

MAY 18 2015

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SD Plan Report

Devon Energy

Field Name: *Lea Co, NM Nad 83 NMEZ*

Site Name: *North Thistle 15-10 State Com 1H,2H Pad*

Well Name: *North Thistle 15-10 State Com 2H*

Plan: *P1:V2*

14 May 2015



Weatherford®

'MAY 18 2015'

North Thistle 15-10 State Com 2H

Field Name
Lea Co. NM NAD
88 NMEZ

Map Units : US ft**Company Name :** Devon Energy**Vertical Reference Datum (VRD) :** Mean Sea Level**Projected Coordinate System :** NAD83 / New Mexico East (ftUS)**Comment :**

Site Name
North Thistle 15-
10 State Com
2H 2H Pad

Units : US ft**North Reference :** Grid**Convergence Angle :** 0.41**Position****Northing :** 473219.69 US ft**Latitude :** 32° 17' 55.05"**Easting :** 778337.06 US ft**Longitude :** -103° 33' 58.69"**Elevation above Mean Sea Level:** 3710.00 US ft**Comment :**

Slot Name
North Thistle 15-
10 State Com
2H

Position (Offsets relative to Site Centre)**+N / -S :** 3.67 US ft **Northing :** 473216.02 US ft**Latitude :** 32° 17' 55.01"**+E / -W :** 50.01 US ft **Easting :** 778387.07 US ft**Longitude :** -103° 33' 58.11"**Slot TVD Reference :** Ground Elevation**Elevation above Mean Sea Level :** 3711.00 US ft**Comment :**

Well Name
North Thistle 15-
10 State Com
2H

Type : Main well**UWI :****Plan :** P1:V2**Rig Height Kelly Bushing :** 25.00 US ft
Relative to Mean Sea Level: 3736.00 US ft**Comment :****Closure Distance :** 9859.95 US ft**Closure Azimuth :** 4.89436°**Vertical Section (Position of Origin Relative to Slot)****+N / -S :** 0.00 US ft**+E / -W :** 0.00 US ft**Az :** 355.16°**Magnetic Parameters****Model :** BGGM**Field Strength :**
48219.5nT**Dec :** 7.27°**Dip :** 60.15°**Date :**
31/Jul/2015

Target Set

Name : North Thistle 15-10**Number of Targets :** 1

State Com 2H

Comment :

Target Name:
PBHL 2H
Shape:
Cuboid

Position (Relative to Slot centre)**+N / -S :** 9824.00 US ft**Northing :** 483040.02 US ft**Latitude :** 32° 19' 32.16"**+E / -W :** 841.24 US ft**Easting :** 779228.31 US ft**Longitude :** -103° 33' 47.48"**TVD (Kelly Bushing) :** 9936.00 US ft**Orientation Azimuth :** 358.16°**Inclination :** 0.00°**Dimensions Length :** 17386.00 US ft**Breadth :** 50.00 US ft**Height :** 40.00 US ft

Well path created using minimum curvature

SD Plan Report

Salient Points (Relative to Slot centre, TVD relative to Kelly Bushing)											
MD (US ft)	Incl (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	VS (US ft)	DLS (%/100 US ft)	B. Rate (%/100 US ft)	T. Rate (%/100 US ft)	T. Fac (°)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Nudge
3000.00	10.00	60.00	2994.93	43.52	75.38	37.01	1.00	1.00	0.00	60.00	Hold
9568.35	10.00	60.00	9463.49	613.81	1063.16	521.92	0.00	0.00	0.00	0.00	KOP
10343.79	90.00	358.16	9936.00	1135.02	1119.93	1036.48	11.00	10.32	-7.97	297.80	LP
19037.24	90.00	358.16	9936.00	9824.00	841.24	9717.99	0.00	0.00	0.00	0.00	PBHL 2H

Interpolated Points (Relative to Slot centre, TVD relative to Kelly Bushing)											
MD (US ft)	Incl (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	VS (US ft)	DLS (%/100 US ft)	Northing (US ft)	Easting (US ft)		Comment
2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	473216.02	778387.07		Nudge
2100.00	1.00	60.00	2099.99	0.44	0.76	0.37	1.00	473216.46	778387.83		
2200.00	2.00	60.00	2199.96	1.75	3.02	1.48	1.00	473217.77	778390.09		
2300.00	3.00	60.00	2299.86	3.93	6.80	3.34	1.00	473219.95	778393.87		
2400.00	4.00	60.00	2399.68	6.98	12.09	5.93	1.00	473223.00	778399.16		
2500.00	5.00	60.00	2499.37	10.90	18.88	9.27	1.00	473226.92	778405.95		
2600.00	6.00	60.00	2598.90	15.69	27.18	13.34	1.00	473231.71	778414.25		
2700.00	7.00	60.00	2698.26	21.35	36.99	18.16	1.00	473237.37	778424.06		
2800.00	8.00	60.00	2797.40	27.88	48.29	23.71	1.00	473243.90	778435.36		
2900.00	9.00	60.00	2896.30	35.27	61.09	29.99	1.00	473251.29	778448.16		
3000.00	10.00	60.00	2994.93	43.52	75.38	37.01	1.00	473259.54	778462.45		Hold
3100.00	10.00	60.00	3093.41	52.20	90.42	44.39	0.00	473268.22	778477.49		
3200.00	10.00	60.00	3191.89	60.89	105.46	51.77	0.00	473276.91	778492.53		
3300.00	10.00	60.00	3290.37	69.57	120.50	59.15	0.00	473285.59	778507.57		
3400.00	10.00	60.00	3388.85	78.25	135.54	66.54	0.00	473294.27	778522.61		
3500.00	10.00	60.00	3487.33	86.93	150.58	73.92	0.00	473302.95	778537.65		
3600.00	10.00	60.00	3585.82	95.62	165.61	81.30	0.00	473311.64	778552.68		
3700.00	10.00	60.00	3684.30	104.30	180.65	88.69	0.00	473320.32	778567.72		
3800.00	10.00	60.00	3782.78	112.98	195.69	96.07	0.00	473329.00	778582.76		
3900.00	10.00	60.00	3881.26	121.66	210.73	103.45	0.00	473337.68	778597.80		
4000.00	10.00	60.00	3979.74	130.35	225.77	110.83	0.00	473346.37	778612.84		
4100.00	10.00	60.00	4078.22	139.03	240.81	118.22	0.00	473355.05	778627.88		
4200.00	10.00	60.00	4176.70	147.71	255.84	125.60	0.00	473363.73	778642.91		
4300.00	10.00	60.00	4275.18	156.39	270.88	132.98	0.00	473372.41	778657.95		
4400.00	10.00	60.00	4373.66	165.08	285.92	140.36	0.00	473381.10	778672.99		
4500.00	10.00	60.00	4472.14	173.76	300.96	147.75	0.00	473389.78	778688.03		
4600.00	10.00	60.00	4570.62	182.44	316.00	155.13	0.00	473398.46	778703.07		
4700.00	10.00	60.00	4669.10	191.12	331.04	162.51	0.00	473407.14	778718.11		
4800.00	10.00	60.00	4767.58	199.81	346.07	169.89	0.00	473415.83	778733.14		
4900.00	10.00	60.00	4866.07	208.49	361.11	177.28	0.00	473424.51	778748.18		
5000.00	10.00	60.00	4964.55	217.17	376.15	184.66	0.00	473433.19	778763.22		
5100.00	10.00	60.00	5063.03	225.85	391.19	192.04	0.00	473441.87	778778.26		
5200.00	10.00	60.00	5161.51	234.54	406.23	199.42	0.00	473450.56	778793.30		
5300.00	10.00	60.00	5259.99	243.22	421.27	206.81	0.00	473459.24	778808.34		
5400.00	10.00	60.00	5358.47	251.90	436.30	214.19	0.00	473467.92	778823.37		
5500.00	10.00	60.00	5456.95	260.58	451.34	221.57	0.00	473476.60	778838.41		
5600.00	10.00	60.00	5555.43	269.27	466.38	228.95	0.00	473485.29	778853.45		
5700.00	10.00	60.00	5653.91	277.95	481.42	236.34	0.00	473493.97	778868.49		
5800.00	10.00	60.00	5752.39	286.63	496.46	243.72	0.00	473502.65	778883.53		
5900.00	10.00	60.00	5850.87	295.31	511.50	251.10	0.00	473511.33	778898.57		
6000.00	10.00	60.00	5949.35	303.99	526.53	258.49	0.00	473520.01	778913.60		
6100.00	10.00	60.00	6047.83	312.68	541.57	265.87	0.00	473528.70	778928.64		
6200.00	10.00	60.00	6146.32	321.36	556.61	273.25	0.00	473537.38	778943.68		
6300.00	10.00	60.00	6244.80	330.04	571.65	280.63	0.00	473546.06	778958.72		
6400.00	10.00	60.00	6343.28	338.72	586.69	288.02	0.00	473554.74	778973.76		
6500.00	10.00	60.00	6441.76	347.41	601.73	295.40	0.00	473563.43	778988.80		
6600.00	10.00	60.00	6540.24	356.09	616.76	302.78	0.00	473572.11	779003.83		
6700.00	10.00	60.00	6638.72	364.77	631.80	310.16	0.00	473580.79	779018.87		
6800.00	10.00	60.00	6737.20	373.45	646.84	317.55	0.00	473589.47	779033.91		

5D Plan Report

Interpolated 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)	VS (US ft)	DLS (°/100 US ft)	Northing (US ft)	Easting (US ft)	Comment
6900.00	10.00	60.00	6835.68	382.14	661.88	324.93	0.00	473598.16	779048.95	
7000.00	10.00	60.00	6934.16	390.82	676.92	332.31	0.00	473606.84	779063.99	
7100.00	10.00	60.00	7032.64	399.50	691.96	339.69	0.00	473615.52	779079.03	
7200.00	10.00	60.00	7131.12	408.18	707.00	347.08	0.00	473624.20	779094.07	
7300.00	10.00	60.00	7229.60	416.87	722.03	354.46	0.00	473632.89	779109.10	
7400.00	10.00	60.00	7328.08	425.55	737.07	361.84	0.00	473641.57	779124.14	
7500.00	10.00	60.00	7426.57	434.23	752.11	369.22	0.00	473650.25	779139.18	
7600.00	10.00	60.00	7525.05	442.91	767.15	376.61	0.00	473658.93	779154.22	
7700.00	10.00	60.00	7623.53	451.60	782.19	383.99	0.00	473667.62	779169.26	
7800.00	10.00	60.00	7722.01	460.28	797.23	391.37	0.00	473676.30	779184.30	
7900.00	10.00	60.00	7820.49	468.96	812.26	398.75	0.00	473684.98	779199.33	
8000.00	10.00	60.00	7918.97	477.64	827.30	406.14	0.00	473693.66	779214.37	
8100.00	10.00	60.00	8017.45	486.33	842.34	413.52	0.00	473702.35	779229.41	
8200.00	10.00	60.00	8115.93	495.01	857.38	420.90	0.00	473711.03	779244.45	
8300.00	10.00	60.00	8214.41	503.69	872.42	428.29	0.00	473719.71	779259.49	
8400.00	10.00	60.00	8312.89	512.37	887.46	435.67	0.00	473728.39	779274.53	
8500.00	10.00	60.00	8411.37	521.06	902.49	443.05	0.00	473737.08	779289.56	
8600.00	10.00	60.00	8509.85	529.74	917.53	450.43	0.00	473745.76	779304.60	
8700.00	10.00	60.00	8608.33	538.42	932.57	457.82	0.00	473754.44	779319.64	
8800.00	10.00	60.00	8706.82	547.10	947.61	465.20	0.00	473763.12	779334.68	
8900.00	10.00	60.00	8805.30	555.78	962.65	472.58	0.00	473771.80	779349.72	
9000.00	10.00	60.00	8903.78	564.47	977.69	479.96	0.00	473780.49	779364.76	
9100.00	10.00	60.00	9002.26	573.15	992.72	487.35	0.00	473789.17	779379.79	
9200.00	10.00	60.00	9100.74	581.83	1007.76	494.73	0.00	473797.85	779394.83	
9300.00	10.00	60.00	9199.22	590.51	1022.80	502.11	0.00	473806.53	779409.87	
9400.00	10.00	60.00	9297.70	599.20	1037.84	509.49	0.00	473815.22	779424.91	
9500.00	10.00	60.00	9396.18	607.88	1052.88	516.88	0.00	473823.90	779439.95	
9568.35	10.00	60.00	9463.49	613.81	1063.16	521.92	0.00	473829.83	779450.23	KOP
9600.00	12.02	45.05	9494.56	617.52	1067.87	525.22	11.00	473833.54	779454.94	
9700.00	21.05	21.99	9590.43	641.60	1082.01	548.02	11.00	473857.62	779469.08	
9800.00	31.33	12.96	9680.07	683.72	1094.60	588.93	11.00	473899.74	779481.67	
9900.00	41.95	8.12	9760.21	742.33	1105.18	646.44	11.00	473958.35	779492.25	
10000.00	52.71	4.96	9827.90	815.28	1113.37	718.43	11.00	474031.30	779500.44	
10100.00	63.53	2.60	9880.64	899.87	1118.86	802.26	11.00	474115.89	779505.93	
10200.00	74.38	0.65	9916.51	993.02	1121.45	894.86	11.00	474209.04	779508.52	
10300.00	85.24	358.90	9934.18	1091.29	1121.05	992.81	11.00	474307.31	779508.12	
10343.79	90.00	358.16	9936.00	1135.02	1119.93	1036.48	11.00	474351.04	779507.00	LP
10400.00	90.00	358.16	9936.00	1191.20	1118.13	1092.61	0.00	474407.22	779505.20	
10500.00	90.00	358.16	9936.00	1291.15	1114.92	1192.47	0.00	474507.17	779501.99	
10600.00	90.00	358.16	9936.00	1391.09	1111.72	1292.33	0.00	474607.11	779498.79	
10700.00	90.00	358.16	9936.00	1491.04	1108.51	1392.20	0.00	474707.06	779495.58	
10800.00	90.00	358.16	9936.00	1590.99	1105.30	1492.06	0.00	474807.01	779492.37	
10900.00	90.00	358.16	9936.00	1690.94	1102.10	1591.92	0.00	474906.96	779489.17	
11000.00	90.00	358.16	9936.00	1790.89	1098.89	1691.78	0.00	475006.91	779485.96	
11100.00	90.00	358.16	9936.00	1890.84	1095.69	1791.65	0.00	475106.86	779482.76	
11200.00	90.00	358.16	9936.00	1990.79	1092.48	1891.51	0.00	475206.81	779479.55	
11300.00	90.00	358.16	9936.00	2090.73	1089.28	1991.37	0.00	475306.75	779476.35	
11400.00	90.00	358.16	9936.00	2190.68	1086.07	2091.24	0.00	475406.70	779473.14	
11500.00	90.00	358.16	9936.00	2290.63	1082.86	2191.10	0.00	475506.65	779469.93	
11600.00	90.00	358.16	9936.00	2390.58	1079.66	2290.96	0.00	475606.60	779466.73	
11700.00	90.00	358.16	9936.00	2490.53	1076.45	2390.82	0.00	475706.55	779463.52	
11800.00	90.00	358.16	9936.00	2590.48	1073.25	2490.69	0.00	475806.50	779460.32	
11900.00	90.00	358.16	9936.00	2690.43	1070.04	2590.55	0.00	475906.45	779457.11	
12000.00	90.00	358.16	9936.00	2790.37	1066.84	2690.41	0.00	476006.39	779453.91	
12100.00	90.00	358.16	9936.00	2890.32	1063.63	2790.27	0.00	476106.34	779450.70	
12200.00	90.00	358.16	9936.00	2990.27	1060.42	2890.14	0.00	476206.29	779447.49	
12300.00	90.00	358.16	9936.00	3090.22	1057.22	2990.00	0.00	476306.24	779444.29	
12400.00	90.00	358.16	9936.00	3190.17	1054.01	3089.86	0.00	476406.19	779441.08	
12500.00	90.00	358.16	9936.00	3290.12	1050.81	3189.73	0.00	476506.14	779437.88	

SD Plan Report

Interpolated 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)	VS (US ft)	DLS (%/100 US ft)	Northing (US ft)	Easting (US ft)	Comment	
12600.00	90.00	358.16	9936.00	3390.07	1047.60	3289.59	0.00	476606.09	779434.67		
12700.00	90.00	358.16	9936.00	3490.01	1044.40	3389.45	0.00	476706.03	779431.47		
12800.00	90.00	358.16	9936.00	3589.96	1041.19	3489.31	0.00	476805.98	779428.26		
12900.00	90.00	358.16	9936.00	3689.91	1037.98	3589.18	0.00	476905.93	779425.05		
13000.00	90.00	358.16	9936.00	3789.86	1034.78	3689.04	0.00	477005.88	779421.85		
13100.00	90.00	358.16	9936.00	3889.81	1031.57	3788.90	0.00	477105.83	779418.64		
13200.00	90.00	358.16	9936.00	3989.76	1028.37	3888.76	0.00	477205.78	779415.44		
13300.00	90.00	358.16	9936.00	4089.71	1025.16	3988.63	0.00	477305.73	779412.23		
13400.00	90.00	358.16	9936.00	4189.65	1021.96	4088.49	0.00	477405.67	779409.03		
13500.00	90.00	358.16	9936.00	4289.60	1018.75	4188.35	0.00	477505.62	779405.82		
13600.00	90.00	358.16	9936.00	4389.55	1015.54	4288.21	0.00	477605.57	779402.61		
13700.00	90.00	358.16	9936.00	4489.50	1012.34	4388.08	0.00	477705.52	779399.41		
13800.00	90.00	358.16	9936.00	4589.45	1009.13	4487.94	0.00	477805.47	779396.20		
13900.00	90.00	358.16	9936.00	4689.40	1005.93	4587.80	0.00	477905.42	779393.00		
14000.00	90.00	358.16	9936.00	4789.35	1002.72	4687.67	0.00	478005.37	779389.79		
14100.00	90.00	358.16	9936.00	4889.30	999.51	4787.53	0.00	478105.32	779386.58		
14200.00	90.00	358.16	9936.00	4989.24	996.31	4887.39	0.00	478205.26	779383.38		
14300.00	90.00	358.16	9936.00	5089.19	993.10	4987.25	0.00	478305.21	779380.17		
14400.00	90.00	358.16	9936.00	5189.14	989.90	5087.12	0.00	478405.16	779376.97		
14500.00	90.00	358.16	9936.00	5289.09	986.69	5186.98	0.00	478505.11	779373.76		
14600.00	90.00	358.16	9936.00	5389.04	983.49	5286.84	0.00	478605.06	779370.56		
14700.00	90.00	358.16	9936.00	5488.99	980.28	5386.70	0.00	478705.01	779367.35		
14800.00	90.00	358.16	9936.00	5588.94	977.07	5486.57	0.00	478804.96	779364.14		
14900.00	90.00	358.16	9936.00	5688.88	973.87	5586.43	0.00	478904.90	779360.94		
15000.00	90.00	358.16	9936.00	5788.83	970.66	5686.29	0.00	479004.85	779357.73		
15100.00	90.00	358.16	9936.00	5888.78	967.46	5786.16	0.00	479104.80	779354.53		
15200.00	90.00	358.16	9936.00	5988.73	964.25	5886.02	0.00	479204.75	779351.32		
15300.00	90.00	358.16	9936.00	6088.68	961.05	5985.88	0.00	479304.70	779348.12		
15400.00	90.00	358.16	9936.00	6188.63	957.84	6085.74	0.00	479404.65	779344.91		
15500.00	90.00	358.16	9936.00	6288.58	954.63	6185.61	0.00	479504.60	779341.70		
15600.00	90.00	358.16	9936.00	6388.52	951.43	6285.47	0.00	479604.54	779338.50		
15700.00	90.00	358.16	9936.00	6488.47	948.22	6385.33	0.00	479704.49	779335.29		
15800.00	90.00	358.16	9936.00	6588.42	945.02	6485.19	0.00	479804.44	779332.09		
15900.00	90.00	358.16	9936.00	6688.37	941.81	6585.06	0.00	479904.39	779328.88		
16000.00	90.00	358.16	9936.00	6788.32	938.61	6684.92	0.00	480004.34	779325.68		
16100.00	90.00	358.16	9936.00	6888.27	935.40	6784.78	0.00	480104.29	779322.47		
16200.00	90.00	358.16	9936.00	6988.22	932.19	6884.64	0.00	480204.24	779319.26		
16300.00	90.00	358.16	9936.00	7088.16	928.99	6984.51	0.00	480304.18	779316.06		
16400.00	90.00	358.16	9936.00	7188.11	925.78	7084.37	0.00	480404.13	779312.85		
16500.00	90.00	358.16	9936.00	7288.06	922.58	7184.23	0.00	480504.08	779309.65		
16600.00	90.00	358.16	9936.00	7388.01	919.37	7284.10	0.00	480604.03	779306.44		
16700.00	90.00	358.16	9936.00	7487.96	916.17	7383.96	0.00	480703.98	779303.24		
16800.00	90.00	358.16	9936.00	7587.91	912.96	7483.82	0.00	480803.93	779300.03		
16900.00	90.00	358.16	9936.00	7687.86	909.75	7583.68	0.00	480903.88	779296.82		
17000.00	90.00	358.16	9936.00	7787.80	906.55	7683.55	0.00	481003.82	779293.62		
17100.00	90.00	358.16	9936.00	7887.75	903.34	7783.41	0.00	481103.77	779290.41		
17200.00	90.00	358.16	9936.00	7987.70	900.14	7883.27	0.00	481203.72	779287.21		
17300.00	90.00	358.16	9936.00	8087.65	896.93	7983.13	0.00	481303.67	779284.00		
17400.00	90.00	358.16	9936.00	8187.60	893.73	8083.00	0.00	481403.62	779280.80		
17500.00	90.00	358.16	9936.00	8287.55	890.52	8182.86	0.00	481503.57	779277.59		
17600.00	90.00	358.16	9936.00	8387.50	887.31	8282.72	0.00	481603.52	779274.38		
17700.00	90.00	358.16	9936.00	8487.44	884.11	8382.58	0.00	481703.46	779271.18		
17800.00	90.00	358.16	9936.00	8587.39	880.90	8482.45	0.00	481803.41	779267.97		
17900.00	90.00	358.16	9936.00	8687.34	877.70	8582.31	0.00	481903.36	779264.77		
18000.00	90.00	358.16	9936.00	8787.29	874.49	8682.17	0.00	482003.31	779261.56		
18100.00	90.00	358.16	9936.00	8887.24	871.29	8782.04	0.00	482103.26	779258.36		
18200.00	90.00	358.16	9936.00	8987.19	868.08	8881.90	0.00	482203.21	779255.15		
18300.00	90.00	358.16	9936.00	9087.14	864.87	8981.76	0.00	482303.16	779251.94		
18400.00	90.00	358.16	9936.00	9187.08	861.67	9081.62	0.00	482403.10	779248.74		

5D Plan Report

Interpolated Points (Relative to Slot centre, TVD relative to Kelly Bushing)										
MD (US ft)	Incl (°)	WZ (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (%/100 US ft)	Northing (US ft)	Easting (US ft)	Comment
18500.00	90.00	358.16	9936.00	9287.03	858.46	9181.49	0.00	482503.05	779245.53	
18600.00	90.00	358.16	9936.00	9386.98	855.26	9281.35	0.00	482603.00	779242.33	
18700.00	90.00	358.16	9936.00	9486.93	852.05	9381.21	0.00	482702.95	779239.12	
18800.00	90.00	358.16	9936.00	9586.88	848.85	9481.07	0.00	482802.90	779235.92	
18900.00	90.00	358.16	9936.00	9686.83	845.64	9580.94	0.00	482902.85	779232.71	
19000.00	90.00	358.16	9936.00	9786.78	842.43	9680.80	0.00	483002.80	779229.50	
19037.24	90.00	358.16	9936.00	9824.00	841.24	9717.99	0.00	483040.02	779228.31	PBHL 2H

5D Anti-Collision Report**Devon Energy****Field Name:** *Lea Co, NM Nad 83 NMEZ***Site Name:** *North Thistle 15-10 State Com 1H,2H Pad***Well Name:** *North Thistle 15-10 State Com 2H*

14 May 2015





Weatherford

North Thistle 15-10 State Com 2H

Field Name Lea Co. NM Nad 83 NMEZ	Map Units : US ft	Company Name : Devon Energy
	Vertical Reference Datum (VRD) : Mean Sea Level	
	Projected Coordinate System : NAD83 / New Mexico East (ftUS)	
	Comment :	
Site Name North Thistle 15-10 State Com 1H-2H Pad	Units : US ft	North Reference : Grid
	Convergence Angle : 0.41	
	Position	Northing : 473219.69 US ft
		Latitude : 32° 17' 55.05"
	Easting : 778337.06 US ft	Longitude : -103° 33' 58.69"
	Elevation above Mean Sea Level: 3710.00 US ft	
	Comment :	
Slot Name North Thistle 15-10 State Com 2H	Position (Offsets relative to Site Centre)	
	+N / -S : 3.67 US ft	Northing : 473216.02 US ft
		Latitude : 32° 17' 55.01"
	+E / -W : 50.01 US ft	Easting : 778387.07 US ft
		Longitude : -103° 33' 58.11"
	Slot TVD Reference : Ground Elevation	
	Elevation above Mean Sea Level : 3711.00 US ft	
	Comment :	
Well Name North Thistle 15-10 State Com 2H	Type : Main well	UWI :
	Rig Height : Kelly Bushing : 25.00 US ft	Plan : Working Plan
	Relative to Mean Sea Level: 3736.00 US ft	Comment :
	Closure Distance : 9859.95 US ft	Closure Azimuth : 4.89436°
	Vertical Section (Position of Origin Relative to Slot)	
	+N / -S : 0.00 US ft	+E / -W : 0.00 US ft
		Az : 355.16°
	Magnetic Parameters	
	Model : BGGM	Field Strength : 48219.5nT
	Dec : 7.27°	Dip : 60.15°
		Date : 31/Jul/2015

Collision / Uncertainty Analysis				
Primary Well	Start MD (US ft)	End MD (US ft)	Collision Risk Interval	No. of Std Deviations in Error Computation
North Thistle 15-10 State Com 2H (p)	0.00	19037.24	100.00	2

Secondary Well Names
North Thistle 15-10 State Com 1H Lat (p)
North Thistle 15-10 State Com 1H Pilot (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 extremities of 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

Separation factors calculated using Pedal Curve (Independent Uncertainty). Well path created using minimum curvature.

5D Anti-Collision Report

Anti-Collision Proximity Summary (TVD Relative to Kelly Bushing)

Secondary Well Name	Pri MD (US ft)	Sec MD (US ft)	TVD (US ft)	CC (US ft)	ES (US ft)	SF	Risk
North Thistle 15-10 State Com 1H Pilot (p)	8774.22	8783.76	8681.43	95.66	52.72	2.23	
North Thistle 15-10 State Com 1H Lat (p)	19037.24	19477.22	9936.00	356.00	215.51	2.53	

Primary Well: North Thistle 15-10 State Com 2H (p) (TVD Relative to Kelly Bushing) All Azimuth Relative to GRID (NORTH)

MD (US ft)	TVD (US ft)	T Face to Sec (°)	S Major (US ft)	S Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
0.00	0.00	274.20	0.00	0.00	North Thistle 15-10 State Com 1H Pilot (p)	50.15	49.59	88.51	
100.00	100.00	274.20	0.11	0.11	North Thistle 15-10 State Com 1H Pilot (p)	50.14	49.36	63.79	
200.00	200.00	274.20	0.34	0.34	North Thistle 15-10 State Com 1H Pilot (p)	50.14	48.91	40.65	
300.00	300.00	274.20	0.56	0.56	North Thistle 15-10 State Com 1H Pilot (p)	50.14	48.46	29.82	
400.00	400.00	274.20	0.79	0.79	North Thistle 15-10 State Com 1H Pilot (p)	50.14	48.01	23.54	
500.00	500.00	274.20	1.01	1.01	North Thistle 15-10 State Com 1H Pilot (p)	50.14	47.57	19.45	
600.00	600.00	274.20	1.24	1.24	North Thistle 15-10 State Com 1H Pilot (p)	50.14	47.12	16.57	
700.00	700.00	274.20	1.46	1.46	North Thistle 15-10 State Com 1H Pilot (p)	50.14	46.67	14.43	
800.00	800.00	274.20	1.69	1.69	North Thistle 15-10 State Com 1H Pilot (p)	50.14	46.22	12.78	
900.00	900.00	274.20	1.91	1.91	North Thistle 15-10 State Com 1H Pilot (p)	50.14	45.77	11.47	
1000.00	1000.00	274.20	2.14	2.14	North Thistle 15-10 State Com 1H Pilot (p)	50.14	45.32	10.40	
1100.00	1100.00	274.20	2.36	2.36	North Thistle 15-10 State Com 1H Pilot (p)	50.14	44.88	9.52	
1200.00	1200.00	274.20	2.59	2.59	North Thistle 15-10 State Com 1H Pilot (p)	50.14	44.43	8.77	
1300.00	1300.00	274.20	2.81	2.81	North Thistle 15-10 State Com 1H Pilot (p)	50.14	43.98	8.13	
1400.00	1400.00	274.20	3.03	3.03	North Thistle 15-10 State Com 1H Pilot (p)	50.14	43.53	7.58	
1500.00	1500.00	274.20	3.26	3.26	North Thistle 15-10 State Com 1H Pilot (p)	50.14	43.08	7.10	
1600.00	1600.00	274.20	3.48	3.48	North Thistle 15-10 State Com 1H Pilot (p)	50.14	42.63	6.68	

SD Anti-Collision Report

Primary Well: North Thistle 15-10 State Com 2H (p) (TVD Relative to Kelly Bushing, All Azimuth Relative to GRID NORTH)									
MD (US ft)	TVD (US ft)	T. Face to Sec (°)	S. Major (US ft)	S. Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
1700.00	1700.00	274.20	3.71	3.71	North Thistle 15-10 State Com 1H Pilot (p)	50.14	42.19	6.30	
1800.00	1800.00	274.20	3.93	3.93	North Thistle 15-10 State Com 1H Pilot (p)	50.14	41.74	5.96	
1900.00	1900.00	274.20	4.16	4.16	North Thistle 15-10 State Com 1H Pilot (p)	50.14	41.29	5.66	
2000.00	2000.00	274.20	4.38	4.38	North Thistle 15-10 State Com 1H Pilot (p)	50.14	40.84	5.39	
2100.00	2099.99	213.65	4.60	4.60	North Thistle 15-10 State Com 1H Pilot (p)	50.87	41.12	5.22	
2200.00	2199.96	212.09	4.81	4.81	North Thistle 15-10 State Com 1H Pilot (p)	53.07	42.87	5.20	
2300.00	2299.86	209.78	5.03	5.01	North Thistle 15-10 State Com 1H Pilot (p)	56.80	46.17	5.34	
2400.00	2399.68	207.44	5.25	5.22	North Thistle 15-10 State Com 1H Pilot (p)	61.23	50.16	5.53	
2500.00	2499.37	205.42	5.47	5.43	North Thistle 15-10 State Com 1H Pilot (p)	65.72	54.26	5.73	
2600.00	2598.90	203.67	5.70	5.63	North Thistle 15-10 State Com 1H Pilot (p)	70.28	58.37	5.90	
2700.00	2698.26	202.14	5.93	5.84	North Thistle 15-10 State Com 1H Pilot (p)	74.87	62.56	6.08	
2800.00	2797.40	200.79	6.18	6.05	North Thistle 15-10 State Com 1H Pilot (p)	79.50	66.75	6.23	
2900.00	2896.30	199.59	6.44	6.27	North Thistle 15-10 State Com 1H Pilot (p)	84.14	70.98	6.39	
3000.00	2994.93	198.53	6.72	6.48	North Thistle 15-10 State Com 1H Pilot (p)	88.80	75.22	6.54	
3100.00	3093.41	197.72	7.01	6.70	North Thistle 15-10 State Com 1H Pilot (p)	92.63	78.62	6.61	
3200.00	3191.89	197.30	7.31	6.93	North Thistle 15-10 State Com 1H Pilot (p)	94.78	80.33	6.56	
3300.00	3290.37	197.20	7.61	7.16	North Thistle 15-10 State Com 1H Pilot (p)	95.29	80.40	6.40	
3400.00	3388.85	197.20	7.92	7.39	North Thistle 15-10 State Com 1H Pilot (p)	95.29	79.94	6.21	
3500.00	3487.33	197.20	8.24	7.62	North Thistle 15-10 State Com 1H Pilot (p)	95.29	79.48	6.02	
3600.00	3585.82	197.20	8.57	7.86	North Thistle 15-10 State Com 1H Pilot (p)	95.29	79.01	5.85	

SD Anti-Collision Report

MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
3700.00	3684.30	197.20	8.90	8.10	North Thistle 15-10 State Com 1H Pilot (p)	95.29	78.53	5.69	
3800.00	3782.78	197.20	9.23	8.34	North Thistle 15-10 State Com 1H Pilot (p)	95.29	78.06	5.53	
3900.00	3881.26	197.20	9.57	8.58	North Thistle 15-10 State Com 1H Pilot (p)	95.29	77.57	5.38	
4000.00	3979.74	197.20	9.91	8.82	North Thistle 15-10 State Com 1H Pilot (p)	95.29	77.09	5.23	
4100.00	4078.22	197.20	10.25	9.06	North Thistle 15-10 State Com 1H Pilot (p)	95.29	76.59	5.10	
4200.00	4176.70	197.20	10.60	9.30	North Thistle 15-10 State Com 1H Pilot (p)	95.29	76.10	4.97	
4300.00	4275.18	197.20	10.95	9.55	North Thistle 15-10 State Com 1H Pilot (p)	95.29	75.61	4.84	
4400.00	4373.66	197.20	11.30	9.79	North Thistle 15-10 State Com 1H Pilot (p)	95.29	75.10	4.72	
4500.00	4472.14	197.20	11.66	10.03	North Thistle 15-10 State Com 1H Pilot (p)	95.29	74.60	4.61	
4600.00	4570.62	197.20	12.01	10.28	North Thistle 15-10 State Com 1H Pilot (p)	95.29	74.09	4.50	
4700.00	4669.10	197.20	12.37	10.52	North Thistle 15-10 State Com 1H Pilot (p)	95.29	73.59	4.39	
4800.00	4767.58	197.20	12.73	10.77	North Thistle 15-10 State Com 1H Pilot (p)	95.29	73.08	4.29	
4900.00	4866.07	197.20	13.09	11.02	North Thistle 15-10 State Com 1H Pilot (p)	95.29	72.57	4.19	
5000.00	4964.55	197.20	13.46	11.26	North Thistle 15-10 State Com 1H Pilot (p)	95.29	72.06	4.10	
5100.00	5063.03	197.20	13.82	11.51	North Thistle 15-10 State Com 1H Pilot (p)	95.29	71.54	4.01	
5200.00	5161.51	197.20	14.19	11.76	North Thistle 15-10 State Com 1H Pilot (p)	95.29	71.03	3.93	
5300.00	5259.99	197.20	14.55	12.01	North Thistle 15-10 State Com 1H Pilot (p)	95.29	70.52	3.85	
5400.00	5358.47	197.20	14.92	12.26	North Thistle 15-10 State Com 1H Pilot (p)	95.29	70.00	3.77	
5500.00	5456.95	197.20	15.29	12.50	North Thistle 15-10 State Com 1H Pilot (p)	95.29	69.49	3.69	
5600.00	5555.43	197.20	15.66	12.75	North Thistle 15-10 State Com 1H Pilot (p)	95.29	68.97	3.62	

5D Anti-Collision Report

Primary Well: North Thistle 15-10 State Com 2H (p) (TVD Relative to Kelly Bushing, All Azimuth Relative to GRID NORTH)									
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
5700.00	5653.91	197.20	16.03	13.00	North Thistle 15-10 State Com 1H Pilot (p)	95.29	68.45	3.55	
5800.00	5752.39	197.20	16.40	13.25	North Thistle 15-10 State Com 1H Pilot (p)	95.29	67.94	3.48	
5900.00	5850.87	197.20	16.77	13.50	North Thistle 15-10 State Com 1H Pilot (p)	95.29	67.42	3.42	
6000.00	5949.35	197.20	17.14	13.75	North Thistle 15-10 State Com 1H Pilot (p)	95.29	66.90	3.36	
6100.00	6047.83	197.20	17.51	14.00	North Thistle 15-10 State Com 1H Pilot (p)	95.29	66.38	3.30	
6200.00	6146.32	197.20	17.88	14.25	North Thistle 15-10 State Com 1H Pilot (p)	95.29	65.86	3.24	
6300.00	6244.80	197.20	18.26	14.50	North Thistle 15-10 State Com 1H Pilot (p)	95.29	65.34	3.18	
6400.00	6343.28	197.20	18.63	14.75	North Thistle 15-10 State Com 1H Pilot (p)	95.29	64.82	3.13	
6500.00	6441.76	197.20	19.01	15.00	North Thistle 15-10 State Com 1H Pilot (p)	95.29	64.30	3.07	
6600.00	6540.24	197.20	19.38	15.26	North Thistle 15-10 State Com 1H Pilot (p)	95.29	63.77	3.02	
6700.00	6638.72	197.20	19.76	15.51	North Thistle 15-10 State Com 1H Pilot (p)	95.29	63.25	2.97	
6800.00	6737.20	197.20	20.13	15.76	North Thistle 15-10 State Com 1H Pilot (p)	95.29	62.73	2.93	
6900.00	6835.68	197.20	20.51	16.01	North Thistle 15-10 State Com 1H Pilot (p)	95.29	62.20	2.88	
7000.00	6934.16	197.20	20.89	16.26	North Thistle 15-10 State Com 1H Pilot (p)	95.29	61.68	2.84	
7100.00	7032.64	197.20	21.26	16.51	North Thistle 15-10 State Com 1H Pilot (p)	95.29	61.16	2.79	
7200.00	7131.12	197.20	21.64	16.77	North Thistle 15-10 State Com 1H Pilot (p)	95.29	60.63	2.75	
7300.00	7229.60	197.20	22.02	17.02	North Thistle 15-10 State Com 1H Pilot (p)	95.29	60.11	2.71	
7400.00	7328.08	197.20	22.40	17.27	North Thistle 15-10 State Com 1H Pilot (p)	95.29	59.58	2.67	
7500.00	7426.57	197.20	22.77	17.52	North Thistle 15-10 State Com 1H Pilot (p)	95.29	59.06	2.63	
7600.00	7525.05	197.20	23.15	17.78	North Thistle 15-10 State Com 1H Pilot (p)	95.29	58.53	2.59	

5D Anti-Collision Report

Primary Well : North Thistle 15-10 State Com 2H (p) (TVD Relative to Kelly Bushing, All Azimuth Relative to GRID NORTH)									
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
7700.00	7623.53	197.20	23.53	18.03	North Thistle 15-10 State Com 1H Pilot (p)	95.29	58.01	2.56	
7800.00	7722.01	197.20	23.91	18.28	North Thistle 15-10 State Com 1H Pilot (p)	95.29	57.48	2.52	
7900.00	7820.49	197.20	24.29	18.53	North Thistle 15-10 State Com 1H Pilot (p)	95.29	56.95	2.49	
8000.00	7918.97	197.20	24.67	18.79	North Thistle 15-10 State Com 1H Pilot (p)	95.29	56.43	2.45	
8100.00	8017.45	197.20	25.05	19.04	North Thistle 15-10 State Com 1H Pilot (p)	95.29	55.90	2.42	
8200.00	8115.93	197.20	25.43	19.29	North Thistle 15-10 State Com 1H Pilot (p)	95.29	55.37	2.39	
8300.00	8214.41	197.20	25.81	19.55	North Thistle 15-10 State Com 1H Pilot (p)	95.29	54.85	2.36	
8400.00	8312.89	197.20	26.19	19.80	North Thistle 15-10 State Com 1H Pilot (p)	95.29	54.32	2.33	
8500.00	8411.37	197.20	26.57	20.05	North Thistle 15-10 State Com 1H Pilot (p)	95.29	53.79	2.30	
8600.00	8509.85	197.20	26.95	20.31	North Thistle 15-10 State Com 1H Pilot (p)	95.29	53.26	2.27	
8700.00	8608.33	197.20	27.33	20.56	North Thistle 15-10 State Com 1H Pilot (p)	95.29	52.74	2.24	
8800.00	8706.82	197.07	27.71	20.81	North Thistle 15-10 State Com 1H Pilot (p)	96.00	52.94	2.23	
8900.00	8805.30	196.66	28.09	21.07	North Thistle 15-10 State Com 1H Pilot (p)	98.35	54.86	2.26	
9000.00	8903.78	196.00	28.47	21.32	North Thistle 15-10 State Com 1H Pilot (p)	102.36	58.49	2.33	
9100.00	9002.26	195.16	28.85	21.57	North Thistle 15-10 State Com 1H Pilot (p)	108.03	63.85	2.45	
9200.00	9100.74	194.19	29.23	21.83	North Thistle 15-10 State Com 1H Pilot (p)	115.37	70.93	2.60	
9300.00	9199.22	193.16	29.61	22.08	North Thistle 15-10 State Com 1H Pilot (p)	124.40	79.69	2.78	
9400.00	9297.70	192.12	30.00	22.34	North Thistle 15-10 State Com 1H Pilot (p)	135.11	90.05	3.00	
9500.00	9396.18	191.11	30.38	22.59	North Thistle 15-10 State Com 1H Pilot (p)	147.52	102.13	3.25	
9600.00	9494.56	205.04	30.71	22.81	North Thistle 15-10 State Com 1H Pilot (p)	161.90	116.24	3.55	

SD Anti-Collision Report

Primary Well: North Thistle 15-10 State Com 2H (p) (TVD Relative to Kelly Bushing / All Azimuth Relative to GRID NORTH)									
MD (US ft)	TVD (US ft)	T. Face to Sec (°)	S. Major (US ft)	S. Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
9700.00	9590.43	224.14	30.49	22.88	North Thistle 15-10 State Com 1H Pilot (p)	183.01	137.38	4.01	
9800.00	9680.07	227.12	29.95	22.85	North Thistle 15-10 State Com 1H Pilot (p)	215.01	168.85	4.66	
9900.00	9760.21	226.49	29.15	22.33	North Thistle 15-10 State Com 1H Pilot (p)	260.35	212.91	5.49	
10000.00	9827.90	226.52	28.64	21.11	North Thistle 15-10 State Com 1H Lat (p)	320.21	271.10	6.52	
10100.00	9880.64	219.34	28.58	19.36	North Thistle 15-10 State Com 1H Lat (p)	386.58	336.28	7.69	
10200.00	9916.51	239.65	28.98	17.34	North Thistle 15-10 State Com 1H Pilot (p)	476.82	424.81	9.17	
10300.00	9934.18	258.48	29.79	15.73	North Thistle 15-10 State Com 1H Pilot (p)	567.04	513.99	10.69	
10400.00	9936.00	206.66	30.77	15.37	North Thistle 15-10 State Com 1H Lat (p)	458.97	415.99	10.68	
10500.00	9936.00	206.43	32.05	15.61	North Thistle 15-10 State Com 1H Lat (p)	457.34	413.24	10.37	
10600.00	9936.00	206.19	33.31	15.91	North Thistle 15-10 State Com 1H Lat (p)	455.72	410.49	10.08	
10700.00	9936.00	205.96	34.55	16.23	North Thistle 15-10 State Com 1H Lat (p)	454.11	407.74	9.79	
10800.00	9936.00	205.72	35.86	16.54	North Thistle 15-10 State Com 1H Lat (p)	452.51	404.92	9.51	
10900.00	9936.00	205.48	37.31	16.89	North Thistle 15-10 State Com 1H Lat (p)	450.91	402.09	9.24	
11000.00	9936.00	205.24	38.76	17.27	North Thistle 15-10 State Com 1H Lat (p)	449.32	399.20	8.96	
11100.00	9936.00	205.00	40.21	17.66	North Thistle 15-10 State Com 1H Lat (p)	447.74	396.28	8.70	
11200.00	9936.00	204.76	41.66	18.07	North Thistle 15-10 State Com 1H Lat (p)	446.17	393.36	8.45	
11300.00	9936.00	204.51	43.11	18.53	North Thistle 15-10 State Com 1H Lat (p)	444.60	390.45	8.21	
11400.00	9936.00	204.26	44.59	18.98	North Thistle 15-10 State Com 1H Lat (p)	443.05	387.53	7.98	
11500.00	9936.00	204.02	46.20	19.48	North Thistle 15-10 State Com 1H Lat (p)	441.50	384.62	7.76	
11600.00	9936.00	203.77	47.82	19.98	North Thistle 15-10 State Com 1H Lat (p)	439.96	381.71	7.55	

5D Anti-Collision Report

Primary Well	North Thistle 15-10 State Com 2H (p)	(IVD Relative to Kelly Buslin G)	All Azimuth Relative to GRID NORTH							
ID (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk	
11700.00	9936.00	203.51	49.43	20.48	North Thistle 15-10 State Com 1H Lat (p)	438.43	378.82	7.36		
11800.00	9936.00	203.26	51.06	20.98	North Thistle 15-10 State Com 1H Lat (p)	436.91	375.96	7.17		
11900.00	9936.00	203.00	52.68	21.50	North Thistle 15-10 State Com 1H Lat (p)	435.39	373.12	6.99		
12000.00	9936.00	202.75	54.31	22.10	North Thistle 15-10 State Com 1H Lat (p)	433.89	370.33	6.83		
12100.00	9936.00	202.49	55.95	22.69	North Thistle 15-10 State Com 1H Lat (p)	432.39	367.59	6.67		
12200.00	9936.00	202.23	57.58	23.26	North Thistle 15-10 State Com 1H Lat (p)	430.90	364.84	6.52		
12300.00	9936.00	201.96	59.23	23.79	North Thistle 15-10 State Com 1H Lat (p)	429.43	361.85	6.36		
12400.00	9936.00	201.70	60.87	24.43	North Thistle 15-10 State Com 1H Lat (p)	427.96	358.91	6.20		
12500.00	9936.00	201.43	62.52	25.07	North Thistle 15-10 State Com 1H Lat (p)	426.50	356.03	6.05		
12600.00	9936.00	201.16	64.18	25.67	North Thistle 15-10 State Com 1H Lat (p)	425.05	353.23	5.92		
12700.00	9936.00	200.89	65.83	26.23	North Thistle 15-10 State Com 1H Lat (p)	423.60	350.51	5.80		
12800.00	9936.00	200.62	67.50	26.93	North Thistle 15-10 State Com 1H Lat (p)	422.17	347.87	5.68		
12900.00	9936.00	200.35	69.25	27.43	North Thistle 15-10 State Com 1H Lat (p)	420.75	345.18	5.57		
13000.00	9936.00	200.07	71.00	28.02	North Thistle 15-10 State Com 1H Lat (p)	419.34	342.52	5.46		
13100.00	9936.00	199.79	72.76	28.58	North Thistle 15-10 State Com 1H Lat (p)	417.93	339.84	5.35		
13200.00	9936.00	199.51	74.52	29.27	North Thistle 15-10 State Com 1H Lat (p)	416.54	337.17	5.25		
13300.00	9936.00	199.23	76.28	29.95	North Thistle 15-10 State Com 1H Lat (p)	415.16	334.55	5.15		
13400.00	9936.00	198.95	78.04	30.60	North Thistle 15-10 State Com 1H Lat (p)	413.79	331.93	5.06		
13500.00	9936.00	198.66	79.81	31.24	North Thistle 15-10 State Com 1H Lat (p)	412.42	329.35	4.96		
13600.00	9936.00	198.38	81.58	31.86	North Thistle 15-10 State Com 1H Lat (p)	411.07	326.76	4.88		

5D Anti-Collision Report

Primary Well: North Thistle 15-10 State Com 2H (p) (TVD Relative to Kelly Bushing) All Azimuth Relative to GRID NORTH									
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
13700.00	9936.00	198.09	83.35	32.47	North Thistle 15-10 State Com 1H Lat (p)	409.73	324.20	4.79	
13800.00	9936.00	197.80	85.12	33.10	North Thistle 15-10 State Com 1H Lat (p)	408.40	321.67	4.71	
13900.00	9936.00	197.51	86.90	33.80	North Thistle 15-10 State Com 1H Lat (p)	407.08	319.18	4.63	
14000.00	9936.00	197.21	88.68	34.50	North Thistle 15-10 State Com 1H Lat (p)	405.76	316.72	4.56	
14100.00	9936.00	196.91	90.46	35.19	North Thistle 15-10 State Com 1H Lat (p)	404.47	314.30	4.49	
14200.00	9936.00	196.62	92.24	35.87	North Thistle 15-10 State Com 1H Lat (p)	403.18	311.90	4.42	
14300.00	9936.00	196.32	94.02	36.55	North Thistle 15-10 State Com 1H Lat (p)	401.90	309.50	4.35	
14400.00	9936.00	196.01	95.81	37.23	North Thistle 15-10 State Com 1H Lat (p)	400.63	307.13	4.28	
14500.00	9936.00	195.71	97.60	37.90	North Thistle 15-10 State Com 1H Lat (p)	399.38	304.80	4.22	
14600.00	9936.00	195.40	99.38	38.57	North Thistle 15-10 State Com 1H Lat (p)	398.13	302.51	4.16	
14700.00	9936.00	195.10	101.18	39.25	North Thistle 15-10 State Com 1H Lat (p)	396.90	300.25	4.11	
14800.00	9936.00	194.79	102.97	39.92	North Thistle 15-10 State Com 1H Lat (p)	395.68	298.03	4.05	
14900.00	9936.00	194.48	104.76	40.59	North Thistle 15-10 State Com 1H Lat (p)	394.47	295.81	4.00	
15000.00	9936.00	194.16	106.55	41.27	North Thistle 15-10 State Com 1H Lat (p)	393.27	293.63	3.95	
15100.00	9936.00	193.85	108.35	41.94	North Thistle 15-10 State Com 1H Lat (p)	392.09	291.49	3.90	
15200.00	9936.00	193.53	110.15	42.61	North Thistle 15-10 State Com 1H Lat (p)	390.91	289.35	3.85	
15300.00	9936.00	193.21	111.95	43.29	North Thistle 15-10 State Com 1H Lat (p)	389.75	287.16	3.80	
15400.00	9936.00	192.89	113.75	43.96	North Thistle 15-10 State Com 1H Lat (p)	388.60	284.94	3.75	
15500.00	9936.00	192.57	115.55	44.64	North Thistle 15-10 State Com 1H Lat (p)	387.46	282.76	3.70	
15600.00	9936.00	192.24	117.35	45.32	North Thistle 15-10 State Com 1H Lat (p)	386.34	280.60	3.65	

SD Anti-Collision Report

Primary Well: North Thistle 15-10 State Com 2H (p) (TVD Relative to Kelly Bushing, All Azimuth Relative to GRID NORTH)									
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
15700.00	9936.00	191.91	119.15	46.00	North Thistle 15-10 State Com 1H Lat (p)	385.23	278.48	3.61	
15800.00	9936.00	191.58	120.95	46.69	North Thistle 15-10 State Com 1H Lat (p)	384.13	276.40	3.57	
15900.00	9936.00	191.25	122.76	47.40	North Thistle 15-10 State Com 1H Lat (p)	383.04	274.35	3.52	
16000.00	9936.00	190.92	124.56	48.11	North Thistle 15-10 State Com 1H Lat (p)	381.97	272.34	3.48	
16100.00	9936.00	190.59	126.37	48.82	North Thistle 15-10 State Com 1H Lat (p)	380.90	270.36	3.45	
16200.00	9936.00	190.25	128.18	49.53	North Thistle 15-10 State Com 1H Lat (p)	379.86	268.42	3.41	
16300.00	9936.00	189.91	129.99	50.24	North Thistle 15-10 State Com 1H Lat (p)	378.82	266.52	3.37	
16400.00	9936.00	189.57	131.79	50.95	North Thistle 15-10 State Com 1H Lat (p)	377.80	264.66	3.34	
16500.00	9936.00	189.23	133.60	51.66	North Thistle 15-10 State Com 1H Lat (p)	376.79	262.83	3.31	
16600.00	9936.00	188.89	135.41	52.37	North Thistle 15-10 State Com 1H Lat (p)	375.80	261.02	3.27	
16700.00	9936.00	188.54	137.22	53.08	North Thistle 15-10 State Com 1H Lat (p)	374.81	259.09	3.24	
16800.00	9936.00	188.20	139.04	53.79	North Thistle 15-10 State Com 1H Lat (p)	373.85	257.09	3.20	
16900.00	9936.00	187.85	140.85	54.51	North Thistle 15-10 State Com 1H Lat (p)	372.89	255.13	3.17	
17000.00	9936.00	187.50	142.66	55.22	North Thistle 15-10 State Com 1H Lat (p)	371.95	253.20	3.13	
17100.00	9936.00	187.14	144.47	55.93	North Thistle 15-10 State Com 1H Lat (p)	371.03	251.30	3.10	
17200.00	9936.00	186.79	146.29	56.64	North Thistle 15-10 State Com 1H Lat (p)	370.11	249.43	3.07	
17300.00	9936.00	186.43	148.10	57.36	North Thistle 15-10 State Com 1H Lat (p)	369.22	247.60	3.04	
17400.00	9936.00	186.08	149.92	58.07	North Thistle 15-10 State Com 1H Lat (p)	368.33	245.80	3.01	
17500.00	9936.00	185.72	151.73	58.78	North Thistle 15-10 State Com 1H Lat (p)	367.46	244.04	2.98	
17600.00	9936.00	185.36	153.55	59.50	North Thistle 15-10 State Com 1H Lat (p)	366.61	242.31	2.95	

5D Anti-Collision Report

Primary Well: North Thistle 15-10 State Com 2H (p) (TVD Relative to Kelly Bushing, All Azimuth Relative to GRID NORTH)									
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
17700.00	9936.00	184.99	155.37	60.21	North Thistle 15-10 State Com 1H Lat (p)	365.77	240.62	2.92	
17800.00	9936.00	184.63	157.18	60.93	North Thistle 15-10 State Com 1H Lat (p)	364.94	238.90	2.90	
17900.00	9936.00	184.26	159.00	61.64	North Thistle 15-10 State Com 1H Lat (p)	364.13	236.96	2.86	
18000.00	9936.00	183.89	160.82	62.36	North Thistle 15-10 State Com 1H Lat (p)	363.34	235.01	2.83	
18100.00	9936.00	183.53	162.64	63.08	North Thistle 15-10 State Com 1H Lat (p)	362.56	233.08	2.80	
18200.00	9936.00	183.15	164.46	63.79	North Thistle 15-10 State Com 1H Lat (p)	361.79	231.18	2.77	
18300.00	9936.00	182.78	166.28	64.51	North Thistle 15-10 State Com 1H Lat (p)	361.04	229.31	2.74	
18400.00	9936.00	182.41	168.09	65.23	North Thistle 15-10 State Com 1H Lat (p)	360.31	227.47	2.71	
18500.00	9936.00	182.03	169.91	65.94	North Thistle 15-10 State Com 1H Lat (p)	359.59	225.66	2.68	
18600.00	9936.00	181.66	171.74	66.66	North Thistle 15-10 State Com 1H Lat (p)	358.89	223.87	2.66	
18700.00	9936.00	181.28	173.56	67.38	North Thistle 15-10 State Com 1H Lat (p)	358.20	222.12	2.63	
18800.00	9936.00	180.90	175.38	68.10	North Thistle 15-10 State Com 1H Lat (p)	357.53	220.40	2.61	
18900.00	9936.00	180.52	177.20	68.82	North Thistle 15-10 State Com 1H Lat (p)	356.87	218.42	2.58	
19000.00	9936.00	180.13	179.02	69.54	North Thistle 15-10 State Com 1H Lat (p)	356.23	216.33	2.55	
19037.24	9936.00	180.00	179.70	69.80	North Thistle 15-10 State Com 1H Lat (p)	356.00	215.51	2.53	

Secondary Well: North Thistle 15-10 State Com 1H Lat (p) (TVD Relative to Kelly Bushing (Primary), All Azimuth Relative to GRID NORTH)									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
0.00	9825.93	9917.56	58.50	29.27	22.59	9884.65	9869.52	653.25	
100.00	9825.93	9917.56	58.50	29.27	22.59	9785.25	9767.83	561.86	
200.00	9825.93	9917.56	58.50	29.27	22.59	9685.86	9668.44	555.85	
300.00	9825.93	9917.56	58.50	29.27	22.59	9586.49	9569.05	549.64	
400.00	9825.93	9917.56	58.50	29.27	22.59	9487.12	9469.66	543.25	
500.00	9825.93	9917.56	58.50	29.27	22.59	9387.78	9370.29	536.72	
600.00	9825.93	9917.56	58.50	29.27	22.59	9288.44	9270.92	530.05	
700.00	9825.93	9917.56	58.50	29.27	22.59	9189.12	9171.56	523.25	
800.00	9825.93	9917.56	58.50	29.27	22.59	9089.82	9072.21	516.36	
900.00	9825.93	9917.56	58.50	29.27	22.59	8990.53	8972.88	509.34	
1000.00	9825.93	9917.56	58.50	29.27	22.59	8891.26	8873.55	502.17	

SD Anti-Collision Report

Secondary Well	North Thistle 15-10 State Comp	HL (p)	TVD Relative to Kelly Bushing (Primary)	All Azimuth Relative to GRID NORTH						
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T Face to Sec (°)	S Major (US ft)	S Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk	
1100.00	9825.93	9917.56	58.50	29.27	22.59	8792.00	8774.23	494.94		
1200.00	9825.93	9917.56	58.50	29.27	22.59	8692.76	8674.93	487.67		
1300.00	9825.93	9917.56	58.50	29.27	22.59	8593.54	8575.65	480.38		
1400.00	9825.93	9917.56	58.50	29.27	22.59	8494.33	8476.38	473.06		
1500.00	9825.93	9917.56	58.50	29.27	22.59	8395.15	8377.12	465.74		
1600.00	9825.93	9917.56	58.50	29.27	22.59	8295.98	8277.88	458.41		
1700.00	9825.93	9917.56	58.50	29.27	22.59	8196.84	8178.67	451.09		
1800.00	9825.93	9917.56	58.50	29.27	22.59	8097.71	8079.46	443.79		
1900.00	9825.93	9917.56	58.50	29.27	22.59	7998.61	7980.28	436.50		
2000.00	9825.93	9917.56	58.50	29.27	22.59	7899.53	7881.13	429.24		
2100.00	9825.93	9917.56	358.28	29.27	22.59	7800.36	7781.87	421.97		
2200.00	9825.93	9917.56	358.00	29.27	22.59	7700.99	7682.43	414.73		
2300.00	9825.93	9917.56	357.60	29.27	22.59	7601.46	7582.81	407.54		
2400.00	9825.93	9917.56	357.02	29.27	22.59	7501.79	7483.05	400.39		
2500.00	9825.93	9917.56	356.08	29.27	22.59	7401.99	7383.17	393.29		
2600.00	9825.93	9917.56	354.31	29.27	22.59	7302.11	7283.20	386.24		
2700.00	9825.93	9917.56	349.78	29.27	22.59	7202.15	7183.16	379.24		
2800.00	9825.93	9917.56	318.26	29.27	22.59	7102.17	7083.09	372.28		
2900.00	9825.93	9917.56	197.12	29.27	22.59	7002.17	6983.00	365.39		
3000.00	9825.93	9917.56	187.54	29.27	22.59	6902.19	6882.94	358.55		
3100.00	9825.93	9917.56	187.54	29.27	22.59	6802.24	6782.91	351.75		
3200.00	9825.93	9917.56	187.54	29.27	22.59	6702.29	6682.87	344.99		
3300.00	9825.93	9917.56	187.54	29.27	22.59	6602.35	6582.83	338.27		
3400.00	9825.93	9917.56	187.54	29.27	22.59	6502.40	6482.79	331.60		
3500.00	9825.93	9917.56	187.54	29.27	22.59	6402.45	6382.75	324.98		
3600.00	9825.93	9917.56	187.54	29.27	22.59	6302.51	6282.72	318.40		
3700.00	9825.93	9917.56	187.54	29.27	22.59	6202.57	6182.68	311.87		
3800.00	9825.93	9917.56	187.54	29.27	22.59	6102.63	6082.65	305.38		
3900.00	9825.93	9917.56	187.54	29.27	22.59	6002.69	5982.61	298.94		
4000.00	9825.93	9917.56	187.54	29.27	22.59	5902.76	5882.58	292.55		
4100.00	9825.93	9917.56	187.54	29.27	22.59	5802.83	5782.55	286.20		
4200.00	9825.93	9917.56	187.54	29.27	22.59	5702.90	5682.52	279.89		
4300.00	9825.93	9917.56	187.54	29.27	22.59	5602.97	5582.49	273.63		
4400.00	9825.93	9917.56	187.54	29.27	22.59	5503.04	5482.46	267.41		
4500.00	9825.93	9917.56	187.54	29.27	22.59	5403.12	5382.44	261.24		
4600.00	9825.93	9917.56	187.54	29.27	22.59	5303.20	5282.41	255.12		
4700.00	9825.93	9917.56	187.54	29.27	22.59	5203.29	5182.39	249.03		
4800.00	9825.93	9917.56	187.54	29.27	22.59	5103.37	5082.37	242.99		
4900.00	9825.93	9917.56	187.54	29.27	22.59	5003.46	4982.34	236.94		
5000.00	9825.93	9917.56	187.54	29.27	22.59	4903.56	4882.32	230.93		
5100.00	9825.93	9917.56	187.54	29.27	22.59	4803.65	4782.30	224.97		
5200.00	9825.93	9917.56	187.54	29.27	22.59	4703.76	4682.28	219.06		
5300.00	9825.93	9917.56	187.54	29.27	22.59	4603.86	4582.27	213.20		
5400.00	9825.93	9917.56	187.54	29.27	22.59	4503.97	4482.26	207.39		
5500.00	9825.93	9917.56	187.54	29.27	22.59	4404.09	4382.25	201.63		
5600.00	9825.93	9917.56	187.54	29.27	22.59	4304.21	4282.24	195.91		
5700.00	9825.93	9917.56	187.54	29.27	22.59	4204.34	4182.24	190.25		
5800.00	9825.93	9917.56	187.54	29.27	22.59	4104.47	4082.24	184.64		
5900.00	9825.93	9917.56	187.54	29.27	22.59	4004.61	3982.25	179.07		
6000.00	9825.93	9917.56	187.54	29.27	22.59	3904.76	3882.26	173.56		
6100.00	9825.93	9917.56	187.54	29.27	22.59	3804.92	3782.28	168.10		
6200.00	9825.93	9917.56	187.54	29.27	22.59	3705.08	3682.31	162.69		
6300.00	9825.93	9917.56	187.54	29.27	22.59	3605.25	3582.34	157.33		
6400.00	9825.93	9917.56	187.54	29.27	22.59	3505.43	3482.38	152.03		
6500.00	9825.93	9917.56	187.54	29.27	22.59	3405.63	3382.42	146.77		
6600.00	9825.93	9917.56	187.54	29.27	22.59	3305.83	3282.48	141.57		
6700.00	9825.93	9917.56	187.54	29.27	22.59	3206.05	3182.55	136.42		
6800.00	9825.93	9917.56	187.54	29.27	22.59	3106.28	3082.63	131.33		

5D Anti-Collision Report

Secondary Well	North Thistle 15-10 State Gem H Lat (p)	TVD Relative to Kelly Bushing (Primary)	All Azimuth Relative to GRID NORTH						
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T Face to Sec (°)	S Major (US ft)	S Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
6900.00	9825.93	9917.56	187.54	29.27	22.59	3006.53	2982.72	126.29	
7000.00	9825.93	9917.56	187.54	29.27	22.59	2906.79	2882.83	121.31	
7100.00	9825.93	9917.56	187.54	29.27	22.59	2807.08	2782.95	116.38	
7200.00	9825.93	9917.56	187.54	29.27	22.59	2707.38	2683.10	111.50	
7300.00	9825.93	9917.56	187.54	29.27	22.59	2607.71	2583.26	106.68	
7400.00	9825.93	9917.56	187.54	29.27	22.59	2508.06	2483.45	101.92	
7500.00	9825.93	9917.56	187.54	29.27	22.59	2408.44	2383.67	97.22	
7600.00	9825.93	9917.56	187.54	29.27	22.59	2308.86	2283.91	92.57	
7700.00	9825.93	9917.56	187.54	29.27	22.59	2209.31	2184.20	87.98	
7800.00	9825.93	9917.56	187.54	29.27	22.59	2109.80	2084.51	83.42	
7900.00	9825.93	9917.56	187.54	29.27	22.59	2010.35	1984.87	78.90	
8000.00	9825.93	9917.56	187.54	29.27	22.59	1910.95	1885.27	74.41	
8100.00	9825.93	9917.56	187.54	29.27	22.59	1811.62	1785.72	69.94	
8200.00	9825.93	9917.56	187.54	29.27	22.59	1712.36	1686.23	65.53	
8300.00	9825.93	9917.56	187.54	29.27	22.59	1613.20	1586.84	61.19	
8400.00	9825.93	9917.56	187.54	29.27	22.59	1514.15	1487.55	56.92	
8500.00	9825.93	9917.56	187.54	29.27	22.59	1415.23	1388.38	52.71	
8600.00	9825.93	9917.56	187.54	29.27	22.59	1316.47	1289.37	48.57	
8700.00	9825.93	9917.56	187.54	29.27	22.59	1217.92	1190.56	44.50	
8800.00	9825.93	9917.56	187.54	29.27	22.59	1119.63	1091.99	40.51	
8900.00	9825.93	9917.56	187.54	29.27	22.59	1021.66	993.71	36.56	
9000.00	9825.93	9917.56	187.54	29.27	22.59	924.13	895.78	32.60	
9100.00	9825.93	9917.56	187.54	29.27	22.59	827.19	798.35	28.68	
9200.00	9825.93	9917.56	187.54	29.27	22.59	731.08	701.70	24.89	
9300.00	9825.93	9917.56	187.54	29.27	22.59	636.17	606.10	21.16	
9400.00	9825.93	9917.56	187.54	29.27	22.59	543.08	511.94	17.44	
9500.00	9825.93	9917.56	187.54	29.27	22.59	452.95	420.34	13.89	
9600.00	9825.93	9917.56	197.62	29.27	22.59	368.17	333.27	10.55	
9700.00	9825.93	9917.56	210.25	29.27	22.59	298.19	259.46	7.70	
9800.00	9825.93	9917.56	214.60	29.27	22.59	259.81	216.09	5.94	
9900.00	9825.93	9917.56	219.28	29.27	22.59	268.52	221.00	5.65	
10000.00	9829.74	9921.36	226.52	29.27	22.61	320.21	271.10	6.52	
10100.00	9973.80	10067.49	219.34	28.92	23.08	386.58	336.28	7.69	
10200.00	10192.03	10323.53	210.63	27.10	22.35	443.63	397.69	9.66	
10300.00	10346.75	10744.92	206.87	29.95	16.17	462.10	420.18	11.03	
10400.00	10346.13	10844.84	206.66	31.18	16.37	458.97	415.99	10.68	
10500.00	10345.50	10944.81	206.43	32.36	16.59	457.34	413.24	10.37	
10600.00	10344.87	11044.77	206.19	33.54	16.82	455.72	410.49	10.08	
10700.00	10344.25	11144.74	205.96	34.94	17.13	454.11	407.74	9.79	
10800.00	10343.62	11244.71	205.72	36.33	17.47	452.51	404.92	9.51	
10900.00	10342.99	11344.68	205.48	37.72	17.83	450.91	402.09	9.24	
11000.00	10342.37	11444.65	205.24	39.11	18.21	449.32	399.20	8.96	
11100.00	10341.74	11544.62	205.00	40.51	18.61	447.74	396.28	8.70	
11200.00	10341.11	11644.59	204.76	41.99	18.97	446.17	393.36	8.45	
11300.00	10340.49	11744.56	204.51	43.56	19.38	444.60	390.45	8.21	
11400.00	10339.86	11844.53	204.26	45.14	19.80	443.05	387.53	7.98	
11500.00	10339.23	11944.50	204.02	46.72	20.30	441.50	384.62	7.76	
11600.00	10338.60	12044.47	203.77	48.30	20.81	439.96	381.71	7.55	
11700.00	10337.98	12144.44	203.51	49.89	21.32	438.43	378.82	7.36	
11800.00	10337.35	12244.41	203.26	51.49	21.81	436.91	375.96	7.17	
11900.00	10336.72	12344.38	203.00	53.10	22.29	435.39	373.12	6.99	
12000.00	10336.10	12444.35	202.75	54.71	22.90	433.89	370.33	6.83	
12100.00	10335.47	12544.32	202.49	56.32	23.47	432.39	367.59	6.67	
12200.00	10334.84	12644.29	202.23	57.94	23.99	430.90	364.84	6.52	
12300.00	10334.22	12744.26	201.96	59.57	24.59	429.43	361.85	6.36	
12400.00	10333.59	12844.23	201.70	61.20	25.22	427.96	358.91	6.20	
12500.00	10332.96	12944.20	201.43	62.84	25.63	426.50	356.03	6.05	
12600.00	10332.34	13044.17	201.16	64.57	26.23	425.05	353.23	5.92	

SD Anti-Collision Report

Secondary Well North Thistle 15-10 State Com 1H Lat (p) (TVD Relative to Kelly Bushing (Primary)) All Azimuth Relative to GRID NORTH									
Pr MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
12700.00	10331.71	13144.14	200.89	66.30	26.86	423.60	350.51	5.80	
12800.00	10331.08	13244.11	200.62	68.03	27.44	422.17	347.87	5.68	
12900.00	10330.46	13344.08	200.35	69.76	27.97	420.75	345.18	5.57	
13000.00	10329.83	13444.04	200.07	71.50	28.65	419.34	342.52	5.46	
13100.00	10329.20	13544.01	199.79	73.25	29.30	417.93	339.84	5.35	
13200.00	10328.58	13643.98	199.51	74.99	29.93	416.54	337.17	5.25	
13300.00	10327.95	13743.95	199.23	76.74	30.53	415.16	334.55	5.15	
13400.00	10327.32	13843.92	198.95	78.50	31.12	413.79	331.93	5.06	
13500.00	10326.70	13943.89	198.66	80.25	31.73	412.42	329.35	4.96	
13600.00	10326.07	14043.86	198.38	82.01	32.41	411.07	326.76	4.88	
13700.00	10325.44	14143.83	198.09	83.77	33.09	409.73	324.20	4.79	
13800.00	10324.81	14243.80	197.80	85.54	33.76	408.40	321.67	4.71	
13900.00	10324.19	14343.77	197.51	87.30	34.42	407.08	319.18	4.63	
14000.00	10323.56	14443.74	197.21	89.07	35.08	405.76	316.72	4.56	
14100.00	10322.93	14543.71	196.91	90.84	35.74	404.47	314.30	4.49	
14200.00	10322.31	14643.68	196.62	92.61	36.40	403.18	311.90	4.42	
14300.00	10321.68	14743.65	196.32	94.39	37.05	401.90	309.50	4.35	
14400.00	10321.05	14843.62	196.01	96.16	37.71	400.63	307.13	4.28	
14500.00	10320.43	14943.59	195.71	97.94	38.37	399.38	304.80	4.22	
14600.00	10319.80	15043.56	195.40	99.72	39.03	398.13	302.51	4.16	
14700.00	10319.17	15143.53	195.10	101.50	39.69	396.90	300.25	4.11	
14800.00	10318.55	15243.50	194.79	103.29	40.35	395.68	298.03	4.05	
14900.00	10317.92	15343.47	194.48	105.07	41.01	394.47	295.81	4.00	
15000.00	10317.29	15443.44	194.16	106.86	41.67	393.27	293.63	3.95	
15100.00	10316.67	15543.41	193.85	108.64	42.33	392.09	291.49	3.90	
15200.00	10316.04	15643.38	193.53	110.43	43.00	390.91	289.35	3.85	
15300.00	10315.41	15743.35	193.21	112.22	43.68	389.75	287.16	3.80	
15400.00	10314.79	15843.32	192.89	114.01	44.38	388.60	284.94	3.75	
15500.00	10314.16	15943.28	192.57	115.80	45.08	387.46	282.76	3.70	
15600.00	10313.53	16043.25	192.24	117.60	45.78	386.34	280.60	3.65	
15700.00	10312.90	16143.22	191.91	119.39	46.48	385.23	278.48	3.61	
15800.00	10312.28	16243.19	191.58	121.19	47.18	384.13	276.40	3.57	
15900.00	10311.65	16343.16	191.25	122.98	47.88	383.04	274.35	3.52	
16000.00	10311.02	16443.13	190.92	124.78	48.58	381.97	272.34	3.48	
16100.00	10310.40	16543.10	190.59	126.58	49.28	380.90	270.36	3.45	
16200.00	10309.77	16643.07	190.25	128.37	49.98	379.86	268.42	3.41	
16300.00	10309.14	16743.04	189.91	130.17	50.69	378.82	266.52	3.37	
16400.00	10308.52	16843.01	189.57	131.97	51.39	377.80	264.66	3.34	
16500.00	10307.89	16942.98	189.23	133.77	52.09	376.79	262.83	3.31	
16600.00	10307.26	17042.95	188.89	135.58	52.80	375.80	261.02	3.27	
16700.00	10306.64	17142.92	188.54	137.38	53.50	374.81	259.09	3.24	
16800.00	10306.01	17242.89	188.20	139.18	54.21	373.85	257.09	3.20	
16900.00	10305.38	17342.86	187.85	140.98	54.92	372.89	255.13	3.17	
17000.00	10304.76	17442.83	187.50	142.79	55.62	371.95	253.20	3.13	
17100.00	10304.13	17542.80	187.14	144.59	56.33	371.03	251.30	3.10	
17200.00	10303.50	17642.77	186.79	146.40	57.04	370.11	249.43	3.07	
17300.00	10302.88	17742.74	186.43	148.20	57.75	369.22	247.60	3.04	
17400.00	10302.25	17842.71	186.08	150.01	58.46	368.33	245.80	3.01	
17500.00	10301.62	17942.68	185.72	151.82	59.17	367.46	244.04	2.98	
17600.00	10301.00	18042.65	185.36	153.63	59.88	366.61	242.31	2.95	
17700.00	10300.37	18142.62	184.99	155.43	60.59	365.77	240.62	2.92	
17800.00	10299.74	18242.59	184.63	157.24	61.30	364.94	238.90	2.90	
17900.00	10299.11	18342.55	184.26	159.05	62.01	364.13	236.96	2.86	
18000.00	10298.49	18442.52	183.89	160.86	62.72	363.34	235.01	2.83	
18100.00	10297.86	18542.49	183.53	162.67	63.43	362.56	233.08	2.80	
18200.00	10297.23	18642.46	183.15	164.48	64.15	361.79	231.18	2.77	
18300.00	10296.61	18742.43	182.78	166.29	64.86	361.04	229.31	2.74	
18400.00	10295.98	18842.40	182.41	168.10	65.57	360.31	227.47	2.71	

5D Anti-Collision Report

Secondary Well: North Thistle 15-10 State Com 1H Pilot (p) (TVD Relative to Kelly Bushing (Primary)) All Azimuth Relative to GRID NORTH									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
18500.00	10295.35	18942.37	182.03	169.91	66.29	359.59	225.66	2.68	
18600.00	10294.73	19042.34	181.66	171.73	67.00	358.89	223.87	2.66	
18700.00	10294.10	19142.31	181.28	173.54	67.72	358.20	222.12	2.63	
18800.00	10293.47	19242.28	180.90	175.35	68.43	357.53	220.40	2.61	
18900.00	10292.85	19342.25	180.52	177.16	69.15	356.87	218.42	2.58	
19000.00	10292.22	19442.22	180.13	178.98	69.86	356.23	216.33	2.55	
19037.24	10292.00	19477.22	180.00	179.61	70.11	356.00	215.51	2.53	

Secondary Well: North Thistle 15-10 State Com 1H Pilot (p) (TVD Relative to Kelly Bushing (Primary)) All Azimuth Relative to GRID NORTH									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
0.00	1.00	0.00	274.20	0.00	0.00	50.15	49.59	88.51	
100.00	100.00	99.00	274.20	0.11	0.11	50.14	49.36	63.79	
200.00	200.00	199.00	274.20	0.34	0.34	50.14	48.91	40.65	
300.00	300.00	299.00	274.20	0.56	0.56	50.14	48.46	29.82	
400.00	400.00	399.00	274.20	0.78	0.78	50.14	48.01	23.54	
500.00	500.00	499.00	274.20	1.01	1.01	50.14	47.57	19.45	
600.00	600.00	599.00	274.20	1.23	1.23	50.14	47.12	16.57	
700.00	700.00	699.00	274.20	1.46	1.46	50.14	46.67	14.43	
800.00	800.00	799.00	274.20	1.68	1.68	50.14	46.22	12.78	
900.00	900.00	899.00	274.20	1.91	1.91	50.14	45.77	11.47	
1000.00	1000.00	999.00	274.20	2.13	2.13	50.14	45.32	10.40	
1100.00	1100.00	1099.00	274.20	2.36	2.36	50.14	44.88	9.52	
1200.00	1200.00	1199.00	274.20	2.58	2.58	50.14	44.43	8.77	
1300.00	1300.00	1299.00	274.20	2.81	2.81	50.14	43.98	8.13	
1400.00	1400.00	1399.00	274.20	3.03	3.03	50.14	43.53	7.58	
1500.00	1500.00	1499.00	274.20	3.26	3.26	50.14	43.08	7.10	
1600.00	1600.00	1599.00	274.20	3.48	3.48	50.14	42.63	6.68	
1700.00	1700.00	1699.00	274.20	3.71	3.71	50.14	42.19	6.30	
1800.00	1800.00	1799.00	274.20	3.93	3.93	50.14	41.74	5.96	
1900.00	1900.00	1899.00	274.20	4.16	4.16	50.14	41.29	5.66	
2000.00	2000.00	1999.00	274.20	4.38	4.38	50.14	40.84	5.39	
2100.00	2099.99	2098.99	213.65	4.61	4.61	50.87	41.12	5.22	
2200.00	2199.96	2198.96	212.09	4.83	4.83	53.07	42.87	5.20	
2300.00	2299.96	2298.96	209.78	5.05	5.05	56.80	46.17	5.34	
2400.00	2400.74	2399.74	207.44	5.27	5.27	61.23	50.16	5.53	
2500.00	2501.57	2500.62	205.42	5.48	5.48	65.72	54.26	5.73	
2600.00	2602.43	2601.58	203.67	5.70	5.68	70.28	58.37	5.90	
2700.00	2703.28	2702.64	202.14	5.92	5.89	74.87	62.56	6.08	
2800.00	2804.09	2803.78	200.79	6.14	6.10	79.50	66.75	6.23	
2900.00	2904.83	2905.02	199.59	6.38	6.31	84.14	70.98	6.39	
3000.00	3005.46	3006.34	198.53	6.62	6.51	88.80	75.22	6.54	
3100.00	3105.99	3107.79	197.72	6.87	6.72	92.63	78.62	6.61	
3200.00	3206.38	3209.35	197.30	7.13	6.94	94.78	80.33	6.56	
3300.00	3306.18	3310.59	197.20	7.41	7.16	95.29	80.40	6.40	
3400.00	3404.66	3410.59	197.20	7.69	7.38	95.29	79.94	6.21	
3500.00	3503.14	3510.59	197.20	7.99	7.61	95.29	79.48	6.02	
3600.00	3601.62	3610.59	197.20	8.29	7.83	95.29	79.01	5.85	
3700.00	3700.10	3710.59	197.20	8.60	8.06	95.29	78.53	5.69	
3800.00	3798.58	3810.59	197.20	8.91	8.30	95.29	78.06	5.53	
3900.00	3897.06	3910.59	197.20	9.23	8.53	95.29	77.57	5.38	
4000.00	3995.55	4010.59	197.20	9.55	8.77	95.29	77.09	5.23	
4100.00	4094.03	4110.59	197.20	9.88	9.01	95.29	76.59	5.10	
4200.00	4192.51	4210.59	197.20	10.22	9.25	95.29	76.10	4.97	
4300.00	4290.99	4310.59	197.20	10.55	9.49	95.29	75.61	4.84	
4400.00	4389.47	4410.59	197.20	10.89	9.73	95.29	75.10	4.72	
4500.00	4487.95	4510.59	197.20	11.23	9.97	95.29	74.60	4.61	
4600.00	4586.43	4610.59	197.20	11.58	10.21	95.29	74.09	4.50	
4700.00	4684.91	4710.59	197.20	11.93	10.45	95.29	73.59	4.39	

SD Anti-Collision Report

Secondary Well : North Histle 15-10 State Com 1H Pilot (p) (TVD Relative to Kelly Bushing (Primary)) All Azimuth Relative to GRID NORTH									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
4800.00	4783.39	4810.59	197.20	12.28	10.69	95.29	73.08	4.29	
4900.00	4881.87	4910.59	197.20	12.63	10.94	95.29	72.57	4.19	
5000.00	4980.35	5010.59	197.20	12.98	11.18	95.29	72.06	4.10	
5100.00	5078.83	5110.59	197.20	13.34	11.43	95.29	71.54	4.01	
5200.00	5177.31	5210.59	197.20	13.70	11.67	95.29	71.03	3.93	
5300.00	5275.80	5310.59	197.20	14.06	11.92	95.29	70.52	3.85	
5400.00	5374.28	5410.59	197.20	14.42	12.16	95.29	70.00	3.77	
5500.00	5472.76	5510.59	197.20	14.78	12.41	95.29	69.49	3.69	
5600.00	5571.24	5610.59	197.20	15.14	12.66	95.29	68.97	3.62	
5700.00	5669.72	5710.59	197.20	15.51	12.90	95.29	68.45	3.55	
5800.00	5768.20	5810.59	197.20	15.87	13.15	95.29	67.94	3.48	
5900.00	5866.68	5910.59	197.20	16.24	13.40	95.29	67.42	3.42	
6000.00	5965.16	6010.59	197.20	16.61	13.65	95.29	66.90	3.36	
6100.00	6063.64	6110.59	197.20	16.97	13.90	95.29	66.38	3.30	
6200.00	6162.12	6210.59	197.20	17.34	14.15	95.29	65.86	3.24	
6300.00	6260.60	6310.59	197.20	17.71	14.39	95.29	65.34	3.18	
6400.00	6359.08	6410.59	197.20	18.08	14.64	95.29	64.82	3.13	
6500.00	6457.56	6510.59	197.20	18.45	14.89	95.29	64.30	3.07	
6600.00	6556.05	6610.59	197.20	18.82	15.14	95.29	63.77	3.02	
6700.00	6654.53	6710.59	197.20	19.20	15.39	95.29	63.25	2.97	
6800.00	6753.01	6810.59	197.20	19.57	15.64	95.29	62.73	2.93	
6900.00	6851.49	6910.59	197.20	19.94	15.89	95.29	62.20	2.88	
7000.00	6949.97	7010.59	197.20	20.31	16.14	95.29	61.68	2.84	
7100.00	7048.45	7110.59	197.20	20.69	16.39	95.29	61.16	2.79	
7200.00	7146.93	7210.59	197.20	21.06	16.65	95.29	60.63	2.75	
7300.00	7245.41	7310.59	197.20	21.44	16.90	95.29	60.11	2.71	
7400.00	7343.89	7410.59	197.20	21.81	17.15	95.29	59.58	2.67	
7500.00	7442.37	7510.59	197.20	22.19	17.40	95.29	59.06	2.63	
7600.00	7540.85	7610.59	197.20	22.56	17.65	95.29	58.53	2.59	
7700.00	7639.33	7710.59	197.20	22.94	17.90	95.29	58.01	2.56	
7800.00	7737.82	7810.59	197.20	23.32	18.15	95.29	57.48	2.52	
7900.00	7836.30	7910.59	197.20	23.69	18.41	95.29	56.95	2.49	
8000.00	7934.78	8010.59	197.20	24.07	18.66	95.29	56.43	2.45	
8100.00	8033.26	8110.59	197.20	24.45	18.91	95.29	55.90	2.42	
8200.00	8131.74	8210.59	197.20	24.83	19.16	95.29	55.37	2.39	
8300.00	8230.22	8310.59	197.20	25.20	19.41	95.29	54.85	2.36	
8400.00	8328.70	8410.59	197.20	25.58	19.67	95.29	54.32	2.33	
8500.00	8427.18	8510.59	197.20	25.96	19.92	95.29	53.79	2.30	
8600.00	8525.66	8610.59	197.20	26.34	20.17	95.29	53.26	2.27	
8700.00	8624.14	8710.59	197.20	26.72	20.42	95.29	52.74	2.24	
8800.00	8721.31	8809.13	197.07	27.05	20.66	96.00	52.94	2.23	
8900.00	8818.57	8907.50	196.66	27.32	20.87	98.35	54.86	2.26	
9000.00	8915.97	9005.77	196.00	27.58	21.07	102.36	58.49	2.33	
9100.00	9013.41	9103.86	195.16	27.82	21.26	108.03	63.85	2.45	
9200.00	9110.80	9201.73	194.19	28.05	21.44	115.37	70.93	2.60	
9300.00	9208.06	9299.31	193.16	28.26	21.60	124.40	79.69	2.78	
9400.00	9305.10	9396.56	192.12	28.45	21.76	135.11	90.05	3.00	
9500.00	9401.84	9493.41	191.11	28.62	21.90	147.52	102.13	3.25	
9600.00	9498.12	9589.74	205.04	28.78	22.04	161.90	116.24	3.55	
9700.00	9591.52	9683.15	224.14	28.91	22.16	183.01	137.38	4.01	
9800.00	9680.07	9771.70	227.12	29.04	22.30	215.01	168.85	4.66	
9900.00	9760.21	9851.84	226.49	29.16	22.46	260.35	212.91	5.49	
10000.00	9827.90	9919.52	226.77	29.27	22.59	320.21	271.13	6.52	
10100.00	9880.64	9972.27	230.29	29.35	22.70	393.33	342.58	7.75	
10200.00	9916.51	10008.14	239.65	29.41	22.77	476.82	424.81	9.17	
10300.00	9934.18	10025.81	258.48	29.44	22.81	567.04	513.99	10.69	
10400.00	9936.00	10027.62	270.00	29.44	22.81	660.35	606.50	12.26	
10500.00	9936.00	10027.62	270.00	29.44	22.81	755.33	700.95	13.89	

5D Anti-Collision Report

Secondary Well: North Thistle 15-10 State Com. 1H Pilot (p) (TVD Relative to Kelly Bushing (Primary)) All Azimuth Relative to GRID/NORTH									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T. Face to Sec (°)	S. Major (US ft)	S. Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
10600.00	9936.00	10027.62	270.00	29.44	22.81	851.46	796.66	15.54	
10700.00	9936.00	10027.62	270.00	29.44	22.81	948.39	893.19	17.18	
10800.00	9936.00	10027.62	270.00	29.44	22.81	1045.90	990.39	18.84	
10900.00	9936.00	10027.62	270.00	29.44	22.81	1143.84	1088.09	20.52	
11000.00	9936.00	10027.62	270.00	29.44	22.81	1242.11	1186.15	22.20	
11100.00	9936.00	10027.62	270.00	29.44	22.81	1340.63	1284.51	23.89	
11200.00	9936.00	10027.62	270.00	29.44	22.81	1439.36	1383.10	25.59	
11300.00	9936.00	10027.62	270.00	29.44	22.81	1538.25	1481.88	27.29	
11400.00	9936.00	10027.62	270.00	29.44	22.81	1637.28	1580.82	29.00	
11500.00	9936.00	10027.62	270.00	29.44	22.81	1736.41	1679.89	30.72	
11600.00	9936.00	10027.62	270.00	29.44	22.81	1835.65	1779.07	32.44	
11700.00	9936.00	10027.62	270.00	29.44	22.81	1934.96	1878.29	34.15	
11800.00	9936.00	10027.62	270.00	29.44	22.81	2034.33	1977.54	35.82	
11900.00	9936.00	10027.62	270.00	29.44	22.81	2133.77	2076.87	37.50	
12000.00	9936.00	10027.62	270.00	29.44	22.81	2233.26	2176.27	39.19	
12100.00	9936.00	10027.62	270.00	29.44	22.81	2332.79	2275.74	40.90	
12200.00	9936.00	10027.62	270.00	29.44	22.81	2432.36	2375.29	42.62	
12300.00	9936.00	10027.62	270.00	29.44	22.81	2531.96	2474.81	44.30	
12400.00	9936.00	10027.62	270.00	29.44	22.81	2631.59	2574.32	45.95	
12500.00	9936.00	10027.62	270.00	29.44	22.81	2731.25	2673.90	47.62	
12600.00	9936.00	10027.62	270.00	29.44	22.81	2830.94	2773.53	49.32	
12700.00	9936.00	10027.62	270.00	29.44	22.81	2930.64	2873.24	51.05	
12800.00	9936.00	10027.62	270.00	29.44	22.81	3030.37	2972.85	52.69	
12900.00	9936.00	10027.62	270.00	29.44	22.81	3130.11	3072.51	54.34	
13000.00	9936.00	10027.62	270.00	29.44	22.81	3229.87	3172.21	56.02	
13100.00	9936.00	10027.62	270.00	29.44	22.81	3329.64	3271.97	57.74	
13200.00	9936.00	10027.62	270.00	29.44	22.81	3429.43	3371.71	59.42	
13300.00	9936.00	10027.62	270.00	29.44	22.81	3529.22	3471.48	61.12	
13400.00	9936.00	10027.62	270.00	29.44	22.81	3629.03	3571.18	62.73	
13500.00	9936.00	10027.62	270.00	29.44	22.81	3728.85	3670.91	64.35	
13600.00	9936.00	10027.62	270.00	29.44	22.81	3828.68	3770.66	65.99	
13700.00	9936.00	10027.62	270.00	29.44	22.81	3928.52	3870.44	67.64	
13800.00	9936.00	10027.62	270.00	29.44	22.81	4028.37	3970.23	69.29	
13900.00	9936.00	10027.62	270.00	29.44	22.81	4128.22	4070.04	70.96	
14000.00	9936.00	10027.62	270.00	29.44	22.81	4228.08	4169.86	72.63	
14100.00	9936.00	10027.62	270.00	29.44	22.81	4327.95	4269.67	74.26	
14200.00	9936.00	10027.62	270.00	29.44	22.81	4427.82	4369.48	75.90	
14300.00	9936.00	10027.62	270.00	29.44	22.81	4527.70	4469.30	77.54	
14400.00	9936.00	10027.62	270.00	29.44	22.81	4627.58	4569.13	79.18	
14500.00	9936.00	10027.62	270.00	29.44	22.81	4727.47	4668.97	80.82	
14600.00	9936.00	10027.62	270.00	29.44	22.81	4827.36	4768.82	82.46	
14700.00	9936.00	10027.62	270.00	29.44	22.81	4927.26	4868.67	84.10	
14800.00	9936.00	10027.62	270.00	29.44	22.81	5027.16	4968.53	85.74	
14900.00	9936.00	10027.62	270.00	29.44	22.81	5127.06	5068.39	87.38	
15000.00	9936.00	10027.62	270.00	29.44	22.81	5226.97	5168.25	89.01	
15100.00	9936.00	10027.62	270.00	29.44	22.81	5326.89	5268.11	90.64	
15200.00	9936.00	10027.62	270.00	29.44	22.81	5426.80	5367.96	92.23	
15300.00	9936.00	10027.62	270.00	29.44	22.81	5526.72	5467.82	93.83	
15400.00	9936.00	10027.62	270.00	29.44	22.81	5626.64	5567.68	95.43	
15500.00	9936.00	10027.62	270.00	29.44	22.81	5726.57	5667.54	97.02	
15600.00	9936.00	10027.62	270.00	29.44	22.81	5826.49	5767.40	98.61	
15700.00	9936.00	10027.62	270.00	29.44	22.81	5926.42	5867.27	100.19	
15800.00	9936.00	10027.62	270.00	29.44	22.81	6026.35	5967.14	101.78	
15900.00	9936.00	10027.62	270.00	29.44	22.81	6126.29	6067.01	103.34	
16000.00	9936.00	10027.62	270.00	29.44	22.81	6226.22	6166.87	104.91	
16100.00	9936.00	10027.62	270.00	29.44	22.81	6326.16	6266.74	106.47	
16200.00	9936.00	10027.62	270.00	29.44	22.81	6426.10	6366.61	108.02	
16300.00	9936.00	10027.62	270.00	29.44	22.81	6526.04	6466.49	109.58	

5D Anti-Collision Report

Secondary Well: North Thistle 15-10 State Comm Pilot (P) (TVD Relative to Kelly Bushing (Primary)) (All Azimuth Relative to GRID NORTH)									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
16400.00	9936.00	10027.62	270.00	29.44	22.81	6625.99	6566.36	111.13	
16500.00	9936.00	10027.62	270.00	29.44	22.81	6725.93	6666.24	112.68	
16600.00	9936.00	10027.62	270.00	29.44	22.81	6825.88	6766.12	114.22	
16700.00	9936.00	10027.62	270.00	29.44	22.81	6925.83	6866.00	115.76	
16800.00	9936.00	10027.62	270.00	29.44	22.81	7025.78	6965.88	117.30	
16900.00	9936.00	10027.62	270.00	29.44	22.81	7125.73	7065.76	118.83	
17000.00	9936.00	10027.62	270.00	29.44	22.81	7225.68	7165.65	120.36	
17100.00	9936.00	10027.62	270.00	29.44	22.81	7325.63	7265.53	121.89	
17200.00	9936.00	10027.62	270.00	29.44	22.81	7425.59	7365.42	123.41	
17300.00	9936.00	10027.62	270.00	29.44	22.81	7525.55	7465.31	124.93	
17400.00	9936.00	10027.62	270.00	29.44	22.81	7625.50	7565.20	126.44	
17500.00	9936.00	10027.62	270.00	29.44	22.81	7725.46	7665.09	127.95	
17600.00	9936.00	10027.62	270.00	29.44	22.81	7825.42	7764.98	129.46	
17700.00	9936.00	10027.62	270.00	29.44	22.81	7925.38	7864.87	130.96	
17800.00	9936.00	10027.62	270.00	29.44	22.81	8025.34	7964.76	132.46	
17900.00	9936.00	10027.62	270.00	29.44	22.81	8125.31	8064.65	133.96	
18000.00	9936.00	10027.62	270.00	29.44	22.81	8225.27	8164.54	135.45	
18100.00	9936.00	10027.62	270.00	29.44	22.81	8325.23	8264.44	136.93	
18200.00	9936.00	10027.62	270.00	29.44	22.81	8425.20	8364.33	138.41	
18300.00	9936.00	10027.62	270.00	29.44	22.81	8525.17	8464.22	139.89	
18400.00	9936.00	10027.62	270.00	29.44	22.81	8625.13	8564.12	141.36	
18500.00	9936.00	10027.62	270.00	29.44	22.81	8725.10	8664.01	142.83	
18600.00	9936.00	10027.62	270.00	29.44	22.81	8825.07	8763.91	144.30	
18700.00	9936.00	10027.62	270.00	29.44	22.81	8925.04	8863.81	145.76	
18800.00	9936.00	10027.62	270.00	29.44	22.81	9025.01	8963.70	147.21	
18900.00	9936.00	10027.62	270.00	29.44	22.81	9124.98	9063.60	148.67	
19000.00	9936.00	10027.62	270.00	29.44	22.81	9224.95	9163.50	150.11	
19037.24	9936.00	10027.62	270.00	29.44	22.81	9262.18	9200.70	150.65	

**Weatherford****Weatherford Drilling Services**

GeoDec4 v2.1.0.0

Report Date: May 14, 2015
Job Number: _____
Customer: Devon Energy
Well Name: North Thistle 15-10 State Com 2H
API Number: _____
Rig Name: _____
Location: Lea Co, NM Nad83 NME
Block: _____
Engineer: RWJ

NAD83 / New Mexico East (ftUS)	NAD83 (1986)
Projected Coordinate System	Geodetic Coordinate System
Datum: North American Datum 1983 (1986)	Datum: North American Datum 1983 (1986)
Ellipsoid: GRS 1980	Ellipsoid: GRS 1980
EPSG: 2257	EPSG: 4269
North: 473216.02 US Survey Foot	Latitude: 32.298613 Degree
East: 778387.07 US Survey Foot	Longitude: -103.566141 Degree
Convergence: 0.41°	
Declination: 7.27°	
Total Correction: 6.86°	
Datum Transformation: none	

Geodetic Location WGS84

MSL Elevation = 0 m

Latitude = 32° 17' 55.01" N

Longitude = 103° 33' 58.11" W

Magnetic Declination = 7.27 deg	[True North Offset]
Local Gravity = .9988 g	Checksum = 6608
Local Field Strength = 48215 nT	Magnetic Vector X = 23809 nT
Magnetic Dip = 60.15 deg	Magnetic Vector Y = 3036 nT
Magnetic Model = bggm2014.dat	Magnetic Vector Z = 41817 nT
Run Date = July 31, 2015	Magnetic Vector H = 24002 nT

Signed: _____ Date: _____

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