

WCDSC Permian NM

Lea County (NAD83 New Mexico East)

Sec 15-T23S-R33E

North Thistle 15-10 State Com 2H

**HOEES OGD
DEC 06 2018
RECEIVED**

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 2H
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 2H	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 2H			
Well Position	+N/-S	0.00 ft	Northing:	473,216.02 usft
	+E/-W	0.00 ft	Easting:	778,387.07 usft
Position Uncertainty	0.50 ft	Wellhead Elevation:		Ground Level: 3,711.40 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/13/2018	6.80	60.11	47,835.94561006

Design	Permit Plan 1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	2.21

Plan Survey Tool Program	Date 11/15/2018			
Depth From	Depth To	Survey (Wellbore)	Tool Name	Remarks
(ft)	(ft)			
1	0.00	20,040.25 Permit Plan 1 (Wellbore #1)	MWD+HDGM	
			OWSG MWD + HDGM	

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(ft)	(°)	(°)	(ft)	(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	
4,643.01	8.04	127.60	4,640.90	-27.47	35.68	1.25	1.25	0.00	127.60	
8,331.26	8.04	127.60	8,292.92	-342.11	444.27	0.00	0.00	0.00	0.00	
8,867.09	0.00	0.00	8,827.00	-365.00	474.00	1.50	-1.50	0.00	180.00	
9,217.13	0.00	0.00	9,177.04	-365.00	474.00	0.00	0.00	0.00	0.00	
10,117.14	90.00	359.55	9,750.00	207.94	469.46	10.00	10.00	0.00	359.55	PBHL - North Thistle
20,040.25	90.00	359.55	9,750.00	10,130.74	390.91	0.00	0.00	0.00	0.00	PBHL - North Thistle

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Well:	North Thistle 15-10 State Com 2H	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	473,216.02	778,387.07	32.298613	-103.566141
100.00	0.00	0.00	100.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
200.00	0.00	0.00	200.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
300.00	0.00	0.00	300.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
400.00	0.00	0.00	400.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
500.00	0.00	0.00	500.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
600.00	0.00	0.00	600.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
700.00	0.00	0.00	700.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
800.00	0.00	0.00	800.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
900.00	0.00	0.00	900.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
1,000.00	0.00	0.00	1,000.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
1,100.00	0.00	0.00	1,100.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
1,200.00	0.00	0.00	1,200.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
1,300.00	0.00	0.00	1,300.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
1,400.00	0.00	0.00	1,400.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
1,500.00	0.00	0.00	1,500.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
1,600.00	0.00	0.00	1,600.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
1,700.00	0.00	0.00	1,700.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
1,800.00	0.00	0.00	1,800.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
1,900.00	0.00	0.00	1,900.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
2,000.00	0.00	0.00	2,000.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
2,100.00	0.00	0.00	2,100.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
2,200.00	0.00	0.00	2,200.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
2,300.00	0.00	0.00	2,300.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
2,400.00	0.00	0.00	2,400.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
2,500.00	0.00	0.00	2,500.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
2,600.00	0.00	0.00	2,600.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
2,700.00	0.00	0.00	2,700.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
2,800.00	0.00	0.00	2,800.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
2,900.00	0.00	0.00	2,900.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
3,000.00	0.00	0.00	3,000.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
3,100.00	0.00	0.00	3,100.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
3,200.00	0.00	0.00	3,200.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
3,300.00	0.00	0.00	3,300.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
3,400.00	0.00	0.00	3,400.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
3,500.00	0.00	0.00	3,500.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
3,600.00	0.00	0.00	3,600.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
3,700.00	0.00	0.00	3,700.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
3,800.00	0.00	0.00	3,800.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
3,900.00	0.00	0.00	3,900.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
4,000.00	0.00	0.00	4,000.00	0.00	0.00	473,216.02	778,387.07	32.298613	-103.566141
4,100.00	1.25	127.60	4,099.99	-0.67	0.86	473,215.36	778,387.93	32.298611	-103.566138
4,200.00	2.50	127.60	4,199.94	-2.66	3.46	473,213.36	778,390.52	32.298606	-103.566130
4,300.00	3.75	127.60	4,299.79	-5.99	7.78	473,210.03	778,394.84	32.298596	-103.566116
4,400.00	5.00	127.60	4,399.49	-10.64	13.82	473,205.38	778,400.89	32.298584	-103.566097
4,500.00	6.25	127.60	4,499.01	-16.62	21.59	473,199.40	778,408.65	32.298567	-103.566072
4,600.00	7.50	127.60	4,598.29	-23.92	31.07	473,192.10	778,418.14	32.298547	-103.566041
4,643.01	8.04	127.60	4,640.90	-27.47	35.68	473,188.55	778,422.74	32.298537	-103.566026
4,700.00	8.04	127.60	4,697.33	-32.33	41.99	473,183.69	778,429.06	32.298523	-103.566006
4,800.00	8.04	127.60	4,796.35	-40.86	53.07	473,175.16	778,440.14	32.298500	-103.565970
4,900.00	8.04	127.60	4,895.37	-49.40	64.15	473,166.63	778,451.21	32.298476	-103.565935
5,000.00	8.04	127.60	4,994.39	-57.93	75.22	473,158.09	778,462.29	32.298452	-103.565899
5,100.00	8.04	127.60	5,093.40	-66.46	86.30	473,149.56	778,473.37	32.298429	-103.565863
5,200.00	8.04	127.60	5,192.42	-74.99	97.38	473,141.03	778,484.45	32.298405	-103.565828
5,300.00	8.04	127.60	5,291.44	-83.52	108.46	473,132.50	778,495.53	32.298381	-103.565792

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Well:	North Thistle 15-10 State Com 2H	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	8.04	127.60	5,390.46	-92.05	119.54	473,123.97	778,506.60	32.298358	-103.565756	
5,500.00	8.04	127.60	5,489.47	-100.58	130.62	473,115.44	778,517.68	32.298334	-103.565721	
5,600.00	8.04	127.60	5,588.49	-109.11	141.69	473,106.91	778,528.76	32.298310	-103.565685	
5,700.00	8.04	127.60	5,687.51	-117.64	152.77	473,098.38	778,539.84	32.298287	-103.565649	
5,800.00	8.04	127.60	5,786.53	-126.17	163.85	473,089.85	778,550.92	32.298263	-103.565614	
5,900.00	8.04	127.60	5,885.55	-134.70	174.93	473,081.32	778,562.00	32.298239	-103.565578	
6,000.00	8.04	127.60	5,984.56	-143.23	186.01	473,072.79	778,573.07	32.298216	-103.565543	
6,100.00	8.04	127.60	6,083.58	-151.76	197.09	473,064.26	778,584.15	32.298192	-103.565507	
6,200.00	8.04	127.60	6,182.60	-160.29	208.16	473,055.73	778,595.23	32.298168	-103.565471	
6,300.00	8.04	127.60	6,281.62	-168.83	219.24	473,047.20	778,606.31	32.298145	-103.565436	
6,400.00	8.04	127.60	6,380.63	-177.36	230.32	473,038.66	778,617.39	32.298121	-103.565400	
6,500.00	8.04	127.60	6,479.65	-185.89	241.40	473,030.13	778,628.47	32.298097	-103.565364	
6,600.00	8.04	127.60	6,578.67	-194.42	252.48	473,021.60	778,639.54	32.298074	-103.565329	
6,700.00	8.04	127.60	6,677.69	-202.95	263.56	473,013.07	778,650.62	32.298050	-103.565293	
6,800.00	8.04	127.60	6,776.70	-211.48	274.63	473,004.54	778,661.70	32.298026	-103.565257	
6,900.00	8.04	127.60	6,875.72	-220.01	285.71	472,996.01	778,672.78	32.298003	-103.565222	
7,000.00	8.04	127.60	6,974.74	-228.54	296.79	472,987.48	778,683.86	32.297979	-103.565186	
7,100.00	8.04	127.60	7,073.76	-237.07	307.87	472,978.95	778,694.94	32.297955	-103.565150	
7,200.00	8.04	127.60	7,172.78	-245.60	318.95	472,970.42	778,706.01	32.297932	-103.565115	
7,300.00	8.04	127.60	7,271.79	-254.13	330.02	472,961.89	778,717.09	32.297908	-103.565079	
7,400.00	8.04	127.60	7,370.81	-262.66	341.10	472,953.36	778,728.17	32.297884	-103.565043	
7,500.00	8.04	127.60	7,469.83	-271.19	352.18	472,944.83	778,739.25	32.297861	-103.565008	
7,600.00	8.04	127.60	7,568.85	-279.73	363.26	472,936.30	778,750.33	32.297837	-103.564972	
7,700.00	8.04	127.60	7,667.86	-288.26	374.34	472,927.77	778,761.40	32.297813	-103.564936	
7,800.00	8.04	127.60	7,766.88	-296.79	385.42	472,919.23	778,772.48	32.297790	-103.564901	
7,900.00	8.04	127.60	7,865.90	-305.32	396.49	472,910.70	778,783.56	32.297766	-103.564865	
8,000.00	8.04	127.60	7,964.92	-313.85	407.57	472,902.17	778,794.64	32.297742	-103.564829	
8,100.00	8.04	127.60	8,063.93	-322.38	418.65	472,893.64	778,805.72	32.297719	-103.564794	
8,200.00	8.04	127.60	8,162.95	-330.91	429.73	472,885.11	778,816.80	32.297695	-103.564758	
8,300.00	8.04	127.60	8,261.97	-339.44	440.81	472,876.58	778,827.87	32.297671	-103.564722	
8,331.26	8.04	127.60	8,292.92	-342.11	444.27	472,873.91	778,831.34	32.297664	-103.564711	
8,400.00	7.01	127.60	8,361.07	-347.60	451.40	472,868.42	778,838.47	32.297649	-103.564688	
8,500.00	5.51	127.60	8,460.47	-354.25	460.03	472,861.78	778,847.10	32.297630	-103.564661	
8,600.00	4.01	127.60	8,560.12	-359.30	466.60	472,856.72	778,853.67	32.297616	-103.564639	
8,700.00	2.51	127.60	8,659.96	-362.77	471.10	472,853.25	778,858.17	32.297607	-103.564625	
8,800.00	1.01	127.60	8,759.91	-364.64	473.53	472,851.38	778,860.60	32.297602	-103.564617	
8,867.09	0.00	0.00	8,827.00	-365.00	474.00	472,851.02	778,861.07	32.297601	-103.564616	
8,900.00	0.00	0.00	8,859.91	-365.00	474.00	472,851.02	778,861.07	32.297601	-103.564616	
9,000.00	0.00	0.00	8,959.91	-365.00	474.00	472,851.02	778,861.07	32.297601	-103.564616	
9,100.00	0.00	0.00	9,059.91	-365.00	474.00	472,851.02	778,861.07	32.297601	-103.564616	
9,200.00	0.00	0.00	9,159.91	-365.00	474.00	472,851.02	778,861.07	32.297601	-103.564616	
9,217.13	0.00	0.00	9,177.04	-365.00	474.00	472,851.02	778,861.07	32.297601	-103.564616	
KOP @ 9217' MD, 50' FSL, 1284' FWL										
9,300.00	8.29	359.55	9,259.62	-359.02	473.95	472,857.00	778,861.02	32.297617	-103.564616	
9,400.00	18.29	359.55	9,356.82	-336.07	473.77	472,879.96	778,860.84	32.297680	-103.564616	
9,458.28	24.11	359.55	9,411.13	-315.00	473.60	472,901.02	778,860.67	32.297738	-103.564616	
FTP @ 9458' MD, 100' FSL, 1284' FWL										
9,500.00	28.29	359.55	9,448.56	-296.58	473.46	472,919.44	778,860.52	32.297789	-103.564616	
9,600.00	38.29	359.55	9,532.04	-241.77	473.02	472,974.25	778,860.09	32.297939	-103.564616	
9,700.00	48.29	359.55	9,604.74	-173.30	472.48	473,042.72	778,859.55	32.298127	-103.564616	
9,800.00	58.29	359.55	9,664.45	-93.24	471.85	473,122.78	778,858.92	32.298348	-103.564616	
9,900.00	68.29	359.55	9,709.35	-4.03	471.14	473,211.99	778,858.21	32.298593	-103.564617	
10,000.00	78.29	359.55	9,738.07	91.62	470.39	473,307.64	778,857.45	32.298856	-103.564617	
10,100.00	88.29	359.55	9,749.74	190.81	469.60	473,406.83	778,856.67	32.299128	-103.564617	

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Site:	Sec 15-T23S-R33E	North Reference:	Grid
Well:	North Thistle 15-10 State Com 2H	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
10,117.14	90.00	359.55	9,750.00	207.94	469.46	473,423.96	778,856.53	32.299175	-103.564617
10,200.00	90.00	359.55	9,750.00	290.80	468.81	473,506.82	778,855.87	32.299403	-103.564617
10,300.00	90.00	359.55	9,750.00	390.80	468.02	473,606.82	778,855.08	32.299678	-103.564617
10,400.00	90.00	359.55	9,750.00	490.80	467.23	473,706.82	778,854.29	32.299953	-103.564618
10,500.00	90.00	359.55	9,750.00	590.79	466.43	473,806.81	778,853.50	32.300228	-103.564618
10,600.00	90.00	359.55	9,750.00	690.79	465.64	473,906.81	778,852.71	32.300503	-103.564618
10,700.00	90.00	359.55	9,750.00	790.79	464.85	474,006.81	778,851.92	32.300778	-103.564618
10,800.00	90.00	359.55	9,750.00	890.78	464.06	474,106.80	778,851.13	32.301052	-103.564619
10,900.00	90.00	359.55	9,750.00	990.78	463.27	474,206.80	778,850.33	32.301327	-103.564619
11,000.00	90.00	359.55	9,750.00	1,090.78	462.48	474,306.80	778,849.54	32.301602	-103.564619
11,100.00	90.00	359.55	9,750.00	1,190.77	461.68	474,406.79	778,848.75	32.301877	-103.564619
11,200.00	90.00	359.55	9,750.00	1,290.77	460.89	474,506.79	778,847.96	32.302152	-103.564620
11,300.00	90.00	359.55	9,750.00	1,390.77	460.10	474,606.79	778,847.17	32.302427	-103.564620
11,400.00	90.00	359.55	9,750.00	1,490.77	459.31	474,706.78	778,846.38	32.302702	-103.564620
11,500.00	90.00	359.55	9,750.00	1,590.76	458.52	474,806.78	778,845.58	32.302976	-103.564620
11,600.00	90.00	359.55	9,750.00	1,690.76	457.73	474,906.78	778,844.79	32.303251	-103.564621
11,700.00	90.00	359.55	9,750.00	1,790.76	456.93	475,006.77	778,844.00	32.303526	-103.564621
11,800.00	90.00	359.55	9,750.00	1,890.75	456.14	475,106.77	778,843.21	32.303801	-103.564621
11,900.00	90.00	359.55	9,750.00	1,990.75	455.35	475,206.77	778,842.42	32.304076	-103.564621
12,000.00	90.00	359.55	9,750.00	2,090.75	454.56	475,306.76	778,841.63	32.304351	-103.564622
12,100.00	90.00	359.55	9,750.00	2,190.74	453.77	475,406.76	778,840.83	32.304626	-103.564622
12,200.00	90.00	359.55	9,750.00	2,290.74	452.98	475,506.76	778,840.04	32.304901	-103.564622
12,300.00	90.00	359.55	9,750.00	2,390.74	452.18	475,606.75	778,839.25	32.305175	-103.564622
12,400.00	90.00	359.55	9,750.00	2,490.73	451.39	475,706.75	778,838.46	32.305450	-103.564623
12,500.00	90.00	359.55	9,750.00	2,590.73	450.60	475,806.75	778,837.67	32.305725	-103.564623
12,600.00	90.00	359.55	9,750.00	2,690.73	449.81	475,906.74	778,836.88	32.306000	-103.564623
12,700.00	90.00	359.55	9,750.00	2,790.72	449.02	476,006.74	778,836.08	32.306275	-103.564623
12,800.00	90.00	359.55	9,750.00	2,890.72	448.23	476,106.74	778,835.29	32.306550	-103.564624
12,900.00	90.00	359.55	9,750.00	2,990.72	447.43	476,206.73	778,834.50	32.306825	-103.564624
13,000.00	90.00	359.55	9,750.00	3,090.72	446.64	476,306.73	778,833.71	32.307100	-103.564624
13,100.00	90.00	359.55	9,750.00	3,190.71	445.85	476,406.73	778,832.92	32.307374	-103.564624
13,200.00	90.00	359.55	9,750.00	3,290.71	445.06	476,506.72	778,832.13	32.307649	-103.564624
13,300.00	90.00	359.55	9,750.00	3,390.71	444.27	476,606.72	778,831.33	32.307924	-103.564625
13,400.00	90.00	359.55	9,750.00	3,490.70	443.48	476,706.72	778,830.54	32.308199	-103.564625
13,500.00	90.00	359.55	9,750.00	3,590.70	442.68	476,806.71	778,829.75	32.308474	-103.564625
13,600.00	90.00	359.55	9,750.00	3,690.70	441.89	476,906.71	778,828.96	32.308749	-103.564625
13,700.00	90.00	359.55	9,750.00	3,790.69	441.10	477,006.71	778,828.17	32.309024	-103.564626
13,800.00	90.00	359.55	9,750.00	3,890.69	440.31	477,106.70	778,827.38	32.309298	-103.564626
13,900.00	90.00	359.55	9,750.00	3,990.69	439.52	477,206.70	778,826.58	32.309573	-103.564626
14,000.00	90.00	359.55	9,750.00	4,090.68	438.73	477,306.70	778,825.79	32.309848	-103.564626
14,100.00	90.00	359.55	9,750.00	4,190.68	437.94	477,406.69	778,825.00	32.310123	-103.564627
14,200.00	90.00	359.55	9,750.00	4,290.68	437.14	477,506.69	778,824.21	32.310398	-103.564627
14,300.00	90.00	359.55	9,750.00	4,390.67	436.35	477,606.69	778,823.42	32.310673	-103.564627
14,400.00	90.00	359.55	9,750.00	4,490.67	435.56	477,706.68	778,822.63	32.310948	-103.564627
14,500.00	90.00	359.55	9,750.00	4,590.67	434.77	477,806.68	778,821.84	32.311223	-103.564628
14,600.00	90.00	359.55	9,750.00	4,690.67	433.98	477,906.68	778,821.04	32.311497	-103.564628
14,700.00	90.00	359.55	9,750.00	4,790.66	433.19	478,006.67	778,820.25	32.311772	-103.564628
14,774.34	90.00	359.55	9,750.00	4,865.00	432.60	478,081.01	778,819.66	32.311977	-103.564628
Cross Section @ 14774' MD, 0' FSL, 1284' FWL									
14,800.00	90.00	359.55	9,750.00	4,890.66	432.39	478,106.67	778,819.46	32.312047	-103.564628
14,900.00	90.00	359.55	9,750.00	4,990.66	431.60	478,206.67	778,818.67	32.312322	-103.564629
15,000.00	90.00	359.55	9,750.00	5,090.65	430.81	478,306.66	778,817.88	32.312597	-103.564629
15,100.00	90.00	359.55	9,750.00	5,190.65	430.02	478,406.66	778,817.09	32.312872	-103.564629
15,200.00	90.00	359.55	9,750.00	5,290.65	429.23	478,506.66	778,816.29	32.313147	-103.564629

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well North Thistle 15-10 State Com 2H
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 2H	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	5,390.64	428.44	478,606.65	778,815.50	32.313421	-103.564630
15,400.00	90.00	359.55	9,750.00	5,490.64	427.64	478,706.65	778,814.71	32.313696	-103.564630
15,500.00	90.00	359.55	9,750.00	5,590.64	426.85	478,806.65	778,813.92	32.313971	-103.564630
15,600.00	90.00	359.55	9,750.00	5,690.63	426.06	478,906.64	778,813.13	32.314246	-103.564630
15,700.00	90.00	359.55	9,750.00	5,790.63	425.27	479,006.64	778,812.34	32.314521	-103.564631
15,800.00	90.00	359.55	9,750.00	5,890.63	424.48	479,106.64	778,811.54	32.314796	-103.564631
15,900.00	90.00	359.55	9,750.00	5,990.62	423.69	479,206.63	778,810.75	32.315071	-103.564631
16,000.00	90.00	359.55	9,750.00	6,090.62	422.89	479,306.63	778,809.96	32.315346	-103.564631
16,100.00	90.00	359.55	9,750.00	6,190.62	422.10	479,406.63	778,809.17	32.315620	-103.564631
16,200.00	90.00	359.55	9,750.00	6,290.62	421.31	479,506.62	778,808.38	32.315895	-103.564632
16,300.00	90.00	359.55	9,750.00	6,390.61	420.52	479,606.62	778,807.59	32.316170	-103.564632
16,400.00	90.00	359.55	9,750.00	6,490.61	419.73	479,706.62	778,806.79	32.316445	-103.564632
16,500.00	90.00	359.55	9,750.00	6,590.61	418.94	479,806.61	778,806.00	32.316720	-103.564632
16,600.00	90.00	359.55	9,750.00	6,690.60	418.14	479,906.61	778,805.21	32.316995	-103.564633
16,700.00	90.00	359.55	9,750.00	6,790.60	417.35	480,006.61	778,804.42	32.317270	-103.564633
16,800.00	90.00	359.55	9,750.00	6,890.60	416.56	480,106.60	778,803.63	32.317545	-103.564633
16,900.00	90.00	359.55	9,750.00	6,990.59	415.77	480,206.60	778,802.84	32.317819	-103.564633
17,000.00	90.00	359.55	9,750.00	7,090.59	414.98	480,306.60	778,802.04	32.318094	-103.564634
17,100.00	90.00	359.55	9,750.00	7,190.59	414.19	480,406.59	778,801.25	32.318369	-103.564634
17,200.00	90.00	359.55	9,750.00	7,290.58	413.39	480,506.59	778,800.46	32.318644	-103.564634
17,300.00	90.00	359.55	9,750.00	7,390.58	412.60	480,606.59	778,799.67	32.318919	-103.564634
17,400.00	90.00	359.55	9,750.00	7,490.58	411.81	480,706.58	778,798.88	32.319194	-103.564635
17,500.00	90.00	359.55	9,750.00	7,590.57	411.02	480,806.58	778,798.09	32.319469	-103.564635
17,600.00	90.00	359.55	9,750.00	7,690.57	410.23	480,906.58	778,797.29	32.319743	-103.564635
17,700.00	90.00	359.55	9,750.00	7,790.57	409.44	481,006.57	778,796.50	32.320018	-103.564635
17,800.00	90.00	359.55	9,750.00	7,890.56	408.65	481,106.57	778,795.71	32.320293	-103.564636
17,900.00	90.00	359.55	9,750.00	7,990.56	407.85	481,206.57	778,794.92	32.320568	-103.564636
18,000.00	90.00	359.55	9,750.00	8,090.56	407.06	481,306.56	778,794.13	32.320843	-103.564636
18,100.00	90.00	359.55	9,750.00	8,190.56	406.27	481,406.56	778,793.34	32.321118	-103.564636
18,200.00	90.00	359.55	9,750.00	8,290.55	405.48	481,506.56	778,792.55	32.321393	-103.564637
18,300.00	90.00	359.55	9,750.00	8,390.55	404.69	481,606.55	778,791.75	32.321668	-103.564637
18,400.00	90.00	359.55	9,750.00	8,490.55	403.90	481,706.55	778,790.96	32.321942	-103.564637
18,500.00	90.00	359.55	9,750.00	8,590.54	403.10	481,806.55	778,790.17	32.322217	-103.564637
18,600.00	90.00	359.55	9,750.00	8,690.54	402.31	481,906.54	778,789.38	32.322492	-103.564637
18,700.00	90.00	359.55	9,750.00	8,790.54	401.52	482,006.54	778,788.59	32.322767	-103.564638
18,800.00	90.00	359.55	9,750.00	8,890.53	400.73	482,106.54	778,787.80	32.323042	-103.564638
18,900.00	90.00	359.55	9,750.00	8,990.53	399.94	482,206.53	778,787.00	32.323317	-103.564638
19,000.00	90.00	359.55	9,750.00	9,090.53	399.15	482,306.53	778,786.21	32.323592	-103.564638
19,100.00	90.00	359.55	9,750.00	9,190.52	398.35	482,406.53	778,785.42	32.323866	-103.564639
19,200.00	90.00	359.55	9,750.00	9,290.52	397.56	482,506.52	778,784.63	32.324141	-103.564639
19,300.00	90.00	359.55	9,750.00	9,390.52	396.77	482,606.52	778,783.84	32.324416	-103.564639
19,400.00	90.00	359.55	9,750.00	9,490.51	395.98	482,706.52	778,783.05	32.324691	-103.564639
19,500.00	90.00	359.55	9,750.00	9,590.51	395.19	482,806.51	778,782.25	32.324966	-103.564640
19,600.00	90.00	359.55	9,750.00	9,690.51	394.40	482,906.51	778,781.46	32.325241	-103.564640
19,700.00	90.00	359.55	9,750.00	9,790.51	393.60	483,006.51	778,780.67	32.325516	-103.564640
19,800.00	90.00	359.55	9,750.00	9,890.50	392.81	483,106.50	778,779.88	32.325791	-103.564640
19,900.00	90.00	359.55	9,750.00	9,990.50	392.02	483,206.50	778,779.09	32.326065	-103.564641
19,960.25	90.00	359.55	9,750.00	10,050.75	391.54	483,266.75	778,778.61	32.326231	-103.564641
LTP @ 19960' MD, 100' FNL, 1284' FWL									
20,000.00	90.00	359.55	9,750.00	10,090.50	391.23	483,306.50	778,778.30	32.326340	-103.564641
20,040.25	90.00	359.55	9,750.00	10,130.74	390.91	483,346.74	778,777.98	32.326451	-103.564641
PBHL; 20' FNL, 1284' FWL									

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well North Thistle 15-10 State Com 2H
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 2H	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	10,130.74	390.91	483,346.74	778,777.98	32.326451	-103.564641
- plan misses target center by 9750.00ft at 20040.25ft MD (9750.00 TVD, 10130.74 N, 390.91 E)									
- Point									

Plan Annotations

Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S	+E/-W	
(ft)	(ft)	(ft)	(ft)	
9,217.13	9,177.04	-365.00	474.00	KOP @ 9217' MD, 50' FSL, 1284' FWL
9,458.28	9,411.13	-315.00	473.60	FTP @ 9458' MD, 100' FSL, 1284' FWL
14,774.34	9,750.00	4,865.00	432.60	Cross Section @ 14774' MD, 0' FSL, 1284' FWL
19,960.25	9,750.00	10,050.75	391.54	LTP @ 19960' MD, 100' FNL, 1284' FWL
20,040.25	9,750.00	10,130.74	390.91	PBHL; 20' FNL, 1284' FWL