



Project: COLORADO NORTHERN ZONE - 83
Site: BUFFALO & BADGER 4-4 PAD
Well: BADGER 25N-3HZ
Wellbore: OH
Design: OH

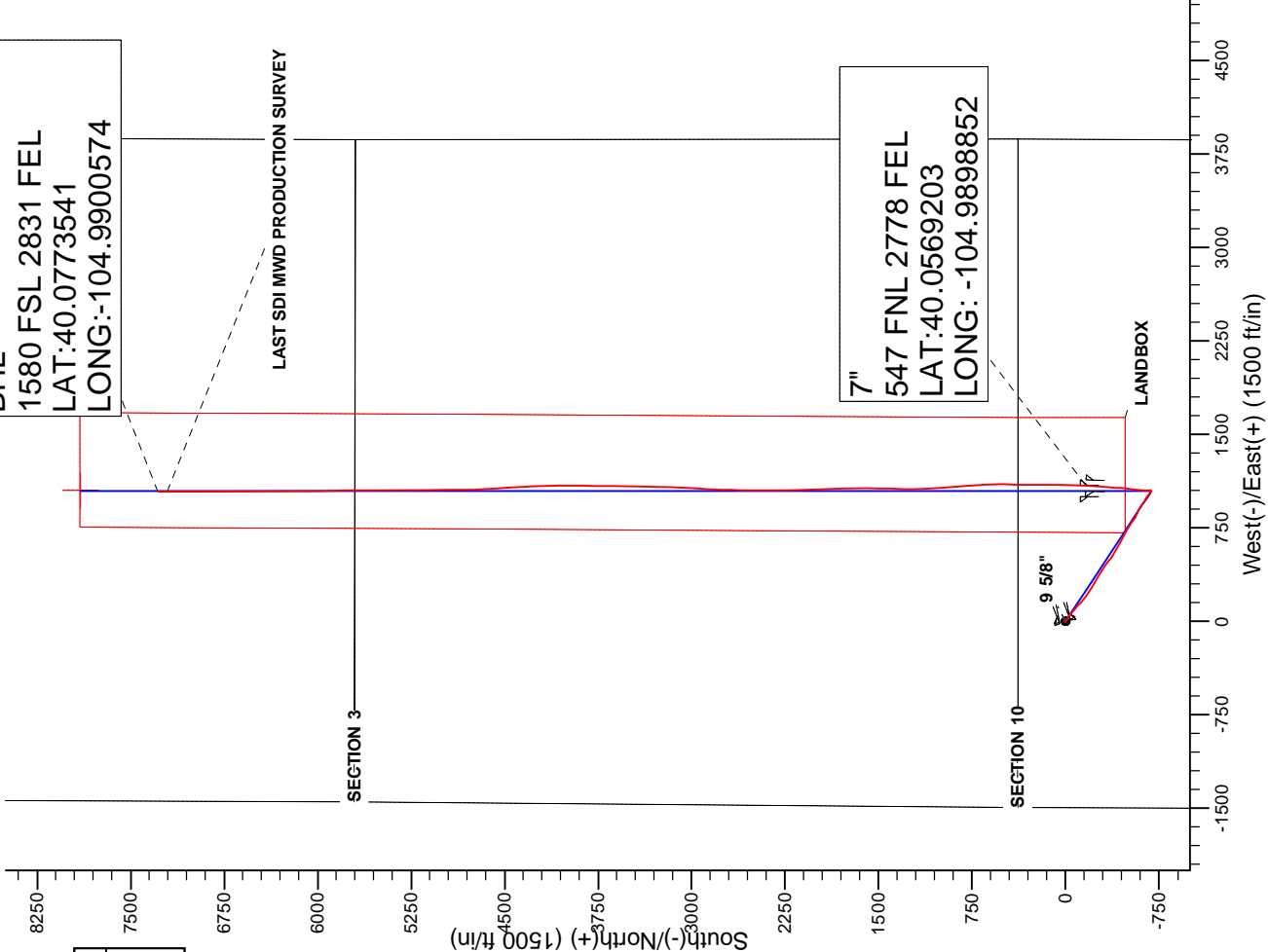
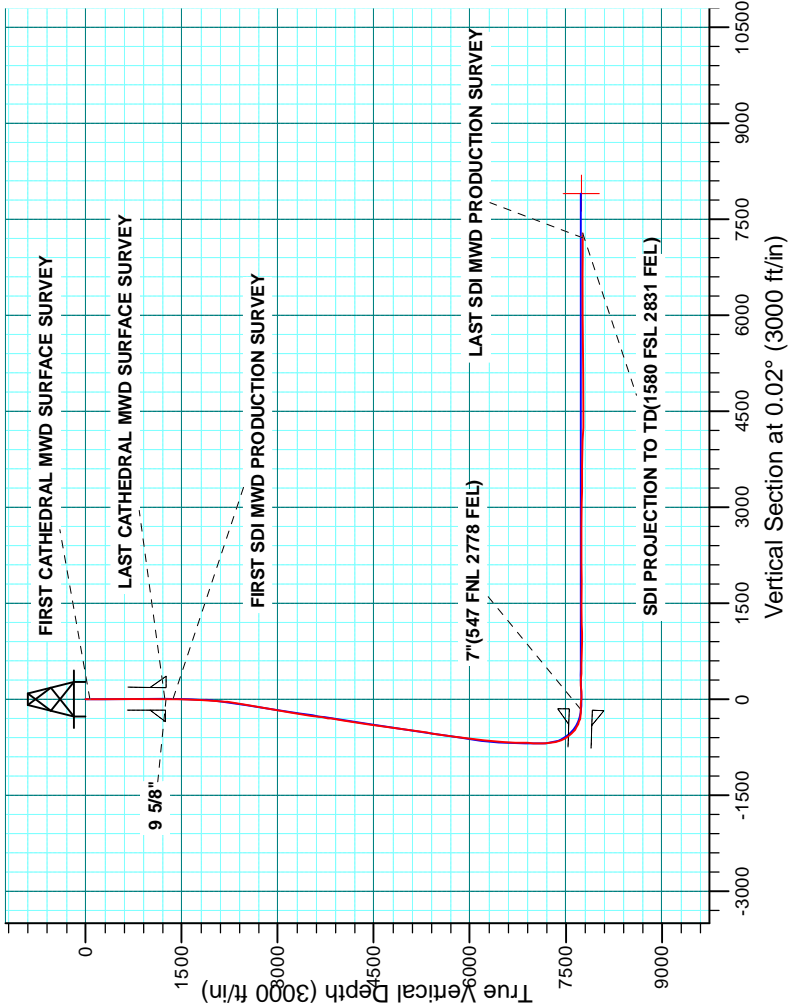


WELL DETAILS: BADGER 25N-3HZ					
GL 5125 & KB 25 @ 5'50.00ft (HP 290)					

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1264148.98	3141700.68	40.0573679	-104.9837750

CASING DETAILS		
TVD	MD	Name
1252.98	1253.00	9 5/8" 9.625
7738.80	8205.00	7" 7.000

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: NEW SECTION 15 T1N R68W	
System Datum: Mean Sea Level	





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

BUFFALO & BADGER 4-4 PAD

BADGER 25N-3HZ

OH

Design: OH

Standard Survey Report

12 January, 2015

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well BADGER 25N-3HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL 5125 & KB 25 @ 5150.00ft (HP 290)
Site:	BUFFALO & BADGER 4-4 PAD	MD Reference:	GL 5125 & KB 25 @ 5150.00ft (HP 290)
Well:	BADGER 25N-3HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales

Project	COLORADO NORTHERN ZONE - 83, KERR MCGEE OIL & GAS ONSHORE LP		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site						BUFFALO & BADGER 4-4 PAD, NENW SECTION 15 T1N R68W											
Site Position:			Northing:			1,264,146.69 usft			Latitude:			40.0573630					
From:			Lat/Long			Easting:			3,141,610.56 usft			Longitude:			-104.9940970		
Position Uncertainty:			0.00 ft			Slot Radius:			13.200 in			Grid Convergence:			0.33 °		

Well	BADGER 25N-3HZ, 382 FNL 1499 FWL					
Well Position	+N/-S	0.00 ft	Northing:	1,264,148.98 usft	Latitude:	40.0573679
	+E/-W	0.00 ft	Easting:	3,141,700.68 usft	Longitude:	-104.9937750
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	5,125.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	6/5/2014	8.64	66.63	52,515

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00		0.02

Survey Program	Date	1/12/2015			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
19.00	1,237.00	Survey #1 CATHEDRAL MWD SURFACE	MWD	MWD - Standard	
1,365.00	15,653.00	Survey #2 SDI MWD PRODUCTION (OH)	SDI_MWD+CRUST_1.0	SDI MWD + Crustal anomaly, Version 1.0	

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)	
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	0.20	234.70	71.00	-0.05	-0.07	-0.05	0.38	0.38	0.00	
FIRST CATHEDRAL MWD SURFACE SURVEY										
161.00	0.30	302.80	161.00	-0.02	-0.40	-0.02	0.32	0.11	75.67	
258.00	0.30	13.10	258.00	0.37	-0.56	0.37	0.36	0.00	72.47	
337.00	0.30	333.20	337.00	0.76	-0.60	0.76	0.26	0.00	-50.51	
417.00	0.50	358.70	417.00	1.29	-0.70	1.29	0.33	0.25	31.88	
497.00	0.60	356.80	496.99	2.06	-0.74	2.06	0.13	0.13	-2.38	
577.00	0.70	15.00	576.99	2.95	-0.63	2.95	0.29	0.13	22.75	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well BADGER 25N-3HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL 5125 & KB 25 @ 5150.00ft (HP 290)
Site:	BUFFALO & BADGER 4-4 PAD	MD Reference:	GL 5125 & KB 25 @ 5150.00ft (HP 290)
Well:	BADGER 25N-3HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	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)
657.00	0.30	353.40	656.98	3.63	-0.53	3.63	0.54	-0.50	-27.00
737.00	0.60	25.50	736.98	4.21	-0.37	4.21	0.48	0.38	40.13
817.00	0.10	33.30	816.98	4.65	-0.16	4.65	0.63	-0.63	9.75
897.00	0.10	278.50	896.98	4.72	-0.19	4.72	0.21	0.00	-143.50
977.00	0.10	200.00	976.98	4.66	-0.28	4.66	0.16	0.00	-98.13
1,057.00	0.30	336.00	1,056.98	4.79	-0.39	4.79	0.47	0.25	170.00
1,137.00	0.20	256.70	1,136.98	4.95	-0.61	4.95	0.41	-0.13	-99.13
1,237.00	0.50	247.90	1,236.98	4.75	-1.18	4.74	0.30	0.30	-8.80
LAST CATHEDRAL MWD SURFACE SURVEY									
1,253.00	0.48	258.09	1,252.98	4.71	-1.31	4.70	0.56	-0.10	63.72
9 5/8"									
1,365.00	0.75	313.78	1,364.97	5.11	-2.31	5.11	0.56	0.24	49.72
FIRST SDI MWD PRODUCTION SURVEY									
1,457.00	2.15	198.51	1,456.95	3.89	-3.29	3.89	2.78	1.52	-125.29
1,548.00	3.35	154.06	1,547.85	-0.12	-2.67	-0.12	2.59	1.32	-48.85
1,654.00	4.32	126.94	1,653.62	-5.30	1.88	-5.30	1.91	0.92	-25.58
1,746.00	5.68	124.23	1,745.27	-9.94	8.41	-9.94	1.50	1.48	-2.95
1,838.00	6.45	126.26	1,836.75	-15.56	16.34	-15.56	0.87	0.84	2.21
1,929.00	6.77	121.30	1,927.15	-21.37	25.05	-21.36	0.72	0.35	-5.45
2,020.00	7.15	119.61	2,017.48	-26.96	34.55	-26.94	0.47	0.42	-1.86
2,112.00	8.19	123.59	2,108.66	-33.41	44.99	-33.39	1.27	1.13	4.33
2,202.00	11.20	130.08	2,197.36	-42.59	57.02	-42.57	3.55	3.34	7.21
2,293.00	15.44	131.60	2,285.89	-56.33	72.85	-56.30	4.67	4.66	1.67
2,383.00	13.15	128.02	2,373.10	-70.59	89.88	-70.56	2.73	-2.54	-3.98
2,474.00	14.64	126.95	2,461.44	-83.88	107.22	-83.84	1.66	1.64	-1.18
2,565.00	13.08	131.65	2,549.79	-97.63	124.11	-97.59	2.11	-1.71	5.16
2,656.00	14.30	134.44	2,638.20	-112.35	139.83	-112.30	1.52	1.34	3.07
2,746.00	14.62	131.51	2,725.35	-127.66	156.27	-127.60	0.89	0.36	-3.26
2,838.00	16.22	131.21	2,814.04	-143.82	174.63	-143.76	1.74	1.74	-0.33
2,928.00	17.02	125.56	2,900.28	-159.76	194.81	-159.69	2.00	0.89	-6.28
3,021.00	17.42	121.73	2,989.12	-175.00	217.72	-174.92	1.29	0.43	-4.12
3,111.00	16.50	119.47	3,075.20	-188.37	240.30	-188.29	1.26	-1.02	-2.51
3,201.00	16.57	120.88	3,161.48	-201.25	262.45	-201.15	0.45	0.08	1.57
3,291.00	16.49	122.04	3,247.76	-214.61	284.29	-214.51	0.38	-0.09	1.29
3,386.00	17.66	121.17	3,338.57	-229.22	308.05	-229.11	1.26	1.23	-0.92
3,480.00	18.18	121.76	3,428.01	-244.32	332.72	-244.20	0.59	0.55	0.63
3,574.00	15.97	121.95	3,517.86	-258.88	356.16	-258.76	2.35	-2.35	0.20
3,669.00	15.20	121.36	3,609.37	-272.28	377.88	-272.15	0.83	-0.81	-0.62
3,763.00	15.12	122.48	3,700.10	-285.28	398.75	-285.14	0.32	-0.09	1.19
3,858.00	14.40	123.68	3,791.96	-298.48	419.03	-298.33	0.82	-0.76	1.26
3,952.00	15.63	128.51	3,882.76	-312.85	438.67	-312.70	1.87	1.31	5.14
4,046.00	15.57	125.07	3,973.30	-327.98	458.90	-327.82	0.99	-0.06	-3.66
4,141.00	16.56	129.47	4,064.59	-343.91	479.79	-343.75	1.65	1.04	4.63
4,235.00	16.36	129.45	4,154.74	-360.84	500.35	-360.67	0.21	-0.21	-0.02

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Well:	BADGER 25N-3HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	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)
4,330.00	16.08	120.28	4,245.97	-375.98	522.05	-375.80	2.71	-0.29	-9.65
4,424.00	15.73	115.33	4,336.38	-388.00	544.81	-387.81	1.49	-0.37	-5.27
4,519.00	15.96	118.44	4,427.77	-399.73	567.93	-399.53	0.93	0.24	3.27
4,613.00	16.17	122.04	4,518.10	-412.82	590.39	-412.62	1.08	0.22	3.83
4,707.00	14.58	118.23	4,608.73	-425.37	611.91	-425.15	2.00	-1.69	-4.05
4,802.00	15.23	116.91	4,700.54	-436.67	633.58	-436.45	0.77	0.68	-1.39
4,896.00	17.31	118.91	4,790.77	-449.02	656.83	-448.79	2.29	2.21	2.13
4,991.00	17.64	120.09	4,881.38	-463.07	681.66	-462.83	0.51	0.35	1.24
5,085.00	15.85	118.46	4,971.40	-476.33	705.27	-476.08	1.97	-1.90	-1.73
5,179.00	16.00	118.27	5,061.79	-488.58	727.96	-488.33	0.17	0.16	-0.20
5,274.00	13.98	118.03	5,153.55	-500.18	749.63	-499.91	2.13	-2.13	-0.25
5,368.00	13.88	121.55	5,244.79	-511.41	769.26	-511.14	0.91	-0.11	3.74
5,462.00	16.68	128.69	5,335.46	-525.75	789.40	-525.47	3.58	2.98	7.60
5,557.00	15.66	127.39	5,426.70	-542.06	810.23	-541.77	1.14	-1.07	-1.37
5,651.00	15.07	122.13	5,517.35	-556.26	830.66	-555.97	1.61	-0.63	-5.60
5,746.00	16.10	116.83	5,608.86	-568.77	852.87	-568.48	1.85	1.08	-5.58
5,840.00	14.49	111.60	5,699.53	-578.99	875.44	-578.68	2.25	-1.71	-5.56
5,934.00	15.81	118.73	5,790.27	-589.47	897.61	-589.16	2.43	1.40	7.59
6,029.00	14.35	123.27	5,882.00	-602.15	918.80	-601.83	1.98	-1.54	4.78
6,123.00	14.57	124.76	5,973.02	-615.28	938.25	-614.96	0.46	0.23	1.59
6,217.00	12.82	124.51	6,064.35	-627.93	956.56	-627.60	1.86	-1.86	-0.27
6,312.00	10.69	119.92	6,157.35	-638.30	972.89	-637.96	2.45	-2.24	-4.83
6,406.00	8.68	113.75	6,250.01	-645.51	986.94	-645.16	2.40	-2.14	-6.56
6,501.00	8.20	124.34	6,343.99	-652.22	999.09	-651.87	1.71	-0.51	11.15
6,595.00	7.66	126.66	6,437.09	-659.74	1,009.65	-659.39	0.67	-0.57	2.47
6,689.00	6.36	136.74	6,530.39	-667.27	1,018.25	-666.92	1.90	-1.38	10.72
6,784.00	5.35	131.50	6,624.89	-674.04	1,025.17	-673.68	1.20	-1.06	-5.52
6,878.00	5.00	128.60	6,718.51	-679.50	1,031.65	-679.14	0.46	-0.37	-3.09
6,973.00	3.21	122.27	6,813.26	-683.50	1,037.14	-683.14	1.94	-1.88	-6.66
7,067.00	2.29	133.10	6,907.15	-686.19	1,040.74	-685.83	1.12	-0.98	11.52
7,162.00	2.13	125.60	7,002.08	-688.51	1,043.56	-688.15	0.35	-0.17	-7.89
7,256.00	1.04	100.81	7,096.04	-689.69	1,045.82	-689.33	1.34	-1.16	-26.37
7,303.00	0.83	82.67	7,143.04	-689.73	1,046.57	-689.36	0.77	-0.45	-38.60
7,350.00	3.31	26.97	7,190.01	-688.48	1,047.53	-688.11	6.22	5.28	-118.51
7,397.00	6.54	3.33	7,236.83	-684.59	1,048.30	-684.23	7.98	6.87	-50.30
7,445.00	7.70	2.41	7,284.46	-678.65	1,048.59	-678.28	2.43	2.42	-1.92
7,492.00	10.36	354.14	7,330.87	-671.30	1,048.29	-670.93	6.28	5.66	-17.60
7,539.00	15.46	357.48	7,376.67	-660.83	1,047.58	-660.46	10.96	10.85	7.11
7,586.00	21.61	2.57	7,421.22	-645.91	1,047.70	-645.54	13.52	13.09	10.83
7,634.00	28.27	5.87	7,464.72	-625.75	1,049.26	-625.38	14.17	13.88	6.88
7,681.00	32.34	7.50	7,505.29	-602.20	1,052.04	-601.84	8.83	8.66	3.47
7,728.00	37.09	6.13	7,543.91	-575.63	1,055.19	-575.26	10.24	10.11	-2.91
7,775.00	41.13	5.61	7,580.37	-546.15	1,058.22	-545.78	8.62	8.60	-1.11

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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
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Survey										
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7,823.00	46.30	4.12	7,615.05	-513.11	1,061.01	-512.74	10.98	10.77	-3.10	
7,870.00	52.93	4.56	7,645.49	-477.43	1,063.73	-477.06	14.12	14.11	0.94	
7,917.00	58.44	4.71	7,671.98	-438.75	1,066.86	-438.38	11.73	11.72	0.32	
7,964.00	66.43	6.77	7,693.71	-397.33	1,071.05	-396.96	17.44	17.00	4.38	
8,011.00	72.18	6.37	7,710.31	-353.67	1,076.08	-353.30	12.26	12.23	-0.85	
8,058.00	76.46	3.69	7,723.01	-308.61	1,080.03	-308.23	10.63	9.11	-5.70	
8,106.00	82.11	3.39	7,731.93	-261.56	1,082.94	-261.18	11.79	11.77	-0.63	
8,158.00	87.14	3.70	7,736.80	-209.90	1,086.14	-209.52	9.69	9.67	0.60	
8,205.00	87.99	2.82	7,738.80	-163.02	1,088.82	-162.64	2.59	1.81	-1.86	
7"(547 FNL 2778 FEL)										
8,294.00	89.60	1.17	7,740.67	-74.10	1,091.92	-73.72	2.59	1.81	-1.86	
8,388.00	88.79	0.28	7,741.99	19.88	1,093.11	20.26	1.28	-0.86	-0.95	
8,482.00	91.41	359.96	7,741.83	113.87	1,093.30	114.25	2.81	2.79	-0.34	
8,577.00	91.01	1.11	7,739.82	208.84	1,094.19	209.23	1.28	-0.42	1.21	
8,671.00	88.32	0.17	7,740.37	302.83	1,095.24	303.21	3.03	-2.86	-1.00	
8,766.00	88.99	0.43	7,742.60	397.80	1,095.74	398.18	0.76	0.71	0.27	
8,856.00	90.67	0.00	7,742.87	487.79	1,096.08	488.18	1.93	1.87	-0.48	
8,947.00	88.99	359.83	7,743.14	578.79	1,095.94	579.17	1.86	-1.85	-0.19	
9,039.00	87.85	358.43	7,745.68	670.74	1,094.54	671.12	1.96	-1.24	-1.52	
9,130.00	86.10	354.78	7,750.48	761.44	1,089.17	761.82	4.44	-1.92	-4.01	
9,222.00	88.05	354.86	7,755.17	852.94	1,080.87	853.31	2.12	2.12	0.09	
9,313.00	89.70	355.25	7,756.96	943.58	1,073.03	943.95	1.86	1.81	0.43	
9,404.00	91.41	357.08	7,756.08	1,034.36	1,066.94	1,034.73	2.75	1.88	2.01	
9,495.00	92.38	358.27	7,753.07	1,125.23	1,063.25	1,125.61	1.69	1.07	1.31	
9,586.00	92.02	359.42	7,749.58	1,216.15	1,061.42	1,216.52	1.32	-0.40	1.26	
9,675.00	89.70	0.61	7,748.24	1,305.13	1,061.44	1,305.50	2.93	-2.61	1.34	
9,766.00	91.14	1.03	7,747.57	1,396.12	1,062.75	1,396.49	1.65	1.58	0.46	
9,858.00	90.91	1.17	7,745.93	1,488.08	1,064.51	1,488.46	0.29	-0.25	0.15	
9,949.00	89.76	1.18	7,745.40	1,579.06	1,066.38	1,579.43	1.26	-1.26	0.01	
10,039.00	89.29	0.04	7,746.14	1,669.05	1,067.34	1,669.42	1.37	-0.52	-1.27	
10,130.00	89.06	358.87	7,747.45	1,760.04	1,066.47	1,760.41	1.31	-0.25	-1.29	
10,221.00	89.63	357.68	7,748.49	1,850.99	1,063.73	1,851.36	1.45	0.63	-1.31	
10,313.00	89.76	357.67	7,748.98	1,942.91	1,060.00	1,943.28	0.14	0.14	-0.01	
10,403.00	90.27	357.77	7,748.96	2,032.84	1,056.42	2,033.21	0.58	0.57	0.11	
10,493.00	90.20	358.33	7,748.59	2,122.79	1,053.36	2,123.15	0.63	-0.08	0.62	
10,584.00	88.55	359.02	7,749.58	2,213.75	1,051.25	2,214.12	1.97	-1.81	0.76	
10,678.00	90.03	0.25	7,750.75	2,307.74	1,050.65	2,308.11	2.05	1.57	1.31	
10,773.00	91.07	359.41	7,749.84	2,402.73	1,050.37	2,403.10	1.41	1.09	-0.88	
10,867.00	90.03	0.34	7,748.93	2,496.72	1,050.17	2,497.09	1.48	-1.11	0.99	
10,961.00	89.36	0.99	7,749.43	2,590.72	1,051.26	2,591.08	0.99	-0.71	0.69	
11,056.00	90.91	1.57	7,749.21	2,685.69	1,053.38	2,686.06	1.74	1.63	0.61	
11,150.00	89.66	2.40	7,748.74	2,779.63	1,056.64	2,780.00	1.60	-1.33	0.88	
11,245.00	90.24	2.82	7,748.82	2,874.53	1,060.96	2,874.90	0.75	0.61	0.44	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well BADGER 25N-3HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL 5125 & KB 25 @ 5150.00ft (HP 290)
Site:	BUFFALO & BADGER 4-4 PAD	MD Reference:	GL 5125 & KB 25 @ 5150.00ft (HP 290)
Well:	BADGER 25N-3HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	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)
11,339.00	89.66	3.42	7,748.91	2,968.39	1,066.08	2,968.76	0.89	-0.62	0.64
11,433.00	87.75	2.57	7,751.03	3,062.23	1,070.99	3,062.61	2.22	-2.03	-0.90
11,528.00	87.14	0.98	7,755.27	3,157.09	1,073.93	3,157.46	1.79	-0.64	-1.67
11,622.00	88.69	1.60	7,758.69	3,251.00	1,076.04	3,251.37	1.78	1.65	0.66
11,717.00	89.16	1.42	7,760.47	3,345.95	1,078.55	3,346.32	0.53	0.49	-0.19
11,811.00	90.54	1.66	7,760.71	3,439.91	1,081.07	3,440.29	1.49	1.47	0.26
11,905.00	89.53	1.24	7,760.66	3,533.88	1,083.45	3,534.26	1.16	-1.07	-0.45
12,000.00	89.83	1.33	7,761.19	3,628.85	1,085.58	3,629.23	0.33	0.32	0.09
12,094.00	90.34	1.07	7,761.05	3,722.83	1,087.55	3,723.21	0.61	0.54	-0.28
12,189.00	88.86	0.07	7,761.71	3,817.82	1,088.50	3,818.20	1.88	-1.56	-1.05
12,283.00	88.99	0.14	7,763.48	3,911.81	1,088.67	3,912.19	0.16	0.14	0.07
12,377.00	88.66	0.25	7,765.40	4,005.79	1,088.99	4,006.17	0.37	-0.35	0.12
12,472.00	87.38	359.18	7,768.69	4,100.72	1,088.52	4,101.10	1.76	-1.35	-1.13
12,566.00	87.92	358.08	7,772.54	4,194.62	1,086.27	4,195.00	1.30	0.57	-1.17
12,660.00	89.06	356.63	7,775.02	4,288.48	1,081.93	4,288.86	1.96	1.21	-1.54
12,755.00	89.73	356.68	7,776.02	4,383.31	1,076.39	4,383.69	0.71	0.71	0.05
12,849.00	90.44	356.72	7,775.88	4,477.16	1,070.98	4,477.53	0.76	0.76	0.04
12,944.00	90.60	356.83	7,775.02	4,572.00	1,065.64	4,572.37	0.20	0.17	0.12
13,038.00	90.70	357.90	7,773.95	4,665.89	1,061.31	4,666.26	1.14	0.11	1.14
13,126.00	90.94	358.17	7,772.69	4,753.83	1,058.30	4,754.20	0.41	0.27	0.31
13,220.00	89.66	359.11	7,772.20	4,847.80	1,056.07	4,848.17	1.69	-1.36	1.00
13,315.00	89.93	359.07	7,772.54	4,942.79	1,054.56	4,943.16	0.29	0.28	-0.04
13,409.00	90.13	359.06	7,772.49	5,036.78	1,053.02	5,037.14	0.21	0.21	-0.01
13,503.00	89.46	358.88	7,772.83	5,130.76	1,051.33	5,131.13	0.74	-0.71	-0.19
13,598.00	90.00	359.84	7,773.27	5,225.75	1,050.27	5,226.12	1.16	0.57	1.01
13,692.00	90.60	359.95	7,772.78	5,319.75	1,050.10	5,320.12	0.65	0.64	0.12
13,787.00	90.77	0.18	7,771.65	5,414.74	1,050.21	5,415.11	0.30	0.18	0.24
13,881.00	90.50	0.20	7,770.61	5,508.74	1,050.52	5,509.10	0.29	-0.29	0.02
13,975.00	90.54	359.85	7,769.75	5,602.73	1,050.56	5,603.10	0.37	0.04	-0.37
14,070.00	89.97	359.72	7,769.33	5,697.73	1,050.20	5,698.10	0.62	-0.60	-0.14
14,164.00	90.17	359.65	7,769.21	5,791.73	1,049.69	5,792.10	0.23	0.21	-0.07
14,258.00	89.39	358.79	7,769.58	5,885.72	1,048.41	5,886.08	1.24	-0.83	-0.91
14,353.00	90.07	359.04	7,770.02	5,980.70	1,046.61	5,981.07	0.76	0.72	0.26
14,447.00	90.37	359.48	7,769.66	6,074.69	1,045.40	6,075.06	0.57	0.32	0.47
14,542.00	90.64	359.85	7,768.82	6,169.69	1,044.84	6,170.05	0.48	0.28	0.39
14,636.00	90.91	359.38	7,767.55	6,263.67	1,044.21	6,264.04	0.58	0.29	-0.50
14,730.00	90.67	359.22	7,766.26	6,357.66	1,043.06	6,358.02	0.31	-0.26	-0.17
14,825.00	90.97	358.50	7,764.90	6,452.63	1,041.17	6,452.99	0.82	0.32	-0.76
14,919.00	90.30	358.99	7,763.86	6,546.60	1,039.11	6,546.96	0.88	-0.71	0.52
15,014.00	88.83	359.52	7,764.58	6,641.59	1,037.88	6,641.95	1.64	-1.55	0.56
15,108.00	89.19	0.12	7,766.20	6,735.57	1,037.58	6,735.93	0.74	0.38	0.64
15,203.00	89.09	0.06	7,767.63	6,830.56	1,037.73	6,830.92	0.12	-0.11	-0.06
15,297.00	89.46	359.45	7,768.82	6,924.55	1,037.33	6,924.91	0.76	0.39	-0.65
15,392.00	89.93	0.42	7,769.32	7,019.55	1,037.22	7,019.91	1.13	0.49	1.02

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well BADGER 25N-3HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL 5125 & KB 25 @ 5150.00ft (HP 290)
Site:	BUFFALO & BADGER 4-4 PAD	MD Reference:	GL 5125 & KB 25 @ 5150.00ft (HP 290)
Well:	BADGER 25N-3HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	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)	
15,486.00	90.24	1.19	7,769.18	7,113.54	1,038.54	7,113.90	0.88	0.33	0.82	
15,581.00	89.90	0.38	7,769.07	7,208.53	1,039.84	7,208.89	0.92	-0.36	-0.85	
LAST SDI MWD PRODUCTION SURVEY										
15,653.00	89.90	0.38	7,769.19	7,280.53	1,040.32	7,280.89	0.00	0.00	0.00	
SDI PROJECTION TO TD(1580 FSL 2831 FEL)										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,253.00	1,252.98	9 5/8"	9.625	13.500	
8,205.00	7,738.80	7"(547 FNL 2778 FEL)	7.000	8.750	

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
71.00	71.00	-0.05	-0.07	FIRST CATHEDRAL MWD SURFACE SURVEY	
1,237.00	1,236.98	4.75	-1.18	LAST CATHEDRAL MWD SURFACE SURVEY	
1,365.00	1,364.97	5.11	-2.31	FIRST SDI MWD PRODUCTION SURVEY	
15,581.00	7,769.07	7,208.53	1,039.84	LAST SDI MWD PRODUCTION SURVEY	
15,653.00	7,769.19	7,280.53	1,040.32	SDI PROJECTION TO TD(1580 FSL 2831 FEL)	

Checked By: _____	Approved By: _____	Date: _____
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