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# **WCDSC Permian NM**

**Lea County (NAD83 New Mexico East)**

**Sec 15-T23S-R33E**

**North Thistle 15-10 State Com 5H**

**Wellbore #1**

**Plan: Permit Plan 1**

## **Standard Planning Report - Geographic**

**15 November, 2018**

Planning Report - Geographic

<b>Database:</b>	EDM r5000.141_Prod US	<b>Local Co-ordinate Reference:</b>	Well North Thistle 15-10 State Com 5H
<b>Company:</b>	WCDSC Permian NM	<b>TVD Reference:</b>	RKB @ 3731.00ft
<b>Project:</b>	Lea County (NAD83 New Mexico East)	<b>MD Reference:</b>	RKB @ 3731.00ft
<b>Site:</b>	Sec 15-T23S-R33E	<b>North Reference:</b>	Grid
<b>Well:</b>	North Thistle 15-10 State Com 5H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Permit Plan 1		

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

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

<b>Well</b>	North Thistle 15-10 State Com 5H					
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	473,296.35 usft	<b>Latitude:</b>	32.298762
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	782,001.52 usft	<b>Longitude:</b>	-103.554442
<b>Position Uncertainty</b>		0.50 ft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	3,706.00 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	11/13/2018	6.80	60.12	47,837.29313069

<b>Design</b>	Permit Plan 1				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00	
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	356.42	

<b>Plan Survey Tool Program</b>	<b>Date</b>	11/15/2018			
<b>Depth From (ft)</b>	<b>Depth To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>	
1	0.00	20,059.23 Permit Plan 1 (Wellbore #1)	MWD+HDGM OWSG MWD + HDGM		

<b>Plan Sections</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,210.26	7.10	230.96	3,208.44	-27.69	-34.15	1.00	1.00	0.00	230.96	
8,396.32	7.10	230.96	8,354.71	-431.54	-532.23	0.00	0.00	0.00	0.00	
8,869.83	0.00	0.00	8,827.00	-450.00	-555.00	1.50	-1.50	0.00	180.00	
9,219.87	0.00	0.00	9,177.04	-450.00	-555.00	0.00	0.00	0.00	0.00	
10,119.87	90.00	359.59	9,750.00	122.94	-559.10	10.00	10.00	0.00	359.59	
20,059.23	90.00	359.59	9,750.00	10,062.05	-630.22	0.00	0.00	0.00	0.00	PBHL - North Thistle

Planning Report - Geographic

<b>Database:</b>	EDM r5000.141_Prod US	<b>Local Co-ordinate Reference:</b>	Well North Thistle 15-10 State Com 5H
<b>Company:</b>	WCDSC Permian NM	<b>TVD Reference:</b>	RKB @ 3731.00ft
<b>Project:</b>	Lea County (NAD83 New Mexico East)	<b>MD Reference:</b>	RKB @ 3731.00ft
<b>Site:</b>	Sec 15-T23S-R33E	<b>North Reference:</b>	Grid
<b>Well:</b>	North Thistle 15-10 State Com 5H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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	473,296.35	782,001.52	32.298762	-103.554442	
100.00	0.00	0.00	100.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
200.00	0.00	0.00	200.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
300.00	0.00	0.00	300.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
400.00	0.00	0.00	400.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
500.00	0.00	0.00	500.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
600.00	0.00	0.00	600.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
700.00	0.00	0.00	700.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
800.00	0.00	0.00	800.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
900.00	0.00	0.00	900.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
1,400.00	0.00	0.00	1,400.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
1,600.00	0.00	0.00	1,600.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
1,700.00	0.00	0.00	1,700.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
1,800.00	0.00	0.00	1,800.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
1,900.00	0.00	0.00	1,900.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
2,100.00	0.00	0.00	2,100.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
2,200.00	0.00	0.00	2,200.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
2,300.00	0.00	0.00	2,300.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
2,400.00	0.00	0.00	2,400.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	473,296.35	782,001.52	32.298762	-103.554442	
2,600.00	1.00	230.96	2,599.99	-0.55	-0.68	473,295.80	782,000.84	32.298761	-103.554444	
2,700.00	2.00	230.96	2,699.96	-2.20	-2.71	473,294.15	781,998.81	32.298756	-103.554451	
2,800.00	3.00	230.96	2,799.86	-4.95	-6.10	473,291.41	781,995.42	32.298749	-103.554462	
2,900.00	4.00	230.96	2,899.68	-8.79	-10.84	473,287.56	781,990.68	32.298738	-103.554478	
3,000.00	5.00	230.96	2,999.37	-13.73	-16.94	473,282.62	781,984.58	32.298725	-103.554497	
3,100.00	6.00	230.96	3,098.90	-19.77	-24.38	473,276.58	781,977.14	32.298708	-103.554522	
3,200.00	7.00	230.96	3,198.26	-26.90	-33.17	473,269.45	781,968.34	32.298689	-103.554550	
3,210.26	7.10	230.96	3,208.44	-27.69	-34.15	473,268.66	781,967.37	32.298687	-103.554553	
3,300.00	7.10	230.96	3,297.49	-34.68	-42.77	473,261.67	781,958.75	32.298668	-103.554582	
3,400.00	7.10	230.96	3,396.73	-42.47	-52.37	473,253.88	781,949.14	32.298647	-103.554613	
3,500.00	7.10	230.96	3,495.96	-50.25	-61.98	473,246.10	781,939.54	32.298625	-103.554644	
3,600.00	7.10	230.96	3,595.19	-58.04	-71.58	473,238.31	781,929.93	32.298604	-103.554675	
3,700.00	7.10	230.96	3,694.42	-65.83	-81.19	473,230.52	781,920.33	32.298583	-103.554707	
3,800.00	7.10	230.96	3,793.66	-73.61	-90.79	473,222.74	781,910.73	32.298562	-103.554738	
3,900.00	7.10	230.96	3,892.89	-81.40	-100.40	473,214.95	781,901.12	32.298541	-103.554769	
4,000.00	7.10	230.96	3,992.12	-89.19	-110.00	473,207.16	781,891.52	32.298519	-103.554800	
4,100.00	7.10	230.96	4,091.35	-96.98	-119.60	473,199.37	781,881.91	32.298498	-103.554832	
4,200.00	7.10	230.96	4,190.59	-104.76	-129.21	473,191.59	781,872.31	32.298477	-103.554863	
4,300.00	7.10	230.96	4,289.82	-112.55	-138.81	473,183.80	781,862.71	32.298456	-103.554894	
4,400.00	7.10	230.96	4,389.05	-120.34	-148.42	473,176.01	781,853.10	32.298434	-103.554925	
4,500.00	7.10	230.96	4,488.29	-128.13	-158.02	473,168.23	781,843.50	32.298413	-103.554957	
4,600.00	7.10	230.96	4,587.52	-135.91	-167.63	473,160.44	781,833.89	32.298392	-103.554988	
4,700.00	7.10	230.96	4,686.75	-143.70	-177.23	473,152.65	781,824.29	32.298371	-103.555019	
4,800.00	7.10	230.96	4,785.98	-151.49	-186.83	473,144.86	781,814.68	32.298350	-103.555050	
4,900.00	7.10	230.96	4,885.22	-159.27	-196.44	473,137.08	781,805.08	32.298328	-103.555082	
5,000.00	7.10	230.96	4,984.45	-167.06	-206.04	473,129.29	781,795.48	32.298307	-103.555113	
5,100.00	7.10	230.96	5,083.68	-174.85	-215.65	473,121.50	781,785.87	32.298286	-103.555144	
5,200.00	7.10	230.96	5,182.91	-182.64	-225.25	473,113.72	781,776.27	32.298265	-103.555176	
5,300.00	7.10	230.96	5,282.15	-190.42	-234.85	473,105.93	781,766.66	32.298244	-103.555207	

Planning Report - Geographic

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<b>Project:</b>	Lea County (NAD83 New Mexico East)	<b>MD Reference:</b>	RKB @ 3731.00ft
<b>Site:</b>	Sec 15-T23S-R33E	<b>North Reference:</b>	Grid
<b>Well:</b>	North Thistle 15-10 State Com 5H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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	7.10	230.96	5,381.38	-198.21	-244.46	473,098.14	781,757.06	32.298222	-103.555238	
5,500.00	7.10	230.96	5,480.61	-206.00	-254.06	473,090.35	781,747.45	32.298201	-103.555269	
5,600.00	7.10	230.96	5,579.84	-213.78	-263.67	473,082.57	781,737.85	32.298180	-103.555301	
5,700.00	7.10	230.96	5,679.08	-221.57	-273.27	473,074.78	781,728.25	32.298159	-103.555332	
5,800.00	7.10	230.96	5,778.31	-229.36	-282.88	473,066.99	781,718.64	32.298137	-103.555363	
5,900.00	7.10	230.96	5,877.54	-237.15	-292.48	473,059.20	781,709.04	32.298116	-103.555394	
6,000.00	7.10	230.96	5,976.78	-244.93	-302.08	473,051.42	781,699.43	32.298095	-103.555426	
6,100.00	7.10	230.96	6,076.01	-252.72	-311.69	473,043.63	781,689.83	32.298074	-103.555457	
6,200.00	7.10	230.96	6,175.24	-260.51	-321.29	473,035.84	781,680.23	32.298053	-103.555488	
6,300.00	7.10	230.96	6,274.47	-268.30	-330.90	473,028.06	781,670.62	32.298031	-103.555519	
6,400.00	7.10	230.96	6,373.71	-276.08	-340.50	473,020.27	781,661.02	32.298010	-103.555551	
6,500.00	7.10	230.96	6,472.94	-283.87	-350.11	473,012.48	781,651.41	32.297989	-103.555582	
6,600.00	7.10	230.96	6,572.17	-291.66	-359.71	473,004.69	781,641.81	32.297968	-103.555613	
6,700.00	7.10	230.96	6,671.40	-299.44	-369.31	472,996.91	781,632.20	32.297947	-103.555644	
6,800.00	7.10	230.96	6,770.64	-307.23	-378.92	472,989.12	781,622.60	32.297925	-103.555676	
6,900.00	7.10	230.96	6,869.87	-315.02	-388.52	472,981.33	781,613.00	32.297904	-103.555707	
7,000.00	7.10	230.96	6,969.10	-322.81	-398.13	472,973.55	781,603.39	32.297883	-103.555738	
7,100.00	7.10	230.96	7,068.33	-330.59	-407.73	472,965.76	781,593.79	32.297862	-103.555770	
7,200.00	7.10	230.96	7,167.57	-338.38	-417.34	472,957.97	781,584.18	32.297841	-103.555801	
7,300.00	7.10	230.96	7,266.80	-346.17	-426.94	472,950.18	781,574.58	32.297819	-103.555832	
7,400.00	7.10	230.96	7,366.03	-353.95	-436.54	472,942.40	781,564.97	32.297798	-103.555863	
7,500.00	7.10	230.96	7,465.27	-361.74	-446.15	472,934.61	781,555.37	32.297777	-103.555895	
7,600.00	7.10	230.96	7,564.50	-369.53	-455.75	472,926.82	781,545.77	32.297756	-103.555926	
7,700.00	7.10	230.96	7,663.73	-377.32	-465.36	472,919.04	781,536.16	32.297734	-103.555957	
7,800.00	7.10	230.96	7,762.96	-385.10	-474.96	472,911.25	781,526.56	32.297713	-103.555988	
7,900.00	7.10	230.96	7,862.20	-392.89	-484.56	472,903.46	781,516.95	32.297692	-103.556020	
8,000.00	7.10	230.96	7,961.43	-400.68	-494.17	472,895.67	781,507.35	32.297671	-103.556051	
8,100.00	7.10	230.96	8,060.66	-408.46	-503.77	472,887.89	781,497.75	32.297650	-103.556082	
8,200.00	7.10	230.96	8,159.89	-416.25	-513.38	472,880.10	781,488.14	32.297628	-103.556113	
8,300.00	7.10	230.96	8,259.13	-424.04	-522.98	472,872.31	781,478.54	32.297607	-103.556145	
8,396.32	7.10	230.96	8,354.71	-431.54	-532.23	472,864.81	781,469.29	32.297587	-103.556175	
8,400.00	7.05	230.96	8,358.36	-431.83	-532.58	472,864.53	781,468.93	32.297586	-103.556176	
8,500.00	5.55	230.96	8,457.75	-438.73	-541.10	472,857.62	781,460.41	32.297567	-103.556204	
8,600.00	4.05	230.96	8,557.40	-444.00	-547.60	472,852.35	781,453.92	32.297553	-103.556225	
8,700.00	2.55	230.96	8,657.23	-447.62	-552.07	472,848.73	781,449.45	32.297543	-103.556239	
8,800.00	1.05	230.96	8,757.18	-449.60	-554.50	472,846.75	781,447.01	32.297538	-103.556247	
8,869.83	0.00	0.00	8,827.00	-450.00	-555.00	472,846.35	781,446.52	32.297536	-103.556249	
8,900.00	0.00	0.00	8,857.18	-450.00	-555.00	472,846.35	781,446.52	32.297536	-103.556249	
9,000.00	0.00	0.00	8,957.18	-450.00	-555.00	472,846.35	781,446.52	32.297536	-103.556249	
9,100.00	0.00	0.00	9,057.18	-450.00	-555.00	472,846.35	781,446.52	32.297536	-103.556249	
9,200.00	0.00	0.00	9,157.18	-450.00	-555.00	472,846.35	781,446.52	32.297536	-103.556249	
9,219.86	0.00	0.00	9,177.04	-450.00	-555.00	472,846.35	781,446.52	32.297536	-103.556249	
<b>KOP @ 9220' MD, 50' FSL, 1410' FEL</b>										
9,300.00	8.01	359.59	9,256.91	-444.41	-555.04	472,851.95	781,446.48	32.297552	-103.556249	
9,400.00	18.01	359.59	9,354.22	-421.92	-555.20	472,874.43	781,446.32	32.297614	-103.556249	
9,500.00	28.01	359.59	9,446.15	-382.87	-555.48	472,913.48	781,446.04	32.297721	-103.556249	
9,516.33	29.65	359.59	9,460.45	-375.00	-555.54	472,921.35	781,445.98	32.297743	-103.556249	
<b>FTP @ 9516' MD, 100' FSL, 1410' FEL</b>										
9,600.00	38.01	359.59	9,529.89	-328.46	-555.87	472,967.89	781,445.65	32.297871	-103.556249	
9,700.00	48.01	359.59	9,602.92	-260.33	-556.36	473,036.02	781,445.16	32.298058	-103.556249	
9,800.00	58.01	359.59	9,663.01	-180.56	-556.93	473,115.79	781,444.59	32.298277	-103.556249	
9,900.00	68.01	359.59	9,708.33	-91.56	-557.56	473,204.79	781,443.95	32.298522	-103.556249	
10,000.00	78.01	359.59	9,737.51	3.95	-558.25	473,300.30	781,443.27	32.298784	-103.556249	
10,100.00	88.01	359.59	9,749.65	103.08	-558.96	473,399.43	781,442.56	32.299057	-103.556249	

Planning Report - Geographic

<b>Database:</b>	EDM r5000.141_Prod US	<b>Local Co-ordinate Reference:</b>	Well North Thistle 15-10 State Com 5H
<b>Company:</b>	WCDSC Permian NM	<b>TVD Reference:</b>	RKB @ 3731.00ft
<b>Project:</b>	Lea County (NAD83 New Mexico East)	<b>MD Reference:</b>	RKB @ 3731.00ft
<b>Site:</b>	Sec 15-T23S-R33E	<b>North Reference:</b>	Grid
<b>Well:</b>	North Thistle 15-10 State Com 5H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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	
10,119.87	90.00	359.59	9,750.00	122.94	-559.10	473,419.29	781,442.42	32.299111	-103.556249	
10,200.00	90.00	359.59	9,750.00	203.08	-559.67	473,499.43	781,441.85	32.299332	-103.556249	
10,300.00	90.00	359.59	9,750.00	303.07	-560.39	473,599.42	781,441.13	32.299606	-103.556249	
10,400.00	90.00	359.59	9,750.00	403.07	-561.10	473,699.42	781,440.41	32.299881	-103.556249	
10,500.00	90.00	359.59	9,750.00	503.07	-561.82	473,799.42	781,439.70	32.300156	-103.556249	
10,600.00	90.00	359.59	9,750.00	603.07	-562.54	473,899.41	781,438.98	32.300431	-103.556249	
10,700.00	90.00	359.59	9,750.00	703.06	-563.25	473,999.41	781,438.27	32.300706	-103.556249	
10,800.00	90.00	359.59	9,750.00	803.06	-563.97	474,099.41	781,437.55	32.300981	-103.556249	
10,900.00	90.00	359.59	9,750.00	903.06	-564.68	474,199.41	781,436.84	32.301256	-103.556249	
11,000.00	90.00	359.59	9,750.00	1,003.06	-565.40	474,299.40	781,436.12	32.301531	-103.556249	
11,100.00	90.00	359.59	9,750.00	1,103.05	-566.11	474,399.40	781,435.40	32.301805	-103.556248	
11,200.00	90.00	359.59	9,750.00	1,203.05	-566.83	474,499.40	781,434.69	32.302080	-103.556248	
11,300.00	90.00	359.59	9,750.00	1,303.05	-567.54	474,599.40	781,433.97	32.302355	-103.556248	
11,400.00	90.00	359.59	9,750.00	1,403.04	-568.26	474,699.39	781,433.26	32.302630	-103.556248	
11,500.00	90.00	359.59	9,750.00	1,503.04	-568.98	474,799.39	781,432.54	32.302905	-103.556248	
11,600.00	90.00	359.59	9,750.00	1,603.04	-569.69	474,899.39	781,431.83	32.303180	-103.556248	
11,700.00	90.00	359.59	9,750.00	1,703.04	-570.41	474,999.38	781,431.11	32.303455	-103.556248	
11,800.00	90.00	359.59	9,750.00	1,803.03	-571.12	475,099.38	781,430.40	32.303730	-103.556248	
11,900.00	90.00	359.59	9,750.00	1,903.03	-571.84	475,199.38	781,429.68	32.304004	-103.556248	
12,000.00	90.00	359.59	9,750.00	2,003.03	-572.55	475,299.38	781,428.96	32.304279	-103.556248	
12,100.00	90.00	359.59	9,750.00	2,103.03	-573.27	475,399.37	781,428.25	32.304554	-103.556248	
12,200.00	90.00	359.59	9,750.00	2,203.02	-573.98	475,499.37	781,427.53	32.304829	-103.556248	
12,300.00	90.00	359.59	9,750.00	2,303.02	-574.70	475,599.37	781,426.82	32.305104	-103.556248	
12,400.00	90.00	359.59	9,750.00	2,403.02	-575.42	475,699.36	781,426.10	32.305379	-103.556248	
12,500.00	90.00	359.59	9,750.00	2,503.02	-576.13	475,799.36	781,425.39	32.305654	-103.556248	
12,600.00	90.00	359.59	9,750.00	2,603.01	-576.85	475,899.36	781,424.67	32.305928	-103.556248	
12,700.00	90.00	359.59	9,750.00	2,703.01	-577.56	475,999.36	781,423.96	32.306203	-103.556248	
12,800.00	90.00	359.59	9,750.00	2,803.01	-578.28	476,099.35	781,423.24	32.306478	-103.556248	
12,900.00	90.00	359.59	9,750.00	2,903.01	-578.99	476,199.35	781,422.52	32.306753	-103.556248	
13,000.00	90.00	359.59	9,750.00	3,003.00	-579.71	476,299.35	781,421.81	32.307028	-103.556248	
13,100.00	90.00	359.59	9,750.00	3,103.00	-580.43	476,399.35	781,421.09	32.307303	-103.556248	
13,200.00	90.00	359.59	9,750.00	3,203.00	-581.14	476,499.34	781,420.38	32.307578	-103.556248	
13,300.00	90.00	359.59	9,750.00	3,303.00	-581.86	476,599.34	781,419.66	32.307853	-103.556248	
13,400.00	90.00	359.59	9,750.00	3,402.99	-582.57	476,699.34	781,418.95	32.308127	-103.556248	
13,500.00	90.00	359.59	9,750.00	3,502.99	-583.29	476,799.33	781,418.23	32.308402	-103.556248	
13,600.00	90.00	359.59	9,750.00	3,602.99	-584.00	476,899.33	781,417.52	32.308677	-103.556248	
13,700.00	90.00	359.59	9,750.00	3,702.99	-584.72	476,999.33	781,416.80	32.308952	-103.556248	
13,800.00	90.00	359.59	9,750.00	3,802.98	-585.43	477,099.33	781,416.08	32.309227	-103.556248	
13,900.00	90.00	359.59	9,750.00	3,902.98	-586.15	477,199.32	781,415.37	32.309502	-103.556248	
14,000.00	90.00	359.59	9,750.00	4,002.98	-586.87	477,299.32	781,414.65	32.309777	-103.556248	
14,100.00	90.00	359.59	9,750.00	4,102.98	-587.58	477,399.32	781,413.94	32.310051	-103.556248	
14,200.00	90.00	359.59	9,750.00	4,202.97	-588.30	477,499.32	781,413.22	32.310326	-103.556248	
14,300.00	90.00	359.59	9,750.00	4,302.97	-589.01	477,599.31	781,412.51	32.310601	-103.556247	
14,400.00	90.00	359.59	9,750.00	4,402.97	-589.73	477,699.31	781,411.79	32.310876	-103.556247	
14,500.00	90.00	359.59	9,750.00	4,502.97	-590.44	477,799.31	781,411.08	32.311151	-103.556247	
14,600.00	90.00	359.59	9,750.00	4,602.96	-591.16	477,899.30	781,410.36	32.311426	-103.556247	
14,700.00	90.00	359.59	9,750.00	4,702.96	-591.87	477,999.30	781,409.64	32.311701	-103.556247	
14,800.00	90.00	359.59	9,750.00	4,802.96	-592.59	478,099.30	781,408.93	32.311976	-103.556247	
14,802.04	90.00	359.59	9,750.00	4,805.00	-592.60	478,101.34	781,408.91	32.311981	-103.556247	
<b>Cross Section @ 14802' MD, 0' FSL, 1410' FEL</b>										
14,900.00	90.00	359.59	9,750.00	4,902.96	-593.31	478,199.30	781,408.21	32.312250	-103.556247	
15,000.00	90.00	359.59	9,750.00	5,002.95	-594.02	478,299.29	781,407.50	32.312525	-103.556247	
15,100.00	90.00	359.59	9,750.00	5,102.95	-594.74	478,399.29	781,406.78	32.312800	-103.556247	
15,200.00	90.00	359.59	9,750.00	5,202.95	-595.45	478,499.29	781,406.07	32.313075	-103.556247	

Planning Report - Geographic

<b>Database:</b>	EDM r5000.141_Prod US	<b>Local Co-ordinate Reference:</b>	Well North Thistle 15-10 State Com 5H
<b>Company:</b>	WCDSC Permian NM	<b>TVD Reference:</b>	RKB @ 3731.00ft
<b>Project:</b>	Lea County (NAD83 New Mexico East)	<b>MD Reference:</b>	RKB @ 3731.00ft
<b>Site:</b>	Sec 15-T23S-R33E	<b>North Reference:</b>	Grid
<b>Well:</b>	North Thistle 15-10 State Com 5H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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	5,302.95	-596.17	478,599.28	781,405.35	32.313350	-103.556247	
15,400.00	90.00	359.59	9,750.00	5,402.94	-596.88	478,699.28	781,404.64	32.313625	-103.556247	
15,500.00	90.00	359.59	9,750.00	5,502.94	-597.60	478,799.28	781,403.92	32.313900	-103.556247	
15,600.00	90.00	359.59	9,750.00	5,602.94	-598.31	478,899.28	781,403.20	32.314175	-103.556247	
15,700.00	90.00	359.59	9,750.00	5,702.93	-599.03	478,999.27	781,402.49	32.314449	-103.556247	
15,800.00	90.00	359.59	9,750.00	5,802.93	-599.75	479,099.27	781,401.77	32.314724	-103.556247	
15,900.00	90.00	359.59	9,750.00	5,902.93	-600.46	479,199.27	781,401.06	32.314999	-103.556247	
16,000.00	90.00	359.59	9,750.00	6,002.93	-601.18	479,299.27	781,400.34	32.315274	-103.556247	
16,100.00	90.00	359.59	9,750.00	6,102.92	-601.89	479,399.26	781,399.63	32.315549	-103.556247	
16,200.00	90.00	359.59	9,750.00	6,202.92	-602.61	479,499.26	781,398.91	32.315824	-103.556247	
16,300.00	90.00	359.59	9,750.00	6,302.92	-603.32	479,599.26	781,398.19	32.316099	-103.556247	
16,400.00	90.00	359.59	9,750.00	6,402.92	-604.04	479,699.25	781,397.48	32.316373	-103.556247	
16,500.00	90.00	359.59	9,750.00	6,502.91	-604.75	479,799.25	781,396.76	32.316648	-103.556247	
16,600.00	90.00	359.59	9,750.00	6,602.91	-605.47	479,899.25	781,396.05	32.316923	-103.556247	
16,700.00	90.00	359.59	9,750.00	6,702.91	-606.19	479,999.25	781,395.33	32.317198	-103.556247	
16,800.00	90.00	359.59	9,750.00	6,802.91	-606.90	480,099.24	781,394.62	32.317473	-103.556247	
16,900.00	90.00	359.59	9,750.00	6,902.90	-607.62	480,199.24	781,393.90	32.317748	-103.556247	
17,000.00	90.00	359.59	9,750.00	7,002.90	-608.33	480,299.24	781,393.19	32.318023	-103.556247	
17,100.00	90.00	359.59	9,750.00	7,102.90	-609.05	480,399.24	781,392.47	32.318298	-103.556247	
17,200.00	90.00	359.59	9,750.00	7,202.90	-609.76	480,499.23	781,391.75	32.318572	-103.556247	
17,300.00	90.00	359.59	9,750.00	7,302.89	-610.48	480,599.23	781,391.04	32.318847	-103.556247	
17,400.00	90.00	359.59	9,750.00	7,402.89	-611.20	480,699.23	781,390.32	32.319122	-103.556247	
17,500.00	90.00	359.59	9,750.00	7,502.89	-611.91	480,799.22	781,389.61	32.319397	-103.556247	
17,600.00	90.00	359.59	9,750.00	7,602.89	-612.63	480,899.22	781,388.89	32.319672	-103.556246	
17,700.00	90.00	359.59	9,750.00	7,702.88	-613.34	480,999.22	781,388.18	32.319947	-103.556246	
17,800.00	90.00	359.59	9,750.00	7,802.88	-614.06	481,099.22	781,387.46	32.320222	-103.556246	
17,900.00	90.00	359.59	9,750.00	7,902.88	-614.77	481,199.21	781,386.75	32.320496	-103.556246	
18,000.00	90.00	359.59	9,750.00	8,002.88	-615.49	481,299.21	781,386.03	32.320771	-103.556246	
18,100.00	90.00	359.59	9,750.00	8,102.87	-616.20	481,399.21	781,385.31	32.321046	-103.556246	
18,200.00	90.00	359.59	9,750.00	8,202.87	-616.92	481,499.21	781,384.60	32.321321	-103.556246	
18,300.00	90.00	359.59	9,750.00	8,302.87	-617.64	481,599.20	781,383.88	32.321596	-103.556246	
18,400.00	90.00	359.59	9,750.00	8,402.87	-618.35	481,699.20	781,383.17	32.321871	-103.556246	
18,500.00	90.00	359.59	9,750.00	8,502.86	-619.07	481,799.20	781,382.45	32.322146	-103.556246	
18,600.00	90.00	359.59	9,750.00	8,602.86	-619.78	481,899.19	781,381.74	32.322421	-103.556246	
18,700.00	90.00	359.59	9,750.00	8,702.86	-620.50	481,999.19	781,381.02	32.322695	-103.556246	
18,800.00	90.00	359.59	9,750.00	8,802.86	-621.21	482,099.19	781,380.31	32.322970	-103.556246	
18,900.00	90.00	359.59	9,750.00	8,902.85	-621.93	482,199.19	781,379.59	32.323245	-103.556246	
19,000.00	90.00	359.59	9,750.00	9,002.85	-622.64	482,299.18	781,378.87	32.323520	-103.556246	
19,100.00	90.00	359.59	9,750.00	9,102.85	-623.36	482,399.18	781,378.16	32.323795	-103.556246	
19,200.00	90.00	359.59	9,750.00	9,202.85	-624.08	482,499.18	781,377.44	32.324070	-103.556246	
19,300.00	90.00	359.59	9,750.00	9,302.84	-624.79	482,599.17	781,376.73	32.324345	-103.556246	
19,400.00	90.00	359.59	9,750.00	9,402.84	-625.51	482,699.17	781,376.01	32.324619	-103.556246	
19,500.00	90.00	359.59	9,750.00	9,502.84	-626.22	482,799.17	781,375.30	32.324894	-103.556246	
19,600.00	90.00	359.59	9,750.00	9,602.84	-626.94	482,899.17	781,374.58	32.325169	-103.556246	
19,700.00	90.00	359.59	9,750.00	9,702.83	-627.65	482,999.16	781,373.87	32.325444	-103.556246	
19,800.00	90.00	359.59	9,750.00	9,802.83	-628.37	483,099.16	781,373.15	32.325719	-103.556246	
19,900.00	90.00	359.59	9,750.00	9,902.83	-629.08	483,199.16	781,372.43	32.325994	-103.556246	
19,979.22	90.00	359.59	9,750.00	9,982.05	-629.65	483,278.38	781,371.87	32.326212	-103.556246	
<b>LTP @ 19979' MD, 100' FNL, 1410' FEL</b>										
20,000.00	90.00	359.59	9,750.00	10,002.82	-629.80	483,299.16	781,371.72	32.326269	-103.556246	
20,059.22	90.00	359.59	9,750.00	10,062.04	-630.22	483,358.37	781,371.29	32.326431	-103.556246	
<b>PBHL; 20' FNL, 1410' FEL</b>										
20,059.23	90.00	359.59	9,750.00	10,062.05	-630.22	483,358.38	781,371.29	32.326431	-103.556246	

Planning Report - Geographic

<b>Database:</b>	EDM r5000.141_Prod US	<b>Local Co-ordinate Reference:</b>	Well North Thistle 15-10 State Com 5H
<b>Company:</b>	WCDSC Permian NM	<b>TVD Reference:</b>	RKB @ 3731.00ft
<b>Project:</b>	Lea County (NAD83 New Mexico East)	<b>MD Reference:</b>	RKB @ 3731.00ft
<b>Site:</b>	Sec 15-T23S-R33E	<b>North Reference:</b>	Grid
<b>Well:</b>	North Thistle 15-10 State Com 5H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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	10,069.89	-505.03	483,366.22	781,496.49	32.326451	-103.555840
- plan misses target center by 9750.81ft at 20059.23ft MD (9750.00 TVD, 10062.05 N, -630.22 E)									
- Point									

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
9,219.86	9,177.04	-450.00	-555.00	KOP @ 9220' MD, 50' FSL, 1410' FEL
9,516.33	9,460.45	-375.00	-555.54	FTP @ 9516' MD, 100' FSL, 1410' FEL
14,802.04	9,750.00	4,805.00	-592.60	Cross Section @ 14802' MD, 0' FSL, 1410' FEL
19,979.22	9,750.00	9,982.05	-629.65	LTP @ 19979' MD, 100' FNL, 1410' FEL
20,059.22	9,750.00	10,062.04	-630.22	PBHL; 20' FNL, 1410' FEL