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DEC 06 2018
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WCDSC Permian NM

Lea County (NAD83 New Mexico East)

Sec 15-T23S-R33E

North Thistle 15-10 State Com 1H

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 1H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3736.40ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3736.40ft
Site:	Sec 15-T23S-R33E	North Reference:	Grid
Well:	North Thistle 15-10 State Com 1H	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 1H			
Well Position	+N/-S	0.00 ft	Northing:	473,215.69 usft
	+E/-W	0.00 ft	Easting:	778,337.06 usft
Position Uncertainty		0.50 ft	Wellhead Elevation:	Ground Level: 3,710.30 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/13/2018	6.80	60.11	47,835.93682757

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	357.38

Plan Survey Tool Program	Date 11/15/2018			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	20,017.75 Permit Plan 1 (Wellbore #1)	MWD+HDGM	OWSG MWD + HDGM

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	
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,229.48	5.29	226.15	3,228.73	-16.94	-17.63	1.00	1.00	0.00	226.15	
8,497.75	5.29	226.15	8,474.52	-353.71	-368.25	0.00	0.00	0.00	0.00	
8,850.73	0.00	0.00	8,827.00	-365.00	-380.00	1.50	-1.50	0.00	180.00	
9,200.77	0.00	0.00	9,177.04	-365.00	-380.00	0.00	0.00	0.00	0.00	
10,100.78	90.00	359.55	9,750.00	207.94	-384.53	10.00	10.00	0.00	359.55	PBHL - North Thistle
20,017.75	90.00	359.55	9,750.00	10,124.60	-462.88	0.00	0.00	0.00	0.00	PBHL - North Thistle

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Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3736.40ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3736.40ft
Site:	Sec 15-T23S-R33E	North Reference:	Grid
Well:	North Thistle 15-10 State Com 1H	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	473,215.69	778,337.06	32.298613	-103.566303
100.00	0.00	0.00	100.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
200.00	0.00	0.00	200.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
300.00	0.00	0.00	300.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
400.00	0.00	0.00	400.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
500.00	0.00	0.00	500.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
600.00	0.00	0.00	600.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
700.00	0.00	0.00	700.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
800.00	0.00	0.00	800.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
900.00	0.00	0.00	900.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
1,000.00	0.00	0.00	1,000.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
1,100.00	0.00	0.00	1,100.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
1,200.00	0.00	0.00	1,200.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
1,300.00	0.00	0.00	1,300.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
1,400.00	0.00	0.00	1,400.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
1,500.00	0.00	0.00	1,500.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
1,600.00	0.00	0.00	1,600.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
1,700.00	0.00	0.00	1,700.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
1,800.00	0.00	0.00	1,800.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
1,900.00	0.00	0.00	1,900.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
2,000.00	0.00	0.00	2,000.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
2,100.00	0.00	0.00	2,100.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
2,200.00	0.00	0.00	2,200.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
2,300.00	0.00	0.00	2,300.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
2,400.00	0.00	0.00	2,400.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
2,500.00	0.00	0.00	2,500.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
2,600.00	0.00	0.00	2,600.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
2,700.00	0.00	0.00	2,700.00	0.00	0.00	473,215.69	778,337.06	32.298613	-103.566303
2,800.00	1.00	226.15	2,799.99	-0.60	-0.63	473,215.09	778,336.43	32.298612	-103.566305
2,900.00	2.00	226.15	2,899.96	-2.42	-2.52	473,213.27	778,334.54	32.298607	-103.566311
3,000.00	3.00	226.15	2,999.86	-5.44	-5.66	473,210.25	778,331.39	32.298598	-103.566321
3,100.00	4.00	226.15	3,099.68	-9.67	-10.07	473,206.02	778,326.99	32.298587	-103.566336
3,200.00	5.00	226.15	3,199.37	-15.10	-15.72	473,200.59	778,321.33	32.298572	-103.566354
3,229.48	5.29	226.15	3,228.73	-16.94	-17.63	473,198.76	778,319.43	32.298567	-103.566360
3,300.00	5.29	226.15	3,298.95	-21.44	-22.32	473,194.25	778,314.73	32.298555	-103.566376
3,400.00	5.29	226.15	3,398.52	-27.84	-28.98	473,187.85	778,308.08	32.298537	-103.566397
3,500.00	5.29	226.15	3,498.09	-34.23	-35.64	473,181.46	778,301.42	32.298520	-103.566419
3,600.00	5.29	226.15	3,597.67	-40.62	-42.29	473,175.07	778,294.77	32.298502	-103.566441
3,700.00	5.29	226.15	3,697.24	-47.01	-48.95	473,168.68	778,288.11	32.298485	-103.566462
3,800.00	5.29	226.15	3,796.81	-53.41	-55.60	473,162.28	778,281.46	32.298467	-103.566484
3,900.00	5.29	226.15	3,896.39	-59.80	-62.26	473,155.89	778,274.80	32.298450	-103.566506
4,000.00	5.29	226.15	3,995.96	-66.19	-68.91	473,149.50	778,268.15	32.298433	-103.566528
4,100.00	5.29	226.15	4,095.53	-72.58	-75.57	473,143.11	778,261.49	32.298415	-103.566549
4,200.00	5.29	226.15	4,195.11	-78.98	-82.22	473,136.71	778,254.84	32.298398	-103.566571
4,300.00	5.29	226.15	4,294.68	-85.37	-88.88	473,130.32	778,248.18	32.298380	-103.566593
4,400.00	5.29	226.15	4,394.25	-91.76	-95.53	473,123.93	778,241.53	32.298363	-103.566614
4,500.00	5.29	226.15	4,493.83	-98.15	-102.19	473,117.54	778,234.87	32.298345	-103.566636
4,600.00	5.29	226.15	4,593.40	-104.55	-108.84	473,111.14	778,228.22	32.298328	-103.566658
4,700.00	5.29	226.15	4,692.97	-110.94	-115.50	473,104.75	778,221.56	32.298311	-103.566679
4,800.00	5.29	226.15	4,792.55	-117.33	-122.15	473,098.36	778,214.90	32.298293	-103.566701
4,900.00	5.29	226.15	4,892.12	-123.72	-128.81	473,091.97	778,208.25	32.298276	-103.566723
5,000.00	5.29	226.15	4,991.69	-130.12	-135.46	473,085.57	778,201.59	32.298258	-103.566744
5,100.00	5.29	226.15	5,091.27	-136.51	-142.12	473,079.18	778,194.94	32.298241	-103.566766
5,200.00	5.29	226.15	5,190.84	-142.90	-148.77	473,072.79	778,188.28	32.298223	-103.566788
5,300.00	5.29	226.15	5,290.41	-149.29	-155.43	473,066.40	778,181.63	32.298206	-103.566809

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 Site: Sec 15-T23S-R33E
 Well: North Thistle 15-10 State Com 1H
 Wellbore #: Wellbore #1
 Design: Permit Plan 1

Local Co-ordinate Reference: Well North Thistle 15-10 State Com 1H
 TVD Reference: RKB @ 3736.40ft
 MD Reference: RKB @ 3736.40ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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	5.29	226.15	5,389.99	-155.69	-162.08	473,060.00	778,174.97	32.298188	-103.566831
5,500.00	5.29	226.15	5,489.56	-162.08	-168.74	473,053.61	778,168.32	32.298171	-103.566853
5,600.00	5.29	226.15	5,589.13	-168.47	-175.39	473,047.22	778,161.66	32.298154	-103.566874
5,700.00	5.29	226.15	5,688.71	-174.86	-182.05	473,040.83	778,155.01	32.298136	-103.566896
5,800.00	5.29	226.15	5,788.28	-181.26	-188.70	473,034.43	778,148.35	32.298119	-103.566918
5,900.00	5.29	226.15	5,887.85	-187.65	-195.36	473,028.04	778,141.70	32.298101	-103.566940
6,000.00	5.29	226.15	5,987.43	-194.04	-202.02	473,021.65	778,135.04	32.298084	-103.566961
6,100.00	5.29	226.15	6,087.00	-200.43	-208.67	473,015.26	778,128.39	32.298066	-103.566983
6,200.00	5.29	226.15	6,186.57	-206.83	-215.33	473,008.86	778,121.73	32.298049	-103.567005
6,300.00	5.29	226.15	6,286.15	-213.22	-221.98	473,002.47	778,115.08	32.298031	-103.567026
6,400.00	5.29	226.15	6,385.72	-219.61	-228.64	472,996.08	778,108.42	32.298014	-103.567048
6,500.00	5.29	226.15	6,485.29	-226.00	-235.29	472,989.69	778,101.77	32.297997	-103.567070
6,600.00	5.29	226.15	6,584.87	-232.40	-241.95	472,983.29	778,095.11	32.297979	-103.567091
6,700.00	5.29	226.15	6,684.44	-238.79	-248.60	472,976.90	778,088.46	32.297962	-103.567113
6,800.00	5.29	226.15	6,784.01	-245.18	-255.26	472,970.51	778,081.80	32.297944	-103.567135
6,900.00	5.29	226.15	6,883.59	-251.57	-261.91	472,964.12	778,075.15	32.297927	-103.567156
7,000.00	5.29	226.15	6,983.16	-257.97	-268.57	472,957.73	778,068.49	32.297909	-103.567178
7,100.00	5.29	226.15	7,082.73	-264.36	-275.22	472,951.33	778,061.84	32.297892	-103.567200
7,200.00	5.29	226.15	7,182.31	-270.75	-281.88	472,944.94	778,055.18	32.297875	-103.567221
7,300.00	5.29	226.15	7,281.88	-277.14	-288.53	472,938.55	778,048.52	32.297857	-103.567243
7,400.00	5.29	226.15	7,381.45	-283.54	-295.19	472,932.16	778,041.87	32.297840	-103.567265
7,500.00	5.29	226.15	7,481.03	-289.93	-301.84	472,925.76	778,035.21	32.297822	-103.567287
7,600.00	5.29	226.15	7,580.60	-296.32	-308.50	472,919.37	778,028.56	32.297805	-103.567308
7,700.00	5.29	226.15	7,680.17	-302.71	-315.15	472,912.98	778,021.90	32.297787	-103.567330
7,800.00	5.29	226.15	7,779.74	-309.11	-321.81	472,906.59	778,015.25	32.297770	-103.567352
7,900.00	5.29	226.15	7,879.32	-315.50	-328.46	472,900.19	778,008.59	32.297752	-103.567373
8,000.00	5.29	226.15	7,978.89	-321.89	-335.12	472,893.80	778,001.94	32.297735	-103.567395
8,100.00	5.29	226.15	8,078.46	-328.28	-341.77	472,887.41	777,995.28	32.297718	-103.567417
8,200.00	5.29	226.15	8,178.04	-334.68	-348.43	472,881.02	777,988.63	32.297700	-103.567438
8,300.00	5.29	226.15	8,277.61	-341.07	-355.09	472,874.62	777,981.97	32.297683	-103.567460
8,400.00	5.29	226.15	8,377.18	-347.46	-361.74	472,868.23	777,975.32	32.297665	-103.567482
8,497.75	5.29	226.15	8,474.52	-353.71	-368.25	472,861.98	777,968.81	32.297648	-103.567503
8,500.00	5.26	226.15	8,476.76	-353.85	-368.40	472,861.84	777,968.66	32.297648	-103.567503
8,600.00	3.76	226.15	8,576.45	-359.30	-374.07	472,856.39	777,962.99	32.297633	-103.567522
8,700.00	2.26	226.15	8,676.30	-362.94	-377.86	472,852.75	777,959.20	32.297623	-103.567534
8,800.00	0.76	226.15	8,776.27	-364.77	-379.76	472,850.92	777,957.30	32.297618	-103.567540
8,850.73	0.00	0.00	8,827.00	-365.00	-380.00	472,850.69	777,957.06	32.297617	-103.567541
8,900.00	0.00	0.00	8,876.27	-365.00	-380.00	472,850.69	777,957.06	32.297617	-103.567541
9,000.00	0.00	0.00	8,976.27	-365.00	-380.00	472,850.69	777,957.06	32.297617	-103.567541
9,100.00	0.00	0.00	9,076.27	-365.00	-380.00	472,850.69	777,957.06	32.297617	-103.567541
9,200.00	0.00	0.00	9,176.27	-365.00	-380.00	472,850.69	777,957.06	32.297617	-103.567541
9,200.77	0.00	0.00	9,177.04	-365.00	-380.00	472,850.69	777,957.06	32.297617	-103.567541
KOP @ 9201' MD, 50' FSL, 380' FWL									
9,300.00	9.92	359.55	9,275.77	-356.43	-380.07	472,859.26	777,956.99	32.297641	-103.567541
9,400.00	19.92	359.55	9,372.28	-330.71	-380.27	472,884.98	777,956.79	32.297712	-103.567541
9,441.92	24.11	359.55	9,411.13	-315.00	-380.40	472,900.69	777,956.66	32.297755	-103.567541
FTP @ 9442' MD, 100' FSL, 380' FWL									
9,500.00	29.92	359.55	9,462.85	-288.63	-380.60	472,927.06	777,956.45	32.297827	-103.567541
9,600.00	39.92	359.55	9,544.74	-231.46	-381.06	472,984.24	777,956.00	32.297984	-103.567541
9,700.00	49.92	359.55	9,615.45	-160.93	-381.61	473,054.76	777,955.45	32.298178	-103.567542
9,800.00	59.92	359.55	9,672.85	-79.20	-382.26	473,136.49	777,954.80	32.298403	-103.567542
9,900.00	69.92	359.55	9,715.18	11.25	-382.97	473,226.95	777,954.09	32.298652	-103.567542
10,000.00	79.92	359.55	9,741.16	107.69	-383.73	473,323.38	777,953.32	32.298917	-103.567542
10,100.00	89.92	359.55	9,750.00	207.16	-384.52	473,422.85	777,952.54	32.299190	-103.567543

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well North Thistle 15-10 State Com 1H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3736.40ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3736.40ft
Site:	Sec 15-T23S-R33E	North Reference:	Grid
Well:	North Thistle 15-10 State Com 1H	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
10,100.78	90.00	359.55	9,750.00	207.94	-384.53	473,423.63	777,952.53	32.299192	-103.567543
10,200.00	90.00	359.55	9,750.00	307.16	-385.31	473,522.85	777,951.75	32.299465	-103.567543
10,300.00	90.00	359.55	9,750.00	407.16	-386.10	473,622.85	777,950.96	32.299740	-103.567543
10,400.00	90.00	359.55	9,750.00	507.16	-386.89	473,722.84	777,950.17	32.300015	-103.567543
10,500.00	90.00	359.55	9,750.00	607.15	-387.68	473,822.84	777,949.38	32.300290	-103.567544
10,600.00	90.00	359.55	9,750.00	707.15	-388.47	473,922.84	777,948.59	32.300564	-103.567544
10,700.00	90.00	359.55	9,750.00	807.15	-389.26	474,022.83	777,947.80	32.300839	-103.567544
10,800.00	90.00	359.55	9,750.00	907.14	-390.05	474,122.83	777,947.01	32.301114	-103.567544
10,900.00	90.00	359.55	9,750.00	1,007.14	-390.84	474,222.83	777,946.22	32.301389	-103.567545
11,000.00	90.00	359.55	9,750.00	1,107.14	-391.63	474,322.82	777,945.43	32.301664	-103.567545
11,100.00	90.00	359.55	9,750.00	1,207.13	-392.42	474,422.82	777,944.64	32.301939	-103.567545
11,200.00	90.00	359.55	9,750.00	1,307.13	-393.21	474,522.82	777,943.85	32.302214	-103.567545
11,300.00	90.00	359.55	9,750.00	1,407.13	-394.00	474,622.81	777,943.06	32.302489	-103.567546
11,400.00	90.00	359.55	9,750.00	1,507.12	-394.79	474,722.81	777,942.27	32.302763	-103.567546
11,500.00	90.00	359.55	9,750.00	1,607.12	-395.58	474,822.81	777,941.48	32.303038	-103.567546
11,600.00	90.00	359.55	9,750.00	1,707.12	-396.37	474,922.80	777,940.69	32.303313	-103.567546
11,700.00	90.00	359.55	9,750.00	1,807.11	-397.16	475,022.80	777,939.90	32.303588	-103.567547
11,800.00	90.00	359.55	9,750.00	1,907.11	-397.95	475,122.80	777,939.11	32.303863	-103.567547
11,900.00	90.00	359.55	9,750.00	2,007.11	-398.74	475,222.79	777,938.32	32.304138	-103.567547
12,000.00	90.00	359.55	9,750.00	2,107.11	-399.53	475,322.79	777,937.53	32.304413	-103.567547
12,100.00	90.00	359.55	9,750.00	2,207.10	-400.32	475,422.79	777,936.74	32.304688	-103.567547
12,200.00	90.00	359.55	9,750.00	2,307.10	-401.11	475,522.79	777,935.95	32.304962	-103.567548
12,300.00	90.00	359.55	9,750.00	2,407.10	-401.90	475,622.78	777,935.16	32.305237	-103.567548
12,400.00	90.00	359.55	9,750.00	2,507.09	-402.69	475,722.78	777,934.37	32.305512	-103.567548
12,500.00	90.00	359.55	9,750.00	2,607.09	-403.48	475,822.78	777,933.57	32.305787	-103.567548
12,600.00	90.00	359.55	9,750.00	2,707.09	-404.27	475,922.77	777,932.78	32.306062	-103.567549
12,700.00	90.00	359.55	9,750.00	2,807.08	-405.06	476,022.77	777,931.99	32.306337	-103.567549
12,800.00	90.00	359.55	9,750.00	2,907.08	-405.85	476,122.77	777,931.20	32.306612	-103.567549
12,900.00	90.00	359.55	9,750.00	3,007.08	-406.64	476,222.76	777,930.41	32.306886	-103.567549
13,000.00	90.00	359.55	9,750.00	3,107.07	-407.43	476,322.76	777,929.62	32.307161	-103.567550
13,100.00	90.00	359.55	9,750.00	3,207.07	-408.22	476,422.76	777,928.83	32.307436	-103.567550
13,200.00	90.00	359.55	9,750.00	3,307.07	-409.01	476,522.75	777,928.04	32.307711	-103.567550
13,300.00	90.00	359.55	9,750.00	3,407.06	-409.80	476,622.75	777,927.25	32.307986	-103.567550
13,400.00	90.00	359.55	9,750.00	3,507.06	-410.59	476,722.75	777,926.46	32.308261	-103.567551
13,500.00	90.00	359.55	9,750.00	3,607.06	-411.38	476,822.74	777,925.67	32.308536	-103.567551
13,600.00	90.00	359.55	9,750.00	3,707.06	-412.17	476,922.74	777,924.88	32.308811	-103.567551
13,700.00	90.00	359.55	9,750.00	3,807.05	-412.96	477,022.74	777,924.09	32.309085	-103.567551
13,800.00	90.00	359.55	9,750.00	3,907.05	-413.75	477,122.73	777,923.30	32.309360	-103.567552
13,900.00	90.00	359.55	9,750.00	4,007.05	-414.54	477,222.73	777,922.51	32.309635	-103.567552
14,000.00	90.00	359.55	9,750.00	4,107.04	-415.33	477,322.73	777,921.72	32.309910	-103.567552
14,100.00	90.00	359.55	9,750.00	4,207.04	-416.12	477,422.72	777,920.93	32.310185	-103.567552
14,200.00	90.00	359.55	9,750.00	4,307.04	-416.91	477,522.72	777,920.14	32.310460	-103.567553
14,300.00	90.00	359.55	9,750.00	4,407.03	-417.71	477,622.72	777,919.35	32.310735	-103.567553
14,400.00	90.00	359.55	9,750.00	4,507.03	-418.50	477,722.71	777,918.56	32.311010	-103.567553
14,500.00	90.00	359.55	9,750.00	4,607.03	-419.29	477,822.71	777,917.77	32.311284	-103.567553
14,600.00	90.00	359.55	9,750.00	4,707.02	-420.08	477,922.71	777,916.98	32.311559	-103.567554
14,700.00	90.00	359.55	9,750.00	4,807.02	-420.87	478,022.70	777,916.19	32.311834	-103.567554
14,757.98	90.00	359.55	9,750.00	4,865.00	-421.32	478,080.68	777,915.73	32.311993	-103.567554
Cross Section @ 14758' MD, 0' FSL, 380' FWL									
14,800.00	90.00	359.55	9,750.00	4,907.02	-421.66	478,122.70	777,915.40	32.312109	-103.567554
14,900.00	90.00	359.55	9,750.00	5,007.01	-422.45	478,222.70	777,914.61	32.312384	-103.567554
15,000.00	90.00	359.55	9,750.00	5,107.01	-423.24	478,322.69	777,913.82	32.312659	-103.567555
15,100.00	90.00	359.55	9,750.00	5,207.01	-424.03	478,422.69	777,913.03	32.312934	-103.567555
15,200.00	90.00	359.55	9,750.00	5,307.01	-424.82	478,522.69	777,912.24	32.313208	-103.567555

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well North Thistle 15-10 State Com 1H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3736.40ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3736.40ft
Site:	Sec 15-T23S-R33E	North Reference:	Grid
Well:	North Thistle 15-10 State Com 1H	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	359.55	9,750.00	5,407.00	-425.61	478,622.68	777,911.45	32.313483	-103.567555
15,400.00	90.00	359.55	9,750.00	5,507.00	-426.40	478,722.68	777,910.66	32.313758	-103.567556
15,500.00	90.00	359.55	9,750.00	5,607.00	-427.19	478,822.68	777,909.87	32.314033	-103.567556
15,600.00	90.00	359.55	9,750.00	5,706.99	-427.98	478,922.67	777,909.08	32.314308	-103.567556
15,700.00	90.00	359.55	9,750.00	5,806.99	-428.77	479,022.67	777,908.29	32.314583	-103.567556
15,800.00	90.00	359.55	9,750.00	5,906.99	-429.56	479,122.67	777,907.50	32.314858	-103.567557
15,900.00	90.00	359.55	9,750.00	6,006.98	-430.35	479,222.66	777,906.71	32.315133	-103.567557
16,000.00	90.00	359.55	9,750.00	6,106.98	-431.14	479,322.66	777,905.92	32.315407	-103.567557
16,100.00	90.00	359.55	9,750.00	6,206.98	-431.93	479,422.66	777,905.13	32.315682	-103.567557
16,200.00	90.00	359.55	9,750.00	6,306.97	-432.72	479,522.65	777,904.34	32.315957	-103.567558
16,300.00	90.00	359.55	9,750.00	6,406.97	-433.51	479,622.65	777,903.55	32.316232	-103.567558
16,400.00	90.00	359.55	9,750.00	6,506.97	-434.30	479,722.65	777,902.76	32.316507	-103.567558
16,500.00	90.00	359.55	9,750.00	6,606.96	-435.09	479,822.64	777,901.97	32.316782	-103.567558
16,600.00	90.00	359.55	9,750.00	6,706.96	-435.88	479,922.64	777,901.18	32.317057	-103.567559
16,700.00	90.00	359.55	9,750.00	6,806.96	-436.67	480,022.64	777,900.39	32.317331	-103.567559
16,800.00	90.00	359.55	9,750.00	6,906.96	-437.46	480,122.63	777,899.60	32.317606	-103.567559
16,900.00	90.00	359.55	9,750.00	7,006.95	-438.25	480,222.63	777,898.81	32.317881	-103.567559
17,000.00	90.00	359.55	9,750.00	7,106.95	-439.04	480,322.63	777,898.02	32.318156	-103.567559
17,100.00	90.00	359.55	9,750.00	7,206.95	-439.83	480,422.62	777,897.23	32.318431	-103.567560
17,200.00	90.00	359.55	9,750.00	7,306.94	-440.62	480,522.62	777,896.44	32.318706	-103.567560
17,300.00	90.00	359.55	9,750.00	7,406.94	-441.41	480,622.62	777,895.65	32.318981	-103.567560
17,400.00	90.00	359.55	9,750.00	7,506.94	-442.20	480,722.61	777,894.86	32.319256	-103.567560
17,500.00	90.00	359.55	9,750.00	7,606.93	-442.99	480,822.61	777,894.07	32.319530	-103.567561
17,600.00	90.00	359.55	9,750.00	7,706.93	-443.78	480,922.61	777,893.28	32.319805	-103.567561
17,700.00	90.00	359.55	9,750.00	7,806.93	-444.57	481,022.60	777,892.49	32.320080	-103.567561
17,800.00	90.00	359.55	9,750.00	7,906.92	-445.36	481,122.60	777,891.70	32.320355	-103.567561
17,900.00	90.00	359.55	9,750.00	8,006.92	-446.15	481,222.60	777,890.91	32.320630	-103.567562
18,000.00	90.00	359.55	9,750.00	8,106.92	-446.94	481,322.59	777,890.12	32.320905	-103.567562
18,100.00	90.00	359.55	9,750.00	8,206.92	-447.73	481,422.59	777,889.33	32.321180	-103.567562
18,200.00	90.00	359.55	9,750.00	8,306.91	-448.52	481,522.59	777,888.54	32.321455	-103.567562
18,300.00	90.00	359.55	9,750.00	8,406.91	-449.31	481,622.58	777,887.75	32.321729	-103.567563
18,400.00	90.00	359.55	9,750.00	8,506.91	-450.10	481,722.58	777,886.96	32.322004	-103.567563
18,500.00	90.00	359.55	9,750.00	8,606.90	-450.89	481,822.58	777,886.17	32.322279	-103.567563
18,600.00	90.00	359.55	9,750.00	8,706.90	-451.68	481,922.57	777,885.38	32.322554	-103.567563
18,700.00	90.00	359.55	9,750.00	8,806.90	-452.47	482,022.57	777,884.59	32.322829	-103.567564
18,800.00	90.00	359.55	9,750.00	8,906.89	-453.26	482,122.57	777,883.80	32.323104	-103.567564
18,900.00	90.00	359.55	9,750.00	9,006.89	-454.05	482,222.56	777,883.01	32.323379	-103.567564
19,000.00	90.00	359.55	9,750.00	9,106.89	-454.84	482,322.56	777,882.22	32.323653	-103.567564
19,100.00	90.00	359.55	9,750.00	9,206.88	-455.63	482,422.56	777,881.43	32.323928	-103.567565
19,200.00	90.00	359.55	9,750.00	9,306.88	-456.42	482,522.55	777,880.64	32.324203	-103.567565
19,300.00	90.00	359.55	9,750.00	9,406.88	-457.21	482,622.55	777,879.85	32.324478	-103.567565
19,400.00	90.00	359.55	9,750.00	9,506.87	-458.00	482,722.55	777,879.06	32.324753	-103.567565
19,500.00	90.00	359.55	9,750.00	9,606.87	-458.79	482,822.54	777,878.27	32.325028	-103.567566
19,600.00	90.00	359.55	9,750.00	9,706.87	-459.58	482,922.54	777,877.48	32.325303	-103.567566
19,700.00	90.00	359.55	9,750.00	9,806.87	-460.37	483,022.54	777,876.69	32.325578	-103.567566
19,800.00	90.00	359.55	9,750.00	9,906.86	-461.16	483,122.53	777,875.90	32.325852	-103.567566
19,900.00	90.00	359.55	9,750.00	10,006.86	-461.95	483,222.53	777,875.11	32.326127	-103.567567
19,937.74	90.00	359.55	9,750.00	10,044.60	-462.25	483,260.27	777,874.81	32.326231	-103.567567
LTP @ 19938' MD, 100' FNL, 380' FWL									
20,000.00	90.00	359.55	9,750.00	10,106.86	-462.74	483,322.53	777,874.32	32.326402	-103.567567
20,017.74	90.00	359.55	9,750.00	10,124.60	-462.88	483,340.27	777,874.18	32.326451	-103.567567
PBHL; 20' FNL, 380' FWL									
20,017.75	90.00	359.55	9,750.00	10,124.60	-462.88	483,340.27	777,874.18	32.326451	-103.567567

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well North Thistle 15-10 State Com 1H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3736.40ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3736.40ft
Site:	Sec 15-T23S-R33E	North Reference:	Grid
Well:	North Thistle 15-10 State Com 1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Design Targets

Target Name

- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
PBHL - North Thistle 15-	0.00	0.00	0.00	10,124.60	-462.88	483,340.27	777,874.18	32.326451	-103.567567
- plan misses target center by 9750.00ft at 20017.75ft MD (9750.00 TVD, 10124.60 N, -462.88 E)									
- Point									

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
9,200.77	9,177.04	-365.00	-380.00	KOP @ 9201' MD, 50' FSL, 380' FWL
9,441.92	9,411.13	-315.00	-380.40	FTP @ 9442' MD, 100' FSL, 380' FWL
14,757.98	9,750.00	4,865.00	-421.32	Cross Section @ 14758' MD, 0' FSL, 380' FWL
19,937.74	9,750.00	10,044.60	-462.25	LTP @ 19938' MD, 100' FNL, 380' FWL
20,017.74	9,750.00	10,124.60	-462.88	PBHL: 20' FNL, 380' FWL