Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs
HOBBS OCD
DEC 11 2017
RECEIVED

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

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page 2

5. Lease Serial No.
NMNM41769

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
SEVERUS 31 FEDERAL COM 1H

2. Name of Operator
XTO ENERGY, INC
Contact: STEPHANIE RABADUE
E-Mail: stephanie_rabadue@xtoenergy.com

9. API Well No.
30-025-43415

3a. Address
500 W. ILLINOIS ST STE 100
MIDLAND, TX 79701

3b. Phone No. (include area code)
Ph: 432-620-6714

10. Field and Pool or Exploratory Area
WILDCAT

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 30 T20S R34E Mer NMP 130FSL 2212FEL

11. County or Parish, State
EDDY COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

XTO Energy, Inc respectfully requests the following changes to the above APD:
1. Move SHL 37' East after additional DI onsite on May 23, 2017.
2. Extend the producing area of the well 1/2 mile South. Updated plat, directional drill plan, drilling program are attached.

- 11/03/2017 Engineering review completed by M Haque. All previous COAs still apply; additional COA is not required.

THE SUNDRY TO MOVE IS ACCEPTABLE TO POTASH. JSR 12/4/17

Surface Use 12/01/17 ok Pr Bal Ballard 12.1.2017

14. I hereby certify that the foregoing is true and correct
Electronic Submission #391705 verified by the BLM Well Information System
For XTO ENERGY, INC, sent to the Hobbs
Committed to AFMSS for processing by MUSTAFA HAQUE on 10/31/2017 ()

Name *(Printed/Typed)* STEPHANIE RABADUE — Title REGULATORY ANALYST

Signature (Electronic Submission) — Date 10/12/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By Cody Layton — Title for FIELD MANAGER — Date 12/04/17

Conditions of approval, if any, are attached. Approval of this notice 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.

Office CARLSBAD FIELD OFFICE

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.

(Instructions on page 2)

** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED **

KZ

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, New Mexico 87505

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025-43415	97895	WC-025 G-08 S213304D; Bone Spring

Property Code	Property Name	Well Number
316800	SEVERUS 31 FEDERAL COM	1H

OGRID No.	Operator Name	Elevation
005380	XTO ENERGY	3699'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	30	20-S	34-E		130	SOUTH	2212.5	EAST	LEA

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
7	5	21-S	33-E		2401.3	NORTH	2304	EAST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
240			

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

CORNER COORDINATES TABLE
NAD 27 NME
A Y= 561080.6 N, X= 726265.6 E
B Y= 561093.4 N, X= 727585.5 E
C Y= 559774.3 N, X= 727596.2 E
D Y= 559787.4 N, X= 728916.4 E
E Y= 554479.4 N, X= 727632.5 E
F Y= 554487.7 N, X= 728955.8 E
G Y= 554480.6 N, X= 727829.2 E
H Y= 554488.9 N, X= 729144.7 E
I Y= 551874.8 N, X= 727849.6 E
J Y= 551882.7 N, X= 729165.4 E

CORNER COORDINATES TABLE
NAD 83 NME
A Y= 561142.7 N, X= 767446.8 E
B Y= 561155.5 N, X= 768767.0 E
C Y= 559836.4 N, X= 768777.4 E
D Y= 559849.5 N, X= 770097.7 E
E Y= 554541.5 N, X= 768833.8 E
F Y= 554549.6 N, X= 770153.1 E
G Y= 554542.5 N, X= 769010.6 E
H Y= 554550.9 N, X= 770326.1 E
I Y= 551936.7 N, X= 769033.0 E
J Y= 551944.6 N, X= 770347.1 E

SURFACE LOCATION
NAD 27 NME
Y= 559895.4 N
X= 726763.5 E
LAT= 32.537109° N
LONG= 103.597707° W

SURFACE LOCATION
NAD 83 NME
Y= 559957.5 N
X= 767884.7 E
LAT= 32.537232° N
LONG= 103.598198° W

FIRST TAKE POINT
NAD 27 NME
Y= 559449.6 N
X= 728123.9 E
LAT= 32.535857° N
LONG= 103.593108° W

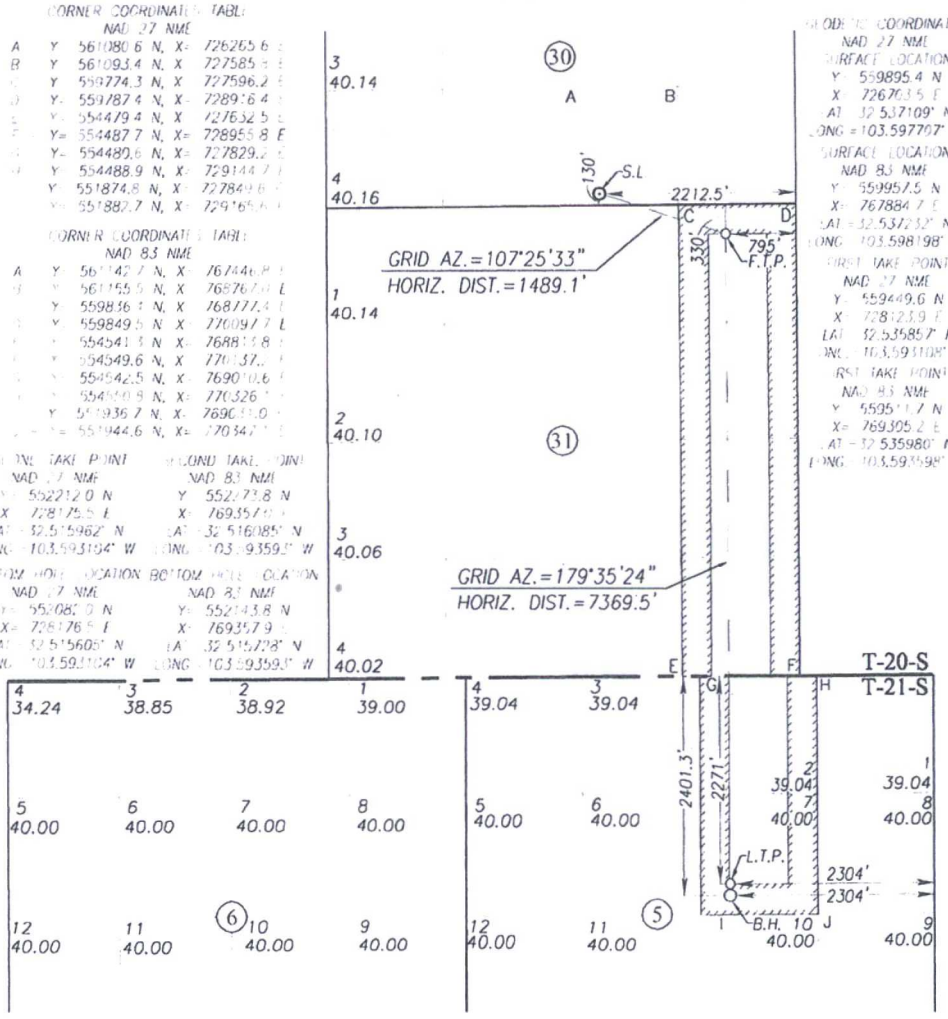
FIRST TAKE POINT
NAD 83 NME
Y= 559511.7 N
X= 769305.2 E
LAT= 32.535980° N
LONG= 103.593598° W

SECOND TAKE POINT
NAD 27 NME
Y= 552212.0 N
X= 728175.5 E
LAT= 32.515962° N
LONG= 103.593194° W

SECOND TAKE POINT
NAD 83 NME
Y= 552273.8 N
X= 769357.9 E
LAT= 32.516085° N
LONG= 103.593593° W

BOTTOM HOLE LOCATION
NAD 27 NME
Y= 552082.0 N
X= 728176.5 E
LAT= 32.515605° N
LONG= 103.593194° W

BOTTOM HOLE LOCATION
NAD 83 NME
Y= 552143.8 N
X= 769357.9 E
LAT= 32.515728° N
LONG= 103.593593° W



SCALE: 1"=2000'

OPERATOR CERTIFICATION

I hereby certify that the information 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 mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Stephanie Rabadue 6-10-17
Signature Date

Stephanie Rabadue
Printed Name

stephanie_rabadue@xtoenergy.com
E-mail Address

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.

JUNE 6, 2017
Date of Survey

Signature & Seal of Professional Surveyor:

RONALD J. EIDSON NEW MEXICO 3239 REGISTERED PROFESSIONAL SURVEYOR

Ronald J. Eidson 07/24/2017

Certificate Number: Gary G. Eidson 12641
Ronald J. Eidson 3239

ACK REL. W.O.: 17130031 JWSC W.O.: 17.11.0388

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

XTO Energy Inc.
Severus 31 Federal Com 1H
Projected TD: 19180' MD / 11447' TVD
SHL: 130' FSL & 2212.5' FEL, SECTION 30, T20S, R34E
BHL: 2401.3' FNL & 2304' FEL, SECTION 5, T21S, R33E
Lea County, NM

1. GEOLOGIC NAME OF SURFACE FORMATION:

A. Quaternary

2. ESTIMATED TOPS OF GEOLOGICAL MARKERS & DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:

Formation	Well Depth (TVD)	Water / Oil / Gas
Rustler	1573'	Water
Top of Salt	1924'	Water
Base of Salt	3168'	Water
Yates	3355'	Water/Oil/Gas
Seven Rivers	3587'	Water/Oil/Gas
Delaware	5643'	Water/Oil/Gas
Brushy Canyon	7040'	Water/Oil/Gas
Bone Spring	8681'	Water/Oil/Gas
1st Bone Spring Ss	9675'	Water/Oil/Gas
2nd Bone Spring Ss	10505'	Water/Oil/Gas
3rd Bone Spring Ss	11122'	Water/Oil/Gas
Target/Land Curve	11361'	Water/Oil/Gas

*** Hydrocarbons @ Brushy Canyon
*** Groundwater depth 260'.

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13-3/8" casing @ 1675' above the salt and circulating cement back to surface. The salt will be isolated by setting 9-5/8" casing at 5450' and circulating cement to surface. An 8-3/4" curve and lateral hole will be drilled to MD/TD and 5-1/2" casing will be set at TD and cemented back up to surface.

3. CASING PROGRAM:

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
17-1/2"	0' – 1675'	13-3/8"	54.5#	STC	J-55	New	4.2	1.47	5.73
12-1/4"	0' – 5450'	9-5/8"	40#	LTC	J-55	New	1.68	1.22	2.39
8-3/4"	0' – 16622'	5-1/2"	17#	BTC	P-110	New	1.12	1.38	1.74

WELLHEAD:

A. Starting Head: 13-5/8" 3M top flange x 13-3/8" SOW bottom
B. 'B' Section/ Drilling Spool: 13-5/8" 3M bottom flange x 11" 5M top flange
C. Tubing Head: 11" 5M bottom flange x 7-1/16" 10M top flange

4. CEMENT PROGRAM:

A. **Surface Casing:** 13-3/8", 54.5#, NEW J-55, STC casing to be set at ± 1675'.

Lead: 20 bbls FW, then 1112 sx ExtendaCem-CZ (mixed at 13.7 ppg, 1.68 ft^3/sk, 8.72 gal/sx wtr)

Tail: 340 sx HalCem-C + 2% CaCl (mixed at 14.8 ppg, 1.35 ft^3/sk, 6.39 gal/sx wtr)
***All volumes 100% excess in open hole. Cement to surface.

B. **Intermediate Casing:** 9-5/8", 40#, NEW J-55, LTC casing to be set at ± 5450'.

First Stage

Lead: 20 bbls FW, then 430 sx EconoCem-HLC + 5% salt + 5 lbm/sk Kol-Seal (mixed at 12.9 ppg, 1.88 ft^3/sk, 9.61 gal/sx wtr)

Tail: 235 sx HalCem-C (mixed at 14.8 ppg, 1.33 ft^3/sk, 6.34 gal/sx wtr)
***All volumes 100% excess in open hole

DV Tool placed at + / - 3662' (75' into Seven Rivers) If losses are severe, ECP would be run immediately below the DV Tool.

Second Stage

Lead: 20 bbls FW, then 735 sx EconoCem-HLC + 5% salt + 5 lbm/sk Kol-Seal (mixed at 12.9 ppg, 1.88 ft^3/sk, 9.61 gal/sx wtr)

Tail: 235 sx HalCem-C (mixed at 14.8 ppg, 1.33 ft^3/sk, 6.34 gal/sx wtr)
***All volumes 100% excess in open hole. Cement to surface.

C. **Production Casing:** 5-1/2", 17#, NEW P-110, BTC casing to be set at ± 19180'. Casing will be cemented back to surface.

Lead: 20 bbls FW, then 1230 sx Tuned Light + 0.5 lbm/sk CFR-3 + 1.5 lbm/sk salt + 0.1% HR601 (mixed at 10.5 ppg, 2.69 ft^3/sk, 12.26 gal/sx wtr)

Tail: 1860 sx VersaCem PBHS2 + 0.5% LAP-2 + 0.25 lbm/sk D-air 5000 + 0.2% HR 601 (mixed at 13.2 ppg, 1.59 ft^3/sk, 8.29 gal/sx wtr)
***All volumes 30% excess in open hole. Planned top of cement to surface

5. PRESSURE CONTROL EQUIPMENT:

The blow out preventer equipment (BOP) for this well consists of a 13-5/8" minimum 5M Hydril and a 13-5/8" minimum 5M Double Ram BOP. Max bottom hole pressure should not exceed 5441 psi.

All BOP testing will be done by an independent service company. Annular pressure tests will be limited to 50% of the working pressure. When nippling up on the 13-5/8" 5M bradenhead and flange, the BOP test will be limited to 5000psi. When nippling up on the 9-5/8", the BOP will be tested to a minimum of 5000 psi. All BOP tests will include a low pressure test as per BLM regulations. The 5M BOP diagrams are attached. Blind rams will be functioned tested each trip, pipe rams will be functioned tested each day.

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.

6. PROPOSED MUD CIRCULATION SYSTEM:

INTERVAL	Hole Size	Mud Type	MW (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
0' to 1675'	17-1/2"	FW/Native	8.5 - 8.8	35 - 40	NC
1675' to 5450'	12-1/4"	Brine/Gel Sweeps	9.8 - 10.2	30 - 32	NC
5450' to 16622'	8-3/4"	FW / Cut Brine / Poly-Sweeps	8.6 - 9.2	28 - 32	NC - 20

The necessary mud products for weight addition and fluid loss control will be on location at all times.

Spud with fresh water/native mud. Drill out from under 13-3/8" surface casing with brine solution. A 9.8ppg - 10.2ppg brine mud will be used while drilling through the salt formation. Use fibrous materials as needed to control seepage and lost circulation. Pump viscous sweeps as needed for hole cleaning. Pump speed will be recorded on a daily drilling report after mudding up. 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.

7. AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT:

A. A Kelly cock will be in the drill string at all times.
B. A full opening drill pipe stabbing valve having appropriate connections will be on the rig floor at all times.
C. H2S monitors will be on location when drilling below the 13-3/8" casing.

8. LOGGING, CORING AND TESTING PROGRAM:

Mud Logger: Mud Logging Unit (2 man) on @ 5450'.

Catch 20' samples from 5450' to landing point
Catch 30' samples from landing point to TD/MD.
Send 1 set of dry samples to Midland Sample Library.

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

9. ABNORMAL PRESSURES AND TEMPERATURES / POTENTIAL HAZARDS:

None anticipated. Max bottom hole pressure should not exceed 5441 psi. BHT of 175 F is anticipated. No H2S is expected but monitors will be in place to detect any H2S occurrences. Should these circumstances be encountered the operator and drilling contractor are prepared to take all necessary steps to ensure safety of all personnel and environment. Lost circulation is possible in the intermediate hole section but is not expected to be a serious problem in this area. Losses will be treated with LCM as needed. Hole seepage will be compensated for by additions of small amounts of LCM in the drilling fluid.

10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:

Road and location construction will begin after Santa Fe and BLM have approved the APD. Anticipated spud date will be as soon after Santa Fe and BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 40 days. If production casing is run, an additional 30 days will be needed to complete well and construct surface facilities and/or lay flow lines in order to place well on production.

5D Plan Report

XTO Energy

Field Name: *XTO Lea Co, NM (NAD 27 NME)*
Site Name: *Severus 31 Federal Com 8 Well Pad*
Well Name: *Severus 31 Federal Com 1H*
Plan: *P1:V2*

18 September 2017

SD Plan Report

Severus 31 Federal Com 1H

Field Name: XTO Lea Co, NM (NAD 27 NME)	**Map Units:** US ft	**Company Name:** XTO Energy
	Vertical Reference Datum (VRD): Mean Sea Level	
	Projected Coordinate System: NAD27 / New Mexico East	
	Comment:	

Site: Severus 31 Federal Com 8 Well Pad	**Units:** US ft	**North Reference:** Grid	**Convergence Angle:** 0.40
	Position:	**Northing:** 559895.40 US ft	**Latitude:** 32° 32' 13.59"
		Easting: 726703.50 US ft	**Longitude:** -103° 35' 51.75"
	Elevation above MSL: 3699.00 US ft		
	Comment:		

Slot: Severus 31 Federal Com 1H	**Position (Relative to Site Centre)**		
	+N/-S: 0.00 US ft	**Northing:** 559895.40 US ft	**Latitude:** 32°32'13.59"
	+E/-W: 0.00 US ft	**Easting:** 726703.50 US ft	**Longitude:** -103°35'51.75"
	Elevation above MSL: 3699.00 US ft		
	Comment:		

Well: Severus 31 Federal Com 1H	**Type:** Main well	**UWI:**	**Plan:** P1:V2	
	File Number:	**Comment:**		
	Closure Distance: 7951.03US ft	**Closure Azimuth:** 169.32°		
	Vertical Section: Position of Origin (Relative to Slot centre)			
	+N/-S: -0.00 US ft	**+E/-W:** -0.00 US ft	**Az:** 179.59°	
	Magnetic Parameters:			
	Model: bggm2017	**Field Strength:** 48180.0nT	**Declination:** 7.01°	**Dip:** 60.34° **Date:** 25/Sep/2017

Drill floor: Plan: P1:V2

Rig Height (Kelly Bushing):	**Elevation above MSL:**	**Inclination:**	**Azimuth:**
35.00US ft	3734.00US ft	0.00°	0.00°

Target set: Severus 31 Federal Com 1H Comment:

Target Name:	Shape:	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (USFt)	Easting (USFt)	Comment
FTP	Point	11361.00	-445.80	1420.40	559449.60	728123.90	
LTP	Point	-1.00	-7683.40	1472.00	552212.00	728175.50	
PBHL	Point	11447.00	-7813.40	1473.00	552082.00	728176.50	

Casing Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	Name
5477.80	10.62	84.78	5450.00	28.71	314.28	559924.11	727017.78	9 5/8 in

Wellpath created using minimum curvature.

Tie Point:

MD: 0.00USFt **Inclination:** 0.00° **Azimuth:** 0.00° **TVD:** - 0.00USFt **North Offset:** - 0.00USFt **East Offset:** - 0.00USFt

Salient Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	B.Rate (°/100US ft)	T.Rate (°/100US ft)	DLS (°/100US ft)	Comment
0.00	0.00	0.00	-0.00	-0.00	-0.00	-0.00	0.00	0.00	0.00	
3500.00	0.00	0.00	3500.00	-0.00	-0.00	-0.00	0.00	0.00	0.00	Nudge
4030.77	10.62	84.78	4027.74	-4.11	4.46	48.82	2.00	0.00	2.00	Hold
5477.80	10.62	84.78	5450.00	-26.46	28.71	314.28	0.00	0.00	0.00	9 5/8 in
10909.65	10.62	84.78	10788.89	-110.36	119.75	1310.76	0.00	0.00	0.00	KOP
11811.93	89.33	179.59	11361.00	455.95	-445.80	1420.40	8.72	10.51	10.00	LP
19180.22	89.33	179.59	11447.00	7823.74	-7813.40	1473.00	0.00	0.00	0.00	H PBHL

Interpolated Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
0.00	0.00	0.00	-0.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
100.00	0.00	0.00	100.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
200.00	0.00	0.00	200.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
300.00	0.00	0.00	300.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
400.00	0.00	0.00	400.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
500.00	0.00	0.00	500.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
600.00	0.00	0.00	600.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
700.00	0.00	0.00	700.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
800.00	0.00	0.00	800.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
900.00	0.00	0.00	900.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
1000.00	0.00	0.00	1000.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
1100.00	0.00	0.00	1100.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
1200.00	0.00	0.00	1200.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
1300.00	0.00	0.00	1300.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
1400.00	0.00	0.00	1400.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
1500.00	0.00	0.00	1500.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
1600.00	0.00	0.00	1600.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
1700.00	0.00	0.00	1700.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
1800.00	0.00	0.00	1800.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
1900.00	0.00	0.00	1900.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
2000.00	0.00	0.00	2000.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
2100.00	0.00	0.00	2100.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
2200.00	0.00	0.00	2200.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
2300.00	0.00	0.00	2300.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
2400.00	0.00	0.00	2400.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
2500.00	0.00	0.00	2500.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
2600.00	0.00	0.00	2600.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
2700.00	0.00	0.00	2700.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
2800.00	0.00	0.00	2800.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
2900.00	0.00	0.00	2900.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
3000.00	0.00	0.00	3000.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
3100.00	0.00	0.00	3100.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
3200.00	0.00	0.00	3200.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
3300.00	0.00	0.00	3300.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
3400.00	0.00	0.00	3400.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	
3500.00	0.00	0.00	3500.00	-0.00	-0.00	-0.00	559895.40	726703.50	0.00	Nudge
3600.00	2.00	84.78	3599.98	-0.15	0.16	1.74	559895.56	726705.24	2.00	
3700.00	4.00	84.78	3699.84	-0.59	0.63	6.95	559896.03	726710.45	2.00	
3800.00	6.00	84.78	3799.45	-1.32	1.43	15.63	559896.83	726719.13	2.00	
3900.00	8.00	84.78	3898.70	-2.34	2.54	27.76	559897.94	726731.26	2.00	
4000.00	10.00	84.78	3997.47	-3.65	3.96	43.34	559899.36	726746.84	2.00	
4030.77	10.62	84.78	4027.74	-4.11	4.46	48.82	559899.86	726752.32	2.00	Hold
4100.00	10.62	84.78	4095.78	-5.18	5.62	61.53	559901.02	726765.03	0.00	

Interpolated Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
4200.00	10.62	84.78	4194.07	-6.72	7.30	79.87	559902.70	726783.37	0.00	
4300.00	10.62	84.78	4292.36	-8.27	8.97	98.22	559904.37	726801.72	0.00	
4400.00	10.62	84.78	4390.65	-9.81	10.65	116.56	559906.05	726820.06	0.00	
4500.00	10.62	84.78	4488.94	-11.36	12.32	134.91	559907.72	726838.41	0.00	
4600.00	10.62	84.78	4587.23	-12.90	14.00	153.25	559909.40	726856.75	0.00	
4700.00	10.62	84.78	4685.52	-14.45	15.68	171.60	559911.08	726875.10	0.00	
4800.00	10.62	84.78	4783.80	-15.99	17.35	189.94	559912.75	726893.44	0.00	
4900.00	10.62	84.78	4882.09	-17.54	19.03	208.29	559914.43	726911.79	0.00	
5000.00	10.62	84.78	4980.38	-19.08	20.70	226.63	559916.10	726930.13	0.00	
5100.00	10.62	84.78	5078.67	-20.63	22.38	244.98	559917.78	726948.48	0.00	
5200.00	10.62	84.78	5176.96	-22.17	24.06	263.32	559919.46	726966.82	0.00	
5300.00	10.62	84.78	5275.25	-23.72	25.73	281.67	559921.13	726985.17	0.00	
5400.00	10.62	84.78	5373.54	-25.26	27.41	300.01	559922.81	727003.51	0.00	
5477.80	10.62	84.78	5450.00	-26.46	28.71	314.28	559924.11	727017.78	0.00	9 5/8 in
5500.00	10.62	84.78	5471.82	-26.80	29.08	318.36	559924.48	727021.86	0.00	
5600.00	10.62	84.78	5570.11	-28.35	30.76	336.70	559926.16	727040.20	0.00	
5700.00	10.62	84.78	5668.40	-29.89	32.44	355.05	559927.84	727058.55	0.00	
5800.00	10.62	84.78	5766.69	-31.44	34.11	373.39	559929.51	727076.89	0.00	
5900.00	10.62	84.78	5864.98	-32.98	35.79	391.74	559931.19	727095.24	0.00	
6000.00	10.62	84.78	5963.27	-34.53	37.46	410.08	559932.86	727113.58	0.00	
6100.00	10.62	84.78	6061.56	-36.07	39.14	428.43	559934.54	727131.93	0.00	
6200.00	10.62	84.78	6159.84	-37.62	40.82	446.77	559936.22	727150.27	0.00	
6300.00	10.62	84.78	6258.13	-39.16	42.49	465.12	559937.89	727168.62	0.00	
6400.00	10.62	84.78	6356.42	-40.71	44.17	483.46	559939.57	727186.96	0.00	
6500.00	10.62	84.78	6454.71	-42.25	45.84	501.81	559941.24	727205.31	0.00	
6600.00	10.62	84.78	6553.00	-43.80	47.52	520.15	559942.92	727223.65	0.00	
6700.00	10.62	84.78	6651.29	-45.34	49.20	538.50	559944.60	727242.00	0.00	
6800.00	10.62	84.78	6749.58	-46.89	50.87	556.84	559946.27	727260.34	0.00	
6900.00	10.62	84.78	6847.86	-48.43	52.55	575.19	559947.95	727278.69	0.00	
7000.00	10.62	84.78	6946.15	-49.97	54.22	593.53	559949.62	727297.03	0.00	
7100.00	10.62	84.78	7044.44	-51.52	55.90	611.88	559951.30	727315.38	0.00	
7200.00	10.62	84.78	7142.73	-53.06	57.57	630.22	559952.97	727333.72	0.00	
7300.00	10.62	84.78	7241.02	-54.61	59.25	648.57	559954.65	727352.07	0.00	
7400.00	10.62	84.78	7339.31	-56.15	60.93	666.92	559956.33	727370.42	0.00	
7500.00	10.62	84.78	7437.60	-57.70	62.60	685.26	559958.00	727388.76	0.00	
7600.00	10.62	84.78	7535.88	-59.24	64.28	703.61	559959.68	727407.11	0.00	
7700.00	10.62	84.78	7634.17	-60.79	65.95	721.95	559961.35	727425.45	0.00	
7800.00	10.62	84.78	7732.46	-62.33	67.63	740.30	559963.03	727443.80	0.00	
7900.00	10.62	84.78	7830.75	-63.88	69.31	758.64	559964.71	727462.14	0.00	
8000.00	10.62	84.78	7929.04	-65.42	70.98	776.99	559966.38	727480.49	0.00	
8100.00	10.62	84.78	8027.33	-66.97	72.66	795.33	559968.06	727498.83	0.00	
8200.00	10.62	84.78	8125.62	-68.51	74.33	813.68	559969.73	727517.18	0.00	
8300.00	10.62	84.78	8223.90	-70.05	76.01	832.02	559971.41	727535.52	0.00	
8400.00	10.62	84.78	8322.19	-71.60	77.69	850.37	559973.09	727553.87	0.00	
8500.00	10.62	84.78	8420.48	-73.14	79.36	868.71	559974.76	727572.21	0.00	
8600.00	10.62	84.78	8518.77	-74.69	81.04	887.06	559976.44	727590.56	0.00	
8700.00	10.62	84.78	8617.06	-76.23	82.71	905.40	559978.11	727608.90	0.00	
8800.00	10.62	84.78	8715.35	-77.78	84.39	923.75	559979.79	727627.25	0.00	
8900.00	10.62	84.78	8813.64	-79.32	86.07	942.09	559981.47	727645.59	0.00	
9000.00	10.62	84.78	8911.92	-80.87	87.74	960.44	559983.14	727663.94	0.00	
9100.00	10.62	84.78	9010.21	-82.41	89.42	978.78	559984.82	727682.28	0.00	
9200.00	10.62	84.78	9108.50	-83.96	91.09	997.13	559986.49	727700.63	0.00	
9300.00	10.62	84.78	9206.79	-85.50	92.77	1015.47	559988.17	727718.97	0.00	
9400.00	10.62	84.78	9305.08	-87.05	94.45	1033.82	559989.85	727737.32	0.00	
9500.00	10.62	84.78	9403.37	-88.59	96.12	1052.16	559991.52	727755.66	0.00	
9600.00	10.62	84.78	9501.66	-90.13	97.80	1070.51	559993.20	727774.01	0.00	
9700.00	10.62	84.78	9599.94	-91.68	99.47	1088.85	559994.87	727792.35	0.00	
9800.00	10.62	84.78	9698.23	-93.22	101.15	1107.20	559996.55	727810.70	0.00	
9900.00	10.62	84.78	9796.52	-94.77	102.83	1125.54	559998.23	727829.04	0.00	

Interpolated Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)										
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10000.00	10.62	84.78	9894.81	-96.31	104.50	1143.89	559999.90	727847.39	0.00	
10100.00	10.62	84.78	9993.10	-97.86	106.18	1162.23	560001.58	727865.73	0.00	
10200.00	10.62	84.78	10091.39	-99.40	107.85	1180.58	560003.25	727884.08	0.00	
10300.00	10.62	84.78	10189.68	-100.95	109.53	1198.92	560004.93	727902.42	0.00	
10400.00	10.62	84.78	10287.97	-102.49	111.20	1217.27	560006.60	727920.77	0.00	
10500.00	10.62	84.78	10386.25	-104.04	112.88	1235.61	560008.28	727939.11	0.00	
10600.00	10.62	84.78	10484.54	-105.58	114.56	1253.96	560009.96	727957.46	0.00	
10700.00	10.62	84.78	10582.83	-107.13	116.23	1272.30	560011.63	727975.80	0.00	
10800.00	10.62	84.78	10681.12	-108.67	117.91	1290.65	560013.31	727994.15	0.00	
10900.00	10.62	84.78	10779.41	-110.21	119.58	1309.00	560014.98	728012.50	0.00	
10909.65	10.62	84.78	10788.89	-110.36	119.75	1310.76	560015.15	728014.26	0.00	KOP
11000.00	13.31	127.60	10877.44	-104.64	114.15	1327.33	560009.55	728030.83	10.00	
11100.00	20.90	150.44	10973.05	-81.92	91.55	1345.29	559986.95	728048.79	10.00	
11200.00	29.90	160.76	11063.34	-42.66	52.41	1362.35	559947.81	728065.85	10.00	
11300.00	39.35	166.55	11145.56	11.96	-2.09	1377.97	559893.31	728081.47	10.00	
11400.00	48.99	170.37	11217.21	80.26	-70.30	1391.69	559825.10	728095.19	10.00	
11500.00	58.73	173.20	11276.12	160.18	-150.14	1403.08	559745.26	728106.58	10.00	
11600.00	68.52	175.50	11320.49	249.29	-239.19	1411.81	559656.21	728115.31	10.00	
11700.00	78.33	177.51	11348.99	344.87	-334.73	1417.61	559560.67	728121.11	10.00	
11800.00	88.16	179.37	11360.74	444.03	-433.88	1420.29	559461.52	728123.79	10.00	
11811.93	89.33	179.59	11361.00	455.95	-445.80	1420.40	559449.60	728123.90	10.00	LP
11900.00	89.33	179.59	11362.03	544.02	-533.87	1421.03	559361.53	728124.53	0.00	
12000.00	89.33	179.59	11363.20	644.01	-633.86	1421.74	559261.54	728125.24	0.00	
12100.00	89.33	179.59	11364.36	744.01	-733.85	1422.46	559161.55	728125.96	0.00	
12200.00	89.33	179.59	11365.53	844.00	-833.84	1423.17	559061.56	728126.67	0.00	
12300.00	89.33	179.59	11366.70	943.99	-933.83	1423.88	558961.57	728127.38	0.00	
12400.00	89.33	179.59	11367.86	1043.99	-1033.82	1424.60	558861.58	728128.10	0.00	
12500.00	89.33	179.59	11369.03	1143.98	-1133.81	1425.31	558761.59	728128.81	0.00	
12600.00	89.33	179.59	11370.20	1243.97	-1233.80	1426.03	558661.60	728129.53	0.00	
12700.00	89.33	179.59	11371.37	1343.97	-1333.79	1426.74	558561.61	728130.24	0.00	
12800.00	89.33	179.59	11372.53	1443.96	-1433.78	1427.45	558461.62	728130.95	0.00	
12900.00	89.33	179.59	11373.70	1543.95	-1533.77	1428.17	558361.63	728131.67	0.00	
13000.00	89.33	179.59	11374.87	1643.95	-1633.76	1428.88	558261.64	728132.38	0.00	
13100.00	89.33	179.59	11376.03	1743.94	-1733.75	1429.60	558161.65	728133.10	0.00	
13200.00	89.33	179.59	11377.20	1843.93	-1833.74	1430.31	558061.66	728133.81	0.00	
13300.00	89.33	179.59	11378.37	1943.93	-1933.74	1431.02	557961.66	728134.52	0.00	
13400.00	89.33	179.59	11379.54	2043.92	-2033.73	1431.74	557861.67	728135.24	0.00	
13500.00	89.33	179.59	11380.70	2143.91	-2133.72	1432.45	557761.68	728135.95	0.00	
13600.00	89.33	179.59	11381.87	2243.91	-2233.71	1433.16	557661.69	728136.66	0.00	
13700.00	89.33	179.59	11383.04	2343.90	-2333.70	1433.88	557561.70	728137.38	0.00	
13800.00	89.33	179.59	11384.20	2443.89	-2433.69	1434.59	557461.71	728138.09	0.00	
13900.00	89.33	179.59	11385.37	2543.89	-2533.68	1435.31	557361.72	728138.81	0.00	
14000.00	89.33	179.59	11386.54	2643.88	-2633.67	1436.02	557261.73	728139.52	0.00	
14100.00	89.33	179.59	11387.71	2743.87	-2733.66	1436.73	557161.74	728140.23	0.00	
14200.00	89.33	179.59	11388.87	2843.86	-2833.65	1437.45	557061.75	728140.95	0.00	
14300.00	89.33	179.59	11390.04	2943.86	-2933.64	1438.16	556961.76	728141.66	0.00	
14400.00	89.33	179.59	11391.21	3043.85	-3033.63	1438.88	556861.77	728142.38	0.00	
14500.00	89.33	179.59	11392.37	3143.84	-3133.62	1439.59	556761.78	728143.09	0.00	
14600.00	89.33	179.59	11393.54	3243.84	-3233.61	1440.30	556661.79	728143.80	0.00	
14700.00	89.33	179.59	11394.71	3343.83	-3333.60	1441.02	556561.80	728144.52	0.00	
14800.00	89.33	179.59	11395.88	3443.82	-3433.59	1441.73	556461.81	728145.23	0.00	
14900.00	89.33	179.59	11397.04	3543.82	-3533.59	1442.44	556361.81	728145.94	0.00	
15000.00	89.33	179.59	11398.21	3643.81	-3633.58	1443.16	556261.82	728146.66	0.00	
15100.00	89.33	179.59	11399.38	3743.80	-3733.57	1443.87	556161.83	728147.37	0.00	
15200.00	89.33	179.59	11400.54	3843.80	-3833.56	1444.59	556061.84	728148.09	0.00	
15300.00	89.33	179.59	11401.71	3943.79	-3933.55	1445.30	555961.85	728148.80	0.00	
15400.00	89.33	179.59	11402.88	4043.78	-4033.54	1446.01	555861.86	728149.51	0.00	
15500.00	89.33	179.59	11404.05	4143.78	-4133.53	1446.73	555761.87	728150.23	0.00	
15600.00	89.33	179.59	11405.21	4243.77	-4233.52	1447.44	555661.88	728150.94	0.00	

Interpolated Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)

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15700.00	89.33	179.59	11406.38	4343.76	-4333.51	1448.16	555561.89	728151.66	0.00	
15800.00	89.33	179.59	11407.55	4443.76	-4433.50	1448.87	555461.90	728152.37	0.00	
15900.00	89.33	179.59	11408.71	4543.75	-4533.49	1449.58	555361.91	728153.08	0.00	
16000.00	89.33	179.59	11409.88	4643.74	-4633.48	1450.30	555261.92	728153.80	0.00	
16100.00	89.33	179.59	11411.05	4743.74	-4733.47	1451.01	555161.93	728154.51	0.00	
16200.00	89.33	179.59	11412.22	4843.73	-4833.46	1451.73	555061.94	728155.23	0.00	
16300.00	89.33	179.59	11413.38	4943.72	-4933.45	1452.44	554961.95	728155.94	0.00	
16400.00	89.33	179.59	11414.55	5043.71	-5033.45	1453.15	554861.95	728156.65	0.00	
16500.00	89.33	179.59	11415.72	5143.71	-5133.44	1453.87	554761.96	728157.37	0.00	
16600.00	89.33	179.59	11416.88	5243.70	-5233.43	1454.58	554661.97	728158.08	0.00	
16700.00	89.33	179.59	11418.05	5343.69	-5333.42	1455.29	554561.98	728158.79	0.00	
16800.00	89.33	179.59	11419.22	5443.69	-5433.41	1456.01	554461.99	728159.51	0.00	
16900.00	89.33	179.59	11420.39	5543.68	-5533.40	1456.72	554362.00	728160.22	0.00	
17000.00	89.33	179.59	11421.55	5643.67	-5633.39	1457.44	554262.01	728160.94	0.00	
17100.00	89.33	179.59	11422.72	5743.67	-5733.38	1458.15	554162.02	728161.65	0.00	
17200.00	89.33	179.59	11423.89	5843.66	-5833.37	1458.86	554062.03	728162.36	0.00	
17300.00	89.33	179.59	11425.05	5943.65	-5933.36	1459.58	553962.04	728163.08	0.00	
17400.00	89.33	179.59	11426.22	6043.65	-6033.35	1460.29	553862.05	728163.79	0.00	
17500.00	89.33	179.59	11427.39	6143.64	-6133.34	1461.01	553762.06	728164.51	0.00	
17600.00	89.33	179.59	11428.56	6243.63	-6233.33	1461.72	553662.07	728165.22	0.00	
17700.00	89.33	179.59	11429.72	6343.63	-6333.32	1462.43	553562.08	728165.93	0.00	
17800.00	89.33	179.59	11430.89	6443.62	-6433.31	1463.15	553462.09	728166.65	0.00	
17900.00	89.33	179.59	11432.06	6543.61	-6533.30	1463.86	553362.10	728167.36	0.00	
18000.00	89.33	179.59	11433.22	6643.61	-6633.30	1464.57	553262.10	728168.07	0.00	
18100.00	89.33	179.59	11434.39	6743.60	-6733.29	1465.29	553162.11	728168.79	0.00	
18200.00	89.33	179.59	11435.56	6843.59	-6833.28	1466.00	553062.12	728169.50	0.00	
18300.00	89.33	179.59	11436.73	6943.59	-6933.27	1466.72	552962.13	728170.22	0.00	
18400.00	89.33	179.59	11437.89	7043.58	-7033.26	1467.43	552862.14	728170.93	0.00	
18500.00	89.33	179.59	11439.06	7143.57	-7133.25	1468.14	552762.15	728171.64	0.00	
18600.00	89.33	179.59	11440.23	7243.56	-7233.24	1468.86	552662.16	728172.36	0.00	
18700.00	89.33	179.59	11441.39	7343.56	-7333.23	1469.57	552562.17	728173.07	0.00	
18800.00	89.33	179.59	11442.56	7443.55	-7433.22	1470.29	552462.18	728173.79	0.00	
18900.00	89.33	179.59	11443.73	7543.54	-7533.21	1471.00	552362.19	728174.50	0.00	
19000.00	89.33	179.59	11444.90	7643.54	-7633.20	1471.71	552262.20	728175.21	0.00	
19100.00	89.33	179.59	11446.06	7743.53	-7733.19	1472.43	552162.21	728175.93	0.00	
19180.22	89.33	179.59	11447.00	7823.74	-7813.40	1473.00	552082.00	728176.50	0.00	H PBHL

Formation Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)

Name	MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	Comment
Rustler	1573.00	0.00	0.00	1573.00	-0.00	-0.00	559895.40	726703.50	
Salado	1924.00	0.00	0.00	1924.00	-0.00	-0.00	559895.40	726703.50	
Base Salt	3168.00	0.00	0.00	3168.00	-0.00	-0.00	559895.40	726703.50	
Yates	3355.00	0.00	0.00	3355.00	-0.00	-0.00	559895.40	726703.50	
Seven Rivers	3587.01	1.74	84.78	3587.00	0.12	1.32	559895.52	726704.82	
Delaware	5674.16	10.62	84.78	5643.00	32.00	350.31	559927.40	727053.81	
Brushy Canyon	7095.48	10.62	84.78	7040.00	55.82	611.05	559951.22	727314.55	
Bone Spring	8765.05	10.62	84.78	8681.00	83.80	917.34	559979.20	727620.84	
Upper Avalon Shale	8932.93	10.62	84.78	8846.00	86.62	948.13	559982.02	727651.63	
Lower Avalon Shale	9265.62	10.62	84.78	9173.00	92.19	1009.17	559987.59	727712.67	
1st Bone Spring Sand	9776.36	10.62	84.78	9675.00	100.75	1102.86	559996.15	727806.36	
1st Bone Spring Lower	9958.48	10.62	84.78	9854.00	103.81	1136.27	559999.21	727839.77	
2nd Bone Spring A Lime	10076.50	10.62	84.78	9970.00	105.78	1157.92	560001.18	727861.42	
Second Bone Spring	10317.62	10.62	84.78	10207.00	109.82	1202.16	560005.22	727905.66	

Formation Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)									
Name	MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	Comment
2nd Bone Spring B Sand	10620.81	10.62	84.78	10505.00	114.91	1257.78	560010.31	727961.28	
Base 2nd Bone Spring B Sand	10801.91	10.62	84.78	10683.00	117.94	1291.00	560013.34	727994.50	
3rd Bone Spring Lime	10873.13	10.62	84.78	10753.00	119.13	1304.07	560014.53	728007.57	
3rd Bone Spring Sand	11270.13	36.50	165.10	11122.00	15.70	1373.48	559911.10	728076.98	
Red Hills Sand	11618.50	70.33	175.89	11327.00	-256.46	1413.11	559638.94	728116.61	
Wolfcamp	14467.67	89.33	179.59	11392.00	-3101.29	1439.36	556794.11	728142.86	

5D Anti-Collision Report

XTO Energy

Field Name: *XTO Lea Co, NM (NAD 27 NME)*
Site Name: *Severus 31 Federal Com 8 Well Pad*
Well Name: *Severus 31 Federal Com 1H*

18 September 2017

Weatherford

Severus 31 Federal Com 1H

Field Name: XTO Lea Co, NM (NAD 27 NME)	**Map Units:** US ft	**Company Name:** XTO Energy
	Vertical Reference Datum (VRD): Mean Sea Level	
	Projected Coordinate System: NAD27 / New Mexico East	
	Comment:	

Site: Severus 31 Federal Com 8 Well Pad	**Units:** US ft	**North Reference:** Grid	**Convergence Angle:** 0.40
	Position:	**Northing:** 559895.40 US ft	**Latitude:** 32° 32' 13.59"
		Easting: 726703.50 US ft	**Longitude:** -103° 35' 51.75"
	Elevation above MSL: 3699.00 US ft		
	Comment:		

Slot: Severus 31 Federal Com 1H	**Position (Relative to Site Centre)**		
	+N/-S: 0.00 US ft	**Northing:** 559895.40 US ft	**Latitude:** 32°32'13.59"
	+E/-W: 0.00 US ft	**Easting:** 726703.50 US ft	**Longitude:** -103°35'51.75"
	Elevation above MSL: 3699.00 US ft		
	Comment:		

Well: Severus 31 Federal Com 1H	**Type:** Main well		**UWI:**	**Plan:** Working Plan
	File Number:	**Comment:**		
	Closure Distance: 7951.03US ft		**Closure Azimuth:** 169.32°	
	Vertical Section: Position of Origin (Relative to Slot centre)			
		+N/-S: -0.00 US ft	**+E/-W:** -0.00 US ft	**Az:** 179.59°
	Magnetic Parameters:			
	Model: bggm2017	**Field Strength:** 48180.0nT	**Declination:** 7.01°	**Dip:** 60.34° **Date:** 25/Sep/2017

Drill floor: Plan: Working Plan

Rig Height (Kelly Bushing):	**Elevation above MSL:**	**Inclination:**	**Azimuth:**
35.00US ft	3734.00US ft	0.00°	0.00°

Collision / Uncertainty Analysis

Primary Well	Start MD (USFt)	End MD (USFt)	Collision Risk Interval	No. of Std. Deviations in Error Computation
Severus 31 Federal Com 1H (p)	0.00	19180.22	100.00	2

Secondary Well Names:

Severus 31 Federal Com 2H (p)
Severus 31 Federal Com 5H (p)
Severus 31 Federal Com 6H (p)
Severus 31 Federal Com 13H (p)
Severus 31 Federal Com 9H (p)
Severus 31 Federal Com 10H (p)
Severus 31 Federal Com 14H (p)

Anti-Collision Report Terminology

S.Minor, S.Major: Radii of the ellipse of uncertainty at the current location as seen in the along hole direction.
PHI: Angle between high-side vector and semi-minor axis
TVD Spread: Total TVD range of the ellipsoid of uncertainty at the current location.

Anti-Collision Report Terminology

ES: Distance between the primary and secondary uncertainty ellipsoids in the direction Cr-Cr.
T.Face to Sec: Angle between the Hi-Side vector of the primary well at the current location and line of closest approach between the two wells.

AC Filter Info: Applied filter(s): Separation Factor.

Default Survey Tool: MWD

Separation factors calculated using Vector Separation (Independent Uncertainty). Surface Uncertainty (S.U.) Not Applied. Wellpath created using minimum curvature.

Anti-Collision Summary (TVD relative to Kelly Bushing)

SF

Secondary Well Name	Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	ES (US ft)	CC (US ft)	SF	Risk
Severus 31 Federal Com 5H (p)	19180.22	11447.00	19335.23	258.17	474.35	2.19	SF(Lo)
Severus 31 Federal Com 2H (p)	3582.42	3582.41	3583.25	24.45	41.03	2.47	SF(Lo)
Severus 31 Federal Com 9H (p)	10306.45	10196.01	10301.14	85.53	134.19	2.76	
Severus 31 Federal Com 6H (p)	19180.22	11447.00	19525.16	614.86	862.72	3.48	
Severus 31 Federal Com 10H (p)	3569.92	3569.91	3568.91	54.75	71.37	4.30	
Severus 31 Federal Com 13H (p)	3093.36	3093.36	3092.89	57.08	71.55	4.95	
Severus 31 Federal Com 14H (p)	3666.21	3666.12	3668.64	86.31	103.32	6.08	

CC

Secondary Well Name	Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	ES (US ft)	CC (US ft)	SF	Risk
Severus 31 Federal Com 2H (p)	3552.15	3552.15	3552.98	24.42	40.87	2.48	SF(Lo)
Severus 31 Federal Com 9H (p)	3285.94	3285.94	3287.07	34.31	49.63	3.24	
Severus 31 Federal Com 5H (p)	0.00	-0.00	1.00	49.20	50.00	62.34	
Severus 31 Federal Com 13H (p)	0.00	-0.00	1.00	69.77	70.57	87.99	
Severus 31 Federal Com 10H (p)	1650.00	1650.00	1649.00	62.72	70.71	8.85	
Severus 31 Federal Com 6H (p)	3502.73	3502.73	3502.09	82.02	98.34	6.03	
Severus 31 Federal Com 14H (p)	3593.95	3593.93	3596.45	85.69	102.39	6.13	

Primary Well: Severus 31 Federal Com 1H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	CC (US ft)	ES (US ft)	SF	Risk
2100.00	0.00	0.00	2100.00	4.61	4.61	179.54	50.00	39.98	4.99	
2100.00	0.00	0.00	2100.00	4.61	4.61	269.54	50.00	39.98	4.99	
2200.00	0.00	0.00	2200.00	4.83	4.83	179.54	50.00	39.53	4.78	
2200.00	0.00	0.00	2200.00	4.83	4.83	269.54	50.00	39.53	4.78	
2300.00	0.00	0.00	2300.00	5.06	5.06	179.54	50.00	39.08	4.58	
2300.00	0.00	0.00	2300.00	5.06	5.06	269.54	50.00	39.08	4.58	
2400.00	0.00	0.00	2400.00	5.28	5.28	179.54	50.00	38.63	4.40	
2400.00	0.00	0.00	2400.00	5.28	5.28	269.54	50.00	38.63	4.40	
2500.00	0.00	0.00	2500.00	5.51	5.51	179.54	50.00	38.18	4.23	
2500.00	0.00	0.00	2500.00	5.51	5.51	269.54	50.00	38.18	4.23	
2600.00	0.00	0.00	2600.00	5.73	5.73	179.54	50.00	37.73	4.08	
2600.00	0.00	0.00	2600.00	5.73	5.73	269.54	50.00	37.74	4.08	
2700.00	0.00	0.00	2700.00	5.96	5.96	179.54	50.00	37.28	3.93	
2700.00	0.00	0.00	2700.00	5.96	5.96	269.54	50.00	37.29	3.93	
2800.00	0.00	0.00	2800.00	6.18	6.18	179.54	50.00	36.83	3.80	
2800.00	0.00	0.00	2800.00	6.18	6.18	269.54	50.00	36.84	3.80	
2900.00	0.00	0.00	2900.00	6.41	6.41	179.54	50.00	36.38	3.67	
2900.00	0.00	0.00	2900.00	6.41	6.41	269.54	50.00	36.39	3.67	
3000.00	0.00	0.00	3000.00	6.63	6.63	179.54	50.00	35.93	3.55	
3000.00	0.00	0.00	3000.00	6.63	6.63	269.54	50.00	35.94	3.56	

Primary Well: Severus 31 Federal Com 1H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	CC (US ft)	ES (US ft)	SF	Risk
3100.00	0.00	0.00	3100.00	6.86	6.86	270.14	48.66	34.17	3.36	
3200.00	0.00	0.00	3200.00	7.08	7.08	271.03	46.81	31.88	3.14	
3300.00	0.00	0.00	3300.00	7.31	7.31	271.99	44.97	29.61	2.93	
3400.00	0.00	0.00	3400.00	7.53	7.53	273.03	43.15	27.35	2.73	
3500.00	0.00	0.00	3500.00	7.76	7.76	274.16	41.34	25.11	2.55	
3582.42	1.65	84.78	3582.41	7.93	7.93	190.10	41.03	24.45	2.47	SF(Lo)
3600.00	2.00	84.78	3599.98	7.97	7.96	190.17	41.27	24.61	2.48	SF(Lo)
3700.00	4.00	84.78	3699.84	8.17	8.15	190.13	44.63	27.57	2.62	
3800.00	6.00	84.78	3799.45	8.38	8.33	189.42	51.43	33.95	2.94	
3900.00	8.00	84.78	3898.70	8.59	8.51	188.38	61.67	43.79	3.45	
4000.00	10.00	84.78	3997.47	8.82	8.68	187.31	75.37	57.07	4.12	
4100.00	10.62	84.78	4095.78	9.06	8.87	30.90	86.42	68.05	4.71	
4200.00	10.62	84.78	4194.07	9.32	9.08	30.14	86.87	68.06	4.62	
4300.00	10.62	84.78	4292.36	9.58	9.29	29.38	87.34	68.08	4.53	
4400.00	10.62	84.78	4390.65	9.86	9.51	28.64	87.83	68.11	4.45	
4500.00	10.62	84.78	4488.94	10.14	9.72	27.90	88.33	68.14	4.38	
4600.00	10.62	84.78	4587.23	10.43	9.94	27.17	88.84	68.19	4.30	
4700.00	10.62	84.78	4685.52	10.73	10.16	26.45	89.37	68.26	4.23	
4800.00	10.62	84.78	4783.80	11.04	10.38	25.74	89.92	68.33	4.16	
4900.00	10.62	84.78	4882.09	11.35	10.60	25.03	90.48	68.41	4.10	
5000.00	10.62	84.78	4980.38	11.67	10.83	24.34	91.05	68.51	4.04	
5100.00	10.62	84.78	5078.67	11.99	11.05	23.65	91.63	68.62	3.98	
5200.00	10.62	84.78	5176.96	12.32	11.28	22.97	92.23	68.74	3.93	
5300.00	10.62	84.78	5275.25	12.65	11.51	22.31	92.84	68.88	3.87	
5400.00	10.62	84.78	5373.54	12.99	11.74	21.65	93.46	69.02	3.82	
5500.00	10.62	84.78	5471.82	13.33	11.97	21.00	94.09	69.27	3.79	
5600.00	10.62	84.78	5570.11	13.67	12.21	20.35	94.74	69.44	3.74	
5700.00	10.62	84.78	5668.40	14.02	12.44	19.72	95.40	69.62	3.70	
5800.00	10.62	84.78	5766.69	14.37	12.68	19.10	96.07	69.81	3.66	
5900.00	10.62	84.78	5864.98	14.72	12.91	18.48	96.75	70.01	3.62	
6000.00	10.62	84.78	5963.27	15.08	13.15	17.87	97.44	70.22	3.58	
6100.00	10.62	84.78	6061.56	15.44	13.39	17.27	98.14	70.44	3.54	
6200.00	10.62	84.78	6159.84	15.80	13.62	16.69	98.86	70.68	3.51	
6300.00	10.62	84.78	6258.13	16.16	13.86	16.10	99.58	70.92	3.47	
6400.00	10.62	84.78	6356.42	16.53	14.10	15.53	100.31	71.17	3.44	
6500.00	10.62	84.78	6454.71	16.89	14.34	14.97	101.06	71.43	3.41	
6600.00	10.62	84.78	6553.00	17.26	14.59	14.41	101.81	71.70	3.38	
6700.00	10.62	84.78	6651.29	17.63	14.83	13.86	102.57	71.98	3.35	
6800.00	10.62	84.78	6749.58	18.00	15.07	13.32	103.35	72.27	3.33	
6900.00	10.62	84.78	6847.86	18.38	15.31	12.79	104.13	72.56	3.30	
7000.00	10.62	84.78	6946.15	18.75	15.56	12.27	104.92	72.86	3.27	
7100.00	10.62	84.78	7044.44	19.13	15.80	11.75	105.71	73.18	3.25	
7200.00	10.62	84.78	7142.73	19.51	16.05	11.24	106.52	73.49	3.23	
7300.00	10.62	84.78	7241.02	19.88	16.29	10.74	107.34	73.82	3.20	
7400.00	10.62	84.78	7339.31	20.26	16.54	10.25	108.16	74.15	3.18	
7500.00	10.62	84.78	7437.60	20.64	16.78	9.76	108.99	74.49	3.16	
7600.00	10.62	84.78	7535.88	21.02	17.03	9.28	109.83	74.84	3.14	
7700.00	10.62	84.78	7634.17	21.41	17.28	8.81	110.68	75.20	3.12	
7800.00	10.62	84.78	7732.46	21.79	17.53	8.35	111.53	75.56	3.10	
7900.00	10.62	84.78	7830.75	22.17	17.77	7.89	112.39	75.92	3.08	
8000.00	10.62	84.78	7929.04	22.56	18.02	7.44	113.26	76.30	3.06	
8100.00	10.62	84.78	8027.33	22.94	18.27	7.00	114.13	76.68	3.05	
8200.00	10.62	84.78	8125.62	23.33	18.52	6.56	115.01	77.06	3.03	
8300.00	10.62	84.78	8223.90	23.72	18.77	6.14	115.90	77.45	3.01	
8400.00	10.62	84.78	8322.19	24.10	19.02	5.71	116.80	77.85	3.00	
8500.00	10.62	84.78	8420.48	24.49	19.27	5.30	117.70	78.25	2.98	
8600.00	10.62	84.78	8518.77	24.88	19.52	4.89	118.60	78.65	2.97	
8700.00	10.62	84.78	8617.06	25.27	19.77	4.48	119.52	79.06	2.95	
8800.00	10.62	84.78	8715.35	25.66	20.02	4.09	120.44	79.48	2.94	

Primary Well: Severus 31 Federal Com 1H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	CC (US ft)	ES (US ft)	SF	Risk
8900.00	10.62	84.78	8813.64	26.05	20.27	3.69	121.36	79.90	2.93	
9000.00	10.62	84.78	8911.92	26.44	20.52	3.31	122.29	80.33	2.91	
9100.00	10.62	84.78	9010.21	26.83	20.77	2.93	123.23	80.76	2.90	
9200.00	10.62	84.78	9108.50	27.22	21.02	2.55	124.17	81.19	2.89	
9300.00	10.62	84.78	9206.79	27.62	21.27	2.19	125.11	81.63	2.88	
9400.00	10.62	84.78	9305.08	28.01	21.52	1.82	126.06	82.07	2.87	
9500.00	10.62	84.78	9403.37	28.40	21.78	1.47	127.02	82.52	2.85	
9600.00	10.62	84.78	9501.66	28.79	22.03	1.11	127.98	82.97	2.84	
9700.00	10.62	84.78	9599.94	29.19	22.28	0.77	128.95	83.42	2.83	
9800.00	10.62	84.78	9698.23	29.58	22.53	0.42	129.92	83.88	2.82	
9900.00	10.62	84.78	9796.52	29.98	22.79	0.09	130.89	84.34	2.81	
10000.00	10.62	84.78	9894.81	30.37	23.04	359.76	131.87	84.81	2.80	
10100.00	10.62	84.78	9993.10	30.77	23.29	359.43	132.85	85.27	2.79	
10200.00	10.62	84.78	10091.39	31.16	23.54	359.58	133.74	85.62	2.78	
10300.00	10.62	84.78	10189.68	31.56	23.80	5.61	134.10	85.48	2.76	
10400.00	10.62	84.78	10287.97	31.95	24.05	17.36	138.84	89.66	2.82	
10500.00	10.62	84.78	10386.25	32.35	24.30	30.91	156.24	107.39	3.20	
10600.00	10.62	84.78	10484.54	32.74	24.56	42.63	190.90	144.13	4.08	
14500.00	89.33	179.59	11392.37	63.66	30.58	260.02	473.04	378.42	5.00	
14600.00	89.33	179.59	11393.54	65.32	31.18	260.02	473.07	376.18	4.88	
14700.00	89.33	179.59	11394.71	66.99	31.79	260.02	473.10	373.92	4.77	
14800.00	89.33	179.59	11395.88	68.67	32.40	260.02	473.13	371.64	4.66	
14900.00	89.33	179.59	11397.04	70.36	33.02	260.02	473.16	369.33	4.56	
15000.00	89.33	179.59	11398.21	72.06	33.64	260.02	473.18	367.00	4.46	
15100.00	89.33	179.59	11399.38	73.76	34.26	260.02	473.21	364.65	4.36	
15200.00	89.33	179.59	11400.54	75.47	34.89	260.02	473.24	362.29	4.27	
15300.00	89.33	179.59	11401.71	77.18	35.52	260.02	473.27	359.90	4.17	
15400.00	89.33	179.59	11402.88	78.90	36.16	260.02	473.29	357.50	4.09	
15500.00	89.33	179.59	11404.05	80.62	36.80	260.02	473.32	355.08	4.00	
15600.00	89.33	179.59	11405.21	82.35	37.44	260.02	473.35	352.65	3.92	
15700.00	89.33	179.59	11406.38	84.08	38.09	260.02	473.38	350.20	3.84	
15800.00	89.33	179.59	11407.55	85.82	38.74	260.03	473.41	347.74	3.77	
15900.00	89.33	179.59	11408.71	87.56	39.39	260.03	473.43	345.26	3.69	
16000.00	89.33	179.59	11409.88	89.31	40.05	260.03	473.46	342.77	3.62	
16100.00	89.33	179.59	11411.05	91.05	40.71	260.03	473.49	340.26	3.55	
16200.00	89.33	179.59	11412.22	92.81	41.37	260.03	473.52	337.74	3.49	
16300.00	89.33	179.59	11413.38	94.56	42.03	260.03	473.55	335.21	3.42	
16400.00	89.33	179.59	11414.55	96.32	42.70	260.03	473.57	332.67	3.36	
16500.00	89.33	179.59	11415.72	98.08	43.37	260.03	473.60	330.12	3.30	
16600.00	89.33	179.59	11416.88	99.84	44.04	260.03	473.63	327.56	3.24	
16700.00	89.33	179.59	11418.05	101.60	44.71	260.03	473.66	324.98	3.19	
16800.00	89.33	179.59	11419.22	103.37	45.38	260.03	473.68	322.40	3.13	
16900.00	89.33	179.59	11420.39	105.14	46.06	260.03	473.71	319.80	3.08	
17000.00	89.33	179.59	11421.55	106.91	46.74	260.03	473.74	317.19	3.03	
17100.00	89.33	179.59	11422.72	108.69	47.41	260.03	473.77	314.58	2.98	
17200.00	89.33	179.59	11423.89	110.46	48.09	260.03	473.80	311.95	2.93	
17300.00	89.33	179.59	11425.05	112.24	48.78	260.03	473.82	309.32	2.88	
17400.00	89.33	179.59	11426.22	114.02	49.46	260.04	473.85	306.67	2.83	
17500.00	89.33	179.59	11427.39	115.80	50.15	260.04	473.88	304.02	2.79	
17600.00	89.33	179.59	11428.56	117.58	50.83	260.04	473.91	301.36	2.75	
17700.00	89.33	179.59	11429.72	119.36	51.52	260.04	473.94	298.68	2.70	
17800.00	89.33	179.59	11430.89	121.15	52.21	260.04	473.96	296.00	2.66	
17900.00	89.33	179.59	11432.06	122.93	52.90	260.04	473.99	293.31	2.62	
18000.00	89.33	179.59	11433.22	124.72	53.59	260.04	474.02	290.62	2.58	
18100.00	89.33	179.59	11434.39	126.51	54.28	260.04	474.05	287.91	2.55	
18200.00	89.33	179.59	11435.56	128.30	54.97	260.04	474.07	285.20	2.51	
18300.00	89.33	179.59	11436.73	130.09	55.67	260.04	474.10	282.47	2.47	SF(Lo)
18400.00	89.33	179.59	11437.89	131.88	56.36	260.04	474.13	279.74	2.44	SF(Lo)
18500.00	89.33	179.59	11439.06	133.68	57.06	260.04	474.16	277.01	2.41	SF(Lo)

Primary Well: Severus 31 Federal Com 1H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	CC (US ft)	ES (US ft)	SF	Risk
18600.00	89.33	179.59	11440.23	135.47	57.76	260.04	474.19	274.26	2.37	SF(Lo)
18700.00	89.33	179.59	11441.39	137.27	58.46	260.04	474.21	271.50	2.34	SF(Lo)
18800.00	89.33	179.59	11442.56	139.06	59.15	260.04	474.24	268.74	2.31	SF(Lo)
18900.00	89.33	179.59	11443.73	140.86	59.85	260.04	474.27	265.97	2.28	SF(Lo)
19000.00	89.33	179.59	11444.90	142.66	60.55	260.05	474.30	263.20	2.25	SF(Lo)
19100.00	89.33	179.59	11446.06	144.46	61.26	260.05	474.33	260.41	2.22	SF(Lo)
19180.22	89.33	179.59	11447.00	145.90	61.82	260.05	474.35	258.17	2.19	SF(Lo)

Secondary Well: Severus 31 Federal Com 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)											
Pri MD (US ft)	Sec MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	ES (US ft)	CC (US ft)	SF	Risk
2100.00	2100.00	0.00	0.00	2100.00	4.61	4.61	269.54	39.98	50.00	4.99	
2200.00	2200.00	0.00	0.00	2200.00	4.83	4.83	269.54	39.53	50.00	4.78	
2300.00	2300.00	0.00	0.00	2300.00	5.06	5.06	269.54	39.08	50.00	4.58	
2400.00	2400.00	0.00	0.00	2400.00	5.28	5.28	269.54	38.63	50.00	4.40	
2500.00	2500.00	0.00	0.00	2500.00	5.51	5.51	269.54	38.18	50.00	4.23	
2600.00	2600.00	0.00	0.00	2600.00	5.73	5.73	269.54	37.74	50.00	4.08	
2700.00	2700.00	0.00	0.00	2700.00	5.96	5.96	269.54	37.29	50.00	3.93	
2800.00	2800.00	0.00	0.00	2800.00	6.18	6.18	269.54	36.84	50.00	3.80	
2900.00	2900.00	0.00	0.00	2900.00	6.41	6.41	269.54	36.39	50.00	3.67	
3000.00	3000.00	0.00	0.00	3000.00	6.63	6.63	269.54	35.94	50.00	3.56	
3100.00	3100.92	1.14	68.81	3100.90	6.85	6.84	270.14	34.17	48.66	3.36	
3200.00	3200.90	1.14	68.81	3200.86	7.05	7.05	271.03	31.88	46.81	3.14	
3300.00	3300.88	1.14	68.81	3300.82	7.26	7.26	271.99	29.61	44.97	2.93	
3400.00	3400.86	1.14	68.81	3400.78	7.47	7.47	273.03	27.35	43.15	2.73	
3500.00	3500.84	1.14	68.81	3500.74	7.68	7.68	274.16	25.11	41.34	2.55	
3582.42	3583.25	1.14	68.81	3583.14	7.86	7.85	190.10	24.45	41.03	2.47	SF(Lo)
3600.00	3600.83	1.14	68.81	3600.72	7.90	7.89	190.17	24.61	41.27	2.48	SF(Lo)
3700.00	3700.77	1.14	68.81	3700.64	8.11	8.10	190.13	27.57	44.63	2.62	
3800.00	3800.53	1.14	68.81	3800.38	8.32	8.31	189.42	33.95	51.43	2.94	
3900.00	3899.99	1.14	68.81	3899.82	8.53	8.52	188.38	43.79	61.67	3.45	
4000.00	3999.04	1.14	68.81	3998.85	8.75	8.73	187.31	57.07	75.37	4.12	
4100.00	4097.69	1.14	68.81	4097.48	8.96	8.95	186.36	72.97	91.69	4.90	

Secondary Well: Severus 31 Federal Com 5H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)											
Pri MD (US ft)	Sec MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	ES (US ft)	CC (US ft)	SF	Risk
2100.00	2101.00	0.00	0.00	2100.00	4.61	4.61	89.31	39.98	50.00	4.99	
2200.00	2201.00	0.00	0.00	2200.00	4.84	4.84	89.31	39.53	50.00	4.78	
2300.00	2301.00	0.00	0.00	2300.00	5.06	5.06	89.31	39.08	50.00	4.58	
2400.00	2401.00	0.00	0.00	2400.00	5.28	5.28	89.31	38.63	50.00	4.40	
2500.00	2501.00	0.00	0.00	2500.00	5.51	5.51	89.31	38.18	50.00	4.23	
2600.00	2601.00	0.00	0.00	2600.00	5.73	5.73	89.31	37.74	50.00	4.08	
2700.00	2701.00	0.00	0.00	2700.00	5.96	5.96	89.31	37.29	50.00	3.93	
2800.00	2801.00	0.00	0.00	2800.00	6.18	6.18	89.31	36.84	50.00	3.80	
2900.00	2901.00	0.00	0.00	2900.00	6.41	6.41	89.31	36.39	50.00	3.67	
3000.00	3000.98	0.02	85.85	2999.98	6.63	6.63	89.31	35.94	50.00	3.55	
3100.00	3099.23	1.98	85.85	3098.21	6.84	6.84	89.20	37.27	51.75	3.57	
3200.00	3197.25	3.94	85.85	3196.09	7.04	7.02	88.90	42.06	56.91	3.83	
3300.00	3294.80	5.90	85.85	3293.28	7.24	7.20	88.51	50.29	65.48	4.31	
3400.00	3391.67	7.83	85.85	3389.46	7.45	7.38	88.11	61.93	77.43	5.00	
14500.00	14655.01	89.33	179.57	11474.37	64.43	31.38	260.02	378.42	473.04	5.00	
14600.00	14755.01	89.33	179.57	11475.54	66.07	31.99	260.02	376.18	473.07	4.88	
14700.00	14855.01	89.33	179.57	11476.70	67.73	32.61	260.02	373.92	473.10	4.77	
14800.00	14955.01	89.33	179.57	11477.87	69.39	33.23	260.02	371.64	473.13	4.66	
14900.00	15055.01	89.33	179.57	11479.04	71.06	33.85	260.02	369.33	473.16	4.56	
15000.00	15155.01	89.33	179.57	11480.20	72.74	34.48	260.02	367.00	473.18	4.46	
15100.00	15255.01	89.33	179.57	11481.37	74.43	35.11	260.02	364.65	473.21	4.36	
15200.00	15355.01	89.33	179.57	11482.54	76.12	35.75	260.02	362.29	473.24	4.27	

Secondary Well: Severus 31 Federal Com 5H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)											
Pri MD (US ft)	Sec MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	ES (US ft)	CC (US ft)	SF	Risk
15300.00	15455.01	89.33	179.57	11483.70	77.82	36.39	260.02	359.90	473.27	4.17	
15400.00	15555.01	89.33	179.57	11484.87	79.53	37.03	260.02	357.50	473.29	4.09	
15500.00	15655.01	89.33	179.57	11486.04	81.24	37.68	260.02	355.08	473.32	4.00	
15600.00	15755.01	89.33	179.57	11487.20	82.95	38.33	260.02	352.65	473.35	3.92	
15700.00	15855.01	89.33	179.57	11488.37	84.67	38.98	260.02	350.20	473.38	3.84	
15800.00	15955.01	89.33	179.57	11489.54	86.40	39.64	260.03	347.74	473.41	3.77	
15900.00	16055.01	89.33	179.57	11490.71	88.13	40.29	260.03	345.26	473.43	3.69	
16000.00	16155.01	89.33	179.57	11491.87	89.86	40.95	260.03	342.77	473.46	3.62	
16100.00	16255.01	89.33	179.57	11493.04	91.60	41.62	260.03	340.26	473.49	3.55	
16200.00	16355.01	89.33	179.57	11494.21	93.34	42.28	260.03	337.74	473.52	3.49	
16300.00	16455.01	89.33	179.57	11495.37	95.09	42.95	260.03	335.21	473.55	3.42	
16400.00	16555.01	89.33	179.57	11496.54	96.84	43.62	260.03	332.67	473.57	3.36	
16500.00	16655.01	89.33	179.57	11497.71	98.59	44.29	260.03	330.12	473.60	3.30	
16600.00	16755.01	89.33	179.57	11498.87	100.34	44.96	260.03	327.56	473.63	3.24	
16700.00	16855.01	89.33	179.57	11500.04	102.10	45.64	260.03	324.98	473.66	3.19	
16800.00	16955.01	89.33	179.57	11501.21	103.86	46.32	260.03	322.40	473.68	3.13	
16900.00	17055.01	89.33	179.57	11502.37	105.62	47.00	260.03	319.80	473.71	3.08	
17000.00	17155.01	89.33	179.57	11503.54	107.38	47.68	260.03	317.19	473.74	3.03	
17100.00	17255.01	89.33	179.57	11504.71	109.15	48.36	260.03	314.58	473.77	2.98	
17200.00	17355.01	89.33	179.57	11505.88	110.92	49.04	260.03	311.95	473.80	2.93	
17300.00	17455.01	89.33	179.57	11507.04	112.69	49.73	260.03	309.32	473.82	2.88	
17400.00	17555.01	89.33	179.57	11508.21	114.46	50.41	260.04	306.67	473.85	2.83	
17500.00	17655.01	89.33	179.57	11509.38	116.23	51.10	260.04	304.02	473.88	2.79	
17600.00	17755.01	89.33	179.57	11510.54	118.01	51.79	260.04	301.36	473.91	2.75	
17700.00	17855.01	89.33	179.57	11511.71	119.79	52.48	260.04	298.68	473.94	2.70	
17800.00	17955.01	89.33	179.57	11512.88	121.57	53.17	260.04	296.00	473.96	2.66	
17900.00	18055.01	89.33	179.57	11514.04	123.35	53.86	260.04	293.31	473.99	2.62	
18000.00	18155.01	89.33	179.57	11515.21	125.13	54.55	260.04	290.62	474.02	2.58	
18100.00	18255.01	89.33	179.57	11516.38	126.91	55.25	260.04	287.91	474.05	2.55	
18200.00	18355.01	89.33	179.57	11517.54	128.70	55.94	260.04	285.20	474.07	2.51	
18300.00	18455.01	89.33	179.57	11518.71	130.48	56.64	260.04	282.47	474.10	2.47	SF(Lo)
18400.00	18555.01	89.33	179.57	11519.88	132.27	57.34	260.04	279.74	474.13	2.44	SF(Lo)
18500.00	18655.01	89.33	179.57	11521.04	134.06	58.03	260.04	277.01	474.16	2.41	SF(Lo)
18600.00	18755.01	89.33	179.57	11522.21	135.85	58.73	260.04	274.26	474.19	2.37	SF(Lo)
18700.00	18855.01	89.33	179.57	11523.38	137.64	59.43	260.04	271.50	474.21	2.34	SF(Lo)
18800.00	18955.01	89.33	179.57	11524.55	139.43	60.13	260.04	268.74	474.24	2.31	SF(Lo)
18900.00	19055.01	89.33	179.57	11525.71	141.23	60.83	260.04	265.97	474.27	2.28	SF(Lo)
19000.00	19155.01	89.33	179.57	11526.88	143.02	61.53	260.05	263.20	474.30	2.25	SF(Lo)
19100.00	19255.01	89.33	179.57	11528.05	144.81	62.24	260.05	260.41	474.33	2.22	SF(Lo)
19180.22	19335.23	89.33	179.57	11528.98	146.25	62.80	260.05	258.17	474.35	2.19	SF(Lo)

Secondary Well: Severus 31 Federal Com 6H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)											
Pri MD (US ft)	Sec MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	ES (US ft)	CC (US ft)	SF	Risk
16800.00	17144.94	89.33	179.61	11508.20	103.60	46.79	95.93	686.68	861.92	4.92	
16900.00	17244.94	89.33	179.61	11509.37	105.37	47.47	95.93	683.75	861.96	4.84	
17000.00	17344.94	89.33	179.61	11510.54	107.15	48.14	95.93	680.81	861.99	4.76	
17100.00	17444.94	89.33	179.61	11511.70	108.92	48.82	95.93	677.86	862.02	4.68	
17200.00	17544.94	89.33	179.61	11512.87	110.70	49.50	95.93	674.90	862.06	4.61	
17300.00	17644.94	89.33	179.61	11514.04	112.48	50.18	95.93	671.94	862.09	4.53	
17400.00	17744.94	89.33	179.61	11515.21	114.26	50.87	95.92	668.96	862.12	4.46	
17500.00	17844.94	89.33	179.61	11516.37	116.04	51.55	95.92	665.98	862.16	4.39	
17600.00	17944.94	89.33	179.61	11517.54	117.83	52.24	95.92	662.99	862.19	4.33	
17700.00	18044.94	89.33	179.61	11518.71	119.61	52.92	95.92	660.00	862.22	4.26	
17800.00	18144.94	89.33	179.61	11519.88	121.40	53.61	95.92	657.00	862.26	4.20	
17900.00	18244.94	89.33	179.61	11521.04	123.19	54.30	95.92	653.99	862.29	4.14	
18000.00	18344.94	89.33	179.61	11522.21	124.98	54.99	95.92	650.97	862.32	4.08	
18100.00	18444.94	89.33	179.61	11523.38	126.77	55.68	95.92	647.95	862.36	4.02	

Secondary Well: Severus 31 Federal Com 6H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)											
Pri MD (US ft)	Sec MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	ES (US ft)	CC (US ft)	SF	Risk
18200.00	18544.94	89.33	179.61	11524.55	128.56	56.38	95.92	644.92	862.39	3.97	
18300.00	18644.94	89.33	179.61	11525.72	130.35	57.07	95.92	641.88	862.42	3.91	
18400.00	18744.94	89.33	179.61	11526.88	132.14	57.76	95.92	638.83	862.46	3.86	
18500.00	18844.94	89.33	179.61	11528.05	133.94	58.46	95.92	635.78	862.49	3.80	
18600.00	18944.94	89.33	179.61	11529.22	135.73	59.16	95.92	632.73	862.53	3.75	
18700.00	19044.94	89.33	179.61	11530.39	137.53	59.85	95.92	629.66	862.56	3.70	
18800.00	19144.94	89.33	179.61	11531.55	139.33	60.55	95.92	626.59	862.59	3.66	
18900.00	19244.94	89.33	179.61	11532.72	141.13	61.25	95.92	623.51	862.63	3.61	
19000.00	19344.94	89.33	179.61	11533.89	142.93	61.95	95.92	620.43	862.66	3.56	
19100.00	19444.94	89.33	179.61	11535.06	144.73	62.65	95.92	617.34	862.69	3.52	
19180.22	19525.16	89.33	179.61	11535.99	146.17	63.22	95.92	614.86	862.72	3.48	

Secondary Well: Severus 31 Federal Com 13H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)											
Pri MD (US ft)	Sec MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	ES (US ft)	CC (US ft)	SF	Risk
3100.00	3099.42	1.99	83.46	3098.40	6.84	6.84	133.35	57.20	71.69	4.95	

Secondary Well: Severus 31 Federal Com 9H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)											
Pri MD (US ft)	Sec MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	ES (US ft)	CC (US ft)	SF	Risk
2100.00	2101.00	0.00	0.00	2100.00	4.61	4.61	179.54	39.98	50.00	4.99	
2200.00	2201.00	0.00	0.00	2200.00	4.84	4.84	179.54	39.53	50.00	4.78	
2300.00	2301.00	0.00	0.00	2300.00	5.06	5.06	179.54	39.08	50.00	4.58	
2400.00	2401.00	0.00	0.00	2400.00	5.28	5.28	179.54	38.63	50.00	4.40	
2500.00	2501.00	0.00	0.00	2500.00	5.51	5.51	179.54	38.18	50.00	4.23	
2600.00	2601.00	0.00	0.00	2600.00	5.73	5.73	179.54	37.73	50.00	4.08	
2700.00	2701.00	0.00	0.00	2700.00	5.96	5.96	179.54	37.28	50.00	3.93	
2800.00	2801.00	0.00	0.00	2800.00	6.18	6.18	179.54	36.83	50.00	3.80	
2900.00	2901.00	0.00	0.00	2900.00	6.41	6.41	179.54	36.38	50.00	3.67	
3000.00	3001.00	0.00	0.00	3000.00	6.63	6.63	179.54	35.93	50.00	3.55	
3100.00	3101.00	0.02	82.53	3100.00	6.86	6.86	179.54	35.49	50.00	3.44	
3200.00	3201.17	2.02	82.53	3200.15	7.07	7.07	177.50	34.86	49.82	3.33	
3300.00	3301.10	4.02	82.53	3299.93	7.27	7.26	171.43	34.25	49.64	3.23	
3400.00	3400.54	6.01	82.53	3398.98	7.48	7.44	161.53	34.76	50.57	3.20	
3500.00	3499.25	7.99	82.53	3496.96	7.70	7.62	148.94	38.04	54.24	3.35	
3600.00	3597.30	9.95	82.53	3593.81	7.92	7.79	52.22	44.60	61.10	3.70	
3700.00	3695.51	11.18	82.53	3690.27	8.17	7.98	43.02	52.99	69.76	4.16	
3800.00	3794.92	11.18	82.53	3787.80	8.43	8.18	37.09	60.41	77.54	4.53	
3900.00	3894.65	11.18	82.53	3885.63	8.70	8.40	33.59	65.54	83.05	4.74	
4000.00	3994.57	11.18	82.53	3983.65	8.99	8.61	31.73	67.91	85.83	4.79	
4100.00	4094.56	11.18	82.53	4081.74	9.29	8.83	30.90	68.05	86.42	4.71	
4200.00	4194.55	11.18	82.53	4179.84	9.59	9.05	30.14	68.06	86.87	4.62	
4300.00	4294.54	11.18	82.53	4277.93	9.91	9.28	29.38	68.08	87.34	4.53	
4400.00	4394.53	11.18	82.53	4376.02	10.23	9.50	28.64	68.11	87.83	4.45	
4500.00	4494.53	11.18	82.53	4474.12	10.56	9.73	27.90	68.14	88.33	4.38	
4600.00	4594.52	11.18	82.53	4572.21	10.90	9.96	27.17	68.19	88.84	4.30	
4700.00	4694.51	11.18	82.53	4670.30	11.24	10.19	26.45	68.26	89.37	4.23	
4800.00	4794.50	11.18	82.53	4768.40	11.59	10.42	25.74	68.33	89.92	4.16	
4900.00	4894.49	11.18	82.53	4866.49	11.94	10.66	25.03	68.41	90.48	4.10	
5000.00	4994.49	11.18	82.53	4964.58	12.29	10.89	24.34	68.51	91.05	4.04	
5100.00	5094.48	11.18	82.53	5062.68	12.65	11.13	23.65	68.62	91.63	3.98	
5200.00	5194.47	11.18	82.53	5160.77	13.02	11.36	22.97	68.74	92.23	3.93	
5300.00	5294.46	11.18	82.53	5258.86	13.39	11.60	22.31	68.88	92.84	3.87	
5400.00	5394.46	11.18	82.53	5356.96	13.76	11.84	21.65	69.02	93.46	3.82	
5500.00	5494.45	11.18	82.53	5455.05	14.13	12.08	21.00	69.27	94.09	3.79	
5600.00	5594.44	11.18	82.53	5553.14	14.50	12.33	20.35	69.44	94.74	3.74	
5700.00	5694.43	11.18	82.53	5651.24	14.88	12.57	19.72	69.62	95.40	3.70	
5800.00	5794.43	11.18	82.53	5749.33	15.26	12.81	19.10	69.81	96.07	3.66	

Secondary Well: Severus 31 Federal Com 9H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)											
Pri MD (US ft)	Sec MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	ES (US ft)	CC (US ft)	SF	Risk
5900.00	5894.42	11.18	82.53	5847.42	15.65	13.06	18.48	70.01	96.75	3.62	
6000.00	5994.41	11.18	82.53	5945.52	16.03	13.30	17.87	70.22	97.44	3.58	
6100.00	6094.40	11.18	82.53	6043.61	16.42	13.55	17.27	70.44	98.14	3.54	
6200.00	6194.39	11.18	82.53	6141.70	16.81	13.79	16.69	70.68	98.86	3.51	
6300.00	6294.39	11.18	82.53	6239.80	17.20	14.04	16.10	70.92	99.58	3.47	
6400.00	6394.38	11.18	82.53	6337.89	17.59	14.29	15.53	71.17	100.31	3.44	
6500.00	6494.37	11.18	82.53	6435.98	17.98	14.54	14.97	71.43	101.06	3.41	
6600.00	6594.36	11.18	82.53	6534.08	18.37	14.79	14.41	71.70	101.81	3.38	
6700.00	6694.36	11.18	82.53	6632.17	18.77	15.03	13.86	71.98	102.57	3.35	
6800.00	6794.35	11.18	82.53	6730.26	19.17	15.28	13.32	72.27	103.35	3.33	
6900.00	6894.34	11.18	82.53	6828.36	19.56	15.53	12.79	72.56	104.13	3.30	
7000.00	6994.33	11.18	82.53	6926.45	19.96	15.78	12.27	72.86	104.92	3.27	
7100.00	7094.33	11.18	82.53	7024.54	20.36	16.04	11.75	73.18	105.71	3.25	
7200.00	7194.32	11.18	82.53	7122.64	20.76	16.29	11.24	73.49	106.52	3.23	
7300.00	7294.31	11.18	82.53	7220.73	21.16	16.54	10.74	73.82	107.34	3.20	
7400.00	7394.30	11.18	82.53	7318.82	21.56	16.79	10.25	74.15	108.16	3.18	
7500.00	7494.29	11.18	82.53	7416.92	21.97	17.04	9.76	74.49	108.99	3.16	
7600.00	7594.29	11.18	82.53	7515.01	22.37	17.30	9.28	74.84	109.83	3.14	
7700.00	7694.28	11.18	82.53	7613.10	22.77	17.55	8.81	75.20	110.68	3.12	
7800.00	7794.27	11.18	82.53	7711.19	23.18	17.80	8.35	75.56	111.53	3.10	
7900.00	7894.26	11.18	82.53	7809.29	23.58	18.06	7.89	75.92	112.39	3.08	
8000.00	7994.26	11.18	82.53	7907.38	23.99	18.31	7.44	76.30	113.26	3.06	
8100.00	8094.25	11.18	82.53	8005.47	24.39	18.57	7.00	76.68	114.13	3.05	
8200.00	8194.24	11.18	82.53	8103.57	24.80	18.82	6.56	77.06	115.01	3.03	
8300.00	8294.23	11.18	82.53	8201.66	25.21	19.07	6.14	77.45	115.90	3.01	
8400.00	8394.23	11.18	82.53	8299.75	25.62	19.33	5.71	77.85	116.80	3.00	
8500.00	8494.22	11.18	82.53	8397.85	26.02	19.58	5.30	78.25	117.70	2.98	
8600.00	8594.21	11.18	82.53	8495.94	26.43	19.84	4.89	78.65	118.60	2.97	
8700.00	8694.20	11.18	82.53	8594.03	26.84	20.10	4.48	79.06	119.52	2.95	
8800.00	8794.19	11.18	82.53	8692.13	27.25	20.35	4.09	79.48	120.44	2.94	
8900.00	8894.19	11.18	82.53	8790.22	27.66	20.61	3.69	79.90	121.36	2.93	
9000.00	8994.18	11.18	82.53	8888.31	28.07	20.86	3.31	80.33	122.29	2.91	
9100.00	9094.17	11.18	82.53	8986.41	28.48	21.12	2.93	80.76	123.23	2.90	
9200.00	9194.16	11.18	82.53	9084.50	28.89	21.38	2.55	81.19	124.17	2.89	
9300.00	9294.16	11.18	82.53	9182.59	29.30	21.63	2.19	81.63	125.11	2.88	
9400.00	9394.15	11.18	82.53	9280.69	29.72	21.89	1.82	82.07	126.06	2.87	
9500.00	9494.14	11.18	82.53	9378.78	30.13	22.15	1.47	82.52	127.02	2.85	
9600.00	9594.13	11.18	82.53	9476.87	30.54	22.41	1.11	82.97	127.98	2.84	
9700.00	9694.13	11.18	82.53	9574.97	30.95	22.66	0.77	83.42	128.95	2.83	
9800.00	9794.12	11.18	82.53	9673.06	31.36	22.92	0.42	83.88	129.92	2.82	
9900.00	9894.11	11.18	82.53	9771.15	31.78	23.18	0.09	84.34	130.89	2.81	
10000.00	9994.10	11.18	82.53	9869.25	32.19	23.44	359.76	84.81	131.87	2.80	
10100.00	10094.09	11.18	82.53	9967.34	32.60	23.69	359.43	85.27	132.85	2.79	
10200.00	10194.87	11.31	100.90	10066.21	32.96	23.95	359.58	85.62	133.74	2.78	
10300.00	10294.90	16.43	137.98	10163.47	32.62	24.18	5.61	85.48	134.10	2.76	
10400.00	10387.49	24.03	153.59	10250.34	31.62	24.37	17.36	89.66	138.84	2.82	
10500.00	10469.28	31.46	160.99	10322.71	30.23	24.52	30.91	107.39	156.24	3.20	
10600.00	10539.35	38.05	165.18	10380.26	28.72	24.64	42.63	144.13	190.90	4.08	

Secondary Well: Severus 31 Federal Com 10H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)											
Pri MD (US ft)	Sec MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	ES (US ft)	CC (US ft)	SF	Risk
3100.00	3099.00	0.00	0.00	3100.00	6.85	6.85	224.54	56.20	70.71	4.87	
3200.00	3199.00	0.00	0.00	3200.00	7.08	7.08	224.54	55.75	70.71	4.73	
3300.00	3299.00	0.00	0.00	3300.00	7.30	7.30	224.54	55.30	70.71	4.59	
3400.00	3399.00	0.00	0.00	3400.00	7.53	7.53	224.54	54.85	70.71	4.46	
3500.00	3499.00	0.00	0.00	3500.00	7.75	7.75	224.54	54.40	70.71	4.34	
3600.00	3598.98	0.00	0.00	3599.98	7.98	7.98	140.64	55.31	72.05	4.30	

Secondary Well: Severus 31 Federal Com 10H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)											
Pri MD (US ft)	Sec MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	ES (US ft)	CC (US ft)	SF	Risk
3700.00	3698.84	0.00	0.00	3699.84	8.20	8.20	143.09	59.00	76.17	4.44	
3800.00	3798.45	0.00	0.00	3799.45	8.43	8.43	146.61	65.71	83.31	4.73	

Weatherford

Weatherford Drilling Services

GeoDec4 v2.6.0.0

Report Date:	September 14, 2017
Job Number:	
Customer:	XTO Energy Inc.
Well Name:	Severus 31 Federal Com 1H
API Number:	
Rig Name:	
Location:	Lea Co, NM (Nad 27 NME)
Block:	
Engineer:	RWJ

NAD27 / New Mexico East	NAD27 / New Mexico East
Projected Coordinate System	Projected Coordinate System
Datum: North American Datum 1927	Datum: North American Datum 1927
Ellipsoid: Clarke 1866	Ellipsoid: Clarke 1866
EPSG: 32012	EPSG: 32012
North: 559895.40 US Survey Foot	North: 559895.4 US Survey Foot
East: 726703.50 US Survey Foot	East: 726703.5 US Survey Foot
Convergence: 0.40°	Convergence: 0.40°
Declination: 7.01°	Declination: 7.01°
Total Correction: 6.61°	Total Correction: 6.61°
Datum Transformation: none	

Geodetic Location WGS84

MSL Elevation	=	0 m
Latitude	=	32° 32' 14.04" N
Longitude	=	103° 35' 53.51" W

Magnetic Declination	=	7.01 deg	[True North Offset]		
Local Gravity	=	.9988 g	CheckSum	=	6554
Local Field Strength	=	48180 nT	Magnetic Vector X	=	23666 nT
Magnetic Dip	=	60.34 deg	Magnetic Vector Y	=	2909 nT
Magnetic Model	=	bggm2017.dat	Magnetic Vector Z	=	41866 nT
Run Date	=	September 25, 2017	Magnetic Vector H	=	23844 nT

Signed:_____ Date:_____