

HOLDS OCD

FEB 15 2018

RECEIVED

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	XTO ENERGY INC
LEASE NO.:	NMNM87274
WELL NAME & NO.:	SEVERUS 31 FED COM 2H
SURFACE HOLE FOOTAGE:	130' FSL & 2262.5' FEL
BOTTOM HOLE FOOTAGE:	2401.3' FNL & 1650' FEL Sec. 5 T. 21S., R 33E.
LOCATION:	Section 030, T. 20 S., R 34 E., NMPM
COUNTY:	Eddy County, New Mexico

COA

All previous COAs still apply expect the following:

H2S	☐ Yes	☒ No	
Potash	☐ None	☐ Secretary	☒ R-111-P
Cave/Karst Potential	☒ Low	☐ Medium	☐ High
Variance	☐ None	☒ Flex Hose	☐ Other
Wellhead	☒ Conventional	☐ Multibowl	☐ Both
Other	☐ 4 String Area	☒ Capitan Reef	☐ WIPP

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 13-3/8 inch surface casing shall be set at approximately 1672 feet (a minimum of 25 feet 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.

Operator shall filled 1/3rd casing with fluid while drilling intermediate casing to maintain collapse safety factor.

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

Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

- a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.
- b. Second stage above DV tool: Cement to surface. If cement does not circulate, contact the appropriate BLM office.

❖ **Special Capitan Reef requirements.** If lost circulation (50% or greater) occurs below the Base of the Salt, the operator shall do the following:

(Use this for 3 string wells in the Capitan Reef, if 4 string well ensure FW based mud used across the capitan interval)

- Switch to fresh water mud to protect the Capitan Reef and use fresh water mud until setting the intermediate casing. The appropriate BLM office is to be notified for a PET to witness the switch to fresh water.
 - Daily drilling reports from the Base of the Salt to the setting of the intermediate casing are to be submitted to the BLM CFO engineering staff via e-mail by 0800 hours each morning. Any lost circulation encountered is to be recorded on these drilling reports. The daily drilling report should show mud volume per shift/tour. Failure to submit these reports will result in an Incidence of Non-Compliance being issued for failure to comply with the Conditions of Approval. If not already planned, the operator shall run a caliper survey for the intermediate well bore and submit to the appropriate BLM office.
3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
- Cement to surface. If cement does not circulate, contact the appropriate BLM office.

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. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

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)

☒ 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. 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.
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. The results of the test shall be reported to the appropriate BLM office.
- 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. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes. This test shall be performed prior to the test at full stack pressure.
- g. 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.

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

ZS 020718



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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 2H*
Plan: *P1:V4*

22 November 2017



Severus 31 Federal Com 2H

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 2H	Position (Relative to Site Centre)			
	+N/-S: -0.40 US ft	Northing: 559895.00 US ft	Latitude: 32°32'13.59"	
	+E/-W: -50.00 US ft	Easting: 726653.50 US ft	Longitude: -103°35'52.33"	
	Elevation above MSL: 3699.00 US ft			
Comment:				
Well: Severus 31 Federal Com 2H	Type:Main well		UWI:	Plan:P1:V4
	File Number:	Comment:		
	Closure Distance:7824.07US ft		Closure Azimuth:178.45°	
	Vertical Section: Position of Origin (Relative to Slot centre)			
	+N/-S: -0.00 US ft		+E/-W: 0.00 US ft	Az: 179.58°
	Magnetic Parameters:			
	Model: bggm2017	Field Strength:	Declination: 7.00°	Dip: 60.34°
		48173.9nT		Date: 15/Oct/2017

Drill floor: Plan: P1:V4

Rig Height (Kelly Bushing): Elevation above MSL: 30.00 US ft **Inclination:** 0.00° **Azimuth:** 0.00°

Target set: Severus 31 Federal Com 2H Comment:

Target Name:	Shape:	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northings (US ft)	Easting (US ft)	Comment
FTP	Point	11288.00	-458.40	158.60	559436.60	726812.10	
LTP	Point	0.00	-7691.20	211.00	552203.80	726864.50	
PBHL	Point	11414.00	-7821.20	212.00	552073.80	726865.50	

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

Name	MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	N. Offset (US ft)	E. Offset (US ft)
9 5/8 in	5450.48	1.15	69.78	5450.00	1721.00	16.74	45.45

Wellpath created using minimum curvature.

Tie Point:

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

5D Plan Report

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	
3000.00	0.00	0.00	3000.00	-0.00	-0.00	0.00	0.00	0.00	0.00	Nudge
3057.29	1.15	69.78	3057.29	-0.19	0.20	0.54	2.00	0.00	2.00	Hold
10765.31	1.15	69.78	10763.77	-52.40	53.46	145.19	0.00	0.00	0.00	KOP Build 11's
11578.11	89.02	179.58	11288.00	459.55	-458.40	158.60	10.81	13.51	11.00	2H FTP
18942.18	89.02	179.58	11414.00	7822.54	-7821.20	212.00	0.00	0.00	0.00	2H 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)	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	
100.00	0.00	0.00	100.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
1000.00	0.00	0.00	1000.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
1100.00	0.00	0.00	1100.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
1200.00	0.00	0.00	1200.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
1300.00	0.00	0.00	1300.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
1400.00	0.00	0.00	1400.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
1500.00	0.00	0.00	1500.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
1573.00	0.00	0.00	1573.00	-0.00	-0.00	0.00	0.00	0.00	0.00	Rustler :
1600.00	0.00	0.00	1600.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
1700.00	0.00	0.00	1700.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
1800.00	0.00	0.00	1800.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
1900.00	0.00	0.00	1900.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
1940.00	0.00	0.00	1940.00	-0.00	-0.00	0.00	0.00	0.00	0.00	Salado :
2000.00	0.00	0.00	2000.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
2100.00	0.00	0.00	2100.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
2200.00	0.00	0.00	2200.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
2300.00	0.00	0.00	2300.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
2400.00	0.00	0.00	2400.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
2500.00	0.00	0.00	2500.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
2600.00	0.00	0.00	2600.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
2700.00	0.00	0.00	2700.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
2800.00	0.00	0.00	2800.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
2900.00	0.00	0.00	2900.00	-0.00	-0.00	0.00	0.00	0.00	0.00	
3000.00	0.00	0.00	3000.00	-0.00	-0.00	0.00	0.00	0.00	0.00	Nudge
3057.29	1.15	69.78	3057.29	-0.19	0.20	0.54	2.00	0.00	2.00	Hold
3100.00	1.15	69.78	3099.99	-0.48	0.49	1.34	0.00	0.00	0.00	
3184.03	1.15	69.78	3184.00	-1.05	1.07	2.92	0.00	0.00	0.00	Base Salt :
3200.00	1.15	69.78	3199.97	-1.16	1.18	3.22	0.00	0.00	0.00	
3300.00	1.15	69.78	3299.95	-1.84	1.88	5.09	0.00	0.00	0.00	
3360.06	1.15	69.78	3360.00	-2.24	2.29	6.22	0.00	0.00	0.00	Yates :
3400.00	1.15	69.78	3399.93	-2.52	2.57	6.97	0.00	0.00	0.00	
3500.00	1.15	69.78	3499.91	-3.19	3.26	8.85	0.00	0.00	0.00	
3587.11	1.15	69.78	3587.00	-3.78	3.86	10.48	0.00	0.00	0.00	Seven Rivers :
3600.00	1.15	69.78	3599.89	-3.87	3.95	10.72	0.00	0.00	0.00	
3700.00	1.15	69.78	3699.87	-4.55	4.64	12.60	0.00	0.00	0.00	
3736.14	1.15	69.78	3736.00	-4.79	4.89	13.28	0.00	0.00	0.00	Capitan Ref :
3800.00	1.15	69.78	3799.85	-5.22	5.33	14.48	0.00	0.00	0.00	
3900.00	1.15	69.78	3899.83	-5.90	6.02	16.35	0.00	0.00	0.00	
4000.00	1.15	69.78	3999.81	-6.58	6.71	18.23	0.00	0.00	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)	B.Rate (°/100US ft)	T.Rate (°/100US ft)	DLS (°/100US ft)	Comment
4100.00	1.15	69.78	4099.79	-7.26	7.40	20.11	0.00	0.00	0.00	
4200.00	1.15	69.78	4199.77	-7.93	8.09	21.98	0.00	0.00	0.00	
4300.00	1.15	69.78	4299.75	-8.61	8.79	23.86	0.00	0.00	0.00	
4400.00	1.15	69.78	4399.73	-9.29	9.48	25.74	0.00	0.00	0.00	
4500.00	1.15	69.78	4499.71	-9.97	10.17	27.61	0.00	0.00	0.00	
4600.00	1.15	69.78	4599.69	-10.64	10.86	29.49	0.00	0.00	0.00	
4700.00	1.15	69.78	4699.67	-11.32	11.55	31.36	0.00	0.00	0.00	
4800.00	1.15	69.78	4799.65	-12.00	12.24	33.24	0.00	0.00	0.00	
4900.00	1.15	69.78	4899.63	-12.67	12.93	35.12	0.00	0.00	0.00	
5000.00	1.15	69.78	4999.61	-13.35	13.62	36.99	0.00	0.00	0.00	
5100.00	1.15	69.78	5099.59	-14.03	14.31	38.87	0.00	0.00	0.00	
5200.00	1.15	69.78	5199.57	-14.71	15.01	40.75	0.00	0.00	0.00	
5300.00	1.15	69.78	5299.55	-15.38	15.70	42.62	0.00	0.00	0.00	
5400.00	1.15	69.78	5399.53	-16.06	16.39	44.50	0.00	0.00	0.00	
5450.48	1.15	69.78	5450.00	-16.40	16.74	45.45	0.00	0.00	0.00	9 5/8 in
5500.00	1.15	69.78	5499.51	-16.74	17.08	46.38	0.00	0.00	0.00	
5564.51	1.15	69.78	5564.00	-17.17	17.52	47.59	0.00	0.00	0.00	Delaware :
5600.00	1.15	69.78	5599.49	-17.42	17.77	48.25	0.00	0.00	0.00	
5700.00	1.15	69.78	5699.47	-18.09	18.46	50.13	0.00	0.00	0.00	
5800.00	1.15	69.78	5799.45	-18.77	19.15	52.01	0.00	0.00	0.00	
5900.00	1.15	69.78	5899.43	-19.45	19.84	53.88	0.00	0.00	0.00	
6000.00	1.15	69.78	5999.41	-20.12	20.53	55.76	0.00	0.00	0.00	
6100.00	1.15	69.78	6099.39	-20.80	21.22	57.64	0.00	0.00	0.00	
6200.00	1.15	69.78	6199.37	-21.48	21.92	59.51	0.00	0.00	0.00	
6300.00	1.15	69.78	6299.35	-22.16	22.61	61.39	0.00	0.00	0.00	
6400.00	1.15	69.78	6399.33	-22.83	23.30	63.27	0.00	0.00	0.00	
6500.00	1.15	69.78	6499.31	-23.51	23.99	65.14	0.00	0.00	0.00	
6600.00	1.15	69.78	6599.29	-24.19	24.68	67.02	0.00	0.00	0.00	
6700.00	1.15	69.78	6699.27	-24.87	25.37	68.90	0.00	0.00	0.00	
6800.00	1.15	69.78	6799.25	-25.54	26.06	70.77	0.00	0.00	0.00	
6900.00	1.15	69.78	6899.23	-26.22	26.75	72.65	0.00	0.00	0.00	
7000.00	1.15	69.78	6999.21	-26.90	27.44	74.53	0.00	0.00	0.00	
7008.79	1.15	69.78	7008.00	-26.96	27.50	74.69	0.00	0.00	0.00	Brushy Canyon :
7100.00	1.15	69.78	7099.19	-27.57	28.14	76.40	0.00	0.00	0.00	
7200.00	1.15	69.78	7199.17	-28.25	28.83	78.28	0.00	0.00	0.00	
7300.00	1.15	69.78	7299.15	-28.93	29.52	80.16	0.00	0.00	0.00	
7400.00	1.15	69.78	7399.13	-29.61	30.21	82.03	0.00	0.00	0.00	
7500.00	1.15	69.78	7499.11	-30.28	30.90	83.91	0.00	0.00	0.00	
7600.00	1.15	69.78	7599.09	-30.96	31.59	85.79	0.00	0.00	0.00	
7700.00	1.15	69.78	7699.07	-31.64	32.28	87.66	0.00	0.00	0.00	
7800.00	1.15	69.78	7799.05	-32.32	32.97	89.54	0.00	0.00	0.00	
7900.00	1.15	69.78	7899.03	-32.99	33.66	91.42	0.00	0.00	0.00	
8000.00	1.15	69.78	7999.01	-33.67	34.35	93.29	0.00	0.00	0.00	
8100.00	1.15	69.78	8098.99	-34.35	35.05	95.17	0.00	0.00	0.00	
8200.00	1.15	69.78	8198.97	-35.02	35.74	97.05	0.00	0.00	0.00	
8300.00	1.15	69.78	8298.95	-35.70	36.43	98.92	0.00	0.00	0.00	
8400.00	1.15	69.78	8398.93	-36.38	37.12	100.80	0.00	0.00	0.00	
8500.00	1.15	69.78	8498.91	-37.06	37.81	102.68	0.00	0.00	0.00	
8600.00	1.15	69.78	8598.89	-37.73	38.50	104.55	0.00	0.00	0.00	
8666.13	1.15	69.78	8665.00	-38.18	38.96	105.79	0.00	0.00	0.00	Bone Spring :
8700.00	1.15	69.78	8698.87	-38.41	39.19	106.43	0.00	0.00	0.00	
8800.00	1.15	69.78	8798.85	-39.09	39.88	108.31	0.00	0.00	0.00	
8830.16	1.15	69.78	8829.00	-39.29	40.09	108.87	0.00	0.00	0.00	Upper Avalon Shale :
8900.00	1.15	69.78	8898.83	-39.77	40.57	110.18	0.00	0.00	0.00	
9000.00	1.15	69.78	8998.81	-40.44	41.27	112.06	0.00	0.00	0.00	
9100.00	1.15	69.78	9098.79	-41.12	41.96	113.94	0.00	0.00	0.00	

5D Plan Report

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)	B.Rate (°/100US ft)	T.Rate (°/100US ft)	DLS (°/100US ft)	Comment
9149.22	1.15	69.78	9148.00	-41.45	42.30	114.86	0.00	0.00	0.00	Lower Avalon Shale :
9200.00	1.15	69.78	9198.77	-41.80	42.65	115.81	0.00	0.00	0.00	
9300.00	1.15	69.78	9298.75	-42.47	43.34	117.69	0.00	0.00	0.00	
9400.00	1.15	69.78	9398.73	-43.15	44.03	119.57	0.00	0.00	0.00	
9500.00	1.15	69.78	9498.71	-43.83	44.72	121.44	0.00	0.00	0.00	
9600.00	1.15	69.78	9598.69	-44.51	45.41	123.32	0.00	0.00	0.00	
9670.33	1.15	69.78	9669.00	-44.98	45.90	124.64	0.00	0.00	0.00	1st Bone Spring Sand :
9700.00	1.15	69.78	9698.67	-45.18	46.10	125.20	0.00	0.00	0.00	
9800.00	1.15	69.78	9798.65	-45.86	46.79	127.07	0.00	0.00	0.00	
9839.36	1.15	69.78	9838.00	-46.13	47.07	127.81	0.00	0.00	0.00	1st Bone Spring Lower :
9900.00	1.15	69.78	9898.63	-46.54	47.48	128.95	0.00	0.00	0.00	
9956.38	1.15	69.78	9955.00	-46.92	47.87	130.01	0.00	0.00	0.00	2nd Bone Spring A Lime :
10000.00	1.15	69.78	9998.61	-47.22	48.18	130.83	0.00	0.00	0.00	
10100.00	1.15	69.78	10098.59	-47.89	48.87	132.70	0.00	0.00	0.00	
10191.43	1.15	69.78	10190.00	-48.51	49.50	134.42	0.00	0.00	0.00	
10200.00	1.15	69.78	10198.57	-48.57	49.56	134.58	0.00	0.00	0.00	Second Bone Spring :
10300.00	1.15	69.78	10298.55	-49.25	50.25	136.46	0.00	0.00	0.00	
10400.00	1.15	69.78	10398.53	-49.92	50.94	138.33	0.00	0.00	0.00	
10500.00	1.15	69.78	10498.51	-50.60	51.63	140.21	0.00	0.00	0.00	
10505.49	1.15	69.78	10504.00	-50.64	51.67	140.31	0.00	0.00	0.00	
10600.00	1.15	69.78	10598.49	-51.28	52.32	142.09	0.00	0.00	0.00	
10657.52	1.15	69.78	10656.00	-51.67	52.72	143.16	0.00	0.00	0.00	Base 2nd Bone Spring B Sand :
10700.00	1.15	69.78	10698.47	-51.96	53.01	143.96	0.00	0.00	0.00	
10743.54	1.15	69.78	10742.00	-52.25	53.31	144.78	0.00	0.00	0.00	
10765.31	1.15	69.78	10763.77	-52.40	53.46	145.19	0.00	0.00	0.00	3rd Bone Spring Lime : KOP Build 11's
10800.00	3.59	162.16	10798.43	-51.48	52.55	145.85	7.05	266.31	11.00	
10900.00	14.47	175.42	10897.05	-35.98	37.07	147.81	10.87	13.26	11.00	
11000.00	25.45	177.34	10990.90	-1.95	3.05	149.81	10.98	1.92	11.00	
11071.31	33.29	177.96	11053.00	32.97	-31.86	151.22	10.99	0.87	11.00	3rd Bone Spring Sand :
11100.00	36.44	178.14	11076.54	49.36	-48.25	151.78	10.99	0.63	11.00	
11200.00	47.44	178.61	11150.81	116.08	-114.96	153.64	11.00	0.47	11.00	
11300.00	58.43	178.94	11210.99	195.75	-194.61	155.32	11.00	0.33	11.00	
11381.34	67.38	179.15	11248.00	268.08	-266.94	156.52	11.00	0.26	11.00	Red Hills Sand :
11400.00	69.43	179.20	11254.86	285.43	-284.29	156.77	11.00	0.24	11.00	
11500.00	80.43	179.42	11280.82	381.84	-380.70	157.93	11.00	0.22	11.00	
11578.11	89.02	179.58	11288.00	459.55	-458.40	158.60	11.00	0.21	11.00	2H FTP
11600.00	89.02	179.58	11288.37	481.44	-480.28	158.76	0.00	0.00	0.00	
11700.00	89.02	179.58	11290.09	581.42	-580.27	159.48	0.00	0.00	0.00	
11800.00	89.02	179.58	11291.80	681.41	-680.25	160.21	0.00	0.00	0.00	
11900.00	89.02	179.58	11293.51	781.39	-780.23	160.93	0.00	0.00	0.00	
12000.00	89.02	179.58	11295.22	881.38	-880.22	161.66	0.00	0.00	0.00	
12100.00	89.02	179.58	11296.93	981.36	-980.20	162.38	0.00	0.00	0.00	
12200.00	89.02	179.58	11298.64	1081.35	-1080.18	163.11	0.00	0.00	0.00	
12300.00	89.02	179.58	11300.35	1181.33	-1180.16	163.83	0.00	0.00	0.00	
12400.00	89.02	179.58	11302.06	1281.32	-1280.15	164.56	0.00	0.00	0.00	
12500.00	89.02	179.58	11303.77	1381.30	-1380.13	165.29	0.00	0.00	0.00	
12600.00	89.02	179.58	11305.48	1481.29	-1480.11	166.01	0.00	0.00	0.00	
12700.00	89.02	179.58	11307.20	1581.27	-1580.09	166.74	0.00	0.00	0.00	

5D Plan Report

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)	B.Rate (°/100US ft)	T.Rate (°/100US ft)	DLS (°/100US ft)	Comment
12800.00	89.02	179.58	11308.91	1681.26	-1680.08	167.46	0.00	0.00	0.00	
12900.00	89.02	179.58	11310.62	1781.25	-1780.06	168.19	0.00	0.00	0.00	
13000.00	89.02	179.58	11312.33	1881.23	-1880.04	168.91	0.00	0.00	0.00	
13100.00	89.02	179.58	11314.04	1981.22	-1980.03	169.64	0.00	0.00	0.00	
13200.00	89.02	179.58	11315.75	2081.20	-2080.01	170.36	0.00	0.00	0.00	
13300.00	89.02	179.58	11317.46	2181.19	-2179.99	171.09	0.00	0.00	0.00	
13400.00	89.02	179.58	11319.17	2281.17	-2279.97	171.81	0.00	0.00	0.00	
13500.00	89.02	179.58	11320.88	2381.16	-2379.96	172.54	0.00	0.00	0.00	
13600.00	89.02	179.58	11322.59	2481.14	-2479.94	173.26	0.00	0.00	0.00	
13700.00	89.02	179.58	11324.31	2581.13	-2579.92	173.99	0.00	0.00	0.00	
13800.00	89.02	179.58	11326.02	2681.11	-2679.90	174.71	0.00	0.00	0.00	
13900.00	89.02	179.58	11327.73	2781.10	-2779.89	175.44	0.00	0.00	0.00	
14000.00	89.02	179.58	11329.44	2881.08	-2879.87	176.16	0.00	0.00	0.00	
14100.00	89.02	179.58	11331.15	2981.07	-2979.85	176.89	0.00	0.00	0.00	
14200.00	89.02	179.58	11332.86	3081.06	-3079.84	177.61	0.00	0.00	0.00	
14300.00	89.02	179.58	11334.57	3181.04	-3179.82	178.34	0.00	0.00	0.00	
14400.00	89.02	179.58	11336.28	3281.03	-3279.80	179.06	0.00	0.00	0.00	
14500.00	89.02	179.58	11337.99	3381.01	-3379.78	179.79	0.00	0.00	0.00	
14600.00	89.02	179.58	11339.70	3481.00	-3479.77	180.51	0.00	0.00	0.00	
14700.00	89.02	179.58	11341.42	3580.98	-3579.75	181.24	0.00	0.00	0.00	
14800.00	89.02	179.58	11343.13	3680.97	-3679.73	181.96	0.00	0.00	0.00	
14900.00	89.02	179.58	11344.84	3780.95	-3779.72	182.69	0.00	0.00	0.00	
15000.00	89.02	179.58	11346.55	3880.94	-3879.70	183.41	0.00	0.00	0.00	
15100.00	89.02	179.58	11348.26	3980.92	-3979.68	184.14	0.00	0.00	0.00	
15200.00	89.02	179.58	11349.97	4080.91	-4079.66	184.86	0.00	0.00	0.00	
15300.00	89.02	179.58	11351.68	4180.89	-4179.65	185.59	0.00	0.00	0.00	
15400.00	89.02	179.58	11353.39	4280.88	-4279.63	186.31	0.00	0.00	0.00	
15500.00	89.02	179.58	11355.10	4380.86	-4379.61	187.04	0.00	0.00	0.00	
15600.00	89.02	179.58	11356.81	4480.85	-4479.59	187.76	0.00	0.00	0.00	
15700.00	89.02	179.58	11358.53	4580.84	-4579.58	188.49	0.00	0.00	0.00	
15800.00	89.02	179.58	11360.24	4680.82	-4679.56	189.21	0.00	0.00	0.00	
15900.00	89.02	179.58	11361.95	4780.81	-4779.54	189.94	0.00	0.00	0.00	
16000.00	89.02	179.58	11363.66	4880.79	-4879.53	190.66	0.00	0.00	0.00	
16100.00	89.02	179.58	11365.37	4980.78	-4979.51	191.39	0.00	0.00	0.00	
16200.00	89.02	179.58	11367.08	5080.76	-5079.49	192.12	0.00	0.00	0.00	
16300.00	89.02	179.58	11368.79	5180.75	-5179.47	192.84	0.00	0.00	0.00	
16400.00	89.02	179.58	11370.50	5280.73	-5279.46	193.57	0.00	0.00	0.00	
16500.00	89.02	179.58	11372.21	5380.72	-5379.44	194.29	0.00	0.00	0.00	
16600.00	89.02	179.58	11373.93	5480.70	-5479.42	195.02	0.00	0.00	0.00	
16700.00	89.02	179.58	11375.64	5580.69	-5579.40	195.74	0.00	0.00	0.00	
16800.00	89.02	179.58	11377.35	5680.67	-5679.39	196.47	0.00	0.00	0.00	
16900.00	89.02	179.58	11379.06	5780.66	-5779.37	197.19	0.00	0.00	0.00	
17000.00	89.02	179.58	11380.77	5880.65	-5879.35	197.92	0.00	0.00	0.00	
17100.00	89.02	179.58	11382.48	5980.63	-5979.34	198.64	0.00	0.00	0.00	
17200.00	89.02	179.58	11384.19	6080.62	-6079.32	199.37	0.00	0.00	0.00	
17300.00	89.02	179.58	11385.90	6180.60	-6179.30	200.09	0.00	0.00	0.00	
17400.00	89.02	179.58	11387.61	6280.59	-6279.28	200.82	0.00	0.00	0.00	
17500.00	89.02	179.58	11389.32	6380.57	-6379.27	201.54	0.00	0.00	0.00	
17600.00	89.02	179.58	11391.04	6480.56	-6479.25	202.27	0.00	0.00	0.00	
17700.00	89.02	179.58	11392.75	6580.54	-6579.23	202.99	0.00	0.00	0.00	
17800.00	89.02	179.58	11394.46	6680.53	-6679.21	203.72	0.00	0.00	0.00	
17900.00	89.02	179.58	11396.17	6780.51	-6779.20	204.44	0.00	0.00	0.00	
18000.00	89.02	179.58	11397.88	6880.50	-6879.18	205.17	0.00	0.00	0.00	
18100.00	89.02	179.58	11399.59	6980.48	-6979.16	205.89	0.00	0.00	0.00	
18200.00	89.02	179.58	11401.30	7080.47	-7079.15	206.62	0.00	0.00	0.00	
18300.00	89.02	179.58	11403.01	7180.45	-7179.13	207.34	0.00	0.00	0.00	
18400.00	89.02	179.58	11404.72	7280.44	-7279.11	208.07	0.00	0.00	0.00	
18500.00	89.02	179.58	11406.43	7380.43	-7379.09	208.79	0.00	0.00	0.00	
18600.00	89.02	179.58	11408.15	7480.41	-7479.08	209.52	0.00	0.00	0.00	

5D Plan Report

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)	B.Rate (°/100US ft)	T.Rate (°/100US ft)	DLS (°/100US ft)	Comment
18700.00	89.02	179.58	11409.86	7580.40	-7579.06	210.24	0.00	0.00	0.00	
18800.00	89.02	179.58	11411.57	7680.38	-7679.04	210.97	0.00	0.00	0.00	
18900.00	89.02	179.58	11413.28	7780.37	-7779.02	211.69	0.00	0.00	0.00	
18942.18	89.02	179.58	11414.00	7822.54	-7821.20	212.00	0.00	0.00	0.00	2H PBHL

Formation Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)									
Name	MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	N.Offset (US ft)	E.Offset (US ft)	F.Dip (°)	F.Dir (°)
Rustler	1573.00	0.00	0.00	1573.00	-2156.00	-0.00	0.00	0	0
Salado	1940.00	0.00	0.00	1940.00	-1789.00	-0.00	0.00	0	0
Base Salt	3184.03	1.15	69.78	3184.00	-545.00	1.07	2.92	0	0
Yates	3360.06	1.15	69.78	3360.00	-369.00	2.29	6.22	0	0
Seven Rivers	3587.11	1.15	69.78	3587.00	-142.00	3.86	10.48	0	0
Capitan Ref	3736.14	1.15	69.78	3736.00	7.00	4.89	13.28	0	0
Delaware	5564.51	1.15	69.78	5564.00	1835.00	17.52	47.59	0	0
Brushy Canyon	7008.79	1.15	69.78	7008.00	3279.00	27.50	74.69	0	0
Bone Spring	8666.13	1.15	69.78	8665.00	4936.00	38.96	105.79	0	0
Upper Avalon Shale	8830.16	1.15	69.78	8829.00	5100.00	40.09	108.87	0	0
Lower Avalon Shale	9149.22	1.15	69.78	9148.00	5419.00	42.30	114.86	0	0
1st Bone Spring Sand	9670.33	1.15	69.78	9669.00	5940.00	45.90	124.64	0	0
1st Bone Spring Lower	9839.36	1.15	69.78	9838.00	6109.00	47.07	127.81	0	0
2nd Bone Spring A Lime	9956.38	1.15	69.78	9955.00	6226.00	47.87	130.01	0	0
Second Bone Spring	10191.43	1.15	69.78	10190.00	6461.00	49.50	134.42	0	0
2nd Bone Spring B Sand	10505.49	1.15	69.78	10504.00	6775.00	51.67	140.31	0	0
Base 2nd Bone Spring B Sand	10657.52	1.15	69.78	10656.00	6927.00	52.72	143.16	0	0
3rd Bone Spring Lime	10743.54	1.15	69.78	10742.00	7013.00	53.31	144.78	0	0
3rd Bone Spring Sand	11071.31	33.29	177.96	11053.00	7324.00	-31.86	151.22	0	0
Red Hills Sand	11381.34	67.38	179.15	11248.00	7519.00	-266.94	156.52	0	0

**HOBBS OCD****FEB 15 2018****RECEIVED****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 2H*

22 November 2017

**Weatherford®**

Severus 31 Federal Com 2H

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 2H	Position (Relative to Site Centre)			
	+N/-S: -0.40 US ft	Northing: 559895.00 US ft	Latitude: 32°32'13.59"	
	+E/-W: -50.00 US ft	Easting: 726653.50 US ft	Longitude: -103°35'52.33"	
	Elevation above MSL: 3699.00 US ft			
Comment:				
Well: Severus 31 Federal Com 2H	Type: Main well		UWI:	Plan: Working Plan
	File Number:	Comment:		
	Closure Distance: 7824.07US ft		Closure Azimuth: 178.45°	
	Vertical Section: Position of Origin (Relative to Slot centre)			
	+N/-S: -0.00 US ft		+E/-W: 0.00 US ft	Az: 179.58°
	Magnetic Parameters:			
	Model: bggm2017	Field Strength: 48173.9nT	Declination: 7.00°	Dip: 60.34° Date: 15/Oct/2017

Drill floor: Plan: Working Plan

Rig Height (Kelly Bushing): 30.00 US ft	Elevation above MSL: 3729.00 US ft	Inclination: 0.00°	Azimuth: 0.00°
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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 2H (p)	0.00	18942.18	100.00	2

Secondary Well Names:

Severus 31 Federal Com 1H (p)
 Severus 31 Federal Com 1H (s)
 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.

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: No filter has been applied.

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)	Sec MD (US ft)	TVD (US ft)	CC (US ft)	ES (US ft)	SF	Risk
Severus 31 Federal Com 6H (p)	18942.18	19518.93	11414.00	467.77	216.79	1.86	SF(Lo)
Severus 31 Federal Com 14H (p)	9603.71	9640.03	9602.40	80.78	37.44	1.86	SF(Lo)
Severus 31 Federal Com 10H (p)	4537.50	4536.20	4537.20	66.56	45.77	3.20	
Severus 31 Federal Com 9H (p)	3223.05	3222.16	3223.01	70.83	55.84	4.73	
Severus 31 Federal Com 1H (p)	2778.52	2777.69	2778.52	54.23	43.14	4.89	
Severus 31 Federal Com 1H (s)	2778.52	2777.69	2778.52	54.23	43.14	4.89	
Severus 31 Federal Com 5H (p)	3128.91	3125.52	3128.89	100.96	86.39	6.93	
Severus 31 Federal Com 13H (p)	3147.27	3143.52	3147.24	113.21	98.56	7.73	

CC							
Secondary Well Name	Pri MD (US ft)	Sec MD (US ft)	TVD (US ft)	CC (US ft)	ES (US ft)	SF	Risk
Severus 31 Federal Com 1H (p)	1573.43	1573.50	1573.43	47.47	39.86	6.24	
Severus 31 Federal Com 1H (s)	1573.43	1573.50	1573.43	47.47	39.86	6.24	
Severus 31 Federal Com 10H (p)	50.00	49.00	50.00	50.00	49.09	54.62	
Severus 31 Federal Com 6H (p)	50.00	49.00	50.00	50.00	49.09	54.62	
Severus 31 Federal Com 14H (p)	4792.58	4793.72	4792.23	55.15	33.26	2.52	
Severus 31 Federal Com 9H (p)	3133.40	3133.81	3133.38	70.00	55.37	4.78	
Severus 31 Federal Com 5H (p)	1650.00	1651.00	1650.00	100.01	92.01	12.50	
Severus 31 Federal Com 13H (p)	0.00	1.00	-0.00	111.72	110.92	139.29	

Primary Well: Severus 31 Federal Com 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	CC (US ft)	ES (US ft)	SF	Nearest Well	Survey Tool	Risk
0.00	0.00	0.00	-0.00	-3729.00	0.00	0.00	89.54	50.00	49.04	52.18	Severus 31 Federal Com 1H (p)	MWD	
100.00	0.00	0.00	100.00	-3629.00	0.11	0.11	89.50	50.04	48.78	39.71	Severus 31 Federal Com 1H (p)	MWD	
100.00	0.00	0.00	100.00	-3629.00	0.11	0.11	179.54	50.00	48.98	48.75	Severus 31 Federal Com 10H (p)	MWD	
200.00	0.00	0.00	200.00	-3529.00	0.34	0.34	89.30	50.21	48.51	29.58	Severus 31 Federal Com 1H (p)	MWD	
200.00	0.00	0.00	200.00	-3529.00	0.34	0.34	179.54	50.00	48.53	33.92	Severus 31 Federal Com 10H (p)	MWD	
300.00	0.00	0.00	300.00	-3429.00	0.56	0.56	88.64	50.28	48.16	23.65	Severus 31 Federal	MWD	

5D Anti-Collision Report

Primary Well: Severus 31 Federal Com 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)													
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	CC (US ft)	ES (US ft)	SF	Nearest Well	Survey Tool	Risk
300.00	0.00	0.00	300.00	-3429.00	0.56	0.56	179.54	50.00	48.08	25.99	Com 1H (p) Severus 31 Federal Com 10H (p)	MWD	
400.00	0.00	0.00	400.00	-3329.00	0.79	0.79	87.99	50.45	47.89	19.71	Severus 31 Federal Com 1H (p)	MWD	
400.00	0.00	0.00	400.00	-3329.00	0.79	0.79	179.54	50.00	47.63	21.07	Severus 31 Federal Com 10H (p)	MWD	
500.00	0.00	0.00	500.00	-3229.00	1.01	1.01	87.79	50.95	47.95	17.03	Severus 31 Federal Com 1H (p)	MWD	
500.00	0.00	0.00	500.00	-3229.00	1.01	1.01	179.54	50.00	47.18	17.71	Severus 31 Federal Com 10H (p)	MWD	
600.00	0.00	0.00	600.00	-3129.00	1.24	1.24	87.96	51.51	48.09	15.04	Severus 31 Federal Com 1H (p)	MWD	
600.00	0.00	0.00	600.00	-3129.00	1.24	1.24	179.54	50.00	46.73	15.28	Severus 31 Federal Com 10H (p)	MWD	
700.00	0.00	0.00	700.00	-3029.00	1.46	1.46	179.54	50.00	46.28	13.43	Severus 31 Federal Com 10H (p)	MWD	
800.00	0.00	0.00	800.00	-2929.00	1.69	1.69	179.54	50.00	45.83	11.99	Severus 31 Federal Com 10H (p)	MWD	
900.00	0.00	0.00	900.00	-2829.00	1.91	1.91	179.54	50.00	45.38	10.82	Severus 31 Federal Com 10H (p)	MWD	
1000.00	0.00	0.00	1000.00	-2729.00	2.14	2.14	86.85	50.41	45.25	9.77	Severus 31 Federal Com 1H (p)	MWD	
1000.00	0.00	0.00	1000.00	-2729.00	2.14	2.14	179.54	50.00	44.93	9.86	Severus 31 Federal Com 10H (p)	MWD	
1100.00	0.00	0.00	1100.00	-2629.00	2.36	2.36	86.79	49.48	43.88	8.84	Severus 31 Federal Com 1H (p)	MWD	
1200.00	0.00	0.00	1200.00	-2529.00	2.59	2.59	87.38	48.52	42.49	8.05	Severus 31 Federal Com 1H (p)	MWD	
1300.00	0.00	0.00	1300.00	-2429.00	2.81	2.81	88.27	47.92	41.46	7.42	Severus 31 Federal Com 1H (p)	MWD	
1400.00	0.00	0.00	1400.00	-2329.00	3.03	3.03	89.90	47.72	40.82	6.92	Severus 31 Federal Com 1H (p)	MWD	

5D Anti-Collision Report

Primary Well: Severus 31 Federal Com 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)													
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	CC (US ft)	ES (US ft)	SF	Nearest Well	Survey Tool	Risk
1500.00	0.00	0.00	1500.00	-2229.00	3.26	3.26	92.19	47.54	40.21	6.48	Severus 31 Federal Com 1H (p)	MWD	
1600.00	0.00	0.00	1600.00	-2129.00	3.48	3.48	94.24	47.48	39.78	6.17	Severus 31 Federal Com 1H (p)	MWD	
1700.00	0.00	0.00	1700.00	-2029.00	3.71	3.71	179.54	50.00	41.78	6.08	Severus 31 Federal Com 10H (p)	MWD	
1700.00	0.00	0.00	1700.00	-2029.00	3.71	3.71	95.69	47.65	39.83	6.09	Severus 31 Federal Com 1H (p)	MWD	
1800.00	0.00	0.00	1800.00	-1929.00	3.93	3.93	179.54	50.00	41.33	5.77	Severus 31 Federal Com 10H (p)	MWD	
1800.00	0.00	0.00	1800.00	-1929.00	3.93	3.93	97.04	47.84	39.77	5.93	Severus 31 Federal Com 1H (p)	MWD	
1900.00	0.00	0.00	1900.00	-1829.00	4.16	4.16	179.54	50.00	40.88	5.48	Severus 31 Federal Com 10H (p)	MWD	
1900.00	0.00	0.00	1900.00	-1829.00	4.16	4.16	98.25	48.09	39.76	5.77	Severus 31 Federal Com 1H (p)	MWD	
2000.00	0.00	0.00	2000.00	-1729.00	4.38	4.38	179.54	50.00	40.44	5.23	Severus 31 Federal Com 10H (p)	MWD	
2000.00	0.00	0.00	2000.00	-1729.00	4.38	4.38	99.06	48.53	39.93	5.64	Severus 31 Federal Com 1H (p)	MWD	
2100.00	0.00	0.00	2100.00	-1629.00	4.61	4.61	179.54	50.00	39.99	4.99	Severus 31 Federal Com 10H (p)	MWD	
2100.00	0.00	0.00	2100.00	-1629.00	4.61	4.61	99.51	49.10	40.21	5.52	Severus 31 Federal Com 1H (p)	MWD	
2200.00	0.00	0.00	2200.00	-1529.00	4.83	4.83	179.54	50.00	39.54	4.78	Severus 31 Federal Com 10H (p)	MWD	
2200.00	0.00	0.00	2200.00	-1529.00	4.83	4.83	99.83	49.81	40.62	5.42	Severus 31 Federal Com 1H (p)	MWD	
2300.00	0.00	0.00	2300.00	-1429.00	5.06	5.06	179.54	50.00	39.09	4.58	Severus 31 Federal Com 10H (p)	MWD	
2400.00	0.00	0.00	2400.00	-1329.00	5.28	5.28	179.54	50.00	38.64	4.40	Severus 31 Federal Com 10H (p)	MWD	
2500.00	0.00	0.00	2500.00	-1229.00	5.51	5.51	179.54	50.00	38.19	4.23	Severus 31	MWD	

5D Anti-Collision Report

Primary Well: Severus 31 Federal Com 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)													
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	CC (US ft)	ES (US ft)	SF	Nearest Well	Survey Tool	Risk
2600.00	0.00	0.00	2600.00	-1129.00	5.73	5.73	179.54	50.00	37.74	4.08	Federal Com 10H (p) Severus 31 Federal Com 10H (p)	MWD	
2700.00	0.00	0.00	2700.00	-1029.00	5.96	5.96	179.54	50.00	37.29	3.93	Severus 31 Federal Com 10H (p)	MWD	
2800.00	0.00	0.00	2800.00	-929.00	6.18	6.18	179.54	50.00	36.84	3.80	Severus 31 Federal Com 10H (p)	MWD	
2900.00	0.00	0.00	2900.00	-829.00	6.41	6.41	179.54	50.00	36.39	3.67	Severus 31 Federal Com 10H (p)	MWD	
3000.00	0.00	0.00	3000.00	-729.00	6.63	6.63	179.54	50.00	35.94	3.56	Severus 31 Federal Com 10H (p)	MWD	
3100.00	1.15	69.78	3099.99	-629.01	6.84	6.84	111.28	50.50	36.00	3.48	Severus 31 Federal Com 10H (p)	MWD	
3200.00	1.15	69.78	3199.97	-529.03	7.05	7.05	113.36	51.26	36.33	3.43	Severus 31 Federal Com 10H (p)	MWD	
3300.00	1.15	69.78	3299.95	-429.05	7.26	7.26	115.38	52.09	36.72	3.39	Severus 31 Federal Com 10H (p)	MWD	
3400.00	1.15	69.78	3399.93	-329.07	7.47	7.46	117.33	52.98	37.18	3.35	Severus 31 Federal Com 10H (p)	MWD	
3500.00	1.15	69.78	3499.91	-229.09	7.68	7.67	119.22	53.92	37.69	3.32	Severus 31 Federal Com 10H (p)	MWD	
3600.00	1.15	69.78	3599.89	-129.11	7.89	7.88	121.04	54.93	38.26	3.29	Severus 31 Federal Com 10H (p)	MWD	
3700.00	1.15	69.78	3699.87	-29.13	8.10	8.10	122.80	55.98	38.88	3.27	Severus 31 Federal Com 10H (p)	MWD	
3800.00	1.15	69.78	3799.85	70.85	8.32	8.31	124.48	57.09	39.55	3.25	Severus 31 Federal Com 10H (p)	MWD	
3900.00	1.15	69.78	3899.83	170.83	8.53	8.52	126.10	58.25	40.26	3.24	Severus 31 Federal Com 10H (p)	MWD	
4000.00	1.15	69.78	3999.81	270.81	8.75	8.73	127.66	59.45	41.03	3.23	Severus 31 Federal Com 10H (p)	MWD	
4100.00	1.15	69.78	4099.79	370.79	8.96	8.95	176.30	59.72	40.89	3.17	Severus 31 Federal	MWD	

5D Anti-Collision Report

Primary Well: Severus 31 Federal Com 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)													
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	CC (US ft)	ES (US ft)	SF	Nearest Well	Survey Tool	Risk
4200.00	1.15	69.78	4199.77	470.77	9.18	9.16	179.29	58.53	39.26	3.04	Com 14H (p) Severus 31 Federal Com 14H (p)	MWD	
4300.00	1.15	69.78	4299.75	570.75	9.39	9.38	182.39	57.51	37.80	2.92	Severus 31 Federal Com 14H (p)	MWD	
4400.00	1.15	69.78	4399.73	670.73	9.61	9.59	185.60	56.66	36.51	2.81	Severus 31 Federal Com 14H (p)	MWD	
4500.00	1.15	69.78	4499.71	770.71	9.83	9.81	188.89	56.00	35.40	2.72	Severus 31 Federal Com 14H (p)	MWD	
4600.00	1.15	69.78	4599.69	870.69	10.05	10.02	192.25	55.52	34.48	2.64	Severus 31 Federal Com 14H (p)	MWD	
4700.00	1.15	69.78	4699.67	970.67	10.27	10.24	195.65	55.24	33.75	2.57	Severus 31 Federal Com 14H (p)	MWD	
4800.00	1.15	69.78	4799.65	1070.65	10.48	10.46	199.08	55.15	33.22	2.51	Severus 31 Federal Com 14H (p)	MWD	
4900.00	1.15	69.78	4899.63	1170.63	10.70	10.67	202.51	55.27	32.89	2.47	Severus 31 Federal Com 14H (p)	MWD	SF(Lo)
5000.00	1.15	69.78	4999.61	1270.61	10.92	10.89	205.91	55.58	32.75	2.43	Severus 31 Federal Com 14H (p)	MWD	SF(Lo)
5100.00	1.15	69.78	5099.59	1370.59	11.14	11.11	209.26	56.08	32.80	2.41	Severus 31 Federal Com 14H (p)	MWD	SF(Lo)
5200.00	1.15	69.78	5199.57	1470.57	11.36	11.33	212.54	56.77	33.04	2.39	Severus 31 Federal Com 14H (p)	MWD	SF(Lo)
5300.00	1.15	69.78	5299.55	1570.55	11.58	11.55	215.73	57.65	33.46	2.38	Severus 31 Federal Com 14H (p)	MWD	SF(Lo)
5400.00	1.15	69.78	5399.53	1670.53	11.80	11.76	218.82	58.69	34.06	2.38	Severus 31 Federal Com 14H (p)	MWD	SF(Lo)
5500.00	1.15	69.78	5499.51	1770.51	12.02	11.98	221.79	59.90	34.91	2.40	Severus 31 Federal Com 14H (p)	MWD	SF(Lo)
5600.00	1.15	69.78	5599.49	1870.49	12.24	12.20	224.63	61.27	35.82	2.41	Severus 31 Federal Com 14H (p)	MWD	SF(Lo)
5700.00	1.15	69.78	5699.47	1970.47	12.47	12.42	227.35	62.78	36.88	2.42	Severus 31 Federal Com 14H (p)	MWD	SF(Lo)

5D Anti-Collision Report

Primary Well: Severus 31 Federal Com 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)													
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	CC (US ft)	ES (US ft)	SF	Nearest Well	Survey Tool	Risk
5800.00	1.15	69.78	5799.45	2070.45	12.69	12.64	229.93	64.42	38.07	2.44	Severus 31 Federal Com 14H (p)	MWD	SF(Lo)
5900.00	1.15	69.78	5899.43	2170.43	12.91	12.86	232.38	66.19	39.38	2.47	Severus 31 Federal Com 14H (p)	MWD	SF(Lo)
6000.00	1.15	69.78	5999.41	2270.41	13.13	13.08	234.70	68.08	40.81	2.50	Severus 31 Federal Com 14H (p)	MWD	SF(Lo)
6100.00	1.15	69.78	6099.39	2370.39	13.35	13.30	236.89	70.06	42.35	2.53	Severus 31 Federal Com 14H (p)	MWD	
6200.00	1.15	69.78	6199.37	2470.37	13.58	13.52	238.95	72.15	43.98	2.56	Severus 31 Federal Com 14H (p)	MWD	
6300.00	1.15	69.78	6299.35	2570.35	13.80	13.74	240.90	74.32	45.70	2.60	Severus 31 Federal Com 14H (p)	MWD	
6400.00	1.15	69.78	6399.33	2670.33	14.02	13.96	242.74	76.58	47.50	2.63	Severus 31 Federal Com 14H (p)	MWD	
6500.00	1.15	69.78	6499.31	2770.31	14.24	14.18	244.46	78.91	49.37	2.67	Severus 31 Federal Com 14H (p)	MWD	
6600.00	1.15	69.78	6599.29	2870.29	14.47	14.40	246.09	81.30	51.32	2.71	Severus 31 Federal Com 14H (p)	MWD	
6700.00	1.15	69.78	6699.27	2970.27	14.69	14.63	247.63	83.76	53.32	2.75	Severus 31 Federal Com 14H (p)	MWD	
6800.00	1.15	69.78	6799.25	3070.25	14.91	14.85	249.07	86.28	55.38	2.79	Severus 31 Federal Com 14H (p)	MWD	
6900.00	1.15	69.78	6899.23	3170.23	15.13	15.07	250.43	88.84	57.50	2.83	Severus 31 Federal Com 14H (p)	MWD	
7000.00	1.15	69.78	6999.21	3270.21	15.36	15.29	251.72	91.46	59.66	2.88	Severus 31 Federal Com 14H (p)	MWD	
7100.00	1.15	69.78	7099.19	3370.19	15.58	15.51	252.93	94.11	61.86	2.92	Severus 31 Federal Com 14H (p)	MWD	
7200.00	1.15	69.78	7199.17	3470.17	15.81	15.73	254.08	96.81	64.11	2.96	Severus 31 Federal Com 14H (p)	MWD	
7300.00	1.15	69.78	7299.15	3570.15	16.03	15.95	255.16	99.54	66.39	3.00	Severus 31 Federal Com 14H (p)	MWD	
7400.00	1.15	69.78	7399.13	3670.13	16.25	16.18	256.19	102.31	68.70	3.04	Severus 31	MWD	

5D Anti-Collision Report

Primary Well: Severus 31 Federal Com 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)													
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	CC (US ft)	ES (US ft)	SF	Nearest Well	Survey Tool	Risk
7500.00	1.15	69.78	7499.11	3770.11	16.48	16.40	257.16	105.11	71.05	3.09	Federal Com 14H (p) Severus 31 Federal Com 14H (p)	MWD	
7600.00	1.15	69.78	7599.09	3870.09	16.70	16.62	258.08	107.94	73.42	3.13	Severus 31 Federal Com 14H (p)	MWD	
7700.00	1.15	69.78	7699.07	3970.07	16.92	16.84	258.96	110.79	75.83	3.17	Severus 31 Federal Com 14H (p)	MWD	
7800.00	1.15	69.78	7799.05	4070.05	17.15	17.06	259.79	113.67	78.25	3.21	Severus 31 Federal Com 14H (p)	MWD	
7900.00	1.15	69.78	7899.03	4170.03	17.37	17.29	260.57	116.57	80.70	3.25	Severus 31 Federal Com 14H (p)	MWD	
8000.00	1.15	69.78	7999.01	4270.01	17.60	17.51	261.32	119.49	83.17	3.29	Severus 31 Federal Com 14H (p)	MWD	
8100.00	1.15	69.78	8098.99	4369.99	17.82	17.73	262.04	122.43	85.66	3.33	Severus 31 Federal Com 14H (p)	MWD	
8200.00	1.15	69.78	8198.97	4469.97	18.05	17.95	262.72	125.39	88.16	3.37	Severus 31 Federal Com 14H (p)	MWD	
8300.00	1.15	69.78	8298.95	4569.95	18.27	18.18	263.37	128.37	90.68	3.41	Severus 31 Federal Com 14H (p)	MWD	
8400.00	1.15	69.78	8398.93	4669.93	18.50	18.40	263.99	131.36	93.22	3.44	Severus 31 Federal Com 14H (p)	MWD	
8500.00	1.15	69.78	8498.91	4769.91	18.72	18.62	264.58	134.37	95.78	3.48	Severus 31 Federal Com 14H (p)	MWD	
8600.00	1.15	69.78	8598.89	4869.89	18.94	18.84	265.15	137.39	98.34	3.52	Severus 31 Federal Com 14H (p)	MWD	
8600.00	1.15	69.78	8598.89	4869.89	18.94	18.84	159.86	136.68	97.88	3.52	Severus 31 Federal Com 10H (p)	MWD	
8700.00	1.15	69.78	8698.87	4969.87	19.17	19.07	160.14	138.55	99.31	3.53	Severus 31 Federal Com 10H (p)	MWD	
8800.00	1.15	69.78	8798.85	5069.85	19.39	19.29	160.42	140.44	100.74	3.54	Severus 31 Federal Com 10H (p)	MWD	
8900.00	1.15	69.78	8898.83	5169.83	19.62	19.51	160.69	142.32	102.18	3.55	Severus 31 Federal	MWD	

5D Anti-Collision Report

Primary Well: Severus 31 Federal Com 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)													
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	CC (US ft)	ES (US ft)	SF	Nearest Well	Survey Tool	Risk
9000.00	1.15	69.78	8998.81	5269.81	19.84	19.73	160.95	144.21	103.62	3.55	Com 10H (p) Severus 31 Federal Com 10H (p)	MWD	
9100.00	1.15	69.78	9098.79	5369.79	20.07	19.96	161.21	146.10	105.07	3.56	Severus 31 Federal Com 10H (p)	MWD	
9200.00	1.15	69.78	9198.77	5469.77	20.29	20.18	161.46	148.00	106.51	3.57	Severus 31 Federal Com 10H (p)	MWD	
9300.00	1.15	69.78	9298.75	5569.75	20.52	20.40	161.70	149.90	107.96	3.57	Severus 31 Federal Com 10H (p)	MWD	
9400.00	1.15	69.78	9398.73	5669.73	20.74	20.63	278.22	132.19	91.77	3.27	Severus 31 Federal Com 14H (p)	MWD	
9500.00	1.15	69.78	9498.71	5769.71	20.97	20.85	296.52	100.92	60.56	2.50	Severus 31 Federal Com 14H (p)	MWD	
9600.00	1.15	69.78	9598.69	5869.69	21.20	21.07	328.34	80.80	37.48	1.87	Severus 31 Federal Com 14H (p)	MWD	SF(Low)
9700.00	1.15	69.78	9698.67	5969.67	21.42	21.30	359.10	104.98	66.57	2.73	Severus 31 Federal Com 14H (p)	MWD	
9800.00	1.15	69.78	9798.65	6069.65	21.65	21.52	162.83	159.42	115.25	3.61	Severus 31 Federal Com 10H (p)	MWD	
9900.00	1.15	69.78	9898.63	6169.63	21.87	21.74	163.04	161.33	116.71	3.62	Severus 31 Federal Com 10H (p)	MWD	
10000.00	1.15	69.78	9998.61	6269.61	22.10	21.97	163.24	163.25	118.18	3.62	Severus 31 Federal Com 10H (p)	MWD	
10100.00	1.15	69.78	10098.59	6369.59	22.32	22.19	163.34	165.13	119.61	3.63	Severus 31 Federal Com 10H (p)	MWD	
10200.00	1.15	69.78	10198.57	6469.57	22.55	22.41	158.56	165.93	120.00	3.61	Severus 31 Federal Com 10H (p)	MWD	
10300.00	1.15	69.78	10298.55	6569.55	22.77	22.64	148.12	169.91	123.71	3.68	Severus 31 Federal Com 10H (p)	MWD	
10400.00	1.15	69.78	10398.53	6669.53	23.00	22.86	137.13	187.00	142.00	4.16	Severus 31 Federal Com 10H (p)	MWD	
10500.00	1.15	69.78	10498.51	6769.51	23.22	23.08	254.78	250.15	202.58	5.26	Severus 31 Federal Com 6H (p)	MWD	

5D Anti-Collision Report

Primary Well: Severus 31 Federal Com 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)													
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	CC (US ft)	ES (US ft)	SF	Nearest Well	Survey Tool	Risk
10500.00	1.15	69.78	10498.51	6769.51	23.22	23.08	128.87	224.54	182.08	5.29	Severus 31 Federal Com 10H (p)	MWD	
10600.00	1.15	69.78	10598.49	6869.49	23.45	23.31	254.91	253.12	205.10	5.27	Severus 31 Federal Com 6H (p)	MWD	
10700.00	1.15	69.78	10698.47	6969.47	23.68	23.53	255.03	256.10	207.62	5.28	Severus 31 Federal Com 6H (p)	MWD	
10800.00	3.59	162.16	10798.43	7069.43	23.87	23.75	162.83	260.02	211.10	5.32	Severus 31 Federal Com 6H (p)	MWD	
10900.00	14.47	175.42	10897.05	7168.05	23.92	23.68	153.78	267.72	219.30	5.53	Severus 31 Federal Com 6H (p)	MWD	
11000.00	25.45	177.34	10990.90	7261.90	24.08	23.09	163.21	267.96	221.91	5.82	Severus 31 Federal Com 6H (p)	MWD	
11100.00	36.44	178.14	11076.54	7347.54	24.25	22.17	177.41	271.35	226.55	6.06	Severus 31 Federal Com 6H (p)	MWD	
11200.00	47.44	178.61	11150.81	7421.81	24.46	21.04	192.24	290.14	244.51	6.36	Severus 31 Federal Com 6H (p)	MWD	
11300.00	58.43	178.94	11210.99	7481.99	24.73	19.89	206.50	329.94	282.25	6.92	Severus 31 Federal Com 6H (p)	MWD	
11400.00	69.43	179.20	11254.86	7525.86	25.08	18.92	220.94	388.25	338.42	7.79	Severus 31 Federal Com 6H (p)	MWD	
11500.00	80.43	179.42	11280.82	7551.82	25.54	18.34	241.60	455.84	404.32	8.85	Severus 31 Federal Com 6H (p)	MWD	
11600.00	89.02	179.58	11288.37	7559.37	26.10	18.29	251.02	482.43	431.02	9.38	Severus 31 Federal Com 6H (p)	MWD	
11700.00	89.02	179.58	11290.09	7561.09	26.76	18.43	251.08	482.21	429.80	9.20	Severus 31 Federal Com 6H (p)	MWD	
11800.00	89.02	179.58	11291.80	7562.80	27.53	18.60	251.14	482.00	428.43	9.00	Severus 31 Federal Com 6H (p)	MWD	
11900.00	89.02	179.58	11293.51	7564.51	28.40	18.79	251.20	481.78	426.91	8.78	Severus 31 Federal Com 6H (p)	MWD	
12000.00	89.02	179.58	11295.22	7566.22	29.35	19.01	251.26	481.56	425.26	8.55	Severus 31 Federal Com 6H (p)	MWD	
12100.00	89.02	179.58	11296.93	7567.93	30.39	19.26	251.32	481.34	423.47	8.32	Severus 31	MWD	

5D Anti-Collision Report

Primary Well: Severus 31 Federal Com 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)													
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	CC (US ft)	ES (US ft)	SF	Nearest Well	Survey Tool	Risk
12200.00	89.02	179.58	11298.64	7569.64	31.50	19.53	251.38	481.13	421.58	8.08	Federal Com 6H (p) Severus 31 Federal Com 6H (p)	MWD	
12300.00	89.02	179.58	11300.35	7571.35	32.67	19.83	251.44	480.91	419.58	7.84	Severus 31 Federal Com 6H (p)	MWD	
12400.00	89.02	179.58	11302.06	7573.06	33.90	20.14	251.50	480.70	417.48	7.60	Severus 31 Federal Com 6H (p)	MWD	
12500.00	89.02	179.58	11303.77	7574.77	35.18	20.48	251.56	480.48	415.30	7.37	Severus 31 Federal Com 6H (p)	MWD	
12600.00	89.02	179.58	11305.48	7576.48	36.51	20.84	251.62	480.27	413.05	7.14	Severus 31 Federal Com 6H (p)	MWD	
12700.00	89.02	179.58	11307.20	7578.20	37.89	21.22	251.68	480.05	410.72	6.92	Severus 31 Federal Com 6H (p)	MWD	
12800.00	89.02	179.58	11308.91	7579.91	39.30	21.62	251.74	479.84	408.34	6.71	Severus 31 Federal Com 6H (p)	MWD	
12900.00	89.02	179.58	11310.62	7581.62	40.74	22.03	251.80	479.63	405.89	6.50	Severus 31 Federal Com 6H (p)	MWD	
13000.00	89.02	179.58	11312.33	7583.33	42.21	22.46	251.86	479.41	403.39	6.31	Severus 31 Federal Com 6H (p)	MWD	
13100.00	89.02	179.58	11314.04	7585.04	43.71	22.91	251.92	479.20	400.85	6.12	Severus 31 Federal Com 6H (p)	MWD	
13200.00	89.02	179.58	11315.75	7586.75	45.24	23.37	251.98	478.99	398.25	5.93	Severus 31 Federal Com 6H (p)	MWD	
13300.00	89.02	179.58	11317.46	7588.46	46.79	23.84	252.04	478.78	395.62	5.76	Severus 31 Federal Com 6H (p)	MWD	
13400.00	89.02	179.58	11319.17	7590.17	48.35	24.33	252.10	478.57	392.95	5.59	Severus 31 Federal Com 6H (p)	MWD	
13500.00	89.02	179.58	11320.88	7591.88	49.94	24.83	252.16	478.36	390.25	5.43	Severus 31 Federal Com 6H (p)	MWD	
13600.00	89.02	179.58	11322.59	7593.59	51.54	25.34	252.22	478.15	387.51	5.27	Severus 31 Federal Com 6H (p)	MWD	
13700.00	89.02	179.58	11324.31	7595.31	53.16	25.86	252.28	477.94	384.74	5.13	Severus 31 Federal	MWD	

5D Anti-Collision Report

Primary Well: Severus 31 Federal Com 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)													
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	CC (US ft)	ES (US ft)	SF	Nearest Well	Survey Tool	Risk
13800.00	89.02	179.58	11326.02	7597.02	54.78	26.39	252.34	477.74	381.94	4.99	Com 6H (p) Severus 31 Federal Com 6H (p)	MWD	
13900.00	89.02	179.58	11327.73	7598.73	56.43	26.93	252.40	477.53	379.11	4.85	Severus 31 Federal Com 6H (p)	MWD	
14000.00	89.02	179.58	11329.44	7600.44	58.08	27.48	252.46	477.32	376.26	4.72	Severus 31 Federal Com 6H (p)	MWD	
14100.00	89.02	179.58	11331.15	7602.15	59.74	28.04	252.52	477.11	373.38	4.60	Severus 31 Federal Com 6H (p)	MWD	
14200.00	89.02	179.58	11332.86	7603.86	61.42	28.60	252.58	476.91	370.48	4.48	Severus 31 Federal Com 6H (p)	MWD	
14300.00	89.02	179.58	11334.57	7605.57	63.10	29.18	252.64	476.70	367.55	4.37	Severus 31 Federal Com 6H (p)	MWD	
14400.00	89.02	179.58	11336.28	7607.28	64.79	29.76	252.70	476.50	364.61	4.26	Severus 31 Federal Com 6H (p)	MWD	
14500.00	89.02	179.58	11337.99	7608.99	66.49	30.34	252.76	476.29	361.64	4.15	Severus 31 Federal Com 6H (p)	MWD	
14600.00	89.02	179.58	11339.70	7610.70	68.19	30.94	252.83	476.09	358.66	4.05	Severus 31 Federal Com 6H (p)	MWD	
14700.00	89.02	179.58	11341.42	7612.42	69.90	31.53	252.89	475.89	355.66	3.96	Severus 31 Federal Com 6H (p)	MWD	
14800.00	89.02	179.58	11343.13	7614.13	71.62	32.14	252.95	475.69	352.64	3.87	Severus 31 Federal Com 6H (p)	MWD	
14900.00	89.02	179.58	11344.84	7615.84	73.34	32.75	253.01	475.48	349.60	3.78	Severus 31 Federal Com 6H (p)	MWD	
15000.00	89.02	179.58	11346.55	7617.55	75.07	33.36	253.07	475.28	346.55	3.69	Severus 31 Federal Com 6H (p)	MWD	
15100.00	89.02	179.58	11348.26	7619.26	76.80	33.98	253.13	475.08	343.48	3.61	Severus 31 Federal Com 6H (p)	MWD	
15200.00	89.02	179.58	11349.97	7620.97	78.54	34.61	253.19	474.88	340.39	3.53	Severus 31 Federal Com 6H (p)	MWD	
15300.00	89.02	179.58	11351.68	7622.68	80.28	35.24	253.25	474.68	337.29	3.46	Severus 31 Federal Com 6H (p)	MWD	

5D Anti-Collision Report

Primary Well: Severus 31 Federal Com 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)													
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	CC (US ft)	ES (US ft)	SF	Nearest Well	Survey Tool	Risk
15400.00	89.02	179.58	11353.39	7624.39	82.02	35.87	253.31	474.48	334.18	3.38	Severus 31 Federal Com 6H (p)	MWD	
15500.00	89.02	179.58	11355.10	7626.10	83.77	36.50	253.38	474.28	331.05	3.31	Severus 31 Federal Com 6H (p)	MWD	
15600.00	89.02	179.58	11356.81	7627.81	85.52	37.14	253.44	474.08	327.91	3.24	Severus 31 Federal Com 6H (p)	MWD	
15700.00	89.02	179.58	11358.53	7629.53	87.28	37.79	253.50	473.89	324.76	3.18	Severus 31 Federal Com 6H (p)	MWD	
15800.00	89.02	179.58	11360.24	7631.24	89.04	38.43	253.56	473.69	321.59	3.11	Severus 31 Federal Com 6H (p)	MWD	
15900.00	89.02	179.58	11361.95	7632.95	90.80	39.08	253.62	473.49	318.41	3.05	Severus 31 Federal Com 6H (p)	MWD	
16000.00	89.02	179.58	11363.66	7634.66	92.56	39.73	253.68	473.30	315.22	2.99	Severus 31 Federal Com 6H (p)	MWD	
16100.00	89.02	179.58	11365.37	7636.37	94.33	40.39	253.74	473.10	312.02	2.94	Severus 31 Federal Com 6H (p)	MWD	
16200.00	89.02	179.58	11367.08	7638.08	96.10	41.05	253.81	472.91	308.80	2.88	Severus 31 Federal Com 6H (p)	MWD	
16300.00	89.02	179.58	11368.79	7639.79	97.87	41.71	253.87	472.71	305.57	2.83	Severus 31 Federal Com 6H (p)	MWD	
16400.00	89.02	179.58	11370.50	7641.50	99.64	42.37	253.93	472.52	302.34	2.78	Severus 31 Federal Com 6H (p)	MWD	
16500.00	89.02	179.58	11372.21	7643.21	101.42	43.04	253.99	472.32	299.09	2.73	Severus 31 Federal Com 6H (p)	MWD	
16600.00	89.02	179.58	11373.93	7644.93	103.20	43.70	254.05	472.13	295.83	2.68	Severus 31 Federal Com 6H (p)	MWD	
16700.00	89.02	179.58	11375.64	7646.64	104.98	44.37	254.12	471.94	292.56	2.63	Severus 31 Federal Com 6H (p)	MWD	
16800.00	89.02	179.58	11377.35	7648.35	106.76	45.04	254.18	471.75	289.28	2.59	Severus 31 Federal Com 6H (p)	MWD	
16900.00	89.02	179.58	11379.06	7650.06	108.54	45.72	254.24	471.56	285.99	2.54	Severus 31 Federal Com 6H (p)	MWD	
17000.00	89.02	179.58	11380.77	7651.77	110.33	46.39	254.30	471.37	282.69	2.50	Severus 31	MWD	SF(L0)

5D Anti-Collision Report

Primary Well: Severus 31 Federal Com 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)													
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	CC (US ft)	ES (US ft)	SF	Nearest Well	Survey Tool	Risk
17100.00	89.02	179.58	11382.48	7653.48	112.11	47.07	254.36	471.18	279.38	2.46	Federal Com 6H (p) Severus 31 Federal Com 6H (p)	MWD	SF(Lo)
17200.00	89.02	179.58	11384.19	7655.19	113.90	47.75	254.43	470.99	276.06	2.42	Severus 31 Federal Com 6H (p)	MWD	SF(Lo)
17300.00	89.02	179.58	11385.90	7656.90	115.69	48.43	254.49	470.80	272.73	2.38	Severus 31 Federal Com 6H (p)	MWD	SF(Lo)
17400.00	89.02	179.58	11387.61	7658.61	117.48	49.11	254.55	470.61	269.39	2.34	Severus 31 Federal Com 6H (p)	MWD	SF(Lo)
17500.00	89.02	179.58	11389.32	7660.32	119.27	49.79	254.61	470.42	266.04	2.30	Severus 31 Federal Com 6H (p)	MWD	SF(Lo)
17600.00	89.02	179.58	11391.04	7662.04	121.06	50.47	254.68	470.23	262.69	2.27	Severus 31 Federal Com 6H (p)	MWD	SF(Lo)
17700.00	89.02	179.58	11392.75	7663.75	122.85	51.16	254.74	470.05	259.32	2.23	Severus 31 Federal Com 6H (p)	MWD	SF(Lo)
17800.00	89.02	179.58	11394.46	7665.46	124.65	51.85	254.80	469.86	255.95	2.20	Severus 31 Federal Com 6H (p)	MWD	SF(Lo)
17900.00	89.02	179.58	11396.17	7667.17	126.45	52.54	254.86	469.67	252.56	2.16	Severus 31 Federal Com 6H (p)	MWD	SF(Lo)
18000.00	89.02	179.58	11397.88	7668.88	128.24	53.22	254.93	469.49	249.17	2.13	Severus 31 Federal Com 6H (p)	MWD	SF(Lo)
18100.00	89.02	179.58	11399.59	7670.59	130.04	53.92	254.99	469.31	245.77	2.10	Severus 31 Federal Com 6H (p)	MWD	SF(Lo)
18200.00	89.02	179.58	11401.30	7672.30	131.84	54.61	255.05	469.12	242.36	2.07	Severus 31 Federal Com 6H (p)	MWD	SF(Lo)
18300.00	89.02	179.58	11403.01	7674.01	133.64	55.30	255.11	468.94	238.94	2.04	Severus 31 Federal Com 6H (p)	MWD	SF(Lo)
18400.00	89.02	179.58	11404.72	7675.72	135.44	55.99	255.18	468.76	235.51	2.01	Severus 31 Federal Com 6H (p)	MWD	SF(Lo)
18500.00	89.02	179.58	11406.43	7677.43	137.24	56.69	255.24	468.57	232.08	1.98	Severus 31 Federal Com 6H (p)	MWD	SF(Lo)
18600.00	89.02	179.58	11408.15	7679.15	139.04	57.38	255.30	468.39	228.64	1.95	Severus 31 Federal	MWD	SF(Lo)

5D Anti-Collision Report

Primary Well: Severus 31 Federal Com 2H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)													
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	S.Major (US ft)	S.Minor (US ft)	T.Face to Sec (°)	CC (US ft)	ES (US ft)	SF	Nearest Well	Survey Tool	Risk
18700.00	89.02	179.58	11409.86	7680.86	140.84	58.08	255.36	468.21	225.18	1.93	Com 6H (p) Severus 31 Federal Com 6H (p)	MWD	SF(Lo)
18800.00	89.02	179.58	11411.57	7682.57	142.65	58.78	255.43	468.03	221.73	1.90	Severus 31 Federal Com 6H (p)	MWD	SF(Lo)
18900.00	89.02	179.58	11413.28	7684.28	144.45	59.48	255.49	467.85	218.26	1.87	Severus 31 Federal Com 6H (p)	MWD	SF(Lo)
18942.18	89.02	179.58	11414.00	7685.00	145.21	59.77	255.52	467.77	216.79	1.86	Severus 31 Federal Com 6H (p)	MWD	SF(Lo)

Secondary Well: Severus 31 Federal Com 1H (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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	89.54	50.00	49.04	52.18	MWD		
100.00	99.95	0.09	42.59	99.95	0.19	0.19	89.50	50.04	48.78	39.71	MWD (WFT MWD SVY_1)		
200.00	199.92	0.18	30.48	199.92	0.40	0.40	89.30	50.21	48.51	29.58	MWD (WFT MWD SVY_1)		
300.00	299.97	0.40	4.19	299.97	0.61	0.61	88.64	50.28	48.16	23.65	MWD (WFT MWD SVY_1)		
400.00	399.87	0.30	29.58	399.86	0.81	0.81	87.99	50.45	47.89	19.71	MWD (WFT MWD SVY_1)		
500.00	499.71	0.34	93.52	499.70	1.02	1.02	87.79	50.95	47.95	17.03	MWD (WFT MWD SVY_1)		
600.00	599.73	0.30	87.43	599.73	1.23	1.23	87.96	51.51	48.09	15.04	MWD (WFT MWD SVY_1)		
700.00	699.93	0.22	19.10	699.93	1.44	1.44	87.71	51.91	48.05	13.46	MWD (WFT MWD SVY_1)		
800.00	800.23	0.26	284.95	800.22	1.65	1.65	87.37	51.75	47.46	12.06	MWD (WFT MWD SVY_1)		
900.00	900.35	0.43	296.25	900.34	1.86	1.86	87.05	51.21	46.48	10.84	MWD (WFT MWD SVY_1)		
1000.00	1000.47	0.52	269.89	1000.45	2.07	2.07	86.85	50.41	45.25	9.77	MWD (WFT MWD SVY_1)		
1100.00	1100.49	0.56	260.57	1100.48	2.28	2.28	86.79	49.48	43.88	8.84	MWD (WFT MWD SVY_1)		
1200.00	1200.43	0.63	227.14	1200.40	2.49	2.49	87.38	48.52	42.49	8.05	MWD (WFT MWD SVY_1)		
1300.00	1300.20	0.60	198.94	1300.17	2.69	2.69	88.27	47.92	41.46	7.42	MWD (WFT MWD SVY_1)		
1400.00	1400.12	0.97	185.46	1400.08	2.90	2.90	89.90	47.72	40.82	6.92	MWD (WFT MWD SVY_1)		
1500.00	1500.13	1.09	186.79	1500.07	3.11	3.11	92.19	47.54	40.21	6.48	MWD (WFT MWD SVY_1)		
1600.00	1600.03	0.82	181.24	1599.96	3.25	3.25	94.24	47.48	39.78	6.17	MWD (WFT MWD SVY_2)		

5D Anti-Collision Report

Secondary Well: Severus 31 Federal Com 1H (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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
1700.00	1699.99	0.66	175.86	1699.91	3.31	3.31	95.69	47.65	39.83	6.09	MWD (WFT MWD SVY_2)	
1800.00	1799.99	0.64	176.94	1799.91	3.33	3.33	97.04	47.84	39.77	5.93	MWD (WFT MWD SVY_2)	
1900.00	1899.92	0.53	165.70	1899.83	3.37	3.37	98.25	48.09	39.76	5.77	MWD (WFT MWD SVY_2)	
2000.00	1999.85	0.42	145.33	1999.76	3.42	3.42	99.06	48.53	39.93	5.64	MWD (WFT MWD SVY_2)	
2100.00	2099.78	0.39	119.89	2099.68	3.48	3.48	99.51	49.10	40.21	5.52	MWD (WFT MWD SVY_2)	
2200.00	2199.72	0.49	128.27	2199.62	3.56	3.55	99.83	49.81	40.62	5.42	MWD (WFT MWD SVY_2)	
2300.00	2299.75	0.43	120.89	2299.65	3.64	3.63	100.25	50.55	41.05	5.32	MWD (WFT MWD SVY_2)	
2400.00	2399.84	0.31	113.87	2399.73	3.73	3.73	100.46	51.16	41.34	5.21	MWD (WFT MWD SVY_2)	
2500.00	2499.86	0.29	120.83	2499.75	3.83	3.83	100.64	51.66	41.52	5.09	MWD (WFT MWD SVY_2)	
2600.00	2599.79	0.35	107.43	2599.68	3.94	3.94	100.78	52.17	41.69	4.98	MWD (WFT MWD SVY_2)	
2700.00	2699.47	0.71	88.71	2699.36	4.06	4.06	100.70	53.07	42.25	4.91	MWD (WFT MWD SVY_2)	
2800.00	2799.07	1.23	74.09	2798.95	4.19	4.19	100.13	54.63	43.46	4.89	MWD (WFT MWD SVY_2)	
2900.00	2898.64	1.84	65.10	2898.48	4.33	4.32	98.64	56.97	45.44	4.94	MWD (WFT MWD SVY_2)	
3000.00	2998.41	2.10	62.35	2998.19	4.47	4.47	96.79	59.85	47.96	5.03	MWD (WFT MWD SVY_2)	
3100.00	3098.01	2.52	62.43	3097.71	4.62	4.62	25.44	61.78	49.53	5.04	MWD (WFT MWD SVY_2)	
3200.00	3197.78	2.68	64.06	3197.36	4.78	4.77	24.06	64.12	51.52	5.09	MWD (WFT MWD SVY_2)	
3300.00	3297.96	2.48	63.61	3297.45	4.93	4.92	22.77	66.08	53.11	5.10	MWD (WFT MWD SVY_2)	
3400.00	3398.13	2.45	57.24	3397.52	5.09	5.07	21.62	67.98	54.66	5.10	MWD (WFT MWD SVY_2)	
3500.00	3498.49	2.43	45.76	3497.79	5.25	5.23	19.94	69.40	55.70	5.07	MWD (WFT MWD SVY_2)	
3600.00	3598.36	2.21	56.06	3597.58	5.42	5.39	18.28	70.59	56.51	5.02	MWD (WFT MWD SVY_2)	
3700.00	3697.10	2.90	79.38	3696.23	5.58	5.55	17.68	72.68	58.25	5.04	MWD (WFT MWD SVY_2)	
3800.00	3795.51	4.05	80.61	3794.46	5.76	5.72	17.64	76.79	62.00	5.19	MWD (WFT MWD SVY_2)	
3900.00	3893.10	5.66	79.60	3891.69	5.95	5.89	17.32	83.24	68.10	5.50	MWD (WFT MWD SVY_2)	
4000.00	3989.71	7.52	85.28	3987.67	6.16	6.06	17.13	92.75	77.31	6.01	MWD (WFT MWD SVY_2)	
4100.00	4087.91	8.16	87.98	4084.94	6.37	6.24	17.42	104.58	88.77	6.62	MWD (WFT MWD SVY_2)	

5D Anti-Collision Report

Secondary Well: Severus 31 Federal Com 1H (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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
4200.00	4186.69	8.39	85.73	4182.69	6.61	6.42	17.66	117.06	100.87	7.23	MWD (WFT MWD SVY_2)	
4300.00	4283.54	9.42	86.33	4278.37	6.85	6.61	17.76	130.69	114.16	7.91	MWD (WFT MWD SVY_2)	
4400.00	4381.66	9.74	86.86	4375.12	7.11	6.80	17.90	145.42	128.51	8.60	MWD (WFT MWD SVY_2)	
4500.00	4478.83	10.36	85.20	4470.79	7.38	6.99	17.92	161.03	143.76	9.32	MWD (WFT MWD SVY_2)	
4600.00	4577.30	10.43	84.67	4567.64	7.67	7.20	17.85	177.25	159.57	10.02	MWD (WFT MWD SVY_2)	
4700.00	4677.08	10.12	83.12	4665.82	7.95	7.40	17.66	193.14	175.02	10.66	MWD (WFT MWD SVY_2)	
4800.00	4775.91	10.09	84.46	4763.12	8.22	7.59	17.49	208.69	190.17	11.27	MWD (WFT MWD SVY_2)	
4900.00	4874.07	10.23	87.02	4859.74	8.50	7.79	17.55	224.52	205.60	11.87	MWD (WFT MWD SVY_2)	
5000.00	4973.25	10.13	87.33	4957.35	8.79	7.99	17.68	240.33	220.99	12.43	MWD (WFT MWD SVY_2)	
5100.00	5071.15	10.32	86.33	5053.73	9.08	8.19	17.80	256.03	236.30	12.97	MWD (WFT MWD SVY_2)	
5200.00	5168.33	10.66	84.15	5149.25	9.34	8.34	17.75	272.48	252.43	13.59	MWD (WFT MWD SVY_3)	
5300.00	5267.85	10.48	83.67	5247.08	9.51	8.40	17.63	288.99	268.70	14.24	MWD (WFT MWD SVY_3)	
5400.00	5368.47	10.11	84.37	5346.07	9.64	8.42	17.53	304.96	284.41	14.84	MWD (WFT MWD SVY_3)	
5500.00	5460.46	11.31	85.84	5436.53	9.76	8.41	17.51	321.24	300.63	15.59	MWD (WFT MWD SVY_4)	
5600.00	5551.81	12.50	87.34	5525.88	9.90	8.39	17.57	340.21	319.56	16.47	MWD (WFT MWD SVY_4)	
5700.00	5653.67	11.89	88.32	5625.34	10.07	8.42	17.70	359.90	338.95	17.18	MWD (WFT MWD SVY_4)	
5800.00	5764.96	9.90	87.53	5734.60	10.26	8.48	17.84	377.05	355.65	17.62	MWD (WFT MWD SVY_4)	
5900.00	5870.07	9.02	82.78	5838.29	10.42	8.52	17.83	391.47	369.74	18.02	MWD (WFT MWD SVY_4)	
6000.00	5967.40	9.29	80.78	5934.38	10.57	8.55	17.68	405.45	383.49	18.46	MWD (WFT MWD SVY_4)	
6100.00	6068.28	8.98	85.58	6033.99	10.74	8.59	17.60	419.31	397.07	18.85	MWD (WFT MWD SVY_4)	
6200.00	6164.87	9.30	88.39	6129.36	10.92	8.63	17.68	433.28	410.81	19.28	MWD (WFT MWD SVY_4)	
6300.00	6259.11	9.90	87.35	6222.29	11.10	8.67	17.76	447.99	425.30	19.74	MWD (WFT MWD SVY_4)	
6400.00	6348.45	11.07	87.34	6310.14	11.29	8.70	17.83	464.33	441.49	20.32	MWD (WFT MWD SVY_4)	
6500.00	6438.75	12.07	84.11	6398.59	11.51	8.75	17.82	482.56	459.54	20.96	MWD (WFT MWD SVY_4)	
6600.00	6537.23	12.04	83.54	6494.88	11.77	8.82	17.72	501.65	478.33	21.51	MWD (WFT MWD SVY_4)	

5D Anti-Collision Report

Secondary Well: Severus 31 Federal Com 1H (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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
6700.00	6644.51	11.02	85.07	6600.02	12.05	8.93	17.66	519.61	495.87	21.89	MWD (WFT MWD SVY_4)	
6800.00	6746.52	10.64	86.05	6700.21	12.31	9.02	17.67	536.51	512.43	22.28	MWD (WFT MWD SVY_4)	
6900.00	6845.78	10.57	86.15	6797.80	12.56	9.11	17.68	552.89	528.49	22.66	MWD (WFT MWD SVY_4)	
7000.00	6943.75	10.65	85.02	6894.07	12.82	9.20	17.69	569.55	544.84	23.05	MWD (WFT MWD SVY_4)	
7100.00	7046.07	10.30	83.23	6994.68	13.09	9.31	17.63	585.85	560.77	23.36	MWD (WFT MWD SVY_4)	
7200.00	7149.48	9.84	84.63	7096.49	13.36	9.43	17.58	601.44	575.98	23.63	MWD (WFT MWD SVY_4)	
7300.00	7251.66	9.53	84.37	7197.22	13.63	9.55	17.56	616.32	590.50	23.87	MWD (WFT MWD SVY_4)	
7400.00	7344.29	10.14	81.61	7288.52	13.88	9.65	17.51	631.30	605.21	24.19	MWD (WFT MWD SVY_4)	
7500.00	7441.36	10.30	80.95	7384.02	14.15	9.76	17.39	647.23	620.81	24.50	MWD (WFT MWD SVY_4)	
7600.00	7538.59	10.39	83.89	7479.67	14.43	9.88	17.30	663.20	636.45	24.79	MWD (WFT MWD SVY_4)	
7700.00	7641.93	9.99	85.33	7581.36	14.73	10.02	17.29	679.08	651.93	25.01	MWD (WFT MWD SVY_4)	
7800.00	7733.86	10.55	84.99	7671.84	15.00	10.14	17.30	694.94	667.50	25.32	MWD (WFT MWD SVY_4)	
7900.00	7823.13	11.30	86.69	7759.49	15.27	10.25	17.31	712.00	684.29	25.69	MWD (WFT MWD SVY_4)	
8000.00	7918.79	11.52	89.00	7853.25	15.59	10.39	17.37	729.99	701.93	26.02	MWD (WFT MWD SVY_4)	
8100.00	8018.77	11.43	91.81	7951.22	15.92	10.54	17.50	748.01	719.56	26.29	MWD (WFT MWD SVY_4)	
8200.00	8133.39	10.18	87.48	8063.84	16.28	10.73	17.62	764.70	735.73	26.40	MWD (WFT MWD SVY_4)	
8300.00	8227.47	10.52	87.07	8156.38	16.57	10.87	17.67	780.81	751.50	26.64	MWD (WFT MWD SVY_4)	
8400.00	8326.52	10.54	81.98	8253.74	16.89	11.03	17.64	797.28	767.60	26.85	MWD (WFT MWD SVY_4)	
8500.00	8428.89	10.30	80.60	8354.47	17.21	11.19	17.52	813.08	782.98	27.01	MWD (WFT MWD SVY_4)	
8600.00	8517.65	10.94	84.43	8441.70	17.50	11.33	17.47	829.67	799.26	27.28	MWD (WFT MWD SVY_4)	
8700.00	8620.04	10.68	83.96	8542.22	17.84	11.50	17.45	846.78	815.94	27.46	MWD (WFT MWD SVY_4)	
8800.00	8749.95	8.63	81.07	8670.23	18.24	11.75	17.37	861.92	830.46	27.40	MWD (WFT MWD SVY_4)	
8900.00	8872.53	7.08	81.95	8791.68	18.51	11.88	17.31	873.40	841.48	27.36	MWD (WFT MWD SVY_5)	
9000.00	8977.74	6.72	80.26	8896.16	18.65	11.89	17.26	883.24	851.06	27.45	MWD (WFT MWD SVY_5)	
9100.00	9059.82	7.83	81.13	8977.58	18.76	11.89	17.22	893.91	861.57	27.64	MWD (WFT MWD SVY_5)	

5D Anti-Collision Report

Secondary Well: Severus 31 Federal Com 1H (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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
9200.00	9127.54	9.84	81.41	9044.49	18.88	11.89	17.18	907.31	874.87	27.97	MWD (WFT MWD SVY_5)	
9300.00	9196.99	11.67	81.09	9112.71	19.03	11.90	17.12	924.05	891.52	28.41	MWD (WFT MWD SVY_5)	
9400.00	9273.58	12.98	81.90	9187.47	19.22	11.91	17.05	943.68	911.03	28.90	MWD (WFT MWD SVY_5)	
9500.00	9369.77	13.04	85.59	9281.16	19.48	11.93	17.01	964.46	931.57	29.32	MWD (WFT MWD SVY_5)	
9600.00	9479.60	12.34	87.75	9388.31	19.77	11.97	17.06	984.57	951.35	29.64	MWD (WFT MWD SVY_5)	
9700.00	9583.37	12.01	87.35	9489.77	20.05	12.01	17.11	1003.63	970.12	29.94	MWD (WFT MWD SVY_5)	
9800.00	9677.06	12.27	84.96	9581.38	20.30	12.05	17.13	1022.71	988.94	30.29	MWD (WFT MWD SVY_5)	
9900.00	9772.26	12.45	83.04	9674.36	20.56	12.09	17.10	1042.31	1008.28	30.63	MWD (WFT MWD SVY_5)	
10000.00	9873.05	12.30	83.69	9772.79	20.85	12.15	17.05	1061.87	1027.55	30.94	MWD (WFT MWD SVY_5)	
10100.00	9971.32	12.27	85.31	9868.82	21.13	12.20	17.04	1081.20	1046.60	31.24	MWD (WFT MWD SVY_5)	
10200.00	10099.64	10.70	86.96	9994.52	21.48	12.29	17.06	1099.51	1064.47	31.38	MWD (WFT MWD SVY_5)	
10300.00	10211.93	10.00	84.90	10105.00	21.77	12.36	17.09	1115.44	1080.05	31.52	MWD (WFT MWD SVY_5)	
10400.00	10311.46	10.05	79.04	10203.03	22.01	12.44	17.04	1130.82	1095.13	31.68	MWD (WFT MWD SVY_5)	
10500.00	10411.75	10.03	76.98	10301.76	22.26	12.51	16.93	1146.27	1110.27	31.84	MWD (WFT MWD SVY_5)	
10600.00	10509.41	10.08	77.19	10397.95	22.51	12.59	16.81	1161.40	1125.10	31.99	MWD (WFT MWD SVY_5)	
10700.00	10597.03	10.55	80.36	10484.16	22.75	12.66	16.72	1177.23	1140.67	32.19	MWD (WFT MWD SVY_5)	
10800.00	10682.53	11.13	83.59	10568.14	22.99	12.73	284.97	1194.12	1157.30	32.43	MWD (WFT MWD SVY_5)	
10900.00	10768.93	11.62	84.21	10652.81	23.24	12.81	273.20	1212.82	1175.78	32.74	MWD (WFT MWD SVY_5)	
11000.00	10876.56	11.59	104.62	10758.29	23.50	12.88	271.90	1232.26	1194.93	33.01	MWD (WFT MWD SVY_6)	
11100.00	11042.96	19.63	152.46	10919.26	23.23	12.95	270.45	1247.68	1209.90	33.03	MWD (WFT MWD SVY_6)	
11200.00	11129.93	28.88	159.13	10998.17	22.66	12.95	270.60	1262.80	1224.71	33.16	MWD (WFT MWD SVY_6)	
11300.00	11272.19	38.97	166.55	11118.12	21.91	13.03	269.78	1277.74	1239.07	33.04	MWD (WFT MWD SVY_6)	
11400.00	11334.17	45.14	165.59	11163.72	21.48	13.09	270.44	1294.17	1254.91	32.96	MWD (WFT MWD SVY_6)	
11500.00	11512.02	56.99	171.33	11276.25	20.66	13.51	268.87	1306.44	1266.07	32.36	MWD (WFT MWD SVY_6)	
11600.00	11761.13	82.73	177.75	11350.61	19.21	15.39	267.25	1317.16	1275.13	31.34	MWD (WFT MWD SVY_6)	

5D Anti-Collision Report

Secondary Well: Severus 31 Federal Com 1H (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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
11700.00	11971.82	95.36	181.95	11346.28	18.23	17.29	267.60	1318.52	1274.95	30.26	MWD (WFT MWD SVY_7)	
11800.00	12064.53	93.48	181.73	11339.35	18.71	17.86	267.96	1314.06	1269.24	29.32	MWD (WFT MWD SVY_7)	
11900.00	12140.46	93.07	180.71	11335.01	19.37	18.22	268.21	1310.95	1264.74	28.37	MWD (WFT MWD SVY_7)	
12000.00	12222.78	94.73	179.90	11329.42	20.22	18.35	268.51	1309.46	1261.63	27.38	MWD (WFT MWD SVY_7)	
12100.00	12339.95	93.60	180.70	11320.51	21.33	18.61	268.99	1308.00	1258.35	26.35	MWD (WFT MWD SVY_7)	
12200.00	12417.77	92.39	179.75	11316.44	22.54	18.83	269.22	1306.77	1255.20	25.34	MWD (WFT MWD SVY_7)	
12300.00	12525.19	90.92	180.10	11313.46	23.84	19.16	269.43	1306.13	1252.46	24.33	MWD (WFT MWD SVY_7)	
12400.00	12616.52	91.04	179.72	11311.88	25.14	19.36	269.57	1305.58	1249.70	23.36	MWD (WFT MWD SVY_7)	
12500.00	12725.49	90.48	180.12	11310.12	26.51	19.67	269.73	1304.79	1246.60	22.42	MWD (WFT MWD SVY_7)	
12600.00	12812.68	89.26	179.56	11310.70	27.94	20.01	269.77	1304.28	1243.66	21.52	MWD (WFT MWD SVY_7)	
12700.00	12891.12	91.01	178.61	11310.52	29.30	20.07	269.84	1305.14	1241.99	20.67	MWD (WFT MWD SVY_7)	
12800.00	12975.16	92.65	177.92	11307.83	30.71	20.17	270.02	1307.44	1241.69	19.88	MWD (WFT MWD SVY_7)	
12900.00	13104.53	91.75	179.21	11302.39	32.27	20.67	270.35	1309.55	1241.20	19.16	MWD (WFT MWD SVY_7)	
13000.00	13240.96	89.56	180.79	11300.73	33.92	21.33	270.53	1308.62	1237.73	18.46	MWD (WFT MWD SVY_7)	
13100.00	13329.72	88.35	180.28	11302.43	35.48	21.76	270.52	1306.66	1232.95	17.73	MWD (WFT MWD SVY_7)	
13200.00	13427.64	88.66	180.20	11305.39	37.01	22.10	270.47	1305.80	1229.31	17.07	MWD (WFT MWD SVY_7)	
13300.00	13523.00	90.15	180.01	11306.50	38.52	22.36	270.49	1304.76	1225.43	16.45	MWD (WFT MWD SVY_7)	
13400.00	13618.36	89.86	179.80	11306.02	39.96	22.63	270.58	1304.28	1222.27	15.90	MWD	
13500.00	13700.62	88.72	179.01	11307.00	41.27	22.78	270.60	1304.45	1219.66	15.38	MWD	
13600.00	13789.65	88.16	178.52	11309.67	42.55	22.86	270.55	1306.09	1218.57	14.92	MWD	
13700.00	13889.63	88.16	178.52	11312.88	43.84	22.92	270.48	1307.93	1217.83	14.52	MWD	
13800.00	13989.60	88.16	178.52	11316.08	45.16	23.00	270.42	1309.78	1217.02	14.12	MWD	
13900.00	14104.12	88.72	179.16	11319.54	46.50	23.08	270.35	1311.47	1216.32	13.78	MWD	
14000.00	14213.89	89.10	179.59	11321.36	47.89	23.20	270.35	1311.53	1213.86	13.43	MWD	
14100.00	14313.89	89.10	179.59	11322.93	49.31	23.36	270.36	1311.52	1211.07	13.06	MWD	
14200.00	14413.89	89.10	179.59	11324.50	50.75	23.53	270.37	1311.51	1208.23	12.70	MWD	
14300.00	14513.89	89.10	179.59	11326.07	52.22	23.73	270.37	1311.50	1205.35	12.35	MWD	
14400.00	14613.89	89.10	179.59	11327.64	53.71	23.95	270.38	1311.49	1202.43	12.03	MWD	
14500.00	14713.89	89.10	179.59	11329.21	55.23	24.19	270.38	1311.48	1199.47	11.71	MWD	
14600.00	14813.89	89.10	179.59	11330.78	56.76	24.45	270.39	1311.48	1196.49	11.41	MWD	
14700.00	14913.89	89.10	179.59	11332.35	58.31	24.73	270.40	1311.47	1193.47	11.11	MWD	
14800.00	15013.89	89.10	179.59	11333.92	59.87	25.02	270.40	1311.46	1190.42	10.84	MWD	
14900.00	15113.89	89.10	179.59	11335.49	61.45	25.34	270.41	1311.45	1187.34	10.57	MWD	
15000.00	15213.89	89.10	179.59	11337.06	63.04	25.67	270.41	1311.44	1184.25	10.31	MWD	
15100.00	15313.89	89.10	179.59	11338.63	64.65	26.02	270.42	1311.43	1181.12	10.06	MWD	
15200.00	15413.89	89.10	179.59	11340.21	66.27	26.38	270.43	1311.42	1177.98	9.83	MWD	

5D Anti-Collision Report

Secondary Well: Severus 31 Federal Com 1H (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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
15300.00	15513.89	89.10	179.59	11341.78	67.90	26.76	270.43	1311.41	1174.82	9.60	MWD	
15400.00	15613.89	89.10	179.59	11343.35	69.54	27.15	270.44	1311.41	1171.63	9.38	MWD	
15500.00	15713.89	89.10	179.59	11344.92	71.18	27.56	270.45	1311.40	1168.43	9.17	MWD	
15600.00	15813.89	89.10	179.59	11346.49	72.84	27.98	270.45	1311.39	1165.22	8.97	MWD	
15700.00	15913.89	89.10	179.59	11348.06	74.50	28.41	270.46	1311.38	1161.98	8.78	MWD	
15800.00	16013.89	89.10	179.59	11349.63	76.18	28.86	270.46	1311.37	1158.74	8.59	MWD	
15900.00	16113.89	89.10	179.59	11351.20	77.86	29.31	270.47	1311.36	1155.48	8.41	MWD	
16000.00	16213.89	89.10	179.59	11352.77	79.54	29.78	270.48	1311.35	1152.20	8.24	MWD	
16100.00	16313.89	89.10	179.59	11354.34	81.24	30.26	270.48	1311.35	1148.92	8.07	MWD	
16200.00	16413.89	89.10	179.59	11355.91	82.93	30.75	270.49	1311.34	1145.62	7.91	MWD	
16300.00	16513.89	89.10	179.59	11357.48	84.64	31.24	270.49	1311.33	1142.31	7.76	MWD	
16400.00	16613.89	89.10	179.59	11359.05	86.35	31.75	270.50	1311.32	1138.99	7.61	MWD	
16500.00	16713.89	89.10	179.59	11360.63	88.06	32.27	270.51	1311.31	1135.66	7.47	MWD	
16600.00	16813.89	89.10	179.59	11362.20	89.78	32.79	270.51	1311.30	1132.32	7.33	MWD	
16700.00	16913.89	89.10	179.59	11363.77	91.50	33.32	270.52	1311.30	1128.97	7.19	MWD	
16800.00	17013.89	89.10	179.59	11365.34	93.23	33.86	270.52	1311.29	1125.61	7.06	MWD	
16900.00	17113.89	89.10	179.59	11366.91	94.96	34.41	270.53	1311.28	1122.24	6.94	MWD	
17000.00	17213.89	89.10	179.59	11368.48	96.70	34.96	270.54	1311.27	1118.87	6.82	MWD	
17100.00	17313.89	89.10	179.59	11370.05	98.44	35.52	270.54	1311.26	1115.49	6.70	MWD	
17200.00	17413.89	89.10	179.59	11371.62	100.18	36.09	270.55	1311.25	1112.10	6.58	MWD	
17300.00	17513.89	89.10	179.59	11373.19	101.92	36.66	270.56	1311.25	1108.70	6.47	MWD	
17400.00	17613.89	89.10	179.59	11374.76	103.67	37.24	270.56	1311.24	1105.30	6.37	MWD	
17500.00	17713.89	89.10	179.59	11376.33	105.42	37.82	270.57	1311.23	1101.89	6.26	MWD	
17600.00	17813.89	89.10	179.59	11377.90	107.18	38.41	270.57	1311.22	1098.47	6.16	MWD	
17700.00	17913.89	89.10	179.59	11379.47	108.93	39.00	270.58	1311.21	1095.05	6.07	MWD	
17800.00	18013.89	89.10	179.59	11381.04	110.69	39.60	270.59	1311.20	1091.62	5.97	MWD	
17900.00	18113.89	89.10	179.59	11382.62	112.45	40.20	270.59	1311.20	1088.18	5.88	MWD	
18000.00	18213.89	89.10	179.59	11384.19	114.21	40.81	270.60	1311.19	1084.74	5.79	MWD	
18100.00	18313.89	89.10	179.59	11385.76	115.98	41.42	270.60	1311.18	1081.30	5.70	MWD	
18200.00	18413.89	89.10	179.59	11387.33	117.75	42.03	270.61	1311.17	1077.85	5.62	MWD	
18300.00	18513.89	89.10	179.59	11388.90	119.52	42.65	270.62	1311.16	1074.39	5.54	MWD	
18400.00	18613.89	89.10	179.59	11390.47	121.29	43.27	270.62	1311.16	1070.93	5.46	MWD	
18500.00	18713.89	89.10	179.59	11392.04	123.06	43.90	270.63	1311.15	1067.47	5.38	MWD	
18600.00	18813.89	89.10	179.59	11393.61	124.83	44.53	270.64	1311.14	1064.00	5.31	MWD	
18700.00	18913.89	89.10	179.59	11395.18	126.61	45.16	270.64	1311.13	1060.52	5.23	MWD	
18800.00	19013.89	89.10	179.59	11396.75	128.39	45.79	270.65	1311.12	1057.04	5.16	MWD	
18900.00	19113.89	89.10	179.59	11398.32	130.17	46.43	270.65	1311.11	1053.56	5.09	MWD	
18942.18	19156.07	89.10	179.59	11398.99	130.92	46.70	270.66	1311.11	1052.09	5.06	MWD	

Secondary Well: Severus 31 Federal Com 1H (s)(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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
0.00	0.00	0.00	0.00	0.00	0.00	0.00	89.54	50.00	49.04	52.18	MWD	
100.00	99.95	0.09	42.59	99.95	0.19	0.19	89.50	50.04	48.78	39.71	MWD (WFT MWD SVY_1)	
200.00	199.92	0.18	30.48	199.92	0.40	0.40	89.30	50.21	48.51	29.58	MWD (WFT MWD SVY_1)	
300.00	299.97	0.40	4.19	299.97	0.61	0.61	88.64	50.28	48.16	23.65	MWD (WFT MWD SVY_1)	
400.00	399.87	0.30	29.58	399.86	0.81	0.81	87.99	50.45	47.89	19.71	MWD (WFT MWD SVY_1)	
500.00	499.71	0.34	93.52	499.70	1.02	1.02	87.79	50.95	47.95	17.03	MWD (WFT MWD SVY_1)	
600.00	599.73	0.30	87.43	599.73	1.23	1.23	87.96	51.51	48.09	15.04	MWD (WFT MWD SVY_1)	
700.00	699.93	0.22	19.10	699.93	1.44	1.44	87.71	51.91	48.05	13.46		

5D Anti-Collision Report

Secondary Well: Severus 31 Federal Com 1H (s)(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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
800.00	800.23	0.26	284.95	800.22	1.65	1.65	87.37	51.75	47.46	12.06	MWD (WFT MWD SVY_1)	
900.00	900.35	0.43	296.25	900.34	1.86	1.86	87.05	51.21	46.48	10.84	MWD (WFT MWD SVY_1)	
1000.00	1000.47	0.52	269.89	1000.45	2.07	2.07	86.85	50.41	45.25	9.77	MWD (WFT MWD SVY_1)	
1100.00	1100.49	0.56	260.57	1100.48	2.28	2.28	86.79	49.48	43.88	8.84	MWD (WFT MWD SVY_1)	
1200.00	1200.43	0.63	227.14	1200.40	2.49	2.49	87.38	48.52	42.49	8.05	MWD (WFT MWD SVY_1)	
1300.00	1300.20	0.60	198.94	1300.17	2.69	2.69	88.27	47.92	41.46	7.42	MWD (WFT MWD SVY_1)	
1400.00	1400.12	0.97	185.46	1400.08	2.90	2.90	89.90	47.72	40.82	6.92	MWD (WFT MWD SVY_1)	
1500.00	1500.13	1.09	186.79	1500.07	3.11	3.11	92.19	47.54	40.21	6.48	MWD (WFT MWD SVY_1)	
1600.00	1600.03	0.82	181.24	1599.96	3.25	3.25	94.24	47.48	39.78	6.17	MWD (WFT MWD SVY_2)	
1700.00	1699.99	0.66	175.86	1699.91	3.31	3.31	95.69	47.65	39.83	6.09	MWD (WFT MWD SVY_2)	
1800.00	1799.99	0.64	176.94	1799.91	3.33	3.33	97.04	47.84	39.77	5.93	MWD (WFT MWD SVY_2)	
1900.00	1899.92	0.53	165.70	1899.83	3.37	3.37	98.25	48.09	39.76	5.77	MWD (WFT MWD SVY_2)	
2000.00	1999.85	0.42	145.33	1999.76	3.42	3.42	99.06	48.53	39.93	5.64	MWD (WFT MWD SVY_2)	
2100.00	2099.78	0.39	119.89	2099.68	3.48	3.48	99.51	49.10	40.21	5.52	MWD (WFT MWD SVY_2)	
2200.00	2199.72	0.49	128.27	2199.62	3.56	3.55	99.83	49.81	40.62	5.42	MWD (WFT MWD SVY_2)	
2300.00	2299.75	0.43	120.89	2299.65	3.64	3.63	100.25	50.55	41.05	5.32	MWD (WFT MWD SVY_2)	
2400.00	2399.84	0.31	113.87	2399.73	3.73	3.73	100.46	51.16	41.34	5.21	MWD (WFT MWD SVY_2)	
2500.00	2499.86	0.29	120.83	2499.75	3.83	3.83	100.64	51.66	41.52	5.09	MWD (WFT MWD SVY_2)	
2600.00	2599.79	0.35	107.43	2599.68	3.94	3.94	100.78	52.17	41.69	4.98	MWD (WFT MWD SVY_2)	
2700.00	2699.47	0.71	88.71	2699.36	4.06	4.06	100.70	53.07	42.25	4.91	MWD (WFT MWD SVY_2)	
2800.00	2799.07	1.23	74.09	2798.95	4.19	4.19	100.13	54.63	43.46	4.89	MWD (WFT MWD SVY_2)	
2900.00	2898.64	1.84	65.10	2898.48	4.33	4.32	98.64	56.97	45.44	4.94	MWD (WFT MWD SVY_2)	
3000.00	2998.41	2.10	62.35	2998.19	4.47	4.47	96.79	59.85	47.96	5.03	MWD (WFT MWD SVY_2)	
3100.00	3098.01	2.52	62.43	3097.71	4.62	4.62	25.44	61.78	49.53	5.04	MWD (WFT MWD SVY_2)	

5D Anti-Collision Report

Secondary Well: Severus 31 Federal Com 1H (s)(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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
3200.00	3197.78	2.68	64.06	3197.36	4.78	4.77	24.06	64.12	51.52	5.09	MWD (WFT MWD SVY_2)	
3300.00	3297.96	2.48	63.61	3297.45	4.93	4.92	22.77	66.08	53.11	5.10	MWD (WFT MWD SVY_2)	
3400.00	3398.13	2.45	57.24	3397.52	5.09	5.07	21.62	67.98	54.66	5.10	MWD (WFT MWD SVY_2)	
3500.00	3498.49	2.43	45.76	3497.79	5.25	5.23	19.94	69.40	55.70	5.07	MWD (WFT MWD SVY_2)	
3600.00	3598.36	2.21	56.06	3597.58	5.42	5.39	18.28	70.59	56.51	5.02	MWD (WFT MWD SVY_2)	
3700.00	3697.10	2.90	79.38	3696.23	5.58	5.55	17.68	72.68	58.25	5.04	MWD (WFT MWD SVY_2)	
3800.00	3795.51	4.05	80.61	3794.46	5.76	5.72	17.64	76.79	62.00	5.19	MWD (WFT MWD SVY_2)	
3900.00	3893.10	5.66	79.60	3891.69	5.95	5.89	17.32	83.24	68.10	5.50	MWD (WFT MWD SVY_2)	
4000.00	3989.71	7.52	85.28	3987.67	6.16	6.06	17.13	92.75	77.31	6.01	MWD (WFT MWD SVY_2)	
4100.00	4087.91	8.16	87.98	4084.94	6.37	6.24	17.42	104.58	88.77	6.62	MWD (WFT MWD SVY_2)	
4200.00	4186.69	8.39	85.73	4182.69	6.61	6.42	17.66	117.06	100.87	7.23	MWD (WFT MWD SVY_2)	
4300.00	4283.54	9.42	86.33	4278.37	6.85	6.61	17.76	130.69	114.16	7.91	MWD (WFT MWD SVY_2)	
4400.00	4381.66	9.74	86.86	4375.12	7.11	6.80	17.90	145.42	128.51	8.60	MWD (WFT MWD SVY_2)	
4500.00	4478.83	10.36	85.20	4470.79	7.38	6.99	17.92	161.03	143.76	9.32	MWD (WFT MWD SVY_2)	
4600.00	4577.30	10.43	84.67	4567.64	7.67	7.20	17.85	177.25	159.57	10.02	MWD (WFT MWD SVY_2)	
4700.00	4677.08	10.12	83.12	4665.82	7.95	7.40	17.66	193.14	175.02	10.66	MWD (WFT MWD SVY_2)	
4800.00	4775.91	10.09	84.46	4763.12	8.22	7.59	17.49	208.69	190.17	11.27	MWD (WFT MWD SVY_2)	
4900.00	4874.07	10.23	87.02	4859.74	8.50	7.79	17.55	224.52	205.60	11.87	MWD (WFT MWD SVY_2)	
5000.00	4973.25	10.13	87.33	4957.35	8.79	7.99	17.68	240.33	220.99	12.43	MWD (WFT MWD SVY_2)	
5100.00	5071.15	10.32	86.33	5053.73	9.08	8.19	17.80	256.03	236.30	12.97	MWD (WFT MWD SVY_2)	
5200.00	5168.33	10.66	84.15	5149.25	9.34	8.34	17.75	272.48	252.43	13.59	MWD (WFT MWD SVY_3)	
5300.00	5267.85	10.48	83.67	5247.08	9.51	8.40	17.63	288.99	268.70	14.24	MWD (WFT MWD SVY_3)	
5400.00	5368.47	10.11	84.37	5346.07	9.64	8.42	17.53	304.96	284.41	14.84	MWD (WFT MWD SVY_3)	
5500.00	5460.46	11.31	85.84	5436.53	9.76	8.41	17.51	321.24	300.63	15.59	MWD (WFT MWD SVY_4)	
5600.00	5551.81	12.50	87.34	5525.88	9.90	8.39	17.57	340.21	319.56	16.47	MWD (WFT MWD SVY_4)	

5D Anti-Collision Report

Secondary Well: Severus 31 Federal Com 1H (s)(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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
5700.00	5653.67	11.89	88.32	5625.34	10.07	8.42	17.70	359.90	338.95	17.18	MWD (WFT MWD SVY_4)	
5800.00	5764.96	9.90	87.53	5734.60	10.26	8.48	17.84	377.05	355.65	17.62	MWD (WFT MWD SVY_4)	
5900.00	5870.07	9.02	82.78	5838.29	10.42	8.52	17.83	391.47	369.74	18.02	MWD (WFT MWD SVY_4)	
6000.00	5967.40	9.29	80.78	5934.38	10.57	8.55	17.68	405.45	383.49	18.46	MWD (WFT MWD SVY_4)	
6100.00	6068.28	8.98	85.58	6033.99	10.74	8.59	17.60	419.31	397.07	18.85	MWD (WFT MWD SVY_4)	
6200.00	6164.87	9.30	88.39	6129.36	10.92	8.63	17.68	433.28	410.81	19.28	MWD (WFT MWD SVY_4)	
6300.00	6259.11	9.90	87.35	6222.29	11.10	8.67	17.76	447.99	425.30	19.74	MWD (WFT MWD SVY_4)	
6400.00	6348.45	11.07	87.34	6310.14	11.29	8.70	17.83	464.33	441.49	20.32	MWD (WFT MWD SVY_4)	
6500.00	6438.75	12.07	84.11	6398.59	11.51	8.75	17.82	482.56	459.54	20.96	MWD (WFT MWD SVY_4)	
6600.00	6537.23	12.04	83.54	6494.88	11.77	8.82	17.72	501.65	478.33	21.51	MWD (WFT MWD SVY_4)	
6700.00	6644.51	11.02	85.07	6600.02	12.05	8.93	17.66	519.61	495.87	21.89	MWD (WFT MWD SVY_4)	
6800.00	6746.52	10.64	86.05	6700.21	12.31	9.02	17.67	536.51	512.43	22.28	MWD (WFT MWD SVY_4)	
6900.00	6845.78	10.57	86.15	6797.80	12.56	9.11	17.68	552.89	528.49	22.66	MWD (WFT MWD SVY_4)	
7000.00	6943.75	10.65	85.02	6894.07	12.82	9.20	17.69	569.55	544.84	23.05	MWD (WFT MWD SVY_4)	
7100.00	7046.07	10.30	83.23	6994.68	13.09	9.31	17.63	585.85	560.77	23.36	MWD (WFT MWD SVY_4)	
7200.00	7149.48	9.84	84.63	7096.49	13.36	9.43	17.58	601.44	575.98	23.63	MWD (WFT MWD SVY_4)	
7300.00	7251.66	9.53	84.37	7197.22	13.63	9.55	17.56	616.32	590.50	23.87	MWD (WFT MWD SVY_4)	
7400.00	7344.29	10.14	81.61	7288.52	13.88	9.65	17.51	631.30	605.21	24.19	MWD (WFT MWD SVY_4)	
7500.00	7441.36	10.30	80.95	7384.02	14.15	9.76	17.39	647.23	620.81	24.50	MWD (WFT MWD SVY_4)	
7600.00	7538.59	10.39	83.89	7479.67	14.43	9.88	17.30	663.20	636.45	24.79	MWD (WFT MWD SVY_4)	
7700.00	7641.93	9.99	85.33	7581.36	14.73	10.02	17.29	679.08	651.93	25.01	MWD (WFT MWD SVY_4)	
7800.00	7733.86	10.55	84.99	7671.84	15.00	10.14	17.30	694.94	667.50	25.32	MWD (WFT MWD SVY_4)	
7900.00	7823.13	11.30	86.69	7759.49	15.27	10.25	17.31	712.00	684.29	25.69	MWD (WFT MWD SVY_4)	
8000.00	7918.79	11.52	89.00	7853.25	15.59	10.39	17.37	729.99	701.93	26.02	MWD (WFT MWD SVY_4)	
8100.00	8018.77	11.43	91.81	7951.22	15.92	10.54	17.50	748.01	719.56	26.29	MWD (WFT MWD SVY_4)	

5D Anti-Collision Report

Secondary Well: Severus 31 Federal Com 1H (s)(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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
8200.00	8133.39	10.18	87.48	8063.84	16.28	10.73	17.62	764.70	735.73	26.40	MWD (WFT MWD SVY_4)	
8300.00	8227.47	10.52	87.07	8156.38	16.57	10.87	17.67	780.81	751.50	26.64	MWD (WFT MWD SVY_4)	
8400.00	8326.52	10.54	81.98	8253.74	16.89	11.03	17.64	797.28	767.60	26.85	MWD (WFT MWD SVY_4)	
8500.00	8428.89	10.30	80.60	8354.47	17.21	11.19	17.52	813.08	782.98	27.01	MWD (WFT MWD SVY_4)	
8600.00	8517.65	10.94	84.43	8441.70	17.50	11.33	17.47	829.67	799.26	27.28	MWD (WFT MWD SVY_4)	
8700.00	8620.04	10.68	83.96	8542.22	17.84	11.50	17.45	846.78	815.94	27.46	MWD (WFT MWD SVY_4)	
8800.00	8749.95	8.63	81.07	8670.23	18.24	11.75	17.37	861.92	830.46	27.40	MWD (WFT MWD SVY_4)	
8900.00	8872.53	7.08	81.95	8791.68	18.51	11.88	17.31	873.40	841.48	27.36	MWD (WFT MWD SVY_5)	
9000.00	8977.74	6.72	80.26	8896.16	18.65	11.89	17.26	883.24	851.06	27.45	MWD (WFT MWD SVY_5)	
9100.00	9059.82	7.83	81.13	8977.58	18.76	11.89	17.22	893.91	861.57	27.64	MWD (WFT MWD SVY_5)	
9200.00	9127.54	9.84	81.41	9044.49	18.88	11.89	17.18	907.31	874.87	27.97	MWD (WFT MWD SVY_5)	
9300.00	9196.99	11.67	81.09	9112.71	19.03	11.90	17.12	924.05	891.52	28.41	MWD (WFT MWD SVY_5)	
9400.00	9273.58	12.98	81.90	9187.47	19.22	11.91	17.05	943.68	911.03	28.90	MWD (WFT MWD SVY_5)	
9500.00	9369.77	13.04	85.59	9281.16	19.48	11.93	17.01	964.46	931.57	29.32	MWD (WFT MWD SVY_5)	
9600.00	9479.60	12.34	87.75	9388.31	19.77	11.97	17.06	984.57	951.35	29.64	MWD (WFT MWD SVY_5)	
9700.00	9583.37	12.01	87.35	9489.77	20.05	12.01	17.11	1003.63	970.12	29.94	MWD (WFT MWD SVY_5)	
9800.00	9677.06	12.27	84.96	9581.38	20.30	12.05	17.13	1022.71	988.94	30.29	MWD (WFT MWD SVY_5)	
9900.00	9772.26	12.45	83.04	9674.36	20.56	12.09	17.10	1042.31	1008.28	30.63	MWD (WFT MWD SVY_5)	
10000.00	9873.05	12.30	83.69	9772.79	20.85	12.15	17.05	1061.87	1027.55	30.94	MWD (WFT MWD SVY_5)	
10100.00	9971.32	12.27	85.31	9868.82	21.13	12.20	17.04	1081.20	1046.60	31.24	MWD (WFT MWD SVY_5)	
10200.00	10099.64	10.70	86.96	9994.52	21.48	12.29	17.06	1099.51	1064.47	31.38	MWD (WFT MWD SVY_5)	
10300.00	10211.93	10.00	84.90	10105.00	21.77	12.36	17.09	1115.44	1080.05	31.52	MWD (WFT MWD SVY_5)	
10400.00	10311.46	10.05	79.04	10203.03	22.01	12.44	17.04	1130.82	1095.13	31.68	MWD (WFT MWD SVY_5)	
10500.00	10411.75	10.03	76.98	10301.76	22.26	12.51	16.93	1146.27	1110.27	31.84	MWD (WFT MWD SVY_5)	
10600.00	10509.41	10.08	77.19	10397.95	22.51	12.59	16.81	1161.40	1125.10	31.99	MWD (WFT MWD SVY_5)	

5D Anti-Collision Report

Secondary Well: Severus 31 Federal Com 1H (s)(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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
10700.00	10597.03	10.55	80.36	10484.16	22.75	12.66	16.72	1177.23	1140.67	32.19	MWD (WFT MWD SVY_5)	
10800.00	10682.53	11.13	83.59	10568.14	22.99	12.73	284.97	1194.12	1157.30	32.43	MWD (WFT MWD SVY_5)	
10900.00	10768.93	11.62	84.21	10652.81	23.24	12.81	273.20	1212.82	1175.78	32.74	MWD (WFT MWD SVY_5)	
11000.00	10876.56	11.59	104.62	10758.29	23.50	12.88	271.90	1232.26	1194.93	33.01	MWD (WFT MWD SVY_6)	
11100.00	11042.96	19.63	152.46	10919.26	23.23	12.95	270.45	1247.68	1209.90	33.03	MWD (WFT MWD SVY_6)	
11200.00	11129.93	28.88	159.13	10998.17	22.66	12.95	270.60	1262.80	1224.71	33.16	MWD (WFT MWD SVY_6)	
11300.00	11272.19	38.97	166.55	11118.12	21.91	13.03	269.78	1277.74	1239.07	33.04	MWD (WFT MWD SVY_6)	
11400.00	11334.17	45.14	165.59	11163.72	21.48	13.09	270.44	1294.17	1254.91	32.96	MWD (WFT MWD SVY_6)	
11500.00	11512.02	56.99	171.33	11276.25	20.66	13.51	268.87	1306.44	1266.07	32.36	MWD (WFT MWD SVY_6)	
11600.00	11761.13	82.73	177.75	11350.61	19.21	15.39	267.25	1317.16	1275.13	31.34	MWD (WFT MWD SVY_6)	
11700.00	11971.82	95.36	181.95	11346.28	18.23	17.29	267.60	1318.52	1274.95	30.26	MWD (WFT MWD SVY_7)	
11800.00	12064.53	93.48	181.73	11339.35	18.71	17.86	267.96	1314.06	1269.24	29.32	MWD (WFT MWD SVY_7)	
11900.00	12140.46	93.07	180.71	11335.01	19.37	18.22	268.21	1310.95	1264.74	28.37	MWD (WFT MWD SVY_7)	
12000.00	12222.78	94.73	179.90	11329.42	20.22	18.35	268.51	1309.46	1261.63	27.38	MWD (WFT MWD SVY_7)	
12100.00	12339.95	93.60	180.70	11320.51	21.33	18.61	268.99	1308.00	1258.35	26.35	MWD (WFT MWD SVY_7)	
12200.00	12417.77	92.39	179.75	11316.44	22.54	18.83	269.22	1306.77	1255.20	25.34	MWD (WFT MWD SVY_7)	
12300.00	12525.19	90.92	180.10	11313.46	23.84	19.16	269.43	1306.13	1252.46	24.33	MWD (WFT MWD SVY_7)	
12400.00	12616.52	91.04	179.72	11311.88	25.14	19.36	269.57	1305.58	1249.70	23.36	MWD (WFT MWD SVY_7)	
12500.00	12725.49	90.48	180.12	11310.12	26.51	19.67	269.73	1304.79	1246.60	22.42	MWD (WFT MWD SVY_7)	
12600.00	12812.68	89.26	179.56	11310.70	27.94	20.01	269.77	1304.28	1243.66	21.52	MWD (WFT MWD SVY_7)	
12700.00	12891.12	91.01	178.61	11310.52	29.30	20.07	269.84	1305.14	1241.99	20.67	MWD (WFT MWD SVY_7)	
12800.00	12975.16	92.65	177.92	11307.83	30.71	20.17	270.02	1307.44	1241.69	19.88	MWD (WFT MWD SVY_7)	
12900.00	13104.53	91.75	179.21	11302.39	32.27	20.67	270.35	1309.55	1241.20	19.16	MWD (WFT MWD SVY_7)	
13000.00	13240.96	89.56	180.79	11300.73	33.92	21.33	270.53	1308.62	1237.73	18.46	MWD (WFT MWD SVY_7)	
13100.00	13329.72	88.35	180.28	11302.43	35.48	21.76	270.52	1306.66	1232.95	17.73	MWD (WFT MWD SVY_7)	

5D Anti-Collision Report

Secondary Well: Severus 31 Federal Com 1H (s)(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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
13200.00	13427.64	88.66	180.20	11305.39	37.01	22.10	270.47	1305.80	1229.31	17.07	MWD (WFT MWD SVY_7)	
13300.00	13523.00	90.15	180.01	11306.50	38.52	22.36	270.49	1304.76	1225.43	16.45	MWD (WFT MWD SVY_7)	
13400.00	13618.36	89.86	179.80	11306.02	40.09	22.77	270.58	1304.28	1222.04	15.86	MWD (WFT MWD SVY_7)	
13500.00	13738.55	88.38	180.67	11307.85	41.78	23.41	270.59	1303.35	1218.47	15.36	MWD (WFT MWD SVY_7)	
13600.00	13828.02	87.98	180.21	11310.69	43.38	23.84	270.53	1301.84	1213.86	14.80	MWD (WFT MWD SVY_7)	
13700.00	13933.34	86.52	180.43	11315.89	45.04	24.43	270.39	1300.51	1209.67	14.32	MWD (WFT MWD SVY_7)	
13800.00	14026.18	87.30	180.12	11320.81	46.63	24.80	270.24	1299.30	1205.34	13.83	MWD (WFT MWD SVY_7)	
13900.00	14121.61	86.79	179.92	11325.72	48.25	25.30	270.09	1298.45	1201.40	13.38	MWD (WFT MWD SVY_7)	
14000.00	14201.22	86.31	179.02	11330.51	49.84	25.71	269.94	1298.65	1198.09	12.91	MWD (WFT MWD SVY_7)	
14100.00	14281.42	87.52	178.15	11334.90	51.40	26.03	269.81	1300.39	1196.34	12.50	MWD (WFT MWD SVY_7)	
14200.00	14364.27	88.36	177.40	11337.79	52.97	26.39	269.75	1303.58	1196.07	12.12	MWD (WFT MWD SVY_7)	
14300.00	14441.39	89.18	176.39	11339.50	54.42	26.62	269.73	1308.19	1197.16	11.78	MWD (WFT MWD SVY_8)	
14400.00	14516.01	90.12	175.29	11339.97	55.78	26.75	269.77	1314.76	1200.28	11.49	MWD (WFT MWD SVY_9)	
14500.00	14663.84	92.52	177.38	11335.80	57.09	26.62	270.06	1319.65	1203.43	11.36	MWD (WFT MWD SVY_9)	
14600.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	1324.81	1204.68	11.03	MWD (WFT MWD SVY_9)	
14700.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	1336.90	1214.21	10.90	MWD (WFT MWD SVY_9)	
14800.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	1356.27	1233.64	11.06	MWD (WFT MWD SVY_9)	
14900.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	1382.62	1262.12	11.47	MWD (WFT MWD SVY_9)	
15000.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	1415.55	1298.64	12.11	MWD (WFT MWD SVY_9)	
15100.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	1454.63	1342.23	12.94	MWD (WFT MWD SVY_9)	
15200.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	1499.38	1391.91	13.95	MWD (WFT MWD SVY_9)	
15300.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	1549.29	1446.81	15.12	MWD (WFT MWD SVY_9)	
15400.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	1603.89	1506.17	16.41	MWD (WFT MWD SVY_9)	
15500.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	1662.72	1569.37	17.81	MWD (WFT MWD SVY_9)	
15600.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	1725.34	1635.91	19.29	MWD (WFT MWD SVY_9)	

5D Anti-Collision Report

Secondary Well: Severus 31 Federal Com 1H (s)(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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
15700.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	1791.35	1705.39	20.84	MWD (WFT MWD SVY_9)	
15800.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	1860.41	1777.47	22.43	MWD (WFT MWD SVY_9)	
15900.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	1932.17	1851.88	24.06	MWD (WFT MWD SVY_9)	
16000.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	2006.35	1928.36	25.72	MWD (WFT MWD SVY_9)	
16100.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	2082.69	2006.71	27.41	MWD (WFT MWD SVY_9)	
16200.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	2160.97	2086.73	29.11	MWD (WFT MWD SVY_9)	
16300.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	2240.97	2168.27	30.83	MWD (WFT MWD SVY_9)	
16400.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	2322.52	2251.17	32.55	MWD (WFT MWD SVY_9)	
16500.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	2405.47	2335.31	34.28	MWD (WFT MWD SVY_9)	
16600.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	2489.67	2420.56	36.02	MWD (WFT MWD SVY_9)	
16700.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	2575.00	2506.82	37.77	MWD (WFT MWD SVY_9)	
16800.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	2661.35	2594.00	39.51	MWD (WFT MWD SVY_9)	
16900.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	2748.62	2682.01	41.26	MWD (WFT MWD SVY_9)	
17000.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	2836.74	2770.79	43.01	MWD (WFT MWD SVY_9)	
17100.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	2925.62	2860.26	44.76	MWD (WFT MWD SVY_9)	
17200.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	3015.20	2950.37	46.51	MWD (WFT MWD SVY_9)	
17300.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	3105.41	3041.06	48.25	MWD (WFT MWD SVY_9)	
17400.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	3196.21	3132.28	50.00	MWD (WFT MWD SVY_9)	
17500.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	3287.54	3224.00	51.74	MWD (WFT MWD SVY_9)	
17600.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	3379.36	3316.17	53.48	MWD (WFT MWD SVY_9)	
17700.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	3471.64	3408.76	55.22	MWD (WFT MWD SVY_9)	
17800.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	3564.33	3501.74	56.95	MWD (WFT MWD SVY_9)	
17900.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	3657.40	3595.07	58.68	MWD (WFT MWD SVY_9)	
18000.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	3750.83	3688.74	60.41	MWD (WFT MWD SVY_9)	
18100.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	3844.60	3782.71	62.13	MWD (WFT MWD SVY_9)	

5D Anti-Collision Report

Secondary Well: Severus 31 Federal Com 1H (s)(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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
18200.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	3938.67	3876.98	63.85	MWD (WFT MWD SVY_9)	
18300.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	4033.02	3971.50	65.56	MWD (WFT MWD SVY_9)	
18400.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	4127.64	4066.28	67.27	MWD (WFT MWD SVY_9)	
18500.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	4222.51	4161.29	68.97	MWD (WFT MWD SVY_9)	
18600.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	4317.61	4256.52	70.67	MWD (WFT MWD SVY_9)	
18700.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	4412.93	4351.95	72.37	MWD (WFT MWD SVY_9)	
18800.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	4508.45	4447.57	74.06	MWD (WFT MWD SVY_9)	
18900.00	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	4604.16	4543.37	75.74	MWD (WFT MWD SVY_9)	
18942.18	14704.00	92.73	177.50	11333.96	57.57	26.62	270.17	4644.58	4583.83	76.45	MWD (WFT MWD SVY_9)	

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
0.00	1.00	0.00	0.00	-0.00	0.00	0.00	89.43	100.01	99.20	124.68	MWD	
100.00	101.00	0.00	0.00	100.00	0.11	0.11	89.43	100.01	98.98	97.18	MWD	
200.00	201.00	0.00	0.00	200.00	0.34	0.34	89.43	100.01	98.53	67.63	MWD	
300.00	301.00	0.00	0.00	300.00	0.56	0.56	89.43	100.01	98.08	51.86	MWD	
400.00	401.00	0.00	0.00	400.00	0.79	0.79	89.43	100.01	97.63	42.06	MWD	
500.00	501.00	0.00	0.00	500.00	1.01	1.01	89.43	100.01	97.18	35.37	MWD	
600.00	601.00	0.00	0.00	600.00	1.24	1.24	89.43	100.01	96.73	30.52	MWD	
700.00	701.00	0.00	0.00	700.00	1.46	1.46	89.43	100.01	96.28	26.84	MWD	
800.00	801.00	0.00	0.00	800.00	1.69	1.69	89.43	100.01	95.83	23.95	MWD	
900.00	901.00	0.00	0.00	900.00	1.91	1.91	89.43	100.01	95.38	21.62	MWD	
1000.00	1001.00	0.00	0.00	1000.00	2.14	2.14	89.43	100.01	94.93	19.70	MWD	
1100.00	1101.00	0.00	0.00	1100.00	2.36	2.36	89.43	100.01	94.48	18.10	MWD	
1200.00	1201.00	0.00	0.00	1200.00	2.59	2.59	89.43	100.01	94.03	16.74	MWD	
1300.00	1301.00	0.00	0.00	1300.00	2.81	2.81	89.43	100.01	93.58	15.57	MWD	
1400.00	1401.00	0.00	0.00	1400.00	3.04	3.04	89.43	100.01	93.13	14.55	MWD	
1500.00	1501.00	0.00	0.00	1500.00	3.26	3.26	89.43	100.01	92.68	13.66	MWD	
1600.00	1601.00	0.00	0.00	1600.00	3.49	3.49	89.43	100.01	92.23	12.87	MWD	
1700.00	1701.00	0.00	0.00	1700.00	3.71	3.71	89.43	100.01	91.78	12.16	MWD	
1800.00	1801.00	0.00	0.00	1800.00	3.94	3.94	89.43	100.01	91.33	11.53	MWD	
1900.00	1901.00	0.00	0.00	1900.00	4.16	4.16	89.43	100.01	90.88	10.96	MWD	
2000.00	2001.00	0.00	0.00	2000.00	4.39	4.39	89.43	100.01	90.43	10.45	MWD	
2100.00	2101.00	0.00	0.00	2100.00	4.61	4.61	89.43	100.01	89.98	9.98	MWD	
2200.00	2201.00	0.00	0.00	2200.00	4.84	4.84	89.43	100.01	89.53	9.55	MWD	
2300.00	2301.00	0.00	0.00	2300.00	5.06	5.06	89.43	100.01	89.09	9.16	MWD	
2400.00	2401.00	0.00	0.00	2400.00	5.28	5.28	89.43	100.01	88.64	8.80	MWD	
2500.00	2501.00	0.00	0.00	2500.00	5.51	5.51	89.43	100.01	88.19	8.46	MWD	
2600.00	2601.00	0.00	0.00	2600.00	5.73	5.73	89.43	100.01	87.74	8.15	MWD	
2700.00	2701.00	0.00	0.00	2700.00	5.96	5.96	89.43	100.01	87.29	7.86	MWD	
2800.00	2801.00	0.00	0.00	2800.00	6.18	6.18	89.43	100.01	86.84	7.59	MWD	
2900.00	2901.00	0.00	0.00	2900.00	6.41	6.41	89.43	100.01	86.39	7.34	MWD	
3000.00	3000.97	0.02	85.85	2999.97	6.63	6.63	89.43	100.01	85.94	7.11	MWD	
3100.00	3097.60	1.95	85.85	3096.58	6.84	6.83	19.85	100.38	85.91	6.94	MWD	
3200.00	3194.12	3.88	85.85	3192.97	7.03	7.02	20.03	103.58	88.76	6.99	MWD	
3300.00	3290.33	5.81	85.85	3288.83	7.23	7.20	20.08	110.13	94.99	7.27	MWD	

5D Anti-Collision Report

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
3400.00	3386.01	7.72	85.85	3383.84	7.44	7.37	20.02	120.01	104.58	7.78	MWD	
3500.00	3480.96	9.62	85.85	3477.70	7.66	7.54	19.87	133.19	117.50	8.49	MWD	
3600.00	3574.97	11.50	85.85	3570.12	7.89	7.70	19.67	149.63	133.71	9.40	MWD	
3700.00	3669.64	12.75	85.85	3662.60	8.14	7.87	19.44	169.10	152.91	10.44	MWD	
3800.00	3767.58	12.75	85.85	3758.13	8.42	8.08	19.25	189.30	172.69	11.40	MWD	
3900.00	3865.52	12.75	85.85	3853.65	8.72	8.29	19.09	209.49	192.48	12.31	MWD	
4000.00	3963.46	12.75	85.85	3949.17	9.02	8.51	18.96	229.69	212.26	13.17	MWD	
4100.00	4061.40	12.75	85.85	4044.69	9.35	8.73	18.85	249.89	232.03	13.99	MWD	
4200.00	4159.33	12.75	85.85	4140.21	9.68	8.95	18.76	270.09	251.80	14.77	MWD	
4300.00	4257.27	12.75	85.85	4235.73	10.02	9.17	18.68	290.29	271.58	15.51	MWD	
4400.00	4355.21	12.75	85.85	4331.26	10.37	9.39	18.61	310.49	291.34	16.22	MWD	
4500.00	4453.15	12.75	85.85	4426.78	10.73	9.62	18.54	330.69	311.11	16.89	MWD	
4600.00	4551.08	12.75	85.85	4522.30	11.09	9.85	18.49	350.89	330.87	17.53	MWD	
4700.00	4649.02	12.75	85.85	4617.82	11.47	10.08	18.44	371.09	350.63	18.14	MWD	
4800.00	4746.96	12.75	85.85	4713.34	11.85	10.32	18.40	391.30	370.39	18.72	MWD	
4900.00	4844.90	12.75	85.85	4808.86	12.23	10.55	18.36	411.50	390.15	19.27	MWD	
5000.00	4942.84	12.75	85.85	4904.39	12.62	10.79	18.32	431.70	409.90	19.80	MWD	
5100.00	5040.77	12.75	85.85	4999.91	13.01	11.03	18.29	451.90	429.66	20.31	MWD	
5200.00	5138.71	12.75	85.85	5095.43	13.41	11.27	18.26	472.10	449.41	20.80	MWD	
5300.00	5236.65	12.75	85.85	5190.95	13.81	11.51	18.24	492.31	469.15	21.26	MWD	
5400.00	5334.59	12.75	85.85	5286.47	14.22	11.75	18.21	512.51	488.90	21.71	MWD	
5500.00	5432.52	12.75	85.85	5381.99	14.62	11.99	18.19	532.71	508.69	22.18	MWD	
5600.00	5530.46	12.75	85.85	5477.52	15.03	12.24	18.17	552.92	528.49	22.63	MWD	
5700.00	5628.40	12.75	85.85	5573.04	15.45	12.48	18.15	573.12	548.23	23.03	MWD	
5800.00	5726.34	12.75	85.85	5668.56	15.86	12.73	18.13	593.32	567.97	23.40	MWD	
5900.00	5824.28	12.75	85.85	5764.08	16.28	12.98	18.11	613.52	587.71	23.77	MWD	
6000.00	5922.21	12.75	85.85	5859.60	16.70	13.22	18.09	633.73	607.45	24.11	MWD	
6100.00	6020.15	12.75	85.85	5955.12	17.12	13.47	18.08	653.93	627.18	24.45	MWD	
6200.00	6118.09	12.75	85.85	6050.65	17.55	13.72	18.06	674.13	646.92	24.77	MWD	
6300.00	6216.03	12.75	85.85	6146.17	17.97	13.97	18.05	694.34	666.66	25.08	MWD	
6400.00	6313.96	12.75	85.85	6241.69	18.40	14.22	18.04	714.54	686.39	25.38	MWD	
6500.00	6411.90	12.75	85.85	6337.21	18.83	14.47	18.03	734.74	706.12	25.67	MWD	
6600.00	6509.84	12.75	85.85	6432.73	19.26	14.73	18.02	754.95	725.85	25.95	MWD	
6700.00	6607.78	12.75	85.85	6528.25	19.69	14.98	18.00	775.15	745.58	26.22	MWD	
6800.00	6705.72	12.75	85.85	6623.78	20.12	15.23	17.99	795.35	765.31	26.48	MWD	
6900.00	6803.65	12.75	85.85	6719.30	20.56	15.48	17.98	815.56	785.04	26.73	MWD	
7000.00	6901.59	12.75	85.85	6814.82	20.99	15.74	17.98	835.76	804.77	26.97	MWD	
7100.00	6999.53	12.75	85.85	6910.34	21.43	15.99	17.97	855.96	824.50	27.20	MWD	
7200.00	7097.47	12.75	85.85	7005.86	21.86	16.25	17.96	876.17	844.22	27.43	MWD	
7300.00	7195.40	12.75	85.85	7101.38	22.30	16.50	17.95	896.37	863.95	27.65	MWD	
7400.00	7293.34	12.75	85.85	7196.91	22.74	16.76	17.94	916.57	883.67	27.86	MWD	
7500.00	7391.28	12.75	85.85	7292.43	23.18	17.02	17.94	936.78	903.39	28.06	MWD	
7600.00	7489.22	12.75	85.85	7387.95	23.62	17.27	17.93	956.98	923.12	28.26	MWD	
7700.00	7587.16	12.75	85.85	7483.47	24.06	17.53	17.92	977.18	942.84	28.45	MWD	
7800.00	7685.09	12.75	85.85	7578.99	24.50	17.79	17.91	997.39	962.56	28.64	MWD	
7900.00	7783.03	12.75	85.85	7674.51	24.94	18.04	17.91	1017.59	982.28	28.82	MWD	
8000.00	7880.97	12.75	85.85	7770.04	25.38	18.30	17.90	1037.80	1002.00	28.99	MWD	
8100.00	7978.91	12.75	85.85	7865.56	25.82	18.56	17.90	1058.00	1021.72	29.16	MWD	
8200.00	8076.84	12.75	85.85	7961.08	26.27	18.82	17.89	1078.20	1041.44	29.33	MWD	
8300.00	8174.78	12.75	85.85	8056.60	26.71	19.08	17.89	1098.41	1061.16	29.49	MWD	
8400.00	8272.72	12.75	85.85	8152.12	27.15	19.34	17.88	1118.61	1080.87	29.64	MWD	
8500.00	8370.66	12.75	85.85	8247.64	27.60	19.60	17.88	1138.81	1100.59	29.79	MWD	
8600.00	8468.60	12.75	85.85	8343.17	28.04	19.86	17.87	1159.02	1120.31	29.94	MWD	
8700.00	8566.53	12.75	85.85	8438.69	28.49	20.12	17.87	1179.22	1140.02	30.08	MWD	
8800.00	8664.47	12.75	85.85	8534.21	28.94	20.38	17.86	1199.42	1159.74	30.22	MWD	
8900.00	8762.41	12.75	85.85	8629.73	29.38	20.64	17.86	1219.63	1179.45	30.36	MWD	
9000.00	8860.35	12.75	85.85	8725.25	29.83	20.90	17.85	1239.83	1199.17	30.49	MWD	
9100.00	8958.28	12.75	85.85	8820.78	30.28	21.16	17.85	1260.03	1218.88	30.62	MWD	

5D Anti-Collision Report

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
9200.00	9056.22	12.75	85.85	8916.30	30.72	21.42	17.85	1280.24	1238.59	30.74	MWD	
9300.00	9154.16	12.75	85.85	9011.82	31.17	21.68	17.84	1300.44	1258.31	30.86	MWD	
9400.00	9252.10	12.75	85.85	9107.34	31.62	21.94	17.84	1320.65	1278.02	30.98	MWD	
9500.00	9350.04	12.75	85.85	9202.86	32.07	22.20	17.83	1340.85	1297.73	31.10	MWD	
9600.00	9447.97	12.75	85.85	9298.38	32.51	22.46	17.83	1361.05	1317.44	31.21	MWD	
9700.00	9545.91	12.75	85.85	9393.91	32.96	22.73	17.83	1381.26	1337.15	31.32	MWD	
9800.00	9643.85	12.75	85.85	9489.43	33.41	22.99	17.82	1401.46	1356.86	31.43	MWD	
9900.00	9741.79	12.75	85.85	9584.95	33.86	23.25	17.82	1421.66	1376.58	31.53	MWD	
10000.00	9839.72	12.75	85.85	9680.47	34.31	23.51	17.82	1441.87	1396.29	31.63	MWD	
10100.00	9937.66	12.75	85.85	9775.99	34.76	23.77	17.82	1462.07	1416.00	31.73	MWD	
10200.00	10035.60	12.75	85.85	9871.51	35.21	24.04	17.81	1482.28	1435.71	31.83	MWD	
10300.00	10133.54	12.75	85.85	9967.04	35.66	24.30	17.81	1502.48	1455.42	31.92	MWD	
10400.00	10231.48	12.75	85.85	10062.56	36.11	24.56	17.81	1522.68	1475.12	32.02	MWD	
10500.00	10329.41	12.75	85.85	10158.08	36.56	24.82	17.80	1542.89	1494.83	32.11	MWD	
10600.00	10427.35	12.75	85.85	10253.60	37.01	25.09	17.80	1563.09	1514.54	32.20	MWD	
10700.00	10525.29	12.75	85.85	10349.12	37.46	25.35	17.80	1583.29	1534.25	32.28	MWD	
10800.00	10623.19	12.75	85.85	10444.61	37.91	25.61	286.20	1603.53	1554.00	32.37	MWD	
10900.00	10719.56	12.75	85.85	10538.61	38.36	25.87	274.79	1624.09	1574.11	32.50	MWD	
11000.00	10811.00	12.75	85.85	10627.78	38.78	26.12	274.18	1644.93	1594.53	32.63	MWD	
11100.00	10894.13	12.75	85.85	10708.87	39.16	26.34	274.36	1666.38	1615.54	32.78	MWD	
11200.00	10965.92	12.75	85.85	10778.88	39.49	26.54	274.88	1689.07	1637.76	32.92	MWD	
11300.00	11023.71	12.75	85.85	10835.25	39.76	26.69	275.87	1713.70	1661.85	33.05	MWD	
11400.00	11077.56	12.75	93.73	10887.77	39.98	26.83	277.16	1740.78	1688.22	33.12	MWD	
11500.00	11273.11	23.93	149.14	11074.32	38.55	27.29	274.33	1768.91	1714.92	32.76	MWD	
11600.00	11986.42	89.33	179.57	11438.29	29.72	19.21	265.18	1783.30	1729.33	33.04	MWD	
11700.00	12086.42	89.33	179.57	11439.45	30.37	19.40	265.19	1783.27	1728.44	32.52	MWD	
11800.00	12186.42	89.33	179.57	11440.62	31.10	19.62	265.21	1783.24	1727.40	31.93	MWD	
11900.00	12286.42	89.33	179.57	11441.79	31.92	19.87	265.23	1783.21	1726.20	31.28	MWD	
12000.00	12386.41	89.33	179.57	11442.95	32.81	20.16	265.25	1783.18	1724.86	30.58	MWD	
12100.00	12486.41	89.33	179.57	11444.12	33.78	20.47	265.26	1783.16	1723.40	29.84	MWD	
12200.00	12586.41	89.33	179.57	11445.29	34.81	20.81	265.28	1783.13	1721.80	29.08	MWD	
12300.00	12686.41	89.33	179.57	11446.45	35.91	21.17	265.30	1783.10	1720.10	28.30	MWD	
12400.00	12786.41	89.33	179.57	11447.62	37.06	21.56	265.32	1783.07	1718.29	27.52	MWD	
12500.00	12886.41	89.33	179.57	11448.79	38.26	21.97	265.33	1783.05	1716.38	26.75	MWD	
12600.00	12986.41	89.33	179.57	11449.96	39.51	22.40	265.35	1783.02	1714.39	25.98	MWD	
12700.00	13086.40	89.33	179.57	11451.12	40.80	22.85	265.37	1782.99	1712.31	25.23	MWD	
12800.00	13186.40	89.33	179.57	11452.29	42.12	23.31	265.39	1782.96	1710.16	24.49	MWD	
12900.00	13286.40	89.33	179.57	11453.46	43.49	23.79	265.40	1782.94	1707.94	23.77	MWD	
13000.00	13386.40	89.33	179.57	11454.62	44.89	24.28	265.42	1782.91	1705.66	23.08	MWD	
13100.00	13486.40	89.33	179.57	11455.79	46.31	24.79	265.44	1782.89	1703.32	22.41	MWD	
13200.00	13586.40	89.33	179.57	11456.96	47.77	25.31	265.46	1782.86	1700.93	21.76	MWD	
13300.00	13686.39	89.33	179.57	11458.12	49.24	25.84	265.47	1782.83	1698.49	21.14	MWD	
13400.00	13786.39	89.33	179.57	11459.29	50.75	26.38	265.49	1782.81	1696.00	20.54	MWD	
13500.00	13886.39	89.33	179.57	11460.46	52.27	26.93	265.51	1782.78	1693.47	19.96	MWD	
13600.00	13986.39	89.33	179.57	11461.62	53.81	27.48	265.53	1782.76	1690.90	19.41	MWD	
13700.00	14086.39	89.33	179.57	11462.79	55.37	28.05	265.54	1782.73	1688.30	18.88	MWD	
13800.00	14186.39	89.33	179.57	11463.96	56.94	28.63	265.56	1782.70	1685.66	18.37	MWD	
13900.00	14286.39	89.33	179.57	11465.12	58.53	29.21	265.58	1782.68	1683.00	17.88	MWD	
14000.00	14386.38	89.33	179.57	11466.29	60.14	29.80	265.60	1782.65	1680.30	17.42	MWD	
14100.00	14486.38	89.33	179.57	11467.46	61.75	30.39	265.61	1782.63	1677.58	16.97	MWD	
14200.00	14586.38	89.33	179.57	11468.63	63.38	30.99	265.63	1782.61	1674.83	16.54	MWD	
14300.00	14686.38	89.33	179.57	11469.79	65.02	31.60	265.65	1782.58	1672.06	16.13	MWD	
14400.00	14786.38	89.33	179.57	11470.96	66.67	32.21	265.67	1782.56	1669.27	15.73	MWD	
14500.00	14886.38	89.33	179.57	11472.13	68.32	32.83	265.68	1782.53	1666.45	15.36	MWD	
14600.00	14986.38	89.33	179.57	11473.29	69.99	33.45	265.70	1782.51	1663.62	14.99	MWD	
14700.00	15086.37	89.33	179.57	11474.46	71.67	34.07	265.72	1782.49	1660.77	14.65	MWD	
14800.00	15186.37	89.33	179.57	11475.63	73.35	34.70	265.74	1782.46	1657.91	14.31	MWD	
14900.00	15286.37	89.33	179.57	11476.79	75.04	35.34	265.75	1782.44	1655.02	13.99	MWD	

5D Anti-Collision Report

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
15000.00	15386.37	89.33	179.57	11477.96	76.73	35.98	265.77	1782.41	1652.12	13.68	MWD	
15100.00	15486.37	89.33	179.57	11479.13	78.43	36.62	265.79	1782.39	1649.21	13.38	MWD	
15200.00	15586.37	89.33	179.57	11480.29	80.14	37.26	265.81	1782.37	1646.28	13.10	MWD	
15300.00	15686.37	89.33	179.57	11481.46	81.85	37.91	265.82	1782.35	1643.34	12.82	MWD	
15400.00	15786.36	89.33	179.57	11482.63	83.57	38.56	265.84	1782.32	1640.39	12.56	MWD	
15500.00	15886.36	89.33	179.57	11483.79	85.30	39.21	265.86	1782.30	1637.43	12.30	MWD	
15600.00	15986.36	89.33	179.57	11484.96	87.02	39.87	265.88	1782.28	1634.45	12.06	MWD	
15700.00	16086.36	89.33	179.57	11486.13	88.75	40.53	265.89	1782.26	1631.47	11.82	MWD	
15800.00	16186.36	89.33	179.57	11487.30	90.49	41.19	265.91	1782.23	1628.47	11.59	MWD	
15900.00	16286.36	89.33	179.57	11488.46	92.23	41.86	265.93	1782.21	1625.46	11.37	MWD	
16000.00	16386.35	89.33	179.57	11489.63	93.97	42.52	265.95	1782.19	1622.44	11.16	MWD	
16100.00	16486.35	89.33	179.57	11490.80	95.72	43.19	265.96	1782.17	1619.42	10.95	MWD	
16200.00	16586.35	89.33	179.57	11491.96	97.47	43.86	265.98	1782.15	1616.38	10.75	MWD	
16300.00	16686.35	89.33	179.57	11493.13	99.22	44.53	266.00	1782.13	1613.34	10.56	MWD	
16400.00	16786.35	89.33	179.57	11494.30	100.97	45.21	266.02	1782.11	1610.29	10.37	MWD	
16500.00	16886.35	89.33	179.57	11495.46	102.73	45.88	266.03	1782.09	1607.22	10.19	MWD	
16600.00	16986.35	89.33	179.57	11496.63	104.49	46.56	266.05	1782.07	1604.16	10.02	MWD	
16700.00	17086.34	89.33	179.57	11497.80	106.25	47.24	266.07	1782.04	1601.08	9.85	MWD	
16800.00	17186.34	89.33	179.57	11498.96	108.02	47.92	266.09	1782.02	1598.00	9.68	MWD	
16900.00	17286.34	89.33	179.57	11500.13	109.78	48.60	266.10	1782.00	1594.90	9.52	MWD	
17000.00	17386.34	89.33	179.57	11501.30	111.55	49.29	266.12	1781.98	1591.81	9.37	MWD	
17100.00	17486.34	89.33	179.57	11502.46	113.33	49.97	266.14	1781.96	1588.70	9.22	MWD	
17200.00	17586.34	89.33	179.57	11503.63	115.10	50.66	266.16	1781.95	1585.59	9.07	MWD	
17300.00	17686.34	89.33	179.57	11504.80	116.87	51.35	266.17	1781.93	1582.47	8.93	MWD	
17400.00	17786.33	89.33	179.57	11505.97	118.65	52.04	266.19	1781.91	1579.34	8.80	MWD	
17500.00	17886.33	89.33	179.57	11507.13	120.43	52.73	266.21	1781.89	1576.21	8.66	MWD	
17600.00	17986.33	89.33	179.57	11508.30	122.21	53.42	266.23	1781.87	1573.07	8.53	MWD	
17700.00	18086.33	89.33	179.57	11509.47	123.99	54.11	266.24	1781.85	1569.92	8.41	MWD	
17800.00	18186.33	89.33	179.57	11510.63	125.77	54.80	266.26	1781.83	1566.77	8.29	MWD	
17900.00	18286.33	89.33	179.57	11511.80	127.56	55.50	266.28	1781.81	1563.62	8.17	MWD	
18000.00	18386.33	89.33	179.57	11512.97	129.34	56.19	266.30	1781.79	1560.45	8.05	MWD	
18100.00	18486.32	89.33	179.57	11514.13	131.13	56.89	266.31	1781.78	1557.28	7.94	MWD	
18200.00	18586.32	89.33	179.57	11515.30	132.92	57.59	266.33	1781.76	1554.11	7.83	MWD	
18300.00	18686.32	89.33	179.57	11516.47	134.70	58.28	266.35	1781.74	1550.93	7.72	MWD	
18400.00	18786.32	89.33	179.57	11517.63	136.49	58.98	266.37	1781.72	1547.74	7.61	MWD	
18500.00	18886.32	89.33	179.57	11518.80	138.29	59.68	266.38	1781.71	1544.55	7.51	MWD	
18600.00	18986.32	89.33	179.57	11519.97	140.08	60.38	266.40	1781.69	1541.35	7.41	MWD	
18700.00	19086.31	89.33	179.57	11521.13	141.87	61.09	266.42	1781.67	1538.15	7.32	MWD	
18800.00	19186.31	89.33	179.57	11522.30	143.67	61.79	266.44	1781.65	1534.94	7.22	MWD	
18900.00	19286.31	89.33	179.57	11523.47	145.46	62.49	266.45	1781.64	1531.73	7.13	MWD	
18942.18	19328.49	89.33	179.57	11523.96	146.22	62.79	266.46	1781.63	1530.37	7.09	MWD	
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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
0.00	0.00	0.00	0.00	1.00	0.00	0.00	269.31	50.01	49.21	62.35	MWD	
100.00	99.00	0.00	0.00	100.00	0.11	0.11	269.31	50.00	48.98	48.75	MWD	
200.00	199.00	0.00	0.00	200.00	0.33	0.33	269.31	50.00	48.53	33.92	MWD	
300.00	299.00	0.00	0.00	300.00	0.56	0.56	269.31	50.00	48.08	25.99	MWD	
400.00	399.00	0.00	0.00	400.00	0.78	0.78	269.31	50.00	47.63	21.07	MWD	
500.00	499.00	0.00	0.00	500.00	1.01	1.01	269.31	50.00	47.18	17.71	MWD	
600.00	599.00	0.00	0.00	600.00	1.23	1.23	269.31	50.00	46.73	15.28	MWD	
700.00	699.00	0.00	0.00	700.00	1.46	1.46	269.31	50.00	46.28	13.43	MWD	
800.00	799.00	0.00	0.00	800.00	1.68	1.68	269.31	50.00	45.83	11.99	MWD	
900.00	899.00	0.00	0.00	900.00	1.91	1.91	269.31	50.00	45.38	10.82	MWD	
1000.00	999.00	0.00	0.00	1000.00	2.13	2.13	269.31	50.00	44.93	9.86	MWD	
1100.00	1099.00	0.00	0.00	1100.00	2.36	2.36	269.31	50.00	44.48	9.06	MWD	
1200.00	1199.00	0.00	0.00	1200.00	2.58	2.58	269.31	50.00	44.03	8.38	MWD	

5D Anti-Collision Report

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
1300.00	1299.00	0.00	0.00	1300.00	2.81	2.81	269.31	50.00	43.58	7.79	MWD	
1400.00	1399.00	0.00	0.00	1400.00	3.03	3.03	269.31	50.00	43.13	7.28	MWD	
1500.00	1499.00	0.00	0.00	1500.00	3.26	3.26	269.31	50.00	42.68	6.83	MWD	
1600.00	1599.00	0.00	0.00	1600.00	3.48	3.48	269.31	50.00	42.24	6.44	MWD	
1700.00	1699.00	0.00	0.00	1700.00	3.71	3.71	269.31	50.00	41.79	6.08	MWD	
1800.00	1799.00	0.00	0.00	1800.00	3.93	3.93	269.31	50.00	41.34	5.77	MWD	
1900.00	1899.00	0.00	0.00	1900.00	4.16	4.16	269.31	50.00	40.89	5.48	MWD	
2000.00	1999.00	0.00	0.00	2000.00	4.38	4.38	269.31	50.00	40.44	5.23	MWD	
2100.00	2099.00	0.00	0.00	2100.00	4.61	4.61	269.31	50.00	39.99	4.99	MWD	
2200.00	2199.00	0.00	0.00	2200.00	4.83	4.83	269.31	50.00	39.54	4.78	MWD	
2300.00	2299.00	0.00	0.00	2300.00	5.06	5.06	269.31	50.00	39.09	4.58	MWD	
2400.00	2399.00	0.00	0.00	2400.00	5.28	5.28	269.31	50.00	38.64	4.40	MWD	
2500.00	2499.00	0.00	0.00	2500.00	5.51	5.51	269.31	50.00	38.19	4.23	MWD	
2600.00	2599.00	0.00	0.00	2600.00	5.73	5.73	269.31	50.00	37.74	4.08	MWD	
2700.00	2699.00	0.00	0.00	2700.00	5.95	5.95	269.31	50.00	37.29	3.93	MWD	
2800.00	2799.00	0.00	0.00	2800.00	6.18	6.18	269.31	50.00	36.84	3.80	MWD	
2900.00	2899.00	0.00	0.00	2900.00	6.40	6.40	269.31	50.00	36.39	3.67	MWD	
3000.00	2999.00	0.00	0.00	3000.00	6.63	6.63	269.31	50.00	35.94	3.56	MWD	
3100.00	3099.29	1.99	10.00	3100.27	6.85	6.85	200.89	51.04	36.55	3.52	MWD	
3200.00	3199.25	2.00	10.00	3200.17	7.08	7.08	203.88	52.42	37.49	3.51	MWD	
3300.00	3299.20	2.00	10.00	3300.06	7.30	7.30	206.70	53.93	38.57	3.51	MWD	
3400.00	3399.16	2.00	10.00	3399.96	7.52	7.52	209.37	55.56	39.77	3.52	MWD	
3500.00	3499.11	2.00	10.00	3499.85	7.75	7.75	211.88	57.31	41.08	3.53	MWD	
3600.00	3599.07	2.00	10.00	3599.74	7.97	7.97	214.23	59.15	42.49	3.55	MWD	
3700.00	3699.02	2.00	10.00	3699.64	8.20	8.20	216.44	61.10	44.00	3.57	MWD	
3800.00	3798.98	2.00	10.00	3799.53	8.42	8.42	218.52	63.13	45.59	3.60	MWD	
3900.00	3898.93	2.00	10.00	3899.42	8.65	8.65	220.46	65.23	47.26	3.63	MWD	
4000.00	3998.88	2.00	10.00	3999.32	8.88	8.87	222.27	67.41	49.00	3.66	MWD	
4100.00	4098.84	2.00	10.00	4099.21	9.10	9.10	223.97	69.65	50.79	3.69	MWD	
4200.00	4198.79	2.00	10.00	4199.10	9.33	9.32	225.57	71.94	52.65	3.73	MWD	
4300.00	4298.75	2.00	10.00	4299.00	9.56	9.55	227.06	74.29	54.56	3.76	MWD	
4400.00	4398.70	2.00	10.00	4398.89	9.78	9.77	228.46	76.69	56.51	3.80	MWD	
4500.00	4498.66	2.00	10.00	4498.78	10.01	10.00	229.78	79.13	58.51	3.84	MWD	
4600.00	4598.61	2.00	10.00	4598.68	10.24	10.22	231.02	81.61	60.54	3.87	MWD	
4700.00	4698.56	2.00	10.00	4698.57	10.46	10.45	232.18	84.12	62.61	3.91	MWD	
4800.00	4798.52	2.00	10.00	4798.46	10.69	10.67	233.28	86.67	64.71	3.95	MWD	
4900.00	4898.47	2.00	10.00	4898.36	10.92	10.90	234.31	89.25	66.85	3.98	MWD	
5000.00	4998.43	2.00	10.00	4998.25	11.15	11.12	235.28	91.85	69.00	4.02	MWD	
5100.00	5098.38	2.00	10.00	5098.14	11.38	11.35	236.21	94.48	71.19	4.06	MWD	
5200.00	5198.33	2.00	10.00	5198.04	11.61	11.57	237.08	97.13	73.39	4.09	MWD	
5300.00	5298.29	2.00	10.00	5297.93	11.83	11.80	237.90	99.81	75.62	4.13	MWD	
5400.00	5398.24	2.00	10.00	5397.82	12.06	12.02	238.68	102.50	77.87	4.16	MWD	
5500.00	5498.20	2.00	10.00	5497.72	12.29	12.25	239.42	105.21	80.22	4.21	MWD	
5600.00	5598.15	2.00	10.00	5597.61	12.52	12.48	240.12	107.94	82.50	4.24	MWD	
5700.00	5698.11	2.00	10.00	5697.50	12.75	12.70	240.79	110.68	84.80	4.28	MWD	
5800.00	5798.06	2.00	10.00	5797.40	12.98	12.93	241.43	113.44	87.11	4.31	MWD	
5900.00	5898.01	2.00	10.00	5897.29	13.21	13.15	242.04	116.21	89.43	4.34	MWD	
6000.00	5997.97	2.00	10.00	5997.18	13.44	13.38	242.61	119.00	91.77	4.37	MWD	
6100.00	6097.92	2.00	10.00	6097.08	13.67	13.60	243.16	121.79	94.11	4.40	MWD	
6200.00	6197.88	2.00	10.00	6196.97	13.90	13.83	243.69	124.60	96.47	4.43	MWD	
6300.00	6297.83	2.00	10.00	6296.86	14.12	14.05	244.19	127.41	98.84	4.46	MWD	
6400.00	6397.79	2.00	10.00	6396.76	14.35	14.28	244.68	130.24	101.21	4.49	MWD	
6500.00	6497.74	2.00	10.00	6496.65	14.58	14.51	245.14	133.07	103.59	4.51	MWD	
6600.00	6597.69	2.00	10.00	6596.54	14.81	14.73	245.58	135.92	105.99	4.54	MWD	
6700.00	6697.65	2.00	10.00	6696.44	15.04	14.96	246.00	138.77	108.39	4.57	MWD	
6800.00	6797.60	2.00	10.00	6796.33	15.27	15.18	246.41	141.62	110.79	4.59	MWD	
6900.00	6897.56	2.00	10.00	6896.22	15.50	15.41	246.80	144.49	113.21	4.62	MWD	
7000.00	6997.51	2.00	10.00	6996.12	15.73	15.63	247.17	147.36	115.63	4.64	MWD	

SD Anti-Collision Report

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
7100.00	7097.47	2.00	10.00	7096.01	15.96	15.86	247.54	150.24	118.05	4.67	MWD	
7200.00	7197.42	2.00	10.00	7195.90	16.19	16.08	247.88	153.12	120.49	4.69	MWD	
7300.00	7297.37	2.00	10.00	7295.80	16.42	16.31	248.22	156.01	122.92	4.72	MWD	
7400.00	7397.33	2.00	10.00	7395.69	16.65	16.54	248.54	158.90	125.36	4.74	MWD	
7500.00	7497.28	2.00	10.00	7495.58	16.88	16.76	248.85	161.80	127.81	4.76	MWD	
7600.00	7597.24	2.00	10.00	7595.48	17.11	16.99	249.15	164.70	130.26	4.78	MWD	
7700.00	7697.19	2.00	10.00	7695.37	17.34	17.21	249.44	167.61	132.72	4.80	MWD	
7800.00	7797.14	2.00	10.00	7795.26	17.57	17.44	249.72	170.52	135.18	4.82	MWD	
7900.00	7897.10	2.00	10.00	7895.16	17.80	17.66	249.99	173.43	137.64	4.85	MWD	
8000.00	7997.05	2.00	10.00	7995.05	18.03	17.89	250.25	176.35	140.11	4.87	MWD	
8100.00	8097.01	2.00	10.00	8094.94	18.26	18.12	250.50	179.27	142.58	4.89	MWD	
8200.00	8196.96	2.00	10.00	8194.84	18.49	18.34	250.75	182.20	145.05	4.90	MWD	
8300.00	8296.92	2.00	10.00	8294.73	18.72	18.57	250.98	185.13	147.53	4.92	MWD	
8400.00	8396.87	2.00	10.00	8394.62	18.95	18.79	251.21	188.06	150.01	4.94	MWD	
8500.00	8496.82	2.00	10.00	8494.52	19.18	19.02	251.44	191.00	152.49	4.96	MWD	
8600.00	8596.78	2.00	10.00	8594.41	19.42	19.25	251.65	193.93	154.97	4.98	MWD	
8700.00	8696.73	2.00	10.00	8694.30	19.65	19.47	251.86	196.87	157.46	5.00	MWD	
8800.00	8796.69	2.00	10.00	8794.20	19.88	19.70	252.06	199.82	159.95	5.01	MWD	
8900.00	8896.64	2.00	10.00	8894.09	20.11	19.92	252.26	202.76	162.44	5.03	MWD	
9000.00	8996.60	2.00	10.00	8993.98	20.34	20.15	252.45	205.71	164.94	5.05	MWD	
9100.00	9096.55	2.00	10.00	9093.88	20.57	20.37	252.64	208.66	167.44	5.06	MWD	
9200.00	9196.50	2.00	10.00	9193.77	20.80	20.60	252.82	211.61	169.94	5.08	MWD	
9300.00	9296.46	2.00	10.00	9293.66	21.03	20.83	253.00	214.56	172.44	5.09	MWD	
9400.00	9396.41	2.00	10.00	9393.56	21.26	21.05	253.17	217.52	174.94	5.11	MWD	
9500.00	9496.37	2.00	10.00	9493.45	21.49	21.28	253.33	220.48	177.45	5.12	MWD	
9600.00	9596.32	2.00	10.00	9593.34	21.72	21.50	253.50	223.44	179.95	5.14	MWD	
9700.00	9696.27	2.00	10.00	9693.24	21.95	21.73	253.65	226.40	182.46	5.15	MWD	
9800.00	9796.23	2.00	10.00	9793.13	22.18	21.96	253.81	229.36	184.97	5.17	MWD	
9900.00	9896.18	2.00	10.00	9893.02	22.41	22.18	253.96	232.33	187.48	5.18	MWD	
10000.00	9996.14	2.00	10.00	9992.92	22.64	22.41	254.10	235.29	189.99	5.19	MWD	
10100.00	10096.09	2.00	10.00	10092.81	22.87	22.63	254.25	238.26	192.51	5.21	MWD	
10200.00	10196.05	2.00	10.00	10192.70	23.10	22.86	254.39	241.23	195.03	5.22	MWD	
10300.00	10296.00	2.00	10.00	10292.60	23.34	23.08	254.52	244.20	197.54	5.23	MWD	
10400.00	10395.95	2.00	10.00	10392.49	23.57	23.31	254.65	247.17	200.06	5.25	MWD	
10500.00	10495.91	2.00	10.00	10492.38	23.80	23.54	254.78	250.15	202.58	5.26	MWD	
10600.00	10595.86	2.00	10.00	10592.28	24.03	23.76	254.91	253.12	205.10	5.27	MWD	
10700.00	10695.82	2.00	10.00	10692.17	24.26	23.99	255.03	256.10	207.62	5.28	MWD	
10800.00	10795.71	2.00	10.00	10792.01	24.49	24.21	162.83	260.02	211.10	5.32	MWD	
10900.00	10954.42	13.04	118.35	10949.54	24.58	24.39	153.78	267.72	219.30	5.53	MWD	
11000.00	11118.69	29.40	122.93	11102.16	24.82	23.40	163.21	267.96	221.91	5.82	MWD	
11100.00	11261.06	43.61	124.24	11216.31	25.12	21.95	177.41	271.35	226.55	6.06	MWD	
11200.00	11380.14	55.51	124.89	11293.41	25.51	20.60	192.24	290.14	244.51	6.36	MWD	
11300.00	11480.36	65.53	125.31	11342.68	26.02	19.58	206.50	329.94	282.25	6.92	MWD	
11400.00	11567.46	74.23	125.62	11372.61	26.62	18.93	220.94	388.25	338.42	7.79	MWD	
11500.00	11748.34	80.61	139.65	11407.85	27.75	18.81	241.60	455.84	404.32	8.85	MWD	
11600.00	12176.86	89.33	179.61	11445.25	28.01	19.55	251.02	482.43	431.02	9.38	MWD	
11700.00	12276.86	89.33	179.61	11446.42	28.68	19.81	251.08	482.21	429.80	9.20	MWD	
11800.00	12376.86	89.33	179.61	11447.59	29.44	20.10	251.14	482.00	428.43	9.00	MWD	
11900.00	12476.86	89.33	179.61	11448.75	30.29	20.40	251.20	481.78	426.91	8.78	MWD	
12000.00	12576.85	89.33	179.61	11449.92	31.22	20.73	251.26	481.56	425.26	8.55	MWD	
12100.00	12676.85	89.33	179.61	11451.09	32.24	21.08	251.32	481.34	423.47	8.32	MWD	
12200.00	12776.85	89.33	179.61	11452.26	33.32	21.44	251.38	481.13	421.58	8.08	MWD	
12300.00	12876.85	89.33	179.61	11453.42	34.46	21.83	251.44	480.91	419.58	7.84	MWD	
12400.00	12976.85	89.33	179.61	11454.59	35.66	22.23	251.50	480.70	417.48	7.60	MWD	
12500.00	13076.85	89.33	179.61	11455.76	36.92	22.65	251.56	480.48	415.30	7.37	MWD	
12600.00	13176.85	89.33	179.61	11456.93	38.22	23.09	251.62	480.27	413.05	7.14	MWD	
12700.00	13276.84	89.33	179.61	11458.09	39.56	23.54	251.68	480.05	410.72	6.92	MWD	
12800.00	13376.84	89.33	179.61	11459.26	40.94	24.00	251.74	479.84	408.34	6.71	MWD	

5D Anti-Collision Report

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
12900.00	13476.84	89.33	179.61	11460.43	42.36	24.48	251.80	479.63	405.89	6.50	MWD	
13000.00	13576.84	89.33	179.61	11461.60	43.80	24.97	251.86	479.41	403.39	6.31	MWD	
13100.00	13676.84	89.33	179.61	11462.77	45.28	25.47	251.92	479.20	400.85	6.12	MWD	
13200.00	13776.84	89.33	179.61	11463.93	46.77	25.98	251.98	478.99	398.25	5.93	MWD	
13300.00	13876.84	89.33	179.61	11465.10	48.30	26.51	252.04	478.78	395.62	5.76	MWD	
13400.00	13976.83	89.33	179.61	11466.27	49.84	27.04	252.10	478.57	392.95	5.59	MWD	
13500.00	14076.83	89.33	179.61	11467.44	51.40	27.58	252.16	478.36	390.25	5.43	MWD	
13600.00	14176.83	89.33	179.61	11468.60	52.98	28.13	252.22	478.15	387.51	5.27	MWD	
13700.00	14276.83	89.33	179.61	11469.77	54.57	28.69	252.28	477.94	384.74	5.13	MWD	
13800.00	14376.83	89.33	179.61	11470.94	56.18	29.26	252.34	477.74	381.94	4.99	MWD	
13900.00	14476.83	89.33	179.61	11472.11	57.80	29.83	252.40	477.53	379.11	4.85	MWD	
14000.00	14576.83	89.33	179.61	11473.27	59.44	30.41	252.46	477.32	376.26	4.72	MWD	
14100.00	14676.82	89.33	179.61	11474.44	61.08	31.00	252.52	477.11	373.38	4.60	MWD	
14200.00	14776.82	89.33	179.61	11475.61	62.74	31.59	252.58	476.91	370.48	4.48	MWD	
14300.00	14876.82	89.33	179.61	11476.78	64.40	32.19	252.64	476.70	367.55	4.37	MWD	
14400.00	14976.82	89.33	179.61	11477.94	66.08	32.80	252.70	476.50	364.61	4.26	MWD	
14500.00	15076.82	89.33	179.61	11479.11	67.76	33.41	252.76	476.29	361.64	4.15	MWD	
14600.00	15176.82	89.33	179.61	11480.28	69.45	34.02	252.83	476.09	358.66	4.05	MWD	
14700.00	15276.81	89.33	179.61	11481.45	71.15	34.64	252.89	475.89	355.66	3.96	MWD	
14800.00	15376.81	89.33	179.61	11482.61	72.85	35.26	252.95	475.69	352.64	3.87	MWD	
14900.00	15476.81	89.33	179.61	11483.78	74.56	35.89	253.01	475.48	349.60	3.78	MWD	
15000.00	15576.81	89.33	179.61	11484.95	76.27	36.52	253.07	475.28	346.55	3.69	MWD	
15100.00	15676.81	89.33	179.61	11486.12	77.99	37.16	253.13	475.08	343.48	3.61	MWD	
15200.00	15776.81	89.33	179.61	11487.29	79.72	37.80	253.19	474.88	340.39	3.53	MWD	
15300.00	15876.81	89.33	179.61	11488.45	81.45	38.44	253.25	474.68	337.29	3.46	MWD	
15400.00	15976.80	89.33	179.61	11489.62	83.18	39.09	253.31	474.48	334.18	3.38	MWD	
15500.00	16076.80	89.33	179.61	11490.79	84.92	39.74	253.38	474.28	331.05	3.31	MWD	
15600.00	16176.80	89.33	179.61	11491.96	86.66	40.39	253.44	474.08	327.91	3.24	MWD	
15700.00	16276.80	89.33	179.61	11493.12	88.41	41.04	253.50	473.89	324.76	3.18	MWD	
15800.00	16376.80	89.33	179.61	11494.29	90.16	41.70	253.56	473.69	321.59	3.11	MWD	
15900.00	16476.80	89.33	179.61	11495.46	91.91	42.36	253.62	473.49	318.41	3.05	MWD	
16000.00	16576.80	89.33	179.61	11496.63	93.67	43.02	253.68	473.30	315.22	2.99	MWD	
16100.00	16676.79	89.33	179.61	11497.79	95.42	43.68	253.74	473.10	312.02	2.94	MWD	
16200.00	16776.79	89.33	179.61	11498.96	97.19	44.35	253.81	472.91	308.80	2.88	MWD	
16300.00	16876.79	89.33	179.61	11500.13	98.95	45.02	253.87	472.71	305.57	2.83	MWD	
16400.00	16976.79	89.33	179.61	11501.30	100.71	45.69	253.93	472.52	302.34	2.78	MWD	
16500.00	17076.79	89.33	179.61	11502.46	102.48	46.36	253.99	472.32	299.09	2.73	MWD	
16600.00	17176.79	89.33	179.61	11503.63	104.25	47.04	254.05	472.13	295.83	2.68	MWD	
16700.00	17276.78	89.33	179.61	11504.80	106.02	47.71	254.12	471.94	292.56	2.63	MWD	
16800.00	17376.78	89.33	179.61	11505.97	107.80	48.39	254.18	471.75	289.28	2.59	MWD	
16900.00	17476.78	89.33	179.61	11507.14	109.58	49.07	254.24	471.56	285.99	2.54	MWD	
17000.00	17576.78	89.33	179.61	11508.30	111.35	49.75	254.30	471.37	282.69	2.50	MWD	SF(Lo)
17100.00	17676.78	89.33	179.61	11509.47	113.13	50.43	254.36	471.18	279.38	2.46	MWD	SF(Lo)
17200.00	17776.78	89.33	179.61	11510.64	114.91	51.12	254.43	470.99	276.06	2.42	MWD	SF(Lo)
17300.00	17876.78	89.33	179.61	11511.81	116.70	51.80	254.49	470.80	272.73	2.38	MWD	SF(Lo)
17400.00	17976.77	89.33	179.61	11512.97	118.48	52.49	254.55	470.61	269.39	2.34	MWD	SF(Lo)
17500.00	18076.77	89.33	179.61	11514.14	120.27	53.17	254.61	470.42	266.04	2.30	MWD	SF(Lo)
17600.00	18176.77	89.33	179.61	11515.31	122.05	53.86	254.68	470.23	262.69	2.27	MWD	SF(Lo)
17700.00	18276.77	89.33	179.61	11516.48	123.84	54.55	254.74	470.05	259.32	2.23	MWD	SF(Lo)
17800.00	18376.77	89.33	179.61	11517.64	125.63	55.24	254.80	469.86	255.95	2.20	MWD	SF(Lo)
17900.00	18476.77	89.33	179.61	11518.81	127.42	55.94	254.86	469.67	252.56	2.16	MWD	SF(Lo)
18000.00	18576.77	89.33	179.61	11519.98	129.21	56.63	254.93	469.49	249.17	2.13	MWD	SF(Lo)
18100.00	18676.76	89.33	179.61	11521.15	131.01	57.32	254.99	469.31	245.77	2.10	MWD	SF(Lo)
18200.00	18776.76	89.33	179.61	11522.31	132.80	58.02	255.05	469.12	242.36	2.07	MWD	SF(Lo)
18300.00	18876.76	89.33	179.61	11523.48	134.60	58.71	255.11	468.94	238.94	2.04	MWD	SF(Lo)
18400.00	18976.76	89.33	179.61	11524.65	136.39	59.41	255.18	468.76	235.51	2.01	MWD	SF(Lo)
18500.00	19076.76	89.33	179.61	11525.82	138.19	60.11	255.24	468.57	232.08	1.98	MWD	SF(Lo)
18600.00	19176.76	89.33	179.61	11526.99	139.99	60.81	255.30	468.39	228.64	1.95	MWD	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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
18700.00	19276.76	89.33	179.61	11528.15	141.79	61.51	255.36	468.21	225.18	1.93	MWD	SF(Lo)
18800.00	19376.75	89.33	179.61	11529.32	143.59	62.21	255.43	468.03	221.73	1.90	MWD	SF(Lo)
18900.00	19476.75	89.33	179.61	11530.49	145.39	62.91	255.49	467.85	218.26	1.87	MWD	SF(Lo)
18942.18	19518.93	89.33	179.61	11530.98	146.15	63.20	255.52	467.77	216.79	1.86	MWD	SF(Lo)

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
0.00	1.00	0.00	0.00	-0.00	0.00	0.00	116.01	111.72	110.92	139.29	MWD	
100.00	101.00	0.00	0.00	100.00	0.11	0.11	116.01	111.72	110.69	108.56	MWD	
200.00	201.00	0.00	0.00	200.00	0.34	0.34	116.01	111.72	110.24	75.55	MWD	
300.00	301.00	0.00	0.00	300.00	0.56	0.56	116.01	111.72	109.79	57.94	MWD	
400.00	401.00	0.00	0.00	400.00	0.79	0.79	116.01	111.72	109.34	46.98	MWD	
500.00	501.00	0.00	0.00	500.00	1.01	1.01	116.01	111.72	108.89	39.51	MWD	
600.00	601.00	0.00	0.00	600.00	1.24	1.24	116.01	111.72	108.44	34.09	MWD	
700.00	701.00	0.00	0.00	700.00	1.46	1.46	116.01	111.72	107.99	29.98	MWD	
800.00	801.00	0.00	0.00	800.00	1.69	1.69	116.01	111.72	107.54	26.75	MWD	
900.00	901.00	0.00	0.00	900.00	1.91	1.91	116.01	111.72	107.09	24.15	MWD	
1000.00	1001.00	0.00	0.00	1000.00	2.14	2.14	116.01	111.72	106.64	22.01	MWD	
1100.00	1101.00	0.00	0.00	1100.00	2.36	2.36	116.01	111.72	106.19	20.22	MWD	
1200.00	1201.00	0.00	0.00	1200.00	2.59	2.59	116.01	111.72	105.74	18.70	MWD	
1300.00	1301.00	0.00	0.00	1300.00	2.81	2.81	116.01	111.72	105.30	17.39	MWD	
1400.00	1401.00	0.00	0.00	1400.00	3.04	3.04	116.01	111.72	104.85	16.25	MWD	
1500.00	1501.00	0.00	0.00	1500.00	3.26	3.26	116.01	111.72	104.40	15.26	MWD	
1600.00	1601.00	0.00	0.00	1600.00	3.49	3.49	116.01	111.72	103.95	14.37	MWD	
1700.00	1701.00	0.00	0.00	1700.00	3.71	3.71	116.01	111.72	103.50	13.59	MWD	
1800.00	1801.00	0.00	0.00	1800.00	3.94	3.94	116.01	111.72	103.05	12.88	MWD	
1900.00	1901.00	0.00	0.00	1900.00	4.16	4.16	116.01	111.72	102.60	12.25	MWD	
2000.00	2001.00	0.00	0.00	2000.00	4.39	4.39	116.01	111.72	102.15	11.67	MWD	
2100.00	2101.00	0.00	0.00	2100.00	4.61	4.61	116.01	111.72	101.70	11.15	MWD	
2200.00	2201.00	0.00	0.00	2200.00	4.84	4.84	116.01	111.72	101.25	10.67	MWD	
2300.00	2301.00	0.00	0.00	2300.00	5.06	5.06	116.01	111.72	100.80	10.23	MWD	
2400.00	2401.00	0.00	0.00	2400.00	5.28	5.28	116.01	111.72	100.35	9.83	MWD	
2500.00	2501.00	0.00	0.00	2500.00	5.51	5.51	116.01	111.72	99.90	9.45	MWD	
2600.00	2601.00	0.00	0.00	2600.00	5.73	5.73	116.01	111.72	99.45	9.11	MWD	
2700.00	2701.00	0.00	0.00	2700.00	5.96	5.96	116.01	111.72	99.00	8.78	MWD	
2800.00	2801.00	0.00	0.00	2800.00	6.18	6.18	116.01	111.72	98.55	8.48	MWD	
2900.00	2901.00	0.00	0.00	2900.00	6.41	6.41	116.01	111.72	98.10	8.20	MWD	
3000.00	3000.97	0.02	83.46	2999.97	6.63	6.63	116.01	111.72	97.65	7.94	MWD	
3100.00	3097.78	1.96	83.46	3096.76	6.84	6.84	46.28	112.18	97.71	7.75	MWD	
3200.00	3194.49	3.89	83.46	3193.34	7.04	7.02	45.65	115.11	100.27	7.76	MWD	
3300.00	3290.89	5.82	83.46	3289.39	7.24	7.20	44.25	120.93	105.75	7.97	MWD	
3400.00	3386.75	7.74	83.46	3384.58	7.44	7.37	42.29	129.76	114.26	8.37	MWD	
3500.00	3481.88	9.64	83.46	3478.61	7.66	7.54	40.00	141.69	125.91	8.98	MWD	
3600.00	3576.06	11.52	83.46	3571.19	7.90	7.71	37.60	156.81	140.79	9.79	MWD	
3700.00	3669.13	13.38	83.46	3662.06	8.15	7.87	35.25	175.18	158.94	10.79	MWD	
3800.00	3762.86	14.61	83.46	3752.92	8.42	8.04	33.04	196.62	180.13	11.93	MWD	
3900.00	3860.09	14.61	83.46	3847.01	8.73	8.25	31.13	218.97	202.09	12.97	MWD	
4000.00	3957.33	14.61	83.46	3941.10	9.06	8.46	29.57	241.51	224.23	13.97	MWD	
4100.00	4054.56	14.61	83.46	4035.19	9.41	8.68	28.28	264.20	246.49	14.92	MWD	
4200.00	4151.80	14.61	83.46	4129.28	9.76	8.91	27.20	286.99	268.87	15.84	MWD	
4300.00	4249.03	14.61	83.46	4223.37	10.14	9.13	26.27	309.86	291.31	16.71	MWD	
4400.00	4346.27	14.61	83.46	4317.46	10.52	9.36	25.47	332.80	313.83	17.54	MWD	
4500.00	4443.51	14.61	83.46	4411.55	10.91	9.59	24.78	355.79	336.39	18.33	MWD	
4600.00	4540.74	14.61	83.46	4505.63	11.31	9.83	24.17	378.83	358.99	19.09	MWD	
4700.00	4637.98	14.61	83.46	4599.72	11.72	10.06	23.62	401.90	381.62	19.81	MWD	
4800.00	4735.21	14.61	83.46	4693.81	12.14	10.30	23.14	425.01	404.28	20.50	MWD	
4900.00	4832.45	14.61	83.46	4787.90	12.57	10.54	22.71	448.14	426.96	21.16	MWD	

5D Anti-Collision Report

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
5000.00	4929.68	14.61	83.46	4881.99	13.00	10.78	22.32	471.29	449.66	21.79	MWD	
5100.00	5026.92	14.61	83.46	4976.08	13.44	11.03	21.96	494.46	472.38	22.40	MWD	
5200.00	5124.15	14.61	83.46	5070.17	13.88	11.27	21.64	517.65	495.11	22.97	MWD	
5300.00	5221.39	14.61	83.46	5164.26	14.32	11.52	21.35	540.85	517.86	23.53	MWD	
5400.00	5318.62	14.61	83.46	5258.35	14.77	11.77	21.08	564.06	540.61	24.06	MWD	
5500.00	5415.86	14.61	83.46	5352.44	15.23	12.02	20.83	587.28	563.42	24.61	MWD	
5600.00	5513.09	14.61	83.46	5446.53	15.68	12.27	20.60	610.52	586.19	25.10	MWD	
5700.00	5610.33	14.61	83.46	5540.62	16.14	12.52	20.39	633.76	609.01	25.61	MWD	
5800.00	5707.57	14.61	83.46	5634.71	16.61	12.78	20.19	657.01	631.80	26.06	MWD	
5900.00	5804.80	14.61	83.46	5728.80	17.07	13.03	20.00	680.26	654.58	26.49	MWD	
6000.00	5902.04	14.61	83.46	5822.89	17.54	13.29	19.83	703.53	677.38	26.90	MWD	
6100.00	5999.27	14.61	83.46	5916.98	18.01	13.55	19.67	726.80	700.17	27.30	MWD	
6200.00	6096.51	14.61	83.46	6011.06	18.48	13.80	19.52	750.07	722.97	27.68	MWD	
6300.00	6193.74	14.61	83.46	6105.15	18.96	14.06	19.38	773.35	745.78	28.05	MWD	
6400.00	6290.98	14.61	83.46	6199.24	19.43	14.32	19.24	796.63	768.58	28.40	MWD	
6500.00	6388.21	14.61	83.46	6293.33	19.91	14.58	19.11	819.92	791.39	28.74	MWD	
6600.00	6485.45	14.61	83.46	6387.42	20.39	14.84	19.00	843.21	814.20	29.07	MWD	
6700.00	6582.68	14.61	83.46	6481.51	20.87	15.10	18.88	866.50	837.02	29.39	MWD	
6800.00	6679.92	14.61	83.46	6575.60	21.35	15.36	18.78	889.80	859.83	29.69	MWD	
6900.00	6777.16	14.61	83.46	6669.69	21.84	15.63	18.67	913.10	882.65	29.99	MWD	
7000.00	6874.39	14.61	83.46	6763.78	22.32	15.89	18.58	936.40	905.46	30.27	MWD	
7100.00	6971.63	14.61	83.46	6857.87	22.81	16.15	18.49	959.70	928.28	30.54	MWD	
7200.00	7068.86	14.61	83.46	6951.96	23.29	16.42	18.40	983.01	951.10	30.81	MWD	
7300.00	7166.10	14.61	83.46	7046.05	23.78	16.68	18.31	1006.32	973.92	31.06	MWD	
7400.00	7263.33	14.61	83.46	7140.14	24.27	16.95	18.24	1029.63	996.74	31.31	MWD	
7500.00	7360.57	14.61	83.46	7234.23	24.76	17.21	18.16	1052.94	1019.57	31.55	MWD	
7600.00	7457.80	14.61	83.46	7328.32	25.25	17.48	18.09	1076.25	1042.39	31.78	MWD	
7700.00	7555.04	14.61	83.46	7422.41	25.74	17.75	18.02	1099.57	1065.21	32.01	MWD	
7800.00	7652.27	14.61	83.46	7516.50	26.23	18.01	17.95	1122.89	1088.04	32.22	MWD	
7900.00	7749.51	14.61	83.46	7610.58	26.72	18.28	17.89	1146.21	1110.86	32.43	MWD	
8000.00	7846.75	14.61	83.46	7704.67	27.22	18.55	17.82	1169.52	1133.69	32.64	MWD	
8100.00	7943.98	14.61	83.46	7798.76	27.71	18.82	17.76	1192.85	1156.52	32.83	MWD	
8200.00	8041.22	14.61	83.46	7892.85	28.20	19.09	17.71	1216.17	1179.34	33.02	MWD	
8300.00	8138.45	14.61	83.46	7986.94	28.70	19.35	17.65	1239.49	1202.17	33.21	MWD	
8400.00	8235.69	14.61	83.46	8081.03	29.19	19.62	17.60	1262.82	1225.00	33.39	MWD	
8500.00	8332.92	14.61	83.46	8175.12	29.69	19.89	17.55	1286.14	1247.82	33.57	MWD	
8600.00	8430.16	14.61	83.46	8269.21	30.18	20.16	17.50	1309.47	1270.65	33.74	MWD	
8700.00	8527.39	14.61	83.46	8363.30	30.68	20.43	17.45	1332.79	1293.48	33.90	MWD	
8800.00	8624.63	14.61	83.46	8457.39	31.18	20.70	17.41	1356.12	1316.31	34.06	MWD	
8900.00	8721.86	14.61	83.46	8551.48	31.67	20.97	17.36	1379.45	1339.13	34.22	MWD	
9000.00	8819.10	14.61	83.46	8645.57	32.17	21.24	17.32	1402.78	1361.96	34.37	MWD	
9100.00	8916.34	14.61	83.46	8739.66	32.67	21.51	17.28	1426.11	1384.79	34.52	MWD	
9200.00	9013.57	14.61	83.46	8833.75	33.17	21.78	17.24	1449.44	1407.62	34.66	MWD	
9300.00	9110.81	14.61	83.46	8927.84	33.67	22.06	17.20	1472.77	1430.45	34.80	MWD	
9400.00	9208.04	14.61	83.46	9021.93	34.16	22.33	17.16	1496.10	1453.28	34.94	MWD	
9500.00	9305.28	14.61	83.46	9116.02	34.66	22.60	17.13	1519.44	1476.11	35.07	MWD	
9600.00	9402.51	14.61	83.46	9210.10	35.16	22.87	17.09	1542.77	1498.94	35.20	MWD	
9700.00	9500.74	14.55	86.63	9305.15	35.66	23.15	17.06	1566.10	1521.76	35.32	MWD	
9800.00	9610.45	17.71	125.31	9410.83	35.50	23.43	17.47	1588.98	1544.07	35.38	MWD	
9900.00	9712.89	24.92	145.69	9506.33	34.34	23.66	18.51	1611.43	1566.05	35.51	MWD	
10000.00	9803.14	32.59	155.68	9585.44	32.57	23.86	19.92	1634.32	1588.58	35.73	MWD	
10100.00	9879.64	39.50	161.27	9647.27	30.59	24.01	21.43	1658.68	1612.71	36.08	MWD	
10200.00	9943.16	45.40	164.79	9694.13	28.69	24.11	22.89	1685.42	1639.34	36.58	MWD	
10300.00	9995.55	50.32	167.18	9729.27	27.02	24.14	24.21	1715.20	1669.15	37.24	MWD	
10400.00	10038.81	54.43	168.92	9755.67	25.74	23.99	25.37	1748.45	1702.52	38.07	MWD	
10500.00	10074.76	57.85	170.22	9775.70	25.11	23.41	26.37	1785.41	1739.70	39.06	MWD	
10600.00	10104.88	60.73	171.25	9791.08	24.95	22.55	27.25	1826.14	1780.73	40.22	MWD	
10700.00	10130.36	63.18	172.07	9803.06	24.95	21.71	28.00	1870.61	1825.54	41.51	MWD	

5D Anti-Collision Report

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
10800.00	10152.60	65.31	172.76	9812.72	24.97	20.96	298.42	1918.55	1873.85	42.92	MWD	
10900.00	10177.79	67.74	173.51	9822.76	25.02	20.10	291.86	1967.16	1922.82	44.37	MWD	
11000.00	10206.65	70.52	174.34	9833.04	25.09	19.15	296.11	2013.79	1969.77	45.75	MWD	
11100.00	10238.25	73.56	175.21	9842.78	25.20	18.17	300.62	2056.48	2012.69	46.96	MWD	
11200.00	10271.90	76.81	176.12	9851.38	25.32	17.23	304.47	2093.54	2049.89	47.96	MWD	
11300.00	10307.05	80.21	177.04	9858.38	25.46	16.39	307.45	2123.58	2079.94	48.66	MWD	
11400.00	10343.25	83.71	177.96	9863.44	25.63	15.73	309.53	2145.52	2101.75	49.02	MWD	
11500.00	10380.12	87.28	178.90	9866.34	25.82	15.29	310.73	2158.63	2114.57	48.99	MWD	
11600.00	10436.39	89.78	179.55	9867.11	26.16	15.21	311.08	2162.61	2118.02	48.51	MWD	
11700.00	10536.38	89.78	179.55	9867.49	26.84	15.45	311.11	2163.54	2118.17	47.69	MWD	
11800.00	10636.37	89.78	179.55	9867.87	27.63	15.74	311.13	2164.47	2118.24	46.82	MWD	
11900.00	10736.36	89.78	179.55	9868.25	28.50	16.06	311.16	2165.39	2118.25	45.93	MWD	
12000.00	10836.35	89.78	179.55	9868.63	29.45	16.43	311.19	2166.32	2118.19	45.01	MWD	
12100.00	10936.34	89.78	179.55	9869.00	30.48	16.82	311.21	2167.25	2118.09	44.08	MWD	
12200.00	11036.33	89.78	179.55	9869.38	31.58	17.25	311.24	2168.18	2117.94	43.15	MWD	
12300.00	11136.33	89.78	179.55	9869.76	32.74	17.70	311.26	2169.11	2117.74	42.22	MWD	
12400.00	11236.32	89.78	179.55	9870.14	33.96	18.18	311.29	2170.04	2117.50	41.30	MWD	
12500.00	11336.31	89.78	179.55	9870.52	35.22	18.67	311.31	2170.98	2117.22	40.39	MWD	
12600.00	11436.30	89.78	179.55	9870.89	36.53	19.19	311.34	2171.91	2116.91	39.49	MWD	
12700.00	11536.29	89.78	179.55	9871.27	37.89	19.72	311.36	2172.84	2116.57	38.61	MWD	
12800.00	11636.28	89.78	179.55	9871.65	39.28	20.27	311.39	2173.77	2116.20	37.76	MWD	
12900.00	11736.27	89.78	179.55	9872.03	40.71	20.83	311.41	2174.71	2115.80	36.92	MWD	
13000.00	11836.26	89.78	179.55	9872.41	42.16	21.41	311.44	2175.64	2115.37	36.10	MWD	
13100.00	11936.25	89.78	179.55	9872.78	43.65	21.99	311.46	2176.57	2114.92	35.30	MWD	
13200.00	12036.25	89.78	179.55	9873.16	45.16	22.58	311.49	2177.51	2114.45	34.53	MWD	
13300.00	12136.24	89.78	179.55	9873.54	46.69	23.18	311.51	2178.44	2113.95	33.78	MWD	
13400.00	12236.23	89.78	179.55	9873.92	48.24	23.79	311.54	2179.38	2113.44	33.05	MWD	
13500.00	12336.22	89.78	179.55	9874.30	49.82	24.41	311.56	2180.31	2112.91	32.35	MWD	
13600.00	12436.21	89.78	179.55	9874.67	51.40	25.03	311.59	2181.25	2112.35	31.66	MWD	
13700.00	12536.20	89.78	179.55	9875.05	53.01	25.66	311.61	2182.19	2111.79	31.00	MWD	
13800.00	12636.19	89.78	179.55	9875.43	54.63	26.30	311.64	2183.12	2111.20	30.35	MWD	
13900.00	12736.18	89.78	179.55	9875.81	56.26	26.94	311.66	2184.06	2110.60	29.73	MWD	
14000.00	12836.17	89.78	179.55	9876.19	57.90	27.58	311.69	2185.00	2109.99	29.13	MWD	
14100.00	12936.17	89.78	179.55	9876.56	59.56	28.23	311.71	2185.93	2109.36	28.55	MWD	
14200.00	13036.16	89.78	179.55	9876.94	61.22	28.88	311.74	2186.87	2108.72	27.98	MWD	
14300.00	13136.15	89.78	179.55	9877.32	62.90	29.54	311.76	2187.81	2108.07	27.44	MWD	
14400.00	13236.14	89.78	179.55	9877.70	64.58	30.20	311.79	2188.75	2107.41	26.91	MWD	
14500.00	13336.13	89.78	179.55	9878.08	66.27	30.86	311.81	2189.69	2106.73	26.40	MWD	
14600.00	13436.12	89.78	179.55	9878.45	67.97	31.52	311.84	2190.63	2106.05	25.90	MWD	
14700.00	13536.11	89.78	179.55	9878.83	69.68	32.19	311.86	2191.57	2105.36	25.42	MWD	
14800.00	13636.10	89.78	179.55	9879.21	71.39	32.86	311.89	2192.51	2104.66	24.96	MWD	
14900.00	13736.09	89.78	179.55	9879.59	73.10	33.54	311.91	2193.45	2103.95	24.51	MWD	
15000.00	13836.09	89.78	179.55	9879.97	74.83	34.21	311.94	2194.40	2103.23	24.07	MWD	
15100.00	13936.08	89.78	179.55	9880.34	76.55	34.89	311.96	2195.34	2102.51	23.65	MWD	
15200.00	14036.07	89.78	179.55	9880.72	78.29	35.57	311.99	2196.28	2101.77	23.24	MWD	
15300.00	14136.06	89.78	179.55	9881.10	80.02	36.26	312.01	2197.22	2101.03	22.84	MWD	
15400.00	14236.05	89.78	179.55	9881.48	81.77	36.94	312.03	2198.17	2100.29	22.46	MWD	
15500.00	14336.04	89.78	179.55	9881.86	83.51	37.63	312.06	2199.11	2099.54	22.09	MWD	
15600.00	14436.03	89.78	179.55	9882.23	85.26	38.31	312.08	2200.05	2098.78	21.72	MWD	
15700.00	14536.02	89.78	179.55	9882.61	87.01	39.00	312.11	2201.00	2098.02	21.37	MWD	
15800.00	14636.01	89.78	179.55	9882.99	88.77	39.69	312.13	2201.94	2097.25	21.03	MWD	
15900.00	14736.01	89.78	179.55	9883.37	90.52	40.39	312.16	2202.89	2096.48	20.70	MWD	
16000.00	14836.00	89.78	179.55	9883.75	92.29	41.08	312.18	2203.83	2095.70	20.38	MWD	
16100.00	14935.99	89.78	179.55	9884.12	94.05	41.78	312.21	2204.78	2094.92	20.07	MWD	
16200.00	15035.98	89.78	179.55	9884.50	95.82	42.47	312.23	2205.73	2094.13	19.77	MWD	
16300.00	15135.97	89.78	179.55	9884.88	97.59	43.17	312.26	2206.67	2093.34	19.47	MWD	
16400.00	15235.96	89.78	179.55	9885.26	99.36	43.87	312.28	2207.62	2092.55	19.18	MWD	
16500.00	15335.95	89.78	179.55	9885.63	101.13	44.57	312.30	2208.57	2091.75	18.91	MWD	

5D Anti-Collision Report

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
16600.00	15435.94	89.78	179.55	9886.01	102.91	45.27	312.33	2209.52	2090.95	18.64	MWD	
16700.00	15535.93	89.78	179.55	9886.39	104.68	45.97	312.35	2210.47	2090.15	18.37	MWD	
16800.00	15635.93	89.78	179.55	9886.77	106.46	46.67	312.38	2211.42	2089.34	18.12	MWD	
16900.00	15735.92	89.78	179.55	9887.15	108.24	47.38	312.40	2212.36	2088.53	17.87	MWD	
17000.00	15835.91	89.78	179.55	9887.52	110.03	48.08	312.43	2213.31	2087.72	17.62	MWD	
17100.00	15935.90	89.78	179.55	9887.90	111.81	48.79	312.45	2214.26	2086.91	17.39	MWD	
17200.00	16035.89	89.78	179.55	9888.28	113.60	49.49	312.47	2215.22	2086.09	17.16	MWD	
17300.00	16135.88	89.78	179.55	9888.66	115.38	50.20	312.50	2216.17	2085.27	16.93	MWD	
17400.00	16235.87	89.78	179.55	9889.04	117.17	50.91	312.52	2217.12	2084.45	16.71	MWD	
17500.00	16335.86	89.78	179.55	9889.41	118.96	51.61	312.55	2218.07	2083.62	16.50	MWD	
17600.00	16435.85	89.78	179.55	9889.79	120.75	52.32	312.57	2219.02	2082.80	16.29	MWD	
17700.00	16535.84	89.78	179.55	9890.17	122.55	53.03	312.59	2219.97	2081.97	16.09	MWD	
17800.00	16635.84	89.78	179.55	9890.55	124.34	53.74	312.62	2220.93	2081.14	15.89	MWD	
17900.00	16735.83	89.78	179.55	9890.93	126.14	54.45	312.64	2221.88	2080.31	15.69	MWD	
18000.00	16835.82	89.78	179.55	9891.30	127.93	55.16	312.67	2222.83	2079.47	15.51	MWD	
18100.00	16935.81	89.78	179.55	9891.68	129.73	55.88	312.69	2223.79	2078.64	15.32	MWD	
18200.00	17035.80	89.78	179.55	9892.06	131.53	56.59	312.72	2224.74	2077.80	15.14	MWD	
18300.00	17135.79	89.78	179.55	9892.44	133.32	57.30	312.74	2225.70	2076.96	14.96	MWD	
18400.00	17235.78	89.78	179.55	9892.82	135.12	58.01	312.76	2226.65	2076.12	14.79	MWD	
18500.00	17335.77	89.78	179.55	9893.19	136.92	58.73	312.79	2227.61	2075.28	14.62	MWD	
18600.00	17435.76	89.78	179.55	9893.57	138.73	59.44	312.81	2228.56	2074.44	14.46	MWD	
18700.00	17535.76	89.78	179.55	9893.95	140.53	60.16	312.84	2229.52	2073.60	14.30	MWD	
18800.00	17635.75	89.78	179.55	9894.33	142.33	60.87	312.86	2230.48	2072.75	14.14	MWD	
18900.00	17735.74	89.78	179.55	9894.71	144.13	61.59	312.88	2231.43	2071.90	13.99	MWD	
18942.18	17777.92	89.78	179.55	9894.87	144.89	61.89	312.89	2231.84	2071.55	13.92	MWD	

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
0.00	1.00	0.00	0.00	-0.00	0.00	0.00	134.54	70.71	69.91	88.16	MWD	
100.00	101.00	0.00	0.00	100.00	0.11	0.11	134.54	70.71	69.68	68.71	MWD	
200.00	201.00	0.00	0.00	200.00	0.34	0.34	134.54	70.71	69.23	47.82	MWD	
300.00	301.00	0.00	0.00	300.00	0.56	0.56	134.54	70.71	68.78	36.67	MWD	
400.00	401.00	0.00	0.00	400.00	0.79	0.79	134.54	70.71	68.34	29.74	MWD	
500.00	501.00	0.00	0.00	500.00	1.01	1.01	134.54	70.71	67.89	25.01	MWD	
600.00	601.00	0.00	0.00	600.00	1.24	1.24	134.54	70.71	67.44	21.58	MWD	
700.00	701.00	0.00	0.00	700.00	1.46	1.46	134.54	70.71	66.99	18.98	MWD	
800.00	801.00	0.00	0.00	800.00	1.69	1.69	134.54	70.71	66.54	16.93	MWD	
900.00	901.00	0.00	0.00	900.00	1.91	1.91	134.54	70.71	66.09	15.29	MWD	
1000.00	1001.00	0.00	0.00	1000.00	2.14	2.14	134.54	70.71	65.64	13.93	MWD	
1100.00	1101.00	0.00	0.00	1100.00	2.36	2.36	134.54	70.71	65.19	12.80	MWD	
1200.00	1201.00	0.00	0.00	1200.00	2.59	2.59	134.54	70.71	64.74	11.84	MWD	
1300.00	1301.00	0.00	0.00	1300.00	2.81	2.81	134.54	70.71	64.29	11.01	MWD	
1400.00	1401.00	0.00	0.00	1400.00	3.04	3.04	134.54	70.71	63.84	10.29	MWD	
1500.00	1501.00	0.00	0.00	1500.00	3.26	3.26	134.54	70.71	63.39	9.66	MWD	
1600.00	1601.00	0.00	0.00	1600.00	3.49	3.49	134.54	70.71	62.94	9.10	MWD	
1700.00	1701.00	0.00	0.00	1700.00	3.71	3.71	134.54	70.71	62.49	8.60	MWD	
1800.00	1801.00	0.00	0.00	1800.00	3.94	3.94	134.54	70.71	62.04	8.15	MWD	
1900.00	1901.00	0.00	0.00	1900.00	4.16	4.16	134.54	70.71	61.59	7.75	MWD	
2000.00	2001.00	0.00	0.00	2000.00	4.39	4.39	134.54	70.71	61.14	7.39	MWD	
2100.00	2101.00	0.00	0.00	2100.00	4.61	4.61	134.54	70.71	60.69	7.06	MWD	
2200.00	2201.00	0.00	0.00	2200.00	4.84	4.84	134.54	70.71	60.24	6.75	MWD	
2300.00	2301.00	0.00	0.00	2300.00	5.06	5.06	134.54	70.71	59.79	6.48	MWD	
2400.00	2401.00	0.00	0.00	2400.00	5.28	5.28	134.54	70.71	59.34	6.22	MWD	
2500.00	2501.00	0.00	0.00	2500.00	5.51	5.51	134.54	70.71	58.89	5.98	MWD	
2600.00	2601.00	0.00	0.00	2600.00	5.73	5.73	134.54	70.71	58.44	5.76	MWD	
2700.00	2701.00	0.00	0.00	2700.00	5.96	5.96	134.54	70.71	57.99	5.56	MWD	
2800.00	2801.00	0.00	0.00	2800.00	6.18	6.18	134.54	70.71	57.55	5.37	MWD	

5D Anti-Collision Report

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
2900.00	2901.00	0.00	0.00	2900.00	6.41	6.41	134.54	70.71	57.10	5.19	MWD	
3000.00	3001.00	0.00	0.00	3000.00	6.63	6.63	134.54	70.71	56.65	5.03	MWD	
3100.00	3100.90	0.12	82.53	3099.90	6.86	6.86	65.81	70.12	55.62	4.84	MWD	
3200.00	3199.46	2.09	82.53	3198.43	7.05	7.05	66.04	70.46	55.56	4.73	MWD	
3300.00	3297.90	4.06	82.53	3296.73	7.26	7.24	64.12	72.89	57.61	4.77	MWD	
3400.00	3395.99	6.02	82.53	3394.44	7.46	7.42	60.45	77.68	62.02	4.96	MWD	
3500.00	3493.51	7.97	82.53	3491.23	7.67	7.60	55.65	85.22	69.23	5.33	MWD	
3600.00	3590.24	9.90	82.53	3586.78	7.90	7.77	50.44	95.93	79.66	5.90	MWD	
3700.00	3687.00	11.18	82.53	3681.84	8.14	7.95	45.38	109.94	93.39	6.64	MWD	
3800.00	3785.46	11.18	82.53	3778.43	8.40	8.16	41.25	125.28	108.34	7.40	MWD	
3900.00	3883.92	11.18	82.53	3875.02	8.67	8.37	38.02	141.11	123.78	8.14	MWD	
4000.00	3982.38	11.18	82.53	3971.61	8.95	8.58	35.45	157.30	139.56	8.87	MWD	
4100.00	4080.84	11.18	82.53	4068.19	9.24	8.80	33.36	173.74	155.59	9.57	MWD	
4200.00	4179.30	11.18	82.53	4164.78	9.55	9.01	31.63	190.36	171.80	10.25	MWD	
4300.00	4277.76	11.18	82.53	4261.37	9.85	9.23	30.18	207.13	188.14	10.91	MWD	
4400.00	4376.22	11.18	82.53	4357.96	10.17	9.46	28.95	224.00	204.60	11.54	MWD	
4500.00	4474.68	11.18	82.53	4454.55	10.50	9.68	27.89	240.97	221.13	12.15	MWD	
4600.00	4573.14	11.18	82.53	4551.14	10.83	9.91	26.97	258.00	237.73	12.73	MWD	
4700.00	4671.60	11.18	82.53	4647.73	11.16	10.13	26.16	275.09	254.38	13.29	MWD	
4800.00	4770.06	11.18	82.53	4744.32	11.50	10.36	25.45	292.23	271.08	13.82	MWD	
4900.00	4868.52	11.18	82.53	4840.91	11.85	10.59	24.82	309.40	287.82	14.34	MWD	
5000.00	4966.98	11.18	82.53	4937.50	12.20	10.82	24.25	326.61	304.59	14.83	MWD	
5100.00	5065.44	11.18	82.53	5034.09	12.55	11.06	23.74	343.85	321.38	15.30	MWD	
5200.00	5163.90	11.18	82.53	5130.68	12.91	11.29	23.28	361.11	338.19	15.76	MWD	
5300.00	5262.36	11.18	82.53	5227.27	13.27	11.53	22.86	378.39	355.02	16.20	MWD	
5400.00	5360.82	11.18	82.53	5323.86	13.64	11.76	22.48	395.68	371.87	16.62	MWD	
5500.00	5459.28	11.18	82.53	5420.45	14.00	12.00	22.13	413.00	388.78	17.06	MWD	
5600.00	5557.74	11.18	82.53	5517.04	14.37	12.24	21.80	430.33	405.71	17.48	MWD	
5700.00	5656.19	11.18	82.53	5613.63	14.75	12.48	21.51	447.67	422.59	17.85	MWD	
5800.00	5754.65	11.18	82.53	5710.22	15.12	12.72	21.23	465.02	439.49	18.22	MWD	
5900.00	5853.11	11.18	82.53	5806.81	15.50	12.96	20.98	482.38	456.39	18.56	MWD	
6000.00	5951.57	11.18	82.53	5903.40	15.87	13.20	20.74	499.75	473.30	18.90	MWD	
6100.00	6050.03	11.18	82.53	5999.99	16.25	13.44	20.52	517.13	490.22	19.22	MWD	
6200.00	6148.49	11.18	82.53	6096.58	16.64	13.68	20.31	534.51	507.15	19.53	MWD	
6300.00	6246.95	11.18	82.53	6193.17	17.02	13.93	20.12	551.90	524.08	19.83	MWD	
6400.00	6345.41	11.18	82.53	6289.76	17.40	14.17	19.93	569.30	541.01	20.13	MWD	
6500.00	6443.87	11.18	82.53	6386.35	17.79	14.41	19.76	586.70	557.95	20.41	MWD	
6600.00	6542.33	11.18	82.53	6482.94	18.18	14.66	19.60	604.10	574.89	20.68	MWD	
6700.00	6640.79	11.18	82.53	6579.52	18.57	14.90	19.45	621.51	591.83	20.94	MWD	
6800.00	6739.25	11.18	82.53	6676.11	18.96	15.15	19.30	638.93	608.78	21.19	MWD	
6900.00	6837.71	11.18	82.53	6772.70	19.35	15.40	19.17	656.35	625.73	21.44	MWD	
7000.00	6936.17	11.18	82.53	6869.29	19.74	15.64	19.04	673.77	642.69	21.68	MWD	
7100.00	7034.63	11.18	82.53	6965.88	20.13	15.89	18.91	691.20	659.64	21.91	MWD	
7200.00	7133.09	11.18	82.53	7062.47	20.53	16.14	18.80	708.62	676.60	22.13	MWD	
7300.00	7231.55	11.18	82.53	7159.06	20.92	16.39	18.69	726.05	693.56	22.35	MWD	
7400.00	7330.01	11.18	82.53	7255.65	21.32	16.63	18.58	743.49	710.53	22.56	MWD	
7500.00	7428.47	11.18	82.53	7352.24	21.71	16.88	18.48	760.92	727.49	22.76	MWD	
7600.00	7526.93	11.18	82.53	7448.83	22.11	17.13	18.38	778.36	744.45	22.96	MWD	
7700.00	7625.39	11.18	82.53	7545.42	22.51	17.38	18.29	795.80	761.42	23.15	MWD	
7800.00	7723.84	11.18	82.53	7642.01	22.90	17.63	18.20	813.24	778.39	23.33	MWD	
7900.00	7822.30	11.18	82.53	7738.60	23.30	17.88	18.12	830.69	795.36	23.51	MWD	
8000.00	7920.76	11.18	82.53	7835.19	23.70	18.13	18.03	848.13	812.33	23.69	MWD	
8100.00	8019.22	11.18	82.53	7931.78	24.10	18.38	17.96	865.58	829.30	23.86	MWD	
8200.00	8117.68	11.18	82.53	8028.37	24.50	18.63	17.88	883.03	846.27	24.03	MWD	
8300.00	8216.14	11.18	82.53	8124.96	24.90	18.88	17.81	900.48	863.25	24.19	MWD	
8400.00	8314.60	11.18	82.53	8221.55	25.30	19.13	17.74	917.93	880.22	24.34	MWD	
8500.00	8413.06	11.18	82.53	8318.14	25.71	19.38	17.67	935.38	897.20	24.50	MWD	
8600.00	8511.52	11.18	82.53	8414.73	26.11	19.64	17.61	952.83	914.17	24.64	MWD	

5D Anti-Collision Report

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
8700.00	8609.98	11.18	82.53	8511.32	26.51	19.89	17.55	970.29	931.15	24.79	MWD	
8800.00	8708.44	11.18	82.53	8607.91	26.91	20.14	17.49	987.75	948.12	24.93	MWD	
8900.00	8806.90	11.18	82.53	8704.50	27.32	20.39	17.43	1005.20	965.10	25.07	MWD	
9000.00	8905.36	11.18	82.53	8801.09	27.72	20.64	17.37	1022.66	982.08	25.20	MWD	
9100.00	9003.82	11.18	82.53	8897.68	28.12	20.90	17.32	1040.12	999.06	25.33	MWD	
9200.00	9102.28	11.18	82.53	8994.27	28.53	21.15	17.27	1057.58	1016.04	25.46	MWD	
9300.00	9200.74	11.18	82.53	9090.86	28.93	21.40	17.22	1075.04	1033.02	25.58	MWD	
9400.00	9299.20	11.18	82.53	9187.44	29.34	21.65	17.17	1092.50	1050.00	25.70	MWD	
9500.00	9397.66	11.18	82.53	9284.03	29.74	21.91	17.12	1109.96	1066.98	25.82	MWD	
9600.00	9496.12	11.18	82.53	9380.62	30.15	22.16	17.08	1127.42	1083.96	25.94	MWD	
9700.00	9594.58	11.18	82.53	9477.21	30.55	22.41	17.03	1144.89	1100.94	26.05	MWD	
9800.00	9693.04	11.18	82.53	9573.80	30.96	22.67	16.99	1162.35	1117.92	26.16	MWD	
9900.00	9791.50	11.18	82.53	9670.39	31.37	22.92	16.95	1179.82	1134.90	26.27	MWD	
10000.00	9889.95	11.18	82.53	9766.98	31.77	23.18	16.91	1197.28	1151.88	26.37	MWD	
10100.00	9988.41	11.18	82.53	9863.57	32.18	23.43	16.87	1214.75	1168.87	26.48	MWD	
10200.00	10086.87	11.18	82.53	9960.16	32.59	23.68	16.83	1232.21	1185.85	26.58	MWD	
10300.00	10189.31	11.30	100.62	10060.65	32.95	23.95	16.84	1249.63	1202.76	26.66	MWD	
10400.00	10297.90	17.02	139.84	10166.13	32.56	24.19	17.57	1266.39	1219.01	26.73	MWD	
10500.00	10397.60	25.37	155.25	10259.08	31.39	24.39	19.02	1282.92	1235.13	26.84	MWD	
10600.00	10484.38	33.33	162.34	10334.68	29.82	24.55	20.84	1300.44	1252.34	27.04	MWD	
10700.00	10557.41	40.25	166.29	10393.13	28.16	24.67	22.72	1320.24	1271.97	27.35	MWD	
10800.00	10618.50	46.11	168.82	10437.67	26.64	24.72	293.09	1343.31	1295.02	27.82	MWD	
10900.00	10676.75	51.74	170.79	10475.93	25.47	24.39	284.33	1368.52	1320.33	28.40	MWD	
11000.00	10734.73	57.37	172.48	10509.55	25.29	23.04	286.66	1393.97	1345.92	29.01	MWD	
11100.00	10792.56	63.01	173.96	10538.28	25.37	21.45	289.66	1418.10	1370.19	29.60	MWD	
11200.00	10850.30	68.65	175.30	10561.91	25.54	19.92	292.43	1439.56	1391.70	30.08	MWD	
11300.00	10908.00	74.30	176.53	10580.24	25.72	18.59	294.70	1457.25	1409.33	30.41	MWD	
11400.00	10965.68	79.96	177.70	10593.08	25.95	17.56	296.34	1470.32	1422.14	30.52	MWD	
11500.00	11023.35	85.62	178.83	10600.32	26.22	16.94	297.32	1478.14	1429.52	30.40	MWD	
11600.00	11094.50	89.47	179.59	10602.29	26.61	16.83	297.61	1480.44	1431.12	30.02	MWD	
11700.00	11194.50	89.47	179.59	10603.22	27.27	17.03	297.64	1480.80	1430.58	29.48	MWD	
11800.00	11294.49	89.47	179.59	10604.14	28.02	17.27	297.66	1481.16	1429.93	28.91	MWD	
11900.00	11394.49	89.47	179.59	10605.06	28.87	17.54	297.69	1481.51	1429.18	28.31	MWD	
12000.00	11494.49	89.47	179.59	10605.99	29.81	17.84	297.72	1481.87	1428.35	27.69	MWD	
12100.00	11594.48	89.47	179.59	10606.91	30.82	18.17	297.75	1482.22	1427.43	27.05	MWD	
12200.00	11694.48	89.47	179.59	10607.83	31.90	18.53	297.77	1482.58	1426.45	26.41	MWD	
12300.00	11794.48	89.47	179.59	10608.75	33.05	18.92	297.80	1482.94	1425.41	25.78	MWD	
12400.00	11894.47	89.47	179.59	10609.68	34.25	19.33	297.83	1483.30	1424.31	25.15	MWD	
12500.00	11994.47	89.47	179.59	10610.60	35.51	19.76	297.85	1483.65	1423.16	24.52	MWD	
12600.00	12094.47	89.47	179.59	10611.52	36.81	20.21	297.88	1484.01	1421.96	23.91	MWD	
12700.00	12194.47	89.47	179.59	10612.45	38.16	20.68	297.91	1484.37	1420.72	23.32	MWD	
12800.00	12294.46	89.47	179.59	10613.37	39.54	21.17	297.94	1484.73	1419.44	22.74	MWD	
12900.00	12394.46	89.47	179.59	10614.29	40.96	21.67	297.96	1485.09	1418.13	22.18	MWD	
13000.00	12494.46	89.47	179.59	10615.21	42.41	22.18	297.99	1485.45	1416.79	21.64	MWD	
13100.00	12594.45	89.47	179.59	10616.14	43.89	22.71	298.02	1485.81	1415.42	21.11	MWD	
13200.00	12694.45	89.47	179.59	10617.06	45.39	23.25	298.04	1486.17	1414.03	20.60	MWD	
13300.00	12794.45	89.47	179.59	10617.98	46.92	23.80	298.07	1486.53	1412.61	20.11	MWD	
13400.00	12894.44	89.47	179.59	10618.91	48.46	24.36	298.10	1486.89	1411.16	19.63	MWD	
13500.00	12994.44	89.47	179.59	10619.83	50.03	24.92	298.12	1487.25	1409.70	19.18	MWD	
13600.00	13094.44	89.47	179.59	10620.75	51.62	25.50	298.15	1487.62	1408.21	18.74	MWD	
13700.00	13194.43	89.47	179.59	10621.67	53.21	26.09	298.18	1487.98	1406.71	18.31	MWD	
13800.00	13294.43	89.47	179.59	10622.60	54.83	26.68	298.21	1488.34	1405.19	17.90	MWD	
13900.00	13394.43	89.47	179.59	10623.52	56.46	27.28	298.23	1488.70	1403.66	17.50	MWD	
14000.00	13494.42	89.47	179.59	10624.44	58.10	27.89	298.26	1489.07	1402.10	17.12	MWD	
14100.00	13594.42	89.47	179.59	10625.37	59.75	28.50	298.29	1489.43	1400.54	16.76	MWD	
14200.00	13694.42	89.47	179.59	10626.29	61.41	29.11	298.31	1489.79	1398.96	16.40	MWD	
14300.00	13794.42	89.47	179.59	10627.21	63.08	29.74	298.34	1490.16	1397.37	16.06	MWD	
14400.00	13894.41	89.47	179.59	10628.13	64.76	30.36	298.37	1490.52	1395.77	15.73	MWD	

5D Anti-Collision Report

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
14500.00	13994.41	89.47	179.59	10629.06	66.44	31.00	298.39	1490.89	1394.15	15.41	MWD	
14600.00	14094.41	89.47	179.59	10629.98	68.14	31.63	298.42	1491.25	1392.53	15.11	MWD	
14700.00	14194.40	89.47	179.59	10630.90	69.84	32.27	298.45	1491.62	1390.89	14.81	MWD	
14800.00	14294.40	89.47	179.59	10631.83	71.55	32.92	298.47	1491.98	1389.25	14.52	MWD	
14900.00	14394.40	89.47	179.59	10632.75	73.26	33.57	298.50	1492.35	1387.60	14.25	MWD	
15000.00	14494.39	89.47	179.59	10633.67	74.98	34.22	298.53	1492.71	1385.94	13.98	MWD	
15100.00	14594.39	89.47	179.59	10634.59	76.71	34.87	298.55	1493.08	1384.27	13.72	MWD	
15200.00	14694.39	89.47	179.59	10635.52	78.44	35.53	298.58	1493.45	1382.59	13.47	MWD	
15300.00	14794.38	89.47	179.59	10636.44	80.17	36.19	298.61	1493.82	1380.91	13.23	MWD	
15400.00	14894.38	89.47	179.59	10637.36	81.91	36.86	298.63	1494.18	1379.22	13.00	MWD	
15500.00	14994.38	89.47	179.59	10638.29	83.65	37.52	298.66	1494.55	1377.52	12.77	MWD	
15600.00	15094.38	89.47	179.59	10639.21	85.40	38.19	298.69	1494.92	1375.82	12.55	MWD	
15700.00	15194.37	89.47	179.59	10640.13	87.15	38.86	298.71	1495.29	1374.11	12.34	MWD	
15800.00	15294.37	89.47	179.59	10641.05	88.90	39.53	298.74	1495.66	1372.40	12.13	MWD	
15900.00	15394.37	89.47	179.59	10641.98	90.66	40.21	298.77	1496.03	1370.68	11.94	MWD	
16000.00	15494.36	89.47	179.59	10642.90	92.42	40.89	298.79	1496.40	1368.96	11.74	MWD	
16100.00	15594.36	89.47	179.59	10643.82	94.18	41.56	298.82	1496.77	1367.23	11.55	MWD	
16200.00	15694.36	89.47	179.59	10644.75	95.94	42.24	298.85	1497.14	1365.49	11.37	MWD	
16300.00	15794.35	89.47	179.59	10645.67	97.71	42.93	298.87	1497.51	1363.76	11.20	MWD	
16400.00	15894.35	89.47	179.59	10646.59	99.48	43.61	298.90	1497.88	1362.02	11.03	MWD	
16500.00	15994.35	89.47	179.59	10647.51	101.25	44.30	298.93	1498.25	1360.27	10.86	MWD	
16600.00	16094.34	89.47	179.59	10648.44	103.02	44.98	298.95	1498.62	1358.52	10.70	MWD	
16700.00	16194.34	89.47	179.59	10649.36	104.80	45.67	298.98	1498.99	1356.77	10.54	MWD	
16800.00	16294.34	89.47	179.59	10650.28	106.58	46.36	299.01	1499.36	1355.01	10.39	MWD	
16900.00	16394.33	89.47	179.59	10651.21	108.36	47.05	299.03	1499.74	1353.26	10.24	MWD	
17000.00	16494.33	89.47	179.59	10652.13	110.14	47.75	299.06	1500.11	1351.49	10.09	MWD	
17100.00	16594.33	89.47	179.59	10653.05	111.92	48.44	299.09	1500.48	1349.73	9.95	MWD	
17200.00	16694.33	89.47	179.59	10653.97	113.70	49.13	299.11	1500.86	1347.96	9.82	MWD	
17300.00	16794.32	89.47	179.59	10654.90	115.49	49.83	299.14	1501.23	1346.19	9.68	MWD	
17400.00	16894.32	89.47	179.59	10655.82	117.28	50.53	299.17	1501.60	1344.42	9.55	MWD	
17500.00	16994.32	89.47	179.59	10656.74	119.07	51.22	299.19	1501.98	1342.65	9.43	MWD	
17600.00	17094.31	89.47	179.59	10657.67	120.85	51.92	299.22	1502.35	1340.87	9.30	MWD	
17700.00	17194.31	89.47	179.59	10658.59	122.65	52.62	299.25	1502.73	1339.09	9.18	MWD	
17800.00	17294.31	89.47	179.59	10659.51	124.44	53.32	299.27	1503.10	1337.31	9.07	MWD	
17900.00	17394.30	89.47	179.59	10660.43	126.23	54.02	299.30	1503.48	1335.53	8.95	MWD	
18000.00	17494.30	89.47	179.59	10661.36	128.03	54.73	299.33	1503.85	1333.74	8.84	MWD	
18100.00	17594.30	89.47	179.59	10662.28	129.82	55.43	299.35	1504.23	1331.96	8.73	MWD	
18200.00	17694.29	89.47	179.59	10663.20	131.62	56.13	299.38	1504.61	1330.17	8.63	MWD	
18300.00	17794.29	89.47	179.59	10664.13	133.41	56.84	299.40	1504.98	1328.38	8.52	MWD	
18400.00	17894.29	89.47	179.59	10665.05	135.21	57.54	299.43	1505.36	1326.59	8.42	MWD	
18500.00	17994.29	89.47	179.59	10665.97	137.01	58.25	299.46	1505.74	1324.80	8.32	MWD	
18600.00	18094.28	89.47	179.59	10666.89	138.81	58.96	299.48	1506.12	1323.00	8.23	MWD	
18700.00	18194.28	89.47	179.59	10667.82	140.61	59.66	299.51	1506.50	1321.21	8.13	MWD	
18800.00	18294.28	89.47	179.59	10668.74	142.41	60.37	299.54	1506.87	1319.41	8.04	MWD	
18900.00	18394.27	89.47	179.59	10669.66	144.22	61.08	299.56	1507.25	1317.62	7.95	MWD	
18942.18	18430.75	89.47	179.59	10670.00	144.87	61.34	299.57	1507.42	1316.30	7.89	MWD	
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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
0.00	0.00	0.00	0.00	1.00	0.00	0.00	179.54	50.01	49.21	62.35	MWD	
100.00	99.00	0.00	0.00	100.00	0.11	0.11	179.54	50.00	48.98	48.75	MWD	
200.00	199.00	0.00	0.00	200.00	0.33	0.33	179.54	50.00	48.53	33.92	MWD	
300.00	299.00	0.00	0.00	300.00	0.56	0.56	179.54	50.00	48.08	25.99	MWD	
400.00	399.00	0.00	0.00	400.00	0.78	0.78	179.54	50.00	47.63	21.07	MWD	
500.00	499.00	0.00	0.00	500.00	1.01	1.01	179.54	50.00	47.18	17.71	MWD	
600.00	599.00	0.00	0.00	600.00	1.23	1.23	179.54	50.00	46.73	15.28	MWD	
700.00	699.00	0.00	0.00	700.00	1.46	1.46	179.54	50.00	46.28	13.43	MWD	

5D Anti-Collision Report

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
800.00	799.00	0.00	0.00	800.00	1.68	1.68	179.54	50.00	45.83	11.99	MWD	
900.00	899.00	0.00	0.00	900.00	1.91	1.91	179.54	50.00	45.38	10.82	MWD	
1000.00	999.00	0.00	0.00	1000.00	2.13	2.13	179.54	50.00	44.93	9.86	MWD	
1100.00	1099.00	0.00	0.00	1100.00	2.36	2.36	179.54	50.00	44.48	9.06	MWD	
1200.00	1199.00	0.00	0.00	1200.00	2.58	2.58	179.54	50.00	44.03	8.38	MWD	
1300.00	1299.00	0.00	0.00	1300.00	2.81	2.81	179.54	50.00	43.58	7.79	MWD	
1400.00	1399.00	0.00	0.00	1400.00	3.03	3.03	179.54	50.00	43.13	7.28	MWD	
1500.00	1499.00	0.00	0.00	1500.00	3.26	3.26	179.54	50.00	42.68	6.83	MWD	
1600.00	1599.00	0.00	0.00	1600.00	3.48	3.48	179.54	50.00	42.23	6.44	MWD	
1700.00	1699.00	0.00	0.00	1700.00	3.71	3.71	179.54	50.00	41.78	6.08	MWD	
1800.00	1799.00	0.00	0.00	1800.00	3.93	3.93	179.54	50.00	41.33	5.77	MWD	
1900.00	1899.00	0.00	0.00	1900.00	4.16	4.16	179.54	50.00	40.88	5.48	MWD	
2000.00	1999.00	0.00	0.00	2000.00	4.38	4.38	179.54	50.00	40.44	5.23	MWD	
2100.00	2099.00	0.00	0.00	2100.00	4.61	4.61	179.54	50.00	39.99	4.99	MWD	
2200.00	2199.00	0.00	0.00	2200.00	4.83	4.83	179.54	50.00	39.54	4.78	MWD	
2300.00	2299.00	0.00	0.00	2300.00	5.06	5.06	179.54	50.00	39.09	4.58	MWD	
2400.00	2399.00	0.00	0.00	2400.00	5.28	5.28	179.54	50.00	38.64	4.40	MWD	
2500.00	2499.00	0.00	0.00	2500.00	5.51	5.51	179.54	50.00	38.19	4.23	MWD	
2600.00	2599.00	0.00	0.00	2600.00	5.73	5.73	179.54	50.00	37.74	4.08	MWD	
2700.00	2699.00	0.00	0.00	2700.00	5.95	5.95	179.54	50.00	37.29	3.93	MWD	
2800.00	2799.00	0.00	0.00	2800.00	6.18	6.18	179.54	50.00	36.84	3.80	MWD	
2900.00	2899.00	0.00	0.00	2900.00	6.40	6.40	179.54	50.00	36.39	3.67	MWD	
3000.00	2999.00	0.00	0.00	3000.00	6.63	6.63	179.54	50.00	35.94	3.56	MWD	
3100.00	3098.99	0.00	0.00	3099.99	6.85	6.85	111.28	50.50	36.00	3.48	MWD	
3200.00	3198.97	0.00	0.00	3199.97	7.08	7.08	113.36	51.26	36.33	3.43	MWD	
3300.00	3298.95	0.00	0.00	3299.95	7.30	7.30	115.38	52.09	36.72	3.39	MWD	
3400.00	3398.93	0.00	0.00	3399.93	7.53	7.53	117.33	52.98	37.18	3.35	MWD	
3500.00	3498.91	0.00	0.00	3499.91	7.75	7.75	119.22	53.92	37.69	3.32	MWD	
3600.00	3598.89	0.00	0.00	3599.89	7.98	7.98	121.04	54.93	38.26	3.29	MWD	
3700.00	3698.87	0.00	0.00	3699.87	8.20	8.20	122.80	55.98	38.88	3.27	MWD	
3800.00	3798.85	0.00	0.00	3799.85	8.43	8.43	124.48	57.09	39.55	3.25	MWD	
3900.00	3898.83	0.00	0.00	3899.83	8.65	8.65	126.10	58.25	40.26	3.24	MWD	
4000.00	3998.81	0.00	0.00	3999.81	8.88	8.88	127.66	59.45	41.03	3.23	MWD	
4100.00	4098.79	0.00	0.00	4099.79	9.10	9.10	129.16	60.69	41.83	3.22	MWD	
4200.00	4198.77	0.00	0.00	4199.77	9.33	9.33	130.59	61.97	42.67	3.21	MWD	
4300.00	4298.75	0.00	0.00	4299.75	9.55	9.55	131.96	63.29	43.55	3.21	MWD	
4400.00	4398.73	0.00	0.00	4399.73	9.78	9.78	133.28	64.65	44.46	3.20	MWD	
4500.00	4498.71	0.00	0.00	4499.71	10.00	10.00	134.55	66.04	45.41	3.20	MWD	
4600.00	4598.69	0.00	0.00	4599.69	10.22	10.22	135.76	67.45	46.38	3.20	MWD	
4700.00	4698.67	0.00	0.00	4699.67	10.45	10.45	136.92	68.90	47.39	3.20	MWD	
4800.00	4798.65	0.00	0.00	4799.65	10.67	10.67	138.03	70.37	48.42	3.21	MWD	
4900.00	4898.63	0.00	0.00	4899.63	10.90	10.90	139.09	71.87	49.48	3.21	MWD	
5000.00	4998.61	0.00	0.00	4999.61	11.12	11.12	140.12	73.40	50.56	3.21	MWD	
5100.00	5098.59	0.00	0.00	5099.59	11.35	11.35	141.10	74.94	51.66	3.22	MWD	
5200.00	5198.57	0.00	0.00	5199.57	11.57	11.57	142.04	76.51	52.78	3.22	MWD	
5300.00	5298.55	0.00	0.00	5299.55	11.80	11.80	142.94	78.10	53.93	3.23	MWD	
5400.00	5398.53	0.00	0.00	5399.53	12.02	12.02	143.81	79.70	55.09	3.24	MWD	
5500.00	5498.51	0.00	0.00	5499.51	12.25	12.25	144.64	81.32	56.36	3.26	MWD	
5600.00	5598.49	0.00	0.00	5599.49	12.47	12.47	145.44	82.96	57.55	3.27	MWD	
5700.00	5698.47	0.00	0.00	5699.47	12.70	12.70	146.21	84.62	58.76	3.27	MWD	
5800.00	5798.45	0.00	0.00	5799.45	12.92	12.92	146.94	86.29	59.99	3.28	MWD	
5900.00	5898.43	0.00	0.00	5899.43	13.15	13.15	147.66	87.97	61.23	3.29	MWD	
6000.00	5998.41	0.00	0.00	5999.41	13.37	13.37	148.34	89.67	62.48	3.30	MWD	
6100.00	6098.39	0.00	0.00	6099.39	13.60	13.60	149.00	91.37	63.74	3.31	MWD	
6200.00	6198.37	0.00	0.00	6199.37	13.82	13.82	149.63	93.09	65.02	3.32	MWD	
6300.00	6298.35	0.00	0.00	6299.35	14.05	14.05	150.24	94.82	66.30	3.32	MWD	
6400.00	6398.33	0.00	0.00	6399.33	14.27	14.27	150.83	96.57	67.60	3.33	MWD	
6500.00	6498.31	0.00	0.00	6499.31	14.49	14.49	151.40	98.32	68.90	3.34	MWD	

5D Anti-Collision Report

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
6600.00	6598.29	0.00	0.00	6599.29	14.72	14.72	151.95	100.08	70.22	3.35	MWD	
6700.00	6698.27	0.00	0.00	6699.27	14.94	14.94	152.48	101.85	71.54	3.36	MWD	
6800.00	6798.25	0.00	0.00	6799.25	15.17	15.17	152.99	103.62	72.87	3.37	MWD	
6900.00	6898.23	0.00	0.00	6899.23	15.39	15.39	153.48	105.41	74.21	3.38	MWD	
7000.00	6998.21	0.00	0.00	6999.21	15.62	15.62	153.96	107.20	75.56	3.39	MWD	
7100.00	7098.19	0.00	0.00	7099.19	15.84	15.84	154.42	109.00	76.91	3.40	MWD	
7200.00	7198.17	0.00	0.00	7199.17	16.07	16.07	154.87	110.81	78.27	3.41	MWD	
7300.00	7298.15	0.00	0.00	7299.15	16.29	16.29	155.30	112.62	79.64	3.41	MWD	
7400.00	7398.13	0.00	0.00	7399.13	16.52	16.52	155.72	114.44	81.01	3.42	MWD	
7500.00	7498.11	0.00	0.00	7499.11	16.74	16.74	156.12	116.27	82.39	3.43	MWD	
7600.00	7598.09	0.00	0.00	7599.09	16.97	16.97	156.51	118.10	83.78	3.44	MWD	
7700.00	7698.07	0.00	0.00	7699.07	17.19	17.19	156.89	119.94	85.17	3.45	MWD	
7800.00	7798.05	0.00	0.00	7799.05	17.42	17.42	157.26	121.78	86.56	3.46	MWD	
7900.00	7898.03	0.00	0.00	7899.03	17.64	17.64	157.62	123.63	87.96	3.47	MWD	
8000.00	7998.01	0.00	0.00	7999.01	17.87	17.87	157.97	125.48	89.37	3.47	MWD	
8100.00	8097.99	0.00	0.00	8098.99	18.09	18.09	158.31	127.33	90.77	3.48	MWD	
8200.00	8197.97	0.00	0.00	8198.97	18.32	18.32	158.64	129.19	92.19	3.49	MWD	
8300.00	8297.95	0.00	0.00	8298.95	18.54	18.54	158.95	131.06	93.60	3.50	MWD	
8400.00	8397.93	0.00	0.00	8398.93	18.76	18.76	159.26	132.93	95.03	3.51	MWD	
8500.00	8497.91	0.00	0.00	8498.91	18.99	18.99	159.56	134.80	96.45	3.52	MWD	
8600.00	8597.89	0.00	0.00	8598.89	19.21	19.21	159.86	136.68	97.88	3.52	MWD	
8700.00	8697.87	0.00	0.00	8698.87	19.44	19.44	160.14	138.55	99.31	3.53	MWD	
8800.00	8797.85	0.00	0.00	8798.85	19.66	19.66	160.42	140.44	100.74	3.54	MWD	
8900.00	8897.83	0.00	0.00	8898.83	19.89	19.89	160.69	142.32	102.18	3.55	MWD	
9000.00	8997.81	0.00	0.00	8998.81	20.11	20.11	160.95	144.21	103.62	3.55	MWD	
9100.00	9097.79	0.00	0.00	9098.79	20.34	20.34	161.21	146.10	105.07	3.56	MWD	
9200.00	9197.77	0.00	0.00	9198.77	20.56	20.56	161.46	148.00	106.51	3.57	MWD	
9300.00	9297.75	0.00	0.00	9298.75	20.79	20.79	161.70	149.90	107.96	3.57	MWD	
9400.00	9397.73	0.00	0.00	9398.73	21.01	21.01	161.94	151.80	109.42	3.58	MWD	
9500.00	9497.71	0.00	0.00	9498.71	21.24	21.24	162.17	153.70	110.87	3.59	MWD	
9600.00	9597.69	0.00	0.00	9598.69	21.46	21.46	162.39	155.60	112.33	3.60	MWD	
9700.00	9697.67	0.00	0.00	9698.67	21.69	21.69	162.61	157.51	113.79	3.60	MWD	
9800.00	9797.65	0.00	0.00	9798.65	21.91	21.91	162.83	159.42	115.25	3.61	MWD	
9900.00	9897.63	0.00	0.00	9898.63	22.14	22.14	163.04	161.33	116.71	3.62	MWD	
10000.00	9997.61	0.00	0.00	9998.61	22.36	22.36	163.24	163.25	118.18	3.62	MWD	
10100.00	10098.29	2.08	136.40	10099.29	22.58	22.57	163.34	165.13	119.61	3.63	MWD	
10200.00	10200.24	14.31	136.40	10200.00	22.76	22.37	158.56	165.93	120.00	3.61	MWD	
10300.00	10292.59	25.39	136.40	10286.73	22.93	21.73	148.12	169.91	123.71	3.68	MWD	
10400.00	10364.86	32.87	141.92	10349.62	23.07	21.10	137.13	187.00	142.00	4.16	MWD	
10500.00	10422.44	38.20	149.52	10396.49	23.18	20.58	128.87	224.54	182.08	5.29	MWD	
10600.00	10472.34	43.13	154.74	10434.34	23.29	20.05	122.96	278.19	237.82	6.89	MWD	
10700.00	10515.09	47.51	158.49	10464.40	23.40	19.56	118.95	342.90	303.92	8.80	MWD	
10800.00	10552.05	51.39	161.32	10488.43	23.50	19.12	23.44	414.46	376.38	10.88	MWD	
10900.00	10589.23	55.35	163.88	10510.60	23.61	18.67	7.71	481.50	444.13	12.88	MWD	
11000.00	10627.93	59.53	166.29	10531.43	23.75	18.20	4.33	540.26	503.48	14.69	MWD	
11100.00	10667.83	63.88	168.57	10550.34	23.89	17.75	2.61	589.99	553.69	16.26	MWD	
11200.00	10708.68	68.36	170.74	10566.88	24.05	17.33	1.58	630.07	594.16	17.55	MWD	
11300.00	10750.28	72.96	172.80	10580.65	24.25	16.97	0.92	660.02	624.41	18.53	MWD	
11400.00	10792.42	77.63	174.80	10591.35	24.44	16.69	0.49	679.49	644.06	19.18	MWD	
11500.00	10834.92	82.36	176.74	10598.73	24.66	16.50	0.22	688.24	652.87	19.46	MWD	
11600.00	10877.57	87.11	178.64	10602.64	24.88	16.43	0.10	686.60	651.17	19.38	MWD	
11700.00	10949.37	89.47	179.58	10603.74	25.33	16.52	0.08	686.37	650.71	19.25	MWD	
11800.00	11049.36	89.47	179.58	10604.67	26.06	16.69	0.08	687.15	651.16	19.09	MWD	
11900.00	11149.36	89.47	179.58	10605.60	26.90	16.88	0.08	687.93	651.55	18.91	MWD	
12000.00	11249.36	89.47	179.58	10606.53	27.83	17.11	0.08	688.72	651.88	18.70	MWD	
12100.00	11349.35	89.47	179.58	10607.46	28.84	17.36	0.08	689.50	652.16	18.47	MWD	
12200.00	11449.35	89.47	179.58	10608.39	29.94	17.64	0.07	690.28	652.39	18.22	MWD	
12300.00	11549.35	89.47	179.58	10609.32	31.10	17.95	0.07	691.06	652.58	17.96	MWD	

5D Anti-Collision Report

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
12400.00	11649.35	89.47	179.58	10610.25	32.33	18.28	0.07	691.84	652.71	17.68	MWD	
12500.00	11749.34	89.47	179.58	10611.18	33.61	18.64	0.07	692.62	652.80	17.39	MWD	
12600.00	11849.34	89.47	179.58	10612.11	34.94	19.01	0.07	693.41	652.85	17.10	MWD	
12700.00	11949.34	89.47	179.58	10613.04	36.31	19.41	0.07	694.19	652.86	16.80	MWD	
12800.00	12049.33	89.47	179.58	10613.97	37.73	19.82	0.07	694.97	652.84	16.49	MWD	
12900.00	12149.33	89.47	179.58	10614.90	39.18	20.26	0.07	695.75	652.77	16.19	MWD	
13000.00	12249.33	89.47	179.58	10615.83	40.65	20.71	0.06	696.53	652.68	15.88	MWD	
13100.00	12349.32	89.47	179.58	10616.76	42.16	21.17	0.06	697.31	652.55	15.58	MWD	
13200.00	12449.32	89.47	179.58	10617.69	43.69	21.65	0.06	698.09	652.40	15.28	MWD	
13300.00	12549.32	89.47	179.58	10618.62	45.25	22.15	0.06	698.88	652.21	14.98	MWD	
13400.00	12649.32	89.47	179.58	10619.55	46.82	22.66	0.06	699.66	652.00	14.68	MWD	
13500.00	12749.31	89.47	179.58	10620.48	48.41	23.18	0.06	700.44	651.77	14.39	MWD	
13600.00	12849.31	89.47	179.58	10621.41	50.02	23.71	0.06	701.22	651.51	14.11	MWD	
13700.00	12949.31	89.47	179.58	10622.34	51.64	24.25	0.06	702.00	651.24	13.83	MWD	
13800.00	13049.30	89.47	179.58	10623.26	53.28	24.80	0.06	702.78	650.94	13.56	MWD	
13900.00	13149.30	89.47	179.58	10624.19	54.93	25.36	0.05	703.56	650.62	13.29	MWD	
14000.00	13249.30	89.47	179.58	10625.12	56.59	25.93	0.05	704.35	650.29	13.03	MWD	
14100.00	13349.29	89.47	179.58	10626.05	58.26	26.51	0.05	705.13	649.94	12.78	MWD	
14200.00	13449.29	89.47	179.58	10626.98	59.94	27.09	0.05	705.91	649.57	12.53	MWD	
14300.00	13549.29	89.47	179.58	10627.91	61.63	27.68	0.05	706.69	649.20	12.29	MWD	
14400.00	13649.28	89.47	179.58	10628.84	63.32	28.28	0.05	707.47	648.80	12.06	MWD	
14500.00	13749.28	89.47	179.58	10629.77	65.03	28.89	0.05	708.25	648.40	11.83	MWD	
14600.00	13849.28	89.47	179.58	10630.70	66.74	29.50	0.05	709.03	647.98	11.61	MWD	
14700.00	13949.28	89.47	179.58	10631.63	68.46	30.11	0.05	709.82	647.55	11.40	MWD	
14800.00	14049.27	89.47	179.58	10632.56	70.18	30.74	0.04	710.60	647.11	11.19	MWD	
14900.00	14149.27	89.47	179.58	10633.49	71.91	31.36	0.04	711.38	646.66	10.99	MWD	
15000.00	14249.27	89.47	179.58	10634.42	73.64	31.99	0.04	712.16	646.20	10.80	MWD	
15100.00	14349.26	89.47	179.58	10635.35	75.38	32.63	0.04	712.94	645.73	10.61	MWD	
15200.00	14449.26	89.47	179.58	10636.28	77.12	33.27	0.04	713.72	645.25	10.42	MWD	
15300.00	14549.26	89.47	179.58	10637.21	78.87	33.91	0.04	714.50	644.76	10.24	MWD	
15400.00	14649.25	89.47	179.58	10638.14	80.62	34.56	0.04	715.29	644.27	10.07	MWD	
15500.00	14749.25	89.47	179.58	10639.07	82.37	35.21	0.04	716.07	643.77	9.90	MWD	
15600.00	14849.25	89.47	179.58	10640.00	84.13	35.86	0.04	716.85	643.26	9.74	MWD	
15700.00	14949.24	89.47	179.58	10640.93	85.89	36.52	0.03	717.63	642.75	9.58	MWD	
15800.00	15049.24	89.47	179.58	10641.86	87.65	37.17	0.03	718.41	642.22	9.43	MWD	
15900.00	15149.24	89.47	179.58	10642.79	89.41	37.84	0.03	719.19	641.70	9.28	MWD	
16000.00	15249.24	89.47	179.58	10643.71	91.18	38.50	0.03	719.98	641.17	9.14	MWD	
16100.00	15349.23	89.47	179.58	10644.64	92.95	39.17	0.03	720.76	640.63	9.00	MWD	
16200.00	15449.23	89.47	179.58	10645.57	94.73	39.84	0.03	721.54	640.09	8.86	MWD	
16300.00	15549.23	89.47	179.58	10646.50	96.50	40.51	0.03	722.32	639.54	8.73	MWD	
16400.00	15649.22	89.47	179.58	10647.43	98.28	41.18	0.03	723.10	638.99	8.60	MWD	
16500.00	15749.22	89.47	179.58	10648.36	100.06	41.86	0.03	723.88	638.43	8.47	MWD	
16600.00	15849.22	89.47	179.58	10649.29	101.84	42.53	0.02	724.66	637.87	8.35	MWD	
16700.00	15949.21	89.47	179.58	10650.22	103.62	43.21	0.02	725.45	637.31	8.23	MWD	
16800.00	16049.21	89.47	179.58	10651.15	105.41	43.90	0.02	726.23	636.74	8.12	MWD	
16900.00	16149.21	89.47	179.58	10652.08	107.19	44.58	0.02	727.01	636.17	8.00	MWD	
17000.00	16249.21	89.47	179.58	10653.01	108.98	45.26	0.02	727.79	635.59	7.89	MWD	
17100.00	16349.20	89.47	179.58	10653.94	110.77	45.95	0.02	728.57	635.02	7.79	MWD	
17200.00	16449.20	89.47	179.58	10654.87	112.56	46.64	0.02	729.35	634.43	7.68	MWD	
17300.00	16549.20	89.47	179.58	10655.80	114.35	47.32	0.02	730.13	633.85	7.58	MWD	
17400.00	16649.19	89.47	179.58	10656.73	116.14	48.01	0.02	730.92	633.26	7.48	MWD	
17500.00	16749.19	89.47	179.58	10657.66	117.94	48.71	0.01	731.70	632.67	7.39	MWD	
17600.00	16849.19	89.47	179.58	10658.59	119.73	49.40	0.01	732.48	632.08	7.30	MWD	
17700.00	16949.18	89.47	179.58	10659.52	121.53	50.09	0.01	733.26	631.48	7.20	MWD	
17800.00	17049.18	89.47	179.58	10660.45	123.33	50.79	0.01	734.04	630.89	7.12	MWD	
17900.00	17149.18	89.47	179.58	10661.38	125.13	51.48	0.01	734.82	630.29	7.03	MWD	
18000.00	17249.17	89.47	179.58	10662.31	126.93	52.18	0.01	735.60	629.68	6.94	MWD	
18100.00	17349.17	89.47	179.58	10663.24	128.73	52.88	0.01	736.39	629.08	6.86	MWD	

5D Anti-Collision Report

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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
18200.00	17449.17	89.47	179.58	10664.17	130.53	53.57	0.01	737.17	628.47	6.78	MWD	
18300.00	17549.17	89.47	179.58	10665.09	132.33	54.27	0.01	737.95	627.86	6.70	MWD	
18400.00	17649.16	89.47	179.58	10666.02	134.13	54.98	0.01	738.73	627.25	6.63	MWD	
18500.00	17749.16	89.47	179.58	10666.95	135.94	55.68	0.00	739.51	626.64	6.55	MWD	
18600.00	17849.16	89.47	179.58	10667.88	137.74	56.38	0.00	740.29	626.02	6.48	MWD	
18700.00	17949.15	89.47	179.58	10668.81	139.54	57.08	0.00	741.08	625.41	6.41	MWD	
18800.00	18049.15	89.47	179.58	10669.74	141.35	57.79	0.00	741.86	624.79	6.34	MWD	
18900.00	18149.15	89.47	179.58	10670.67	143.16	58.49	0.00	742.64	624.17	6.27	MWD	
18942.18	18184.42	89.47	179.58	10671.00	143.79	58.74	0.00	743.00	623.86	6.24	MWD	

Secondary Well: Severus 31 Federal Com 14H (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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
0.00	0.00	0.00	0.00	1.00	0.00	0.00	224.48	70.79	69.99	88.26	MWD	
100.00	99.00	0.00	0.00	100.00	0.11	0.11	224.48	70.78	69.76	69.01	MWD	
200.00	199.00	0.00	0.00	200.00	0.33	0.33	224.48	70.78	69.31	48.02	MWD	
300.00	299.00	0.00	0.00	300.00	0.56	0.56	224.48	70.78	68.86	36.79	MWD	
400.00	399.00	0.00	0.00	400.00	0.78	0.78	224.48	70.78	68.41	29.82	MWD	
500.00	499.00	0.00	0.00	500.00	1.01	1.01	224.48	70.78	67.96	25.07	MWD	
600.00	599.00	0.00	0.00	600.00	1.23	1.23	224.48	70.78	67.51	21.63	MWD	
700.00	699.00	0.00	0.00	700.00	1.46	1.46	224.48	70.78	67.06	19.02	MWD	
800.00	799.00	0.00	0.00	800.00	1.68	1.68	224.48	70.78	66.61	16.97	MWD	
900.00	899.00	0.00	0.00	900.00	1.91	1.91	224.48	70.78	66.16	15.32	MWD	
1000.00	999.00	0.00	0.00	1000.00	2.13	2.13	224.48	70.78	65.71	13.96	MWD	
1100.00	1099.00	0.00	0.00	1100.00	2.36	2.36	224.48	70.78	65.26	12.82	MWD	
1200.00	1199.00	0.00	0.00	1200.00	2.58	2.58	224.48	70.78	64.81	11.86	MWD	
1300.00	1299.00	0.00	0.00	1300.00	2.81	2.81	224.48	70.78	64.36	11.03	MWD	
1400.00	1399.00	0.00	0.00	1400.00	3.03	3.03	224.48	70.78	63.92	10.30	MWD	
1500.00	1499.00	0.00	0.00	1500.00	3.26	3.26	224.48	70.78	63.47	9.67	MWD	
1600.00	1599.00	0.00	0.00	1600.00	3.48	3.48	224.48	70.78	63.02	9.11	MWD	
1700.00	1699.00	0.00	0.00	1700.00	3.71	3.71	224.48	70.78	62.57	8.61	MWD	
1800.00	1799.00	0.00	0.00	1800.00	3.93	3.93	224.48	70.78	62.12	8.17	MWD	
1900.00	1899.00	0.00	0.00	1900.00	4.16	4.16	224.48	70.78	61.67	7.76	MWD	
2000.00	1999.00	0.00	0.00	2000.00	4.38	4.38	224.48	70.78	61.22	7.40	MWD	
2100.00	2099.00	0.00	0.00	2100.00	4.61	4.61	224.48	70.78	60.77	7.07	MWD	
2200.00	2199.00	0.00	0.00	2200.00	4.83	4.83	224.48	70.78	60.32	6.76	MWD	
2300.00	2299.00	0.00	0.00	2300.00	5.06	5.06	224.48	70.78	59.87	6.48	MWD	
2400.00	2399.00	0.00	0.00	2400.00	5.28	5.28	224.48	70.78	59.42	6.23	MWD	
2500.00	2499.00	0.00	0.00	2500.00	5.51	5.51	224.48	70.78	58.97	5.99	MWD	
2600.00	2599.00	0.00	0.00	2600.00	5.73	5.73	224.48	70.78	58.52	5.77	MWD	
2700.00	2699.00	0.00	0.00	2700.00	5.95	5.95	224.48	70.78	58.07	5.57	MWD	
2800.00	2799.00	0.00	0.00	2800.00	6.18	6.18	224.48	70.78	57.62	5.38	MWD	
2900.00	2899.00	0.00	0.00	2900.00	6.40	6.40	224.48	70.78	57.17	5.20	MWD	
3000.00	2999.00	0.00	0.00	3000.00	6.63	6.63	224.48	70.78	56.72	5.03	MWD	
3100.00	3098.99	0.00	0.00	3099.99	6.85	6.85	155.18	72.08	57.58	4.97	MWD	
3200.00	3199.07	0.08	24.20	3200.07	7.08	7.08	155.83	73.89	58.96	4.95	MWD	
3300.00	3301.51	2.13	24.20	3302.48	7.31	7.30	157.04	73.94	58.59	4.82	MWD	
3400.00	3401.91	2.51	24.20	3402.79	7.53	7.52	159.00	71.83	56.06	4.55	MWD	
3500.00	3501.85	2.51	24.20	3502.64	7.75	7.75	161.08	69.76	53.56	4.30	MWD	
3600.00	3601.80	2.51	24.20	3602.49	7.97	7.97	163.29	67.79	51.15	4.07	MWD	
3700.00	3701.74	2.51	24.20	3702.34	8.20	8.19	165.63	65.92	48.85	3.86	MWD	
3800.00	3801.69	2.51	24.20	3802.19	8.42	8.41	168.10	64.17	46.66	3.67	MWD	
3900.00	3901.63	2.51	24.20	3902.04	8.65	8.64	170.70	62.55	44.60	3.49	MWD	
4000.00	4001.58	2.51	24.20	4001.89	8.87	8.86	173.43	61.06	42.67	3.32	MWD	
4100.00	4101.53	2.51	24.20	4101.74	9.10	9.08	176.30	59.72	40.89	3.17	MWD	
4200.00	4201.47	2.51	24.20	4201.59	9.33	9.31	179.29	58.53	39.26	3.04	MWD	
4300.00	4301.42	2.51	24.20	4301.43	9.55	9.53	182.39	57.51	37.80	2.92	MWD	
4400.00	4401.36	2.51	24.20	4401.28	9.78	9.75	185.60	56.66	36.51	2.81	MWD	

5D Anti-Collision Report

Secondary Well: Severus 31 Federal Com 14H (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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
4500.00	4501.31	2.51	24.20	4501.13	10.01	9.98	188.89	56.00	35.40	2.72	MWD	
4600.00	4601.25	2.51	24.20	4600.98	10.24	10.20	192.25	55.52	34.48	2.64	MWD	
4700.00	4701.20	2.51	24.20	4700.83	10.46	10.43	195.65	55.24	33.75	2.57	MWD	
4800.00	4801.14	2.51	24.20	4800.68	10.69	10.65	199.08	55.15	33.22	2.51	MWD	
4900.00	4901.09	2.51	24.20	4900.53	10.92	10.88	202.51	55.27	32.89	2.47	MWD	SF(Lo)
5000.00	5001.03	2.51	24.20	5000.38	11.15	11.10	205.91	55.58	32.75	2.43	MWD	SF(Lo)
5100.00	5100.98	2.51	24.20	5100.23	11.38	11.33	209.26	56.08	32.80	2.41	MWD	SF(Lo)
5200.00	5200.92	2.51	24.20	5200.08	11.61	11.55	212.54	56.77	33.04	2.39	MWD	SF(Lo)
5300.00	5300.87	2.51	24.20	5299.93	11.84	11.78	215.73	57.65	33.46	2.38	MWD	SF(Lo)
5400.00	5400.81	2.51	24.20	5399.78	12.07	12.00	218.82	58.69	34.06	2.38	MWD	SF(Lo)
5500.00	5500.76	2.51	24.20	5499.63	12.30	12.23	221.79	59.90	34.91	2.40	MWD	SF(Lo)
5600.00	5600.71	2.51	24.20	5599.48	12.53	12.45	224.63	61.27	35.82	2.41	MWD	SF(Lo)
5700.00	5700.65	2.51	24.20	5699.33	12.76	12.68	227.35	62.78	36.88	2.42	MWD	SF(Lo)
5800.00	5800.60	2.51	24.20	5799.18	12.99	12.90	229.93	64.42	38.07	2.44	MWD	SF(Lo)
5900.00	5900.54	2.51	24.20	5899.03	13.23	13.13	232.38	66.19	39.38	2.47	MWD	SF(Lo)
6000.00	6000.49	2.51	24.20	5998.88	13.46	13.35	234.70	68.08	40.81	2.50	MWD	SF(Lo)
6100.00	6100.43	2.51	24.20	6098.73	13.69	13.58	236.89	70.06	42.35	2.53	MWD	
6200.00	6200.38	2.51	24.20	6198.57	13.92	13.80	238.95	72.15	43.98	2.56	MWD	
6300.00	6300.32	2.51	24.20	6298.42	14.15	14.03	240.90	74.32	45.70	2.60	MWD	
6400.00	6400.27	2.51	24.20	6398.27	14.39	14.25	242.74	76.58	47.50	2.63	MWD	
6500.00	6500.21	2.51	24.20	6498.12	14.62	14.48	244.46	78.91	49.37	2.67	MWD	
6600.00	6600.16	2.51	24.20	6597.97	14.85	14.71	246.09	81.30	51.32	2.71	MWD	
6700.00	6700.10	2.51	24.20	6697.82	15.08	14.93	247.63	83.76	53.32	2.75	MWD	
6800.00	6800.05	2.51	24.20	6797.67	15.32	15.16	249.07	86.28	55.38	2.79	MWD	
6900.00	6900.00	2.51	24.20	6897.52	15.55	15.38	250.43	88.84	57.50	2.83	MWD	
7000.00	6999.94	2.51	24.20	6997.37	15.78	15.61	251.72	91.46	59.66	2.88	MWD	
7100.00	7099.89	2.51	24.20	7097.22	16.01	15.83	252.93	94.11	61.86	2.92	MWD	
7200.00	7199.83	2.51	24.20	7197.07	16.25	16.06	254.08	96.81	64.11	2.96	MWD	
7300.00	7299.78	2.51	24.20	7296.92	16.48	16.29	255.16	99.54	66.39	3.00	MWD	
7400.00	7399.72	2.51	24.20	7396.77	16.71	16.51	256.19	102.31	68.70	3.04	MWD	
7500.00	7499.67	2.51	24.20	7496.62	16.95	16.74	257.16	105.11	71.05	3.09	MWD	
7600.00	7599.61	2.51	24.20	7596.47	17.18	16.96	258.08	107.94	73.42	3.13	MWD	
7700.00	7699.56	2.51	24.20	7696.32	17.41	17.19	258.96	110.79	75.83	3.17	MWD	
7800.00	7799.50	2.51	24.20	7796.17	17.65	17.41	259.79	113.67	78.25	3.21	MWD	
7900.00	7899.45	2.51	24.20	7896.02	17.88	17.64	260.57	116.57	80.70	3.25	MWD	
8000.00	7999.39	2.51	24.20	7995.87	18.11	17.87	261.32	119.49	83.17	3.29	MWD	
8100.00	8099.34	2.51	24.20	8095.71	18.35	18.09	262.04	122.43	85.66	3.33	MWD	
8200.00	8199.29	2.51	24.20	8195.56	18.58	18.32	262.72	125.39	88.16	3.37	MWD	
8300.00	8299.23	2.51	24.20	8295.41	18.81	18.54	263.37	128.37	90.68	3.41	MWD	
8400.00	8399.18	2.51	24.20	8395.26	19.05	18.77	263.99	131.36	93.22	3.44	MWD	
8500.00	8499.12	2.51	24.20	8495.11	19.28	19.00	264.58	134.37	95.78	3.48	MWD	
8600.00	8599.07	2.51	24.20	8594.96	19.52	19.22	265.15	137.39	98.34	3.52	MWD	
8700.00	8699.01	2.51	24.20	8694.81	19.75	19.45	265.69	140.42	100.92	3.56	MWD	
8800.00	8798.96	2.51	24.20	8794.66	19.98	19.68	266.21	143.47	103.52	3.59	MWD	
8900.00	8898.90	2.51	24.20	8894.51	20.22	19.90	266.70	146.52	106.12	3.63	MWD	
9000.00	8998.85	2.51	24.20	8994.36	20.45	20.13	267.18	149.59	108.73	3.66	MWD	
9100.00	9098.79	2.51	24.20	9094.21	20.69	20.35	267.64	152.67	111.36	3.70	MWD	
9200.00	9198.74	2.51	24.20	9194.06	20.92	20.58	268.08	155.75	113.99	3.73	MWD	
9300.00	9322.60	9.63	116.47	9317.40	20.99	20.83	270.13	152.91	111.17	3.66	MWD	
9400.00	9445.38	21.73	124.76	9435.40	21.06	20.46	278.22	132.19	91.77	3.27	MWD	
9500.00	9550.97	32.24	126.99	9529.36	21.27	19.59	296.52	100.92	60.56	2.50	MWD	
9600.00	9637.18	40.84	128.02	9598.56	21.48	18.67	328.34	80.80	37.48	1.87	MWD	SF(Lo)
9700.00	9705.98	47.71	128.62	9647.80	21.69	17.85	359.10	104.98	66.57	2.73	MWD	
9800.00	9760.70	53.17	129.01	9682.63	21.93	17.18	16.96	164.62	130.11	4.77	MWD	
9900.00	9804.50	57.55	129.28	9707.52	22.12	16.65	26.52	239.15	206.13	7.24	MWD	
10000.00	9847.34	60.31	132.07	9729.43	22.33	16.35	33.18	320.55	287.99	9.84	MWD	
10100.00	9890.82	62.16	136.56	9750.36	22.50	16.17	38.62	404.74	372.24	12.45	MWD	
10200.00	9929.29	63.92	140.39	9767.81	22.65	16.01	42.75	490.90	458.41	15.11	MWD	

5D Anti-Collision Report

Secondary Well: Severus 31 Federal Com 14H (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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
10300.00	9963.28	65.56	143.69	9782.31	22.78	15.87	46.02	578.73	546.20	17.79	MWD	
10400.00	9993.33	67.07	146.53	9794.39	22.88	15.74	48.69	667.98	635.36	20.48	MWD	
10500.00	10019.94	68.44	148.99	9804.46	22.98	15.63	50.92	758.44	725.71	23.17	MWD	
10600.00	10043.58	69.69	151.14	9812.91	23.07	15.53	52.80	849.94	817.07	25.86	MWD	
10700.00	10064.64	70.83	153.02	9820.02	23.14	15.45	54.41	942.34	909.31	28.53	MWD	
10800.00	10084.05	71.89	154.73	9826.23	23.21	15.38	330.67	1035.25	1002.04	31.18	MWD	
10900.00	10108.46	73.25	156.86	9833.54	23.28	15.30	331.99	1124.49	1091.10	33.68	MWD	
11000.00	10138.89	74.98	159.47	9841.87	23.39	15.21	337.86	1206.58	1173.01	35.94	MWD	
11100.00	10174.45	77.03	162.46	9850.47	23.49	15.11	341.55	1279.29	1245.55	37.91	MWD	
11200.00	10214.34	79.37	165.76	9858.63	23.59	15.04	343.85	1340.80	1306.89	39.54	MWD	
11300.00	10257.77	81.96	169.30	9865.68	23.69	15.00	345.30	1389.69	1355.59	40.76	MWD	
11400.00	10303.92	84.74	173.00	9871.03	23.77	15.00	346.19	1424.86	1390.56	41.55	MWD	
11500.00	10351.87	87.65	176.82	9874.22	23.84	15.06	346.66	1445.54	1411.01	41.87	MWD	
11600.00	10415.06	89.78	179.60	9875.11	24.06	15.22	346.81	1451.59	1416.76	41.68	MWD	
11700.00	10515.05	89.78	179.60	9875.48	24.77	15.49	346.82	1452.89	1417.63	41.21	MWD	
11800.00	10615.04	89.78	179.60	9875.86	25.60	15.78	346.83	1454.18	1418.44	40.68	MWD	
11900.00	10715.03	89.78	179.60	9876.24	26.53	16.11	346.84	1455.47	1419.19	40.12	MWD	
12000.00	10815.02	89.78	179.60	9876.62	27.55	16.46	346.86	1456.77	1419.89	39.51	MWD	
12100.00	10915.01	89.78	179.60	9877.00	28.65	16.83	346.87	1458.06	1420.54	38.87	MWD	
12200.00	11015.00	89.78	179.60	9877.38	29.82	17.23	346.88	1459.35	1421.15	38.20	MWD	
12300.00	11114.99	89.78	179.60	9877.75	31.05	17.65	346.89	1460.65	1421.71	37.51	MWD	
12400.00	11214.98	89.78	179.60	9878.13	32.34	18.09	346.91	1461.94	1422.23	36.82	MWD	
12500.00	11314.98	89.78	179.60	9878.51	33.68	18.55	346.92	1463.24	1422.71	36.11	MWD	
12600.00	11414.97	89.78	179.60	9878.89	35.07	19.03	346.93	1464.53	1423.16	35.40	MWD	
12700.00	11514.96	89.78	179.60	9879.27	36.49	19.52	346.94	1465.82	1423.56	34.69	MWD	
12800.00	11614.95	89.78	179.60	9879.64	37.95	20.03	346.96	1467.12	1423.94	33.98	MWD	
12900.00	11714.94	89.78	179.60	9880.02	39.44	20.55	346.97	1468.41	1424.29	33.28	MWD	
13000.00	11814.93	89.78	179.60	9880.40	40.96	21.09	346.98	1469.71	1424.60	32.58	MWD	
13100.00	11914.92	89.78	179.60	9880.78	42.50	21.63	346.99	1471.00	1424.89	31.90	MWD	
13200.00	12014.91	89.78	179.60	9881.16	44.07	22.19	347.01	1472.30	1425.16	31.23	MWD	
13300.00	12114.90	89.78	179.60	9881.54	45.65	22.76	347.02	1473.59	1425.40	30.58	MWD	
13400.00	12214.90	89.78	179.60	9881.91	47.26	23.33	347.03	1474.88	1425.62	29.93	MWD	
13500.00	12314.89	89.78	179.60	9882.29	48.87	23.92	347.04	1476.18	1425.81	29.31	MWD	
13600.00	12414.88	89.78	179.60	9882.67	50.51	24.51	347.06	1477.47	1425.99	28.70	MWD	
13700.00	12514.87	89.78	179.60	9883.05	52.15	25.11	347.07	1478.77	1426.15	28.10	MWD	
13800.00	12614.86	89.78	179.60	9883.43	53.81	25.72	347.08	1480.06	1426.30	27.53	MWD	
13900.00	12714.85	89.78	179.60	9883.80	55.48	26.33	347.09	1481.36	1426.42	26.96	MWD	
14000.00	12814.84	89.78	179.60	9884.18	57.16	26.95	347.10	1482.65	1426.53	26.42	MWD	
14100.00	12914.83	89.78	179.60	9884.56	58.85	27.58	347.12	1483.95	1426.63	25.89	MWD	
14200.00	13014.82	89.78	179.60	9884.94	60.54	28.21	347.13	1485.24	1426.72	25.38	MWD	
14300.00	13114.82	89.78	179.60	9885.32	62.25	28.84	347.14	1486.54	1426.79	24.88	MWD	
14400.00	13214.81	89.78	179.60	9885.70	63.96	29.48	347.15	1487.83	1426.85	24.40	MWD	
14500.00	13314.80	89.78	179.60	9886.07	65.68	30.13	347.17	1489.13	1426.90	23.93	MWD	
14600.00	13414.79	89.78	179.60	9886.45	67.40	30.77	347.18	1490.43	1426.94	23.48	MWD	
14700.00	13514.78	89.78	179.60	9886.83	69.13	31.43	347.19	1491.72	1426.97	23.04	MWD	
14800.00	13614.77	89.78	179.60	9887.21	70.86	32.08	347.20	1493.02	1426.99	22.61	MWD	
14900.00	13714.76	89.78	179.60	9887.59	72.60	32.74	347.21	1494.31	1427.00	22.20	MWD	
15000.00	13814.75	89.78	179.60	9887.96	74.35	33.40	347.23	1495.61	1427.01	21.80	MWD	
15100.00	13914.74	89.78	179.60	9888.34	76.09	34.07	347.24	1496.90	1427.00	21.42	MWD	
15200.00	14014.74	89.78	179.60	9888.72	77.84	34.73	347.25	1498.20	1426.99	21.04	MWD	
15300.00	14114.73	89.78	179.60	9889.10	79.60	35.40	347.26	1499.49	1426.98	20.68	MWD	
15400.00	14214.72	89.78	179.60	9889.48	81.36	36.08	347.27	1500.79	1426.95	20.33	MWD	
15500.00	14314.71	89.78	179.60	9889.86	83.12	36.75	347.29	1502.09	1426.92	19.98	MWD	
15600.00	14414.70	89.78	179.60	9890.23	84.88	37.43	347.30	1503.38	1426.88	19.65	MWD	
15700.00	14514.69	89.78	179.60	9890.61	86.65	38.11	347.31	1504.68	1426.84	19.33	MWD	
15800.00	14614.68	89.78	179.60	9890.99	88.42	38.79	347.32	1505.98	1426.80	19.02	MWD	
15900.00	14714.67	89.78	179.60	9891.37	90.19	39.47	347.33	1507.27	1426.74	18.72	MWD	
16000.00	14814.66	89.78	179.60	9891.75	91.97	40.16	347.34	1508.57	1426.69	18.42	MWD	

5D Anti-Collision Report

Secondary Well: Severus 31 Federal Com 14H (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 (°)	CC (US ft)	ES (US ft)	SF	Survey Tool	Risk
16100.00	14914.66	89.78	179.60	9892.12	93.74	40.84	347.36	1509.86	1426.62	18.14	MWD	
16200.00	15014.65	89.78	179.60	9892.50	95.52	41.53	347.37	1511.16	1426.56	17.86	MWD	
16300.00	15114.64	89.78	179.60	9892.88	97.30	42.22	347.38	1512.46	1426.49	17.59	MWD	
16400.00	15214.63	89.78	179.60	9893.26	99.09	42.91	347.39	1513.75	1426.41	17.33	MWD	
16500.00	15314.62	89.78	179.60	9893.64	100.87	43.60	347.40	1515.05	1426.34	17.08	MWD	
16600.00	15414.61	89.78	179.60	9894.02	102.66	44.30	347.41	1516.35	1426.26	16.83	MWD	
16700.00	15514.60	89.78	179.60	9894.39	104.45	44.99	347.43	1517.64	1426.17	16.59	MWD	
16800.00	15614.59	89.78	179.60	9894.77	106.23	45.69	347.44	1518.94	1426.08	16.36	MWD	
16900.00	15714.58	89.78	179.60	9895.15	108.02	46.39	347.45	1520.24	1425.99	16.13	MWD	
17000.00	15814.58	89.78	179.60	9895.53	109.82	47.08	347.46	1521.53	1425.90	15.91	MWD	
17100.00	15914.57	89.78	179.60	9895.91	111.61	47.78	347.47	1522.83	1425.80	15.69	MWD	
17200.00	16014.56	89.78	179.60	9896.28	113.40	48.48	347.48	1524.13	1425.70	15.49	MWD	
17300.00	16114.55	89.78	179.60	9896.66	115.20	49.19	347.50	1525.43	1425.60	15.28	MWD	
17400.00	16214.54	89.78	179.60	9897.04	117.00	49.89	347.51	1526.72	1425.50	15.08	MWD	
17500.00	16314.53	89.78	179.60	9897.42	118.79	50.59	347.52	1528.02	1425.39	14.89	MWD	
17600.00	16414.52	89.78	179.60	9897.80	120.59	51.30	347.53	1529.32	1425.28	14.70	MWD	
17700.00	16514.51	89.78	179.60	9898.18	122.39	52.00	347.54	1530.61	1425.17	14.52	MWD	
17800.00	16614.51	89.78	179.60	9898.55	124.19	52.71	347.55	1531.91	1425.06	14.34	MWD	
17900.00	16714.50	89.78	179.60	9898.93	125.99	53.41	347.56	1533.21	1424.94	14.16	MWD	
18000.00	16814.49	89.78	179.60	9899.31	127.80	54.12	347.58	1534.51	1424.82	13.99	MWD	
18100.00	16914.48	89.78	179.60	9899.69	129.60	54.83	347.59	1535.80	1424.70	13.82	MWD	
18200.00	17014.47	89.78	179.60	9900.07	131.40	55.54	347.60	1537.10	1424.58	13.66	MWD	
18300.00	17114.46	89.78	179.60	9900.44	133.21	56.25	347.61	1538.40	1424.46	13.50	MWD	
18400.00	17214.45	89.78	179.60	9900.82	135.01	56.96	347.62	1539.70	1424.33	13.35	MWD	
18500.00	17314.44	89.78	179.60	9901.20	136.82	57.67	347.63	1541.00	1424.21	13.19	MWD	
18600.00	17414.43	89.78	179.60	9901.58	138.63	58.38	347.64	1542.29	1424.08	13.05	MWD	
18700.00	17514.43	89.78	179.60	9901.96	140.43	59.09	347.66	1543.59	1423.95	12.90	MWD	
18800.00	17614.42	89.78	179.60	9902.34	142.24	59.80	347.67	1544.89	1423.82	12.76	MWD	
18900.00	17714.41	89.78	179.60	9902.71	144.05	60.51	347.68	1546.19	1423.69	12.62	MWD	
18942.18	17756.59	89.78	179.60	9902.87	144.81	60.81	347.68	1546.74	1423.63	12.56	MWD	

**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 2H
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 US Survey Foot	North: 559895 US Survey Foot
East: 726653.50 US Survey Foot	East: 726653.5 US Survey Foot
Convergence: 0.40°	Convergence: 0.40°
Declination: 7.00°	Declination: 7.00°
Total Correction: 6.60°	Total Correction: 6.60°
Datum Transformation: none	

Geodetic Location WGS84

MSL Elevation = 0 m
Latitude = 32° 32' 14.04" N
Longitude = 103° 35' 54.10" W

Magnetic Declination = 7.00 deg	[True North Offset]
Local Gravity = .9988 g	Checksum = 6560
Local Field Strength = 48174 nT	Magnetic Vector X = 23665 nT
Magnetic Dip = 60.34 deg	Magnetic Vector Y = 2907 nT
Magnetic Model = bggm2017.dat	Magnetic Vector Z = 41860 nT
Run Date = October 15, 2017	Magnetic Vector H = 23842 nT

Signed: _____ Date: _____

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