

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

HOBBS OCD
DEC 17 2019
RECEIVED

1a. Type of work: DRILL REENTER
1b. Type of Well: Oil Well Gas Well Other
1c. Type of Completion: Hydraulic Fracturing Single Zone Multiple Zone

5. Lease Serial No.
NMNM0001206A
6. If Indian, Allottee or Tribe Name
7. If Unit or CA Agreement, Name and No.
BIG EDDY / NMNM068294X
8. Lease Name and Well No.
BIG EDDY UNIT D129 BS2-5W
366H (326487)
9. API Well No.
70-025-46654
10. Field and Pool, or Exploratory
WILDCAT; BONE SPRING 53660
11. Sec., T. R. M. or Blk. and Survey or Area
SEC 16 / T20S / R32E / NMP

2. Name of Operator
XTO PERMIAN OPERATING LLC (372075)
3a. Address
6401 Holiday Hill Road, Bldg 5 Midland TX 79707
3b. Phone No. (include area code)
(432)682-8873
4. Location of Well (Report location clearly and in accordance with any State requirements. *)
At surface SWSW / 420 FSL / 280 FWL / LAT 32.567133 / LONG -103.778931
At proposed prod. zone LOT 1 / 660 FNL / 50 FWL / LAT 32.578848 / LONG -103.813986

14. Distance in miles and direction from nearest town or post office*
12. County or Parish
LEA
13. State
NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
280 feet
16. No of acres in lease
2075.4
17. Spacing Unit dedicated to this well
320
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
35 feet
19. Proposed Depth
8807 feet / 20846 feet
20. BLM/BIA Bond No. in file
FED: COB000050
21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3513 feet
22. Approximate date work will start*
05/01/2019
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 01/21/2019
Title Regulatory Coordinator		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 12/13/2019
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.

BOP Rec 12/13/19

APPROVED WITH CONDITIONS

KA
12/23/19

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 collects this information to allow 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: SWSW / 420 FSL / 280 FWL / TWSP: 20S / RANGE: 32E / SECTION: 16 / LAT: 32.567133 / LONG: -103.778931 (TVD: 0 feet, MD: 0 feet)
PPP: NENE / 660 FNL / 100 FEL / TWSP: 20S / RANGE: 32E / SECTION: 16 / LAT: 32.578709 / LONG: -103.78018 (TVD: 8807 feet, MD: 10432 feet)
BHL: LOT 1 / 660 FNL / 50 FWL / TWSP: 20S / RANGE: 32E / SECTION: 18 / LAT: 32.578848 / LONG: -103.813986 (TVD: 8807 feet, MD: 20846 feet)

BLM Point of Contact

Name: Tenille Ortiz

Title: Legal Instruments Examiner

Phone: 5752342224

Email: tortiz@blm.gov

Approval Date: 12/13/2019

(Form 3160-3, page 3)

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

OPERATOR'S NAME:	XTO Permian Operating, LLC
LEASE NO.:	NMNM-0001206A
WELL NAME & NO.:	Big Eddy Unit DI 29 BS2-5W 366H
SURFACE HOLE FOOTAGE:	0420' FSL & 0280' FWL
BOTTOM HOLE FOOTAGE	0660' FNL & 0050' FWL Sec. 18, T. 20 S., R 32 E.
LOCATION:	Section 16, T. 20 S., R 32 E., NMPM
COUNTY:	County, New Mexico

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 (H₂S) monitors shall be installed prior to drilling out the surface shoe. If H₂S 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

Capitan Reef

Possibility of water flows in the Artesia Group and Salado.

Possibility of lost circulation in the Rustler, Artesia Group, and Capitan Reef.

1. The 18-5/8 inch surface casing shall be set at approximately 1080 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.

13-3/8 1st 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 1st 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.**

9-5/8 2nd 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 2nd intermediate casing** is:

Operator has proposed DV tool at depth of 2780', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

a. First stage to DV tool: _____

Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

b. Second stage above DV tool:

Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash and Capitan Reef. Excess calculates to negative 12% - Additional cement will be required.**

Centralizers required through the curve 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 should tie-back at least **50 feet above the Capitan Reef** (Top of Capitan Reef estimated at 2702'). Operator shall provide method of verification.

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.
4. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the 13-3/8 1st intermediate casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 13-3/8 1st intermediate casing shoe shall be psi.**
 - a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**

- b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
 - c. **Manufacturer representative shall install the test plug for the initial BOP test.**
 - d. **Operator shall perform the 9-5/8" casing integrity tests to 70% of the casing burst. This will test the multi-bowl seals.**
 - e. **If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.**
5. 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.**
 - 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 111519



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

Operator Certification Data Report

12/16/2019

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:

City:

State:

Zip:

Phone: (432)620-6714

Email address: stephanie_rabadue@xtoenergy.com

Field Representative

Representative Name:

Street Address:

City:

State:

Zip:

Phone:

Email address:



APD ID: 10400037564

Submission Date: 01/21/2019

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: BIG EDDY UNIT DI 29 BS2-5W

Well Number: 366H

Well Type: OIL WELL

Well Work Type: Drill



[Show Final Text](#)

Section 1 - General

APD ID: 10400037564

Tie to previous NOS?

Submission Date: 01/21/2019

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: NMNM0001206A

Lease Acres: 2075.4

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? YES

Federal or Indian agreement: FEDERAL

Agreement number: NMNM068294X

Agreement name:

Keep application confidential? NO

Permitting Agent? NO

APD Operator: XTO PERMIAN OPERATING LLC

Operator letter of designation:

Operator Info

Operator Organization Name: XTO PERMIAN OPERATING LLC

Operator Address: 6401 Holiday Hill Road, Bldg 5

Zip: 79707

Operator PO Box:

Operator City: Midland

State: TX

Operator Phone: (432)682-8873

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? NO

Master Development Plan name:

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: BIG EDDY UNIT DI 29 BS2-5W

Well Number: 366H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: WILDCAT; BONE SPRING Pool Name:

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

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: BIG EDDY UNIT DI 29 BS2-5W

Well Number: 366H

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

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

Type of Well Pad: MULTIPLE WELL

Multiple Well Pad Name: BEU Number: 29

Well Class: HORIZONTAL

DI

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: 35 FT

Distance to lease line: 280 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: BEU_DI29_366H_C102_20181228065322.pdf

Well work start Date: 05/01/2019

Duration: 90 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NAVD88

Survey number:

Reference Datum:

Wellbore	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	Will this well produce
SHL Leg #1	420	FSL	280	FWL	20S	32E	16	Aliquot SWS W	32.567133	-103.778931	LEA	NEW MEXI CO	NEW MEXI CO	S	STATE	3513	0	0	
KOP Leg #1	420	FSL	280	FWL	20S	32E	16	Aliquot SWS W	32.567133	-103.778931	LEA	NEW MEXI CO	NEW MEXI CO	S	STATE	1513	2000	2000	
PPP Leg #1-1	660	FNL	100	FEL	20S	32E	16	Aliquot NENE	32.578709	-103.78018	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 000120 6A	-5294	10432	8807	

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: BIG EDDY UNIT DI 29 BS2-5W

Well Number: 366H

Wellbore	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	Will this well produce
EXIT Leg #1	660	FNL	100	FWL	20S	32E	18	Lot 1	32.57884 7	- 103.8138 24	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 000120 6A	- 529 4	207 96	880 7	
BHL Leg #1	660	FNL	50	FWL	20S	32E	18	Lot 1	32.57884 8	- 103.8139 86	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 000120 6A	- 529 4	208 46	880 7	



APD ID: 10400037564

Submission Date: 01/21/2019

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: BIG EDDY UNIT DI 29 BS2-5W

Well Number: 366H

Well Type: OIL WELL

Well Work Type: Drill



Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	PERMIAN	3513	0	0	OTHER : Alluvium	NONE	N
2	RUSTLER	2608	905	905	SILTSTONE	USEABLE WATER	N
3	TOP SALT	2252	1261	1261	SALT	POTASH	N
4	BASE OF SALT	1093	2420	2420	SALT	OTHER : Produced Water	N
5	CAPITAN REEF	659	2854	2854	LIMESTONE	USEABLE WATER	N
6	DELAWARE	-1363	4876	4876	SANDSTONE	OTHER,NATURAL GAS,OIL : Produced Water	N
7	BRUSHY CANYON	-2603	6116	6116	SANDSTONE	OTHER,NATURAL GAS,OIL : Produced Water	N
8	BONE SPRING	-4176	7689	7689	SANDSTONE	OTHER,NATURAL GAS,OIL : Produced Water	N
9	BONE SPRING 1ST	-5304	8817	8817	SANDSTONE	OTHER,NATURAL GAS,OIL : Produced Water	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 200 Rating Depth: 1080

Equipment: The Blow out prevention equipment (BOP) for this well consists of a 13-5/8" minimum MOPD with a 13-5/8" minimum 200 Pressure Rating BOP.

Regulating Valve: 200 PSI

Variance: The BOP manufacturer is requested to allow use of a flex hose at 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 submitted. Attached is an example of a certification and pressure test chart. The manufacturer does not require a caution residue test. All other tests will be done by an independent service company. A residue test after it will be limited to 60% of the working pressure. When pulling up the BOP test will be limited to 20% of the working pressure. A low pressure test for pressure verification of the 200 BOP diagram is attached. All drawings will be on separate sheets. Paper size will be 11x17 (ANSI A). (01/21/2019)

Choke Diagram Attachment:

BEU_DI29_2MCM_20191024082258.pdf

BOP Diagram Attachment:

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: BIG EDDY UNIT DI 29 BS2-5W

Well Number: 366H

BEU_DI29_2MCM_20191024082258.pdf

BEU_DI29_2MBOP_20191024082312.pdf

Equipment: The blow out preventer equipment (BOP) for this well consists of a 13-5/8" minimum 3M Hybrid BOP with a minimum 3M Double Ram BOP.

Requesting Variance? YES

Variance request: A variance is requested to allow use of a flex joint as the choke line from the BOP to the choke line. 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 no other modifications only in the curve after the BOP are only a maximum of one every other joint. Permanent Wellhead: 13-5/8" Multiflow System A, Starting Head: 13-5/8" 6M top flange x 13-5/8" 30W bottom B, Tubing Head: 13-5/8" 6W bottom flange x 1-1/4" 10M top flange Wellhead will be installed by manufacturer's representatives. Manufacturer will monitor welding process to ensure appropriate temperature of heat. Operator will test the 9-5/8" casing per BLM Onshore Order. Wellhead Manufacturer representative will not be present for BOP test plug installation.

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 tripping up, the BOP test will be limited to 3,000 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 rams will be function tested each day.

Choke Diagram Attachment:

BEU_DI29_3MCM_20181228053845.pdf

BOP Diagram Attachment:

BEU_DI29_3MBOP_20181228053906.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	24	18.625	NEW	API	N	0	1080	0	1080			1080	H-40	87.5	ST&C	1.27	2.13	DRY	5.92	DRY	5.92
2	INTERMEDIATE	17.5	13.375	NEW	API	N	0	2470	0	2470			2470	J-55	54.5	ST&C	1.45	2.36	DRY	3.82	DRY	3.82
3	INTERMEDIATE	12.25	9.625	NEW	API	N	0	4980	0	4980			4980	J-55	36	LT&C	1.62	1.4	DRY	2.53	DRY	2.53

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: BIG EDDY UNIT DI 29 BS2-5W

Well Number: 366H

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
4	PRODUCTI ON	8.75	5.5	NEW	API	N	0	20846	0	8807			20846	P- 110	17	BUTT	1.62	1.12	DRY	2.18	DRY	2.18

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BEU_DI29_366H_Csg_20181228065033.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BEU_DI29_366H_Csg_20181228065046.pdf

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: BIG EDDY UNIT DI 29 BS2-5W

Well Number: 366H

Casing Attachments

Casing ID: 3 String Type: INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BEU_DI29_366H_Csg_20181228065056.pdf

Casing ID: 4 String Type: PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BEU_DI29_366H_Csg_20181228065104.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	1080	1420	1.87	12.9	2655.4	100	EconoCem-HLTRC	None
SURFACE	Tail				560	1.35	14.8	756	100	HalCem-C	2% CaCl
INTERMEDIATE	Lead		0	2470	1420	1.87	12.9	2655.4	100	EconoCem-HLTRC	None
INTERMEDIATE	Tail				560	1.35	14.8	756	100	HalCem-C	2% CaCl
INTERMEDIATE	Lead	2780	0	2780	100	1.88	12.9	188	100	HalCem-C	2% CaCl

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: BIG EDDY UNIT DI 29 BS2-5W

Well Number: 366H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
INTERMEDIATE	Tail				230	1.88	11.5	2670	0%	Hydram	2% CaCl
INTERMEDIATE	Lead	2780	2780	4980	390	1.88	11.5	4500	0%	Hydram	2% CaCl
INTERMEDIATE	Tail				470	1.33	11.5	5400	0%	Hydram	2% CaCl
PRODUCTION	Lead		0	2084 6	890	2.69	10.5	9500	0%	Hydram	None
PRODUCTION	Tail				2210	1.61	10.5	23000	0%	Hydram	None

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
2470	4980	OTHER : FW/Cut Brine / Poly-Sweeps	8.3	9							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

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: BIG EDDY UNIT DI 29 BS2-5W

Well Number: 366H

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	1080	OTHER : FW/Native	8.3	9.5							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
4980	8807	OTHER : FW/Cut Brine/Poly- Sweeps	9	9.3							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
1080	2470	OTHER : Brine/Gel Sweeps	9.8	10.2							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

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.

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: BIG EDDY UNIT DI 29 BS2-5W

Well Number: 366H

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4259

Anticipated Surface Pressure: 2125.21

Anticipated Bottom Hole Temperature(F): 160

Anticipated abnormal pressures, temperatures, or potential geologic hazards? YES

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 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:

BEU_DI29_H2S_Dia_W_20181228054033.pdf

BEU_DI29_H2S_Plan_20181228054041.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

BEU_DI29_366H_DD_20181228065219.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.

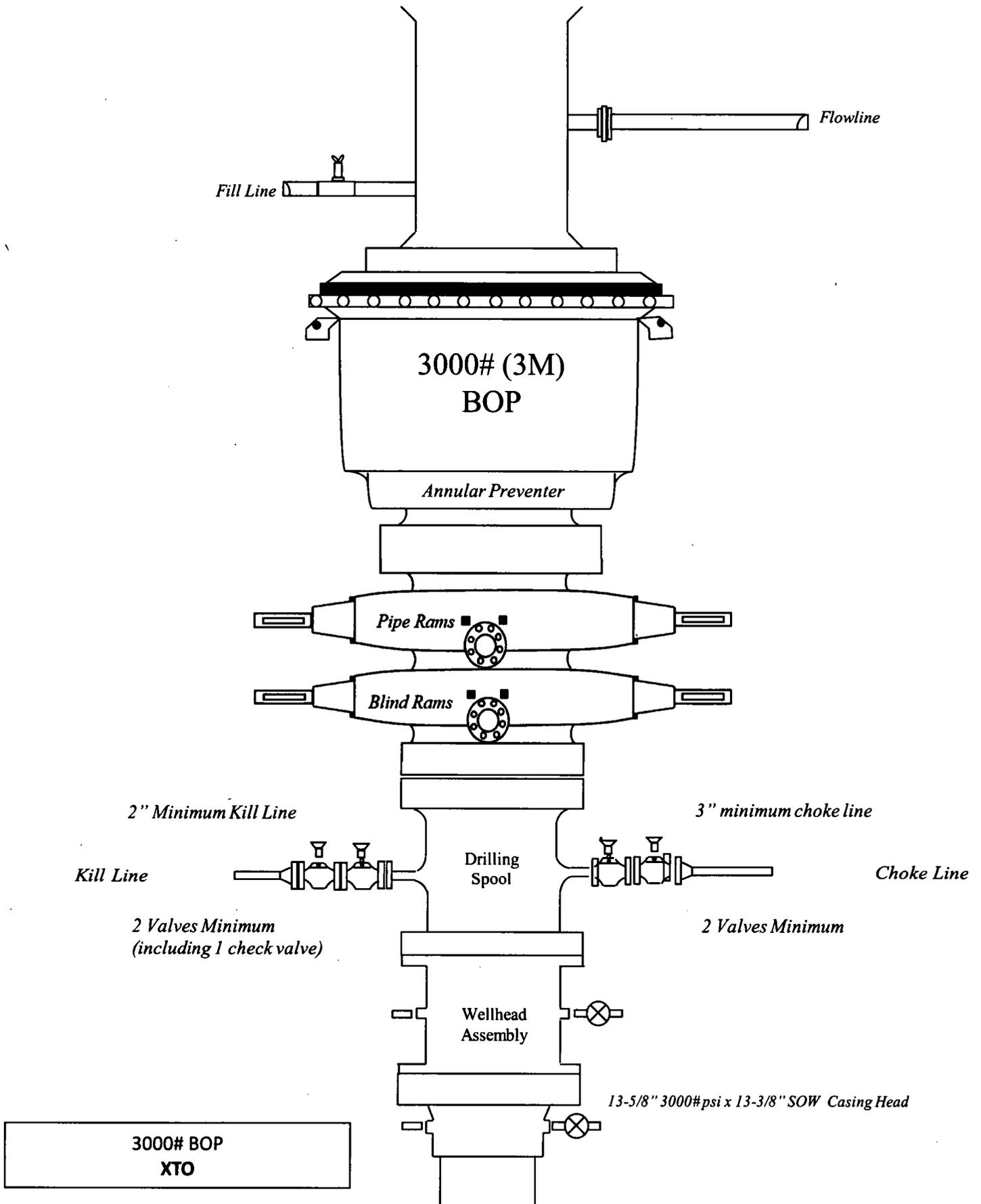
XTO requests to utilize centralizers only in the curve after the KOP and only a minimum of one every other joint.

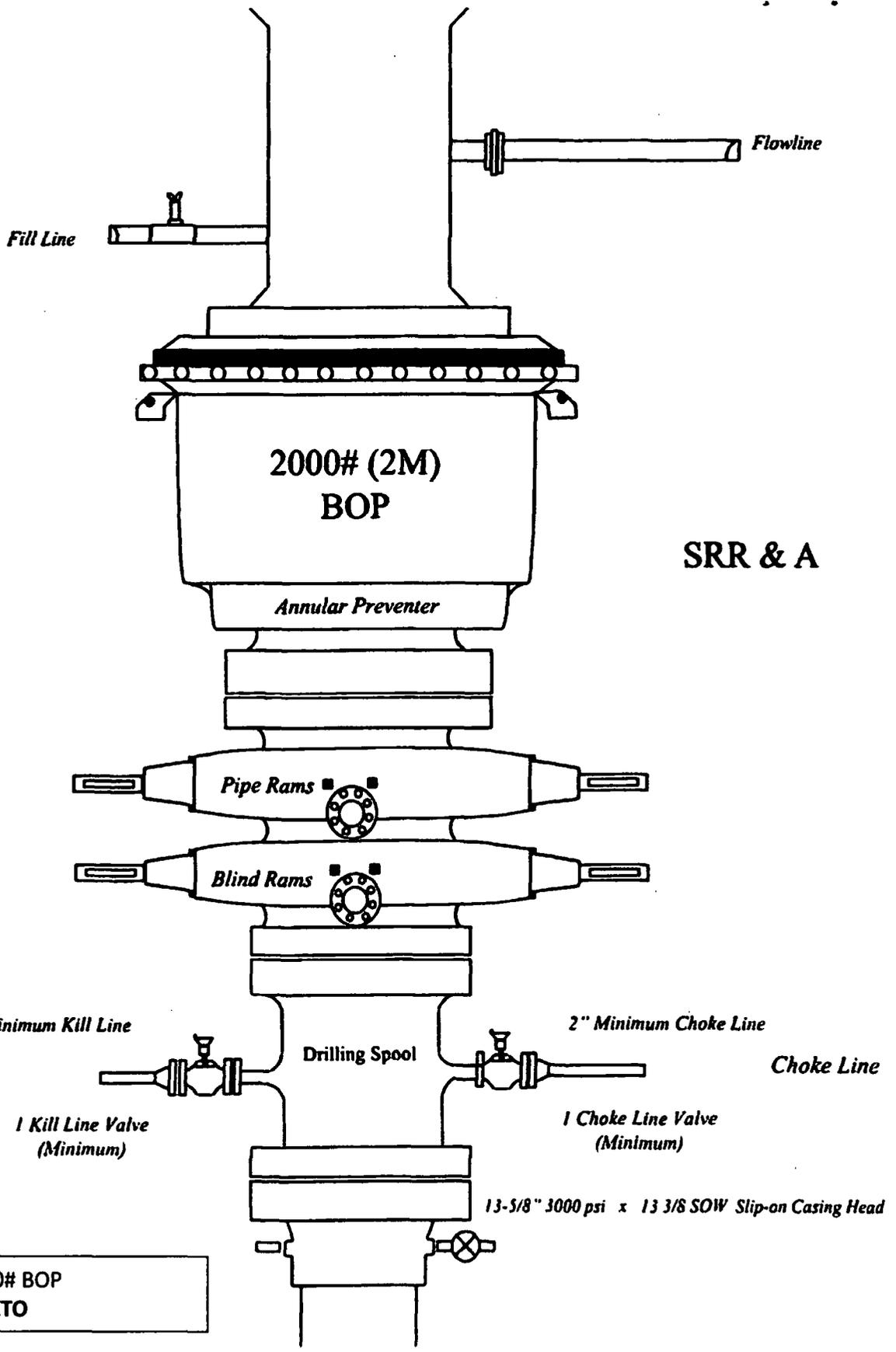
Other proposed operations facets attachment:

BEU_DI29_366H_GCP_20181228065228.pdf

Other Variance attachment:

BEU_DI29_FH_20181228054223.pdf





SRR & A



HYDROGEN SULFIDE (H₂S) CONTINGENCY PLAN

Assumed 100 ppm ROE = 3000'

100 ppm H₂S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H₂S, 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 H₂S 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 H₂S, 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 (SO₂). 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 H₂S and SO₂

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

Contacting Authorities

All XTO location 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 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



XTO Energy

Eddy County, NM (NAD-27)

Big Eddy Unit DI 29

BS2-5W #366H

OH

Plan: PERMIT

Standard Planning Report

26 November, 2018



Project: Eddy County, NM (NAD-27)
 Site: Big Eddy Unit D1 29
 Well: BS2-5W #366H
 Wellbore: OH
 Design: PERMIT

WELL DETAILS: BS2-5W #366H

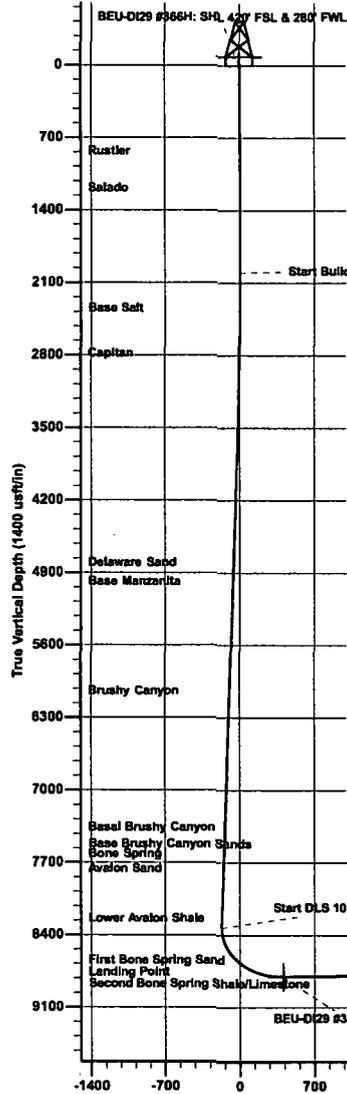
Rig Name:		RKB = 25' @ 3538.00ush			
+N-S	+E-W	Northing	Easting	Latitude	Longitude
0.00	0.00	570436.80	670950.80	32.587013	-103.778431

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Diag	TFace	VSec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00
2	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.005	0.00
3	3777.78	35.58	2.54	3685.85	533.81	23.88	2.00	2.541	-23.78
4	9511.95	35.58	2.54	8330.90	3884.71	171.52	0.00	0.000	-172.20
5	10432.00	80.84	268.99	8807.00	4209.30	-408.50	10.00	-91.704	405.77
6	20796.24	80.84	268.99	8691.23	4207.41	-10770.10	0.00	0.000	10769.37
7	20846.25	80.84	268.99	8690.67	4207.40	-10620.10	0.00	0.000	10819.37

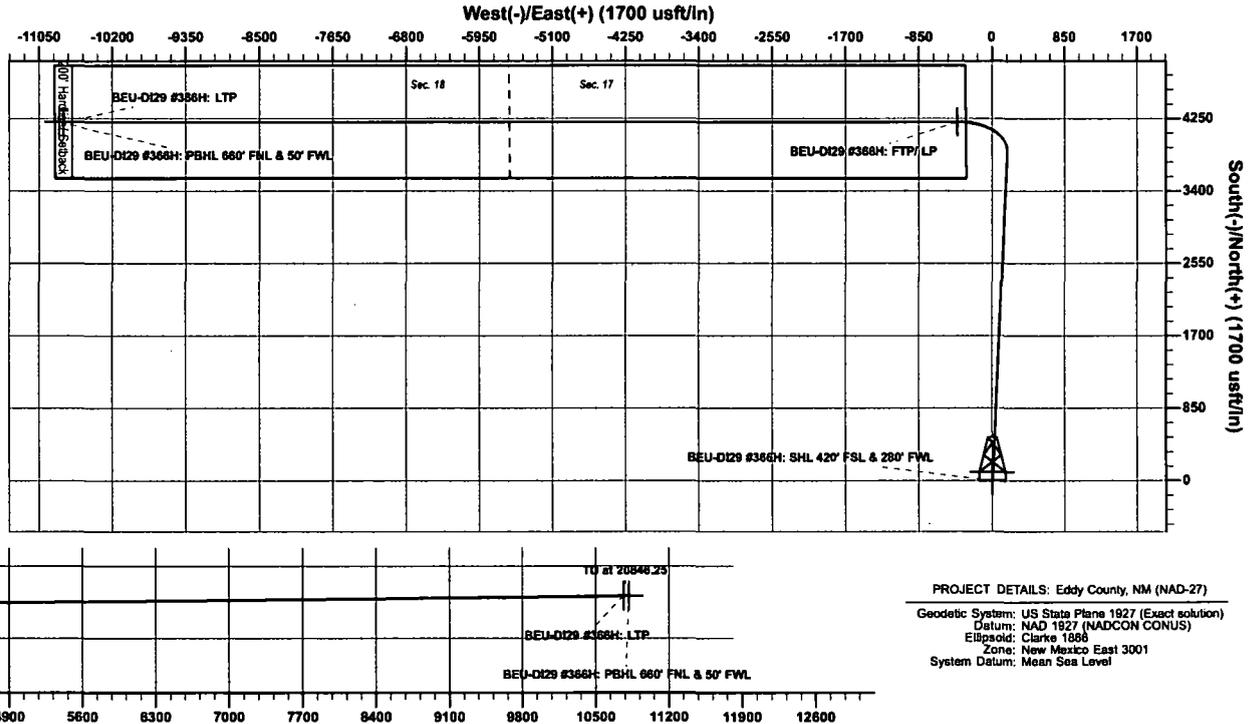
DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude	Shape
BEU-D129 #366H: SHL 420' FSL & 280' FWL	0.00	0.00	0.00	570436.80	670950.80	32.587013	-103.778431	Point
BEU-D129 #366H: PBHL 660' FNL & 50' FWL	8690.67	4207.40	-10820.10	574944.20	660130.70	32.578728	-103.813485	Point
BEU-D129 #366H: LTP	8691.23	4207.50	-10770.10	574844.30	680180.70	32.578728	-103.813323	Point
BEU-D129 #366H: FTP/ LP	8807.00	4209.30	-408.50	574848.10	670544.30	32.578589	-103.779680	Point



FORMATION TOP DETAILS

TVDPath	Formation
905.00	Rustler
1261.00	Salado
2420.00	Base Salt
2854.00	Capitan
4878.00	Delaware Sand
5060.00	Base Manzanita
6118.00	Brushy Canyon
7431.00	Basal Brushy Canyon
7680.00	Base Brushy Canyon Sands
7689.00	Bone Spring
7831.00	Avaton Sand
8315.00	Lower Avaton Shale
8719.00	First Bone Spring Sand
8807.00	Landing Point



PROJECT DETAILS: Eddy County, NM (NAD-27)
 Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: New Mexico East 3001
 System Datum: Mean Sea Level

Vertical Section at 269.99° (1400 usft/in)

Plan: PERMIT (BS2-5W #366H/OH)
 Created By: Matthew May Date: 16.03, November 26 2018

The customer should only rely on this document after independently verifying all paths, targets, coordinates, case and hard times represented. Any decisions made or wells drilled utilizing this or any other information supplied by Prototype are at the sole risk and responsibility of the customer.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-	² Pool Code	³ Pool Name Wildcat; Bone Spring
⁴ Property Code	⁵ Property Name BIG EDDY UNIT DI 29 BS2-5W	
⁷ OGRID No. 260737	⁸ Operator Name XTO PERMIAN OPERATING, LLC.	
		⁶ Well Number 366H
		⁹ Elevation 3,513'

¹⁰ Surface Location

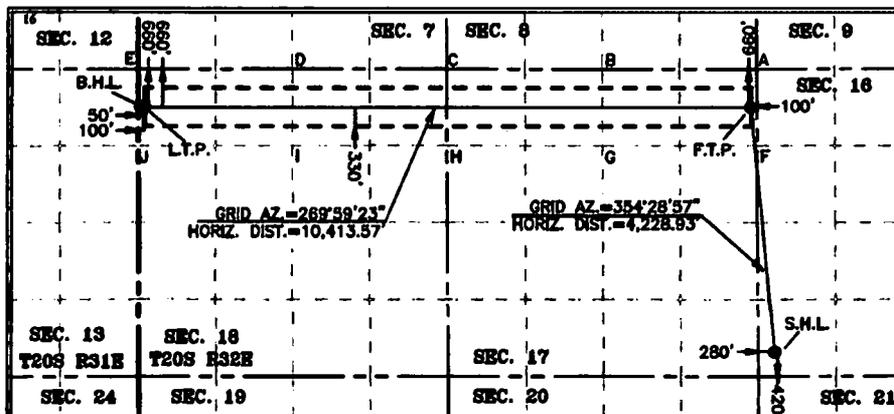
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	16	20 S	32 E		420	SOUTH	280	WEST	LEA

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	18	20 S	32 E		660	NORTH	50	WEST	LEA

¹² Dedicated Acres 320	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



GEODETTIC COORDINATES		LAST TAKE POINT		GEODETTIC COORDINATES		LAST TAKE POINT	
NAD 27 NME		NAD 27 NME		NAD 83 NME		NAD 83 NME	
SURFACE LOCATION		SURFACE LOCATION		SURFACE LOCATION		SURFACE LOCATION	
Y= 570,436.8	X= 670,950.8	Y= 574,644.3	X= 660,180.7	Y= 570,498.5	X= 712,130.5	Y= 574,706.0	X= 701,380.3
LAT.= 32.567013°N	LONG.= 103.778432°W	LAT.= 32.578727°N	LONG.= 103.813323°W	LAT.= 32.567133°N	LONG.= 103.778931°W	LAT.= 32.578847°N	LONG.= 103.813824°W
FIRST TAKE POINT		BOTTOM HOLE LOCATION		FIRST TAKE POINT		BOTTOM HOLE LOCATION	
NAD 27 NME		NAD 27 NME		NAD 83 NME		NAD 83 NME	
Y= 574,646.1	X= 670,344.3	Y= 574,644.2	X= 660,130.7	Y= 574,707.8	X= 711,723.9	Y= 574,705.9	X= 701,310.3
LAT.= 32.578589°N	LONG.= 103.779680°W	LAT.= 32.578728°N	LONG.= 103.813485°W	LAT.= 32.578709°N	LONG.= 103.780180°W	LAT.= 32.578848°N	LONG.= 103.813986°W

CORNER COORDINATES TABLE		CORNER COORDINATES TABLE	
NAD 27 NME		NAD 83 NME	
A - Y= 575,308.0 N, X= 670,639.6 E	B - Y= 575,308.3 N, X= 667,894.1 E	A - Y= 575,367.8 N, X= 711,819.2 E	B - Y= 575,368.1 N, X= 709,173.7 E
C - Y= 575,308.8 N, X= 665,350.1 E	D - Y= 575,308.2 N, X= 662,705.4 E	C - Y= 575,368.8 N, X= 706,529.7 E	D - Y= 575,368.9 N, X= 703,885.0 E
E - Y= 575,301.2 N, X= 660,080.3 E	F - Y= 573,984.1 N, X= 670,648.8 E	E - Y= 575,365.8 N, X= 701,257.5 E	F - Y= 574,045.8 N, X= 711,828.5 E
G - Y= 573,985.4 N, X= 668,001.6 E	H - Y= 573,986.7 N, X= 665,357.7 E	G - Y= 574,047.1 N, X= 709,181.2 E	H - Y= 574,048.4 N, X= 706,537.3 E
I - Y= 573,986.1 N, X= 662,712.5 E	J - Y= 573,982.9 N, X= 660,083.4 E	I - Y= 574,047.8 N, X= 703,892.1 E	J - Y= 574,044.8 N, X= 701,263.0 E

¹⁷ OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or released mineral interest in the land including the proposed bottom hole location or has a right to drill this well as this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Stephanie Rabadue 11/19/2018
Signature Date

Stephanie Rabadue
Printed Name

stephanie_rabadue@xtoenergy.com
E-mail Address

¹⁸ SURVEYOR CERTIFICATION

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

11-19-2018
Date of Survey

Signature and Seal of Professional Surveyor:

[Signature]



MARK DILLON HARP 23786
Certificate Number

AI 2018061614



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well BS2-5W #366H
Company:	XTO Energy	TVD Reference:	RKB = 25' @ 3538.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 25' @ 3538.00usft
Site:	Big Eddy Unit DI 29	North Reference:	Grid
Well:	BS2-5W #366H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PERMIT		

Project	Eddy County, NM (NAD-27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Big Eddy Unit DI 29				
Site Position:		Northing:	570,344.80 usft	Latitude:	32.566759
From:	Map	Easting:	671,001.10 usft	Longitude:	-103.778270
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.299 °

Well	BS2-5W #366H					
Well Position	+N/-S	92.00 usft	Northing:	570,436.80 usft	Latitude:	32.567013
	+E/-W	-50.30 usft	Easting:	670,950.80 usft	Longitude:	-103.778432
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,513.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/26/2018	6.920	60.325	o 47,970

Design	PERMIT			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	269.99

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	
2,000.00	0.00	0.01	2,000.00	0.00	0.00	0.00	0.00	0.00	0.005	
3,777.78	35.56	2.54	3,665.85	533.61	23.68	2.00	2.00	0.00	2.541	
9,511.95	35.56	2.54	8,330.90	3,864.71	171.52	0.00	0.00	0.00	0.000	
10,432.00	90.64	269.99	8,807.00	4,209.30	-406.50	10.00	5.99	-10.06	-91.704	BEU-DI29 #366H: F
20,796.24	90.64	269.99	8,691.23	4,207.41	-10,770.10	0.00	0.00	0.00	0.000	BEU-DI29 #366H: L
20,846.25	90.64	269.99	8,690.67	4,207.40	-10,820.10	0.00	0.00	0.00	0.000	BEU-DI29 #366H: F



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well BS2-5W #366H
Company:	XTO Energy	TVD Reference:	RKB = 25' @ 3538.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 25' @ 3538.00usft
Site:	Big Eddy Unit DI 29	North Reference:	Grid
Well:	BS2-5W #366H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PERMIT		

Planned Survey

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)
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
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	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
500.00	0.00	0.00	500.00	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
700.00	0.00	0.00	700.00	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
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
905.00	0.00	0.00	905.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
1,000.00	0.00	0.00	1,000.00	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
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,261.00	0.00	0.00	1,261.00	0.00	0.00	0.00	0.00	0.00	0.00
Salado									
1,300.00	0.00	0.00	1,300.00	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
1,500.00	0.00	0.00	1,500.00	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
1,700.00	0.00	0.00	1,700.00	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
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.01	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	2.00	2.54	2,099.98	1.74	0.08	-0.08	2.00	2.00	0.00
2,200.00	4.00	2.54	2,199.84	6.97	0.31	-0.31	2.00	2.00	0.00
2,300.00	6.00	2.54	2,299.45	15.68	0.70	-0.70	2.00	2.00	0.00
2,400.00	8.00	2.54	2,398.70	27.85	1.24	-1.24	2.00	2.00	0.00
2,421.52	8.43	2.54	2,420.00	30.92	1.37	-1.38	2.00	2.00	0.00
Base Salt									
2,500.00	10.00	2.54	2,497.47	43.48	1.93	-1.94	2.00	2.00	0.00
2,600.00	12.00	2.54	2,595.62	62.54	2.78	-2.79	2.00	2.00	0.00
2,700.00	14.00	2.54	2,693.06	85.01	3.77	-3.79	2.00	2.00	0.00
2,800.00	16.00	2.54	2,789.64	110.87	4.92	-4.94	2.00	2.00	0.00
2,867.18	17.34	2.54	2,854.00	130.12	5.78	-5.80	2.00	2.00	0.00
Capitan									
2,900.00	18.00	2.54	2,885.27	140.07	6.22	-6.24	2.00	2.00	0.00
3,000.00	20.00	2.54	2,979.82	172.60	7.66	-7.69	2.00	2.00	0.00
3,100.00	22.00	2.54	3,073.17	208.40	9.25	-9.29	2.00	2.00	0.00
3,200.00	24.00	2.54	3,165.21	247.43	10.98	-11.02	2.00	2.00	0.00
3,300.00	26.00	2.54	3,255.84	289.65	12.86	-12.91	2.00	2.00	0.00
3,400.00	28.00	2.54	3,344.94	335.00	14.87	-14.93	2.00	2.00	0.00
3,500.00	30.00	2.54	3,432.39	383.43	17.02	-17.08	2.00	2.00	0.00
3,600.00	32.00	2.54	3,518.11	434.88	19.30	-19.38	2.00	2.00	0.00
3,700.00	34.00	2.54	3,601.97	489.29	21.72	-21.80	2.00	2.00	0.00
3,777.78	35.56	2.54	3,665.85	533.61	23.68	-23.78	2.00	2.00	0.00
3,800.00	35.56	2.54	3,683.93	546.52	24.26	-24.35	0.00	0.00	0.00
3,900.00	35.56	2.54	3,765.29	604.61	26.83	-26.94	0.00	0.00	0.00
4,000.00	35.56	2.54	3,846.64	662.70	29.41	-29.53	0.00	0.00	0.00
4,100.00	35.56	2.54	3,928.00	720.79	31.99	-32.12	0.00	0.00	0.00
4,200.00	35.56	2.54	4,009.35	778.89	34.57	-34.70	0.00	0.00	0.00
4,300.00	35.56	2.54	4,090.71	836.98	37.15	-37.29	0.00	0.00	0.00
4,400.00	35.56	2.54	4,172.06	895.07	39.73	-39.88	0.00	0.00	0.00



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well BS2-5W #366H
Company:	XTO Energy	TVD Reference:	RKB = 25' @ 3538.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 25' @ 3538.00usft
Site:	Big Eddy Unit DI 29	North Reference:	Grid
Well:	BS2-5W #366H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PERMIT		

Planned Survey

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)
4,500.00	35.56	2.54	4,253.42	953.16	42.30	-42.47	0.00	0.00	0.00
4,600.00	35.56	2.54	4,334.77	1,011.26	44.88	-45.06	0.00	0.00	0.00
4,700.00	35.56	2.54	4,416.13	1,069.35	47.46	-47.65	0.00	0.00	0.00
4,800.00	35.56	2.54	4,497.48	1,127.44	50.04	-50.23	0.00	0.00	0.00
4,900.00	35.56	2.54	4,578.84	1,185.53	52.62	-52.82	0.00	0.00	0.00
5,000.00	35.56	2.54	4,660.19	1,243.62	55.19	-55.41	0.00	0.00	0.00
5,100.00	35.56	2.54	4,741.55	1,301.72	57.77	-58.00	0.00	0.00	0.00
5,200.00	35.56	2.54	4,822.90	1,359.81	60.35	-60.59	0.00	0.00	0.00
5,265.27	35.56	2.54	4,876.00	1,397.72	62.03	-62.28	0.00	0.00	0.00
Delaware Sand									
5,300.00	35.56	2.54	4,904.26	1,417.90	62.93	-63.18	0.00	0.00	0.00
5,400.00	35.56	2.54	4,985.61	1,475.99	65.51	-65.77	0.00	0.00	0.00
5,491.43	35.56	2.54	5,060.00	1,529.11	67.87	-68.13	0.00	0.00	0.00
Base Manzanita									
5,500.00	35.56	2.54	5,066.97	1,534.08	68.09	-68.35	0.00	0.00	0.00
5,600.00	35.56	2.54	5,148.32	1,592.18	70.66	-70.94	0.00	0.00	0.00
5,700.00	35.56	2.54	5,229.68	1,650.27	73.24	-73.53	0.00	0.00	0.00
5,800.00	35.56	2.54	5,311.03	1,708.36	75.82	-76.12	0.00	0.00	0.00
5,900.00	35.56	2.54	5,392.39	1,766.45	78.40	-78.71	0.00	0.00	0.00
6,000.00	35.56	2.54	5,473.74	1,824.54	80.98	-81.30	0.00	0.00	0.00
6,100.00	35.56	2.54	5,555.10	1,882.64	83.56	-83.88	0.00	0.00	0.00
6,200.00	35.56	2.54	5,636.45	1,940.73	86.13	-86.47	0.00	0.00	0.00
6,300.00	35.56	2.54	5,717.81	1,998.82	88.71	-89.06	0.00	0.00	0.00
6,400.00	35.56	2.54	5,799.16	2,056.91	91.29	-91.65	0.00	0.00	0.00
6,500.00	35.56	2.54	5,880.52	2,115.01	93.87	-94.24	0.00	0.00	0.00
6,600.00	35.56	2.54	5,961.88	2,173.10	96.45	-96.83	0.00	0.00	0.00
6,700.00	35.56	2.54	6,043.23	2,231.19	99.02	-99.41	0.00	0.00	0.00
6,789.45	35.56	2.54	6,116.00	2,283.15	101.33	-101.73	0.00	0.00	0.00
Brushy Canyon									
6,800.00	35.56	2.54	6,124.59	2,289.28	101.60	-102.00	0.00	0.00	0.00
6,900.00	35.56	2.54	6,205.94	2,347.37	104.18	-104.59	0.00	0.00	0.00
7,000.00	35.56	2.54	6,287.30	2,405.47	106.76	-107.18	0.00	0.00	0.00
7,100.00	35.56	2.54	6,368.65	2,463.56	109.34	-109.77	0.00	0.00	0.00
7,200.00	35.56	2.54	6,450.01	2,521.65	111.92	-112.36	0.00	0.00	0.00
7,300.00	35.56	2.54	6,531.36	2,579.74	114.49	-114.94	0.00	0.00	0.00
7,400.00	35.56	2.54	6,612.72	2,637.83	117.07	-117.53	0.00	0.00	0.00
7,500.00	35.56	2.54	6,694.07	2,695.93	119.65	-120.12	0.00	0.00	0.00
7,600.00	35.56	2.54	6,775.43	2,754.02	122.23	-122.71	0.00	0.00	0.00
7,700.00	35.56	2.54	6,856.78	2,812.11	124.81	-125.30	0.00	0.00	0.00
7,800.00	35.56	2.54	6,938.14	2,870.20	127.39	-127.89	0.00	0.00	0.00
7,900.00	35.56	2.54	7,019.49	2,928.29	129.96	-130.48	0.00	0.00	0.00
8,000.00	35.56	2.54	7,100.85	2,986.39	132.54	-133.06	0.00	0.00	0.00
8,100.00	35.56	2.54	7,182.20	3,044.48	135.12	-135.65	0.00	0.00	0.00
8,200.00	35.56	2.54	7,263.56	3,102.57	137.70	-138.24	0.00	0.00	0.00
8,300.00	35.56	2.54	7,344.91	3,160.66	140.28	-140.83	0.00	0.00	0.00
8,400.00	35.56	2.54	7,426.27	3,218.76	142.86	-143.42	0.00	0.00	0.00
8,405.82	35.56	2.54	7,431.00	3,222.13	143.01	-143.57	0.00	0.00	0.00
Basal Brushy Canyon									
8,500.00	35.56	2.54	7,507.62	3,276.85	145.43	-146.01	0.00	0.00	0.00
8,600.00	35.56	2.54	7,588.98	3,334.94	148.01	-148.59	0.00	0.00	0.00
8,687.30	35.56	2.54	7,660.00	3,385.65	150.26	-150.85	0.00	0.00	0.00
Base Brushy Canyon Sands									
8,700.00	35.56	2.54	7,670.33	3,393.03	150.59	-151.18	0.00	0.00	0.00



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well BS2-5W #366H
Company:	XTO Energy	TVD Reference:	RKB = 25' @ 3538.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 25' @ 3538.00usft
Site:	Big Eddy Unit DI 29	North Reference:	Grid
Well:	BS2-5W #366H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PERMIT		

Planned Survey										
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)	
8,722.95	35.56	2.54	7,689.00	3,406.36	151.18	-151.78	0.00	0.00	0.00	
Bone Spring										
8,800.00	35.56	2.54	7,751.69	3,451.12	153.17	-153.77	0.00	0.00	0.00	
8,897.49	35.56	2.54	7,831.00	3,507.76	155.68	-156.29	0.00	0.00	0.00	
Avalon Sand										
8,900.00	35.56	2.54	7,833.04	3,509.22	155.75	-156.36	0.00	0.00	0.00	
9,000.00	35.56	2.54	7,914.40	3,567.31	158.32	-158.95	0.00	0.00	0.00	
9,100.00	35.56	2.54	7,995.75	3,625.40	160.90	-161.54	0.00	0.00	0.00	
9,200.00	35.56	2.54	8,077.11	3,683.49	163.48	-164.12	0.00	0.00	0.00	
9,300.00	35.56	2.54	8,158.46	3,741.58	166.06	-166.71	0.00	0.00	0.00	
9,400.00	35.56	2.54	8,239.82	3,799.68	168.64	-169.30	0.00	0.00	0.00	
9,492.41	35.56	2.54	8,315.00	3,853.36	171.02	-171.69	0.00	0.00	0.00	
Lower Avalon Shale										
9,500.00	35.56	2.54	8,321.17	3,857.77	171.22	-171.89	0.00	0.00	0.00	
9,511.95	35.56	2.54	8,330.90	3,864.71	171.52	-172.20	0.00	0.00	0.00	
9,550.00	35.62	356.00	8,361.85	3,886.82	171.24	-171.92	10.00	0.17	-17.19	
9,600.00	36.23	347.54	8,402.36	3,915.80	167.04	-167.72	10.00	1.23	-16.92	
9,650.00	37.42	339.43	8,442.41	3,944.47	158.51	-159.19	10.00	2.38	-16.22	
9,700.00	39.13	331.84	8,481.68	3,972.62	145.71	-146.41	10.00	3.42	-15.18	
9,750.00	41.30	324.86	8,519.88	4,000.04	128.76	-129.46	10.00	4.33	-13.97	
9,800.00	43.84	318.49	8,556.72	4,026.51	107.77	-108.48	10.00	5.10	-12.72	
9,850.00	46.71	312.73	8,591.91	4,051.85	82.91	-83.62	10.00	5.74	-11.53	
9,900.00	49.85	307.50	8,625.19	4,075.84	54.37	-55.08	10.00	6.27	-10.45	
9,950.00	53.19	302.76	8,656.31	4,098.32	22.35	-23.07	10.00	6.69	-9.50	
10,000.00	56.71	298.41	8,685.03	4,119.11	-12.88	12.16	10.00	7.04	-8.68	
10,050.00	60.37	294.42	8,711.13	4,138.05	-51.07	50.35	10.00	7.32	-8.00	
10,066.23	61.58	293.18	8,719.00	4,143.77	-64.06	63.33	10.00	7.47	-7.60	
First Bone Spring Sand										
10,100.00	64.14	290.70	8,734.41	4,154.99	-91.93	91.21	10.00	7.57	-7.34	
10,150.00	68.00	287.22	8,754.69	4,169.82	-135.14	134.41	10.00	7.72	-6.96	
10,200.00	71.92	283.93	8,771.82	4,182.41	-180.38	179.65	10.00	7.85	-6.59	
10,250.00	75.91	280.78	8,785.68	4,192.67	-227.30	226.56	10.00	7.96	-6.30	
10,300.00	79.93	277.74	8,796.14	4,200.52	-275.54	274.80	10.00	8.04	-6.08	
10,350.00	83.97	274.77	8,803.15	4,205.91	-324.73	324.00	10.00	8.09	-5.93	
10,400.00	88.04	271.85	8,806.63	4,208.79	-374.51	373.78	10.00	8.13	-5.84	
10,432.00	90.64	269.99	8,807.00	4,209.30	-406.50	405.77	10.00	8.14	-5.81	
Landing Point										
10,500.00	90.64	269.99	8,806.24	4,209.29	-474.50	473.76	0.00	0.00	0.00	
10,600.00	90.64	269.99	8,805.12	4,209.27	-574.49	573.76	0.00	0.00	0.00	
10,700.00	90.64	269.99	8,804.01	4,209.25	-674.49	673.75	0.00	0.00	0.00	
10,800.00	90.64	269.99	8,802.89	4,209.23	-774.48	773.75	0.00	0.00	0.00	
10,900.00	90.64	269.99	8,801.77	4,209.21	-874.47	873.74	0.00	0.00	0.00	
11,000.00	90.64	269.99	8,800.66	4,209.20	-974.47	973.73	0.00	0.00	0.00	
11,100.00	90.64	269.99	8,799.54	4,209.18	-1,074.46	1,073.73	0.00	0.00	0.00	
11,200.00	90.64	269.99	8,798.42	4,209.16	-1,174.46	1,173.72	0.00	0.00	0.00	
11,300.00	90.64	269.99	8,797.30	4,209.14	-1,274.45	1,273.71	0.00	0.00	0.00	
11,400.00	90.64	269.99	8,796.19	4,209.12	-1,374.44	1,373.71	0.00	0.00	0.00	
11,500.00	90.64	269.99	8,795.07	4,209.11	-1,474.44	1,473.70	0.00	0.00	0.00	
11,600.00	90.64	269.99	8,793.95	4,209.09	-1,574.43	1,573.70	0.00	0.00	0.00	
11,700.00	90.64	269.99	8,792.84	4,209.07	-1,674.42	1,673.69	0.00	0.00	0.00	
11,800.00	90.64	269.99	8,791.72	4,209.05	-1,774.42	1,773.68	0.00	0.00	0.00	
11,900.00	90.64	269.99	8,790.60	4,209.03	-1,874.41	1,873.68	0.00	0.00	0.00	
12,000.00	90.64	269.99	8,789.49	4,209.01	-1,974.41	1,973.67	0.00	0.00	0.00	



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Well:	BS2-5W #366H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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Planned Survey

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)
12,100.00	90.64	269.99	8,788.37	4,209.00	-2,074.40	2,073.66	0.00	0.00	0.00
12,200.00	90.64	269.99	8,787.25	4,208.98	-2,174.39	2,173.66	0.00	0.00	0.00
12,300.00	90.64	269.99	8,786.13	4,208.96	-2,274.39	2,273.65	0.00	0.00	0.00
12,400.00	90.64	269.99	8,785.02	4,208.94	-2,374.38	2,373.65	0.00	0.00	0.00
12,500.00	90.64	269.99	8,783.90	4,208.92	-2,474.37	2,473.64	0.00	0.00	0.00
12,600.00	90.64	269.99	8,782.78	4,208.90	-2,574.37	2,573.63	0.00	0.00	0.00
12,700.00	90.64	269.99	8,781.67	4,208.89	-2,674.36	2,673.63	0.00	0.00	0.00
12,800.00	90.64	269.99	8,780.55	4,208.87	-2,774.36	2,773.62	0.00	0.00	0.00
12,900.00	90.64	269.99	8,779.43	4,208.85	-2,874.35	2,873.61	0.00	0.00	0.00
13,000.00	90.64	269.99	8,778.32	4,208.83	-2,974.34	2,973.61	0.00	0.00	0.00
13,100.00	90.64	269.99	8,777.20	4,208.81	-3,074.34	3,073.60	0.00	0.00	0.00
13,200.00	90.64	269.99	8,776.08	4,208.80	-3,174.33	3,173.60	0.00	0.00	0.00
13,300.00	90.64	269.99	8,774.96	4,208.78	-3,274.32	3,273.59	0.00	0.00	0.00
13,400.00	90.64	269.99	8,773.85	4,208.76	-3,374.32	3,373.58	0.00	0.00	0.00
13,500.00	90.64	269.99	8,772.73	4,208.74	-3,474.31	3,473.58	0.00	0.00	0.00
13,600.00	90.64	269.99	8,771.61	4,208.72	-3,574.31	3,573.57	0.00	0.00	0.00
13,700.00	90.64	269.99	8,770.50	4,208.70	-3,674.30	3,673.56	0.00	0.00	0.00
13,800.00	90.64	269.99	8,769.38	4,208.69	-3,774.29	3,773.56	0.00	0.00	0.00
13,900.00	90.64	269.99	8,768.26	4,208.67	-3,874.29	3,873.55	0.00	0.00	0.00
14,000.00	90.64	269.99	8,767.15	4,208.65	-3,974.28	3,973.55	0.00	0.00	0.00
14,100.00	90.64	269.99	8,766.03	4,208.63	-4,074.27	4,073.54	0.00	0.00	0.00
14,200.00	90.64	269.99	8,764.91	4,208.61	-4,174.27	4,173.53	0.00	0.00	0.00
14,300.00	90.64	269.99	8,763.80	4,208.59	-4,274.26	4,273.53	0.00	0.00	0.00
14,400.00	90.64	269.99	8,762.68	4,208.58	-4,374.26	4,373.52	0.00	0.00	0.00
14,500.00	90.64	269.99	8,761.56	4,208.56	-4,474.25	4,473.51	0.00	0.00	0.00
14,600.00	90.64	269.99	8,760.44	4,208.54	-4,574.24	4,573.51	0.00	0.00	0.00
14,700.00	90.64	269.99	8,759.33	4,208.52	-4,674.24	4,673.50	0.00	0.00	0.00
14,800.00	90.64	269.99	8,758.21	4,208.50	-4,774.23	4,773.50	0.00	0.00	0.00
14,900.00	90.64	269.99	8,757.09	4,208.48	-4,874.22	4,873.49	0.00	0.00	0.00
15,000.00	90.64	269.99	8,755.98	4,208.47	-4,974.22	4,973.48	0.00	0.00	0.00
15,100.00	90.64	269.99	8,754.86	4,208.45	-5,074.21	5,073.48	0.00	0.00	0.00
15,200.00	90.64	269.99	8,753.74	4,208.43	-5,174.21	5,173.47	0.00	0.00	0.00
15,300.00	90.64	269.99	8,752.63	4,208.41	-5,274.20	5,273.46	0.00	0.00	0.00
15,400.00	90.64	269.99	8,751.51	4,208.39	-5,374.19	5,373.46	0.00	0.00	0.00
15,500.00	90.64	269.99	8,750.39	4,208.38	-5,474.19	5,473.45	0.00	0.00	0.00
15,600.00	90.64	269.99	8,749.27	4,208.36	-5,574.18	5,573.45	0.00	0.00	0.00
15,700.00	90.64	269.99	8,748.16	4,208.34	-5,674.17	5,673.44	0.00	0.00	0.00
15,800.00	90.64	269.99	8,747.04	4,208.32	-5,774.17	5,773.43	0.00	0.00	0.00
15,900.00	90.64	269.99	8,745.92	4,208.30	-5,874.16	5,873.43	0.00	0.00	0.00
16,000.00	90.64	269.99	8,744.81	4,208.28	-5,974.16	5,973.42	0.00	0.00	0.00
16,100.00	90.64	269.99	8,743.69	4,208.27	-6,074.15	6,073.41	0.00	0.00	0.00
16,200.00	90.64	269.99	8,742.57	4,208.25	-6,174.14	6,173.41	0.00	0.00	0.00
16,300.00	90.64	269.99	8,741.46	4,208.23	-6,274.14	6,273.40	0.00	0.00	0.00
16,400.00	90.64	269.99	8,740.34	4,208.21	-6,374.13	6,373.40	0.00	0.00	0.00
16,500.00	90.64	269.99	8,739.22	4,208.19	-6,474.12	6,473.39	0.00	0.00	0.00
16,600.00	90.64	269.99	8,738.10	4,208.17	-6,574.12	6,573.38	0.00	0.00	0.00
16,700.00	90.64	269.99	8,736.99	4,208.16	-6,674.11	6,673.38	0.00	0.00	0.00
16,800.00	90.64	269.99	8,735.87	4,208.14	-6,774.11	6,773.37	0.00	0.00	0.00
16,900.00	90.64	269.99	8,734.75	4,208.12	-6,874.10	6,873.36	0.00	0.00	0.00
17,000.00	90.64	269.99	8,733.64	4,208.10	-6,974.09	6,973.36	0.00	0.00	0.00
17,100.00	90.64	269.99	8,732.52	4,208.08	-7,074.09	7,073.35	0.00	0.00	0.00
17,200.00	90.64	269.99	8,731.40	4,208.07	-7,174.08	7,173.35	0.00	0.00	0.00
17,300.00	90.64	269.99	8,730.29	4,208.05	-7,274.07	7,273.34	0.00	0.00	0.00
17,400.00	90.64	269.99	8,729.17	4,208.03	-7,374.07	7,373.33	0.00	0.00	0.00



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well BS2-5W #366H
Company:	XTO Energy	TVD Reference:	RKB = 25' @ 3538.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 25' @ 3538.00usft
Site:	Big Eddy Unit DI 29	North Reference:	Grid
Well:	BS2-5W #366H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PERMIT		

Planned Survey									
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)
17,500.00	90.64	269.99	8,728.05	4,208.01	-7,474.06	7,473.33	0.00	0.00	0.00
17,600.00	90.64	269.99	8,726.93	4,207.99	-7,574.06	7,573.32	0.00	0.00	0.00
17,700.00	90.64	269.99	8,725.82	4,207.97	-7,674.05	7,673.32	0.00	0.00	0.00
17,800.00	90.64	269.99	8,724.70	4,207.96	-7,774.04	7,773.31	0.00	0.00	0.00
17,900.00	90.64	269.99	8,723.58	4,207.94	-7,874.04	7,873.30	0.00	0.00	0.00
18,000.00	90.64	269.99	8,722.47	4,207.92	-7,974.03	7,973.30	0.00	0.00	0.00
18,100.00	90.64	269.99	8,721.35	4,207.90	-8,074.02	8,073.29	0.00	0.00	0.00
18,200.00	90.64	269.99	8,720.23	4,207.88	-8,174.02	8,173.28	0.00	0.00	0.00
18,300.00	90.64	269.99	8,719.12	4,207.86	-8,274.01	8,273.28	0.00	0.00	0.00
18,400.00	90.64	269.99	8,718.00	4,207.85	-8,374.01	8,373.27	0.00	0.00	0.00
18,500.00	90.64	269.99	8,716.88	4,207.83	-8,474.00	8,473.27	0.00	0.00	0.00
18,600.00	90.64	269.99	8,715.76	4,207.81	-8,573.99	8,573.26	0.00	0.00	0.00
18,700.00	90.64	269.99	8,714.65	4,207.79	-8,673.99	8,673.25	0.00	0.00	0.00
18,800.00	90.64	269.99	8,713.53	4,207.77	-8,773.98	8,773.25	0.00	0.00	0.00
18,900.00	90.64	269.99	8,712.41	4,207.76	-8,873.97	8,873.24	0.00	0.00	0.00
19,000.00	90.64	269.99	8,711.30	4,207.74	-8,973.97	8,973.23	0.00	0.00	0.00
19,100.00	90.64	269.99	8,710.18	4,207.72	-9,073.96	9,073.23	0.00	0.00	0.00
19,200.00	90.64	269.99	8,709.06	4,207.70	-9,173.96	9,173.22	0.00	0.00	0.00
19,300.00	90.64	269.99	8,707.95	4,207.68	-9,273.95	9,273.22	0.00	0.00	0.00
19,400.00	90.64	269.99	8,706.83	4,207.66	-9,373.94	9,373.21	0.00	0.00	0.00
19,500.00	90.64	269.99	8,705.71	4,207.65	-9,473.94	9,473.20	0.00	0.00	0.00
19,600.00	90.64	269.99	8,704.59	4,207.63	-9,573.93	9,573.20	0.00	0.00	0.00
19,700.00	90.64	269.99	8,703.48	4,207.61	-9,673.92	9,673.19	0.00	0.00	0.00
19,800.00	90.64	269.99	8,702.36	4,207.59	-9,773.92	9,773.18	0.00	0.00	0.00
19,900.00	90.64	269.99	8,701.24	4,207.57	-9,873.91	9,873.18	0.00	0.00	0.00
20,000.00	90.64	269.99	8,700.13	4,207.55	-9,973.91	9,973.17	0.00	0.00	0.00
20,100.00	90.64	269.99	8,699.01	4,207.54	-10,073.90	10,073.17	0.00	0.00	0.00
20,200.00	90.64	269.99	8,697.89	4,207.52	-10,173.89	10,173.16	0.00	0.00	0.00
20,300.00	90.64	269.99	8,696.78	4,207.50	-10,273.89	10,273.15	0.00	0.00	0.00
20,400.00	90.64	269.99	8,695.66	4,207.48	-10,373.88	10,373.15	0.00	0.00	0.00
20,500.00	90.64	269.99	8,694.54	4,207.46	-10,473.87	10,473.14	0.00	0.00	0.00
20,600.00	90.64	269.99	8,693.42	4,207.45	-10,573.87	10,573.13	0.00	0.00	0.00
20,700.00	90.64	269.99	8,692.31	4,207.43	-10,673.86	10,673.13	0.00	0.00	0.00
20,796.24	90.64	269.99	8,691.23	4,207.41	-10,770.10	10,769.37	0.00	0.00	0.00
20,800.00	90.64	269.99	8,691.19	4,207.41	-10,773.86	10,773.12	0.00	0.00	0.00
20,846.25	90.64	269.99	8,690.67	4,207.40	-10,820.10	10,819.37	0.00	0.00	0.00



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well BS2-5W #366H
Company:	XTO Energy	TVD Reference:	RKB = 25' @ 3538.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 25' @ 3538.00usft
Site:	Big Eddy Unit DI 29	North Reference:	Grid
Well:	BS2-5W #366H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PERMIT		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
BEU-DI29 #366H: SH - plan hits target center - Point	0.00	0.01	0.00	0.00	0.00	570,436.80	670,950.80	32.567013	-103.778432
BEU-DI29 #366H: PB - plan hits target center - Point	0.00	0.01	8,690.67	4,207.40	-10,820.10	574,644.20	660,130.70	32.578728	-103.813486
BEU-DI29 #366H: LTI - plan misses target center by 0.09usft at 20796.24usft MD (8691.23 TVD, 4207.41 N, -10770.10 E) - Point	0.00	0.01	8,691.23	4,207.50	-10,770.10	574,644.30	660,180.70	32.578728	-103.813323
BEU-DI29 #366H: FTI - plan hits target center - Point	0.00	0.01	8,807.00	4,209.30	-406.50	574,646.10	670,544.30	32.578589	-103.779680

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
905.00	905.00	Rustler				
1,261.00	1,261.00	Salado				
2,421.52	2,420.00	Base Salt				
2,867.18	2,854.00	Capitan				
5,265.27	4,876.00	Delaware Sand				
5,491.43	5,060.00	Base Manzanita				
6,789.45	6,116.00	Brushy Canyon				
8,405.82	7,431.00	Basal Brushy Canyon				
8,687.30	7,660.00	Base Brushy Canyon Sands				
8,722.95	7,689.00	Bone Spring				
8,897.49	7,831.00	Avalon Sand				
9,492.41	8,315.00	Lower Avalon Shale				
10,066.23	8,719.00	First Bone Spring Sand				
10,432.00	8,807.00	Landing Point				



APD ID: 10400037564

Submission Date: 01/21/2019

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: BIG EDDY UNIT DI 29 BS2-5W

Well Number: 366H

Well Type: OIL WELL

Well Work Type: Drill

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 description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: BIG EDDY UNIT DI 29 BS2-5W

Well Number: 366H

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 disturbance (acres):

PWD surface owner:

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Describe 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?

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: BIG EDDY UNIT DI 29 BS2-5W

Well Number: 366H

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

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

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

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Other PWD discharge volume (bbl/day):

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: BIG EDDY UNIT DI 29 BS2-5W

Well Number: 366H

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

12/16/2019

APD ID: 10400037564

Submission Date: 01/21/2019

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: BIG EDDY UNIT DI 29 BS2-5W

Well Number: 366H

Well Type: OIL WELL

Well Work Type: Drill

Showing record
information for
this record.

[Show Final Text](#)

Bond Information

Federal/Indian APD: FED

BLM Bond number: COB000050

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: