

WCDSC Permian NM

Lea County (NAD83 New Mexico East)

Sec 15-T23S-R33E

North Thistle 15-10 State Com 4H

Wellbore #1

Plan: Permit Plan 1

Standard Planning Report - Geographic

15 November, 2018

**HOBBS OCD
DEC 06 2018
RECEIVED**

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well North Thistle 15-10 State Com 4H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3743.10ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3743.10ft
Site:	Sec 15-T23S-R33E	North Reference:	Grid
Well:	North Thistle 15-10 State Com 4H	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
From:	Map	Easting:	777,535.58 usft
Position Uncertainty:	5.00 ft	Slot Radius:	13-3/16 "
		Latitude:	32.311992
		Longitude:	-103.568785
		Grid Convergence:	0.41 °

Well	North Thistle 15-10 State Com 4H		
Well Position	+N/-S	0.00 ft	Northing: 473,286.30 usft
	+E/-W	0.00 ft	Easting: 780,221.07 usft
Position Uncertainty	0.50 ft	Wellhead Elevation:	Latitude: 32.298770
			Longitude: -103.560204
			Ground Level: 3,718.10 ft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	11/13/2018	6.80
			Dip Angle
			(°)
			60.11
			Field Strength
			(nT)
			47,836.60853162

Design	Permit Plan 1		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction
			(°)
			1.70

Plan Survey Tool Program	Date 11/15/2018		
Depth From	Depth To	Survey (Wellbore)	Tool Name
(ft)	(ft)		
1	0.00	20,040.78 Permit Plan 1 (Wellbore #1)	MWD+HDGM
			OWSG MWD + HDGM

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(ft)	(ft)	Rate	Rate	Rate	(°)	
(ft)			(ft)			(°/100usft)	(°/100usft)	(°/100usft)		
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	
4,604.61	7.56	138.58	4,602.86	-29.86	26.34	1.25	1.25	0.00	138.58	
8,358.98	7.56	138.58	8,324.61	-400.12	353.05	0.00	0.00	0.00	0.00	
8,862.83	0.00	0.00	8,827.00	-425.00	375.00	1.50	-1.50	0.00	180.00	
9,212.87	0.00	0.00	9,177.04	-425.00	375.00	0.00	0.00	0.00	0.00	
10,112.87	90.00	359.59	9,750.00	147.94	370.90	10.00	10.00	0.00	359.59	
20,040.78	90.00	359.59	9,750.00	10,075.61	299.86	0.00	0.00	0.00	0.00	PBHL - North Thistle

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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	473,286.30	780,221.07	32.298770	-103.560204	
100.00	0.00	0.00	100.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
200.00	0.00	0.00	200.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
300.00	0.00	0.00	300.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
400.00	0.00	0.00	400.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
500.00	0.00	0.00	500.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
600.00	0.00	0.00	600.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
700.00	0.00	0.00	700.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
800.00	0.00	0.00	800.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
900.00	0.00	0.00	900.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
1,400.00	0.00	0.00	1,400.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
1,600.00	0.00	0.00	1,600.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
1,700.00	0.00	0.00	1,700.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
1,800.00	0.00	0.00	1,800.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
1,900.00	0.00	0.00	1,900.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
2,100.00	0.00	0.00	2,100.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
2,200.00	0.00	0.00	2,200.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
2,300.00	0.00	0.00	2,300.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
2,400.00	0.00	0.00	2,400.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
2,600.00	0.00	0.00	2,600.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
2,700.00	0.00	0.00	2,700.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
2,800.00	0.00	0.00	2,800.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
2,900.00	0.00	0.00	2,900.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
3,000.00	0.00	0.00	3,000.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
3,100.00	0.00	0.00	3,100.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
3,200.00	0.00	0.00	3,200.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
3,300.00	0.00	0.00	3,300.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
3,400.00	0.00	0.00	3,400.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
3,500.00	0.00	0.00	3,500.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
3,600.00	0.00	0.00	3,600.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
3,700.00	0.00	0.00	3,700.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
3,800.00	0.00	0.00	3,800.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
3,900.00	0.00	0.00	3,900.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
4,000.00	0.00	0.00	4,000.00	0.00	0.00	473,286.30	780,221.07	32.298770	-103.560204	
4,100.00	1.25	138.58	4,099.99	-0.82	0.72	473,285.48	780,221.79	32.298768	-103.560202	
4,200.00	2.50	138.58	4,199.94	-3.27	2.89	473,283.03	780,223.95	32.298761	-103.560195	
4,300.00	3.75	138.58	4,299.79	-7.36	6.49	473,278.94	780,227.56	32.298750	-103.560184	
4,400.00	5.00	138.58	4,399.49	-13.08	11.54	473,273.22	780,232.61	32.298734	-103.560167	
4,500.00	6.25	138.58	4,499.01	-20.43	18.03	473,265.87	780,239.09	32.298714	-103.560147	
4,600.00	7.50	138.58	4,598.29	-29.40	25.94	473,256.90	780,247.01	32.298689	-103.560121	
4,604.61	7.56	138.58	4,602.86	-29.86	26.34	473,256.44	780,247.41	32.298687	-103.560120	
4,700.00	7.56	138.58	4,697.42	-39.26	34.65	473,247.04	780,255.71	32.298661	-103.560093	
4,800.00	7.56	138.58	4,796.55	-49.13	43.35	473,237.17	780,264.41	32.298634	-103.560065	
4,900.00	7.56	138.58	4,895.68	-58.99	52.05	473,227.31	780,273.12	32.298607	-103.560037	
5,000.00	7.56	138.58	4,994.81	-68.85	60.75	473,217.45	780,281.82	32.298580	-103.560009	
5,100.00	7.56	138.58	5,093.94	-78.71	69.45	473,207.59	780,290.52	32.298552	-103.559981	
5,200.00	7.56	138.58	5,193.08	-88.58	78.15	473,197.73	780,299.22	32.298525	-103.559954	
5,300.00	7.56	138.58	5,292.21	-98.44	86.86	473,187.86	780,307.92	32.298498	-103.559926	

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Well:	North Thistle 15-10 State Com 4H	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	7.56	138.58	5,391.34	-108.30	95.56	473,178.00	780,316.63	32.298470	-103.559898
5,500.00	7.56	138.58	5,490.47	-118.16	104.26	473,168.14	780,325.33	32.298443	-103.559870
5,600.00	7.56	138.58	5,589.60	-128.02	112.96	473,158.28	780,334.03	32.298416	-103.559842
5,700.00	7.56	138.58	5,688.73	-137.89	121.66	473,148.41	780,342.73	32.298389	-103.559814
5,800.00	7.56	138.58	5,787.86	-147.75	130.37	473,138.55	780,351.43	32.298361	-103.559786
5,900.00	7.56	138.58	5,887.00	-157.61	139.07	473,128.69	780,360.14	32.298334	-103.559758
6,000.00	7.56	138.58	5,986.13	-167.47	147.77	473,118.83	780,368.84	32.298307	-103.559730
6,100.00	7.56	138.58	6,085.26	-177.33	156.47	473,108.97	780,377.54	32.298280	-103.559702
6,200.00	7.56	138.58	6,184.39	-187.20	165.17	473,099.10	780,386.24	32.298252	-103.559674
6,300.00	7.56	138.58	6,283.52	-197.06	173.88	473,089.24	780,394.94	32.298225	-103.559646
6,400.00	7.56	138.58	6,382.65	-206.92	182.58	473,079.38	780,403.64	32.298198	-103.559618
6,500.00	7.56	138.58	6,481.78	-216.78	191.28	473,069.52	780,412.35	32.298170	-103.559590
6,600.00	7.56	138.58	6,580.91	-226.65	199.98	473,059.66	780,421.05	32.298143	-103.559562
6,700.00	7.56	138.58	6,680.05	-236.51	208.68	473,049.79	780,429.75	32.298116	-103.559535
6,800.00	7.56	138.58	6,779.18	-246.37	217.39	473,039.93	780,438.45	32.298089	-103.559507
6,900.00	7.56	138.58	6,878.31	-256.23	226.09	473,030.07	780,447.15	32.298061	-103.559479
7,000.00	7.56	138.58	6,977.44	-266.09	234.79	473,020.21	780,455.86	32.298034	-103.559451
7,100.00	7.56	138.58	7,076.57	-275.96	243.49	473,010.34	780,464.56	32.298007	-103.559423
7,200.00	7.56	138.58	7,175.70	-285.82	252.19	473,000.48	780,473.26	32.297979	-103.559395
7,300.00	7.56	138.58	7,274.83	-295.68	260.89	472,990.62	780,481.96	32.297952	-103.559367
7,400.00	7.56	138.58	7,373.96	-305.54	269.60	472,980.76	780,490.66	32.297925	-103.559339
7,500.00	7.56	138.58	7,473.10	-315.40	278.30	472,970.90	780,499.37	32.297898	-103.559311
7,600.00	7.56	138.58	7,572.23	-325.27	287.00	472,961.03	780,508.07	32.297870	-103.559283
7,700.00	7.56	138.58	7,671.36	-335.13	295.70	472,951.17	780,516.77	32.297843	-103.559255
7,800.00	7.56	138.58	7,770.49	-344.99	304.40	472,941.31	780,525.47	32.297816	-103.559227
7,900.00	7.56	138.58	7,869.62	-354.85	313.11	472,931.45	780,534.17	32.297789	-103.559199
8,000.00	7.56	138.58	7,968.75	-364.72	321.81	472,921.59	780,542.87	32.297761	-103.559171
8,100.00	7.56	138.58	8,067.88	-374.58	330.51	472,911.72	780,551.58	32.297734	-103.559144
8,200.00	7.56	138.58	8,167.02	-384.44	339.21	472,901.86	780,560.28	32.297707	-103.559116
8,300.00	7.56	138.58	8,266.15	-394.30	347.91	472,892.00	780,568.98	32.297679	-103.559088
8,358.98	7.56	138.58	8,324.61	-400.12	353.05	472,886.18	780,574.11	32.297663	-103.559071
8,400.00	6.94	138.58	8,365.31	-404.00	356.47	472,882.30	780,577.54	32.297653	-103.559060
8,500.00	5.44	138.58	8,464.72	-412.09	363.61	472,874.21	780,584.67	32.297630	-103.559037
8,600.00	3.94	138.58	8,564.38	-418.22	369.02	472,868.08	780,590.09	32.297613	-103.559020
8,700.00	2.44	138.58	8,664.22	-422.40	372.70	472,863.90	780,593.77	32.297602	-103.559008
8,800.00	0.94	138.58	8,764.18	-424.61	374.66	472,861.69	780,595.72	32.297596	-103.559002
8,862.83	0.00	0.00	8,827.00	-425.00	375.00	472,861.30	780,596.07	32.297594	-103.559001
8,900.00	0.00	0.00	8,864.17	-425.00	375.00	472,861.30	780,596.07	32.297594	-103.559001
9,000.00	0.00	0.00	8,964.17	-425.00	375.00	472,861.30	780,596.07	32.297594	-103.559001
9,100.00	0.00	0.00	9,064.17	-425.00	375.00	472,861.30	780,596.07	32.297594	-103.559001
9,200.00	0.00	0.00	9,164.17	-425.00	375.00	472,861.30	780,596.07	32.297594	-103.559001
9,212.87	0.00	0.00	9,177.04	-425.00	375.00	472,861.30	780,596.07	32.297594	-103.559001
KOP @ 9213' MD, 50' FSL, 2260' FEL									
9,300.00	8.71	359.59	9,263.84	-418.39	374.95	472,867.91	780,596.02	32.297613	-103.559001
9,400.00	18.71	359.59	9,360.87	-394.71	374.78	472,891.59	780,595.85	32.297678	-103.559001
9,454.01	24.11	359.59	9,411.13	-375.00	374.64	472,911.30	780,595.71	32.297732	-103.559001
FTP @ 9454' MD, 100' FSL, 2260' FEL									
9,500.00	28.71	359.59	9,452.31	-354.55	374.50	472,931.75	780,595.56	32.297788	-103.559001
9,600.00	38.71	359.59	9,535.38	-299.12	374.10	472,987.19	780,595.17	32.297940	-103.559001
9,700.00	48.71	359.59	9,607.57	-230.10	373.61	473,056.20	780,594.67	32.298130	-103.559001
9,800.00	58.71	359.59	9,666.68	-149.60	373.03	473,136.70	780,594.10	32.298351	-103.559001
9,900.00	68.71	359.59	9,710.91	-60.05	372.39	473,226.25	780,593.46	32.298598	-103.559001
10,000.00	78.71	359.59	9,738.92	35.81	371.70	473,322.11	780,592.77	32.298861	-103.559001
10,100.00	88.71	359.59	9,749.85	135.08	370.99	473,421.38	780,592.06	32.299134	-103.559001

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Wellbore:	Wellbore #1		
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Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,112.87	90.00	359.59	9,750.00	147.94	370.90	473,434.24	780,591.97	32.299169	-103.559001
10,200.00	90.00	359.59	9,750.00	235.07	370.28	473,521.37	780,591.34	32.299409	-103.559001
10,300.00	90.00	359.59	9,750.00	335.07	369.56	473,621.37	780,590.63	32.299684	-103.559001
10,400.00	90.00	359.59	9,750.00	435.07	368.85	473,721.37	780,589.91	32.299959	-103.559001
10,500.00	90.00	359.59	9,750.00	535.07	368.13	473,821.37	780,589.20	32.300233	-103.559001
10,600.00	90.00	359.59	9,750.00	635.06	367.41	473,921.36	780,588.48	32.300508	-103.559001
10,700.00	90.00	359.59	9,750.00	735.06	366.70	474,021.36	780,587.77	32.300783	-103.559000
10,800.00	90.00	359.59	9,750.00	835.06	365.98	474,121.36	780,587.05	32.301058	-103.559000
10,900.00	90.00	359.59	9,750.00	935.06	365.27	474,221.36	780,586.33	32.301333	-103.559000
11,000.00	90.00	359.59	9,750.00	1,035.05	364.55	474,321.35	780,585.62	32.301608	-103.559000
11,100.00	90.00	359.59	9,750.00	1,135.05	363.84	474,421.35	780,584.90	32.301883	-103.559000
11,200.00	90.00	359.59	9,750.00	1,235.05	363.12	474,521.35	780,584.19	32.302158	-103.559000
11,300.00	90.00	359.59	9,750.00	1,335.05	362.41	474,621.34	780,583.47	32.302432	-103.559000
11,400.00	90.00	359.59	9,750.00	1,435.04	361.69	474,721.34	780,582.76	32.302707	-103.559000
11,500.00	90.00	359.59	9,750.00	1,535.04	360.97	474,821.34	780,582.04	32.302982	-103.559000
11,600.00	90.00	359.59	9,750.00	1,635.04	360.26	474,921.34	780,581.33	32.303257	-103.559000
11,700.00	90.00	359.59	9,750.00	1,735.04	359.54	475,021.33	780,580.61	32.303532	-103.559000
11,800.00	90.00	359.59	9,750.00	1,835.03	358.83	475,121.33	780,579.89	32.303807	-103.559000
11,900.00	90.00	359.59	9,750.00	1,935.03	358.11	475,221.33	780,579.18	32.304082	-103.559000
12,000.00	90.00	359.59	9,750.00	2,035.03	357.40	475,321.32	780,578.46	32.304356	-103.559000
12,100.00	90.00	359.59	9,750.00	2,135.03	356.68	475,421.32	780,577.75	32.304631	-103.559000
12,200.00	90.00	359.59	9,750.00	2,235.02	355.96	475,521.32	780,577.03	32.304906	-103.559000
12,300.00	90.00	359.59	9,750.00	2,335.02	355.25	475,621.32	780,576.32	32.305181	-103.559000
12,400.00	90.00	359.59	9,750.00	2,435.02	354.53	475,721.31	780,575.60	32.305456	-103.559000
12,500.00	90.00	359.59	9,750.00	2,535.02	353.82	475,821.31	780,574.88	32.305731	-103.559000
12,600.00	90.00	359.59	9,750.00	2,635.01	353.10	475,921.31	780,574.17	32.306006	-103.559000
12,700.00	90.00	359.59	9,750.00	2,735.01	352.39	476,021.31	780,573.45	32.306281	-103.559000
12,800.00	90.00	359.59	9,750.00	2,835.01	351.67	476,121.30	780,572.74	32.306555	-103.559000
12,900.00	90.00	359.59	9,750.00	2,935.01	350.96	476,221.30	780,572.02	32.306830	-103.559000
13,000.00	90.00	359.59	9,750.00	3,035.00	350.24	476,321.30	780,571.31	32.307105	-103.559000
13,100.00	90.00	359.59	9,750.00	3,135.00	349.52	476,421.29	780,570.59	32.307380	-103.559000
13,200.00	90.00	359.59	9,750.00	3,235.00	348.81	476,521.29	780,569.88	32.307655	-103.559000
13,300.00	90.00	359.59	9,750.00	3,335.00	348.09	476,621.29	780,569.16	32.307930	-103.559000
13,400.00	90.00	359.59	9,750.00	3,434.99	347.38	476,721.29	780,568.44	32.308205	-103.559000
13,500.00	90.00	359.59	9,750.00	3,534.99	346.66	476,821.28	780,567.73	32.308480	-103.559000
13,600.00	90.00	359.59	9,750.00	3,634.99	345.95	476,921.28	780,567.01	32.308754	-103.559000
13,700.00	90.00	359.59	9,750.00	3,734.98	345.23	477,021.28	780,566.30	32.309029	-103.559000
13,800.00	90.00	359.59	9,750.00	3,834.98	344.52	477,121.28	780,565.58	32.309304	-103.559000
13,900.00	90.00	359.59	9,750.00	3,934.98	343.80	477,221.27	780,564.87	32.309579	-103.559000
14,000.00	90.00	359.59	9,750.00	4,034.98	343.08	477,321.27	780,564.15	32.309854	-103.559000
14,100.00	90.00	359.59	9,750.00	4,134.97	342.37	477,421.27	780,563.44	32.310129	-103.559000
14,200.00	90.00	359.59	9,750.00	4,234.97	341.65	477,521.26	780,562.72	32.310404	-103.559000
14,300.00	90.00	359.59	9,750.00	4,334.97	340.94	477,621.26	780,562.00	32.310678	-103.559000
14,400.00	90.00	359.59	9,750.00	4,434.97	340.22	477,721.26	780,561.29	32.310953	-103.559000
14,500.00	90.00	359.59	9,750.00	4,534.96	339.51	477,821.26	780,560.57	32.311228	-103.559000
14,600.00	90.00	359.59	9,750.00	4,634.96	338.79	477,921.25	780,559.86	32.311503	-103.559000
14,700.00	90.00	359.59	9,750.00	4,734.96	338.08	478,021.25	780,559.14	32.311778	-103.559000
14,770.04	90.00	359.59	9,750.00	4,805.00	337.57	478,091.29	780,558.64	32.311970	-103.559000
Cross Section @ 14770' MD, 0' FSL, 2260' FEL									
14,800.00	90.00	359.59	9,750.00	4,834.96	337.36	478,121.25	780,558.43	32.312053	-103.559000
14,900.00	90.00	359.59	9,750.00	4,934.95	336.64	478,221.24	780,557.71	32.312328	-103.559000
15,000.00	90.00	359.59	9,750.00	5,034.95	335.93	478,321.24	780,557.00	32.312603	-103.559000
15,100.00	90.00	359.59	9,750.00	5,134.95	335.21	478,421.24	780,556.28	32.312877	-103.559000
15,200.00	90.00	359.59	9,750.00	5,234.95	334.50	478,521.24	780,555.56	32.313152	-103.559000

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well North Thistle 15-10 State Com 4H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3743.10ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3743.10ft
Site:	Sec 15-T23S-R33E	North Reference:	Grid
Well:	North Thistle 15-10 State Com 4H	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	5,334.94	333.78	478,621.23	780,554.85	32.313427	-103.558999
15,400.00	90.00	359.59	9,750.00	5,434.94	333.07	478,721.23	780,554.13	32.313702	-103.558999
15,500.00	90.00	359.59	9,750.00	5,534.94	332.35	478,821.23	780,553.42	32.313977	-103.558999
15,600.00	90.00	359.59	9,750.00	5,634.94	331.64	478,921.23	780,552.70	32.314252	-103.558999
15,700.00	90.00	359.59	9,750.00	5,734.93	330.92	479,021.22	780,551.99	32.314527	-103.558999
15,800.00	90.00	359.59	9,750.00	5,834.93	330.20	479,121.22	780,551.27	32.314801	-103.558999
15,900.00	90.00	359.59	9,750.00	5,934.93	329.49	479,221.22	780,550.56	32.315076	-103.558999
16,000.00	90.00	359.59	9,750.00	6,034.93	328.77	479,321.21	780,549.84	32.315351	-103.558999
16,100.00	90.00	359.59	9,750.00	6,134.92	328.06	479,421.21	780,549.12	32.315626	-103.558999
16,200.00	90.00	359.59	9,750.00	6,234.92	327.34	479,521.21	780,548.41	32.315901	-103.558999
16,300.00	90.00	359.59	9,750.00	6,334.92	326.63	479,621.21	780,547.69	32.316176	-103.558999
16,400.00	90.00	359.59	9,750.00	6,434.92	325.91	479,721.20	780,546.98	32.316451	-103.558999
16,500.00	90.00	359.59	9,750.00	6,534.91	325.20	479,821.20	780,546.26	32.316726	-103.558999
16,600.00	90.00	359.59	9,750.00	6,634.91	324.48	479,921.20	780,545.55	32.317000	-103.558999
16,700.00	90.00	359.59	9,750.00	6,734.91	323.76	480,021.20	780,544.83	32.317275	-103.558999
16,800.00	90.00	359.59	9,750.00	6,834.91	323.05	480,121.19	780,544.12	32.317550	-103.558999
16,900.00	90.00	359.59	9,750.00	6,934.90	322.33	480,221.19	780,543.40	32.317825	-103.558999
17,000.00	90.00	359.59	9,750.00	7,034.90	321.62	480,321.19	780,542.68	32.318100	-103.558999
17,100.00	90.00	359.59	9,750.00	7,134.90	320.90	480,421.18	780,541.97	32.318375	-103.558999
17,200.00	90.00	359.59	9,750.00	7,234.90	320.19	480,521.18	780,541.25	32.318650	-103.558999
17,300.00	90.00	359.59	9,750.00	7,334.89	319.47	480,621.18	780,540.54	32.318925	-103.558999
17,400.00	90.00	359.59	9,750.00	7,434.89	318.75	480,721.18	780,539.82	32.319199	-103.558999
17,500.00	90.00	359.59	9,750.00	7,534.89	318.04	480,821.17	780,539.11	32.319474	-103.558999
17,600.00	90.00	359.59	9,750.00	7,634.89	317.32	480,921.17	780,538.39	32.319749	-103.558999
17,700.00	90.00	359.59	9,750.00	7,734.88	316.61	481,021.17	780,537.67	32.320024	-103.558999
17,800.00	90.00	359.59	9,750.00	7,834.88	315.89	481,121.16	780,536.96	32.320299	-103.558999
17,900.00	90.00	359.59	9,750.00	7,934.88	315.18	481,221.16	780,536.24	32.320574	-103.558999
18,000.00	90.00	359.59	9,750.00	8,034.87	314.46	481,321.16	780,535.53	32.320849	-103.558999
18,100.00	90.00	359.59	9,750.00	8,134.87	313.75	481,421.16	780,534.81	32.321123	-103.558999
18,200.00	90.00	359.59	9,750.00	8,234.87	313.03	481,521.15	780,534.10	32.321398	-103.558999
18,300.00	90.00	359.59	9,750.00	8,334.87	312.31	481,621.15	780,533.38	32.321673	-103.558999
18,400.00	90.00	359.59	9,750.00	8,434.86	311.60	481,721.15	780,532.67	32.321948	-103.558999
18,500.00	90.00	359.59	9,750.00	8,534.86	310.88	481,821.15	780,531.95	32.322223	-103.558999
18,600.00	90.00	359.59	9,750.00	8,634.86	310.17	481,921.14	780,531.23	32.322498	-103.558999
18,700.00	90.00	359.59	9,750.00	8,734.86	309.45	482,021.14	780,530.52	32.322773	-103.558999
18,800.00	90.00	359.59	9,750.00	8,834.85	308.74	482,121.14	780,529.80	32.323048	-103.558999
18,900.00	90.00	359.59	9,750.00	8,934.85	308.02	482,221.13	780,529.09	32.323322	-103.558999
19,000.00	90.00	359.59	9,750.00	9,034.85	307.31	482,321.13	780,528.37	32.323597	-103.558999
19,100.00	90.00	359.59	9,750.00	9,134.85	306.59	482,421.13	780,527.66	32.323872	-103.558999
19,200.00	90.00	359.59	9,750.00	9,234.84	305.87	482,521.13	780,526.94	32.324147	-103.558999
19,300.00	90.00	359.59	9,750.00	9,334.84	305.16	482,621.12	780,526.23	32.324422	-103.558999
19,400.00	90.00	359.59	9,750.00	9,434.84	304.44	482,721.12	780,525.51	32.324697	-103.558999
19,500.00	90.00	359.59	9,750.00	9,534.84	303.73	482,821.12	780,524.79	32.324972	-103.558999
19,600.00	90.00	359.59	9,750.00	9,634.83	303.01	482,921.12	780,524.08	32.325246	-103.558999
19,700.00	90.00	359.59	9,750.00	9,734.83	302.30	483,021.11	780,523.36	32.325521	-103.558999
19,800.00	90.00	359.59	9,750.00	9,834.83	301.58	483,121.11	780,522.65	32.325796	-103.558999
19,900.00	90.00	359.59	9,750.00	9,934.83	300.87	483,221.11	780,521.93	32.326071	-103.558999
19,960.78	90.00	359.59	9,750.00	9,995.60	300.43	483,281.89	780,521.50	32.326238	-103.558999
LTP @ 19961' MD, 100' FNL, 2260' FEL									
20,000.00	90.00	359.59	9,750.00	10,034.82	300.15	483,321.10	780,521.22	32.326346	-103.558999
20,040.78	90.00	359.59	9,750.00	10,075.60	299.86	483,361.88	780,520.92	32.326458	-103.558999
PBHL; 20' FNL, 2260' FEL									

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well North Thistle 15-10 State Com 4H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3743.10ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3743.10ft
Site:	Sec 15-T23S-R33E	North Reference:	Grid
Well:	North Thistle 15-10 State Com 4H	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	10,073.47	371.63	483,359.75	780,592.70	32.326451	-103.558766
- plan misses target center by 9750.26ft at 20038.13ft MD (9750.00 TVD, 10072.96 N, 299.88 E)									
- Point									

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W	Comment	
(ft)	(ft)	(ft)	(ft)		
9,212.87	9,177.04	-425.00	375.00	KOP @ 9213' MD, 50' FSL, 2260' FEL	
9,454.01	9,411.13	-375.00	374.64	FTP @ 9454' MD, 100' FSL, 2260' FEL	
14,770.04	9,750.00	4,805.00	337.57	Cross Section @ 14770' MD, 0' FSL, 2260' FEL	
19,960.78	9,750.00	9,995.60	300.43	LTP @ 19961' MD, 100' FNL, 2260' FEL	
20,040.78	9,750.00	10,075.60	299.86	PBHL; 20' FNL, 2260' FEL	