

Form 3160-3
(June 2015)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 type="checkbox"/> DRILL <input type="checkbox"/> REENTER 1b. Type of Well: <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other 1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		5. Lease Serial No. 6. If Indian, Allottee or Tribe Name 7. If Unit or CA Agreement, Name and No. 8. Lease Name and Well No.
2. Name of Operator		9. API Well No. 30 015 47007
3a. Address	3b. Phone No. (include area code)	10. Field and Pool, or Exploratory
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		11. Sec., T. R. M. or Blk. and Survey or Area
14. Distance in miles and direction from nearest town or post office*		12. County or Parish 13. State
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
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.
2. A Drilling Plan.
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). | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM. |
|---|---|

25. Signature	Name (Printed/Typed)	Date
Title		
Approved by (Signature)	Name (Printed/Typed)	Date
Title		
Office		

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.

Entered 04/09/2020 - Kurt Simmons NMOC

(Continued on page 2)

*(Instructions on page 2)

APPROVED WITH CONDITIONS
 Approval Date: 03/04/2020

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 30-015- 47007	² Pool Code	³ Pool Name
⁴ Property Code 325535	⁵ Property Name JAMES RANCH UNIT DI 1	⁶ Well Number 503H
⁷ OGRID No. 373075	⁸ Operator Name XTO PERMIAN OPERATING, LLC.	⁹ Elevation 3,167'

¹⁰ Surface Location

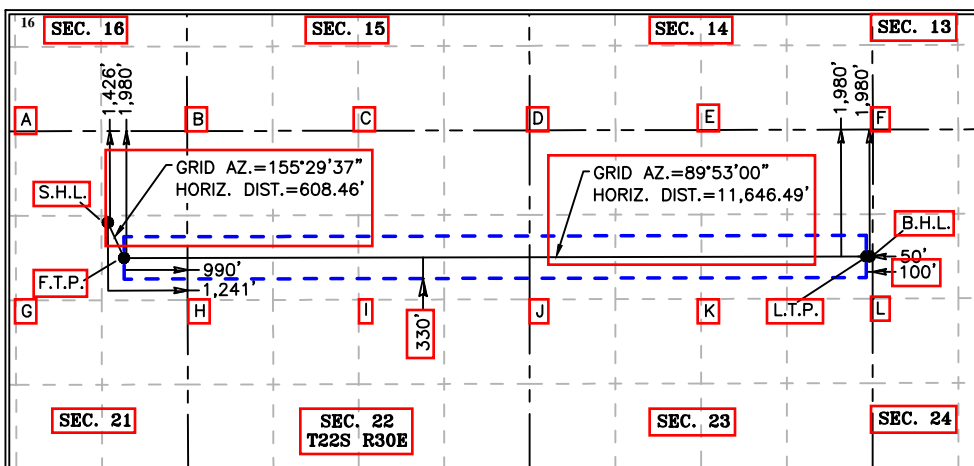
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	21	22S	30E		1,426	NORTH	1,241	EAST	EDDY

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	23	22S	30E		1,980	NORTH	50	EAST	EDDY

¹² Dedicated Acres	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.



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 unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at 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

Signature Date

Printed Name

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.

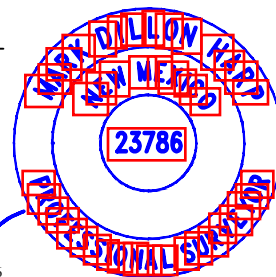
08-26-2019

Date of Survey

Signature and Seal of
Professional Surveyor:

MARK DILLON HARP 23786

Certificate Number



TM

2019082690

Intent ☐ As Drilled ☐

API #		
Operator Name:	Property Name:	Well Number

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

Is this well the defining well for the Horizontal Spacing Unit? ☐

Is this well an infill well? ☐

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #		
Operator Name:	Property Name:	Well Number

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	XTO Permian Operating LLC
WELL NAME & NO.:	James Ranch Unit DI 1 503H
LOCATION:	Sec 21-22S-30E-NMP
COUNTY:	Eddy County, New Mexico

COA

H2S	<input type="radio"/> Yes	<input checked="" type="radio"/> No	
Potash	<input type="radio"/> None	<input checked="" type="radio"/> Secretary	<input type="radio"/> R-111-P
Cave/Karst Potential	<input type="radio"/> Low	<input checked="" type="radio"/> Medium	<input type="radio"/> High
Cave/Karst Potential	<input type="radio"/> Critical		
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input type="radio"/> Conventional	<input checked="" type="radio"/> Multibowl	<input type="radio"/> Both
Other	<input type="checkbox"/> 4 String Area	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP
Other	<input checked="" type="checkbox"/> Fluid Filled	<input type="checkbox"/> Cement Squeeze	<input type="checkbox"/> Pilot Hole
Special Requirements	<input type="checkbox"/> Water Disposal	<input type="checkbox"/> COM	<input type="checkbox"/> Unit

A. HYDROGEN SULFIDE

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.

B. CASING

1. The 18 5/8 inch surface casing shall be set at approximately 458 feet (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - 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 will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

- 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.

Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.

- 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 or potash.

❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

❖ In Secretary Potash Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

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

- Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

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

- Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

C. PRESSURE CONTROL

- 1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'
- 2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** 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. 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.
- e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

GENERAL 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

☒ Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575)
393-3612

1. 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.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. 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 are located, this does not include the dog house or stairway area.

3. 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.

A. CASING

1. 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.
2. 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. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: 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 at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. 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.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the

formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. 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.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. 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 RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. 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.
3. 5M or higher 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. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - 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. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
 - 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 4 hours in advance for a representative to witness the tests.
- a. In a water basin, 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. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. 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, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
 - c. 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).
 - d. 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.
 - e. The results of the test shall be reported to the appropriate BLM office.
 - f. 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.
 - g. 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.

- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. 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.



APD ID: 10400048830

Submission Date: 10/25/2019

Highlighted data
reflects the most
recent changes

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: JAMES RANCH UNIT DI 1

Well Number: 503H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
556740	QUATERNARY	3167	0	0	ALLUVIUM, OTHER : Alluvium	NONE, USEABLE WATER	N
556731	RUSTLER	2980	187	187	SANDSTONE	USEABLE WATER	N
556732	TOP SALT	2611	556	556	SALT	POTASH	N
556733	BASE OF SALT	-197	3364	3364	SALT	POTASH	N
556735	BELL CANYON	-425	3592	3592	SANDSTONE	NATURAL GAS, OIL, OTHER : Produced Water	N
556736	BRUSHY CANYON	-2854	6021	6021	SANDSTONE	NATURAL GAS, OIL, OTHER : Produced Water	N
556729	BONE SPRING 1ST	-5212	8379	8379	SANDSTONE	NATURAL GAS, OTHER, POTASH : Produced Water	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 2M

Rating Depth: 458

Equipment: The blow out preventer equipment (BOP) for this well consists of a 13-5/8 minimum 2M Hydril and a 13-5/8 minimum 2M 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 manufacturers 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.

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 2,000 psi. All BOP tests will include a low pressure test as per BLM regulations. The 2M BOP diagram is attached. Blind rams will be function tested each trip, pipe rams will be function tested each day.

Choke Diagram Attachment:

JRU_DI_1_2MCM_20191024092413.pdf

BOP Diagram Attachment:

JRU_DI_1_2MBOP_20191024092422.pdf

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: JAMES RANCH UNIT DI 1

Well Number: 503H

Pressure Rating (PSI): 3M

Rating Depth: 8610

Equipment: The blow out preventer equipment (BOP) for the permanent wellhead consists of a 13-5/8" minimum 3M Hydril and a 13-5/8" minimum 3M Double Ram BOP. MASP should not exceed 2481 psi.

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. 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. Operator will test the 9-5/8" casing per BLM Onshore Order 2 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 nipping up on the 13-5/8" 5M bradenhead and flange, the BOP test will be limited to 3000psi. All BOP tests will include a low pressure test as per BLM regulations. The 3M BOP diagrams are attached. Blind rams will be functioned tested each trip, pipe rams will be functioned tested each day. Because the 9-5/8" casing will be run with a mandrel hanger through the 13-3/8" BOP without breaking any connections, no additional pressure test would be required.

Choke Diagram Attachment:

JRU_DI1_3M_CM_20171219070127.pdf

BOP Diagram Attachment:

JRU_DI1_3M_BOP_20171219070134.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	458	0	458	3167	2709	458	H-40	87.5	ST&C	3.04	1.54	DRY	13.95	DRY	13.95
2	INTERMEDIATE	17.5	13.375	NEW	API	N	0	3478	0	3478		-311	3478	J-55	68	ST&C	1.81	1.76	DRY	2.85	DRY	2.85
3	INTERMEDIATE	12.25	9.625	NEW	API	N	0	7574	0	7574	3167	-4407	7574	HCL-80	40	LT&C	2.68	2.35	DRY	2.4	DRY	2.4
4	PRODUCTION	8.75	5.5	NEW	API	N	0	20615	0	8610		-5443	20615	P-110	17	BUTT	1.72	1.12	DRY	2.51	DRY	2.51

Casing Attachments

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: JAMES RANCH UNIT DI 1

Well Number: 503H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

JRU_DI_1_503H_Csg_20191025081604.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

JRU_DI_1_503H_Csg_20191025081647.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

JRU_DI_1_503H_Csg_20191025081745.pdf

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: JAMES RANCH UNIT DI 1

Well Number: 503H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

JRU_DI_1_503H_Csg_20191025082548.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
INTERMEDIATE	Lead		0	0	2180	1.88	12.9	4098.39	100	Halcem-C	2% CaCl
INTERMEDIATE	Tail				460	1.33	14.8	611.8	100	HalCem-C	2% CaCl
SURFACE	Lead		0	458	840	1.35	14.8	618.3	100	Halcem-C	2% CaCl
SURFACE	Tail				2360	1.87	12.9	4413.2	100	EconoCem-HLTRRC	None
INTERMEDIATE	Lead		0	3478	2360	1.87	12.9	4413.2	100	EconoCem-HLTRRC	None
INTERMEDIATE	Tail				300	1.35	14.8	405	100	Halcem-C	2% CaCl
PRODUCTION	Lead		7074	20615	3890	1.61	13.2	6262.9	30	VersaCem	None

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: JAMES RANCH UNIT DI 1

Well Number: 503H

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
3478	7574	OTHER : FW/Cut Bring	8.7	9.4							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
0	458	OTHER : FW/Native	8.4	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
458	3478	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

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: JAMES RANCH UNIT DI 1

Well Number: 503H

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
											as a closed loop system
7574	2061 5	OTHER : OBM	9.4	9.7							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:

CEMENT BOND LOG,COMPENSATED NEUTRON LOG,DIRECTIONAL SURVEY,GAMMA RAY LOG,MUD LOG/GEOLOGIC LITHOLOGY LOG,

Coring operation description for the well:

No coring will take place on this well.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4208

Anticipated Surface Pressure: 2313

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 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:

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: JAMES RANCH UNIT DI 1

Well Number: 503H

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

JRU_DI_1_H2S_Dia_20191024092622.pdf

JRU_DI_1_H2S_Plan_20191024092634.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

JRU_DI_1_503H_DD_20191008101207.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Other Variance attachment:

JRU_DI_1_FH_20191024092731.pdf

JRU_DI_1_MBS5.5_20191024092740.pdf

Casing Design

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
24"	0' – 458'	18-5/8"	87.5	STC	H-40	New	1.54	3.04	13.95
17-1/2"	0' – 3478'	13-3/8"	68	STC	J-55	New	1.76	1.81	2.85
12-1/4"	0' – 7574'	9-5/8"	40	LTC	HCL-80	New	2.35	2.68	2.40
8-3/4"	0' – 20615'	5-1/2"	17	BTC	P-110	New	1.12	1.72	2.51

- XTO requests to not utilize centralizers in the curve and lateral
- 18-5/8" Collapse analyzed using 75% evacuation. Casing to be filled while running.
- 13-3/8" Collapse analyzed using 50% evacuation based on regional experience.
- 9-5/8" Collapse analyzed using 33% evacuation based on regional experience.
- 5-1/2" Tension calculated using vertical hanging weight plus the lateral weight multiplied by a friction factor of 0.35
- Test on 2M Annular & Casing will be limited to 70% burst of the casing or 1500 psi, whichever is less

Wellhead:

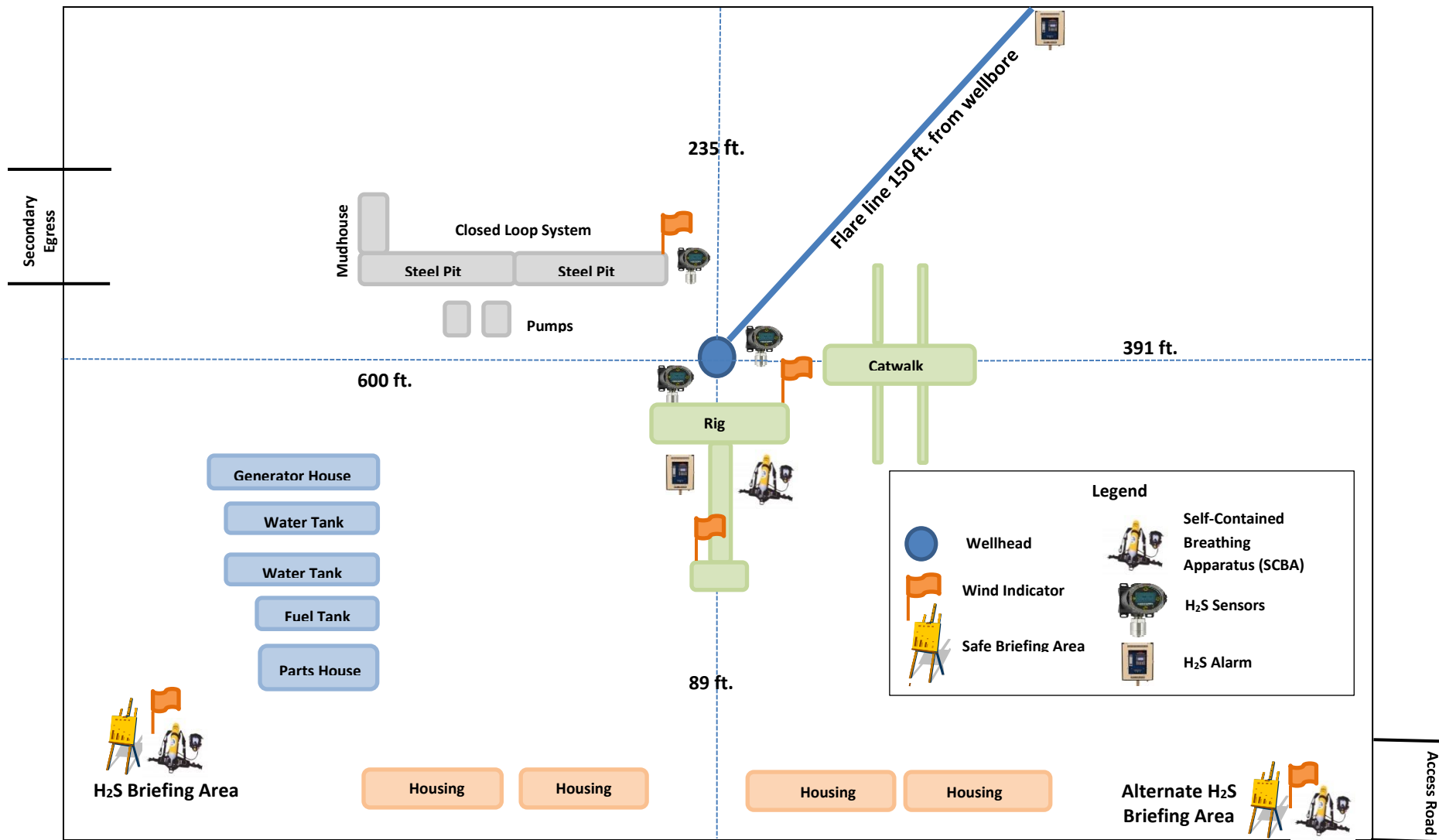
Temporary Wellhead

- 18-5/8" SOW bottom x 21-1/4" 2M top flange.
- 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.
- Operator will test the 9-5/8" casing per BLM Onshore Order 2
- Wellhead Manufacturer representative will not be present for BOP test plug installation



↗
Prevailing Winds
Direction SW

H2S Briefing Areas and Alarm Locations



BOPCO, L.P.

6401 Holiday Hill Road
Midland, Tx 79707
(432) 683-2277

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

BOPCO, L.P. 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

BOPCO, L.P. 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)

James Ranch Unit DI 1

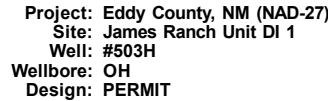
#503H

OH

Plan: PERMIT

Standard Planning Report

09 September, 2019



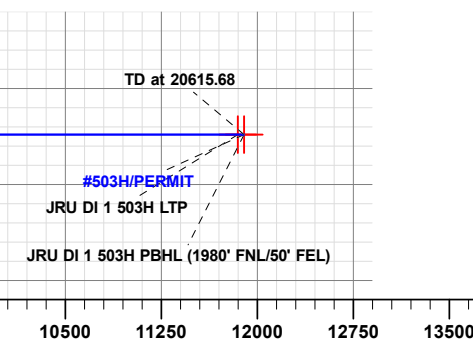
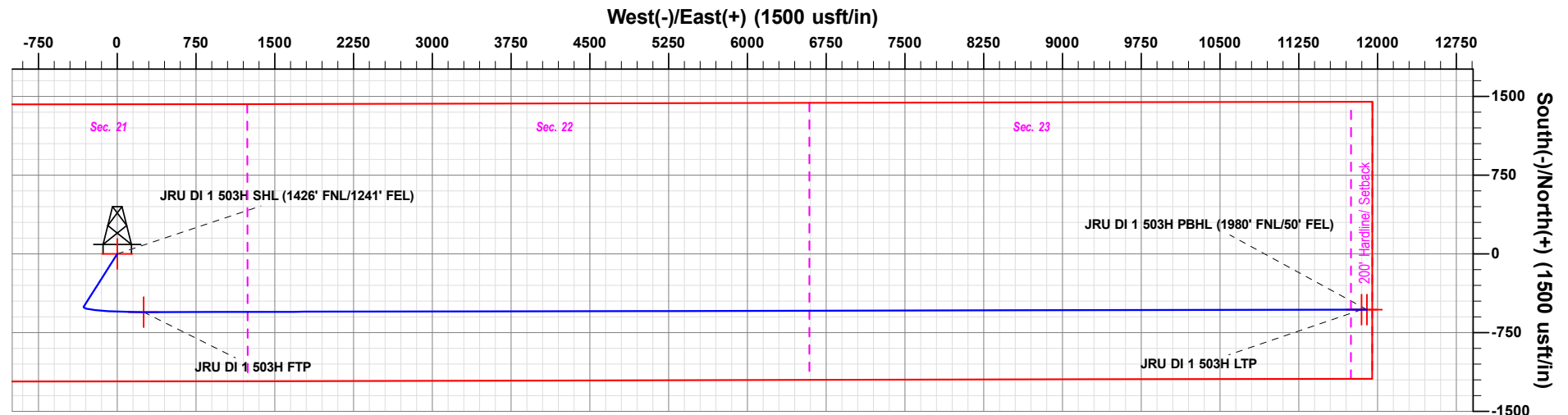
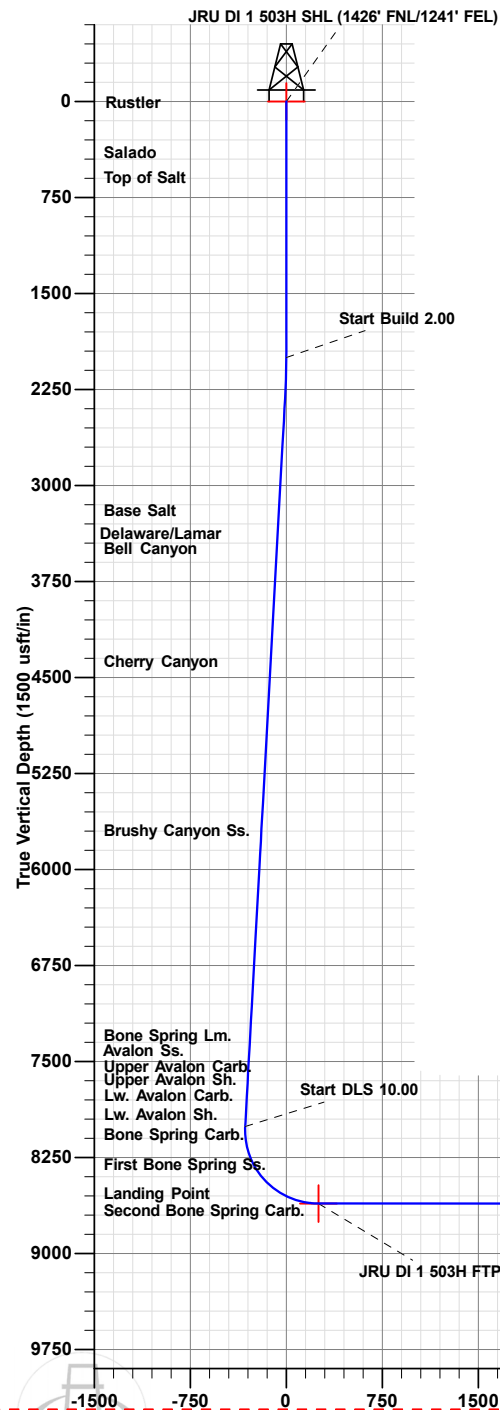
Rig Name:
RKB = 25' @ 3192.00usft
Ground Level: 3167.00
Easting
639602.60 32

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00
3	2290.33	5.81	212.44	2289.84	-12.41	-7.88	2.00	212.44	-7.91
4	8038.04	5.81	212.44	8008.06	-503.17	-319.81	0.00	0.00	-320.87
5	8969.25	90.00	89.88	8610.00	-553.60	252.40	10.00	-122.42	251.24
6	20565.68	90.00	89.88	8610.00	-529.90	11848.80	0.00	0.00	11847.66
7	20615.68	90.00	89.88	8610.00	-529.80	11898.80	0.00	0.00	11897.66

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
JRU DI 1 503H SHL (1426' FNL/1241' FEL)	0.00	0.00	0.00	502581.90	639602.60	32.3809014	-103.8811173	Point
JRU DI 1 503H FTP	8610.00	-553.60	252.40	502028.30	639855.00	32.3793767	-103.8803073	Point
JRU DI 1 503H LTP	8610.00	-529.90	11848.80	502052.00	651451.40	32.3793013	-103.8427444	Point
JRU DI 1 503H PBHL (1980' FNL/50' FEL)	8610.00	-529.80	11898.80	502052.10	651501.40	32.3793009	-103.8425824	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

Plan: PERMIT (#503H/OH)

Created By: Matthew May Date: 12:03, September 09 2019

FORMATION TOP DETAILS

TVDPath	Formation
152.00	Rustler
483.00	Salado
676.00	Top of Salt
3274.00	Base Salt
3528.00	Delaware/Lamar
3572.00	Bell Canyon
4456.00	Cherry Canyon
5780.00	Brushy Canyon Ss.
7374.00	Bone Spring Lm.
7470.00	Avalon Ss.
7640.00	Upper Avalon Carb.
7722.00	Upper Avalon Sh.
7802.00	Lw. Avalon Carb.
7961.00	Lw. Avalon Sh.
8152.00	Bone Spring Carb.
8385.00	First Bone Spring Ss.
8610.00	Landing Point

The customer should only rely on this document after independently verifying all paths, targets, coordinates, lease and hard lines 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 user.



Planning Report

Database:	EDM 5000.1.13 Single User Db	Local Co-ordinate Reference:	Well #503H
Company:	XTO Energy	TVD Reference:	RKB = 25' @ 3192.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 25' @ 3192.00usft
Site:	James Ranch Unit DI 1	North Reference:	Grid
Well:	#503H	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		James Ranch Unit DI 1			
Site Position:		Northing:	502,465.80 usft	Latitude:	32.3805883
From:	Map	Easting:	639,082.80 usft	Longitude:	-103.8828026
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.24 °

Well	#503H					
Well Position	+N/-S	116.10 usft	Northing:	502,581.90 usft	Latitude:	32.3809014
	+E/-W	519.80 usft	Easting:	639,602.60 usft	Longitude:	-103.8811172
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,167.00 usft

Wellbore	OH				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	09/09/19	6.87	60.13	47,771

Design	PERMIT			
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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	89.88

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	0.00	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,290.33	5.81	212.44	2,289.84	-12.41	-7.88	2.00	2.00	0.00	212.44	
8,038.04	5.81	212.44	8,008.06	-503.17	-319.81	0.00	0.00	0.00	0.00	
8,969.25	90.00	89.88	8,610.00	-553.60	252.40	10.00	9.04	-13.16	-122.42	JRU DI 1 503H FTF
20,565.68	90.00	89.88	8,610.00	-529.90	11,848.80	0.00	0.00	0.00	0.00	JRU DI 1 503H LTP
20,615.68	90.00	89.88	8,610.00	-529.80	11,898.80	0.00	0.00	0.00	0.00	JRU DI 1 503H PBI



Planning Report

Database:	EDM 5000.1.13 Single User Db	Local Co-ordinate Reference:	Well #503H
Company:	XTO Energy	TVD Reference:	RKB = 25' @ 3192.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 25' @ 3192.00usft
Site:	James Ranch Unit DI 1	North Reference:	Grid
Well:	#503H	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
152.00	0.00	0.00	152.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
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
483.00	0.00	0.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00
Salado									
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
676.00	0.00	0.00	676.00	0.00	0.00	0.00	0.00	0.00	0.00
Top of Salt									
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
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
1,300.00	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	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	2.00	212.44	2,099.98	-1.47	-0.94	-0.94	2.00	2.00	0.00
2,200.00	4.00	212.44	2,199.84	-5.89	-3.74	-3.76	2.00	2.00	0.00
2,290.33	5.81	212.44	2,289.84	-12.41	-7.88	-7.91	2.00	2.00	0.00
2,300.00	5.81	212.44	2,299.45	-13.23	-8.41	-8.44	0.00	0.00	0.00
2,400.00	5.81	212.44	2,398.94	-21.77	-13.84	-13.88	0.00	0.00	0.00
2,500.00	5.81	212.44	2,498.43	-30.31	-19.26	-19.33	0.00	0.00	0.00
2,600.00	5.81	212.44	2,597.91	-38.85	-24.69	-24.77	0.00	0.00	0.00
2,700.00	5.81	212.44	2,697.40	-47.39	-30.12	-30.22	0.00	0.00	0.00
2,800.00	5.81	212.44	2,796.89	-55.92	-35.54	-35.66	0.00	0.00	0.00
2,900.00	5.81	212.44	2,896.38	-64.46	-40.97	-41.11	0.00	0.00	0.00
3,000.00	5.81	212.44	2,995.86	-73.00	-46.40	-46.55	0.00	0.00	0.00
3,100.00	5.81	212.44	3,095.35	-81.54	-51.83	-52.00	0.00	0.00	0.00
3,200.00	5.81	212.44	3,194.84	-90.08	-57.25	-57.44	0.00	0.00	0.00
3,279.57	5.81	212.44	3,274.00	-96.87	-61.57	-61.77	0.00	0.00	0.00
Base Salt									
3,300.00	5.81	212.44	3,294.32	-98.62	-62.68	-62.89	0.00	0.00	0.00
3,400.00	5.81	212.44	3,393.81	-107.15	-68.11	-68.33	0.00	0.00	0.00
3,500.00	5.81	212.44	3,493.30	-115.69	-73.53	-73.78	0.00	0.00	0.00
3,534.88	5.81	212.44	3,528.00	-118.67	-75.43	-75.67	0.00	0.00	0.00
Delaware/Lamar									
3,579.11	5.81	212.44	3,572.00	-122.45	-77.83	-78.08	0.00	0.00	0.00
Bell Canyon									
3,600.00	5.81	212.44	3,592.78	-124.23	-78.96	-79.22	0.00	0.00	0.00
3,700.00	5.81	212.44	3,692.27	-132.77	-84.39	-84.67	0.00	0.00	0.00
3,800.00	5.81	212.44	3,791.76	-141.31	-89.81	-90.11	0.00	0.00	0.00
3,900.00	5.81	212.44	3,891.24	-149.85	-95.24	-95.55	0.00	0.00	0.00



Planning Report

Database:	EDM 5000.1.13 Single User Db	Local Co-ordinate Reference:	Well #503H
Company:	XTO Energy	TVD Reference:	RKB = 25' @ 3192.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 25' @ 3192.00usft
Site:	James Ranch Unit DI 1	North Reference:	Grid
Well:	#503H	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)
4,000.00	5.81	212.44	3,990.73	-158.39	-100.67	-101.00	0.00	0.00	0.00
4,100.00	5.81	212.44	4,090.22	-166.92	-106.10	-106.44	0.00	0.00	0.00
4,200.00	5.81	212.44	4,189.70	-175.46	-111.52	-111.89	0.00	0.00	0.00
4,300.00	5.81	212.44	4,289.19	-184.00	-116.95	-117.33	0.00	0.00	0.00
4,400.00	5.81	212.44	4,388.68	-192.54	-122.38	-122.78	0.00	0.00	0.00
4,467.67	5.81	212.44	4,456.00	-198.32	-126.05	-126.46	0.00	0.00	0.00
Cherry Canyon									
4,500.00	5.81	212.44	4,488.17	-201.08	-127.80	-128.22	0.00	0.00	0.00
4,600.00	5.81	212.44	4,587.65	-209.62	-133.23	-133.67	0.00	0.00	0.00
4,700.00	5.81	212.44	4,687.14	-218.16	-138.66	-139.11	0.00	0.00	0.00
4,800.00	5.81	212.44	4,786.63	-226.69	-144.08	-144.56	0.00	0.00	0.00
4,900.00	5.81	212.44	4,886.11	-235.23	-149.51	-150.00	0.00	0.00	0.00
5,000.00	5.81	212.44	4,985.60	-243.77	-154.94	-155.45	0.00	0.00	0.00
5,100.00	5.81	212.44	5,085.09	-252.31	-160.37	-160.89	0.00	0.00	0.00
5,200.00	5.81	212.44	5,184.57	-260.85	-165.79	-166.34	0.00	0.00	0.00
5,300.00	5.81	212.44	5,284.06	-269.39	-171.22	-171.78	0.00	0.00	0.00
5,400.00	5.81	212.44	5,383.55	-277.92	-176.65	-177.23	0.00	0.00	0.00
5,500.00	5.81	212.44	5,483.03	-286.46	-182.07	-182.67	0.00	0.00	0.00
5,600.00	5.81	212.44	5,582.52	-295.00	-187.50	-188.12	0.00	0.00	0.00
5,700.00	5.81	212.44	5,682.01	-303.54	-192.93	-193.56	0.00	0.00	0.00
5,798.50	5.81	212.44	5,780.00	-311.95	-198.27	-198.93	0.00	0.00	0.00
Brushy Canyon Ss.									
5,800.00	5.81	212.44	5,781.50	-312.08	-198.35	-199.01	0.00	0.00	0.00
5,900.00	5.81	212.44	5,880.98	-320.62	-203.78	-204.45	0.00	0.00	0.00
6,000.00	5.81	212.44	5,980.47	-329.16	-209.21	-209.90	0.00	0.00	0.00
6,100.00	5.81	212.44	6,079.96	-337.69	-214.63	-215.34	0.00	0.00	0.00
6,200.00	5.81	212.44	6,179.44	-346.23	-220.06	-220.79	0.00	0.00	0.00
6,300.00	5.81	212.44	6,278.93	-354.77	-225.49	-226.23	0.00	0.00	0.00
6,400.00	5.81	212.44	6,378.42	-363.31	-230.92	-231.68	0.00	0.00	0.00
6,500.00	5.81	212.44	6,477.90	-371.85	-236.34	-237.12	0.00	0.00	0.00
6,600.00	5.81	212.44	6,577.39	-380.39	-241.77	-242.57	0.00	0.00	0.00
6,700.00	5.81	212.44	6,676.88	-388.93	-247.20	-248.01	0.00	0.00	0.00
6,800.00	5.81	212.44	6,776.36	-397.46	-252.62	-253.46	0.00	0.00	0.00
6,900.00	5.81	212.44	6,875.85	-406.00	-258.05	-258.90	0.00	0.00	0.00
7,000.00	5.81	212.44	6,975.34	-414.54	-263.48	-264.35	0.00	0.00	0.00
7,100.00	5.81	212.44	7,074.82	-423.08	-268.90	-269.79	0.00	0.00	0.00
7,200.00	5.81	212.44	7,174.31	-431.62	-274.33	-275.24	0.00	0.00	0.00
7,300.00	5.81	212.44	7,273.80	-440.16	-279.76	-280.68	0.00	0.00	0.00
7,400.00	5.81	212.44	7,373.29	-448.69	-285.19	-286.12	0.00	0.00	0.00
7,400.72	5.81	212.44	7,374.00	-448.76	-285.22	-286.16	0.00	0.00	0.00
Bone Spring Lm.									
7,497.21	5.81	212.44	7,470.00	-457.00	-290.46	-291.42	0.00	0.00	0.00
Avalon Ss.									
7,500.00	5.81	212.44	7,472.77	-457.23	-290.61	-291.57	0.00	0.00	0.00
7,600.00	5.81	212.44	7,572.26	-465.77	-296.04	-297.01	0.00	0.00	0.00
7,668.09	5.81	212.44	7,640.00	-471.59	-299.73	-300.72	0.00	0.00	0.00
Upper Avalon Carb.									
7,700.00	5.81	212.44	7,671.75	-474.31	-301.47	-302.46	0.00	0.00	0.00
7,750.51	5.81	212.44	7,722.00	-478.62	-304.21	-305.21	0.00	0.00	0.00
Upper Avalon Sh.									
7,800.00	5.81	212.44	7,771.23	-482.85	-306.89	-307.90	0.00	0.00	0.00
7,830.93	5.81	212.44	7,802.00	-485.49	-308.57	-309.59	0.00	0.00	0.00
Lw. Avalon Carb.									



Planning Report

Database:	EDM 5000.1.13 Single User Db	Local Co-ordinate Reference:	Well #503H
Company:	XTO Energy	TVD Reference:	RKB = 25' @ 3192.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 25' @ 3192.00usft
Site:	James Ranch Unit DI 1	North Reference:	Grid
Well:	#503H	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)
7,900.00	5.81	212.44	7,870.72	-491.39	-312.32	-313.35	0.00	0.00	0.00
7,990.75	5.81	212.44	7,961.00	-499.14	-317.25	-318.29	0.00	0.00	0.00
Lw. Avalon Sh.									
8,000.00	5.81	212.44	7,970.21	-499.93	-317.75	-318.79	0.00	0.00	0.00
8,038.04	5.81	212.44	8,008.06	-503.17	-319.81	-320.87	0.00	0.00	0.00
8,050.00	5.26	201.37	8,019.96	-504.20	-320.34	-321.39	10.00	-4.55	-92.59
8,100.00	5.78	147.71	8,069.76	-508.46	-319.83	-320.89	10.00	1.04	-107.31
8,150.00	9.44	120.93	8,119.32	-512.70	-314.96	-316.04	10.00	7.31	-53.57
8,183.28	12.40	112.83	8,152.00	-515.49	-309.33	-310.41	10.00	8.90	-24.33
Bone Spring Carb.									
8,200.00	13.95	110.07	8,168.28	-516.88	-305.78	-306.86	10.00	9.27	-16.51
8,250.00	18.71	104.55	8,216.25	-520.96	-292.35	-293.44	10.00	9.52	-11.05
8,300.00	23.56	101.22	8,262.87	-524.92	-274.78	-275.88	10.00	9.71	-6.66
8,350.00	28.46	98.98	8,307.80	-528.73	-253.19	-254.30	10.00	9.81	-4.48
8,400.00	33.39	97.35	8,350.67	-532.35	-227.76	-228.87	10.00	9.86	-3.25
8,442.16	37.56	96.28	8,385.00	-535.25	-203.47	-204.59	10.00	9.89	-2.54
First Bone Spring Ss.									
8,450.00	38.34	96.10	8,391.18	-535.77	-198.67	-199.80	10.00	9.90	-2.26
8,500.00	43.30	95.10	8,429.01	-538.94	-166.16	-167.28	10.00	9.91	-2.00
8,550.00	48.26	94.27	8,463.87	-541.86	-130.45	-131.59	10.00	9.93	-1.67
8,600.00	53.23	93.56	8,495.50	-544.49	-91.84	-92.98	10.00	9.94	-1.43
8,650.00	58.20	92.93	8,523.65	-546.82	-50.60	-51.75	10.00	9.95	-1.25
8,700.00	63.18	92.37	8,548.12	-548.83	-7.06	-8.21	10.00	9.95	-1.12
8,750.00	68.16	91.85	8,568.71	-550.50	38.45	37.30	10.00	9.96	-1.03
8,800.00	73.14	91.37	8,585.27	-551.82	85.59	84.44	10.00	9.96	-0.96
8,850.00	78.12	90.92	8,597.68	-552.79	134.00	132.85	10.00	9.96	-0.91
8,900.00	83.10	90.48	8,605.84	-553.38	183.31	182.15	10.00	9.96	-0.88
8,950.00	88.08	90.05	8,609.68	-553.61	233.15	231.99	10.00	9.96	-0.86
8,969.25	90.00	89.88	8,610.00	-553.60	252.40	251.24	10.00	9.96	-0.85
Landing Point									
9,000.00	90.00	89.88	8,610.00	-553.54	283.15	281.99	0.00	0.00	0.00
9,100.00	90.00	89.88	8,610.00	-553.33	383.15	381.99	0.00	0.00	0.00
9,200.00	90.00	89.88	8,610.00	-553.13	483.15	481.99	0.00	0.00	0.00
9,300.00	90.00	89.88	8,610.00	-552.92	583.15	581.99	0.00	0.00	0.00
9,400.00	90.00	89.88	8,610.00	-552.72	683.15	681.99	0.00	0.00	0.00
9,500.00	90.00	89.88	8,610.00	-552.52	783.15	781.99	0.00	0.00	0.00
9,600.00	90.00	89.88	8,610.00	-552.31	883.15	881.99	0.00	0.00	0.00
9,700.00	90.00	89.88	8,610.00	-552.11	983.14	981.99	0.00	0.00	0.00
9,800.00	90.00	89.88	8,610.00	-551.90	1,083.14	1,081.99	0.00	0.00	0.00
9,900.00	90.00	89.88	8,610.00	-551.70	1,183.14	1,181.99	0.00	0.00	0.00
10,000.00	90.00	89.88	8,610.00	-551.49	1,283.14	1,281.99	0.00	0.00	0.00
10,100.00	90.00	89.88	8,610.00	-551.29	1,383.14	1,381.99	0.00	0.00	0.00
10,200.00	90.00	89.88	8,610.00	-551.08	1,483.14	1,481.99	0.00	0.00	0.00
10,300.00	90.00	89.88	8,610.00	-550.88	1,583.14	1,581.99	0.00	0.00	0.00
10,400.00	90.00	89.88	8,610.00	-550.68	1,683.14	1,681.99	0.00	0.00	0.00
10,500.00	90.00	89.88	8,610.00	-550.47	1,783.14	1,781.99	0.00	0.00	0.00
10,600.00	90.00	89.88	8,610.00	-550.27	1,883.14	1,881.99	0.00	0.00	0.00
10,700.00	90.00	89.88	8,610.00	-550.06	1,983.14	1,981.99	0.00	0.00	0.00
10,800.00	90.00	89.88	8,610.00	-549.86	2,083.14	2,081.99	0.00	0.00	0.00
10,900.00	90.00	89.88	8,610.00	-549.65	2,183.14	2,181.99	0.00	0.00	0.00
11,000.00	90.00	89.88	8,610.00	-549.45	2,283.14	2,281.99	0.00	0.00	0.00
11,100.00	90.00	89.88	8,610.00	-549.25	2,383.14	2,381.99	0.00	0.00	0.00
11,200.00	90.00	89.88	8,610.00	-549.04	2,483.14	2,481.99	0.00	0.00	0.00



Planning Report

Database:	EDM 5000.1.13 Single User Db	Local Co-ordinate Reference:	Well #503H
Company:	XTO Energy	TVD Reference:	RKB = 25' @ 3192.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 25' @ 3192.00usft
Site:	James Ranch Unit DI 1	North Reference:	Grid
Well:	#503H	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)
11,300.00	90.00	89.88	8,610.00	-548.84	2,583.14	2,581.99	0.00	0.00	0.00
11,400.00	90.00	89.88	8,610.00	-548.63	2,683.14	2,681.99	0.00	0.00	0.00
11,500.00	90.00	89.88	8,610.00	-548.43	2,783.14	2,781.99	0.00	0.00	0.00
11,600.00	90.00	89.88	8,610.00	-548.22	2,883.14	2,881.99	0.00	0.00	0.00
11,700.00	90.00	89.88	8,610.00	-548.02	2,983.14	2,981.99	0.00	0.00	0.00
11,800.00	90.00	89.88	8,610.00	-547.82	3,083.14	3,081.99	0.00	0.00	0.00
11,900.00	90.00	89.88	8,610.00	-547.61	3,183.14	3,181.99	0.00	0.00	0.00
12,000.00	90.00	89.88	8,610.00	-547.41	3,283.14	3,281.99	0.00	0.00	0.00
12,100.00	90.00	89.88	8,610.00	-547.20	3,383.14	3,381.99	0.00	0.00	0.00
12,200.00	90.00	89.88	8,610.00	-547.00	3,483.14	3,481.99	0.00	0.00	0.00
12,300.00	90.00	89.88	8,610.00	-546.79	3,583.14	3,581.99	0.00	0.00	0.00
12,400.00	90.00	89.88	8,610.00	-546.59	3,683.14	3,681.99	0.00	0.00	0.00
12,500.00	90.00	89.88	8,610.00	-546.38	3,783.14	3,781.99	0.00	0.00	0.00
12,600.00	90.00	89.88	8,610.00	-546.18	3,883.14	3,881.99	0.00	0.00	0.00
12,700.00	90.00	89.88	8,610.00	-545.98	3,983.14	3,981.99	0.00	0.00	0.00
12,800.00	90.00	89.88	8,610.00	-545.77	4,083.14	4,081.99	0.00	0.00	0.00
12,900.00	90.00	89.88	8,610.00	-545.57	4,183.14	4,181.99	0.00	0.00	0.00
13,000.00	90.00	89.88	8,610.00	-545.36	4,283.14	4,281.99	0.00	0.00	0.00
13,100.00	90.00	89.88	8,610.00	-545.16	4,383.14	4,381.99	0.00	0.00	0.00
13,200.00	90.00	89.88	8,610.00	-544.95	4,483.14	4,481.99	0.00	0.00	0.00
13,300.00	90.00	89.88	8,610.00	-544.75	4,583.14	4,581.99	0.00	0.00	0.00
13,400.00	90.00	89.88	8,610.00	-544.55	4,683.14	4,681.99	0.00	0.00	0.00
13,500.00	90.00	89.88	8,610.00	-544.34	4,783.14	4,781.99	0.00	0.00	0.00
13,600.00	90.00	89.88	8,610.00	-544.14	4,883.14	4,881.99	0.00	0.00	0.00
13,700.00	90.00	89.88	8,610.00	-543.93	4,983.14	4,981.99	0.00	0.00	0.00
13,800.00	90.00	89.88	8,610.00	-543.73	5,083.14	5,081.99	0.00	0.00	0.00
13,900.00	90.00	89.88	8,610.00	-543.52	5,183.14	5,181.99	0.00	0.00	0.00
14,000.00	90.00	89.88	8,610.00	-543.32	5,283.14	5,281.99	0.00	0.00	0.00
14,100.00	90.00	89.88	8,610.00	-543.12	5,383.14	5,381.99	0.00	0.00	0.00
14,200.00	90.00	89.88	8,610.00	-542.91	5,483.14	5,481.99	0.00	0.00	0.00
14,300.00	90.00	89.88	8,610.00	-542.71	5,583.14	5,581.99	0.00	0.00	0.00
14,400.00	90.00	89.88	8,610.00	-542.50	5,683.14	5,681.99	0.00	0.00	0.00
14,500.00	90.00	89.88	8,610.00	-542.30	5,783.14	5,781.99	0.00	0.00	0.00
14,600.00	90.00	89.88	8,610.00	-542.09	5,883.13	5,881.99	0.00	0.00	0.00
14,700.00	90.00	89.88	8,610.00	-541.89	5,983.13	5,981.99	0.00	0.00	0.00
14,800.00	90.00	89.88	8,610.00	-541.68	6,083.13	6,081.99	0.00	0.00	0.00
14,900.00	90.00	89.88	8,610.00	-541.48	6,183.13	6,181.99	0.00	0.00	0.00
15,000.00	90.00	89.88	8,610.00	-541.28	6,283.13	6,281.99	0.00	0.00	0.00
15,100.00	90.00	89.88	8,610.00	-541.07	6,383.13	6,381.99	0.00	0.00	0.00
15,200.00	90.00	89.88	8,610.00	-540.87	6,483.13	6,481.99	0.00	0.00	0.00
15,300.00	90.00	89.88	8,610.00	-540.66	6,583.13	6,581.99	0.00	0.00	0.00
15,400.00	90.00	89.88	8,610.00	-540.46	6,683.13	6,681.99	0.00	0.00	0.00
15,500.00	90.00	89.88	8,610.00	-540.25	6,783.13	6,781.99	0.00	0.00	0.00
15,600.00	90.00	89.88	8,610.00	-540.05	6,883.13	6,881.99	0.00	0.00	0.00
15,700.00	90.00	89.88	8,610.00	-539.85	6,983.13	6,981.99	0.00	0.00	0.00
15,800.00	90.00	89.88	8,610.00	-539.64	7,083.13	7,081.99	0.00	0.00	0.00
15,900.00	90.00	89.88	8,610.00	-539.44	7,183.13	7,181.99	0.00	0.00	0.00
16,000.00	90.00	89.88	8,610.00	-539.23	7,283.13	7,281.99	0.00	0.00	0.00
16,100.00	90.00	89.88	8,610.00	-539.03	7,383.13	7,381.99	0.00	0.00	0.00
16,200.00	90.00	89.88	8,610.00	-538.82	7,483.13	7,481.99	0.00	0.00	0.00
16,300.00	90.00	89.88	8,610.00	-538.62	7,583.13	7,581.99	0.00	0.00	0.00
16,400.00	90.00	89.88	8,610.00	-538.41	7,683.13	7,681.99	0.00	0.00	0.00
16,500.00	90.00	89.88	8,610.00	-538.21	7,783.13	7,781.99	0.00	0.00	0.00
16,600.00	90.00	89.88	8,610.00	-538.01	7,883.13	7,881.99	0.00	0.00	0.00



Planning Report

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Company:	XTO Energy	TVD Reference:	RKB = 25' @ 3192.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 25' @ 3192.00usft
Site:	James Ranch Unit DI 1	North Reference:	Grid
Well:	#503H	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)
16,700.00	90.00	89.88	8,610.00	-537.80	7,983.13	7,981.99	0.00	0.00	0.00
16,800.00	90.00	89.88	8,610.00	-537.60	8,083.13	8,081.99	0.00	0.00	0.00
16,900.00	90.00	89.88	8,610.00	-537.39	8,183.13	8,181.99	0.00	0.00	0.00
17,000.00	90.00	89.88	8,610.00	-537.19	8,283.13	8,281.99	0.00	0.00	0.00
17,100.00	90.00	89.88	8,610.00	-536.98	8,383.13	8,381.99	0.00	0.00	0.00
17,200.00	90.00	89.88	8,610.00	-536.78	8,483.13	8,481.99	0.00	0.00	0.00
17,300.00	90.00	89.88	8,610.00	-536.58	8,583.13	8,581.99	0.00	0.00	0.00
17,400.00	90.00	89.88	8,610.00	-536.37	8,683.13	8,681.99	0.00	0.00	0.00
17,500.00	90.00	89.88	8,610.00	-536.17	8,783.13	8,781.99	0.00	0.00	0.00
17,600.00	90.00	89.88	8,610.00	-535.96	8,883.13	8,881.99	0.00	0.00	0.00
17,700.00	90.00	89.88	8,610.00	-535.76	8,983.13	8,981.99	0.00	0.00	0.00
17,800.00	90.00	89.88	8,610.00	-535.55	9,083.13	9,081.99	0.00	0.00	0.00
17,900.00	90.00	89.88	8,610.00	-535.35	9,183.13	9,181.99	0.00	0.00	0.00
18,000.00	90.00	89.88	8,610.00	-535.15	9,283.13	9,281.99	0.00	0.00	0.00
18,100.00	90.00	89.88	8,610.00	-534.94	9,383.13	9,381.99	0.00	0.00	0.00
18,200.00	90.00	89.88	8,610.00	-534.74	9,483.13	9,481.99	0.00	0.00	0.00
18,300.00	90.00	89.88	8,610.00	-534.53	9,583.13	9,581.99	0.00	0.00	0.00
18,400.00	90.00	89.88	8,610.00	-534.33	9,683.13	9,681.99	0.00	0.00	0.00
18,500.00	90.00	89.88	8,610.00	-534.12	9,783.13	9,781.99	0.00	0.00	0.00
18,600.00	90.00	89.88	8,610.00	-533.92	9,883.13	9,881.99	0.00	0.00	0.00
18,700.00	90.00	89.88	8,610.00	-533.71	9,983.13	9,981.99	0.00	0.00	0.00
18,800.00	90.00	89.88	8,610.00	-533.51	10,083.13	10,081.99	0.00	0.00	0.00
18,900.00	90.00	89.88	8,610.00	-533.31	10,183.13	10,181.99	0.00	0.00	0.00
19,000.00	90.00	89.88	8,610.00	-533.10	10,283.13	10,281.99	0.00	0.00	0.00
19,100.00	90.00	89.88	8,610.00	-532.90	10,383.13	10,381.99	0.00	0.00	0.00
19,200.00	90.00	89.88	8,610.00	-532.69	10,483.13	10,481.99	0.00	0.00	0.00
19,300.00	90.00	89.88	8,610.00	-532.49	10,583.13	10,581.99	0.00	0.00	0.00
19,400.00	90.00	89.88	8,610.00	-532.28	10,683.12	10,681.99	0.00	0.00	0.00
19,500.00	90.00	89.88	8,610.00	-532.08	10,783.12	10,781.99	0.00	0.00	0.00
19,600.00	90.00	89.88	8,610.00	-531.88	10,883.12	10,881.99	0.00	0.00	0.00
19,700.00	90.00	89.88	8,610.00	-531.67	10,983.12	10,981.99	0.00	0.00	0.00
19,800.00	90.00	89.88	8,610.00	-531.47	11,083.12	11,081.99	0.00	0.00	0.00
19,900.00	90.00	89.88	8,610.00	-531.26	11,183.12	11,181.99	0.00	0.00	0.00
20,000.00	90.00	89.88	8,610.00	-531.06	11,283.12	11,281.99	0.00	0.00	0.00
20,100.00	90.00	89.88	8,610.00	-530.85	11,383.12	11,381.99	0.00	0.00	0.00
20,200.00	90.00	89.88	8,610.00	-530.65	11,483.12	11,481.99	0.00	0.00	0.00
20,300.00	90.00	89.88	8,610.00	-530.45	11,583.12	11,581.99	0.00	0.00	0.00
20,400.00	90.00	89.88	8,610.00	-530.24	11,683.12	11,681.99	0.00	0.00	0.00
20,500.00	90.00	89.88	8,610.00	-530.04	11,783.12	11,781.99	0.00	0.00	0.00
20,565.68	90.00	89.88	8,610.00	-529.90	11,848.80	11,847.66	0.00	0.00	0.00
20,600.00	90.00	89.88	8,610.00	-529.83	11,883.12	11,881.99	0.00	0.00	0.00
20,615.68	90.00	89.88	8,610.00	-529.80	11,898.80	11,897.66	0.00	0.00	0.00



Planning Report

Database:	EDM 5000.1.13 Single User Db	Local Co-ordinate Reference:	Well #503H
Company:	XTO Energy	TVD Reference:	RKB = 25' @ 3192.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 25' @ 3192.00usft
Site:	James Ranch Unit DI 1	North Reference:	Grid
Well:	#503H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PERMIT		

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
JRU DI 1 503H SHL (' - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	502,581.90	639,602.60	32.3809014	-103.8811172
JRU DI 1 503H FTP - plan hits target center - Point	0.00	0.01	8,610.00	-553.60	252.40	502,028.30	639,855.00	32.3793767	-103.8803073
JRU DI 1 503H PBHL - plan hits target center - Point	0.00	0.00	8,610.00	-529.80	11,898.80	502,052.10	651,501.40	32.3793010	-103.8425824
JRU DI 1 503H LTP - plan hits target center - Point	0.00	0.01	8,610.00	-529.90	11,848.80	502,052.00	651,451.40	32.3793013	-103.8427443

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
152.00	-2,727.00	Rustler			
483.00	-2,396.00	Salado			
676.00	-2,203.00	Top of Salt			
1,880.00	0.00	Second Bone Spring Carb.			
3,279.57	395.00	Base Salt			
3,534.88	649.00	Delaware/Lamar			
3,579.11	693.00	Bell Canyon			
4,467.67	1,577.00	Cherry Canyon			
5,798.50	2,901.00	Brushy Canyon Ss.			
7,400.72	4,495.00	Bone Spring Lm.			
7,497.21	4,591.00	Avalon Ss.			
7,668.09	4,761.00	Upper Avalon Carb.			
7,750.51	4,843.00	Upper Avalon Sh.			
7,830.93	4,923.00	Lw. Avalon Carb.			
7,990.75	5,082.00	Lw. Avalon Sh.			
8,183.28	5,273.00	Bone Spring Carb.			
8,442.16	5,506.00	First Bone Spring Ss.			
8,969.25	5,731.00	Landing Point			