

**NM OIL CONSERVATION
ARTESIA DISTRICT**

SEP 25 2018

WCDSC Permian NM

Eddy County (NAD 83 NM Eastern)

Sec 31-T23S-R29E

Spud Muffin 31-30 623H

RECEIVED

30-015-45267

Wellbore #1

Plan: Permit Plan 3

Standard Planning Report - Geographic

17 September, 2018

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Spud Muffin 31-30 623H
Company:	WCDCS Permian NM	TVD Reference:	RKB @ 2984.30ft
Project:	Eddy County (NAD 83 NM Eastern)	MD Reference:	RKB @ 2984.30ft
Site:	Sec 31-T23S-R29E	North Reference:	Grid
Well:	Spud Muffin 31-30 623H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 3		

Project	Eddy County (NAD 83 NM Eastern)		
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 31-T23S-R29E			
Site Position:		Northing:	467,039.80 usft	Latitude:	32.283608
From:	Map	Easting:	634,382.44 usft	Longitude:	-104.032247
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.16 °

Well	Spud Muffin 31-30 623H					
Well Position	+N/-S	0.00 ft	Northing:	456,993.59 usft	Latitude:	32.255973
	+E/-W	0.00 ft	Easting:	636,815.61 usft	Longitude:	-104.024467
Position Uncertainty		0.50 ft	Wellhead Elevation:		Ground Level:	2,959.30 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/13/2018	7.03	60.00	47,784.77512937

Design	Permit Plan 3				
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	5.09	

Plan Survey Tool Program	Date 9/17/2018				
Depth From	Depth To	Survey (Wellbore)	Tool Name	Remarks	
(ft)	(ft)				
1	0.00	19,959.91 Permit Plan 3 (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	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,971.30	9.71	113.45	2,966.66	-32.68	75.35	1.00	1.00	0.00	113.45	
8,491.34	9.71	113.45	8,407.56	-403.21	929.77	0.00	0.00	0.00	0.00	
9,138.87	0.00	0.01	9,052.00	-425.00	980.00	1.50	-1.50	0.00	180.00	
9,488.91	0.00	0.01	9,402.04	-425.00	980.00	0.00	0.00	0.00	0.01	
10,388.91	90.00	359.35	9,975.00	147.92	973.51	10.00	10.00	0.00	359.35	PBHL2 - Spud Muffin
19,960.25	90.00	359.35	9,975.00	9,718.64	865.03	0.00	0.00	0.00	0.00	PBHL2 - Spud Muffin

Planning Report - Geographic

Database: EDM r5000.141_Prod US
Company: WCDSC Permian NM
Project: Eddy County (NAD 83 NM Eastern)
Site: Sec 31-T23S-R29E
Well: Spud Muffin 31-30 623H
Wellbore: Wellbore #1
Design: Permit Plan 3

Local Co-ordinate Reference: Well Spud Muffin 31-30 623H
TVD Reference: RKB @ 2984.30ft
MD Reference: RKB @ 2984.30ft
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
0.00	0.00	0.00	0.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
100.00	0.00	0.00	100.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
200.00	0.00	0.00	200.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
300.00	0.00	0.00	300.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
400.00	0.00	0.00	400.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
500.00	0.00	0.00	500.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
600.00	0.00	0.00	600.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
700.00	0.00	0.00	700.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
800.00	0.00	0.00	800.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
900.00	0.00	0.00	900.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
1,000.00	0.00	0.00	1,000.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
1,100.00	0.00	0.00	1,100.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
1,200.00	0.00	0.00	1,200.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
1,300.00	0.00	0.00	1,300.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
1,400.00	0.00	0.00	1,400.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
1,500.00	0.00	0.00	1,500.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
1,600.00	0.00	0.00	1,600.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
1,700.00	0.00	0.00	1,700.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
1,800.00	0.00	0.00	1,800.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
1,900.00	0.00	0.00	1,900.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
2,000.00	0.00	0.00	2,000.00	0.00	0.00	456,993.59	636,815.61	32.255973	-104.024467
2,100.00	1.00	113.45	2,099.99	-0.35	0.80	456,993.24	636,816.41	32.255972	-104.024465
2,200.00	2.00	113.45	2,199.96	-1.39	3.20	456,992.20	636,818.82	32.255969	-104.024457
2,300.00	3.00	113.45	2,299.86	-3.12	7.20	456,990.47	636,822.82	32.255964	-104.024444
2,400.00	4.00	113.45	2,399.68	-5.55	12.80	456,988.04	636,828.42	32.255958	-104.024426
2,500.00	5.00	113.45	2,499.37	-8.67	20.00	456,984.92	636,835.62	32.255949	-104.024403
2,600.00	6.00	113.45	2,598.90	-12.49	28.80	456,981.10	636,844.41	32.255939	-104.024374
2,700.00	7.00	113.45	2,698.26	-16.99	39.18	456,976.60	636,854.80	32.255926	-104.024341
2,800.00	8.00	113.45	2,797.40	-22.19	51.16	456,971.41	636,866.77	32.255912	-104.024302
2,900.00	9.00	113.45	2,896.30	-28.07	64.72	456,965.52	636,880.33	32.255895	-104.024258
2,971.30	9.71	113.45	2,966.66	-32.68	75.35	456,960.91	636,890.97	32.255883	-104.024224
3,000.00	9.71	113.45	2,994.94	-34.60	79.79	456,958.99	636,895.41	32.255877	-104.024210
3,100.00	9.71	113.45	3,093.51	-41.32	95.27	456,952.27	636,910.89	32.255859	-104.024160
3,200.00	9.71	113.45	3,192.08	-48.03	110.75	456,945.56	636,926.36	32.255840	-104.024109
3,300.00	9.71	113.45	3,290.64	-54.74	126.23	456,938.85	636,941.84	32.255822	-104.024059
3,400.00	9.71	113.45	3,389.21	-61.45	141.71	456,932.14	636,957.32	32.255803	-104.024009
3,500.00	9.71	113.45	3,487.78	-68.17	157.19	456,925.42	636,972.80	32.255785	-104.023959
3,600.00	9.71	113.45	3,586.34	-74.88	172.66	456,918.71	636,988.28	32.255766	-104.023909
3,700.00	9.71	113.45	3,684.91	-81.59	188.14	456,912.00	637,003.76	32.255747	-104.023859
3,800.00	9.71	113.45	3,783.48	-88.31	203.62	456,905.29	637,019.23	32.255729	-104.023809
3,900.00	9.71	113.45	3,882.04	-95.02	219.10	456,898.57	637,034.71	32.255710	-104.023759
4,000.00	9.71	113.45	3,980.61	-101.73	234.58	456,891.86	637,050.19	32.255692	-104.023709
4,100.00	9.71	113.45	4,079.17	-108.44	250.06	456,885.15	637,065.67	32.255673	-104.023659
4,200.00	9.71	113.45	4,177.74	-115.16	265.53	456,878.44	637,081.15	32.255654	-104.023609
4,300.00	9.71	113.45	4,276.31	-121.87	281.01	456,871.72	637,096.63	32.255636	-104.023559
4,400.00	9.71	113.45	4,374.87	-128.58	296.49	456,865.01	637,112.11	32.255617	-104.023509
4,500.00	9.71	113.45	4,473.44	-135.29	311.97	456,858.30	637,127.58	32.255599	-104.023459
4,600.00	9.71	113.45	4,572.01	-142.01	327.45	456,851.58	637,143.06	32.255580	-104.023409
4,700.00	9.71	113.45	4,670.57	-148.72	342.93	456,844.87	637,158.54	32.255562	-104.023359
4,800.00	9.71	113.45	4,769.14	-155.43	358.41	456,838.16	637,174.02	32.255543	-104.023309
4,900.00	9.71	113.45	4,867.71	-162.14	373.88	456,831.45	637,189.50	32.255524	-104.023259
5,000.00	9.71	113.45	4,966.27	-168.86	389.36	456,824.73	637,204.98	32.255506	-104.023209
5,100.00	9.71	113.45	5,064.84	-175.57	404.84	456,818.02	637,220.45	32.255487	-104.023159
5,200.00	9.71	113.45	5,163.41	-182.28	420.32	456,811.31	637,235.93	32.255469	-104.023109
5,300.00	9.71	113.45	5,261.97	-188.99	435.80	456,804.60	637,251.41	32.255450	-104.023059

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 TVD Reference: RKB @ 2984.30ft
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 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	9.71	113.45	5,360.54	-195.71	451.28	456,797.88	637,266.89	32.255432	-104.023009
5,500.00	9.71	113.45	5,459.11	-202.42	466.75	456,791.17	637,282.37	32.255413	-104.022959
5,600.00	9.71	113.45	5,557.67	-209.13	482.23	456,784.46	637,297.85	32.255394	-104.022909
5,700.00	9.71	113.45	5,656.24	-215.84	497.71	456,777.75	637,313.32	32.255376	-104.022859
5,800.00	9.71	113.45	5,754.81	-222.56	513.19	456,771.03	637,328.80	32.255357	-104.022809
5,900.00	9.71	113.45	5,853.37	-229.27	528.67	456,764.32	637,344.28	32.255339	-104.022759
6,000.00	9.71	113.45	5,951.94	-235.98	544.15	456,757.61	637,359.76	32.255320	-104.022709
6,100.00	9.71	113.45	6,050.51	-242.69	559.62	456,750.90	637,375.24	32.255302	-104.022659
6,200.00	9.71	113.45	6,149.07	-249.41	575.10	456,744.18	637,390.72	32.255283	-104.022609
6,300.00	9.71	113.45	6,247.64	-256.12	590.58	456,737.47	637,406.19	32.255264	-104.022559
6,400.00	9.71	113.45	6,346.21	-262.83	606.06	456,730.76	637,421.67	32.255246	-104.022509
6,500.00	9.71	113.45	6,444.77	-269.54	621.54	456,724.05	637,437.15	32.255227	-104.022459
6,600.00	9.71	113.45	6,543.34	-276.26	637.02	456,717.33	637,452.63	32.255209	-104.022409
6,700.00	9.71	113.45	6,641.90	-282.97	652.50	456,710.62	637,468.11	32.255190	-104.022359
6,800.00	9.71	113.45	6,740.47	-289.68	667.97	456,703.91	637,483.59	32.255172	-104.022309
6,900.00	9.71	113.45	6,839.04	-296.39	683.45	456,697.20	637,499.06	32.255153	-104.022259
7,000.00	9.71	113.45	6,937.60	-303.11	698.93	456,690.48	637,514.54	32.255134	-104.022209
7,100.00	9.71	113.45	7,036.17	-309.82	714.41	456,683.77	637,530.02	32.255116	-104.022159
7,200.00	9.71	113.45	7,134.74	-316.53	729.89	456,677.06	637,545.50	32.255097	-104.022109
7,300.00	9.71	113.45	7,233.30	-323.25	745.37	456,670.35	637,560.98	32.255079	-104.022059
7,400.00	9.71	113.45	7,331.87	-329.96	760.84	456,663.63	637,576.46	32.255060	-104.022009
7,500.00	9.71	113.45	7,430.44	-336.67	776.32	456,656.92	637,591.94	32.255042	-104.021959
7,600.00	9.71	113.45	7,529.00	-343.38	791.80	456,650.21	637,607.41	32.255023	-104.021909
7,700.00	9.71	113.45	7,627.57	-350.10	807.28	456,643.50	637,622.89	32.255004	-104.021859
7,800.00	9.71	113.45	7,726.14	-356.81	822.76	456,636.78	637,638.37	32.254986	-104.021809
7,900.00	9.71	113.45	7,824.70	-363.52	838.24	456,630.07	637,653.85	32.254967	-104.021759
8,000.00	9.71	113.45	7,923.27	-370.23	853.71	456,623.36	637,669.33	32.254949	-104.021709
8,100.00	9.71	113.45	8,021.84	-376.95	869.19	456,616.65	637,684.81	32.254930	-104.021659
8,200.00	9.71	113.45	8,120.40	-383.66	884.67	456,609.93	637,700.28	32.254911	-104.021609
8,300.00	9.71	113.45	8,218.97	-390.37	900.15	456,603.22	637,715.76	32.254893	-104.021559
8,400.00	9.71	113.45	8,317.54	-397.08	915.63	456,596.51	637,731.24	32.254874	-104.021509
8,491.34	9.71	113.45	8,407.56	-403.21	929.77	456,590.38	637,745.38	32.254857	-104.021463
8,500.00	9.58	113.45	8,416.10	-403.79	931.10	456,589.80	637,746.71	32.254856	-104.021459
8,600.00	8.08	113.45	8,514.91	-409.90	945.19	456,583.69	637,760.80	32.254839	-104.021414
8,700.00	6.58	113.45	8,614.09	-414.98	956.89	456,578.61	637,772.51	32.254825	-104.021376
8,800.00	5.08	113.45	8,713.57	-419.02	966.22	456,574.57	637,781.83	32.254814	-104.021346
8,900.00	3.58	113.45	8,813.28	-422.03	973.15	456,571.56	637,788.76	32.254805	-104.021323
9,000.00	2.08	113.45	8,913.16	-424.00	977.68	456,569.60	637,793.30	32.254800	-104.021309
9,100.00	0.58	113.45	9,013.13	-424.92	979.82	456,568.67	637,795.43	32.254797	-104.021302
9,138.87	0.00	0.01	9,052.00	-425.00	980.00	456,568.59	637,795.61	32.254797	-104.021301
9,200.00	0.00	0.00	9,113.13	-425.00	980.00	456,568.59	637,795.61	32.254797	-104.021301
9,300.00	0.00	0.00	9,213.13	-425.00	980.00	456,568.59	637,795.61	32.254797	-104.021301
9,400.00	0.00	0.00	9,313.13	-425.00	980.00	456,568.59	637,795.61	32.254797	-104.021301
9,488.91	0.00	0.00	9,402.04	-425.00	980.00	456,568.59	637,795.61	32.254797	-104.021301
KOP @ 9489' MD, 200' FSL, 1870' FEL									
9,500.00	1.11	359.35	9,413.13	-424.89	980.00	456,568.70	637,795.61	32.254797	-104.021301
9,600.00	11.11	359.35	9,512.43	-414.27	979.88	456,579.33	637,795.49	32.254827	-104.021301
9,700.00	21.11	359.35	9,608.39	-386.56	979.56	456,607.04	637,795.18	32.254903	-104.021302
9,800.00	31.11	359.35	9,698.07	-342.61	979.07	456,650.98	637,794.68	32.255024	-104.021303
9,882.59	39.37	359.35	9,765.47	-295.00	978.53	456,698.59	637,794.14	32.255154	-104.021305
FTP @ 9883' MD, 330' FSL, 1870' FEL									
9,900.00	41.11	359.35	9,778.76	-283.75	978.40	456,709.84	637,794.01	32.255185	-104.021305
10,000.00	51.11	359.35	9,848.00	-211.78	977.58	456,781.81	637,793.20	32.255383	-104.021307
10,100.00	61.11	359.35	9,903.69	-128.88	976.64	456,864.71	637,792.26	32.255611	-104.021309

Planning Report - Geographic

Database: EDM r5000.141_Prod US
Company: WCDSC Permian NM
Project: Eddy County (NAD 83 NM Eastern)
Site: Sec 31-T23S-R29E
Well: Spud Muffin 31-30 623H
Wellbore: Wellbore #1
Design: Permit Plan 3

Local Co-ordinate Reference: Well Spud Muffin 31-30 623H
TVD Reference: RKB @ 2984.30ft
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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
10,200.00	71.11	359.35	9,944.14	-37.57	975.61	456,956.02	637,791.22	32.255862	-104.021312
10,300.00	81.11	359.35	9,968.11	59.37	974.51	457,052.96	637,790.12	32.256129	-104.021314
10,388.91	90.00	359.35	9,975.00	147.92	973.51	457,141.51	637,789.12	32.256372	-104.021317
10,400.00	90.00	359.35	9,975.00	159.01	973.38	457,152.60	637,788.99	32.256402	-104.021317
10,500.00	90.00	359.35	9,975.00	259.00	972.25	457,252.59	637,787.86	32.256677	-104.021320
10,600.00	90.00	359.35	9,975.00	359.00	971.11	457,352.59	637,786.73	32.256952	-104.021322
10,700.00	90.00	359.35	9,975.00	458.99	969.98	457,452.58	637,785.59	32.257227	-104.021325
10,800.00	90.00	359.35	9,975.00	558.98	968.85	457,552.57	637,784.46	32.257502	-104.021328
10,900.00	90.00	359.35	9,975.00	658.98	967.71	457,652.57	637,783.33	32.257777	-104.021331
11,000.00	90.00	359.35	9,975.00	758.97	966.58	457,752.56	637,782.19	32.258052	-104.021333
11,100.00	90.00	359.35	9,975.00	858.96	965.45	457,852.55	637,781.06	32.258327	-104.021336
11,200.00	90.00	359.35	9,975.00	958.96	964.31	457,952.55	637,779.93	32.258602	-104.021339
11,300.00	90.00	359.35	9,975.00	1,058.95	963.18	458,052.54	637,778.79	32.258876	-104.021342
11,400.00	90.00	359.35	9,975.00	1,158.94	962.05	458,152.53	637,777.66	32.259151	-104.021344
11,500.00	90.00	359.35	9,975.00	1,258.94	960.91	458,252.53	637,776.53	32.259426	-104.021347
11,600.00	90.00	359.35	9,975.00	1,358.93	959.78	458,352.52	637,775.39	32.259701	-104.021350
11,700.00	90.00	359.35	9,975.00	1,458.93	958.65	458,452.51	637,774.26	32.259976	-104.021352
11,800.00	90.00	359.35	9,975.00	1,558.92	957.51	458,552.51	637,773.13	32.260251	-104.021355
11,900.00	90.00	359.35	9,975.00	1,658.91	956.38	458,652.50	637,771.99	32.260526	-104.021358
12,000.00	90.00	359.35	9,975.00	1,758.91	955.25	458,752.49	637,770.86	32.260801	-104.021361
12,100.00	90.00	359.35	9,975.00	1,858.90	954.11	458,852.49	637,769.73	32.261075	-104.021363
12,200.00	90.00	359.35	9,975.00	1,958.89	952.98	458,952.48	637,768.59	32.261350	-104.021366
12,300.00	90.00	359.35	9,975.00	2,058.89	951.85	459,052.47	637,767.46	32.261625	-104.021369
12,400.00	90.00	359.35	9,975.00	2,158.88	950.71	459,152.47	637,766.33	32.261900	-104.021372
12,500.00	90.00	359.35	9,975.00	2,258.87	949.58	459,252.46	637,765.19	32.262175	-104.021374
12,600.00	90.00	359.35	9,975.00	2,358.87	948.45	459,352.45	637,764.06	32.262450	-104.021377
12,700.00	90.00	359.35	9,975.00	2,458.86	947.31	459,452.45	637,762.93	32.262725	-104.021380
12,800.00	90.00	359.35	9,975.00	2,558.85	946.18	459,552.44	637,761.79	32.263000	-104.021382
12,900.00	90.00	359.35	9,975.00	2,658.85	945.05	459,652.43	637,760.66	32.263274	-104.021385
13,000.00	90.00	359.35	9,975.00	2,758.84	943.91	459,752.43	637,759.53	32.263549	-104.021388
13,100.00	90.00	359.35	9,975.00	2,858.84	942.78	459,852.42	637,758.39	32.263824	-104.021391
13,200.00	90.00	359.35	9,975.00	2,958.83	941.65	459,952.41	637,757.26	32.264099	-104.021393
13,300.00	90.00	359.35	9,975.00	3,058.82	940.51	460,052.41	637,756.13	32.264374	-104.021396
13,400.00	90.00	359.35	9,975.00	3,158.82	939.38	460,152.40	637,754.99	32.264649	-104.021399
13,500.00	90.00	359.35	9,975.00	3,258.81	938.25	460,252.39	637,753.86	32.264924	-104.021402
13,600.00	90.00	359.35	9,975.00	3,358.80	937.11	460,352.39	637,752.73	32.265199	-104.021404
13,700.00	90.00	359.35	9,975.00	3,458.80	935.98	460,452.38	637,751.59	32.265473	-104.021407
13,800.00	90.00	359.35	9,975.00	3,558.79	934.85	460,552.37	637,750.46	32.265748	-104.021410
13,900.00	90.00	359.35	9,975.00	3,658.78	933.71	460,652.37	637,749.33	32.266023	-104.021412
14,000.00	90.00	359.35	9,975.00	3,758.78	932.58	460,752.36	637,748.19	32.266298	-104.021415
14,100.00	90.00	359.35	9,975.00	3,858.77	931.45	460,852.35	637,747.06	32.266573	-104.021418
14,200.00	90.00	359.35	9,975.00	3,958.76	930.31	460,952.35	637,745.93	32.266848	-104.021421
14,300.00	90.00	359.35	9,975.00	4,058.76	929.18	461,052.34	637,744.79	32.267123	-104.021423
14,400.00	90.00	359.35	9,975.00	4,158.75	928.05	461,152.33	637,743.66	32.267398	-104.021426
14,500.00	90.00	359.35	9,975.00	4,258.75	926.91	461,252.33	637,742.53	32.267672	-104.021429
14,600.00	90.00	359.35	9,975.00	4,358.74	925.78	461,352.32	637,741.39	32.267947	-104.021432
14,700.00	90.00	359.35	9,975.00	4,458.73	924.65	461,452.31	637,740.26	32.268222	-104.021434
14,800.00	90.00	359.35	9,975.00	4,558.73	923.51	461,552.31	637,739.13	32.268497	-104.021437
14,884.00	90.00	359.35	9,975.00	4,642.72	922.56	461,636.30	637,738.17	32.268728	-104.021439
Cross Section @ 14884' MD, 0' FSL, 1870' FEL									
14,900.00	90.00	359.35	9,975.00	4,658.72	922.38	461,652.30	637,737.99	32.268772	-104.021440
15,000.00	90.00	359.35	9,975.00	4,758.71	921.25	461,752.29	637,736.86	32.269047	-104.021442
15,100.00	90.00	359.35	9,975.00	4,858.71	920.11	461,852.29	637,735.73	32.269322	-104.021445
15,200.00	90.00	359.35	9,975.00	4,958.70	918.98	461,952.28	637,734.59	32.269597	-104.021448

Planning Report - Geographic

Database: EDM r5000.141_Prod US
Company: WCDSC Permian NM
Project: Eddy County (NAD 83 NM Eastern)
Site: Sec 31-T23S-R29E
Well: Spud Muffin 31-30 623H
Wellbore: Wellbore #1
Design: Permit Plan 3

Local Co-ordinate Reference: Well Spud Muffin 31-30 623H
TVD Reference: RKB @ 2984.30ft
MD Reference: RKB @ 2984.30ft
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
15,300.00	90.00	359.35	9,975.00	5,058.69	917.85	462,052.27	637,733.46	32.269871	-104.021451
15,400.00	90.00	359.35	9,975.00	5,158.69	916.71	462,152.27	637,732.33	32.270146	-104.021453
15,500.00	90.00	359.35	9,975.00	5,258.68	915.58	462,252.26	637,731.19	32.270421	-104.021456
15,600.00	90.00	359.35	9,975.00	5,358.67	914.45	462,352.25	637,730.06	32.270696	-104.021459
15,700.00	90.00	359.35	9,975.00	5,458.67	913.31	462,452.25	637,728.93	32.270971	-104.021462
15,800.00	90.00	359.35	9,975.00	5,558.66	912.18	462,552.24	637,727.79	32.271246	-104.021464
15,900.00	90.00	359.35	9,975.00	5,658.66	911.05	462,652.23	637,726.66	32.271521	-104.021467
16,000.00	90.00	359.35	9,975.00	5,758.65	909.91	462,752.23	637,725.53	32.271796	-104.021470
16,100.00	90.00	359.35	9,975.00	5,858.64	908.78	462,852.22	637,724.39	32.272070	-104.021472
16,200.00	90.00	359.35	9,975.00	5,958.64	907.65	462,952.21	637,723.26	32.272345	-104.021475
16,300.00	90.00	359.35	9,975.00	6,058.63	906.51	463,052.21	637,722.13	32.272620	-104.021478
16,400.00	90.00	359.35	9,975.00	6,158.62	905.38	463,152.20	637,720.99	32.272895	-104.021481
16,500.00	90.00	359.35	9,975.00	6,258.62	904.25	463,252.19	637,719.86	32.273170	-104.021483
16,600.00	90.00	359.35	9,975.00	6,358.61	903.11	463,352.19	637,718.73	32.273445	-104.021486
16,700.00	90.00	359.35	9,975.00	6,458.60	901.98	463,452.18	637,717.59	32.273720	-104.021489
16,800.00	90.00	359.35	9,975.00	6,558.60	900.85	463,552.17	637,716.46	32.273995	-104.021492
16,900.00	90.00	359.35	9,975.00	6,658.59	899.71	463,652.17	637,715.33	32.274269	-104.021494
17,000.00	90.00	359.35	9,975.00	6,758.58	898.58	463,752.16	637,714.19	32.274544	-104.021497
17,100.00	90.00	359.35	9,975.00	6,858.58	897.45	463,852.16	637,713.06	32.274819	-104.021500
17,200.00	90.00	359.35	9,975.00	6,958.57	896.31	463,952.15	637,711.93	32.275094	-104.021502
17,300.00	90.00	359.35	9,975.00	7,058.57	895.18	464,052.14	637,710.79	32.275369	-104.021505
17,400.00	90.00	359.35	9,975.00	7,158.56	894.05	464,152.14	637,709.66	32.275644	-104.021508
17,500.00	90.00	359.35	9,975.00	7,258.55	892.91	464,252.13	637,708.53	32.275919	-104.021511
17,600.00	90.00	359.35	9,975.00	7,358.55	891.78	464,352.12	637,707.39	32.276194	-104.021513
17,700.00	90.00	359.35	9,975.00	7,458.54	890.65	464,452.12	637,706.26	32.276468	-104.021516
17,800.00	90.00	359.35	9,975.00	7,558.53	889.51	464,552.11	637,705.13	32.276743	-104.021519
17,900.00	90.00	359.35	9,975.00	7,658.53	888.38	464,652.10	637,703.99	32.277018	-104.021522
18,000.00	90.00	359.35	9,975.00	7,758.52	887.25	464,752.10	637,702.86	32.277293	-104.021524
18,100.00	90.00	359.35	9,975.00	7,858.51	886.11	464,852.09	637,701.73	32.277568	-104.021527
18,200.00	90.00	359.35	9,975.00	7,958.51	884.98	464,952.08	637,700.59	32.277843	-104.021530
18,300.00	90.00	359.35	9,975.00	8,058.50	883.85	465,052.08	637,699.46	32.278118	-104.021532
18,400.00	90.00	359.35	9,975.00	8,158.50	882.71	465,152.07	637,698.33	32.278393	-104.021535
18,500.00	90.00	359.35	9,975.00	8,258.49	881.58	465,252.06	637,697.19	32.278667	-104.021538
18,600.00	90.00	359.35	9,975.00	8,358.48	880.45	465,352.06	637,696.06	32.278942	-104.021541
18,700.00	90.00	359.35	9,975.00	8,458.48	879.31	465,452.05	637,694.93	32.279217	-104.021543
18,800.00	90.00	359.35	9,975.00	8,558.47	878.18	465,552.04	637,693.79	32.279492	-104.021546
18,900.00	90.00	359.35	9,975.00	8,658.46	877.05	465,652.04	637,692.66	32.279767	-104.021549
19,000.00	90.00	359.35	9,975.00	8,758.46	875.91	465,752.03	637,691.53	32.280042	-104.021552
19,100.00	90.00	359.35	9,975.00	8,858.45	874.78	465,852.02	637,690.39	32.280317	-104.021554
19,200.00	90.00	359.35	9,975.00	8,958.44	873.65	465,952.02	637,689.26	32.280592	-104.021557
19,300.00	90.00	359.35	9,975.00	9,058.44	872.51	466,052.01	637,688.13	32.280866	-104.021560
19,400.00	90.00	359.35	9,975.00	9,158.43	871.38	466,152.00	637,686.99	32.281141	-104.021562
19,500.00	90.00	359.35	9,975.00	9,258.42	870.25	466,252.00	637,685.86	32.281416	-104.021565
19,600.00	90.00	359.35	9,975.00	9,358.42	869.11	466,351.99	637,684.73	32.281691	-104.021568
19,700.00	90.00	359.35	9,975.00	9,458.41	867.98	466,451.98	637,683.59	32.281966	-104.021571
19,800.00	90.00	359.35	9,975.00	9,558.41	866.85	466,551.98	637,682.46	32.282241	-104.021573
19,860.23	90.00	359.35	9,975.00	9,618.63	866.17	466,612.20	637,681.78	32.282406	-104.021575
LTP @ 19860' MD, 330' FNL, 1870' FEL									
19,900.00	90.00	359.35	9,975.00	9,658.40	865.71	466,651.97	637,681.33	32.282516	-104.021576
19,960.23	90.00	359.35	9,975.00	9,718.62	865.03	466,712.20	637,680.64	32.282681	-104.021578
PBHL; 230' FNL, 1870' FEL									
19,960.25	90.00	359.35	9,975.00	9,718.64	865.03	466,712.21	637,680.64	32.282681	-104.021578

Planning Report - Geographic

Database: EDM r5000.141_Prod US
Company: WCDSC Permian NM
Project: Eddy County (NAD 83 NM Eastern)
Site: Sec 31-T23S-R29E
Well: Spud Muffin 31-30 623H
Wellbore: Wellbore #1
Design: Permit Plan 3

Local Co-ordinate Reference: Well Spud Muffin 31-30 623H
TVD Reference: RKB @ 2984.30ft
MD Reference: RKB @ 2984.30ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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									
PBHL2 - Spud Muffin 31	0.00	0.00	0.00	9,718.64	865.03	466,712.21	637,680.64	32.282681	-104.021578
- plan misses target center by 9757.06ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
9,488.91	9,402.04	-425.00	980.00	KOP @ 9489' MD, 200' FSL, 1870' FEL
9,882.59	9,765.47	-295.00	978.53	FTP @ 9883' MD, 330' FSL, 1870' FEL
14,884.00	9,975.00	4,642.72	922.56	Cross Section @ 14884' MD, 0' FSL, 1870' FEL
19,860.23	9,975.00	9,618.63	866.17	LTP @ 19860' MD, 330' FNL, 1870' FEL
19,960.23	9,975.00	9,718.62	865.03	PBHL; 230' FNL, 1870' FEL

WCDSC Permian NM

WELL DETAILS: Spud Muffin 31-30 623H

RKB @ 2984.301
2959.30

Northing 456993.59 Easting 636815.81 Latitude 32.255873 Longitude -104.024487

SECTION DETAILS Permit Plan 3

	MD	Inc	Azi	TVD	+N/-S	+E/-W	Diag	V/Sect	Annotation
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	
	2971.30	9.71	113.45	2968.65	-32.68	75.35	1.00	-25.87	
	8491.34	9.71	113.45	8407.58	-403.21	929.77	0.00	-319.20	
5	9138.87	0.00	0.00	9052.00	-425.00	980.00	1.50	-336.44	
6	9488.91	0.00	0.00	9402.04	-425.00	980.00	0.00	-338.44	KOP @ 9489' MD, 200' FSL, 1870' FEL
7	10388.91	90.00	359.35	9975.00	147.92	973.51	10.00	233.65	
8	18960.24	90.00	359.35	9975.00	9718.84	865.03	0.00	9757.06	PBHL: 230' FNL, 1870' FEL

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