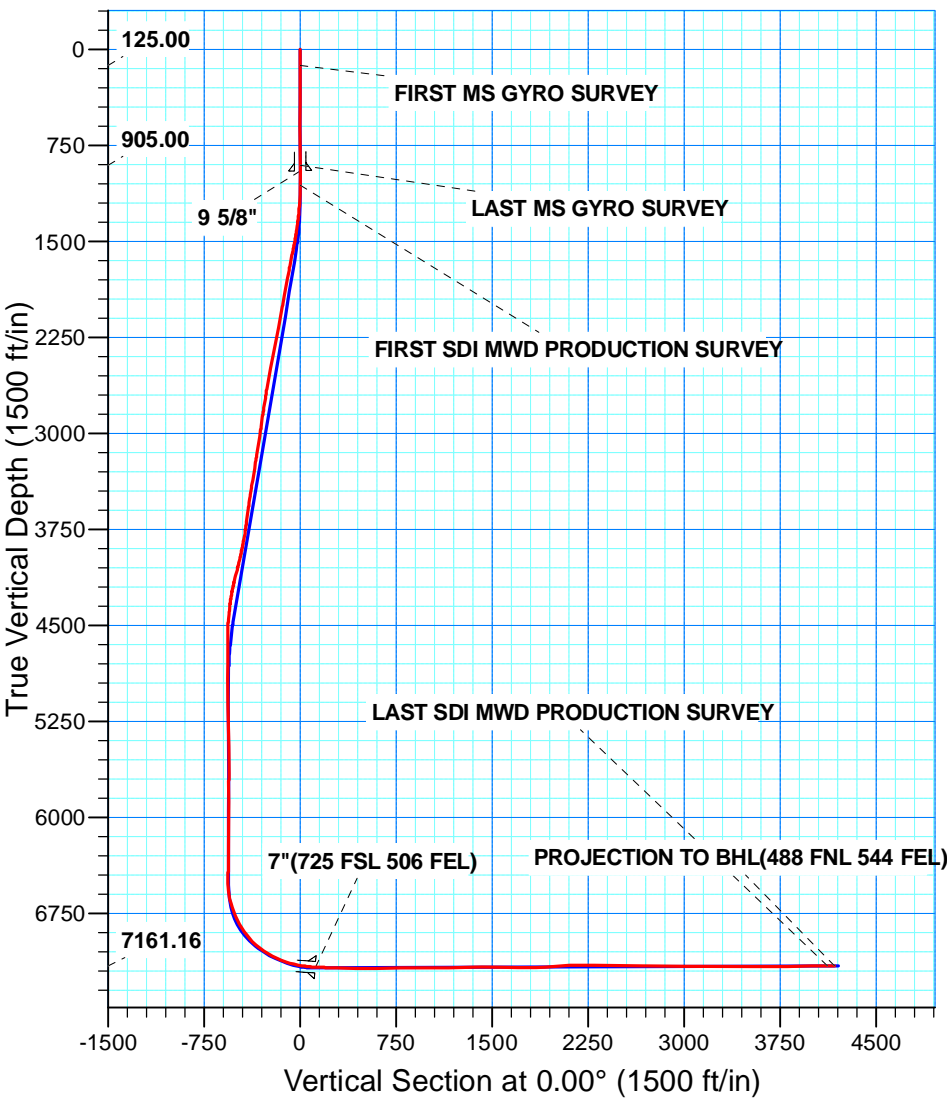
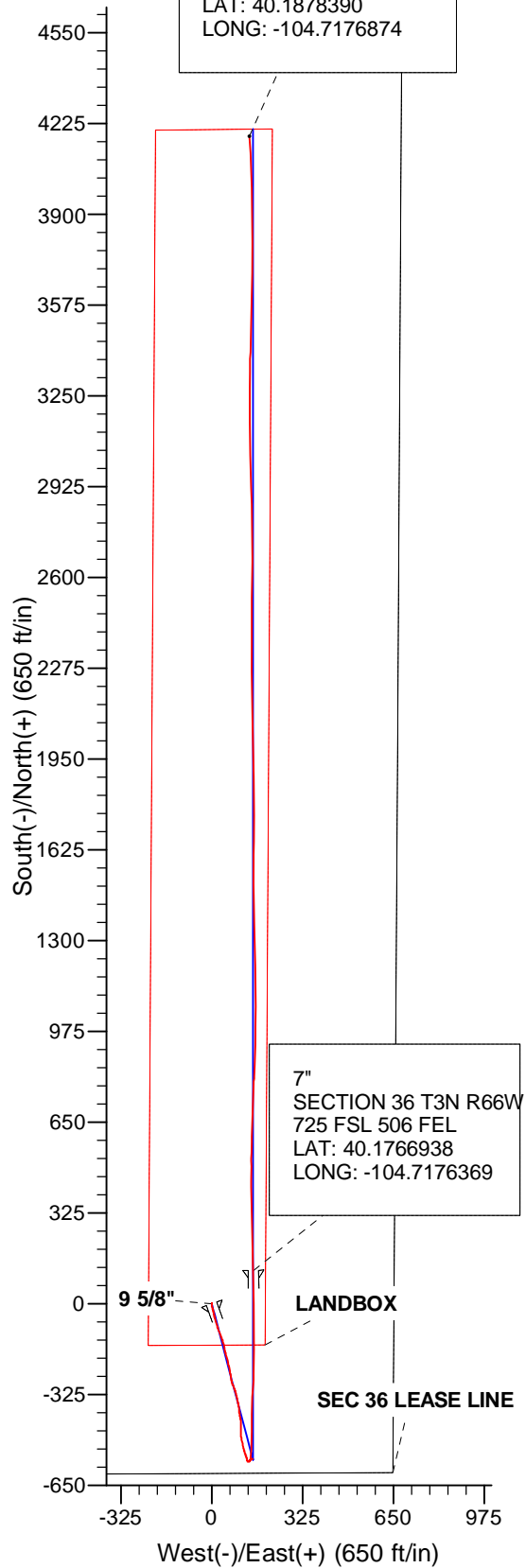


WELL DETAILS: USA Fed 1N-36HZ					
GL 4985 & KB 25 @ 5010.00ft (HP 311)					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1308056.82	3218463.48	40.1763680	-104.7181690

BHL
 SECTION 36 T3N R66W
 488 FNL 544 FEL
 LAT: 40.1878390
 LONG: -104.7176874





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

USA FED 16-36-HZ PAD

USA Fed 1N-36HZ

OH

Design: OH

Standard Survey Report

14 August, 2013

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well USA Fed 1N-36HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL 4985 & KB 25 @ 5010.00ft (HP 311)
Site:	USA FED 16-36-HZ PAD	MD Reference:	GL 4985 & KB 25 @ 5010.00ft (HP 311)
Well:	USA Fed 1N-36HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

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	USA FED 16-36-HZ PAD, SECTION 36 T3N R66W				
Site Position:		Northing:	1,308,056.82 usft	Latitude:	40.1763680
From:	Lat/Long	Easting:	3,218,463.48 usft	Longitude:	-104.7181690
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.51 °

Well	USA Fed 1N-36HZ, 608' FSL 653' FEL					
Well Position	+N/-S	0.00 ft	Northing:	1,308,056.82 usft	Latitude:	40.1763680
	+E/-W	0.00 ft	Easting:	3,218,463.48 usft	Longitude:	-104.7181690
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,985.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	5/7/2013	8.59	66.80	52,753

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	0.00	

Survey Program	Date	8/14/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
25.00	905.00	Survey #1 MS GYRO (OH)	NS-GYRO-MS	North sensing gyrocompassing m/s	
1,061.00	11,677.00	Survey #2 MWD SDI PRODUCTION (OH)	SDI_MWD+CRUST_1.0	SDI MWD + Crustal anomaly, Version 1.0	

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	
25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00	0.00	0.00	
125.00	0.10	175.19	125.00	-0.09	0.01	-0.09	0.10	0.10	0.00	
FIRST MS GYRO SURVEY										
225.00	0.05	168.00	225.00	-0.22	0.02	-0.22	0.05	-0.05	-7.19	
325.00	0.04	269.47	325.00	-0.26	0.00	-0.26	0.07	-0.01	101.47	
425.00	0.12	223.43	425.00	-0.34	-0.11	-0.34	0.10	0.08	-46.04	
525.00	0.15	348.17	525.00	-0.28	-0.21	-0.28	0.24	0.03	124.74	
625.00	0.06	64.90	625.00	-0.13	-0.19	-0.13	0.15	-0.09	76.73	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well USA Fed 1N-36HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL 4985 & KB 25 @ 5010.00ft (HP 311)
Site:	USA FED 16-36-HZ PAD	MD Reference:	GL 4985 & KB 25 @ 5010.00ft (HP 311)
Well:	USA Fed 1N-36HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

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)	
725.00	0.09	116.11	725.00	-0.15	-0.07	-0.15	0.07	0.03	51.21	
825.00	0.14	17.75	825.00	-0.06	0.04	-0.06	0.18	0.05	-98.36	
905.00	0.23	346.26	905.00	0.18	0.03	0.18	0.17	0.11	-39.36	
LAST MS GYRO SURVEY										
949.80	0.22	340.82	949.80	0.35	-0.02	0.35	0.05	-0.03	-12.15	
9 5/8"										
1,061.00	0.20	325.10	1,061.00	0.71	-0.20	0.71	0.05	-0.02	-14.13	
FIRST SDI MWD PRODUCTION SURVEY										
1,245.00	4.89	172.62	1,244.78	-6.81	0.62	-6.81	2.75	2.55	-82.87	
1,336.00	7.22	166.53	1,335.27	-16.22	2.45	-16.22	2.65	2.56	-6.69	
1,428.00	8.82	166.27	1,426.37	-28.69	5.48	-28.69	1.74	1.74	-0.28	
1,520.00	10.93	168.11	1,517.00	-44.08	8.95	-44.08	2.32	2.29	2.00	
1,610.00	12.29	162.92	1,605.16	-61.59	13.52	-61.59	1.90	1.51	-5.77	
1,702.00	12.08	162.95	1,695.08	-80.15	19.22	-80.15	0.23	-0.23	0.03	
1,793.00	11.62	159.45	1,784.15	-97.83	25.23	-97.83	0.94	-0.51	-3.85	
1,885.00	11.21	158.60	1,874.33	-114.84	31.74	-114.84	0.48	-0.45	-0.92	
1,976.00	10.30	160.45	1,963.73	-130.74	37.69	-130.74	1.07	-1.00	2.03	
2,068.00	10.52	167.90	2,054.22	-146.70	42.20	-146.70	1.48	0.24	8.10	
2,159.00	10.43	167.33	2,143.70	-162.86	45.75	-162.86	0.15	-0.10	-0.63	
2,251.00	11.71	164.53	2,233.99	-179.98	50.07	-179.98	1.51	1.39	-3.04	
2,343.00	11.20	164.30	2,324.15	-197.58	54.98	-197.58	0.56	-0.55	-0.25	
2,434.00	11.33	168.59	2,413.40	-214.85	59.14	-214.85	0.93	0.14	4.71	
2,524.00	10.69	166.18	2,501.75	-231.63	62.88	-231.63	0.88	-0.71	-2.68	
2,615.00	10.60	172.10	2,591.18	-248.11	66.05	-248.11	1.21	-0.10	6.51	
2,705.00	9.46	171.85	2,679.81	-263.63	68.23	-263.63	1.27	-1.27	-0.28	
2,797.00	8.93	166.67	2,770.63	-278.07	70.95	-278.07	1.07	-0.58	-5.63	
2,888.00	8.52	157.42	2,860.58	-291.16	75.17	-291.16	1.60	-0.45	-10.16	
2,979.00	8.52	156.67	2,950.57	-303.58	80.43	-303.58	0.12	0.00	-0.82	
3,071.00	9.89	165.68	3,041.39	-317.49	85.08	-317.49	2.16	1.49	9.79	
3,162.00	9.30	167.29	3,131.12	-332.24	88.63	-332.24	0.71	-0.65	1.77	
3,257.00	8.72	165.45	3,224.94	-346.70	92.13	-346.70	0.68	-0.61	-1.94	
3,351.00	8.95	170.72	3,317.83	-360.81	95.10	-360.81	0.89	0.24	5.61	
3,446.00	10.46	173.22	3,411.47	-376.67	97.31	-376.67	1.65	1.59	2.63	
3,540.00	8.73	172.85	3,504.15	-392.22	99.20	-392.22	1.84	-1.84	-0.39	
3,625.00	7.53	169.83	3,588.29	-404.10	100.99	-404.10	1.50	-1.41	-3.55	
3,729.00	7.49	173.05	3,691.40	-417.54	103.01	-417.54	0.41	-0.04	3.10	
3,824.00	9.79	184.41	3,785.33	-431.74	103.14	-431.74	3.00	2.42	11.96	
3,918.00	10.76	176.08	3,877.82	-448.46	103.13	-448.46	1.89	1.03	-8.86	
4,013.00	12.98	175.88	3,970.78	-467.96	104.50	-467.96	2.34	2.34	-0.21	
4,108.00	14.56	168.55	4,063.06	-490.30	107.64	-490.30	2.47	1.66	-7.72	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well USA Fed 1N-36HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL 4985 & KB 25 @ 5010.00ft (HP 311)
Site:	USA FED 16-36-HZ PAD	MD Reference:	GL 4985 & KB 25 @ 5010.00ft (HP 311)
Well:	USA Fed 1N-36HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

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)
4,202.00	14.35	167.47	4,154.08	-513.26	112.51	-513.26	0.36	-0.22	-1.15
4,297.00	10.96	160.88	4,246.77	-533.29	118.02	-533.29	3.87	-3.57	-6.94
4,392.00	6.94	160.55	4,340.59	-547.24	122.90	-547.24	4.23	-4.23	-0.35
4,486.00	5.58	166.53	4,434.03	-557.04	125.85	-557.04	1.60	-1.45	6.36
4,581.00	3.31	172.05	4,528.74	-564.25	127.31	-564.25	2.43	-2.39	5.81
4,676.00	1.80	82.78	4,623.67	-566.78	129.17	-566.78	3.94	-1.59	-93.97
4,770.00	1.24	81.47	4,717.64	-566.44	131.64	-566.44	0.60	-0.60	-1.39
4,865.00	0.52	74.82	4,812.62	-566.17	133.07	-566.17	0.76	-0.76	-7.00
4,960.00	0.82	115.54	4,907.62	-566.35	134.10	-566.35	0.57	0.32	42.86
5,054.00	0.85	4.80	5,001.61	-565.95	134.76	-565.95	1.46	0.03	-117.81
5,148.00	1.62	345.96	5,095.59	-563.97	134.50	-563.97	0.92	0.82	-20.04
5,243.00	1.55	87.99	5,190.57	-562.62	135.46	-562.62	2.59	-0.07	107.40
5,337.00	0.62	53.79	5,284.55	-562.27	137.14	-562.27	1.16	-0.99	-36.38
5,432.00	2.52	46.30	5,379.51	-560.53	139.06	-560.53	2.01	2.00	-7.88
5,527.00	2.58	35.66	5,474.42	-557.35	141.82	-557.35	0.50	0.06	-11.20
5,621.00	1.27	90.24	5,568.37	-555.63	144.10	-555.63	2.25	-1.39	58.06
5,811.00	1.14	208.10	5,758.35	-557.31	145.31	-557.31	1.09	-0.07	62.03
6,000.00	1.42	319.81	5,947.32	-557.18	142.91	-557.18	1.12	0.15	59.11
6,189.00	1.52	230.74	6,136.28	-556.97	139.46	-556.97	1.09	0.05	-47.13
6,378.00	0.54	238.34	6,325.25	-559.03	136.76	-559.03	0.52	-0.52	4.02
6,473.00	1.87	184.32	6,420.23	-560.81	136.27	-560.81	1.70	1.40	-56.86
6,536.00	0.93	146.24	6,483.21	-562.26	136.47	-562.26	2.02	-1.49	-60.44
6,567.00	1.78	55.66	6,514.20	-562.20	137.01	-562.20	6.51	2.74	-292.19
6,599.00	4.00	22.31	6,546.16	-560.88	137.84	-560.88	8.43	6.94	-104.22
6,630.00	7.30	4.74	6,577.01	-557.92	138.42	-557.92	11.90	10.65	-56.68
6,662.00	10.39	2.92	6,608.62	-553.01	138.73	-553.01	9.69	9.66	-5.69
6,693.00	13.24	6.24	6,638.96	-546.69	139.26	-546.69	9.45	9.19	10.71
6,725.00	15.30	6.47	6,669.97	-538.85	140.13	-538.85	6.44	6.44	0.72
6,756.00	17.18	4.71	6,699.74	-530.22	140.97	-530.22	6.27	6.06	-5.68
6,788.00	19.83	3.75	6,730.08	-520.09	141.71	-520.09	8.34	8.28	-3.00
6,819.00	22.09	1.97	6,759.03	-509.02	142.26	-509.02	7.57	7.29	-5.74
6,851.00	23.76	0.88	6,788.50	-496.56	142.56	-496.56	5.38	5.22	-3.41
6,882.00	25.91	0.42	6,816.63	-483.54	142.71	-483.54	6.96	6.94	-1.48
6,914.00	29.14	0.46	6,845.00	-468.76	142.82	-468.76	10.09	10.09	0.13
6,945.00	31.97	0.40	6,871.70	-453.00	142.94	-453.00	9.13	9.13	-0.19
6,977.00	35.68	359.61	6,898.28	-435.19	142.94	-435.19	11.67	11.59	-2.47
7,008.00	39.37	359.57	6,922.86	-416.31	142.80	-416.31	11.90	11.90	-0.13
7,039.00	42.88	0.38	6,946.20	-395.92	142.80	-395.92	11.45	11.32	2.61
7,071.00	46.45	1.82	6,968.96	-373.44	143.24	-373.44	11.60	11.16	4.50
7,102.00	48.43	2.45	6,989.93	-350.62	144.09	-350.62	6.56	6.39	2.03

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well USA Fed 1N-36HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL 4985 & KB 25 @ 5010.00ft (HP 311)
Site:	USA FED 16-36-HZ PAD	MD Reference:	GL 4985 & KB 25 @ 5010.00ft (HP 311)
Well:	USA Fed 1N-36HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

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)	
7,134.00	50.19	3.20	7,010.79	-326.39	145.29	-326.39	5.78	5.50	2.34	
7,165.00	53.35	4.57	7,029.97	-302.10	146.95	-302.10	10.77	10.19	4.42	
7,197.00	56.33	4.08	7,048.40	-276.01	148.92	-276.01	9.40	9.31	-1.53	
7,228.00	58.89	3.16	7,065.00	-249.89	150.57	-249.89	8.63	8.26	-2.97	
7,260.00	61.80	1.30	7,080.83	-222.11	151.64	-222.11	10.40	9.09	-5.81	
7,291.00	64.18	359.95	7,094.91	-194.49	151.94	-194.49	8.60	7.68	-4.35	
7,322.00	66.69	359.70	7,107.80	-166.30	151.85	-166.30	8.13	8.10	-0.81	
7,354.00	69.82	359.30	7,119.65	-136.58	151.59	-136.58	9.85	9.78	-1.25	
7,385.00	72.87	359.02	7,129.57	-107.22	151.16	-107.22	9.88	9.84	-0.90	
7,417.00	74.47	359.54	7,138.56	-76.51	150.78	-76.51	5.24	5.00	1.63	
7,448.00	76.20	359.04	7,146.41	-46.53	150.40	-46.53	5.79	5.58	-1.61	
7,480.00	78.53	359.58	7,153.41	-15.31	150.03	-15.31	7.47	7.28	1.69	
7,511.00	80.29	359.79	7,159.11	15.16	149.86	15.16	5.72	5.68	0.68	
7,542.00	82.35	359.56	7,163.79	45.81	149.69	45.81	6.69	6.65	-0.74	
7,574.00	84.95	359.24	7,167.33	77.60	149.35	77.60	8.19	8.13	-1.00	
7,579.00	85.46	359.19	7,167.74	82.59	149.29	82.59	10.25	10.20	-1.00	
7,615.20	86.29	358.88	7,170.35	118.69	148.68	118.69	2.46	2.30	-0.86	
7"(725 FSL 506 FEL)										
7,718.00	88.66	358.00	7,174.87	221.34	145.88	221.34	2.46	2.30	-0.86	
7,906.00	88.18	359.36	7,180.06	409.22	141.55	409.22	0.77	-0.26	0.72	
8,094.00	91.27	2.02	7,180.96	597.16	143.81	597.16	2.17	1.64	1.41	
8,283.00	91.04	2.15	7,177.15	786.00	150.69	786.00	0.14	-0.12	0.07	
8,471.00	89.56	0.92	7,176.16	973.92	155.72	973.92	1.02	-0.79	-0.65	
8,660.00	91.17	359.26	7,174.96	1,162.90	156.02	1,162.90	1.22	0.85	-0.88	
8,848.00	90.17	358.20	7,172.76	1,350.84	151.86	1,350.84	0.78	-0.53	-0.56	
9,037.00	90.07	0.86	7,172.37	1,539.81	150.31	1,539.81	1.41	-0.05	1.41	
9,225.00	89.53	359.66	7,173.02	1,727.81	151.16	1,727.81	0.70	-0.29	-0.64	
9,414.00	92.95	359.43	7,168.93	1,916.73	149.66	1,916.73	1.81	1.81	-0.12	
9,603.00	93.16	358.32	7,158.86	2,105.42	145.95	2,105.42	0.60	0.11	-0.59	
9,792.00	88.93	0.34	7,155.41	2,294.32	143.75	2,294.32	2.48	-2.24	1.07	
9,981.00	89.33	359.99	7,158.28	2,483.30	144.29	2,483.30	0.28	0.21	-0.19	
10,170.00	88.72	0.57	7,161.50	2,672.27	145.21	2,672.27	0.45	-0.32	0.31	
10,359.00	89.26	358.13	7,164.83	2,861.21	143.07	2,861.21	1.32	0.29	-1.29	
10,548.00	90.44	358.49	7,165.33	3,050.12	137.50	3,050.12	0.65	0.62	0.19	
10,737.00	89.83	0.55	7,164.88	3,239.11	135.91	3,239.11	1.14	-0.32	1.09	
10,926.00	89.63	1.25	7,165.77	3,428.08	138.88	3,428.08	0.39	-0.11	0.37	
11,115.00	90.40	1.36	7,165.72	3,617.03	143.19	3,617.03	0.41	0.41	0.06	
11,303.00	90.44	0.52	7,164.34	3,805.00	146.27	3,805.00	0.45	0.02	-0.45	
11,492.00	90.67	358.20	7,162.51	3,993.96	144.16	3,993.96	1.23	0.12	-1.23	
11,617.00	90.57	356.42	7,161.16	4,118.81	138.29	4,118.81	1.43	-0.08	-1.42	
LAST SDI MWD PRODUCTION SURVEY										

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well USA Fed 1N-36HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL 4985 & KB 25 @ 5010.00ft (HP 311)
Site:	USA FED 16-36-HZ PAD	MD Reference:	GL 4985 & KB 25 @ 5010.00ft (HP 311)
Well:	USA Fed 1N-36HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

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)	
11,677.00	90.57	356.42	7,160.56	4,178.69	134.55	4,178.69	0.00	0.00	0.00	
PROJECTION TO BHL(488 FNL 544 FEL)										

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)		
949.80	949.80	9 5/8"	9.625	12.250		
7,615.20	7,170.35	7"(725 FSL 506 FEL)	7.000	7.500		

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
125.00	125.00	-0.09	0.01	FIRST MS GYRO SURVEY	
905.00	905.00	0.18	0.03	LAST MS GYRO SURVEY	
1,061.00	1,061.00	0.71	-0.20	FIRST SDI MWD PRODUCTION SURVEY	
11,617.00	7,161.16	4,118.81	138.29	LAST SDI MWD PRODUCTION SURVEY	
11,677.00	7,160.56	4,178.69	134.55	PROJECTION TO BHL(488 FNL 544 FEL)	

Checked By: _____ Approved By: _____ Date: _____