

5D Plan Report

30-025-42431

Devon Energy

Field Name: *Lea Co, NM Nad 83 NMEZ*
Site Name: *Thistle Unit 26H,55H 61H Pad*
Well Name: *Thistle Unit 26H*
Plan: *P1:V1*

29 January 2015

**FEB 17 2015**

Thistle Unit 26H

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 Thistle Unit 26H, 55H 61H Pad	Units : US ft Position North Reference : Grid Convergence Angle : 0.41 Northing : 467666.03 US ft Latitude : 32° 17' 0.10" Easting : 778277.92 US ft Longitude : -103° 33' 59.84" Elevation above Mean Sea Level: 3701.00 US ft Comment :	
Slot Name Thistle Unit 26H	Position (Offsets relative to Site Centre) +N / -S : -50.13 US ft Northing : 467615.90 US ft Latitude : 32°16'59.60" +E / -W : 0.08 US ft Easting : 778278.00 US ft Longitude : -103°33'59.84" Slot TVD Reference : Ground Elevation Elevation above Mean Sea Level : 3703.00 US ft Comment :	
Well Name Thistle Unit 26H	Type : Main well Rig Height Kelly Bushing : 25.00 US ft Relative to Mean Sea Level: 3728.00 US ft UWI : Plan : P1:V1 Comment : Closure Distance : 4851.73 US ft Closure Azimuth : 359.336° Vertical Section (Position of Origin Relative to Slot) +N / -S : 0.00 US ft +E / -W : 0.00 US ft Az : 357.79° Magnetic Parameters Model : BGGM Field Strength : 48221.6nT Dec : 7.28° Dip : 60.13° Date : 15/Jun/2015	

Target Set

Name : Thistle Unit 26H **Number of Targets :** 1

Comment :

Target Name: PBHL 26H Shape: Cuboid	Position (Relative to Slot centre) +N / -S : 4851.40US ft Northing : 472467.30 US ft Latitude : 32°17'47.61" +E / -W : -56.20 US ft Easting : 778221.80US ft Longitude : -103°34'0.09" TV D (Kelly Bushing) : 8832.00 US ft Orientation Azimuth : 357.79° Inclination : 0.00° Dimensions Length : 8754.00 US ft Breadth : 50.00 US ft Height : 20.00 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)	Inc (°)	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. Face (°)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4158.00	0.00	0.00	4158.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Nudge
4658.00	5.00	90.00	4657.37	0.00	21.80	-0.84	1.00	1.00	0.00	90.00	Hold
5658.00	5.00	90.00	5653.56	0.00	108.96	-4.20	0.00	0.00	0.00	0.00	Drop
6158.00	0.00	0.00	6152.93	0.00	130.76	-5.04	1.00	-1.00	0.00	180.00	Hold
8359.61	0.00	0.00	8354.54	0.00	130.76	-5.04	0.00	0.00	0.00	0.00	KOP
9109.61	90.00	357.79	8832.00	477.11	112.37	472.42	12.00	12.00	0.00	357.79	LP
13487.15	90.00	357.79	8832.00	4851.40	-56.20	4849.96	0.00	0.00	0.00	0.00	PBHL 26H

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
4100.00	0.00	0.00	4100.00	0.00	0.00	0.00	0.00	467615.90	778278.00		
4158.00	0.00	0.00	4158.00	0.00	0.00	0.00	0.00	467615.90	778278.00		Nudge
4200.00	0.42	90.00	4200.00	0.00	0.15	-0.01	1.00	467615.90	778278.15		
4300.00	1.42	90.00	4299.99	0.00	1.76	-0.07	1.00	467615.90	778279.76		
4400.00	2.42	90.00	4399.93	0.00	5.11	-0.20	1.00	467615.90	778283.11		
4500.00	3.42	90.00	4499.80	0.00	10.20	-0.39	1.00	467615.90	778288.20		
4600.00	4.42	90.00	4599.56	0.00	17.04	-0.66	1.00	467615.90	778295.04		
4658.00	5.00	90.00	4657.37	0.00	21.80	-0.84	1.00	467615.90	778299.80		Hold
4700.00	5.00	90.00	4699.21	0.00	25.46	-0.98	0.00	467615.90	778303.46		
4800.00	5.00	90.00	4798.83	0.00	34.18	-1.32	0.00	467615.90	778312.18		
4900.00	5.00	90.00	4898.44	0.00	42.89	-1.65	0.00	467615.90	778320.89		
5000.00	5.00	90.00	4998.06	0.00	51.61	-1.99	0.00	467615.90	778329.61		
5100.00	5.00	90.00	5097.68	0.00	60.33	-2.33	0.00	467615.90	778338.33		
5200.00	5.00	90.00	5197.30	0.00	69.04	-2.66	0.00	467615.90	778347.04		
5300.00	5.00	90.00	5296.92	0.00	77.76	-3.00	0.00	467615.90	778355.76		
5400.00	5.00	90.00	5396.54	0.00	86.47	-3.33	0.00	467615.90	778364.47		
5500.00	5.00	90.00	5496.16	0.00	95.19	-3.67	0.00	467615.90	778373.19		
5600.00	5.00	90.00	5595.78	0.00	103.90	-4.01	0.00	467615.90	778381.90		
5658.00	5.00	90.00	5653.56	0.00	108.96	-4.20	0.00	467615.90	778386.96		Drop
5700.00	4.58	90.00	5695.41	0.00	112.47	-4.34	1.00	467615.90	778390.47		
5800.00	3.58	90.00	5795.16	0.00	119.58	-4.61	1.00	467615.90	778397.58		
5900.00	2.58	90.00	5895.01	0.00	124.95	-4.82	1.00	467615.90	778402.95		
6000.00	1.58	90.00	5994.95	0.00	128.58	-4.96	1.00	467615.90	778406.58		
6100.00	0.58	90.00	6094.93	0.00	130.47	-5.03	1.00	467615.90	778408.47		
6158.00	0.00	0.00	6152.93	0.00	130.76	-5.04	1.00	467615.90	778408.76		Hold
6200.00	0.00	0.00	6194.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
6300.00	0.00	0.00	6294.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
6400.00	0.00	0.00	6394.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
6500.00	0.00	0.00	6494.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
6600.00	0.00	0.00	6594.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
6700.00	0.00	0.00	6694.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
6800.00	0.00	0.00	6794.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
6900.00	0.00	0.00	6894.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
7000.00	0.00	0.00	6994.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
7100.00	0.00	0.00	7094.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
7200.00	0.00	0.00	7194.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
7300.00	0.00	0.00	7294.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
7400.00	0.00	0.00	7394.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
7500.00	0.00	0.00	7494.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
7600.00	0.00	0.00	7594.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
7700.00	0.00	0.00	7694.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
7800.00	0.00	0.00	7794.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
7900.00	0.00	0.00	7894.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
8000.00	0.00	0.00	7994.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
8100.00	0.00	0.00	8094.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
8200.00	0.00	0.00	8194.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		
8300.00	0.00	0.00	8294.93	0.00	130.76	-5.04	0.00	467615.90	778408.76		

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
8359.61	0.00	0.00	8354.54	0.00	130.76	-5.04	0.00	467615.90	778408.76	KOP
8400.00	4.85	357.79	8394.88	1.71	130.70	-3.34	12.00	467617.61	778408.70	
8500.00	16.85	357.79	8492.91	20.47	129.97	15.45	12.00	467636.37	778407.97	
8600.00	28.85	357.79	8584.90	59.20	128.48	54.20	12.00	467675.10	778406.48	
8700.00	40.85	357.79	8666.82	116.19	126.28	111.24	12.00	467732.09	778404.28	
8800.00	52.85	357.79	8735.09	188.96	123.48	184.06	12.00	467804.86	778401.48	
8900.00	64.85	357.79	8786.73	274.32	120.19	269.48	12.00	467890.22	778398.19	
9000.00	76.85	357.79	8819.48	368.54	116.56	363.77	12.00	467984.44	778394.56	
9100.00	88.85	357.79	8831.91	467.50	112.74	462.81	12.00	468083.00	778390.74	
9109.61	90.00	357.79	8832.00	477.11	112.37	472.42	12.00	468093.01	778390.37	LP
9200.00	90.00	357.79	8832.00	567.43	108.89	562.81	0.00	468183.33	778386.89	
9300.00	90.00	357.79	8832.00	667.36	105.04	662.81	0.00	468283.26	778383.04	
9400.00	90.00	357.79	8832.00	767.28	101.19	762.81	0.00	468383.18	778379.19	
9500.00	90.00	357.79	8832.00	867.21	97.34	862.81	0.00	468483.11	778375.34	
9600.00	90.00	357.79	8832.00	967.13	93.49	962.81	0.00	468583.03	778371.49	
9700.00	90.00	357.79	8832.00	1067.06	89.64	1062.81	0.00	468682.96	778367.64	
9800.00	90.00	357.79	8832.00	1166.98	85.79	1162.81	0.00	468782.88	778363.79	
9900.00	90.00	357.79	8832.00	1266.91	81.94	1262.81	0.00	468882.81	778359.94	
10000.00	90.00	357.79	8832.00	1366.84	78.09	1362.81	0.00	468982.74	778356.09	
10100.00	90.00	357.79	8832.00	1466.76	74.24	1462.81	0.00	469082.66	778352.24	
10200.00	90.00	357.79	8832.00	1566.69	70.38	1562.81	0.00	469182.59	778348.38	
10300.00	90.00	357.79	8832.00	1666.61	66.53	1662.81	0.00	469282.51	778344.53	
10400.00	90.00	357.79	8832.00	1766.54	62.68	1762.81	0.00	469382.44	778340.68	
10500.00	90.00	357.79	8832.00	1866.47	58.83	1862.81	0.00	469482.37	778336.83	
10600.00	90.00	357.79	8832.00	1966.39	54.98	1962.81	0.00	469582.29	778332.98	
10700.00	90.00	357.79	8832.00	2066.32	51.13	2062.81	0.00	469682.22	778329.13	
10800.00	90.00	357.79	8832.00	2166.24	47.28	2162.81	0.00	469782.14	778325.28	
10900.00	90.00	357.79	8832.00	2266.17	43.43	2262.81	0.00	469882.07	778321.43	
11000.00	90.00	357.79	8832.00	2366.09	39.58	2362.81	0.00	469981.99	778317.58	
11100.00	90.00	357.79	8832.00	2466.02	35.73	2462.81	0.00	470081.92	778313.73	
11200.00	90.00	357.79	8832.00	2565.95	31.88	2562.81	0.00	470181.85	778309.88	
11300.00	90.00	357.79	8832.00	2665.87	28.02	2662.81	0.00	470281.77	778306.02	
11400.00	90.00	357.79	8832.00	2765.80	24.17	2762.81	0.00	470381.70	778302.17	
11500.00	90.00	357.79	8832.00	2865.72	20.32	2862.81	0.00	470481.62	778298.32	
11600.00	90.00	357.79	8832.00	2965.65	16.47	2962.81	0.00	470581.55	778294.47	
11700.00	90.00	357.79	8832.00	3065.58	12.62	3062.81	0.00	470681.48	778290.62	
11800.00	90.00	357.79	8832.00	3165.50	8.77	3162.81	0.00	470781.40	778286.77	
11900.00	90.00	357.79	8832.00	3265.43	4.92	3262.81	0.00	470881.33	778282.92	
12000.00	90.00	357.79	8832.00	3365.35	1.07	3362.81	0.00	470981.25	778279.07	
12100.00	90.00	357.79	8832.00	3465.28	-2.78	3462.81	0.00	471081.18	778275.22	
12200.00	90.00	357.79	8832.00	3565.20	-6.63	3562.81	0.00	471181.10	778271.37	
12300.00	90.00	357.79	8832.00	3665.13	-10.48	3662.81	0.00	471281.03	778267.52	
12400.00	90.00	357.79	8832.00	3765.06	-14.33	3762.81	0.00	471380.96	778263.67	
12500.00	90.00	357.79	8832.00	3864.98	-18.19	3862.81	0.00	471480.88	778259.81	
12600.00	90.00	357.79	8832.00	3964.91	-22.04	3962.81	0.00	471580.81	778255.96	
12700.00	90.00	357.79	8832.00	4064.83	-25.89	4062.81	0.00	471680.73	778252.11	
12800.00	90.00	357.79	8832.00	4164.76	-29.74	4162.81	0.00	471780.66	778248.26	
12900.00	90.00	357.79	8832.00	4264.69	-33.59	4262.81	0.00	471880.59	778244.41	
13000.00	90.00	357.79	8832.00	4364.61	-37.44	4362.81	0.00	471980.51	778240.56	
13100.00	90.00	357.79	8832.00	4464.54	-41.29	4462.81	0.00	472080.44	778236.71	
13200.00	90.00	357.79	8832.00	4564.46	-45.14	4562.81	0.00	472180.36	778232.86	
13300.00	90.00	357.79	8832.00	4664.39	-48.99	4662.81	0.00	472280.29	778229.01	
13400.00	90.00	357.79	8832.00	4764.31	-52.84	4762.81	0.00	472380.21	778225.16	
13487.15	90.00	357.79	8832.00	4851.40	-56.20	4849.96	0.00	472467.30	778221.80	PBHL 26H

5D Anti-Collision Report**Devon Energy****Field Name:** *Lea Co, NM Nad 83 NMEZ***Site Name:** *Thistle Unit 26H,55H 61H Pad***Well Name:** *Thistle Unit 26H*

29 January 2015





Weatherford®

Thistle Unit 26H

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 Thistle Unit 26H, 55H 61H Pad	Units : US ft	North Reference : Grid	Convergence Angle : 0.41	
	Position	Northing : 467666.03 US ft	Latitude : 32° 17' 0.10"	
		Easting : 778277.92 US ft	Longitude : -103° 33' 59.84"	
	Elevation above Mean Sea Level: 3701.00 US ft			
Comment :				
Slot Name Thistle Unit 26H	Position (Offsets relative to Site Centre)			
	+N / -S : -50.13 US ft	Northing : 467615.90 US ft	Latitude : 32° 16' 59.60"	
	+E / -W : 0.08 US ft	Easting : 778278.00 US ft	Longitude : -103° 33' 59.84"	
	Slot TVD Reference : Ground Elevation			
	Elevation above Mean Sea Level : 3703.00 US ft			
Comment :				
Well Name Thistle Unit 26H	Type : Main well		UWI :	Plan : Working Plan
	Rig Height <i>Kelly Bushing</i> : 25.00 US ft		Comment :	
	Relative to Mean Sea Level: 3728.00 US ft			
	Closure Distance : 4851.73 US ft		Closure Azimuth : 359.336°	
	Vertical Section (Position of Origin Relative to Slot)			
	+N / -S : 0.00 US ft		+E / -W : 0.00 US ft	Az : 357.79°
	Magnetic Parameters			
	Model : BGGM	Field Strength : 48221.6nT	Dec : 7.28°	Dip : 60.13° Date : 15/Jun/2015

Collision / Uncertainty Analysis

Primary Well	Start MD (US ft)	End MD (US ft)	Collision Risk Interval	No. of Std Deviations in Error Computation
Thistle Unit 26H (p)	0.00	13487.15	50.00	2

Secondary Well Names

Thistle Unit 61H (p)
Thistle Unit 55H (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

AC Filter Info: The following filter(s) have been applied: Separation Factor.

5D Anti-Collision Report

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

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
Thistle Unit 55H (p)	4497.27	4495.07	4497.07	51.14	30.70	2.50	
Thistle Unit 61H (p)	8684.37	8653.83	8654.83	127.24	88.51	3.29	

Primary Well : Thistle Unit 26H (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
1050.00	1050.00	359.91	2.25	2.25	Thistle Unit 55H (p)	50.13	45.07	9.91	
1100.00	1100.00	359.91	2.36	2.36	Thistle Unit 55H (p)	50.13	44.85	9.50	
1150.00	1150.00	359.91	2.48	2.48	Thistle Unit 55H (p)	50.13	44.62	9.10	
1200.00	1200.00	359.91	2.59	2.59	Thistle Unit 55H (p)	50.13	44.40	8.75	
1250.00	1250.00	359.91	2.70	2.70	Thistle Unit 55H (p)	50.13	44.17	8.41	
1300.00	1300.00	359.91	2.81	2.81	Thistle Unit 55H (p)	50.13	43.95	8.11	
1350.00	1350.00	359.91	2.92	2.92	Thistle Unit 55H (p)	50.13	43.72	7.82	
1400.00	1400.00	359.91	3.03	3.03	Thistle Unit 55H (p)	50.13	43.50	7.56	
1450.00	1450.00	359.91	3.15	3.15	Thistle Unit 55H (p)	50.13	43.27	7.31	
1500.00	1500.00	359.91	3.26	3.26	Thistle Unit 55H (p)	50.13	43.05	7.08	
1550.00	1550.00	359.91	3.37	3.37	Thistle Unit 55H (p)	50.13	42.82	6.86	
1600.00	1600.00	359.91	3.48	3.48	Thistle Unit 55H (p)	50.13	42.60	6.66	
1650.00	1650.00	359.91	3.60	3.60	Thistle Unit 55H (p)	50.13	42.38	6.46	
1700.00	1700.00	359.91	3.71	3.71	Thistle Unit 55H (p)	50.13	42.15	6.29	
1750.00	1750.00	359.91	3.82	3.82	Thistle Unit 55H (p)	50.13	41.93	6.11	
1800.00	1800.00	359.91	3.93	3.93	Thistle Unit 55H (p)	50.13	41.70	5.95	
1850.00	1850.00	359.91	4.05	4.05	Thistle Unit 55H (p)	50.13	41.48	5.79	
1900.00	1900.00	359.91	4.16	4.16	Thistle Unit 55H (p)	50.13	41.25	5.65	
1950.00	1950.00	359.91	4.27	4.27	Thistle Unit 55H (p)	50.13	41.03	5.51	
2000.00	2000.00	359.91	4.38	4.38	Thistle Unit 55H (p)	50.13	40.81	5.38	
2050.00	2050.00	359.91	4.50	4.50	Thistle Unit 55H (p)	50.13	40.58	5.25	
2100.00	2100.00	359.91	4.61	4.61	Thistle Unit 55H (p)	50.13	40.36	5.13	
2150.00	2150.00	359.91	4.72	4.72	Thistle Unit 55H (p)	50.13	40.13	5.01	
2200.00	2200.00	359.91	4.83	4.83	Thistle Unit 55H (p)	50.13	39.91	4.90	
2250.00	2250.00	359.91	4.95	4.95	Thistle Unit 55H (p)	50.13	39.68	4.80	
2300.00	2300.00	359.91	5.06	5.06	Thistle Unit 55H (p)	50.13	39.46	4.70	
2350.00	2350.00	359.91	5.17	5.17	Thistle Unit 55H (p)	50.13	39.23	4.60	
2400.00	2400.00	359.91	5.28	5.28	Thistle Unit 55H (p)	50.13	39.01	4.51	
2450.00	2450.00	359.91	5.40	5.40	Thistle Unit 55H (p)	50.13	38.78	4.42	
2500.00	2500.00	359.91	5.51	5.51	Thistle Unit 55H (p)	50.13	38.56	4.33	

5D Anti-Collision Report

Primary Well : Thistle Unit 26H (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
2550.00	2550.00	359.91	5.62	5.62	Thistle Unit 55H (p)	50.13	38.33	4.25	
2600.00	2600.00	359.91	5.73	5.73	Thistle Unit 55H (p)	50.13	38.11	4.17	
2650.00	2650.00	359.91	5.85	5.85	Thistle Unit 55H (p)	50.13	37.88	4.09	
2700.00	2700.00	359.91	5.96	5.96	Thistle Unit 55H (p)	50.13	37.66	4.02	
2750.00	2750.00	359.91	6.07	6.07	Thistle Unit 55H (p)	50.13	37.43	3.95	
2800.00	2800.00	359.91	6.18	6.18	Thistle Unit 55H (p)	50.13	37.21	3.88	
2850.00	2850.00	359.91	6.30	6.30	Thistle Unit 55H (p)	50.13	36.98	3.81	
2900.00	2900.00	359.91	6.41	6.41	Thistle Unit 55H (p)	50.13	36.76	3.75	
2950.00	2950.00	359.91	6.52	6.52	Thistle Unit 55H (p)	50.13	36.53	3.69	
3000.00	3000.00	359.91	6.63	6.63	Thistle Unit 55H (p)	50.13	36.31	3.63	
3050.00	3050.00	359.91	6.74	6.74	Thistle Unit 55H (p)	50.13	36.08	3.57	
3100.00	3100.00	359.91	6.86	6.86	Thistle Unit 55H (p)	50.13	35.86	3.51	
3150.00	3150.00	359.91	6.97	6.97	Thistle Unit 55H (p)	50.13	35.63	3.46	
3200.00	3200.00	359.91	7.08	7.08	Thistle Unit 55H (p)	50.13	35.41	3.41	
3250.00	3250.00	359.91	7.19	7.19	Thistle Unit 55H (p)	50.13	35.18	3.35	
3300.00	3300.00	359.91	7.31	7.31	Thistle Unit 55H (p)	50.13	34.96	3.30	
3350.00	3350.00	359.91	7.42	7.42	Thistle Unit 55H (p)	50.13	34.73	3.26	
3400.00	3400.00	359.91	7.53	7.53	Thistle Unit 55H (p)	50.13	34.51	3.21	
3450.00	3450.00	359.91	7.64	7.64	Thistle Unit 55H (p)	50.13	34.28	3.16	
3500.00	3500.00	359.91	7.76	7.76	Thistle Unit 55H (p)	50.13	34.06	3.12	
3550.00	3550.00	359.91	7.87	7.87	Thistle Unit 55H (p)	50.13	33.84	3.08	
3600.00	3600.00	359.91	7.98	7.98	Thistle Unit 55H (p)	50.13	33.61	3.03	
3650.00	3650.00	359.91	8.09	8.09	Thistle Unit 55H (p)	50.13	33.39	2.99	
3700.00	3700.00	359.91	8.20	8.20	Thistle Unit 55H (p)	50.13	33.16	2.95	
3750.00	3750.00	359.91	8.32	8.32	Thistle Unit 55H (p)	50.13	32.94	2.92	
3800.00	3800.00	359.91	8.43	8.43	Thistle Unit 55H (p)	50.13	32.71	2.88	
3850.00	3850.00	359.91	8.54	8.54	Thistle Unit 55H (p)	50.13	32.49	2.84	
3900.00	3900.00	359.91	8.65	8.65	Thistle Unit 55H (p)	50.13	32.26	2.81	
3950.00	3950.00	359.91	8.77	8.77	Thistle Unit 55H (p)	50.13	32.04	2.77	
4000.00	4000.00	359.91	8.88	8.88	Thistle Unit 55H (p)	50.13	31.81	2.74	
4050.00	4050.00	359.91	8.99	8.99	Thistle Unit 55H (p)	50.13	31.59	2.70	
4100.00	4100.00	359.91	9.10	9.10	Thistle Unit 55H (p)	50.13	31.36	2.67	
4150.00	4150.00	359.91	9.22	9.22	Thistle Unit 55H (p)	50.13	31.14	2.64	
4200.00	4200.00	269.73	9.32	9.32	Thistle Unit 55H (p)	50.13	30.95	2.61	
4250.00	4250.00	269.06	9.42	9.42	Thistle Unit 55H (p)	50.14	30.75	2.59	
4300.00	4299.99	267.90	9.52	9.52	Thistle Unit 55H (p)	50.16	30.56	2.56	

SD Anti-Collision Report

Primary Well : Thistle Unit 26H (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
4350.00	4349.96	266.24	9.62	9.61	Thistle Unit 55H (p)	50.24	30.42	2.53	
4400.00	4399.93	264.09	9.72	9.71	Thistle Unit 55H (p)	50.40	30.37	2.52	
4450.00	4449.87	261.48	9.82	9.80	Thistle Unit 55H (p)	50.69	30.44	2.50	
4500.00	4499.80	258.43	9.92	9.90	Thistle Unit 55H (p)	51.17	30.72	2.50	
4550.00	4549.69	254.98	10.02	9.99	Thistle Unit 55H (p)	51.91	31.25	2.51	
4600.00	4599.56	251.20	10.12	10.08	Thistle Unit 55H (p)	52.97	32.08	2.54	
4650.00	4649.40	247.16	10.23	10.17	Thistle Unit 55H (p)	54.42	33.33	2.58	
4700.00	4699.21	243.09	10.33	10.27	Thistle Unit 55H (p)	56.26	34.94	2.64	
4750.00	4749.02	239.28	10.44	10.38	Thistle Unit 55H (p)	58.37	36.85	2.71	
4800.00	4798.83	235.75	10.55	10.48	Thistle Unit 55H (p)	60.72	38.99	2.79	
4850.00	4848.64	232.50	10.65	10.58	Thistle Unit 55H (p)	63.28	41.31	2.88	
4900.00	4898.44	229.50	10.76	10.68	Thistle Unit 55H (p)	66.03	43.86	2.98	
4950.00	4948.25	226.75	10.87	10.78	Thistle Unit 55H (p)	68.94	46.57	3.08	
5000.00	4998.06	224.23	10.98	10.88	Thistle Unit 55H (p)	72.01	49.41	3.19	
5050.00	5047.87	221.92	11.09	10.99	Thistle Unit 55H (p)	75.20	52.36	3.29	
5100.00	5097.68	219.80	11.20	11.09	Thistle Unit 55H (p)	78.50	55.47	3.41	
5150.00	5147.49	217.85	11.31	11.19	Thistle Unit 55H (p)	81.90	58.67	3.53	
5200.00	5197.30	216.06	11.42	11.30	Thistle Unit 55H (p)	85.39	61.94	3.64	
5250.00	5247.11	214.40	11.53	11.40	Thistle Unit 55H (p)	88.95	65.28	3.76	
5300.00	5296.92	212.88	11.65	11.50	Thistle Unit 55H (p)	92.58	68.68	3.87	
5350.00	5346.73	211.48	11.76	11.61	Thistle Unit 55H (p)	96.28	72.15	3.99	
5400.00	5396.54	210.17	11.87	11.71	Thistle Unit 55H (p)	100.02	75.69	4.11	
5450.00	5446.35	208.97	11.99	11.82	Thistle Unit 55H (p)	103.82	79.29	4.23	
5500.00	5496.16	207.84	12.10	11.92	Thistle Unit 55H (p)	107.65	82.92	4.35	
5550.00	5545.97	206.80	12.22	12.03	Thistle Unit 55H (p)	111.53	86.57	4.47	
5600.00	5595.78	205.82	12.33	12.13	Thistle Unit 55H (p)	115.44	90.27	4.59	
5650.00	5645.59	204.91	12.45	12.24	Thistle Unit 55H (p)	119.38	94.00	4.70	
5700.00	5695.41	204.08	12.56	12.35	Thistle Unit 55H (p)	123.21	97.59	4.81	
5750.00	5745.27	203.37	12.66	12.45	Thistle Unit 55H (p)	126.66	100.83	4.90	
5800.00	5795.16	202.77	12.76	12.56	Thistle Unit 55H (p)	129.74	103.69	4.98	
5850.00	5845.07	202.27	12.86	12.66	Thistle Unit 55H (p)	132.42	106.16	5.04	
5900.00	5895.01	201.87	12.96	12.76	Thistle Unit 55H (p)	134.71	108.23	5.09	
5950.00	5944.97	201.54	13.06	12.86	Thistle Unit 55H (p)	136.60	109.91	5.12	
6000.00	5994.95	201.29	13.16	12.96	Thistle Unit 55H (p)	138.08	111.19	5.13	
6050.00	6044.93	201.12	13.26	13.06	Thistle Unit 55H (p)	139.17	112.06	5.13	
6100.00	6094.93	201.01	13.36	13.16	Thistle Unit 55H (p)	139.84	112.52	5.12	

5D Anti-Collision Report

Primary Well : Thistle Unit 26H (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
6150.00	6144.93	200.96	13.46	13.25	Thistle Unit 55H (p)	140.11	112.58	5.09	
6200.00	6194.93	290.96	13.56	13.36	Thistle Unit 55H (p)	140.12	112.37	5.05	
6250.00	6244.93	290.96	13.67	13.47	Thistle Unit 55H (p)	140.12	112.14	5.01	
6300.00	6294.93	290.96	13.78	13.58	Thistle Unit 55H (p)	140.12	111.92	4.97	
6350.00	6344.93	290.96	13.89	13.69	Thistle Unit 55H (p)	140.12	111.70	4.93	
6400.00	6394.93	290.96	14.00	13.80	Thistle Unit 55H (p)	140.12	111.47	4.89	
6450.00	6444.93	290.96	14.11	13.91	Thistle Unit 55H (p)	140.12	111.25	4.85	
6500.00	6494.93	290.96	14.22	14.02	Thistle Unit 55H (p)	140.12	111.03	4.82	
6550.00	6544.93	290.96	14.33	14.14	Thistle Unit 55H (p)	140.12	110.80	4.78	
6600.00	6594.93	290.96	14.44	14.25	Thistle Unit 55H (p)	140.12	110.58	4.74	
6650.00	6644.93	290.96	14.55	14.36	Thistle Unit 55H (p)	140.12	110.36	4.71	
6700.00	6694.93	290.96	14.66	14.47	Thistle Unit 55H (p)	140.12	110.13	4.67	
6750.00	6744.93	290.96	14.77	14.58	Thistle Unit 55H (p)	140.12	109.91	4.64	
6800.00	6794.93	290.96	14.88	14.69	Thistle Unit 55H (p)	140.12	109.69	4.60	
6850.00	6844.93	290.96	14.99	14.80	Thistle Unit 55H (p)	140.12	109.46	4.57	
6900.00	6894.93	290.96	15.10	14.92	Thistle Unit 55H (p)	140.12	109.24	4.54	
6950.00	6944.93	290.96	15.21	15.03	Thistle Unit 55H (p)	140.12	109.02	4.51	
7000.00	6994.93	290.96	15.32	15.14	Thistle Unit 55H (p)	140.12	108.79	4.47	
7050.00	7044.93	290.96	15.44	15.25	Thistle Unit 55H (p)	140.12	108.57	4.44	
7100.00	7094.93	290.96	15.55	15.36	Thistle Unit 55H (p)	140.12	108.34	4.41	
7150.00	7144.93	290.96	15.66	15.47	Thistle Unit 55H (p)	140.12	108.12	4.38	
7200.00	7194.93	290.96	15.77	15.58	Thistle Unit 55H (p)	140.12	107.90	4.35	
7250.00	7244.93	290.96	15.88	15.70	Thistle Unit 55H (p)	140.12	107.67	4.32	
7300.00	7294.93	290.96	15.99	15.81	Thistle Unit 55H (p)	140.12	107.45	4.29	
7350.00	7344.93	290.96	16.10	15.92	Thistle Unit 55H (p)	140.12	107.23	4.26	
7400.00	7394.93	290.96	16.21	16.03	Thistle Unit 55H (p)	140.12	107.00	4.23	
7450.00	7444.93	290.96	16.32	16.14	Thistle Unit 55H (p)	140.12	106.78	4.20	
7500.00	7494.93	290.96	16.43	16.25	Thistle Unit 55H (p)	140.12	106.55	4.17	
7550.00	7544.93	290.96	16.54	16.37	Thistle Unit 55H (p)	140.12	106.33	4.15	
7600.00	7594.93	290.96	16.65	16.48	Thistle Unit 55H (p)	140.12	106.11	4.12	
7650.00	7644.93	290.96	16.76	16.59	Thistle Unit 55H (p)	140.12	105.88	4.09	
7700.00	7694.93	290.96	16.87	16.70	Thistle Unit 55H (p)	140.12	105.66	4.07	
7750.00	7744.93	290.96	16.99	16.81	Thistle Unit 55H (p)	140.12	105.43	4.04	
7800.00	7794.93	290.96	17.10	16.92	Thistle Unit 55H (p)	140.12	105.21	4.01	
7850.00	7844.93	290.96	17.21	17.03	Thistle Unit 55H (p)	140.12	104.99	3.99	
7900.00	7894.93	290.96	17.32	17.15	Thistle Unit 55H (p)	140.12	104.76	3.96	

SD Anti-Collision Report

Primary Well: Thistle Unit 26H (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
7950.00	7944.93	290.96	17.43	17.26	Thistle Unit 55H (p)	140.12	104.54	3.94	
8000.00	7994.93	290.96	17.54	17.37	Thistle Unit 55H (p)	140.12	104.32	3.91	
8050.00	8044.93	290.96	17.65	17.48	Thistle Unit 55H (p)	140.12	104.09	3.89	
8100.00	8094.93	290.96	17.76	17.59	Thistle Unit 55H (p)	140.12	103.87	3.87	
8150.00	8144.93	290.96	17.87	17.70	Thistle Unit 55H (p)	140.12	103.64	3.84	
8200.00	8194.93	290.96	17.98	17.82	Thistle Unit 55H (p)	140.12	103.42	3.82	
8250.00	8244.93	290.96	18.09	17.93	Thistle Unit 55H (p)	140.12	103.20	3.80	
8300.00	8294.93	290.96	18.21	18.04	Thistle Unit 55H (p)	140.12	102.97	3.77	
8350.00	8344.93	290.96	18.32	18.15	Thistle Unit 55H (p)	140.12	102.75	3.75	
8400.00	8394.88	292.45	18.37	18.26	Thistle Unit 55H (p)	139.45	101.86	3.71	
8450.00	8444.39	289.56	18.37	18.30	Thistle Unit 55H (p)	136.98	99.19	3.62	
8500.00	8492.91	284.43	18.48	18.15	Thistle Unit 55H (p)	133.39	95.43	3.51	
8550.00	8539.92	277.21	18.57	17.80	Thistle Unit 55H (p)	130.02	91.89	3.41	
8600.00	8584.90	268.40	18.69	17.44	Thistle Unit 55H (p)	128.88	90.50	3.36	
8650.00	8627.35	277.16	18.81	16.91	Thistle Unit 61H (p)	128.72	90.10	3.33	
8700.00	8666.82	266.19	18.91	16.35	Thistle Unit 61H (p)	127.73	88.91	3.29	
8750.00	8702.86	256.17	19.09	15.68	Thistle Unit 61H (p)	135.23	96.21	3.47	
8800.00	8735.09	248.26	19.24	15.04	Thistle Unit 61H (p)	152.47	113.39	3.90	
8850.00	8763.15	242.99	19.44	14.32	Thistle Unit 61H (p)	178.62	139.39	4.55	
8900.00	8786.73	240.49	19.59	13.72	Thistle Unit 61H (p)	211.89	172.53	5.38	
8950.00	8805.57	240.91	19.92	13.17	Thistle Unit 61H (p)	250.45	210.93	6.34	
9000.00	8819.48	244.75	20.16	12.72	Thistle Unit 61H (p)	292.81	253.27	7.40	
9050.00	8828.29	252.97	20.45	12.42	Thistle Unit 61H (p)	337.80	298.19	8.53	
9100.00	8831.91	266.71	20.82	12.30	Thistle Unit 61H (p)	384.43	344.86	9.71	

Secondary Well: Thistle Unit 61H (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
2200.00	2200.00	2199.00	359.75	4.83	4.83	100.11	89.88	9.79	
2250.00	2250.00	2249.00	359.75	4.94	4.94	100.11	89.66	9.58	
2300.00	2300.00	2299.00	359.75	5.06	5.06	100.11	89.44	9.38	
2350.00	2350.00	2349.00	359.75	5.17	5.17	100.11	89.21	9.18	
2400.00	2400.00	2399.00	359.75	5.28	5.28	100.11	88.99	9.00	
2450.00	2450.00	2449.00	359.75	5.39	5.39	100.11	88.76	8.82	
2500.00	2500.00	2499.00	359.75	5.51	5.51	100.11	88.54	8.65	
2550.00	2550.00	2549.00	359.75	5.62	5.62	100.11	88.31	8.48	
2600.00	2600.00	2599.00	359.75	5.73	5.73	100.11	88.09	8.33	
2650.00	2650.00	2649.00	359.75	5.84	5.84	100.11	87.86	8.17	
2700.00	2700.00	2699.00	359.75	5.95	5.95	100.11	87.64	8.03	
2750.00	2750.00	2749.00	359.75	6.07	6.07	100.11	87.41	7.88	
2800.00	2800.00	2799.00	359.75	6.18	6.18	100.11	87.19	7.75	
2850.00	2850.00	2849.00	359.75	6.29	6.29	100.11	86.96	7.61	
2900.00	2900.00	2899.00	359.75	6.40	6.40	100.11	86.74	7.49	
2950.00	2950.00	2949.00	359.75	6.52	6.52	100.11	86.51	7.36	

5D Anti-Collision Report

Secondary Well - Thistle Unit G1H (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
3000.00	3000.00	2999.00	359.75	6.63	6.63	100.11	86.29	7.24
3050.00	3050.00	3049.00	359.75	6.74	6.74	100.11	86.06	7.13
3100.00	3100.00	3099.00	359.75	6.85	6.85	100.11	85.84	7.01
3150.00	3150.00	3149.00	359.75	6.97	6.97	100.11	85.61	6.90
3200.00	3200.00	3199.00	359.75	7.08	7.08	100.11	85.39	6.80
3250.00	3250.00	3249.00	359.75	7.19	7.19	100.11	85.16	6.70
3300.00	3300.00	3299.00	359.75	7.30	7.30	100.11	84.94	6.60
3350.00	3350.00	3349.00	359.75	7.42	7.42	100.11	84.71	6.50
3400.00	3400.00	3399.00	359.75	7.53	7.53	100.11	84.49	6.41
3450.00	3450.00	3449.00	359.75	7.64	7.64	100.11	84.26	6.32
3500.00	3500.00	3499.00	359.75	7.75	7.75	100.11	84.04	6.23
3550.00	3550.00	3549.00	359.75	7.87	7.87	100.11	83.81	6.14
3600.00	3600.00	3599.00	359.75	7.98	7.98	100.11	83.59	6.06
3650.00	3650.00	3649.00	359.75	8.09	8.09	100.11	83.36	5.98
3700.00	3700.00	3699.00	359.75	8.20	8.20	100.11	83.14	5.90
3750.00	3750.00	3749.00	359.75	8.32	8.32	100.11	82.92	5.82
3800.00	3800.00	3799.00	359.75	8.43	8.43	100.11	82.69	5.75
3850.00	3850.00	3849.00	359.75	8.54	8.54	100.11	82.47	5.67
3900.00	3900.00	3899.00	359.75	8.65	8.65	100.11	82.24	5.60
3950.00	3950.00	3949.00	359.75	8.77	8.77	100.11	82.02	5.53
4000.00	4000.00	3999.00	359.75	8.88	8.88	100.11	81.79	5.47
4050.00	4050.00	4049.00	359.75	8.99	8.99	100.11	81.57	5.40
4100.00	4100.00	4099.00	359.75	9.10	9.10	100.11	81.34	5.33
4150.00	4150.00	4149.00	359.75	9.21	9.21	100.11	81.12	5.27
4200.00	4200.00	4199.00	269.67	9.33	9.33	100.11	80.93	5.22
4250.00	4250.00	4249.00	269.33	9.44	9.44	100.12	80.73	5.16
4300.00	4299.99	4298.99	268.75	9.55	9.55	100.13	80.53	5.11
4350.00	4349.96	4348.96	267.91	9.66	9.66	100.18	80.35	5.05
4400.00	4399.93	4398.93	266.84	9.78	9.78	100.26	80.23	5.00
4450.00	4449.87	4448.87	265.51	9.89	9.89	100.42	80.18	4.96
4500.00	4499.80	4498.80	263.95	10.00	10.00	100.67	80.22	4.92
4550.00	4549.69	4548.69	262.15	10.11	10.11	101.06	80.38	4.89
4600.00	4599.56	4598.56	260.13	10.22	10.22	101.62	80.74	4.87
4650.00	4649.40	4648.40	257.90	10.34	10.34	102.40	81.30	4.85
4700.00	4699.21	4698.21	255.55	10.45	10.45	103.40	82.10	4.85
4750.00	4749.02	4748.02	253.25	10.56	10.56	104.58	83.04	4.85
4800.00	4798.83	4797.83	251.00	10.67	10.67	105.92	84.16	4.87
4850.00	4848.64	4847.64	248.81	10.79	10.79	107.43	85.47	4.89
4900.00	4898.44	4897.44	246.68	10.90	10.90	109.08	86.90	4.92
4950.00	4948.25	4947.25	244.62	11.01	11.01	110.89	88.49	4.95
5000.00	4998.06	4997.06	242.62	11.12	11.12	112.83	90.19	4.98
5050.00	5047.87	5046.87	240.70	11.23	11.23	114.90	92.05	5.03
5100.00	5097.68	5096.68	238.84	11.34	11.34	117.10	94.06	5.08
5150.00	5147.49	5146.49	237.06	11.46	11.46	119.42	96.16	5.13
5200.00	5197.30	5196.30	235.34	11.57	11.57	121.85	98.38	5.19
5250.00	5247.11	5246.11	233.70	11.68	11.68	124.39	100.68	5.25
5300.00	5296.92	5295.92	232.12	11.79	11.79	127.02	103.08	5.31
5350.00	5346.73	5345.73	230.60	11.90	11.90	129.75	105.59	5.37
5400.00	5396.54	5395.54	229.15	12.02	12.02	132.57	108.21	5.44
5450.00	5446.35	5445.35	227.76	12.13	12.13	135.46	110.90	5.51
5500.00	5496.16	5495.16	226.42	12.24	12.24	138.44	113.65	5.59
5550.00	5545.97	5544.97	225.15	12.35	12.35	141.48	116.49	5.66
5600.00	5595.78	5594.78	223.93	12.46	12.46	144.59	119.36	5.73
5650.00	5645.59	5644.59	222.76	12.58	12.58	147.77	122.30	5.80
5700.00	5695.41	5694.41	221.66	12.69	12.69	150.89	125.20	5.87
5750.00	5745.27	5744.27	220.70	12.80	12.80	153.73	127.84	5.94
5800.00	5795.16	5794.16	219.89	12.91	12.91	156.28	130.18	5.99
5850.00	5845.07	5844.07	219.20	13.02	13.02	158.52	132.22	6.03

5D Anti-Collision Report

Secondary Wells - This Unit 61H (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
5900.00	5895.01	5894.01	218.63	13.14	13.14	160.45	133.94	6.05	
5950.00	5944.97	5943.97	218.17	13.25	13.25	162.04	135.33	6.07	
6000.00	5994.95	5993.95	217.82	13.36	13.36	163.30	136.39	6.07	
6050.00	6044.93	6043.93	217.57	13.47	13.47	164.22	137.10	6.06	
6100.00	6094.93	6093.93	217.41	13.59	13.59	164.79	137.47	6.03	
6150.00	6144.93	6143.93	217.35	13.70	13.70	165.02	137.49	5.99	
6200.00	6194.93	6193.93	307.35	13.81	13.81	165.02	137.28	5.95	
6250.00	6244.93	6243.93	307.35	13.92	13.92	165.02	137.05	5.90	
6300.00	6294.93	6293.93	307.35	14.04	14.04	165.02	136.83	5.85	
6350.00	6344.93	6343.93	307.35	14.15	14.15	165.02	136.61	5.81	
6400.00	6394.93	6393.93	307.35	14.26	14.26	165.02	136.39	5.76	
6450.00	6444.93	6443.93	307.35	14.37	14.37	165.02	136.16	5.72	
6500.00	6494.93	6493.93	307.35	14.49	14.49	165.02	135.94	5.67	
6550.00	6544.93	6543.93	307.35	14.60	14.60	165.02	135.72	5.63	
6600.00	6594.93	6593.93	307.35	14.71	14.71	165.02	135.50	5.59	
6650.00	6644.93	6643.93	307.35	14.82	14.82	165.02	135.27	5.55	
6700.00	6694.93	6693.93	307.35	14.93	14.93	165.02	135.05	5.51	
6750.00	6744.93	6743.93	307.35	15.05	15.05	165.02	134.83	5.46	
6800.00	6794.93	6793.93	307.35	15.16	15.16	165.02	134.60	5.42	
6850.00	6844.93	6843.93	307.35	15.27	15.27	165.02	134.38	5.39	
6900.00	6894.93	6893.93	307.35	15.38	15.38	165.02	134.16	5.35	
6950.00	6944.93	6943.93	307.35	15.50	15.50	165.02	133.94	5.31	
7000.00	6994.93	6993.93	307.35	15.61	15.61	165.02	133.71	5.27	
7050.00	7044.93	7043.93	307.35	15.72	15.72	165.02	133.49	5.23	
7100.00	7094.93	7093.93	307.35	15.83	15.83	165.02	133.27	5.20	
7150.00	7144.93	7143.93	307.35	15.95	15.95	165.02	133.04	5.16	
7200.00	7194.93	7193.93	307.35	16.06	16.06	165.02	132.82	5.12	
7250.00	7244.93	7243.93	307.35	16.17	16.17	165.02	132.60	5.09	
7300.00	7294.93	7293.93	307.35	16.28	16.28	165.02	132.37	5.05	
7350.00	7344.93	7343.93	307.35	16.40	16.40	165.02	132.15	5.02	
7400.00	7394.93	7393.93	307.35	16.51	16.51	165.02	131.93	4.99	
7450.00	7444.93	7443.93	307.35	16.62	16.62	165.02	131.70	4.95	
7500.00	7494.93	7493.93	307.35	16.73	16.73	165.02	131.48	4.92	
7550.00	7544.93	7543.93	307.35	16.85	16.85	165.02	131.26	4.89	
7600.00	7594.93	7593.93	307.35	16.96	16.96	165.02	131.04	4.86	
7650.00	7644.93	7643.93	307.35	17.07	17.07	165.02	130.81	4.82	
7700.00	7694.93	7693.93	307.35	17.18	17.18	165.02	130.59	4.79	
7750.00	7744.93	7743.93	307.35	17.30	17.30	165.02	130.37	4.76	
7800.00	7794.93	7793.93	307.35	17.41	17.41	165.02	130.14	4.73	
7850.00	7844.93	7843.93	307.35	17.52	17.52	165.02	129.92	4.70	
7900.00	7894.93	7893.93	307.35	17.63	17.63	165.02	129.70	4.67	
7950.00	7944.93	7943.93	307.35	17.74	17.74	165.02	129.47	4.64	
8000.00	7994.93	7993.93	307.35	17.86	17.86	165.02	129.25	4.61	
8050.00	8044.93	8043.93	307.35	17.97	17.97	165.02	129.03	4.58	
8100.00	8094.93	8093.93	307.35	18.08	18.08	165.02	128.80	4.56	
8150.00	8144.93	8143.93	307.35	18.19	18.19	165.02	128.58	4.53	
8200.00	8194.93	8193.93	307.35	18.31	18.31	165.02	128.36	4.50	
8250.00	8244.93	8243.93	307.35	18.42	18.42	165.02	128.13	4.47	
8300.00	8294.93	8293.93	307.35	18.53	18.53	165.02	127.91	4.45	
8350.00	8344.93	8343.93	307.35	18.64	18.64	165.02	127.69	4.42	
8400.00	8394.88	8393.88	308.99	18.76	18.76	163.94	126.39	4.37	
8450.00	8444.39	8443.39	306.70	18.87	18.87	159.73	121.98	4.23	
8500.00	8492.91	8491.91	302.47	18.98	18.98	152.80	114.80	4.02	
8550.00	8539.92	8538.92	296.10	19.08	19.08	144.10	105.92	3.77	
8600.00	8584.90	8583.90	287.51	19.18	19.18	135.25	96.79	3.52	
8650.00	8627.35	8626.35	277.16	19.28	19.28	128.72	90.10	3.33	
8700.00	8666.82	8665.82	266.19	19.37	19.37	127.73	88.91	3.29	
8750.00	8702.86	8701.86	256.17	19.45	19.45	135.23	96.21	3.47	

5D Anti-Collision Report

Secondary Well : Thistle Unit 61W (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
8800.00	8735.09	8734.09	248.26	19.52	19.52	152.47	113.39	3.90	
8850.00	8763.15	8762.15	242.99	19.58	19.58	178.62	139.39	4.55	
8900.00	8786.73	8785.73	240.49	19.64	19.64	211.89	172.53	5.38	
8950.00	8805.57	8804.57	240.91	19.68	19.68	250.45	210.93	6.34	
9000.00	8819.48	8818.48	244.75	19.71	19.71	292.81	253.27	7.40	
9050.00	8828.29	8827.29	252.97	19.73	19.73	337.80	298.19	8.53	
9100.00	8831.91	8830.91	266.71	19.74	19.74	384.43	344.86	9.71	
Secondary Well : Thistle Unit 55H (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
1050.00	1050.00	1048.00	359.91	2.25	2.25	50.13	45.07	9.91	
1100.00	1100.00	1098.00	359.91	2.36	2.36	50.13	44.85	9.50	
1150.00	1150.00	1148.00	359.91	2.47	2.47	50.13	44.62	9.10	
1200.00	1200.00	1198.00	359.91	2.58	2.58	50.13	44.40	8.75	
1250.00	1250.00	1248.00	359.91	2.70	2.70	50.13	44.17	8.41	
1300.00	1300.00	1298.00	359.91	2.81	2.81	50.13	43.95	8.11	
1350.00	1350.00	1348.00	359.91	2.92	2.92	50.13	43.72	7.82	
1400.00	1400.00	1398.00	359.91	3.03	3.03	50.13	43.50	7.56	
1450.00	1450.00	1448.00	359.91	3.14	3.14	50.13	43.27	7.31	
1500.00	1500.00	1498.00	359.91	3.26	3.26	50.13	43.05	7.08	
1550.00	1550.00	1548.00	359.91	3.37	3.37	50.13	42.82	6.86	
1600.00	1600.00	1598.00	359.91	3.48	3.48	50.13	42.60	6.66	
1650.00	1650.00	1648.00	359.91	3.59	3.59	50.13	42.38	6.46	
1700.00	1700.00	1698.00	359.91	3.70	3.70	50.13	42.15	6.29	
1750.00	1750.00	1748.00	359.91	3.82	3.82	50.13	41.93	6.11	
1800.00	1800.00	1798.00	359.91	3.93	3.93	50.13	41.70	5.95	
1850.00	1850.00	1848.00	359.91	4.04	4.04	50.13	41.48	5.79	
1900.00	1900.00	1898.00	359.91	4.15	4.15	50.13	41.25	5.65	
1950.00	1950.00	1948.00	359.91	4.27	4.27	50.13	41.03	5.51	
2000.00	2000.00	1998.00	359.91	4.38	4.38	50.13	40.81	5.38	
2050.00	2050.00	2048.00	359.91	4.49	4.49	50.13	40.58	5.25	
2100.00	2100.00	2098.00	359.91	4.60	4.60	50.13	40.36	5.13	
2150.00	2150.00	2148.00	359.91	4.72	4.72	50.13	40.13	5.01	
2200.00	2200.00	2198.00	359.91	4.83	4.83	50.13	39.91	4.90	
2250.00	2250.00	2248.00	359.91	4.94	4.94	50.13	39.68	4.80	
2300.00	2300.00	2298.00	359.91	5.05	5.05	50.13	39.46	4.70	
2350.00	2350.00	2348.00	359.91	5.17	5.17	50.13	39.23	4.60	
2400.00	2400.00	2398.00	359.91	5.28	5.28	50.13	39.01	4.51	
2450.00	2450.00	2448.00	359.91	5.39	5.39	50.13	38.78	4.42	
2500.00	2500.00	2498.00	359.91	5.50	5.50	50.13	38.56	4.33	
2550.00	2550.00	2548.00	359.91	5.62	5.62	50.13	38.33	4.25	
2600.00	2600.00	2598.00	359.91	5.73	5.73	50.13	38.11	4.17	
2650.00	2650.00	2648.00	359.91	5.84	5.84	50.13	37.88	4.09	
2700.00	2700.00	2698.00	359.91	5.95	5.95	50.13	37.66	4.02	
2750.00	2750.00	2748.00	359.91	6.07	6.07	50.13	37.43	3.95	
2800.00	2800.00	2798.00	359.91	6.18	6.18	50.13	37.21	3.88	
2850.00	2850.00	2848.00	359.91	6.29	6.29	50.13	36.98	3.81	
2900.00	2900.00	2898.00	359.91	6.40	6.40	50.13	36.76	3.75	
2950.00	2950.00	2948.00	359.91	6.52	6.52	50.13	36.53	3.69	
3000.00	3000.00	2998.00	359.91	6.63	6.63	50.13	36.31	3.63	
3050.00	3050.00	3048.00	359.91	6.74	6.74	50.13	36.08	3.57	
3100.00	3100.00	3098.00	359.91	6.85	6.85	50.13	35.86	3.51	
3150.00	3150.00	3148.00	359.91	6.96	6.96	50.13	35.63	3.46	
3200.00	3200.00	3198.00	359.91	7.08	7.08	50.13	35.41	3.41	
3250.00	3250.00	3248.00	359.91	7.19	7.19	50.13	35.18	3.35	
3300.00	3300.00	3298.00	359.91	7.30	7.30	50.13	34.96	3.30	
3350.00	3350.00	3348.00	359.91	7.41	7.41	50.13	34.73	3.26	
3400.00	3400.00	3398.00	359.91	7.53	7.53	50.13	34.51	3.21	

SD Anti-Collision Report

Secondary Well : Thistle Unit 55H (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
3450.00	3450.00	3448.00	359.91	7.64	7.64	50.13	34.28	3.16	
3500.00	3500.00	3498.00	359.91	7.75	7.75	50.13	34.06	3.12	
3550.00	3550.00	3548.00	359.91	7.86	7.86	50.13	33.84	3.08	
3600.00	3600.00	3598.00	359.91	7.98	7.98	50.13	33.61	3.03	
3650.00	3650.00	3648.00	359.91	8.09	8.09	50.13	33.39	2.99	
3700.00	3700.00	3698.00	359.91	8.20	8.20	50.13	33.16	2.95	
3750.00	3750.00	3748.00	359.91	8.31	8.31	50.13	32.94	2.92	
3800.00	3800.00	3798.00	359.91	8.43	8.43	50.13	32.71	2.88	
3850.00	3850.00	3848.00	359.91	8.54	8.54	50.13	32.49	2.84	
3900.00	3900.00	3898.00	359.91	8.65	8.65	50.13	32.26	2.81	
3950.00	3950.00	3948.00	359.91	8.76	8.76	50.13	32.04	2.77	
4000.00	4000.00	3998.00	359.91	8.87	8.87	50.13	31.81	2.74	
4050.00	4050.00	4048.00	359.91	8.99	8.99	50.13	31.59	2.70	
4100.00	4100.00	4098.00	359.91	9.10	9.10	50.13	31.36	2.67	
4150.00	4150.00	4148.00	359.91	9.21	9.21	50.13	31.14	2.64	
4200.00	4200.00	4198.00	269.73	9.32	9.32	50.13	30.95	2.61	
4250.00	4250.00	4248.00	269.06	9.44	9.44	50.14	30.75	2.59	
4300.00	4299.99	4297.99	267.90	9.55	9.55	50.16	30.56	2.56	
4350.00	4349.96	4347.96	266.24	9.66	9.66	50.24	30.42	2.53	
4400.00	4399.93	4397.93	264.09	9.77	9.77	50.40	30.37	2.52	
4450.00	4449.87	4447.87	261.48	9.89	9.89	50.69	30.44	2.50	
4500.00	4499.80	4497.80	258.43	10.00	10.00	51.17	30.72	2.50	
4550.00	4549.69	4547.69	254.98	10.11	10.11	51.91	31.25	2.51	
4600.00	4599.56	4597.56	251.20	10.22	10.22	52.97	32.08	2.54	
4650.00	4649.40	4647.40	247.16	10.33	10.33	54.42	33.33	2.58	
4700.00	4699.21	4697.21	243.09	10.45	10.45	56.26	34.94	2.64	
4750.00	4749.02	4747.02	239.28	10.56	10.56	58.37	36.85	2.71	
4800.00	4798.83	4796.83	235.75	10.67	10.67	60.72	38.99	2.79	
4850.00	4848.64	4846.64	232.50	10.78	10.78	63.28	41.31	2.88	
4900.00	4898.44	4896.44	229.50	10.89	10.89	66.03	43.86	2.98	
4950.00	4948.25	4946.25	226.75	11.01	11.01	68.94	46.57	3.08	
5000.00	4998.06	4996.06	224.23	11.12	11.12	72.01	49.41	3.19	
5050.00	5047.87	5045.87	221.92	11.23	11.23	75.20	52.36	3.29	
5100.00	5097.68	5095.68	219.80	11.34	11.34	78.50	55.47	3.41	
5150.00	5147.49	5145.49	217.85	11.45	11.45	81.90	58.67	3.53	
5200.00	5197.30	5195.30	216.06	11.57	11.57	85.39	61.94	3.64	
5250.00	5247.11	5245.11	214.40	11.68	11.68	88.95	65.28	3.76	
5300.00	5296.92	5294.92	212.88	11.79	11.79	92.58	68.68	3.87	
5350.00	5346.73	5344.73	211.48	11.90	11.90	96.28	72.15	3.99	
5400.00	5396.54	5394.54	210.17	12.01	12.01	100.02	75.69	4.11	
5450.00	5446.35	5444.35	208.97	12.13	12.13	103.82	79.29	4.23	
5500.00	5496.16	5494.16	207.84	12.24	12.24	107.65	82.92	4.35	
5550.00	5545.97	5543.97	206.80	12.35	12.35	111.53	86.57	4.47	
5600.00	5595.78	5593.78	205.82	12.46	12.46	115.44	90.27	4.59	
5650.00	5645.59	5643.59	204.91	12.57	12.57	119.38	94.00	4.70	
5700.00	5695.41	5693.41	204.08	12.69	12.69	123.21	97.59	4.81	
5750.00	5745.27	5743.27	203.37	12.80	12.80	126.66	100.83	4.90	
5800.00	5795.16	5793.16	202.77	12.91	12.91	129.74	103.69	4.98	
5850.00	5845.07	5843.07	202.27	13.02	13.02	132.42	106.16	5.04	
5900.00	5895.01	5893.01	201.87	13.13	13.13	134.71	108.23	5.09	
5950.00	5944.97	5942.97	201.54	13.25	13.25	136.60	109.91	5.12	
6000.00	5994.95	5992.95	201.29	13.36	13.36	138.08	111.19	5.13	
6050.00	6044.93	6042.93	201.12	13.47	13.47	139.17	112.06	5.13	
6100.00	6094.93	6092.93	201.01	13.58	13.58	139.84	112.52	5.12	
6150.00	6144.93	6142.93	200.96	13.70	13.70	140.11	112.58	5.09	
6200.00	6194.93	6192.93	290.96	13.81	13.81	140.12	112.37	5.05	
6250.00	6244.93	6242.93	290.96	13.92	13.92	140.12	112.14	5.01	
6300.00	6294.93	6292.93	290.96	14.03	14.03	140.12	111.92	4.97	

5D Anti-Collision Report

Secondary Well : Thistle Unit 55H (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
6350.00	6344.93	6342.93	290.96	14.15	14.15	140.12	111.70	4.93	
6400.00	6394.93	6392.93	290.96	14.26	14.26	140.12	111.47	4.89	
6450.00	6444.93	6442.93	290.96	14.37	14.37	140.12	111.25	4.85	
6500.00	6494.93	6492.93	290.96	14.48	14.48	140.12	111.03	4.82	
6550.00	6544.93	6542.93	290.96	14.60	14.60	140.12	110.80	4.78	
6600.00	6594.93	6592.93	290.96	14.71	14.71	140.12	110.58	4.74	
6650.00	6644.93	6642.93	290.96	14.82	14.82	140.12	110.36	4.71	
6700.00	6694.93	6692.93	290.96	14.93	14.93	140.12	110.13	4.67	
6750.00	6744.93	6742.93	290.96	15.05	15.05	140.12	109.91	4.64	
6800.00	6794.93	6792.93	290.96	15.16	15.16	140.12	109.69	4.60	
6850.00	6844.93	6842.93	290.96	15.27	15.27	140.12	109.46	4.57	
6900.00	6894.93	6892.93	290.96	15.38	15.38	140.12	109.24	4.54	
6950.00	6944.93	6942.93	290.96	15.49	15.49	140.12	109.02	4.51	
7000.00	6994.93	6992.93	290.96	15.61	15.61	140.12	108.79	4.47	
7050.00	7044.93	7042.93	290.96	15.72	15.72	140.12	108.57	4.44	
7100.00	7094.93	7092.93	290.96	15.83	15.83	140.12	108.34	4.41	
7150.00	7144.93	7142.93	290.96	15.94	15.94	140.12	108.12	4.38	
7200.00	7194.93	7192.93	290.96	16.06	16.06	140.12	107.90	4.35	
7250.00	7244.93	7242.93	290.96	16.17	16.17	140.12	107.67	4.32	
7300.00	7294.93	7292.93	290.96	16.28	16.28	140.12	107.45	4.29	
7350.00	7344.93	7342.93	290.96	16.39	16.39	140.12	107.23	4.26	
7400.00	7394.93	7392.93	290.96	16.51	16.51	140.12	107.00	4.23	
7450.00	7444.93	7442.93	290.96	16.62	16.62	140.12	106.78	4.20	
7500.00	7494.93	7492.93	290.96	16.73	16.73	140.12	106.55	4.17	
7550.00	7544.93	7542.93	290.96	16.84	16.84	140.12	106.33	4.15	
7600.00	7594.93	7592.93	290.96	16.96	16.96	140.12	106.11	4.12	
7650.00	7644.93	7642.93	290.96	17.07	17.07	140.12	105.88	4.09	
7700.00	7694.93	7692.93	290.96	17.18	17.18	140.12	105.66	4.07	
7750.00	7744.93	7742.93	290.96	17.29	17.29	140.12	105.43	4.04	
7800.00	7794.93	7792.93	290.96	17.41	17.41	140.12	105.21	4.01	
7850.00	7844.93	7842.93	290.96	17.52	17.52	140.12	104.99	3.99	
7900.00	7894.93	7892.93	290.96	17.63	17.63	140.12	104.76	3.96	
7950.00	7944.93	7942.93	290.96	17.74	17.74	140.12	104.54	3.94	
8000.00	7994.93	7992.93	290.96	17.85	17.85	140.12	104.32	3.91	
8050.00	8044.93	8042.93	290.96	17.97	17.97	140.12	104.09	3.89	
8100.00	8094.93	8092.93	290.96	18.08	18.08	140.12	103.87	3.87	
8150.00	8144.93	8142.93	290.96	18.19	18.19	140.12	103.64	3.84	
8200.00	8194.93	8192.93	290.96	18.30	18.30	140.12	103.42	3.82	
8250.00	8244.93	8242.93	290.96	18.42	18.42	140.12	103.20	3.80	
8300.00	8294.93	8292.93	290.96	18.53	18.53	140.12	102.97	3.77	
8350.00	8344.93	8342.93	290.96	18.64	18.64	140.12	102.75	3.75	
8400.00	8394.88	8392.88	292.45	18.75	18.75	139.45	101.86	3.71	
8450.00	8444.39	8442.39	289.56	18.87	18.87	136.98	99.19	3.62	
8500.00	8492.91	8490.91	284.43	18.97	18.97	133.39	95.43	3.51	
8550.00	8539.92	8537.92	277.21	19.08	19.08	130.02	91.89	3.41	
8600.00	8584.90	8582.90	268.40	19.18	19.18	128.88	90.50	3.36	
8650.00	8627.35	8625.35	259.01	19.28	19.28	132.37	93.86	3.44	
8700.00	8666.82	8664.82	250.25	19.37	19.37	142.59	103.79	3.67	
8750.00	8702.86	8700.86	243.05	19.45	19.45	160.51	121.54	4.12	
8800.00	8735.09	8733.09	237.87	19.52	19.52	185.85	146.71	4.75	
8850.00	8763.15	8761.15	234.85	19.58	19.58	217.56	178.35	5.55	
8900.00	8786.73	8784.73	234.10	19.63	19.63	254.41	215.06	6.47	
8950.00	8805.57	8803.57	235.91	19.68	19.68	295.26	255.84	7.49	
9000.00	8819.48	8817.48	241.01	19.71	19.71	339.10	299.60	8.58	
9050.00	8828.29	8826.29	250.67	19.73	19.73	385.06	345.54	9.74	

**Weatherford®**

Weatherford Drilling Services

GeoDec4 v2.1.0.0

Report Date: January 29, 2015

Job Number: _____

Customer: Devon Energy

Well Name: Thistle Unit 26H

API Number: _____

Rig Name: _____

Location: Lea Co, NM Nad83 NME

Block: _____

Engineer: RWJ

NAD83 / New Mexico East (ftUS)

Projected Coordinate System

Datum: North American Datum 1983 (1986)

Ellipsoid: GRS 1980

EPSG: 2257

North: 467615.90 US Survey Foot

East: 778278.00 US Survey Foot

Convergence: 0.41°

Declination: 7.28°

Total Correction: 6.87°

Datum Transformation: none

NAD83 (1986)

Geodetic Coordinate System

Datum: North American Datum 1983 (1986)

Ellipsoid: GRS 1980

EPSG: 4269

Latitude: 32.283223 Degree

Longitude: -103.566623 Degree

Geodetic Location WGS84

MSL Elevation = 0 m

Latitude = 32° 16' 59.60" N

Longitude = 103° 33' 59.84" W

Magnetic Declination = 7.28 deg

[True North Offset]

Local Gravity = .9988 g

Checksum = 6575

Local Field Strength = 48222 nT

Magnetic Vector X = 23819 nT

Magnetic Dip = 60.13 deg

Magnetic Vector Y = 3042 nT

Magnetic Model = bggm2014.dat

Magnetic Vector Z = 41818 nT

Run Date = June 15, 2015

Magnetic Vector H = 24013 nT

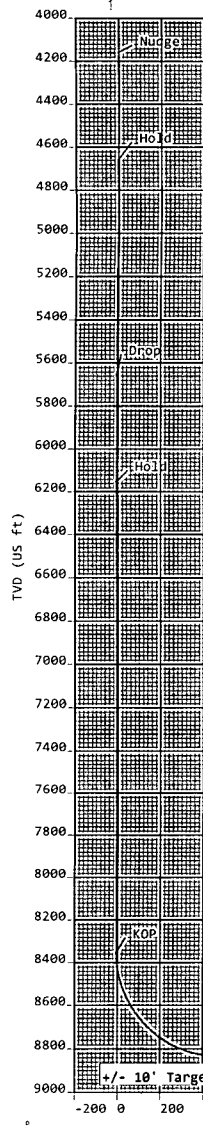
Signed: _____

Date: _____

devon

Thistle Unit 26H
Lea Co, NM

KB-3728
GL-3703



Plan Data for Thistle Unit 26H

Plan Point Information:

MD	Inc	Az	TVD	+N/-S	+E/-W	Northing	Easting	VSec	DLS
(USft)	(°)	(°)	(USft)	(USft)	(USft)	(USft)	(USft)	(USft)	(DLSU)
0.00	0.00	0.00	0.00	0.00	0.00	467615.90	778278.00	0.00	0.00
4158.00	0.00	0.00	4158.00	0.00	0.00	467615.90	778278.00	0.00	0.00
4658.00	5.00	90.00	4657.37	0.00	21.80	467615.90	778299.80	-0.84	1.00
5658.00	5.00	90.00	5653.56	0.00	108.96	467615.90	778386.96	-4.20	0.00
6158.00	0.00	0.00	6152.93	0.00	130.76	467615.90	778408.76	-5.04	1.00
8359.61	0.00	0.00	8354.54	0.00	130.76	467615.90	778408.76	-5.04	0.00
9109.61	90.00	357.79	8832.00	477.11	112.37	468093.01	778390.37	472.42	12.00
13487.15	90.00	357.79	8832.00	4851.40	-56.20	472467.30	778221.80	4849.96	0.00

Plan Data for Thistle Unit 26H

Slot: Thistle Unit 26H

Position:

Offset is from Site centre

+N/-S: -50.13USft Northing: 467615.90USft Latitude: 32°16'59.6"

+E/-W: 0.88USft Easting: 778278.00USft Longitude: -103°33'59.8"

Elevation Above VRD: 3793.00USft

Plan Data for Thistle Unit 26H

Target Set Information:

Name: Thistle Unit 26H

Position offsets from Slot centre

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape	Comment
(USft)	(USft)	(USft)	(USft)	(USft)	(USft)		
PBHL 26H	8832.00	4851.40	-56.20	472467.30	778221.80	Cuboid	

Plan Data for Thistle Unit 26H

Well: Thistle Unit 26H

Type: Main-Well

File Number:

Plan Folder: P1 Plan: P1.V1

Vertical Section: Position offset of origin from Slot centre:

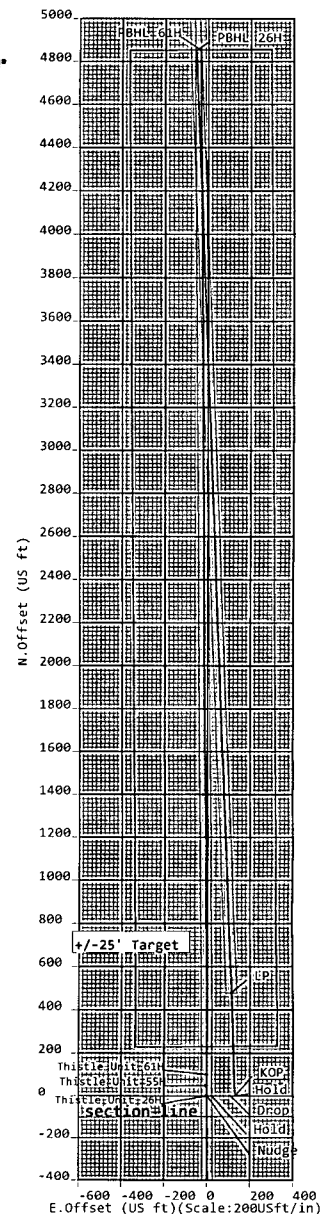
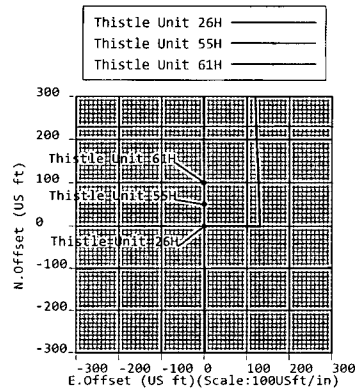
+N/-S: 0.00USft Azimuth: 357.79°

+E/-W: 0.00USft

Magnetic Parameters:

Model: Field Strength: Declination: Dip: Date:

BGGM 48221(nT) 7.28° 60.13° 2015-06-15



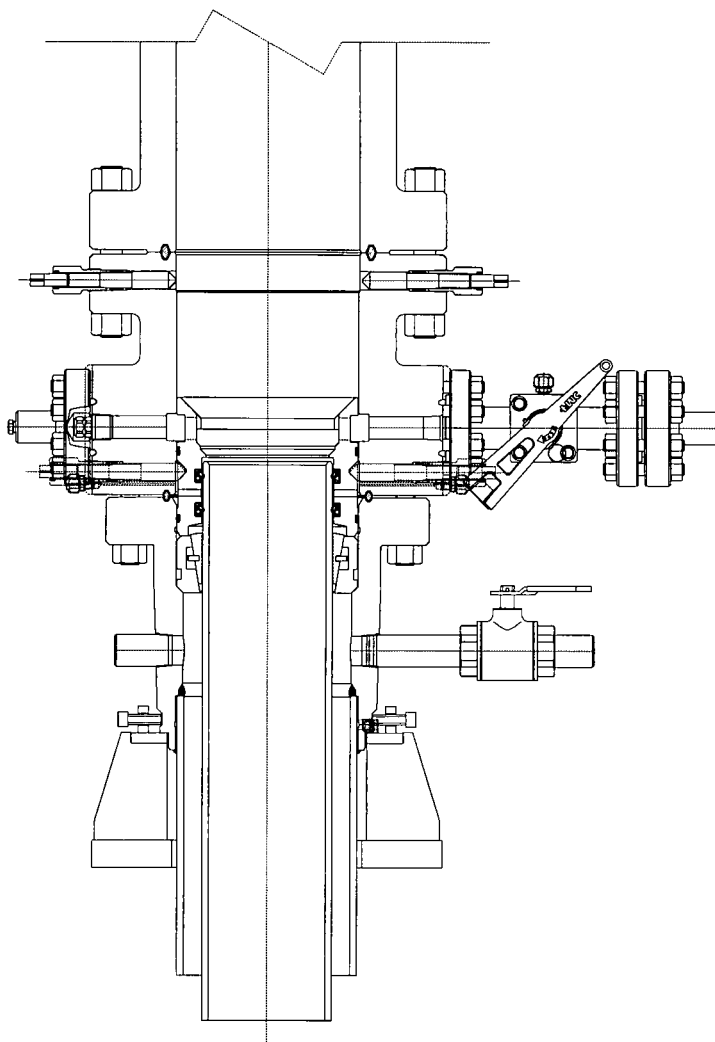
Sign Off: Russell Joyner

DEVON ENERGY

$$13 \frac{3}{8} \times 9 \frac{5}{8}$$

DM100151315

PRIVATE AND CONFIDENTIAL THIS DOCUMENT AND ALL THE INFORMATION CONTAINED HEREIN ARE THE CONFIDENTIAL AND EXCLUSIVE PROPERTY OF FMC TECHNOLOGIES AND MAY NOT BE REPRODUCED, USED, DISCLOSED, OR MADE PUBLIC IN ANY MANNER PRIOR TO EXPRESS WRITTEN AUTHORIZATION BY FMC TECHNOLOGIES. THIS DOCUMENT IS ACCEPTED BY RECIPIENT PURSUANT TO AGREEMENT TO THE FOREGOING, AND MUST BE RETURNED UPON DEMAND.		REVISIONS A 05-08-13 B 1-22-14 C 5-13-14	DESCRIPTION SURFACE WELLHEAD LAYOUT UNIHEAD, UH-1,SOW, DEVON ENERGY, ODESSA	DRAWN BY K. VU 05-08-13 DRAFTING REVIEW Z. MARQUEZ 05-08-13 DESIGN REVIEW K. TAHA 05-08-13 APPROVED BY R. HAMILTON 05-08-13	FMC Technologies DRAWING NUMBER DM100161771-2A
--	--	--	---	--	---



CONTINGENCY MODE

DEVON ENERGY

ARTESIA

S.E.N.M

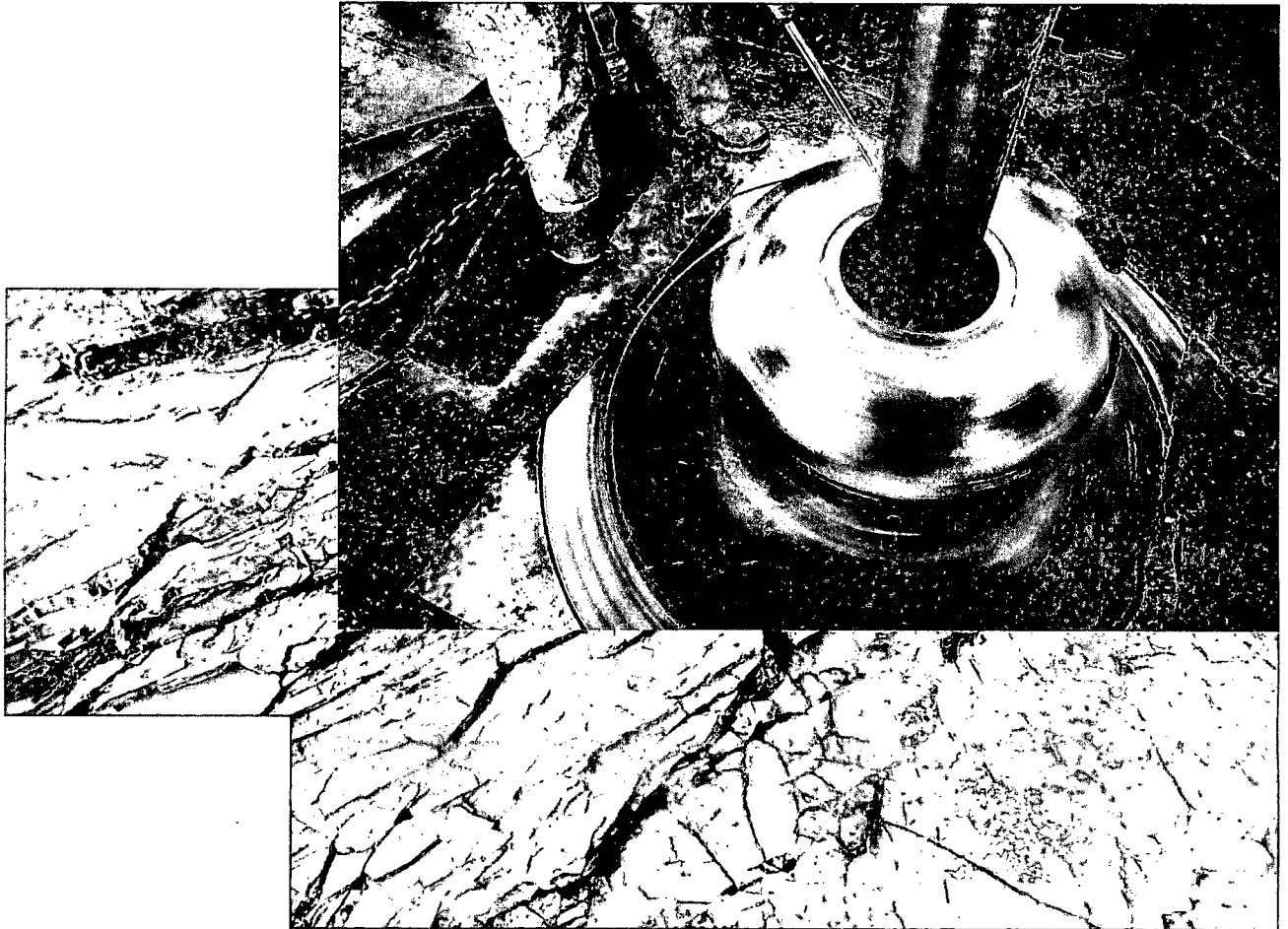
13 3/8 X 9 5/8

QUOTE LAYOUT
F18648
REF: DM100161737
DM100151315

PRIVATE AND CONFIDENTIAL THIS DOCUMENT AND ALL THE INFORMATION CONTAINED HEREIN ARE THE CONFIDENTIAL AND EXCLUSIVE PROPERTY OF FMC TECHNOLOGIES AND MAY NOT BE REPRODUCED, USED, DISCLOSED, OR MADE PUBLIC IN ANY MANNER PRIOR TO EXPRESS WRITTEN AUTHORIZATION BY FMC TECHNOLOGIES. THIS DOCUMENT IS ACCEPTED BY RECIPIENT PURSUANT TO AGREEMENT TO THE FOREGOING, AND MUST BE RETURNED UPON DEMAND. MANUFACTURER AGREES THAT ARTICLES MADE IN ACCORDANCE WITH THIS DOCUMENT SHALL BE CONSIDERED FMC TECHNOLOGIES' DESIGN AND THAT IDENTICAL ARTICLES OR PARTS THEREOF SHALL NOT BE MANUFACTURED FOR THE USE OR SALE BY MANUFACTURER OR ANY OTHER PERSON WITHOUT THE PRIOR EXPRESS WRITTEN AUTHORIZATION BY FMC TECHNOLOGIES	REVISIONS		DESCRIPTION	DRAWN BY		FMCTechnologies DRAWING NUMBER
	A	05-08-13		K. VU	05-08-13	
	B	1-22-14		Z. MARQUEZ	05-08-13	
	C	5-13-14		K. TAHA	05-08-13	
			SURFACE WELLHEAD LAYOUT UNIHEAD, UH-1,SOW, DEVON ENERGY, ODESSA :	APPROVED BY		DM100161771-2B
				R. HAMILTON	05-08-13	



Commitment Runs Deep



Design Plan
Operation and Maintenance Plan
Closure Plan

SENM - Closed Loop Systems
February 2015

I. Design Plan

Devon uses MI SWACO closed loop system (CLS). The MI SWACO CLS is designed to maintain drill solids at or below 5%. The equipment is arranged to progressively remove solids from the largest to the smallest size. Drilling fluids can thus be reused and savings is realized on mud and disposal costs. Dewatering may be required with the centrifuges to insure removal of ultra fine solids.

The drilling location is constructed to allow storm water to flow to a central sump normally the cellar. This insures no contamination leaves the drilling pad in the event of a spill. Storm water is reused in the mud system or stored in a reserve fluid tank farm until it can be reused. All lubricants, oils, or chemicals are removed immediately from the ground to prevent the contamination of storm water. An oil trap is normally installed on the sump if an oil spill occurs during a storm.

A tank farm is utilized to store drilling fluids including fresh water and brine fluids. The tank farm is constructed on a 20 ml plastic lined, bermed pad to prevent the contamination of the drilling site during a spill. Fluids from other sites may be stored in these tanks for processing by the solids control equipment and reused in the mud system. At the end of the well the fluids are transported from the tank farm to an adjoining well or to the next well for the rig.

Prior to installing a closed-loop system on site, the topsoil, if present, will be stripped and stockpiled for use as the final cover or fill at the time of closure.

Signs will be posted on the fence surrounding the closed-loop system unless the closed-loop system is located on a site where there is an existing well, that is operated by Devon.

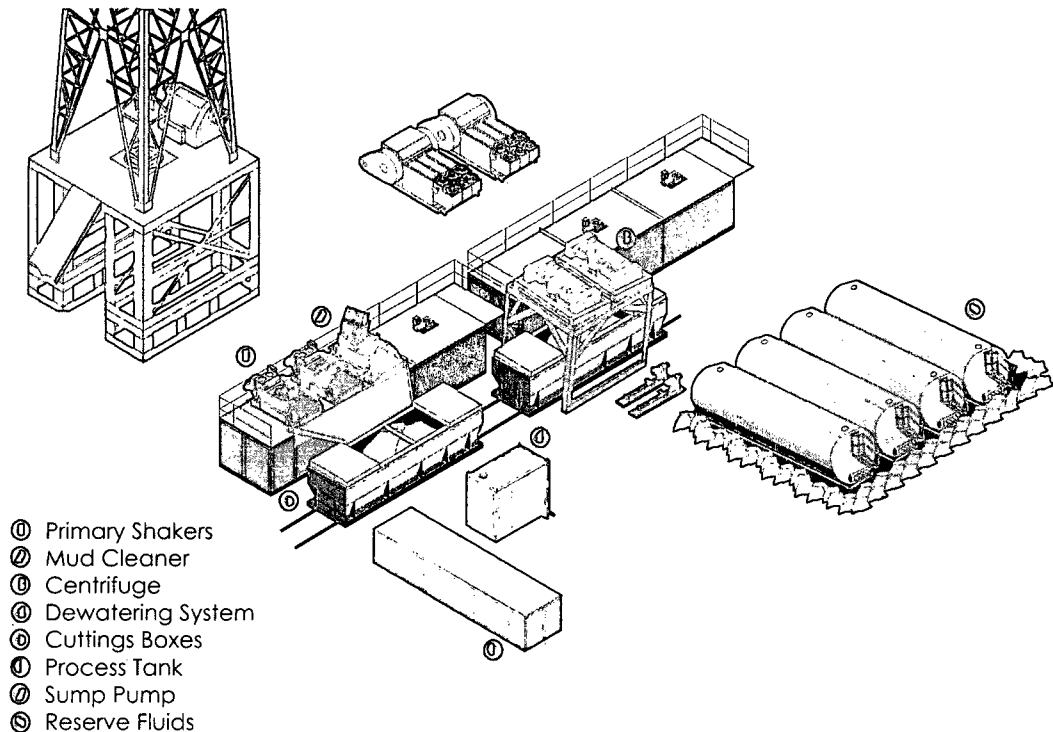
II. Operations and Maintenance Plan

Primary Shakers: The primary shakers make the first removal of drill solids from the drilling mud as it leaves the well bore. The shakers are sized to handle maximum drilling rate at optimal screen size. The shakers normally remove solids down to 74 microns.

Mud Cleaner: The Mud Cleaner cleans the fluid after it leaves the shakers. A set of hydrocyclones are sized to handle 1.25 to 1.5 times the maximum circulating rate. This ensures all the fluid is being processed to an average cut point of 25 microns. The wet discharged is dewatered on a shaker equipped with ultra fine mesh screens and generally cut at 40 microns.



Closed Loop Schematic



Centrifuges: The centrifuges can be one or two in number depending on the well geometry or depth of well. The centrifuges are sized to maintain low gravity solids at 5% or below. They may or may not need a dewatering system to enhance the removal rates. The centrifuges can make a cut point of 8-10 microns depending on bowl speed, feed rate, solids loading and other factors.

The centrifuge system is designed to work on the active system and be flexible to process incoming fluids from other locations. This set-up is also dependant on well factors.

Dewatering System: The dewatering system is a chemical mixing and dosing system designed to enhance the solids removal of the centrifuge. Not commonly used in shallow wells. It may contain pH adjustment, coagulant mixing and dosing, and polymer mixing and dosing. Chemical flocculation binds ultra fine solids into a mass that is within the centrifuge operating design. The

dewatering system improves the centrifuge cut point to infinity or allows for the return of clear water or brine fluid. This ability allows for the ultimate control of low gravity solids.

Cuttings Boxes: Cuttings boxes are utilized to capture drill solids that are discarded from the solids control equipment. These boxes are set upon a rail system that allows for the removal and replacement of a full box of cuttings with an empty one. They are equipped with a cover that insures no product is spilled into the environment during the transportation phase.

Process Tank: (Optional) The process tank allows for the holding and process of fluids that are being transferred into the mud system. Additionally, during times of lost circulation the process tank may hold active fluids that are removed for additional treatment. It can further be used as a mixing tank during well control conditions.

Sump and Sump Pump: The sump is used to collect storm water and the pump is used to transfer this fluid to the active system or to the tank for to hold in reserve. It can also be used to collect fluids that may escape during spills. The location contains drainage ditches that allow the location fluids to drain to the sump.

Reserve Fluids (Tank Farm): A series of frac tanks are used to replace the reserve pit. These are steel tanks that are equipped with a manifold system and a transfer pump. These tanks can contain any number of fluids used during the drilling process. These can include fresh water, cut brine, and saturated salt fluid. The fluid can be from the active well or reclaimed fluid from other locations. A 20 ml liner and berm system is employed to ensure the fluids do not migrate to the environment during a spill.

If a leak develops, the appropriate division district office will be notified within 48 hours of the discovery and the leak will be addressed. Spill prevention is accomplished by maintaining pump packing, hoses, and pipe fittings to insure no leaks are occurring. During an upset condition the source of the spill is isolated and repaired as soon as it is discovered. Free liquid is removed by a diaphragm pump and returned to the mud system. Loose topsoil may be used to stabilize the spill and the contaminated soil is excavated and placed in the cuttings boxes. After the well is finished and the rig has moved, the entire location is scrapped and testing will be performed to determine if a release has occurred.

All trash is kept in a wire mesh enclosure and removed to an approved landfill when full. All spent motor oils are kept in separate containers and they are removed and sent to an approved recycling center. Any spilled lubricants, pipe

dope, or regulated chemicals are removed from soil and sent to landfills approved for these products.

These operations are monitored by Mi Swaco service technicians. Daily logs are maintained to ensure optimal equipment operation and maintenance. Screen and chemical use is logged to maintain inventory control. Fluid properties are monitored and recorded and drilling mud volumes are accounted for in the mud storage farm. This data is kept for end of well review to insure performance goals are met. Lessons learned are logged and used to help with continuous improvement.

A MI SWACO field supervisor manages from 3-5 wells. They are responsible for training personnel, supervising installations, and inspecting sites for compliance of MI SWACO safety and operational policy.

III. Closure Plan

A maximum 340' X 340' caliche pad is built per well. All of the trucks and steel tanks fit on this pad. All fluid cuttings go to the steel tanks to be hauled by various trucking companies to an agency approved disposal.