


Topsoil

**Interim Reclamation Diagram**

Nash Unit #205H, 403H

V-Door East (All Wells)



Wellbore



Interim Reclamation

**LEGEND**



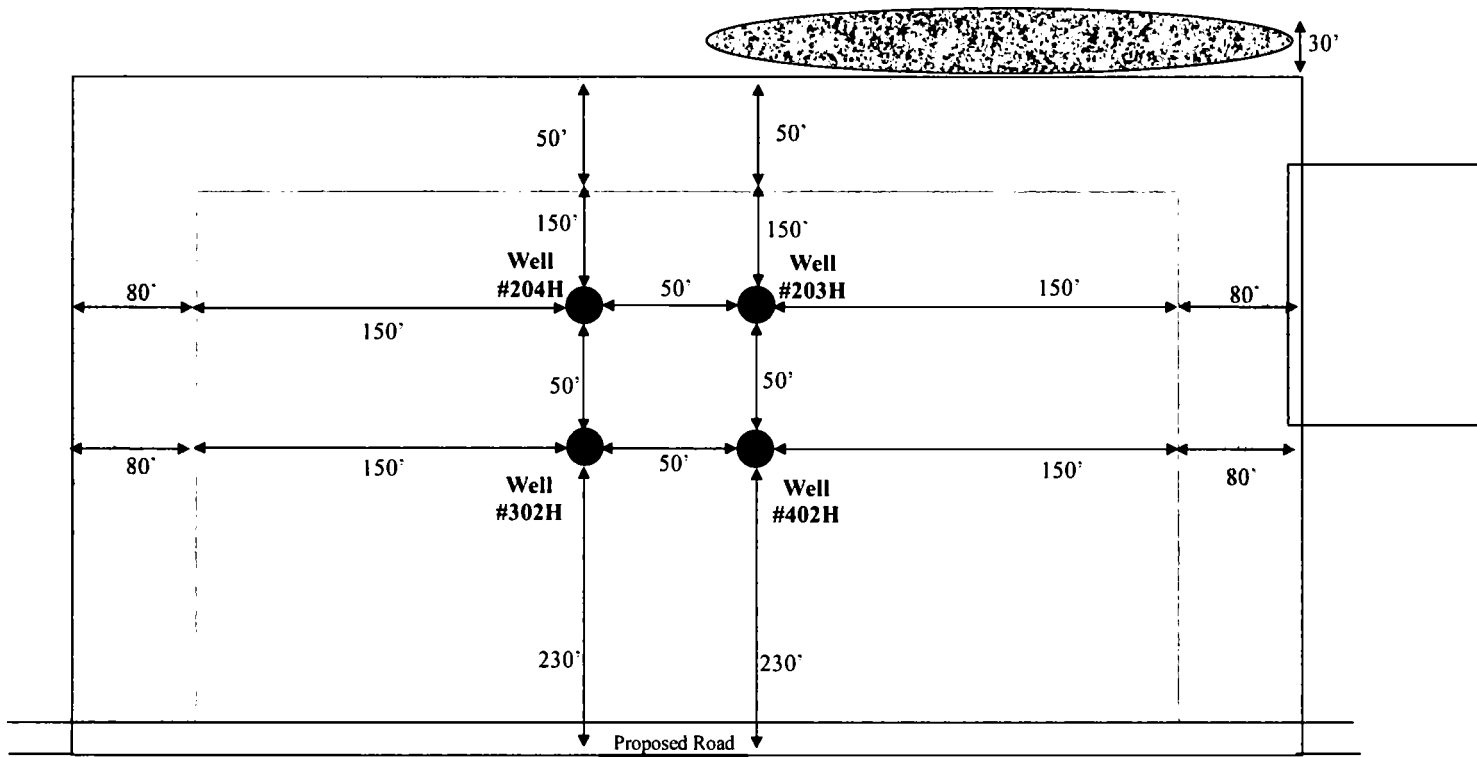
Ditch & Berm



Topsoil



**Interim Reclamation Diagram**  
 Nash Unit #203H, 204H, 302H, 402H  
 V-Door East (All Wells)



Wellbore  
 Interim Reclamation

**LEGEND**



Ditch & Berm



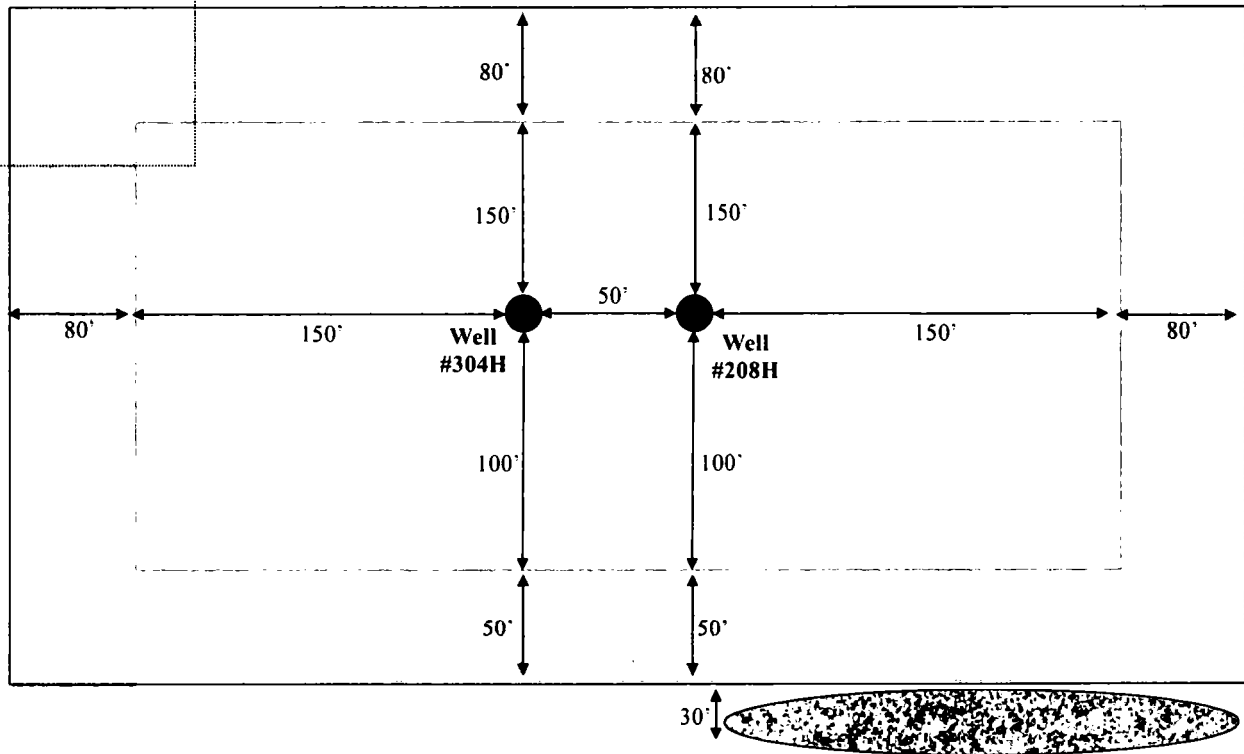
Topsoil

**Interim Reclamation Diagram**

Nash Unit #208H, 304H

V-Door West (All Wells)

*Existing Nash Unit 51H Pad*



**LEGEND**



Wellbore

Interim Reclamation



Ditch & Berm



Topsoil

## Well Site Locations

---

The results of the Nash Unit Development Program will develop economic quantities of oil and gas in the Nash Unit with multiple primary formations targeted. Well locations are determined based on cross-section variations and details. Locations will be selected to minimize the likelihood of encountering faults and/or drilling hazards while still targeting suitably productive zones.

If drilling results in an unproductive well, the well will be plugged and abandoned as soon as practical after the conclusion of production testing. Productive wells may be shut-in temporarily for BLM authorization for production activities and facilities.

## Surface Use Plan

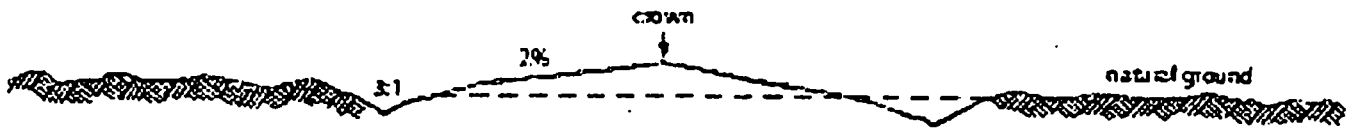
---

### 1. Existing Roads

- A. Nash Unit is accessed from State Highway 128 and County Road #793 (Rawhide Road). Go South on County Road #793 (Rawhide Road) for approximately 3.4 miles. Turn right and go West approximately .1 miles to the location. Transportation Plan identifying existing roads that will be used to access the project area is included from John West Surveying marked as, 'Vicinity Map.'
- B. There are multiple existing access roads to the proposed Nash Unit well locations. All equipment and vehicles will be confined to the routes shown on the Vicinity Map as provided by John West Surveying. Maintenance of the access roads will continue until abandonment and reclamation of the well pads is completed.

### 2. New or Upgraded Access Roads

- A. **New Roads.** There is a total of approximately 2068.2' of proposed and staked new access roads in the Nash Unit development area to all proposed well pads.
- B. **Well Pads.** The well pads selected for development will determine which existing roads will be upgraded and which new roads will be built. The access road plats attached show the location of proposed roads that will need to be constructed to access the well pads. All existing 2-track roads will be upgraded.
- C. **Anticipated Traffic.** After well completion, travel to each well site will include one lease operator truck and two oil trucks per day until the Central Tank Battery is completed. Upon completion of the Central Tank Battery, one lease operator truck will continue to travel to each well site to monitor the working order of the wells and to check well equipment for proper operation. Two oil trucks will continue to travel to the Central Tank Battery only for oil hauling. Additional traffic will include one maintenance truck periodically throughout the year for pad upkeep and weed removal. Well service trips will include only the traffic necessary to work on the wells or provide chemical treatments periodically and as needed throughout the year.
- D. **Routing.** All equipment and vehicles will be confined to the travel routes laid out in the vicinity map provided by John West Surveying unless otherwise approved by the BLM and applied for by XTO Energy, Inc.
- E. **Road Dimensions.** The maximum width of the driving surface of new roads will be 14 feet. The roads will be crowned and ditched with a 2% slope from the tip of the crown to the edge of the driving surface. The ditches will be 1 foot deep with 3:1 slopes. The driving surface will be made of 6" rolled and compacted caliche.



## Level Ground Section

- F. **Surface Material.** Surface material will be native caliche. The average grade of all roads will be approximately 3%.
- G. **Fence Cuts:** No.
- H. **Fences:** No.
- I. **Cattle Guards:** No.
- J. **Turnouts:** No.
- K. **Culverts:** No.
- L. **Cuts and Fills:** Not significant.
- M. **Topsoil.** Approximately 6 inches of topsoil (root zone) will be stripped from the proposed access road prior to any further construction activity. The topsoil that was stripped will be spread along the edge of the road and within the ditch. The topsoil will be seeded with the proper seed mix designated by the BLM.
- N. **Maintenance.** The access road will be constructed and maintained as necessary to prevent soil erosion and accommodate all-weather traffic. The road will be crowned and ditched with water turnouts installed as necessary to provide for proper drainage along with access road route.
- O. **Drainage.** The access road and associated drainage structures will be constructed and maintained in accordance with road guidelines contained in the joint BLM/USFS publication: Surface Operating Standards for Oil and Gas Exploration and Development, The Gold Book, Fourth Edition and/or BLM Manual Section 9113 concerning road construction standards on projects subject to federal jurisdiction.

### 3. Location of Existing Wells

- A. See attached 1-mile radius well map.

### 4. Ancillary Facilities

- A. **Ancillary Facilities.** No off-pad ancillary facilities are planned during the exploration phase including, but not limited to: campsites, airstrips or staging areas.

### 5. Location of Proposed Production Facilities

- A. **Production Facilities.** One 600' x 565' pad was staked with the BLM for construction and use as the Nash Unit 18 Central Tank Battery (CTB). The pad is located in Section 18-23S-30E, NMPM, Eddy County, New Mexico. A plat of the proposed facility is attached. Only the area necessary to maintain facilities will be disturbed. A 3160-5 sundry notification will be submitted after construction with a site-security diagram and layout of the facility with associated equipment.
- B. **Surface & Buried Flowlines.** In the event the wells are found productive, 1 - 4" composite flexpipe or steel flowlines with a maximum safety pressure rating of 750psi (operating pressure: 125psi) will be laid on the surface within proposed lease road corridors from the proposed wells to Nash Unit 18 CTB where the oil, gas, and water will be metered and appropriately separated. High pressure gas lines will be buried beneath the surface flowlines per well pad within the proposed lease road corridors for gas lift. Oil will be hauled from the CTB location by truck following existing and proposed lease roads. The distance of proposed flowlines per well will be approximately 10,410' or less per well based on the location of the well pad in conjunction with the facility location. All flowlines will follow proposed lease road corridors. A plat of the proposed surface and buried flowline route for the lease is attached.

- C. **Gas Pipeline.** A gas purchaser has been identified and will be building to XTO Energy, Incorporated's CTB.
- D. **Disposal Facilities.** Produced water will be hauled from location to a commercial disposal facility as needed. Once wells are drilled and completed, a 3160-5 sundry notification will be submitted to BLM in compliance with Onshore Order 7.
- E. **Flare.** There is 1 flare associated with the Nash Unit development project. The flare stack will be 50'x50', be located on the approved CTB pad, and will be sized and rated based on anticipated reserves and recovery of gas throughout the development area with 150' of distance between all facility equipment, road and well pad locations for safety purposes.
- F. **Aboveground Structures.** All permanent (on site six months or longer) aboveground structures constructed or installed on location and not subject to safety requirements will be painted earth-tone colors such as 'shale green' that reduce the visual impacts of the built environment.
- G. **Containment Berms.** Containment berms will be constructed completely around any production facilities designed to hold fluids. The containment berms will be constructed of compacted subsoil, be sufficiently impervious, hold 1 ½ times the capacity of the largest tank and away from cut or fill areas.
- H. **Electrical.** XTO Energy, Inc is not applying for electrical with this application. Electrical will be applied for via Right-of-Way with the Bureau of Land Management in conjunction with the New Mexico State Land Office.

#### 6. Location and Types of Water Supply

The well will be drilled using a combination of water mud systems as outlined in the Drilling Program. The water will be obtained from a 3<sup>rd</sup> party vendor and hauled to the anticipated pit in Section 13 by transport truck using the existing and proposed roads depicted in the attached exhibits. No water well will be drilled on the location.

Water for drilling, completion and dust control will be purchased from the following company:  
Select Energy Services [Rockhouse Water]

Water for drilling, completion and dust control will be supplied by Select Energy Services for sale to XTO Energy, Inc. from Section 21-23S-R30E, Eddy County, New Mexico. In the event that Select Energy Services does not have the appropriate water for XTO at time of drilling and completion, then XTO water will come from Intrepid Potash Company with the location of the water being in Section 6, T25S-R29E, Eddy County, New Mexico.

Anticipated water usage for drilling includes an estimated 35,000 barrels of water to drill a horizontal well in a combination of fresh water and brine as detailed in the mud program in the drilling plans. These volumes are calculated for ~1.5bbls per foot of hole drilled with excess to accommodate any lost circulation or wash out that may occur. Actual water volumes used during operations will depend on the depth of the well, length of horizontal sections, and the losses that may occur during the operation.

Temporary water flowlines will be permitted via ROW approval letter and proper grants as-needed based on drilling and completion schedules as needed. Well completion is expected to require approximately 300,000 barrels of water per horizontal well. Actual water volumes used during operations will depend on the depth of the well and length of horizontal sections.

#### 7. Construction Activities

- A. Construction, reclamation, and/or routine maintenance will not be conducted during periods when the soil conditions for construction could lead to impacts to the surrounding environment, or when watershed damage is likely to occur as a result of these activities.
- B. Any construction material that may be required for surfacing of the drill pad and access road will be from a contractor having a permitted source of materials within the general area. No construction

materials will be removed from federal lands without prior approval from the appropriate surface management agency. All roads and well pads will be constructed of 6" rolled and compacted caliche.

C. Anticipated Caliche Locations:

- a. Pit 1: State Caliche Pit, 613-Eddy, Sec 2-24S-33E
- b. Pit 2: Federal Caliche Pit, Section 34-23S-29E

8. Methods for Handling Waste

- **Cuttings.** The well will be drilled utilizing a closed-loop mud system. Drill cuttings will be held in roll-off style mud boxes and taken to a New Mexico Oil Conservation Division (NMOCD) approved disposal site.
- **Drilling Fluids.** These will be contained in steel mud pits and then taken to a NMOCD approved commercial disposal facility.
- **Produced Fluids.** Water produced from the well during completion will be held temporarily in steel tanks and then taken to a NMOCD approved commercial disposal facility. Oil produced during operations will be stored in tanks until sold.
- **Sewage.** Portable, self-contained toilets will be provided for human waste disposal. Upon completion of drilling and completion activities, or as required, the toilet holding tanks will be pumped and the contents thereof disposed of in an approved sewage disposal facility. All state and local laws and regulations pertaining to the disposal of human and solid waste will be complied with. This equipment will be properly maintained during the drilling and completion operations and will be removed when all operations are complete.
- **Garbage and Other Waste Materials.** All garbage, junk and non-flammable waste materials will be contained in a self-contained, portable dumpster or trash cage, to prevent scattering and will be removed and deposited in an approved sanitary landfill. Immediately after drilling all debris and other waste materials on and around the well location not contained in the trash cage will be cleaned up and removed from the location. No potentially adverse materials or substances will be left on the location.
- **Debris.** Immediately after removal of the drilling rig, all debris and other waste materials not contained in the trash cage will be cleaned and removed from the well location. No potential adverse materials or substances will be left on location.
- **Hazardous Materials.**
  - i. All drilling wastes identified as hazardous substances by the Comprehensive Environmental Response Compensation Liability Act (CERCLA) removed from the location and not reused at another drilling location will be disposed of at a hazardous waste facility approved by the U.S. Environmental Protection Agency (EPA).
  - ii. XTO Energy, Inc. and its contractors will comply with all applicable Federal, State and local laws and regulations, existing or hereafter enacted promulgated, with regard to any hazardous material, as defined in this paragraph, that will be used, produced, transported or stored on the oil and gas lease. "Hazardous material" means any substance, pollutant or contaminant that is listed as hazardous under the CERCLA of 1980, as amended, 42 U.S.C 9601 et seq., and its regulation. The definition of hazardous substances under CERCLA includes any "hazardous waste" as defined in the RCRA of 1976, as amended, 42 U.S.C. 6901 et seq., and its regulations. The term hazardous material also includes any nuclear or nuclear by-product material as defined by the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 et seq. The term does not include petroleum, including crude oil or any fraction thereof that is not otherwise specifically listed or designated as a hazardous substance under CERCLA Section 101 (14) U.S.C. 9601 (14) nor does the term include natural gas.
  - iii. No hazardous substances or wastes will be stored on the location after completion of the well.
  - iv. Chemicals brought to location will be on the Toxic Substance Control Act (TSCA) approved inventory list.
  - v. All undesirable events (fires, accidents, blowouts, spills, discharges) as specified in Notice to Lessees (NTL) 3A will be reported to the BLM Carlsbad Field Office. Major events will be reported verbally within 24 hours, followed by a written report within 15 days. "Other than Major Events" will be reported in writing within 15 days.

## 9. Well Site Layout

- A. **Rig Plat Diagrams:** There are 5 multi-well pads in the Nash Unit development area anticipated. This will allow enough space for cuts and fills, topsoil storage, and storm water control. Interim reclamation of these pads is anticipated after the drilling and completion of all wells on the pad. Well site layouts for all pads are attached. From West to East:
1. Pad 1 is a 2-well pad expected to be 510'x410'.
  2. Pad 2 is a 4-well pad expected to be 540'x510'.
  3. Pad 3 is a 2-well pad expected to be 510'x460'.
  4. Pad 4 is a 4-well pad expected to be 510'x510'.
  5. Pad 5 is a 4-well pad expected to be 540'x510'.
- Closed-Loop System:** There will be no reserve pit as each well will be drilled utilizing a closed loop mud system. The closed loop system will meet the NMOCD requirements 19.15.17.
- B. **V-Door Orientation:** These wells were staked with multiple v-door orientations. The following list is from West to East in accordance to the staked section and as agreed upon with Brooke Wilson: BLM Natural Resource Specialist, Jim Goodbar: BLM Cave/Karst Specialist, Chelsie Dugan: BLM Hydrologist, and Jim Rutley: BLM Geologist present at on-site inspection.
1. Pad 1 has a V-Door Orientation of West.
  2. Pad 2 has a V-Door Orientation of East.
  3. Pad 3 has a V-Door Orientation of East.
  4. Pad 4 has a V-Door Orientation of East.
  5. Pad 5 has a V-Door Orientation of East.
- C. A 600' x 600' area has been staked and flagged around each well pad. A plat for the well has been attached.
- D. All equipment and vehicles will be confined to the approved disturbed areas of this APD (i.e., access road, well pad and topsoil storage areas).
- E. **Hydrology Conditions:** All well pads will be lined and bermed on the fill side of the location as agreed upon with Brooke Wilson: BLM Natural Resource Specialist, Jim Goodbar: BLM Cave/Karst Specialist, Chelsie Dugan: BLM Hydrologist, and Jim Rutley: BLM Geologist present at on-site inspection.
1. *Nash Unit 203H, 204H, 302H, 402H:* Ditch needed around East side of pad to the North side to divert water.
  2. *Nash Unit 205H, 403H:* Ditch needed around East side of pad to the South side to divert water.
  3. *Nash Unit 206H, 207H, 303H, 404H:* Ditch needed around East side of pad to the South side to divert water.
  4. *Nash Unit 208H, 304H:* Ditch needed around East side of pad to the South side to divert water.
- F. **Well Pad Conditions:**
- ii. *Nash Unit 206H, 207H, 303H, 404H:* Location will be fenced, per request of grazing lessee.
  - iii. *Nash Unit 208H, 304H:* Location requires fence cuts for building. Fence will be rebuilt around location and adjusted to the interim reclamation pad boundary.

## 10. Plans for Surface Reclamation:

XTO Energy, Inc. requests a variance from interim reclamation until all drilling and completion activities have been finished on the pads as these are multi-well pads where drilling and completion will be consecutive with the other wells on the pad. Once activities are completed, XTO Energy, Incorporated. will coordinate interim reclamation with the appropriate BLM personnel or use the following plan:

*Non-Commercial Well (Not Productive), Interim & Final Reclamation:*

*Definition:* Reclamation includes disturbed areas where the original landform and a natural vegetative community will be restored and it is anticipated the site will not be disturbed for future development.

#### **Reclamation Standards:**

The portions of the pad not essential to production facilities or space required for workover operations will be reclaimed and seeded as per BLM requirements for interim reclamation. (See Interim Reclamation plans attached).

All equipment and trash will be removed, and the surfacing material will be removed from the well pad and road and transported to the original caliche pit or used to maintain other roads. The location will then be ripped and seeded.

The original stock piled topsoil will be spread over the areas being reclaimed and the original landform will be restored for all disturbed areas including well pads, production facilities, roads, pipelines, and utility corridors as close as possible to the original topography. The location will then be ripped and seeded.

A self-sustaining, vigorous, diverse, native (or otherwise approved) plant community will be established on the site with a density sufficient to control erosion and invasion by non-native plants and to re-establish wildlife habitat or forage production. At a minimum, the established plant community will consist of species included in the seed mix and/or desirable species occurring in the surrounding natural vegetation.

Erosion features are equal to or less than surrounding area and erosion control is sufficient so that water naturally infiltrates into the soil and gullying, headcutting, slumping, and deep or excessive rills (greater than 3 inches) are not observed.

The site will be free of State-or County-listed noxious weeds, oil field debris and equipment, and contaminated soil. Invasive and non-native weeds will be controlled.

#### **Seeding:**

- Seedbed Preparation: Initial seedbed preparation will consist of recontouring to the appropriate interim or final reclamation standard. All compacted areas to be seeded will be ripped to a minimum depth of 18 inches with a minimum furrow spacing of 2 feet, followed by recontouring the surface and then evenly spreading the stockpiled topsoil. Prior to seeding, the seedbed will be scarified to a depth of no less than 4-6 inches. If the site is to be broadcast seeded, the surface will be left rough enough to trap seed and snow, control erosion, and increase water infiltration.
- If broadcast seeding is to be used and is delayed, final seedbed preparation will consist of contour cultivating to a depth of 4-6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting in order to break the soil crust and create seed germination micro-sites.
- Seed Application. Seeding will be conducted no more than two weeks following completion of final seedbed preparation. A certified weed-free seed mix designed by the BLM to meet reclamation standards will be used.
- If the site is harrowed or dragged, seed will be covered by no more than 0.25 inch of soil.

#### **11. Surface Ownership**

- A. Within the Nash Unit development project area:
  - a. Approximately 75% of the surface is under the administrative jurisdiction of the Bureau of Land Management.
  - b. Approximately 20% is located on Fee Land. A private, cooperative agreement has been made with the land owner, Mobley.
  - c. Approximately 5% of the surface is under the administrative jurisdiction of New Mexico State Land.
- B. The surface is multiple-use with the primary uses of the region for grazing and for the production of oil and gas.



## 12. Other Information

### Surveying

- **Well Sites.** Well pad locations have been staked. Surveys of the proposed access roads and well pad locations have been completed by John West, a registered professional land surveyor. Center stake surveys with access roads have been completed on State and Federal lands with Brooke Wilson, Bureau of Land Management Natural Resource Specialist in attendance.
- **Cultural Resources – Archaeology:** A Class III Cultural Resources Examination has been completed on all wells by Boone Archaeological Services and the results will be forwarded to the BLM Office.
- **Dwellings and Structures.** There are no dwellings or structures within 2 miles of this location.

### Soils and Vegetation

- **Environmental Setting.** According to the Natural Resources Conservation Service online database, the project area soils consist of Reeves soils. These soils are associated with the Loamy ecological site (R042CX007NM) which typically supports black and blue grama and tobosa grasslands with an even distribution of yucca, mesquite, American tarbush, cholla, and creosote. The current vegetative community consists of mesquite, creosote, soapweed yucca, broom snakeweed, javelin bush, and desert grasses and forbs. The project area lies on a heavily eroded and rocky terrain near a deep arroyo. The project area is situated approximately 1.6 miles of Remuda Basin and 7.2 miles east of the Pecos River.
- **Traffic.** No truck traffic will be operated during periods or in areas of saturated ground when surface rutting could occur. The access road will be constructed and maintained as necessary to prevent soil erosion and accommodate all-weather traffic. The road will be crowned and ditched with water turnouts installed as necessary to provide for proper drainage along the access road route.
- **Water.** There is no permanent or live water within the immediate project area.

## 13. Bond Coverage

Bond Coverage is Nationwide. Bond Number: UTB0000138

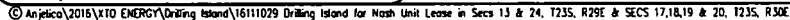
### Operator's Representatives:

The XTO Energy, Inc. representatives for ensuring compliance of the surface use plan are listed below:

#### **Surface:**

Jimie Scott  
Contract Construction Lead  
XTO Energy, Incorporated  
500 W. Illinois St., Suite 100  
Midland, Texas 79701  
432-488-9955  
james\_scott@xtoenergy.com

Jeff Raines  
Construction Superintendent  
XTO Energy, Incorporated  
500 W. Illinois St., Suite 100  
Midland, Texas 79701  
432-620-4349  
jeff\_raines@xtoenergy.com





U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

## PWD Data Report

11/25/2018

### Section 1 - General

Would you like to address long-term produced water disposal? NO

### Section 1 - General

Would you like to address long-term produced water disposal? NO

### Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

**Lined pit reclamation descriptio**

**Lined pit reclamation attachment:**

**Leak detection system description:**

**Leak detection system attachment:**

**Lined pit Monitor description:**

**Lined pit Monitor attachment:**

**Lined pit: do you have a reclamation bond for the pit?**

**Is the reclamation bond a rider under the BLM bond?**

**Lined pit bond number:**

**Lined pit bond amount:**

**Additional bond information attachment:**

### **Section 3 - Unlined Pits**

**Would you like to utilize Unlined Pit PWD options? NO**

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:**

**PWD disturbance (acres):**

**Unlined pit PWD on or off channel:**

**Unlined pit PWD discharge volume (bbl/day):**

**Unlined pit specifications:**

**Precipitated solids disposal:**

**Decribe precipitated solids disposal:**

**Precipitated solids disposal permit:**

**Unlined pit precipitated solids disposal schedule:**

**Unlined pit precipitated solids disposal schedule attachment:**

**Unlined pit reclamation description:**

**Unlined pit reclamation attachment:**

**Unlined pit Monitor description:**

**Unlined pit Monitor attachment:**

**Do you propose to put the produced water to beneficial use?**

**Beneficial use user confirmation:**

**Estimated depth of the shallowest aquifer (feet):**

**Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?**

**TDS lab results:**

**Geologic and hydrologic evidence:**

**State authorization:**

**Unlined Produced Water Pit Estimated percolation:**

**Unlined pit: do you have a reclamation bond for the pit?**

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

#### Section 4 - Injection

Would you like to utilize Injection PWD options? NO

#### Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number:

Injection well name:

Assigned injection well API number?

Injection well API number:

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

#### Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

#### Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

#### Section 6 - Other

Would you like to utilize Other PWD options? NO

## **Section 6 - Other**

**Would you like to utilize Other PWD options? NO**

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:**

**PWD disturbance (acres):**

**Other PWD discharge volume (bbl/day):**

**Other PWD type description:**

**Other PWD type attachment:**

**Have other regulatory requirements been met?**

**Other regulatory requirements attachment:**



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

## Bond Info Data Report

11/25/2018

### Bond Information

Federal/Indian APD: FED

BLM Bond number: UTB000138

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: