



HOBBS COO

JUL 05 2018

5D Survey Report

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30-25-43417

XTO Energy**Field Name:** *XTO Lea Co, NM (NAD 27 NME)***Site Name:** *Severus 31 Federal Com 3H***Well Name:** *Severus 31 Federal Com 3H***Survey:** *Definitive survey*

12 February 2018





Severus 31 Federal Com 3H

Field Name:	Map Units: US ft		Company Name: XTO Energy	
XTO Lea Co, NM (NAD 27 NME)	Vertical Reference Datum (VRD): Mean Sea Level			
	Projected Coordinate System: NAD27 / New Mexico East			
	Comment:			
Site:	Units: US ft	North Reference: Grid	Convergence Angle: 0.39	
	Position:	Northing: 560139.60 US ft	Latitude: 32° 32' 16.10"	
		Easting: 725374.80 US ft	Longitude: -103° 36' 7.25"	
	Severus 31 Federal Com 3H	Elevation above MSL: 3687.00 US ft		
Comment:				
Slot:	Position (Relative to Site Centre)			
	+N/-S: 0.00 US ft	Northing: 560139.60 US ft	Latitude: 32°32'16.10"	
	+E/-W: 0.00 US ft	Easting: 725374.80 US ft	Longitude: -103°36'7.25"	
	Elevation above MSL: 3687.00 US ft			
Comment:				
Well:	Type: Main well	UWI:		
	File Number:	Comment:		
	Closure Distance: 8028.6 US ft	Closure Azimuth: 178.53°		
	Vertical Section: Position of Origin (Relative to Slot centre)			
Severus 31 Federal Com 3H	+N/-S: -0.00 US ft	+E/-W: -0.00 US ft	Az: 179.58°	
Drill floor: Survey Name: Definitive Survey				
Rig Height (Kelly Bushing): Elevation above MSL: 30.00 US ft		Inclination: 0.00°	Azimuth: 0.00°	
3717.00 US ft				

Survey Name: Definitive Survey				
Date: 03/Aug/2017	Survey Tool: See Survey Tool Ranges below.	Comment:	Company:	
Magnetic Model:				
Model Name: bggm2017	Date: 25/Jan/2018	Field Strength: 48143.3nT	Declination: 6.98°	Dip: 60.33°
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

Survey Tool Ranges:			
Name	Start MD(USFt)	End MD(USFt)	Source Survey
GYRO_GC_WIR+DPIPE_GYD	0.00	5616.00	Gyro
MWD	5616.00	10579.00	WFT MWD SVY_1
MWD	10579.00	11575.00	WFT MWD SVY_2

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Survey Tool Ranges:			
Name	Start MD(USFt)	End MD(usFt)	Source Survey
MWD	11575.00	11786.00	WFT MWD SVY_3
MWD	11786.00	17603.00	WFT MWD SVY_4
MWD	17603.00	19080.00	WFT MWD SVY_5

Casing Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)								
MD (US ft)	Inc. (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northing (US ft)	Easting (US ft)	Name
5745.00	1.19	6.22	5743.82	67.63	2026.82	560207.23	725392.58	9 5/8 in

Wellpath created using minimum curvature.

Survey Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)										
MD (US ft)	Inc. (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
0.00	0.00	0.00	0.00	-3717.00	-0.00	-0.00	560139.60	725374.80	0.00	
100.00	0.33	171.39	100.00	-3617.00	-0.28	0.04	560139.32	725374.84	0.33	
200.00	0.24	187.44	200.00	-3517.00	-0.78	0.06	560138.82	725374.86	0.12	
300.00	0.21	188.73	300.00	-3417.00	-1.17	0.00	560138.43	725374.80	0.03	
400.00	0.10	252.41	400.00	-3317.00	-1.37	-0.11	560138.23	725374.69	0.19	
500.00	0.12	241.99	500.00	-3217.00	-1.45	-0.28	560138.15	725374.52	0.03	
600.00	0.14	225.21	600.00	-3117.00	-1.58	-0.46	560138.02	725374.34	0.04	
700.00	0.18	231.50	700.00	-3017.00	-1.77	-0.67	560137.83	725374.13	0.04	
800.00	0.07	242.91	800.00	-2917.00	-1.89	-0.85	560137.71	725373.95	0.11	
900.00	0.10	232.69	900.00	-2817.00	-1.97	-0.97	560137.63	725373.83	0.03	
1000.00	0.16	186.84	1000.00	-2717.00	-2.17	-1.06	560137.43	725373.74	0.12	
1100.00	0.14	161.96	1100.00	-2617.00	-2.42	-1.04	560137.18	725373.76	0.07	
1200.00	0.18	159.43	1199.99	-2517.01	-2.68	-0.94	560136.92	725373.86	0.04	
1300.00	0.24	183.09	1299.99	-2417.01	-3.04	-0.90	560136.56	725373.90	0.10	
1400.00	0.17	172.50	1399.99	-2317.01	-3.40	-0.89	560136.20	725373.91	0.08	
1500.00	0.18	127.18	1499.99	-2217.01	-3.64	-0.75	560135.96	725374.05	0.14	
1600.00	0.22	101.84	1599.99	-2117.01	-3.77	-0.43	560135.83	725374.37	0.10	
1700.00	0.28	97.92	1699.99	-2017.01	-3.85	-0.00	560135.75	725374.80	0.06	
1800.00	0.32	94.70	1799.99	-1917.01	-3.90	0.52	560135.70	725375.32	0.04	
1900.00	0.42	99.62	1899.99	-1817.01	-3.99	1.16	560135.61	725375.96	0.10	
2000.00	0.38	98.02	1999.99	-1717.01	-4.09	1.85	560135.51	725376.65	0.04	
2100.00	0.44	92.85	2099.98	-1617.02	-4.16	2.56	560135.44	725377.36	0.07	
2200.00	0.44	80.87	2199.98	-1517.02	-4.12	3.32	560135.48	725378.12	0.09	
2300.00	0.50	80.37	2299.98	-1417.02	-3.98	4.13	560135.62	725378.93	0.06	
2400.00	0.58	75.52	2399.97	-1317.03	-3.78	5.05	560135.82	725379.85	0.09	
2500.00	0.64	78.50	2499.97	-1217.03	-3.55	6.09	560136.05	725380.89	0.07	
2600.00	0.77	78.72	2599.96	-1117.04	-3.30	7.29	560136.30	725382.09	0.13	
2700.00	1.13	69.98	2699.95	-1017.05	-2.83	8.88	560136.77	725383.68	0.39	
2800.00	1.25	68.89	2799.92	-917.08	-2.10	10.82	560137.50	725385.62	0.12	
2900.00	1.56	69.35	2899.89	-817.11	-1.23	13.11	560138.37	725387.91	0.31	
3000.00	1.68	65.88	2999.85	-717.15	-0.15	15.72	560139.45	725390.52	0.15	
3100.00	1.86	63.98	3099.81	-617.19	1.16	18.52	560140.76	725393.32	0.19	
3200.00	1.88	65.41	3199.75	-517.25	2.55	21.47	560142.15	725396.27	0.05	
3300.00	1.92	48.82	3299.70	-417.30	4.34	24.22	560143.94	725399.02	0.55	
3400.00	1.68	16.99	3399.65	-317.35	6.84	25.91	560146.44	725400.71	1.01	
3500.00	1.73	16.55	3499.61	-217.39	9.69	26.77	560149.29	725401.57	0.05	
3600.00	1.63	1.86	3599.56	-117.44	12.56	27.25	560152.16	725402.05	0.44	
3700.00	1.58	356.12	3699.53	-17.47	15.36	27.20	560154.96	725402.00	0.17	
3800.00	1.42	354.06	3799.49	82.49	17.97	26.98	560157.57	725401.78	0.17	
3900.00	1.49	351.55	3899.46	182.46	20.48	26.66	560160.08	725401.46	0.09	
4000.00	1.40	344.92	3999.43	282.43	22.95	26.15	560162.55	725400.95	0.19	
4100.00	1.37	345.84	4099.40	382.40	25.29	25.54	560164.89	725400.34	0.04	
4200.00	1.41	343.51	4199.37	482.37	27.63	24.90	560167.23	725399.70	0.07	
4300.00	1.48	343.03	4299.34	582.34	30.04	24.17	560169.64	725398.97	0.07	
4400.00	1.55	340.92	4399.30	682.30	32.56	23.35	560172.16	725398.15	0.09	
4500.00	1.55	343.56	4499.27	782.27	35.13	22.53	560174.73	725397.33	0.07	

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Survey Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)										Comment
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	
4600.00	1.56	343.29	4599.23	882.23	37.73	21.75	560177.33	725396.55	0.01	
4700.00	1.57	344.42	4699.19	982.19	40.36	20.99	560179.96	725395.79	0.03	
4800.00	1.65	345.35	4799.15	1082.15	43.07	20.26	560182.67	725395.06	0.08	
4900.00	1.69	345.62	4899.11	1182.11	45.89	19.53	560185.49	725394.33	0.04	
5000.00	1.68	350.93	4999.07	1282.07	48.77	18.94	560188.37	725393.74	0.16	
5100.00	1.64	350.47	5099.02	1382.02	51.62	18.47	560191.22	725393.27	0.04	
5200.00	1.47	356.05	5198.99	1481.99	54.31	18.14	560193.91	725392.94	0.23	
5300.00	1.50	357.79	5298.95	1581.95	56.90	18.00	560196.50	725392.80	0.05	
5400.00	1.42	1.69	5398.92	1681.92	59.45	17.99	560199.05	725392.79	0.13	
5500.00	1.30	356.29	5498.89	1781.89	61.82	17.95	560201.42	725392.75	0.18	
5600.00	1.43	357.20	5598.86	1881.86	64.20	17.82	560203.80	725392.62	0.13	
5616.00	1.51	354.73	5614.86	1897.86	64.61	17.79	560204.21	725392.59	0.64	Tie On Gyrodata
5745.00	1.19	6.22	5743.82	2026.82	67.63	17.78	560207.23	725392.58	0.33	9 5/8 in
5863.00	0.96	22.88	5861.80	2144.80	69.75	18.29	560209.35	725393.09	0.33	First WFT SVY
5956.00	1.17	19.36	5954.79	2237.79	71.37	18.91	560210.97	725393.71	0.24	
6050.00	1.05	26.75	6048.77	2331.77	73.04	19.62	560212.64	725394.42	0.20	
6144.00	1.12	26.97	6142.75	2425.75	74.63	20.42	560214.23	725395.22	0.07	
6237.00	1.08	12.33	6235.74	2518.74	76.30	21.02	560215.90	725395.82	0.30	
6331.00	1.08	11.84	6329.72	2612.72	78.03	21.39	560217.63	725396.19	0.01	
6423.00	1.22	27.62	6421.70	2704.70	79.74	22.02	560219.34	725396.82	0.37	
6519.00	0.61	203.71	6517.70	2800.70	80.18	22.29	560219.78	725397.09	1.91	
6612.00	1.63	207.16	6610.68	2893.68	78.55	21.49	560218.15	725396.29	1.10	
6706.00	1.51	218.57	6704.64	2987.64	76.39	20.11	560215.99	725394.91	0.36	
6799.00	1.25	217.57	6797.61	3080.61	74.63	18.73	560214.23	725393.53	0.28	
6892.00	1.09	213.51	6890.59	3173.59	73.09	17.62	560212.69	725392.42	0.19	
6985.00	1.16	198.45	6983.58	3266.58	71.46	16.83	560211.06	725391.63	0.33	
7078.00	1.13	200.64	7076.56	3359.56	69.71	16.21	560209.31	725391.01	0.06	
7172.00	1.19	213.87	7170.54	3453.54	68.03	15.34	560207.63	725390.14	0.29	
7265.00	1.33	188.31	7263.52	3546.52	66.16	14.65	560205.76	725389.45	0.62	
7358.00	1.41	186.24	7356.49	3639.49	63.96	14.37	560203.56	725389.17	0.10	
7452.00	1.71	174.08	7450.46	3733.46	61.41	14.38	560201.01	725389.18	0.47	
7545.00	0.52	180.10	7543.44	3826.44	59.61	14.53	560199.21	725389.33	1.28	
7637.00	0.11	309.66	7635.44	3918.44	59.25	14.46	560198.85	725389.26	0.65	
7731.00	0.17	346.24	7729.44	4012.44	59.44	14.36	560199.04	725389.16	0.11	
7825.00	0.12	17.45	7823.44	4106.44	59.67	14.35	560199.27	725389.15	0.10	
7918.00	0.04	125.94	7916.44	4199.44	59.74	14.41	560199.34	725389.21	0.15	
8012.00	0.17	212.87	8010.44	4293.44	59.61	14.36	560199.21	725389.16	0.18	
8106.00	0.07	104.08	8104.43	4387.43	59.48	14.34	560199.08	725389.14	0.22	
8199.00	0.12	189.33	8197.43	4480.43	59.37	14.38	560198.97	725389.18	0.14	
8293.00	0.22	205.42	8291.43	4574.43	59.11	14.28	560198.71	725389.08	0.12	
8386.00	0.56	173.03	8384.43	4667.43	58.49	14.26	560198.09	725389.06	0.42	
8480.00	0.44	160.51	8478.43	4761.43	57.70	14.44	560197.30	725389.24	0.17	
8574.00	0.49	162.90	8572.43	4855.43	56.97	14.68	560196.57	725389.48	0.06	
8668.00	0.33	202.09	8666.42	4949.42	56.34	14.69	560195.94	725389.49	0.33	
8762.00	0.45	206.39	8760.42	5043.42	55.76	14.43	560195.36	725389.23	0.13	
8856.00	0.27	189.30	8854.42	5137.42	55.21	14.23	560194.81	725389.03	0.22	
8949.00	0.25	161.89	8947.42	5230.42	54.80	14.26	560194.40	725389.06	0.13	
9043.00	0.64	189.48	9041.42	5324.42	54.09	14.23	560193.69	725389.03	0.46	
9137.00	0.37	273.16	9135.41	5418.41	53.59	13.84	560193.19	725388.64	0.75	
9231.00	0.15	23.13	9229.41	5512.41	53.72	13.59	560193.32	725388.39	0.47	
9325.00	0.33	126.17	9323.41	5606.41	53.67	13.86	560193.27	725388.66	0.42	
9418.00	0.83	118.44	9416.41	5699.41	53.19	14.66	560192.79	725389.46	0.54	
9512.00	0.15	188.13	9510.40	5793.40	52.74	15.25	560192.34	725390.05	0.84	
9606.00	0.66	319.33	9604.40	5887.40	53.03	14.88	560192.63	725389.68	0.82	
9701.00	0.52	310.90	9699.40	5982.40	53.73	14.19	560193.33	725388.99	0.17	
9794.00	0.98	298.13	9792.39	6075.39	54.38	13.17	560193.98	725387.97	0.52	
9888.00	0.98	211.08	9886.38	6169.38	54.07	12.05	560193.67	725386.85	1.44	

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MD (US ft)	Inc. (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
9982.00	1.21	164.00	9980.36	6263.36	52.43	11.91	560192.03	725386.71	0.96	
10076.00	0.24	210.67	10074.35	6357.35	51.31	12.08	560190.91	725386.88	1.13	
10170.00	0.69	315.54	10168.35	6451.35	51.54	11.58	560191.14	725386.38	0.84	
10264.00	0.68	315.45	10262.35	6545.35	52.34	10.80	560191.94	725385.60	0.01	
10357.00	0.61	248.60	10355.34	6638.34	52.55	9.95	560192.15	725384.75	0.77	
10450.00	0.45	292.54	10448.34	6731.34	52.51	9.15	560192.11	725383.95	0.46	
10544.00	0.61	280.48	10542.33	6825.33	52.75	8.32	560192.35	725383.12	0.21	
10579.00	0.74	256.72	10577.33	6860.33	52.73	7.91	560192.33	725382.71	0.87	
10605.00	0.69	242.50	10603.33	6886.33	52.62	7.61	560192.22	725382.41	0.71	
10636.00	0.75	170.50	10634.33	6917.33	52.33	7.48	560191.93	725382.28	2.73	
10667.00	4.75	142.23	10665.29	6948.29	51.12	8.30	560190.72	725383.10	13.24	
10699.00	9.75	143.39	10697.02	6980.02	47.89	10.73	560187.49	725385.53	15.63	
10730.00	14.19	149.60	10727.34	7010.34	42.50	14.22	560182.10	725389.02	14.89	
10761.00	17.86	148.33	10757.13	7040.13	35.18	18.64	560174.78	725393.44	11.89	
10793.00	21.31	147.08	10787.27	7070.27	26.12	24.38	560165.72	725399.18	10.86	
10824.00	24.19	147.63	10815.86	7098.86	16.02	30.84	560155.62	725405.64	9.32	
10855.00	26.05	149.61	10843.93	7126.93	4.79	37.68	560144.39	725412.48	6.58	
10887.00	26.20	153.20	10872.66	7155.66	-7.58	44.42	560132.02	725419.22	4.96	
10918.00	27.22	154.16	10900.35	7183.35	-20.07	50.60	560119.53	725425.40	3.57	
10949.00	29.56	157.93	10927.62	7210.62	-33.54	56.56	560106.06	725431.36	9.51	
10980.00	32.19	164.10	10954.23	7237.23	-48.58	61.70	560091.02	725436.50	13.27	
11012.00	34.71	167.74	10980.93	7263.93	-65.68	65.97	560073.92	725440.77	10.06	
11043.00	37.32	169.75	11006.01	7289.01	-83.56	69.52	560056.04	725444.32	9.24	
11074.00	38.98	170.09	11030.39	7313.39	-102.41	72.87	560037.19	725447.67	5.40	
11105.00	40.30	169.70	11054.26	7337.26	-121.88	76.34	560017.72	725451.14	4.33	
11137.00	42.28	168.75	11078.30	7361.30	-142.62	80.29	559996.98	725455.09	6.49	
11168.00	46.03	168.02	11100.54	7383.54	-163.77	84.64	559975.83	725459.44	12.21	
11199.00	49.25	170.02	11121.42	7404.42	-186.25	89.00	559953.35	725463.80	11.43	
11231.00	52.64	171.78	11141.58	7424.58	-210.78	92.92	559928.82	725467.72	11.42	
11262.00	54.93	174.26	11159.90	7442.90	-235.61	95.95	559903.99	725470.75	9.81	
11293.00	57.68	176.46	11177.10	7460.10	-261.31	98.02	559878.29	725472.82	10.66	
11324.00	60.86	177.75	11192.94	7475.94	-287.92	99.37	559851.68	725474.17	10.86	
11356.00	64.65	177.72	11207.58	7490.58	-316.34	100.49	559823.26	725475.29	11.84	
11387.00	67.29	177.31	11220.21	7503.21	-344.62	101.72	559794.98	725476.52	8.60	
11418.00	69.90	177.35	11231.52	7514.52	-373.45	103.06	559766.15	725477.86	8.42	
11449.00	73.06	177.12	11241.36	7524.36	-402.81	104.48	559736.79	725479.28	10.22	
11481.00	76.45	177.09	11249.78	7532.78	-433.64	106.04	559705.96	725480.84	10.59	
11512.00	79.56	177.09	11256.22	7539.22	-463.92	107.58	559675.68	725482.38	10.03	
11543.00	82.66	177.25	11261.01	7544.01	-494.51	109.09	559645.09	725483.89	10.01	
11575.00	83.71	177.40	11264.81	7547.81	-526.24	110.57	559613.36	725485.37	3.31	
11599.00	83.91	177.45	11267.39	7550.39	-550.08	111.65	559589.52	725486.45	0.86	
11630.00	83.70	177.57	11270.74	7553.74	-580.87	112.98	559558.73	725487.78	0.78	
11661.00	83.78	177.16	11274.12	7557.12	-611.65	114.40	559527.95	725489.20	1.34	
11693.00	84.18	176.56	11277.48	7560.48	-643.43	116.14	559496.17	725490.94	2.24	
11724.00	84.33	177.00	11280.58	7563.58	-674.22	117.88	559465.38	725492.68	1.49	
11755.00	86.11	175.69	11283.16	7566.16	-705.05	119.85	559434.55	725494.65	7.12	
11786.00	88.30	179.15	11284.67	7567.67	-735.98	121.24	559403.62	725496.04	13.20	
11818.00	88.85	179.39	11285.47	7568.47	-767.96	121.65	559371.64	725496.45	1.88	
11881.00	89.36	179.34	11286.45	7569.45	-830.95	122.34	559308.65	725497.14	0.81	
11975.00	90.29	178.90	11286.74	7569.74	-924.94	123.79	559214.66	725498.59	1.09	
12068.00	86.87	180.03	11289.05	7572.05	-1017.89	124.66	559121.71	725499.46	3.87	
12162.00	88.00	179.40	11293.25	7576.25	-1111.79	125.12	559027.81	725499.92	1.38	
12256.00	88.44	178.80	11296.17	7579.17	-1205.74	126.60	558933.86	725501.40	0.79	
12350.00	89.03	178.86	11298.25	7581.25	-1299.69	128.52	558839.91	725503.32	0.63	
12444.00	89.34	179.04	11299.58	7582.58	-1393.67	130.24	558745.93	725505.04	0.38	
12538.00	89.72	178.61	11300.36	7583.36	-1487.64	132.17	558651.96	725506.97	0.61	
12632.00	88.43	182.64	11301.87	7584.87	-1581.61	131.14	558557.99	725505.94	4.50	
12725.00	89.03	183.01	11303.93	7586.93	-1674.47	126.56	558465.13	725501.36	0.76	
12819.00	90.25	183.99	11304.53	7587.53	-1768.29	120.82	558371.31	725495.62	1.66	

5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
12913.00	89.95	181.39	11304.36	7587.36	-1862.18	116.41	558277.42	725491.21	2.78	
13006.00	90.14	180.42	11304.29	7587.29	-1955.16	114.94	558184.44	725489.74	1.06	
13100.00	90.66	180.15	11303.63	7586.63	-2049.16	114.48	558090.44	725489.28	0.62	
13194.00	90.28	180.42	11302.86	7585.86	-2143.16	114.01	557996.44	725488.81	0.50	
13287.00	88.11	179.61	11304.17	7587.17	-2236.14	113.98	557903.46	725488.78	2.49	
13381.00	88.24	179.48	11307.16	7590.16	-2330.09	114.73	557809.51	725489.53	0.20	
13475.00	88.84	179.19	11309.56	7592.56	-2424.05	115.82	557715.55	725490.62	0.71	
13568.00	89.50	178.71	11310.90	7593.90	-2517.03	117.52	557622.57	725492.32	0.88	
13662.00	90.06	179.18	11311.26	7594.26	-2611.01	119.26	557528.59	725494.06	0.78	
13756.00	90.43	178.53	11310.86	7593.86	-2704.99	121.13	557434.61	725495.93	0.80	
13850.00	89.19	179.03	11311.17	7594.17	-2798.96	123.14	557340.64	725497.94	1.42	
13944.00	89.10	179.11	11312.58	7595.58	-2892.94	124.66	557246.66	725499.46	0.13	
14038.00	89.41	178.43	11313.80	7596.80	-2986.91	126.68	557152.69	725501.48	0.79	
14131.00	90.11	177.92	11314.19	7597.19	-3079.86	129.64	557059.74	725504.44	0.93	
14225.00	88.44	180.35	11315.38	7598.38	-3173.83	131.06	556965.77	725505.86	3.14	
14319.00	88.61	180.50	11317.80	7600.80	-3267.80	130.36	556871.80	725505.16	0.24	
14413.00	89.13	179.86	11319.65	7602.65	-3361.78	130.07	556777.82	725504.87	0.88	
14507.00	90.10	180.48	11320.28	7603.28	-3455.78	129.79	556683.82	725504.59	1.22	
14601.00	87.42	180.05	11322.32	7605.32	-3549.74	129.35	556589.86	725504.15	2.89	
14694.00	87.58	179.68	11326.37	7609.37	-3642.66	129.57	556496.94	725504.37	0.43	
14788.00	88.54	180.12	11329.56	7612.56	-3736.60	129.74	556403.00	725504.54	1.12	
14882.00	88.96	179.97	11331.61	7614.61	-3830.58	129.66	556309.02	725504.46	0.47	
14976.00	89.47	179.50	11332.89	7615.89	-3924.57	130.10	556215.03	725504.90	0.74	
15069.00	90.11	179.16	11333.24	7616.24	-4017.56	131.18	556122.04	725505.98	0.78	
15163.00	87.50	179.46	11335.20	7618.20	-4111.52	132.32	556028.08	725507.12	2.79	
15257.00	87.67	178.98	11339.16	7622.16	-4205.43	133.59	555934.17	725508.39	0.54	
15351.00	88.40	178.62	11342.38	7625.38	-4299.36	135.56	555840.24	725510.36	0.87	
15445.00	88.89	178.40	11344.60	7627.60	-4393.30	138.01	555746.30	725512.81	0.57	
15539.00	89.76	178.36	11345.71	7628.71	-4487.25	140.66	555652.35	725515.46	0.93	
15633.00	90.50	178.51	11345.50	7628.50	-4581.22	143.23	555558.38	725518.03	0.80	
15727.00	89.74	180.47	11345.30	7628.30	-4675.21	144.07	555464.39	725518.87	2.24	
15821.00	90.07	180.36	11345.46	7628.46	-4769.20	143.39	555370.40	725518.19	0.37	
15914.00	88.31	178.75	11346.77	7629.77	-4862.19	144.11	555277.41	725518.91	2.56	
16008.00	89.51	178.68	11348.56	7631.56	-4956.14	146.22	555183.46	725521.02	1.28	
16102.00	89.65	178.09	11349.25	7632.25	-5050.10	148.86	555089.50	725523.66	0.65	
16195.00	89.71	177.88	11349.77	7632.77	-5143.04	152.13	554996.56	725526.93	0.23	
16289.00	90.23	177.15	11349.82	7632.82	-5236.95	156.21	554902.65	725531.01	0.95	
16383.00	89.79	177.05	11349.80	7632.80	-5330.83	160.97	554808.77	725535.77	0.48	
16476.00	89.18	179.27	11350.64	7633.64	-5423.78	163.95	554715.82	725538.75	2.48	
16570.00	89.29	179.53	11351.89	7634.89	-5517.76	164.94	554621.84	725539.74	0.30	
16664.00	89.06	178.12	11353.24	7636.24	-5611.73	166.86	554527.87	725541.66	1.52	
16758.00	89.42	177.45	11354.49	7637.49	-5705.65	170.50	554433.95	725545.30	0.81	
16852.00	90.13	176.91	11354.86	7637.86	-5799.54	175.12	554340.06	725549.92	0.95	
16946.00	88.17	176.67	11356.25	7639.25	-5893.37	180.38	554246.23	725555.18	2.10	
17040.00	88.21	177.84	11359.22	7642.22	-5987.22	184.88	554152.38	725559.68	1.24	
17134.00	88.45	178.26	11361.96	7644.96	-6081.12	188.08	554058.48	725562.88	0.51	
17228.00	89.37	178.17	11363.75	7646.75	-6175.06	191.01	553964.54	725565.81	0.98	
17322.00	89.73	177.80	11364.49	7647.49	-6269.00	194.31	553870.60	725569.11	0.55	
17416.00	90.77	178.23	11364.08	7647.08	-6362.94	197.57	553776.66	725572.37	1.20	
17509.00	90.61	178.38	11362.96	7645.96	-6455.89	200.32	553683.71	725575.12	0.24	
17603.00	90.77	180.33	11361.83	7644.83	-6549.87	201.38	553589.73	725576.18	2.08	
17729.00	89.12	179.71	11361.95	7644.95	-6675.87	201.33	553463.73	725576.13	1.40	
17876.00	89.12	180.09	11364.21	7647.21	-6822.85	201.59	553316.75	725576.39	0.26	
17917.00	89.59	180.46	11364.67	7647.67	-6863.85	201.39	553275.75	725576.19	1.46	
18010.00	88.78	179.09	11365.99	7648.99	-6956.83	201.76	553182.77	725576.56	1.71	
18104.00	89.71	179.47	11367.23	7650.23	-7050.82	202.94	553088.78	725577.74	1.07	
18198.00	87.15	180.36	11369.80	7652.80	-7144.77	203.08	552994.83	725577.88	2.88	
18292.00	86.71	180.11	11374.84	7657.84	-7238.64	202.69	552900.96	725577.49	0.54	
18386.00	86.60	180.04	11380.32	7663.32	-7332.48	202.57	552807.12	725577.37	0.14	

5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (%/100US ft)	Comment
18480.00	88.47	180.25	11384.37	7667.37	-7426.39	202.33	552713.21	725577.13	2.00	
18574.00	88.31	179.81	11387.01	7670.01	-7520.35	202.28	552619.25	725577.08	0.50	
18668.00	88.42	179.77	11389.69	7672.69	-7614.31	202.63	552525.29	725577.43	0.12	
18761.00	88.08	179.54	11392.53	7675.53	-7707.26	203.19	552432.34	725577.99	0.44	
18855.00	87.72	179.49	11395.97	7678.97	-7801.20	203.98	552338.40	725578.78	0.39	
18949.00	87.30	179.27	11400.06	7683.06	-7895.10	205.00	552244.50	725579.80	0.50	
19027.00	87.27	179.35	11403.75	7686.75	-7973.01	205.94	552166.59	725580.74	0.11	Last WFT SVY
19080.00	87.27	179.35	11406.28	7689.28	-8025.95	206.54	552113.65	725581.34	0.00	PTB

Formation Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northing (US ft)	Easting (US ft)	Name		Comment
1552.01	0.20	112.71	1552.00	-3.72	-2165.00	560135.88	725374.20	Rustler		
1919.01	0.41	99.34	1919.00	-4.01	-1798.00	560135.59	725376.09	Salado		
3167.23	1.87	64.94	3167.00	2.10	-550.00	560141.70	725395.30	Base Salt		
3339.32	1.76	37.41	3339.00	5.25	-378.00	560144.85	725399.89	Yates		
3572.42	1.65	6.07	3572.00	11.78	-145.00	560151.38	725401.99	Seven Rivers		
3725.48	1.54	355.64	3725.00	16.05	8.00	560155.65	725401.95	Capitan Reef		
5596.13	1.42	357.17	5595.00	64.10	1878.00	560203.70	725392.62	Base Capitan Reef (Delaware)		
5761.18	1.15	8.10	5760.00	67.96	2043.00	560207.56	725392.62	Base Manzanita (U Cherry Canyon)		
7002.43	1.15	198.85	7001.00	71.13	3284.00	560210.73	725391.52	Brushy Canyon		
8668.58	0.33	202.13	8667.00	56.34	4950.00	560195.94	725389.49	Bone Spring		
8828.58	0.32	196.24	8827.00	55.35	5110.00	560194.95	725389.06	Upper Avalon Shale		
9146.59	0.33	275.68	9145.00	53.59	5428.00	560193.19	725388.59	Lower Avalon Shale		
9669.60	0.56	314.15	9668.00	53.53	5951.00	560193.13	725389.21	1st Bone Spring Sand		
9839.62	0.71	256.21	9838.00	54.50	6121.00	560194.10	725387.35	1st Bone Spring Lower		
9956.63	1.08	174.32	9955.00	52.92	6238.00	560192.52	725386.61	2nd Bone Spring A Lime		
10185.65	0.69	315.53	10184.00	51.67	6467.00	560191.27	725386.25	Second Bone Spring		
10497.66	0.53	285.51	10496.00	52.64	6779.00	560192.24	725383.56	2nd Bone Spring B Sand		
10652.68	2.87	145.52	10651.00	51.88	6934.00	560191.48	725382.53	Base 2nd Bone Spring B Sand		
10731.71	14.39	149.51	10729.00	42.14	7012.00	560181.74	725389.23	3rd Bone Spring Lime		
11098.12	40.01	169.78	11049.00	-117.51	7332.00	560022.09	725450.35	3rd Bone Spring Sand		
11458.30	74.05	177.11	11244.00	-411.72	7527.00	559727.88	725479.73	Red Hills Sand		