



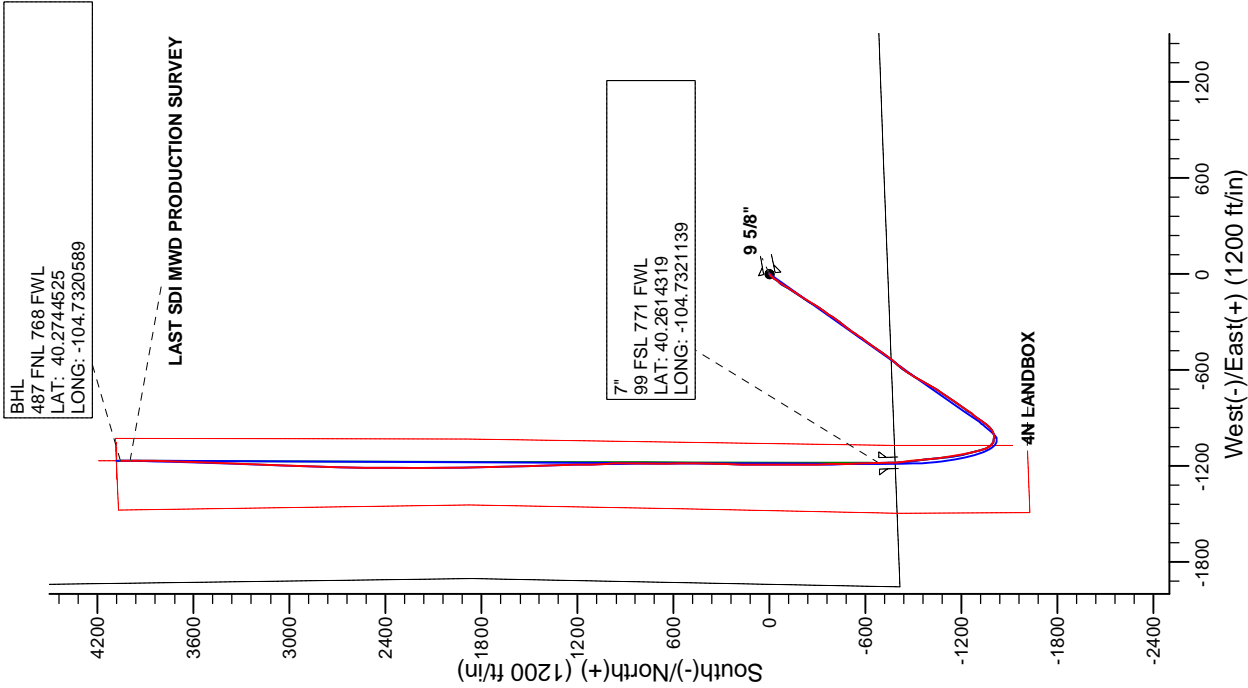
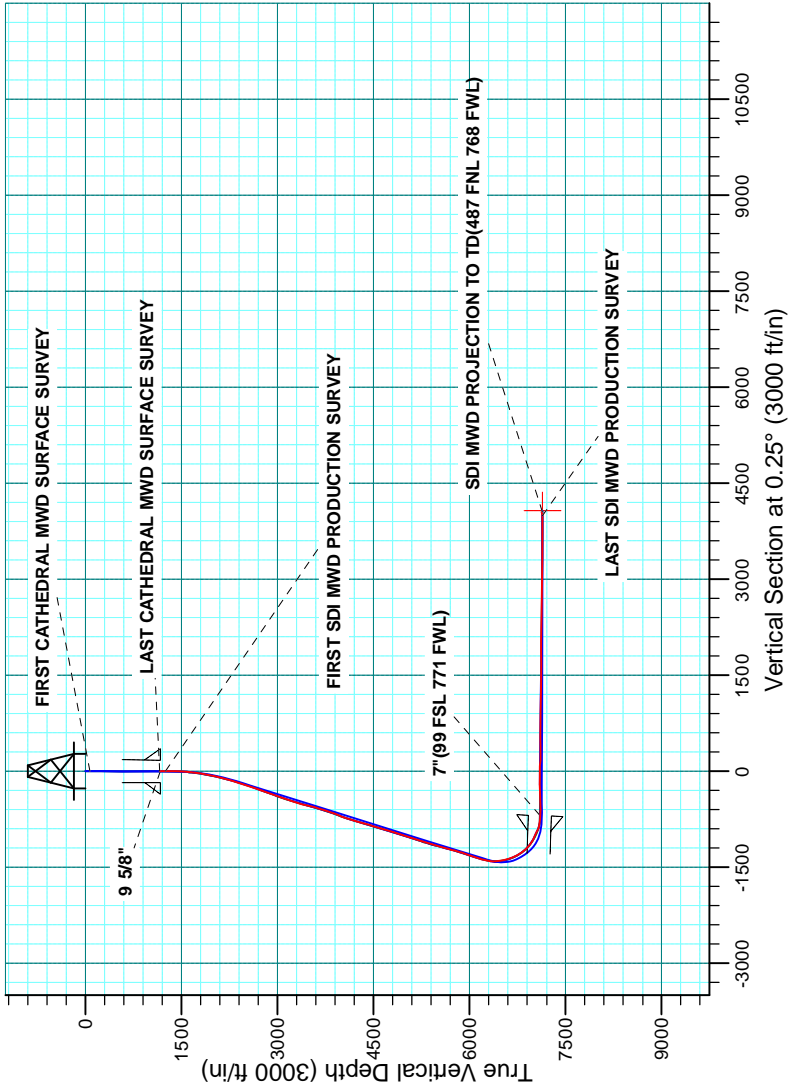
Project: COLORADO NORTHERN ZONE - 83  
Site: RISSLER STATE 13-36HZ PAD  
Well: RISSLER STATE 4N-36HZ  
Wellbore: OH  
Design: OH



WELL DETAILS: RISSLER STATE 4N-36HZ				
GL 4860 & KB 25 @ 4885.00R (HP 311)				
+N/-S 0.00	+E/-W 0.00	Northing 1335704.89	Easting 3215474.26	Latitude 40.2633139 Longitude -104.7278800

PROJECT DETAILS: COLORADO NORTHERN ZONE - 83	
Geodetic System: US State Plane 1983	
Datum: North American Datum 1983	
Ellipsoid: GRS 1980	
Zone: Colorado Northern Zone	
Location: SECTION 36, T4N, R66W	
System Datum: Mean Sea Level	

CASING DETAILS		
TVD	MD	Name
1170.98	1171.00	9 5/8"
7101.84	7637.00	7"





**Scientific Drilling**

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**RISSLER STATE 13-36HZ PAD**

**RISSLER STATE 4N-36HZ**

**OH**

**Design: OH**

## **Standard Survey Report**

**02 February, 2015**

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well RISSLER STATE 4N-36HZ
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	GL 4860 & KB 25 @ 4885.00ft (HP 311)
<b>Site:</b>	RISSLER STATE 13-36HZ PAD	<b>MD Reference:</b>	GL 4860 & KB 25 @ 4885.00ft (HP 311)
<b>Well:</b>	RISSLER STATE 4N-36HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales

<b>Project</b>	COLORADO NORTHERN ZONE - 83, KERR MCGEE OIL & GAS ONSHORE LP		
<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>	Colorado Northern Zone		

Site						RISSLER STATE 13-36HZ PAD, SECTION 36, T4N, R66W											
Site Position:			Northing:			1,339,726.22 usft			Latitude:			40.2633730					
From:			Lat/Long			Easting:			3,215,453.15 usft			Longitude:			-104.7279550		
Position Uncertainty:			0.00 ft			Slot Radius:			13.200 in			Grid Convergence:			0.50 °		

Well	RISSLER STATE 4N-36HZ, 739' FSL 1938' FWL					
Well Position	+N/-S	0.00 ft	Northing:	1,339,704.89 usft	Latitude:	40.2633140
	+E/-W	0.00 ft	Easting:	3,215,474.26 usft	Longitude:	-104.7278800
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	4,860.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2014	12/8/2014	8.46	66.82	52,585

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<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	0.25	

<b>Survey Program</b>	<b>Date</b>	2/2/2015			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
19.00	1,155.00	Survey #1 CATHEDRAL MWD SURFACE	MWD	MWD - Standard	
1,251.00	12,582.00	Survey #2 SDI MWD PRODUCTION (OH)	MWD+IFR+MS	MWD + IFR + Multi Station	

<b>Survey</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>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
19.00	0.00	0.00	19.00	0.00	0.00	0.00	0.00	0.00	0.00	
71.00	0.30	82.50	71.00	0.02	0.13	0.02	0.58	0.58	0.00	
<b>FIRST CATHEDRAL MWD SURFACE SURVEY</b>										
161.00	0.60	81.10	161.00	0.12	0.83	0.13	0.33	0.33	-1.56	
241.00	0.50	77.40	240.99	0.26	1.59	0.27	0.13	-0.13	-4.63	
340.00	0.80	100.50	339.99	0.23	2.69	0.24	0.40	0.30	23.33	
420.00	0.30	79.50	419.98	0.17	3.44	0.18	0.66	-0.63	-26.25	
500.00	0.30	223.20	499.98	0.05	3.51	0.07	0.71	0.00	179.63	
580.00	0.30	262.50	579.98	-0.13	3.16	-0.11	0.25	0.00	49.13	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well RISSLER STATE 4N-36HZ
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	GL 4860 & KB 25 @ 4885.00ft (HP 311)
<b>Site:</b>	RISSLER STATE 13-36HZ PAD	<b>MD Reference:</b>	GL 4860 & KB 25 @ 4885.00ft (HP 311)
<b>Well:</b>	RISSLER STATE 4N-36HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
660.00	0.10	281.50	659.98	-0.14	2.88	-0.13	0.26	-0.25	23.75
740.00	0.30	13.20	739.98	0.08	2.86	0.09	0.40	0.25	114.63
820.00	0.40	20.50	819.98	0.54	3.01	0.56	0.14	0.13	9.13
900.00	0.10	96.30	899.98	0.80	3.17	0.81	0.48	-0.38	94.75
980.00	0.20	255.20	979.98	0.75	3.11	0.77	0.37	0.13	198.63
1,060.00	0.30	278.40	1,059.98	0.75	2.76	0.76	0.18	0.13	29.00
1,155.00	0.30	248.10	1,154.98	0.69	2.29	0.70	0.17	0.00	-31.89
<b>LAST CATHEDRAL MWD SURFACE SURVEY</b>									
1,171.00	0.31	258.96	1,170.98	0.67	2.21	0.68	0.37	0.09	67.88
<b>9 5/8"</b>									
1,251.00	0.50	293.38	1,250.97	0.76	1.67	0.77	0.37	0.23	43.02
<b>FIRST SDI MWD PRODUCTION SURVEY</b>									
1,343.00	1.52	239.29	1,342.96	0.30	0.25	0.30	1.40	1.11	-58.79
1,435.00	3.93	238.16	1,434.85	-1.99	-3.48	-2.00	2.62	2.62	-1.23
1,527.00	5.85	231.97	1,526.51	-6.54	-9.85	-6.58	2.16	2.09	-6.73
1,618.00	7.86	219.10	1,616.86	-14.23	-17.43	-14.30	2.77	2.21	-14.14
1,710.00	9.24	216.42	1,707.84	-25.05	-25.78	-25.16	1.56	1.50	-2.91
1,894.00	12.68	218.24	1,888.45	-52.81	-47.06	-53.01	1.88	1.87	0.99
1,985.00	14.50	214.54	1,976.90	-70.04	-59.70	-70.30	2.22	2.00	-4.07
2,079.00	15.83	211.17	2,067.63	-90.70	-73.01	-91.02	1.70	1.41	-3.59
2,174.00	16.11	211.94	2,158.96	-112.98	-86.69	-113.35	0.37	0.29	0.81
2,268.00	18.22	213.90	2,248.77	-136.24	-101.78	-136.69	2.33	2.24	2.09
2,362.00	19.05	212.85	2,337.84	-161.33	-118.30	-161.84	0.95	0.88	-1.12
2,456.00	20.66	213.90	2,426.25	-187.98	-135.87	-188.57	1.75	1.71	1.12
2,551.00	21.38	212.07	2,514.93	-216.57	-154.41	-217.24	1.03	0.76	-1.93
2,645.00	21.74	211.41	2,602.36	-245.94	-172.58	-246.69	0.46	0.38	-0.70
2,739.00	23.12	211.16	2,689.24	-276.59	-191.21	-277.43	1.47	1.47	-0.27
2,927.00	23.78	214.17	2,861.72	-339.54	-231.60	-340.55	0.73	0.35	1.60
3,022.00	24.27	213.09	2,948.49	-371.75	-253.01	-372.85	0.69	0.52	-1.14
3,116.00	22.53	214.42	3,034.76	-402.79	-273.74	-403.98	1.93	-1.85	1.41
3,211.00	21.44	217.82	3,122.85	-431.52	-294.68	-432.80	1.76	-1.15	3.58
3,305.00	22.48	218.89	3,210.03	-459.08	-316.49	-460.46	1.19	1.11	1.14
3,399.00	19.87	218.03	3,297.68	-485.66	-337.62	-487.13	2.80	-2.78	-0.91
3,493.00	19.00	214.61	3,386.32	-510.84	-356.16	-512.38	1.52	-0.93	-3.64
3,587.00	19.21	216.56	3,475.14	-535.85	-374.06	-537.48	0.71	0.22	2.07
3,681.00	18.80	217.17	3,564.02	-560.34	-392.42	-562.05	0.48	-0.44	0.65
3,775.00	19.45	214.51	3,652.83	-585.31	-410.44	-587.09	1.16	0.69	-2.83
3,870.00	20.67	215.46	3,742.07	-612.00	-429.13	-613.87	1.33	1.28	1.00
3,964.00	22.45	214.92	3,829.49	-640.23	-449.03	-642.19	1.91	1.89	-0.57
4,058.00	23.92	214.79	3,915.89	-670.60	-470.18	-672.65	1.56	1.56	-0.14
4,153.00	25.08	215.16	4,002.34	-702.88	-492.76	-705.02	1.23	1.22	0.39
4,247.00	22.65	214.75	4,088.30	-734.04	-514.56	-736.28	2.59	-2.59	-0.44
4,341.00	20.61	218.44	4,175.68	-761.88	-535.16	-764.21	2.61	-2.17	3.93
4,435.00	19.96	220.79	4,263.85	-786.98	-555.93	-789.40	1.11	-0.69	2.50

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well RISSLER STATE 4N-36HZ
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<b>Site:</b>	RISSLER STATE 13-36HZ PAD	<b>MD Reference:</b>	GL 4860 & KB 25 @ 4885.00ft (HP 311)
<b>Well:</b>	RISSLER STATE 4N-36HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,530.00	21.34	218.60	4,352.74	-812.77	-577.31	-815.28	1.66	1.45	-2.31
4,718.00	18.32	214.48	4,529.58	-863.87	-615.38	-866.55	1.77	-1.61	-2.19
4,812.00	19.15	213.41	4,618.60	-888.92	-632.24	-891.67	0.96	0.88	-1.14
4,906.00	20.01	209.97	4,707.17	-915.73	-648.76	-918.55	1.53	0.91	-3.66
5,001.00	19.02	208.46	4,796.71	-943.42	-664.26	-946.31	1.17	-1.04	-1.59
5,095.00	20.76	210.39	4,885.10	-971.26	-679.99	-974.21	1.98	1.85	2.05
5,189.00	21.22	210.40	4,972.86	-1,000.30	-697.02	-1,003.33	0.49	0.49	0.01
5,283.00	21.52	210.40	5,060.40	-1,029.84	-714.36	-1,032.95	0.32	0.32	0.00
5,377.00	21.79	213.46	5,147.77	-1,059.27	-732.70	-1,062.46	1.23	0.29	3.26
5,471.00	20.19	215.68	5,235.53	-1,087.00	-751.78	-1,090.27	1.90	-1.70	2.36
5,566.00	19.09	213.32	5,325.00	-1,113.30	-769.88	-1,116.65	1.43	-1.16	-2.48
5,660.00	18.82	213.78	5,413.91	-1,138.75	-786.75	-1,142.17	0.33	-0.29	0.49
5,754.00	17.59	214.52	5,503.20	-1,163.06	-803.23	-1,166.55	1.33	-1.31	0.79
5,849.00	18.67	212.11	5,593.48	-1,187.76	-819.45	-1,191.33	1.38	1.14	-2.54
5,943.00	16.83	213.55	5,683.00	-1,211.85	-834.97	-1,215.48	2.01	-1.96	1.53
6,037.00	19.52	217.16	5,772.31	-1,235.71	-851.98	-1,239.42	3.10	2.86	3.84
6,131.00	20.06	216.35	5,860.76	-1,261.21	-871.02	-1,265.00	0.64	0.57	-0.86
6,225.00	24.61	217.42	5,947.68	-1,289.76	-892.48	-1,293.64	4.86	4.84	1.14
6,320.00	24.06	216.20	6,034.24	-1,321.09	-915.94	-1,325.08	0.78	-0.58	-1.28
6,414.00	22.38	217.55	6,120.63	-1,350.75	-938.17	-1,354.83	1.87	-1.79	1.44
6,508.00	19.22	223.81	6,208.50	-1,376.11	-959.79	-1,380.28	4.11	-3.36	6.66
6,603.00	19.16	241.47	6,298.30	-1,394.86	-984.33	-1,399.14	6.09	-0.06	18.59
6,697.00	22.92	266.40	6,386.19	-1,403.39	-1,016.23	-1,407.81	10.23	4.00	26.52
6,791.00	20.67	292.85	6,473.68	-1,398.09	-1,049.87	-1,402.65	10.63	-2.39	28.14
6,885.00	19.76	323.64	6,562.13	-1,378.79	-1,074.65	-1,383.47	11.24	-0.97	32.76
6,980.00	23.10	339.78	6,650.63	-1,348.34	-1,090.63	-1,353.08	7.10	3.52	16.99
7,074.00	28.58	345.52	6,735.21	-1,309.23	-1,102.64	-1,314.03	6.40	5.83	6.11
7,168.00	35.79	346.83	6,814.72	-1,260.63	-1,114.54	-1,265.48	7.71	7.67	1.39
7,262.00	46.09	348.01	6,885.63	-1,200.58	-1,127.87	-1,205.49	10.99	10.96	1.26
7,356.00	53.72	351.76	6,946.14	-1,129.84	-1,140.35	-1,134.81	8.67	8.12	3.99
7,450.00	59.29	354.35	6,998.00	-1,052.06	-1,149.77	-1,057.07	6.35	5.93	2.76
7,545.00	66.18	353.42	7,041.49	-968.15	-1,158.78	-973.20	7.30	7.25	-0.98
7,639.00	73.98	353.60	7,073.50	-880.41	-1,168.76	-885.50	8.30	8.30	0.19
7,733.00	81.04	355.48	7,093.81	-789.11	-1,177.47	-794.24	7.76	7.51	2.00
7,782.00	86.64	358.29	7,099.07	-740.49	-1,180.11	-745.63	12.77	11.43	5.73
7,837.00	87.59	358.58	7,101.84	-685.58	-1,181.61	-690.73	1.80	1.72	0.52
7"(99 FSL 771 FWL)									
7,944.00	89.43	359.13	7,104.62	-578.65	-1,183.75	-583.81	1.80	1.72	0.52
8,039.00	89.90	358.72	7,105.18	-483.66	-1,185.53	-488.83	0.66	0.49	-0.43
8,133.00	90.91	358.27	7,104.52	-389.70	-1,188.00	-394.88	1.18	1.07	-0.48
8,227.00	91.07	359.14	7,102.89	-295.74	-1,190.12	-300.93	0.94	0.17	0.93
8,322.00	90.94	359.86	7,101.23	-200.76	-1,190.95	-205.95	0.77	-0.14	0.76
8,416.00	89.73	0.24	7,100.68	-106.76	-1,190.87	-111.96	1.35	-1.29	0.40

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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	GL 4860 & KB 25 @ 4885.00ft (HP 311)
<b>Site:</b>	RISSLER STATE 13-36HZ PAD	<b>MD Reference:</b>	GL 4860 & KB 25 @ 4885.00ft (HP 311)
<b>Well:</b>	RISSLER STATE 4N-36HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,510.00	89.60	359.76	7,101.23	-12.76	-1,190.87	-17.96	0.53	-0.14	-0.51
8,605.00	89.60	0.51	7,101.89	82.23	-1,190.65	77.04	0.79	0.00	0.79
8,699.00	89.26	1.06	7,102.82	176.22	-1,189.36	171.03	0.69	-0.36	0.59
8,793.00	89.56	1.39	7,103.79	270.19	-1,187.35	265.01	0.47	0.32	0.35
8,887.00	89.73	1.75	7,104.37	364.15	-1,184.77	358.98	0.42	0.18	0.38
8,981.00	91.17	0.76	7,103.64	458.13	-1,182.72	452.96	1.86	1.53	-1.05
9,076.00	90.23	359.49	7,102.48	553.12	-1,182.51	547.95	1.66	-0.99	-1.34
9,170.00	90.23	358.69	7,102.10	647.10	-1,184.00	641.93	0.85	0.00	-0.85
9,264.00	88.79	359.84	7,102.90	741.09	-1,185.21	735.91	1.96	-1.53	1.22
9,358.00	89.90	0.45	7,103.98	835.08	-1,184.97	829.90	1.35	1.18	0.65
9,453.00	89.16	359.90	7,104.76	930.07	-1,184.68	924.90	0.97	-0.78	-0.58
9,547.00	89.23	358.60	7,106.08	1,024.05	-1,185.91	1,018.87	1.38	0.07	-1.38
9,641.00	88.69	357.78	7,107.78	1,117.99	-1,188.88	1,112.79	1.04	-0.57	-0.87
9,735.00	89.06	358.86	7,109.63	1,211.93	-1,191.63	1,206.72	1.21	0.39	1.15
9,830.00	88.52	358.43	7,111.63	1,306.88	-1,193.88	1,301.66	0.73	-0.57	-0.45
9,924.00	88.32	358.19	7,114.23	1,400.81	-1,196.65	1,395.57	0.33	-0.21	-0.26
10,018.00	90.44	358.56	7,115.24	1,494.76	-1,199.32	1,489.51	2.29	2.26	0.39
10,112.00	89.93	358.70	7,114.94	1,588.73	-1,201.56	1,583.47	0.56	-0.54	0.15
10,206.00	89.63	357.74	7,115.30	1,682.68	-1,204.48	1,677.41	1.07	-0.32	-1.02
10,301.00	89.66	358.70	7,115.89	1,777.63	-1,207.43	1,772.35	1.01	0.03	1.01
10,395.00	89.23	359.71	7,116.80	1,871.62	-1,208.74	1,866.33	1.17	-0.46	1.07
10,489.00	90.27	359.53	7,117.21	1,965.61	-1,209.36	1,960.32	1.12	1.11	-0.19
10,583.00	89.80	0.13	7,117.15	2,059.61	-1,209.64	2,054.31	0.81	-0.50	0.64
10,678.00	89.80	359.60	7,117.48	2,154.61	-1,209.86	2,149.31	0.56	0.00	-0.56
10,772.00	87.95	359.89	7,119.33	2,248.59	-1,210.28	2,243.29	1.99	-1.97	0.31
10,867.00	88.26	0.40	7,122.47	2,343.54	-1,210.04	2,338.23	0.63	0.33	0.54
10,961.00	88.76	359.57	7,124.92	2,437.50	-1,210.07	2,432.20	1.03	0.53	-0.88
11,055.00	90.07	0.46	7,125.88	2,531.49	-1,210.04	2,526.19	1.68	1.39	0.95
11,149.00	89.57	1.05	7,126.17	2,625.49	-1,208.80	2,620.19	0.82	-0.53	0.63
11,244.00	88.76	2.05	7,127.55	2,720.44	-1,206.23	2,715.15	1.35	-0.85	1.05
11,432.00	89.26	1.79	7,130.80	2,908.30	-1,199.94	2,903.04	0.30	0.27	-0.14
11,526.00	89.66	2.21	7,131.69	3,002.24	-1,196.66	2,996.99	0.62	0.43	0.45
11,620.00	90.54	1.63	7,131.52	3,096.19	-1,193.51	3,090.95	1.12	0.94	-0.62
11,715.00	89.36	2.45	7,131.61	3,191.13	-1,190.13	3,185.90	1.51	-1.24	0.86
11,809.00	89.36	2.01	7,132.66	3,285.05	-1,186.47	3,279.84	0.47	0.00	-0.47
11,903.00	89.23	1.78	7,133.81	3,378.99	-1,183.36	3,373.79	0.28	-0.14	-0.24
11,997.00	89.16	1.86	7,135.14	3,472.93	-1,180.37	3,467.75	0.11	-0.07	0.09
12,091.00	89.56	2.10	7,136.18	3,566.87	-1,177.13	3,561.70	0.50	0.43	0.26
12,186.00	89.93	1.84	7,136.61	3,661.81	-1,173.86	3,656.66	0.48	0.39	-0.27
12,280.00	90.34	1.96	7,136.39	3,755.76	-1,170.74	3,750.62	0.45	0.44	0.13
12,374.00	90.80	0.89	7,135.45	3,849.73	-1,168.41	3,844.59	1.24	0.49	-1.14
12,468.00	91.24	1.01	7,133.78	3,943.70	-1,166.85	3,938.57	0.49	0.47	0.13
12,521.00	91.41	0.23	7,132.55	3,996.68	-1,166.28	3,991.55	1.51	0.32	-1.47
LAST SDI MWD PRODUCTION SURVEY									

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well RISSLER STATE 4N-36HZ
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	GL 4860 & KB 25 @ 4885.00ft (HP 311)
<b>Site:</b>	RISSLER STATE 13-36HZ PAD	<b>MD Reference:</b>	GL 4860 & KB 25 @ 4885.00ft (HP 311)
<b>Well:</b>	RISSLER STATE 4N-36HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Denver Sales

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,582.00	91.41	0.23	7,131.05	4,057.66	-1,166.03	4,052.53	0.00	0.00	0.00
SDI MWD PROJECTION TO TD(487 FNL 768 FWL)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,171.00	1,170.98	9 5/8"	9.625	13.500	
7,837.00	7,101.84	7"(99 FSL 771 FWL)	7.000	8.750	

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
71.00	71.00	0.02	0.13	FIRST CATHEDRAL MWD SURFACE SURVEY	
1,155.00	1,154.98	0.69	2.29	LAST CATHEDRAL MWD SURFACE SURVEY	
1,251.00	1,250.97	0.76	1.67	FIRST SDI MWD PRODUCTION SURVEY	
12,521.00	7,132.55	3,996.68	-1,166.28	LAST SDI MWD PRODUCTION SURVEY	
12,582.00	7,131.05	4,057.66	-1,166.03	SDI MWD PROJECTION TO TD(487 FNL 768 FWL)	

Checked By: _____	Approved By: _____	Date: _____
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