

HOLLAND
DEC 06 2018
RECEIVED

WCDSC Permian NM

Lea County (NAD83 New Mexico East)

Sec 15-T23S-R33E

North Thistle 15-10 State Com 6H

Wellbore #1

Plan: Permit Plan 1

Standard Planning Report - Geographic

15 November, 2018

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well North Thistle 15-10 State Com 6H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3731.20ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3731.20ft
Site:	Sec 15-T23S-R33E	North Reference:	Grid
Well:	North Thistle 15-10 State Com 6H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Project	Lea County (NAD83 New Mexico East)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 15-T23S-R33E			
Site Position:		Northing:	478,077.43 usft	Latitude: 32.311992
From:	Map	Easting:	777,535.58 usft	Longitude: -103.568785
Position Uncertainty:	5.00 ft	Slot Radius:	13-3/16 "	Grid Convergence: 0.41 °

Well	North Thistle 15-10 State Com 6H			
Well Position	+N/-S	0.00 ft	Northing:	473,296.53 usft
	+E/-W	0.00 ft	Easting:	782,031.53 usft
Position Uncertainty		0.50 ft	Wellhead Elevation:	Ground Level: 3,706.20 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/13/2018	6.80	60.12	47,837.30172615

Design	Permit Plan 1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	1.08

Plan Survey Tool Program	Date	11/15/2018		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	20,064.13 Permit Plan 1 (Wellbore #1)	MWD+IFR1 OWSG MWD + IFR1	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,551.30	6.89	149.51	4,549.97	-28.53	16.80	1.25	1.25	0.00	149.51	
8,397.81	6.89	149.51	8,368.69	-426.22	251.00	0.00	0.00	0.00	0.00	
8,857.22	0.00	0.00	8,827.00	-450.00	265.00	1.50	-1.50	0.00	180.00	
9,207.26	0.00	0.00	9,177.04	-450.00	265.00	0.00	0.00	0.00	0.00	
10,107.27	90.00	359.59	9,750.00	122.94	260.90	10.00	10.00	0.00	359.59	
20,064.13	90.00	359.59	9,750.00	10,079.55	189.65	0.00	0.00	0.00	0.00	PBHL - North Thistle

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well North Thistle 15-10 State Com 6H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3731.20ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3731.20ft
Site:	Sec 15-T23S-R33E	North Reference:	Grid
Well:	North Thistle 15-10 State Com 6H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
100.00	0.00	0.00	100.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
200.00	0.00	0.00	200.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
300.00	0.00	0.00	300.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
400.00	0.00	0.00	400.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
500.00	0.00	0.00	500.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
600.00	0.00	0.00	600.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
700.00	0.00	0.00	700.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
800.00	0.00	0.00	800.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
900.00	0.00	0.00	900.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
1,000.00	0.00	0.00	1,000.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
1,100.00	0.00	0.00	1,100.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
1,200.00	0.00	0.00	1,200.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
1,300.00	0.00	0.00	1,300.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
1,400.00	0.00	0.00	1,400.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
1,500.00	0.00	0.00	1,500.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
1,600.00	0.00	0.00	1,600.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
1,700.00	0.00	0.00	1,700.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
1,800.00	0.00	0.00	1,800.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
1,900.00	0.00	0.00	1,900.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
2,000.00	0.00	0.00	2,000.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
2,100.00	0.00	0.00	2,100.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
2,200.00	0.00	0.00	2,200.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
2,300.00	0.00	0.00	2,300.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
2,400.00	0.00	0.00	2,400.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
2,500.00	0.00	0.00	2,500.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
2,600.00	0.00	0.00	2,600.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
2,700.00	0.00	0.00	2,700.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
2,800.00	0.00	0.00	2,800.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
2,900.00	0.00	0.00	2,900.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
3,000.00	0.00	0.00	3,000.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
3,100.00	0.00	0.00	3,100.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
3,200.00	0.00	0.00	3,200.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
3,300.00	0.00	0.00	3,300.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
3,400.00	0.00	0.00	3,400.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
3,500.00	0.00	0.00	3,500.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
3,600.00	0.00	0.00	3,600.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
3,700.00	0.00	0.00	3,700.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
3,800.00	0.00	0.00	3,800.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
3,900.00	0.00	0.00	3,900.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
4,000.00	0.00	0.00	4,000.00	0.00	0.00	473,296.53	782,031.53	32.298762	-103.554345
4,100.00	1.25	149.51	4,099.99	-0.94	0.55	473,295.59	782,032.08	32.298760	-103.554343
4,200.00	2.50	149.51	4,199.94	-3.76	2.21	473,292.77	782,033.74	32.298752	-103.554338
4,300.00	3.75	149.51	4,299.79	-8.46	4.98	473,288.07	782,036.51	32.298739	-103.554329
4,400.00	5.00	149.51	4,399.49	-15.03	8.85	473,281.50	782,040.38	32.298721	-103.554317
4,500.00	6.25	149.51	4,499.01	-23.48	13.82	473,273.06	782,045.35	32.298697	-103.554301
4,551.30	6.89	149.51	4,549.97	-28.53	16.80	473,268.00	782,048.33	32.298683	-103.554291
4,600.00	6.89	149.51	4,598.32	-33.57	19.77	473,262.96	782,051.30	32.298670	-103.554282
4,700.00	6.89	149.51	4,697.60	-43.91	25.86	473,252.62	782,057.38	32.298641	-103.554263
4,800.00	6.89	149.51	4,796.88	-54.25	31.95	473,242.28	782,063.47	32.298612	-103.554243
4,900.00	6.89	149.51	4,896.15	-64.59	38.03	473,231.95	782,069.56	32.298584	-103.554224
5,000.00	6.89	149.51	4,995.43	-74.92	44.12	473,221.61	782,075.65	32.298555	-103.554204
5,100.00	6.89	149.51	5,094.71	-85.26	50.21	473,211.27	782,081.74	32.298527	-103.554185
5,200.00	6.89	149.51	5,193.99	-95.60	56.30	473,200.93	782,087.83	32.298498	-103.554165
5,300.00	6.89	149.51	5,293.26	-105.94	62.39	473,190.59	782,093.92	32.298470	-103.554146

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well North Thistle 15-10 State Com 6H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3731.20ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3731.20ft
Site:	Sec 15-T23S-R33E	North Reference:	Grid
Well:	North Thistle 15-10 State Com 6H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
5,400.00	6.89	149.51	5,392.54	-116.28	68.48	473,180.25	782,100.00	32.298441	-103.554126	
5,500.00	6.89	149.51	5,491.82	-126.62	74.56	473,169.91	782,106.09	32.298413	-103.554107	
5,600.00	6.89	149.51	5,591.10	-136.96	80.65	473,159.57	782,112.18	32.298384	-103.554087	
5,700.00	6.89	149.51	5,690.37	-147.30	86.74	473,149.23	782,118.27	32.298356	-103.554068	
5,800.00	6.89	149.51	5,789.65	-157.64	92.83	473,138.89	782,124.36	32.298327	-103.554048	
5,900.00	6.89	149.51	5,888.93	-167.98	98.92	473,128.56	782,130.45	32.298298	-103.554029	
6,000.00	6.89	149.51	5,988.21	-178.31	105.01	473,118.22	782,136.53	32.298270	-103.554010	
6,100.00	6.89	149.51	6,087.48	-188.65	111.10	473,107.88	782,142.62	32.298241	-103.553990	
6,200.00	6.89	149.51	6,186.76	-198.99	117.18	473,097.54	782,148.71	32.298213	-103.553971	
6,300.00	6.89	149.51	6,286.04	-209.33	123.27	473,087.20	782,154.80	32.298184	-103.553951	
6,400.00	6.89	149.51	6,385.32	-219.67	129.36	473,076.86	782,160.89	32.298156	-103.553932	
6,500.00	6.89	149.51	6,484.59	-230.01	135.45	473,066.52	782,166.98	32.298127	-103.553912	
6,600.00	6.89	149.51	6,583.87	-240.35	141.54	473,056.18	782,173.07	32.298099	-103.553893	
6,700.00	6.89	149.51	6,683.15	-250.69	147.63	473,045.84	782,179.15	32.298070	-103.553873	
6,800.00	6.89	149.51	6,782.43	-261.03	153.72	473,035.51	782,185.24	32.298042	-103.553854	
6,900.00	6.89	149.51	6,881.70	-271.36	159.80	473,025.17	782,191.33	32.298013	-103.553834	
7,000.00	6.89	149.51	6,980.98	-281.70	165.89	473,014.83	782,197.42	32.297985	-103.553815	
7,100.00	6.89	149.51	7,080.26	-292.04	171.98	473,004.49	782,203.51	32.297956	-103.553795	
7,200.00	6.89	149.51	7,179.54	-302.38	178.07	472,994.15	782,209.60	32.297927	-103.553776	
7,300.00	6.89	149.51	7,278.81	-312.72	184.16	472,983.81	782,215.68	32.297899	-103.553757	
7,400.00	6.89	149.51	7,378.09	-323.06	190.25	472,973.47	782,221.77	32.297870	-103.553737	
7,500.00	6.89	149.51	7,477.37	-333.40	196.33	472,963.13	782,227.86	32.297842	-103.553718	
7,600.00	6.89	149.51	7,576.65	-343.74	202.42	472,952.79	782,233.95	32.297813	-103.553698	
7,700.00	6.89	149.51	7,675.92	-354.08	208.51	472,942.46	782,240.04	32.297785	-103.553679	
7,800.00	6.89	149.51	7,775.20	-364.41	214.60	472,932.12	782,246.13	32.297756	-103.553659	
7,900.00	6.89	149.51	7,874.48	-374.75	220.69	472,921.78	782,252.22	32.297728	-103.553640	
8,000.00	6.89	149.51	7,973.76	-385.09	226.78	472,911.44	782,258.30	32.297699	-103.553620	
8,100.00	6.89	149.51	8,073.04	-395.43	232.87	472,901.10	782,264.39	32.297671	-103.553601	
8,200.00	6.89	149.51	8,172.31	-405.77	238.95	472,890.76	782,270.48	32.297642	-103.553581	
8,300.00	6.89	149.51	8,271.59	-416.11	245.04	472,880.42	782,276.57	32.297614	-103.553562	
8,397.81	6.89	149.51	8,368.69	-426.22	251.00	472,870.31	782,282.52	32.297586	-103.553543	
8,400.00	6.86	149.51	8,370.87	-426.45	251.13	472,870.08	782,282.66	32.297585	-103.553543	
8,500.00	5.36	149.51	8,470.30	-435.62	256.53	472,860.91	782,288.06	32.297560	-103.553525	
8,600.00	3.86	149.51	8,569.97	-442.54	260.61	472,853.99	782,292.13	32.297541	-103.553512	
8,700.00	2.36	149.51	8,669.82	-447.21	263.36	472,849.32	782,294.89	32.297528	-103.553503	
8,800.00	0.86	149.51	8,769.78	-449.63	264.78	472,846.90	782,296.31	32.297521	-103.553499	
8,857.22	0.00	0.00	8,827.00	-450.00	265.00	472,846.53	782,296.53	32.297520	-103.553498	
8,900.00	0.00	0.00	8,869.78	-450.00	265.00	472,846.53	782,296.53	32.297520	-103.553498	
9,000.00	0.00	0.00	8,969.78	-450.00	265.00	472,846.53	782,296.53	32.297520	-103.553498	
9,100.00	0.00	0.00	9,069.78	-450.00	265.00	472,846.53	782,296.53	32.297520	-103.553498	
9,200.00	0.00	0.00	9,169.78	-450.00	265.00	472,846.53	782,296.53	32.297520	-103.553498	
9,207.26	0.00	0.00	9,177.04	-450.00	265.00	472,846.53	782,296.53	32.297520	-103.553498	
KOP @ 9207' MD, 50' FSL, 560' FEL										
9,300.00	9.27	359.59	9,269.37	-442.51	264.95	472,854.02	782,296.47	32.297541	-103.553498	
9,400.00	19.27	359.59	9,366.16	-417.89	264.77	472,878.64	782,296.30	32.297608	-103.553498	
9,500.00	29.27	359.59	9,457.21	-376.83	264.48	472,919.70	782,296.00	32.297721	-103.553498	
9,503.72	29.65	359.59	9,460.45	-375.00	264.46	472,921.53	782,295.99	32.297726	-103.553498	
FTP @ 9504' MD, 100' FSL, 560' FEL										
9,600.00	39.27	359.59	9,539.74	-320.59	264.07	472,975.94	782,295.60	32.297876	-103.553498	
9,700.00	49.27	359.59	9,611.25	-250.87	263.58	473,045.66	782,295.10	32.298067	-103.553498	
9,800.00	59.27	359.59	9,669.57	-169.80	262.99	473,126.74	782,294.52	32.298290	-103.553498	
9,900.00	69.27	359.59	9,712.92	-79.82	262.35	473,216.71	782,293.88	32.298538	-103.553498	
10,000.00	79.27	359.59	9,739.99	16.31	261.66	473,312.84	782,293.19	32.298802	-103.553498	
10,100.00	89.27	359.59	9,749.95	115.68	260.95	473,412.21	782,292.48	32.299075	-103.553498	

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well North Thistle 15-10 State Com 6H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3731.20ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3731.20ft
Site:	Sec 15-T23S-R33E	North Reference:	Grid
Well:	North Thistle 15-10 State Com 6H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,107.27	90.00	359.59	9,750.00	122.94	260.90	473,419.47	782,292.43	32.299095	-103.553498
10,200.00	90.00	359.59	9,750.00	215.68	260.24	473,512.21	782,291.76	32.299350	-103.553498
10,300.00	90.00	359.59	9,750.00	315.67	259.52	473,612.20	782,291.05	32.299625	-103.553498
10,400.00	90.00	359.59	9,750.00	415.67	258.81	473,712.20	782,290.33	32.299900	-103.553498
10,500.00	90.00	359.59	9,750.00	515.67	258.09	473,812.20	782,289.62	32.300174	-103.553498
10,600.00	90.00	359.59	9,750.00	615.67	257.37	473,912.20	782,288.90	32.300449	-103.553498
10,700.00	90.00	359.59	9,750.00	715.66	256.66	474,012.19	782,288.19	32.300724	-103.553498
10,800.00	90.00	359.59	9,750.00	815.66	255.94	474,112.19	782,287.47	32.300999	-103.553498
10,900.00	90.00	359.59	9,750.00	915.66	255.23	474,212.19	782,286.75	32.301274	-103.553498
11,000.00	90.00	359.59	9,750.00	1,015.66	254.51	474,312.18	782,286.04	32.301549	-103.553498
11,100.00	90.00	359.59	9,750.00	1,115.65	253.80	474,412.18	782,285.32	32.301824	-103.553498
11,200.00	90.00	359.59	9,750.00	1,215.65	253.08	474,512.18	782,284.61	32.302098	-103.553498
11,300.00	90.00	359.59	9,750.00	1,315.65	252.37	474,612.18	782,283.89	32.302373	-103.553498
11,400.00	90.00	359.59	9,750.00	1,415.65	251.65	474,712.17	782,283.18	32.302648	-103.553497
11,500.00	90.00	359.59	9,750.00	1,515.64	250.93	474,812.17	782,282.46	32.302923	-103.553497
11,600.00	90.00	359.59	9,750.00	1,615.64	250.22	474,912.17	782,281.75	32.303198	-103.553497
11,700.00	90.00	359.59	9,750.00	1,715.64	249.50	475,012.17	782,281.03	32.303473	-103.553497
11,800.00	90.00	359.59	9,750.00	1,815.64	248.79	475,112.16	782,280.31	32.303748	-103.553497
11,900.00	90.00	359.59	9,750.00	1,915.63	248.07	475,212.16	782,279.60	32.304023	-103.553497
12,000.00	90.00	359.59	9,750.00	2,015.63	247.36	475,312.16	782,278.88	32.304297	-103.553497
12,100.00	90.00	359.59	9,750.00	2,115.63	246.64	475,412.15	782,278.17	32.304572	-103.553497
12,200.00	90.00	359.59	9,750.00	2,215.63	245.92	475,512.15	782,277.45	32.304847	-103.553497
12,300.00	90.00	359.59	9,750.00	2,315.62	245.21	475,612.15	782,276.74	32.305122	-103.553497
12,400.00	90.00	359.59	9,750.00	2,415.62	244.49	475,712.15	782,276.02	32.305397	-103.553497
12,500.00	90.00	359.59	9,750.00	2,515.62	243.78	475,812.14	782,275.31	32.305672	-103.553497
12,600.00	90.00	359.59	9,750.00	2,615.62	243.06	475,912.14	782,274.59	32.305947	-103.553497
12,700.00	90.00	359.59	9,750.00	2,715.61	242.35	476,012.14	782,273.87	32.306221	-103.553497
12,800.00	90.00	359.59	9,750.00	2,815.61	241.63	476,112.14	782,273.16	32.306496	-103.553497
12,900.00	90.00	359.59	9,750.00	2,915.61	240.92	476,212.13	782,272.44	32.306771	-103.553497
13,000.00	90.00	359.59	9,750.00	3,015.61	240.20	476,312.13	782,271.73	32.307046	-103.553497
13,100.00	90.00	359.59	9,750.00	3,115.60	239.48	476,412.13	782,271.01	32.307321	-103.553497
13,200.00	90.00	359.59	9,750.00	3,215.60	238.77	476,512.12	782,270.30	32.307596	-103.553497
13,300.00	90.00	359.59	9,750.00	3,315.60	238.05	476,612.12	782,269.58	32.307871	-103.553497
13,400.00	90.00	359.59	9,750.00	3,415.59	237.34	476,712.12	782,268.86	32.308146	-103.553497
13,500.00	90.00	359.59	9,750.00	3,515.59	236.62	476,812.12	782,268.15	32.308420	-103.553497
13,600.00	90.00	359.59	9,750.00	3,615.59	235.91	476,912.11	782,267.43	32.308695	-103.553497
13,700.00	90.00	359.59	9,750.00	3,715.59	235.19	477,012.11	782,266.72	32.308970	-103.553497
13,800.00	90.00	359.59	9,750.00	3,815.58	234.48	477,112.11	782,266.00	32.309245	-103.553497
13,900.00	90.00	359.59	9,750.00	3,915.58	233.76	477,212.10	782,265.29	32.309520	-103.553497
14,000.00	90.00	359.59	9,750.00	4,015.58	233.04	477,312.10	782,264.57	32.309795	-103.553496
14,100.00	90.00	359.59	9,750.00	4,115.58	232.33	477,412.10	782,263.86	32.310070	-103.553496
14,200.00	90.00	359.59	9,750.00	4,215.57	231.61	477,512.10	782,263.14	32.310345	-103.553496
14,300.00	90.00	359.59	9,750.00	4,315.57	230.90	477,612.09	782,262.42	32.310619	-103.553496
14,400.00	90.00	359.59	9,750.00	4,415.57	230.18	477,712.09	782,261.71	32.310894	-103.553496
14,500.00	90.00	359.59	9,750.00	4,515.57	229.47	477,812.09	782,260.99	32.311169	-103.553496
14,600.00	90.00	359.59	9,750.00	4,615.56	228.75	477,912.09	782,260.28	32.311444	-103.553496
14,700.00	90.00	359.59	9,750.00	4,715.56	228.04	478,012.08	782,259.56	32.311719	-103.553496
14,789.44	90.00	359.59	9,750.00	4,805.00	227.40	478,101.52	782,258.92	32.311965	-103.553496
Cross Section @ 14789' MD, 0' FSL, 560' FEL									
14,800.00	90.00	359.59	9,750.00	4,815.56	227.32	478,112.08	782,258.85	32.311994	-103.553496
14,900.00	90.00	359.59	9,750.00	4,915.56	226.60	478,212.08	782,258.13	32.312269	-103.553496
15,000.00	90.00	359.59	9,750.00	5,015.55	225.89	478,312.07	782,257.42	32.312543	-103.553496
15,100.00	90.00	359.59	9,750.00	5,115.55	225.17	478,412.07	782,256.70	32.312818	-103.553496
15,200.00	90.00	359.59	9,750.00	5,215.55	224.46	478,512.07	782,255.98	32.313093	-103.553496

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well North Thistle 15-10 State Com 6H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3731.20ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3731.20ft
Site:	Sec 15-T23S-R33E	North Reference:	Grid
Well:	North Thistle 15-10 State Com 6H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,300.00	90.00	359.59	9,750.00	5,315.55	223.74	478,612.07	782,255.27	32.313368	-103.553496
15,400.00	90.00	359.59	9,750.00	5,415.54	223.03	478,712.06	782,254.55	32.313643	-103.553496
15,500.00	90.00	359.59	9,750.00	5,515.54	222.31	478,812.06	782,253.84	32.313918	-103.553496
15,600.00	90.00	359.59	9,750.00	5,615.54	221.60	478,912.06	782,253.12	32.314193	-103.553496
15,700.00	90.00	359.59	9,750.00	5,715.54	220.88	479,012.06	782,252.41	32.314468	-103.553496
15,800.00	90.00	359.59	9,750.00	5,815.53	220.16	479,112.05	782,251.69	32.314742	-103.553496
15,900.00	90.00	359.59	9,750.00	5,915.53	219.45	479,212.05	782,250.98	32.315017	-103.553496
16,000.00	90.00	359.59	9,750.00	6,015.53	218.73	479,312.05	782,250.26	32.315292	-103.553496
16,100.00	90.00	359.59	9,750.00	6,115.53	218.02	479,412.04	782,249.54	32.315567	-103.553496
16,200.00	90.00	359.59	9,750.00	6,215.52	217.30	479,512.04	782,248.83	32.315842	-103.553496
16,300.00	90.00	359.59	9,750.00	6,315.52	216.59	479,612.04	782,248.11	32.316117	-103.553496
16,400.00	90.00	359.59	9,750.00	6,415.52	215.87	479,712.04	782,247.40	32.316392	-103.553496
16,500.00	90.00	359.59	9,750.00	6,515.52	215.15	479,812.03	782,246.68	32.316666	-103.553495
16,600.00	90.00	359.59	9,750.00	6,615.51	214.44	479,912.03	782,245.97	32.316941	-103.553495
16,700.00	90.00	359.59	9,750.00	6,715.51	213.72	480,012.03	782,245.25	32.317216	-103.553495
16,800.00	90.00	359.59	9,750.00	6,815.51	213.01	480,112.02	782,244.54	32.317491	-103.553495
16,900.00	90.00	359.59	9,750.00	6,915.51	212.29	480,212.02	782,243.82	32.317766	-103.553495
17,000.00	90.00	359.59	9,750.00	7,015.50	211.58	480,312.02	782,243.10	32.318041	-103.553495
17,100.00	90.00	359.59	9,750.00	7,115.50	210.86	480,412.02	782,242.39	32.318316	-103.553495
17,200.00	90.00	359.59	9,750.00	7,215.50	210.15	480,512.01	782,241.67	32.318591	-103.553495
17,300.00	90.00	359.59	9,750.00	7,315.50	209.43	480,612.01	782,240.96	32.318866	-103.553495
17,400.00	90.00	359.59	9,750.00	7,415.49	208.71	480,712.01	782,240.24	32.319140	-103.553495
17,500.00	90.00	359.59	9,750.00	7,515.49	208.00	480,812.01	782,239.53	32.319415	-103.553495
17,600.00	90.00	359.59	9,750.00	7,615.49	207.28	480,912.00	782,238.81	32.319690	-103.553495
17,700.00	90.00	359.59	9,750.00	7,715.48	206.57	481,012.00	782,238.10	32.319965	-103.553495
17,800.00	90.00	359.59	9,750.00	7,815.48	205.85	481,112.00	782,237.38	32.320240	-103.553495
17,900.00	90.00	359.59	9,750.00	7,915.48	205.14	481,211.99	782,236.66	32.320515	-103.553495
18,000.00	90.00	359.59	9,750.00	8,015.48	204.42	481,311.99	782,235.95	32.320789	-103.553495
18,100.00	90.00	359.59	9,750.00	8,115.47	203.71	481,411.99	782,235.23	32.321064	-103.553495
18,200.00	90.00	359.59	9,750.00	8,215.47	202.99	481,511.99	782,234.52	32.321339	-103.553495
18,300.00	90.00	359.59	9,750.00	8,315.47	202.27	481,611.98	782,233.80	32.321614	-103.553495
18,400.00	90.00	359.59	9,750.00	8,415.47	201.56	481,711.98	782,233.09	32.321889	-103.553495
18,500.00	90.00	359.59	9,750.00	8,515.46	200.84	481,811.98	782,232.37	32.322164	-103.553495
18,600.00	90.00	359.59	9,750.00	8,615.46	200.13	481,911.98	782,231.65	32.322439	-103.553495
18,700.00	90.00	359.59	9,750.00	8,715.46	199.41	482,011.97	782,230.94	32.322714	-103.553495
18,800.00	90.00	359.59	9,750.00	8,815.46	198.70	482,111.97	782,230.22	32.322988	-103.553495
18,900.00	90.00	359.59	9,750.00	8,915.45	197.98	482,211.97	782,229.51	32.323263	-103.553495
19,000.00	90.00	359.59	9,750.00	9,015.45	197.27	482,311.96	782,228.79	32.323538	-103.553495
19,100.00	90.00	359.59	9,750.00	9,115.45	196.55	482,411.96	782,228.08	32.323813	-103.553494
19,200.00	90.00	359.59	9,750.00	9,215.45	195.83	482,511.96	782,227.36	32.324088	-103.553494
19,300.00	90.00	359.59	9,750.00	9,315.44	195.12	482,611.96	782,226.65	32.324363	-103.553494
19,400.00	90.00	359.59	9,750.00	9,415.44	194.40	482,711.95	782,225.93	32.324638	-103.553494
19,500.00	90.00	359.59	9,750.00	9,515.44	193.69	482,811.95	782,225.21	32.324913	-103.553494
19,600.00	90.00	359.59	9,750.00	9,615.44	192.97	482,911.95	782,224.50	32.325187	-103.553494
19,700.00	90.00	359.59	9,750.00	9,715.43	192.26	483,011.94	782,223.78	32.325462	-103.553494
19,800.00	90.00	359.59	9,750.00	9,815.43	191.54	483,111.94	782,223.07	32.325737	-103.553494
19,900.00	90.00	359.59	9,750.00	9,915.43	190.83	483,211.94	782,222.35	32.326012	-103.553494
19,984.13	90.00	359.59	9,750.00	9,999.56	190.22	483,296.07	782,221.75	32.326243	-103.553494
LTP @ 19984' MD, 100' FNL, 560' FEL									
20,000.00	90.00	359.59	9,750.00	10,015.43	190.11	483,311.94	782,221.64	32.326287	-103.553494
20,064.13	90.00	359.59	9,750.00	10,079.55	189.65	483,376.06	782,221.18	32.326463	-103.553494
PBHL; 20' FNL, 560' FEL									

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well North Thistle 15-10 State Com 6H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3731.20ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3731.20ft
Site:	Sec 15-T23S-R33E	North Reference:	Grid
Well:	North Thistle 15-10 State Com 6H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Design Targets

Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
PBHL - North Thistle 15-	0.00	0.00	0.00	10,076.18	368.76	483,372.69	782,400.29	32.326450	-103.552914
- plan misses target center by 9751.64ft at 20059.47ft MD (9750.00 TVD, 10074.90 N, 189.68 E)									
- Point									

Plan Annotations

Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S	+E/-W	
(ft)	(ft)	(ft)	(ft)	
9,207.26	9,177.04	-450.00	265.00	KOP @ 9207' MD, 50' FSL, 560' FEL
9,503.72	9,460.45	-375.00	264.46	FTP @ 9504' MD, 100' FSL, 560' FEL
14,789.44	9,750.00	4,805.00	227.40	Cross Section @ 14789' MD, 0' FSL, 560' FEL
19,984.13	9,750.00	9,999.56	190.22	LTP @ 19984' MD, 100' FNL, 560' FEL
20,064.13	9,750.00	10,079.55	189.65	PBHL, 20' FNL, 560' FEL