

Geodetic System: Universal Transverse Mercator (US Survey F)  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: Zone 13N (108 W to 102 W)  
 System Datum: Mean Sea Level  
 Local North: True



Azimuths to True North  
 Magnetic North: 8.47°

Magnetic Field  
 Strength: 52335.0snT  
 Dip Angle: 66.67°  
 Date: 6/20/2016  
 Model: BGGM2016

### WELL DETAILS: Land 36N-32HZ

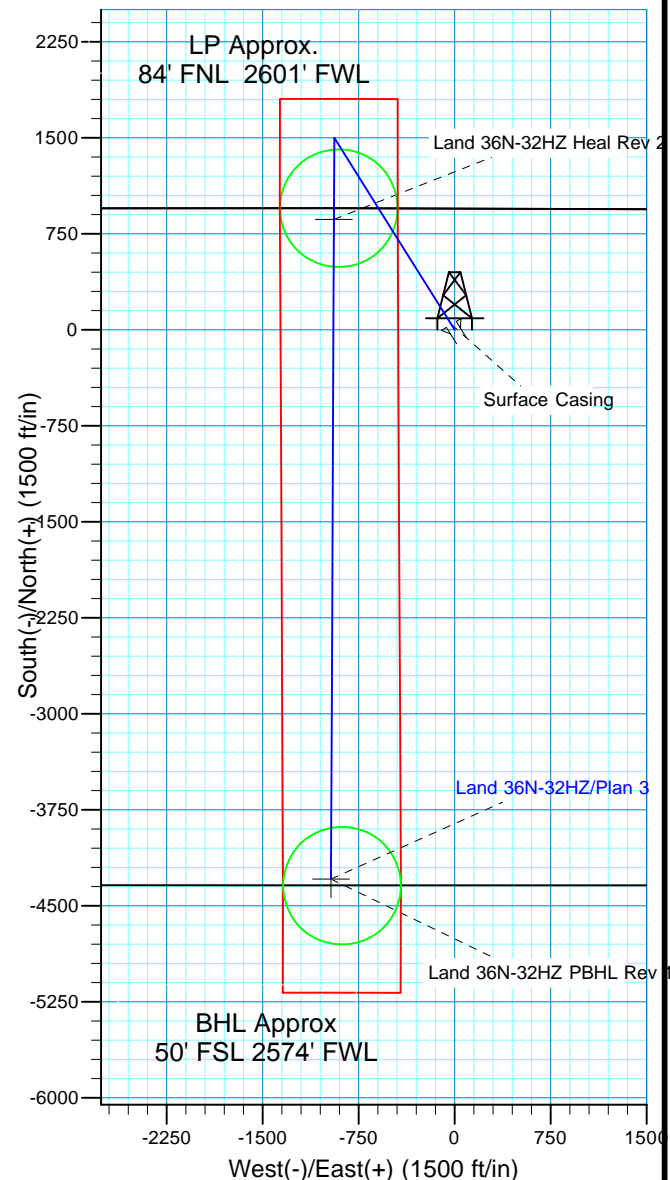
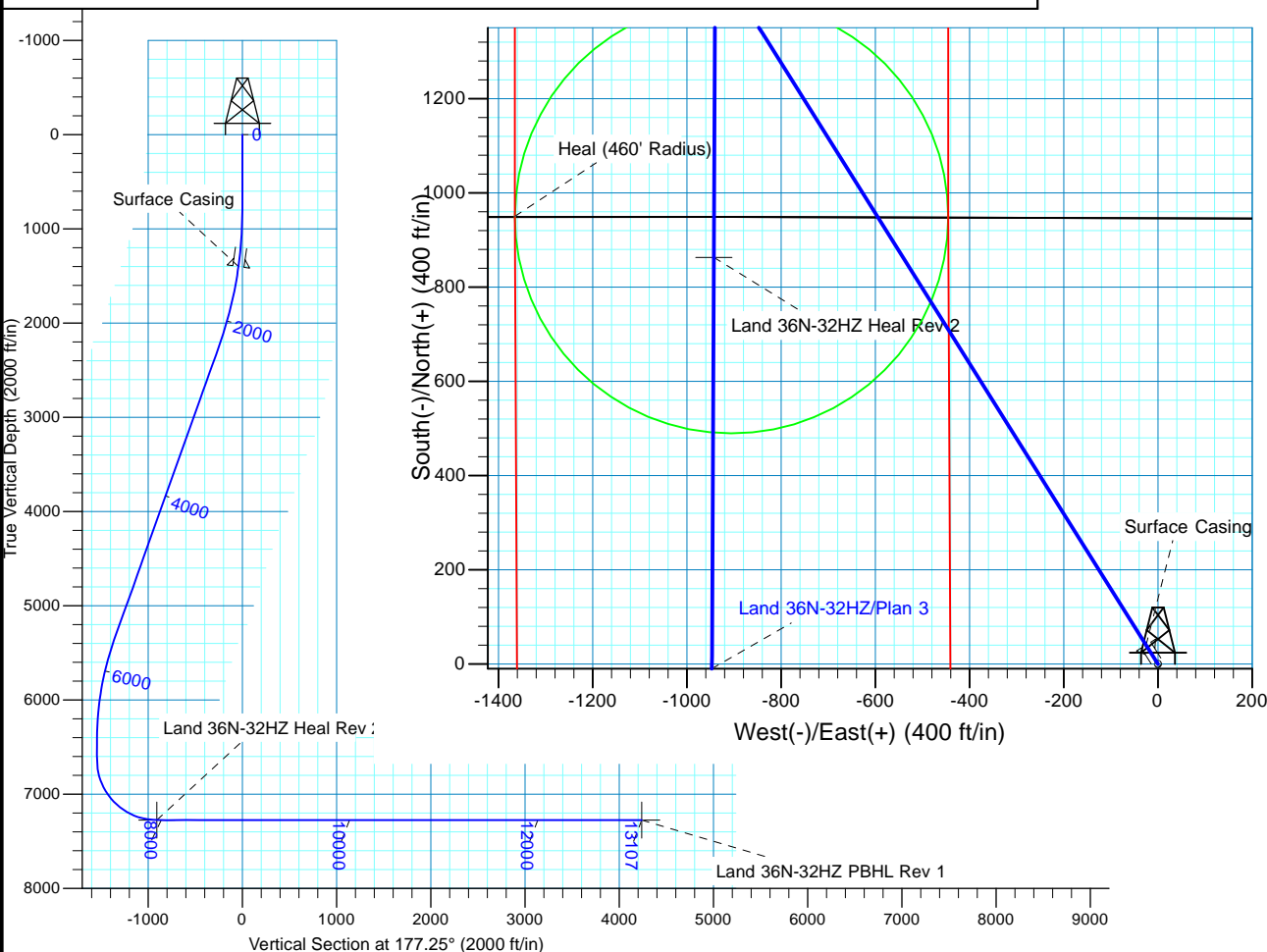
GL 4913' & KB 20' @ 4933.00ft (Precision 461)					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	14562948.04	1696938.53	40.0992750	-104.7978800

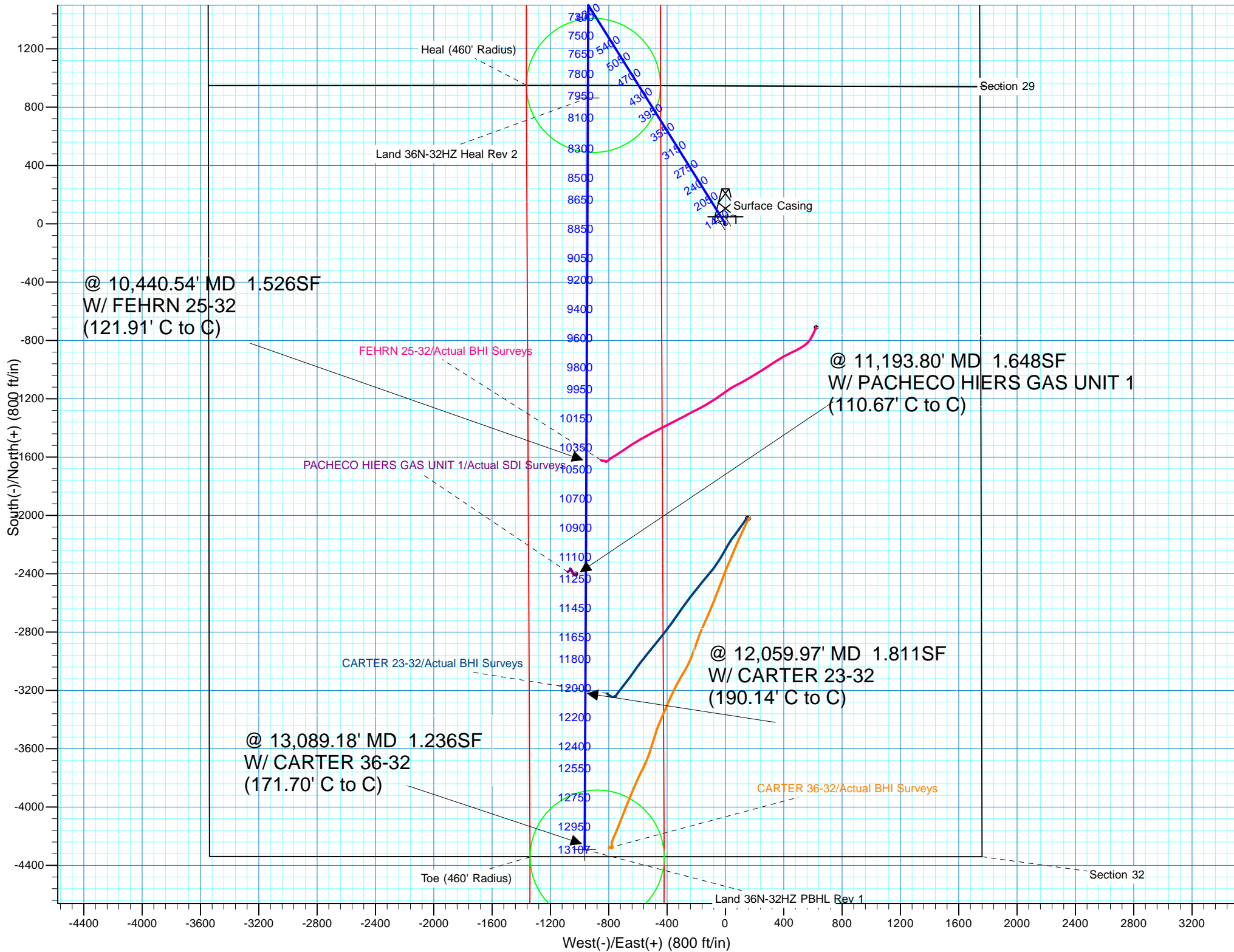
### SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00
2285.08	22.28	327.93	2247.95	241.56	-151.38	1.50	327.93	-248.55
5638.85	22.28	327.93	5351.42	1318.83	-826.47	0.00	0.00	-1356.96
6752.66	0.00	0.00	6437.38	1500.00	-940.00	2.00	180.00	-1543.37
6952.66	0.00	0.00	6637.38	1500.00	-940.00	0.00	0.00	-1543.37
7952.66	90.00	180.25	7274.00	863.38	-942.75	9.00	180.25	-907.62
13106.85	90.00	180.25	7274.00	-4290.75	-965.00	0.00	0.00	4239.51

Plan: Plan 3 (Land 36N-32HZ/OH)

Created By: Seth Burstad Date: 28 June 2016







# **US ROCKIES REGION PLANNING**

**US Rockies Wattenberg Planning**

**Land 17-32HZ Pad, 2N-66W-32**

**Land 36N-32HZ**

**OH**

**Plan: Plan 3**

## **Standard Planning Report**

**28 June, 2016**



<b>Database:</b>	Denver Sales Office	<b>Local Co-ordinate Reference:</b>	Well Land 36N-32HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4913' & KB 20' @ 4933.00ft (Precision 461)
<b>Project:</b>	US Rockies Wattenberg Planning	<b>MD Reference:</b>	GL 4913' & KB 20' @ 4933.00ft (Precision 461)
<b>Site:</b>	Land 17-32HZ Pad, 2N-66W-32	<b>North Reference:</b>	True
<b>Well:</b>	Land 36N-32HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan 3		

<b>Project</b>	US Rockies Wattenberg Planning		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

<b>Site</b>	Land 17-32HZ Pad, 2N-66W-32, Site Center : Land 14C-32HZ			
<b>Site Position:</b>		<b>Northing:</b>	14,562,948.00 usft	<b>Latitude:</b> 40.0992750
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,696,921.75 usft	<b>Longitude:</b> -104.7979400
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> 0.13 °

<b>Well</b>	Land 36N-32HZ, 947' FNL 1750' FEL Sec 32 T2N R66W			
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	14,562,948.04 usft
	<b>+E/-W</b>	16.78 ft	<b>Easting:</b>	1,696,938.53 usft
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>	0.00 ft	<b>Ground Level:</b> 4,913.00 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>
	BGGM2016	6/20/2016	8.47	66.67	52,335

<b>Design</b>	Plan 3			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<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	177.25

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,285.08	22.28	327.93	2,247.95	241.56	-151.38	1.50	1.50	0.00	327.93	
5,638.85	22.28	327.93	5,351.42	1,318.83	-826.47	0.00	0.00	0.00	0.00	
6,752.66	0.00	0.00	6,437.38	1,500.00	-940.00	2.00	-2.00	0.00	180.00	
6,952.66	0.00	0.00	6,637.38	1,500.00	-940.00	0.00	0.00	0.00	0.00	
7,952.66	90.00	180.25	7,274.00	863.38	-942.75	9.00	9.00	-17.98	180.25	
13,106.85	90.00	180.25	7,274.00	-4,290.75	-965.00	0.00	0.00	0.00	0.00	Land 36N-32HZ PBHI

<b>Database:</b>	Denver Sales Office	<b>Local Co-ordinate Reference:</b>	Well Land 36N-32HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4913' & KB 20' @ 4933.00ft (Precision 461)
<b>Project:</b>	US Rockies Wattenberg Planning	<b>MD Reference:</b>	GL 4913' & KB 20' @ 4933.00ft (Precision 461)
<b>Site:</b>	Land 17-32HZ Pad, 2N-66W-32	<b>North Reference:</b>	True
<b>Well:</b>	Land 36N-32HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan 3		

Planned 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
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 1.50</b>									
900.00	1.50	327.93	899.99	1.11	-0.70	-1.14	1.50	1.50	0.00
1,000.00	3.00	327.93	999.91	4.44	-2.78	-4.56	1.50	1.50	0.00
1,100.00	4.50	327.93	1,099.69	9.98	-6.25	-10.27	1.50	1.50	0.00
1,200.00	6.00	327.93	1,199.27	17.73	-11.11	-18.24	1.50	1.50	0.00
1,300.00	7.50	327.93	1,298.57	27.69	-17.35	-28.49	1.50	1.50	0.00
1,400.00	9.00	327.93	1,397.54	39.85	-24.97	-41.00	1.50	1.50	0.00
1,402.50	9.04	327.93	1,400.00	40.18	-25.18	-41.34	1.50	1.50	0.00
<b>Surface Casing</b>									
1,500.00	10.50	327.93	1,496.09	54.20	-33.96	-55.77	1.50	1.50	0.00
1,600.00	12.00	327.93	1,594.16	70.73	-44.32	-72.77	1.50	1.50	0.00
1,700.00	13.50	327.93	1,691.70	89.43	-56.04	-92.02	1.50	1.50	0.00
1,800.00	15.00	327.93	1,788.62	110.29	-69.11	-113.48	1.50	1.50	0.00
1,900.00	16.50	327.93	1,884.86	133.29	-83.53	-137.14	1.50	1.50	0.00
2,000.00	18.00	327.93	1,980.36	158.41	-99.27	-162.99	1.50	1.50	0.00
2,100.00	19.50	327.93	2,075.05	185.65	-116.34	-191.02	1.50	1.50	0.00
2,200.00	21.00	327.93	2,168.86	214.98	-134.72	-221.20	1.50	1.50	0.00
2,285.08	22.28	327.93	2,247.95	241.56	-151.38	-248.55	1.50	1.50	0.00
<b>Start 3353.77 hold at 2285.08 MD</b>									
2,300.00	22.28	327.93	2,261.75	246.35	-154.38	-253.48	0.00	0.00	0.00
2,400.00	22.28	327.93	2,354.29	278.48	-174.51	-286.53	0.00	0.00	0.00
2,500.00	22.28	327.93	2,446.83	310.60	-194.64	-319.58	0.00	0.00	0.00
2,600.00	22.28	327.93	2,539.36	342.72	-214.77	-352.63	0.00	0.00	0.00
2,700.00	22.28	327.93	2,631.90	374.84	-234.90	-385.68	0.00	0.00	0.00
2,800.00	22.28	327.93	2,724.44	406.96	-255.03	-418.73	0.00	0.00	0.00
2,900.00	22.28	327.93	2,816.98	439.08	-275.16	-451.78	0.00	0.00	0.00
3,000.00	22.28	327.93	2,909.51	471.20	-295.29	-484.83	0.00	0.00	0.00
3,100.00	22.28	327.93	3,002.05	503.32	-315.42	-517.88	0.00	0.00	0.00
3,200.00	22.28	327.93	3,094.59	535.44	-335.55	-550.93	0.00	0.00	0.00
3,300.00	22.28	327.93	3,187.12	567.57	-355.67	-583.98	0.00	0.00	0.00
3,400.00	22.28	327.93	3,279.66	599.69	-375.80	-617.03	0.00	0.00	0.00
3,500.00	22.28	327.93	3,372.20	631.81	-395.93	-650.08	0.00	0.00	0.00
3,600.00	22.28	327.93	3,464.73	663.93	-416.06	-683.13	0.00	0.00	0.00
3,700.00	22.28	327.93	3,557.27	696.05	-436.19	-716.18	0.00	0.00	0.00
3,800.00	22.28	327.93	3,649.81	728.17	-456.32	-749.23	0.00	0.00	0.00
3,900.00	22.28	327.93	3,742.34	760.29	-476.45	-782.27	0.00	0.00	0.00
4,000.00	22.28	327.93	3,834.88	792.41	-496.58	-815.32	0.00	0.00	0.00
4,100.00	22.28	327.93	3,927.42	824.53	-516.71	-848.37	0.00	0.00	0.00
4,200.00	22.28	327.93	4,019.95	856.65	-536.84	-881.42	0.00	0.00	0.00
4,300.00	22.28	327.93	4,112.49	888.78	-556.97	-914.47	0.00	0.00	0.00
4,400.00	22.28	327.93	4,205.03	920.90	-577.10	-947.52	0.00	0.00	0.00
4,500.00	22.28	327.93	4,297.56	953.02	-597.22	-980.57	0.00	0.00	0.00
4,600.00	22.28	327.93	4,390.10	985.14	-617.35	-1,013.62	0.00	0.00	0.00

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<b>Project:</b>	US Rockies Wattenberg Planning	<b>MD Reference:</b>	GL 4913' & KB 20' @ 4933.00ft (Precision 461)
<b>Site:</b>	Land 17-32HZ Pad, 2N-66W-32	<b>North Reference:</b>	True
<b>Well:</b>	Land 36N-32HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan 3		

Planned 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)
4,700.00	22.28	327.93	4,482.64	1,017.26	-637.48	-1,046.67	0.00	0.00	0.00
4,717.68	22.28	327.93	4,499.00	1,022.94	-641.04	-1,052.52	0.00	0.00	0.00
<b>Sussex</b>									
4,800.00	22.28	327.93	4,575.17	1,049.38	-657.61	-1,079.72	0.00	0.00	0.00
4,900.00	22.28	327.93	4,667.71	1,081.50	-677.74	-1,112.77	0.00	0.00	0.00
5,000.00	22.28	327.93	4,760.25	1,113.62	-697.87	-1,145.82	0.00	0.00	0.00
5,100.00	22.28	327.93	4,852.78	1,145.74	-718.00	-1,178.87	0.00	0.00	0.00
5,186.69	22.28	327.93	4,933.00	1,173.59	-735.45	-1,207.52	0.00	0.00	0.00
<b>Parkman</b>									
5,200.00	22.28	327.93	4,945.32	1,177.86	-738.13	-1,211.92	0.00	0.00	0.00
5,300.00	22.28	327.93	5,037.86	1,209.99	-758.26	-1,244.97	0.00	0.00	0.00
5,400.00	22.28	327.93	5,130.39	1,242.11	-778.39	-1,278.02	0.00	0.00	0.00
5,500.00	22.28	327.93	5,222.93	1,274.23	-798.52	-1,311.07	0.00	0.00	0.00
5,600.00	22.28	327.93	5,315.47	1,306.35	-818.65	-1,344.12	0.00	0.00	0.00
5,638.85	22.28	327.93	5,351.42	1,318.83	-826.47	-1,356.96	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,700.00	21.05	327.93	5,408.25	1,337.96	-838.45	-1,376.64	2.00	-2.00	0.00
5,800.00	19.05	327.93	5,502.18	1,367.01	-856.66	-1,406.54	2.00	-2.00	0.00
5,900.00	17.05	327.93	5,597.25	1,393.27	-873.12	-1,433.56	2.00	-2.00	0.00
6,000.00	15.05	327.93	5,693.35	1,416.70	-887.80	-1,457.66	2.00	-2.00	0.00
6,100.00	13.05	327.93	5,790.35	1,437.27	-900.69	-1,478.83	2.00	-2.00	0.00
6,200.00	11.05	327.93	5,888.14	1,454.97	-911.78	-1,497.04	2.00	-2.00	0.00
6,300.00	9.05	327.93	5,986.60	1,469.76	-921.05	-1,512.26	2.00	-2.00	0.00
6,400.00	7.05	327.93	6,085.61	1,481.63	-928.49	-1,524.47	2.00	-2.00	0.00
6,500.00	5.05	327.93	6,185.05	1,490.57	-934.09	-1,533.66	2.00	-2.00	0.00
6,600.00	3.05	327.93	6,284.79	1,496.55	-937.84	-1,539.83	2.00	-2.00	0.00
6,700.00	1.05	327.93	6,384.72	1,499.59	-939.74	-1,542.95	2.00	-2.00	0.00
6,752.66	0.00	0.00	6,437.38	1,500.00	-940.00	-1,543.37	2.00	-2.00	0.00
<b>Start 200.00 hold at 6752.66 MD</b>									
6,800.00	0.00	0.00	6,484.72	1,500.00	-940.00	-1,543.37	0.00	0.00	0.00
6,900.00	0.00	0.00	6,584.72	1,500.00	-940.00	-1,543.37	0.00	0.00	0.00
6,952.66	0.00	0.00	6,637.38	1,500.00	-940.00	-1,543.37	0.00	0.00	0.00
<b>Start DLS 9.00 TFO 180.25</b>									
7,000.00	4.26	180.25	6,684.68	1,498.24	-940.01	-1,541.62	9.00	9.00	0.00
7,100.00	13.26	180.25	6,783.41	1,483.03	-940.07	-1,526.42	9.00	9.00	0.00
7,200.00	22.26	180.25	6,878.54	1,452.55	-940.20	-1,495.99	9.00	9.00	0.00
7,300.00	31.26	180.25	6,967.74	1,407.57	-940.40	-1,451.07	9.00	9.00	0.00
7,400.00	40.26	180.25	7,048.80	1,349.20	-940.65	-1,392.77	9.00	9.00	0.00
7,486.77	48.07	180.25	7,111.00	1,288.79	-940.91	-1,332.45	9.00	9.00	0.00
<b>SSPG</b>									
7,500.00	49.26	180.25	7,119.74	1,278.85	-940.95	-1,322.53	9.00	9.00	0.00
7,585.45	56.95	180.25	7,171.00	1,210.56	-941.25	-1,254.33	9.00	9.00	0.00
<b>NBRR</b>									
7,600.00	58.26	180.25	7,178.79	1,198.28	-941.30	-1,242.06	9.00	9.00	0.00
7,700.00	67.26	180.25	7,224.52	1,109.46	-941.69	-1,153.37	9.00	9.00	0.00
7,792.66	75.60	180.25	7,254.00	1,021.71	-942.06	-1,065.73	9.00	9.00	0.00
<b>N470_B_CK</b>									
7,800.00	76.26	180.25	7,255.78	1,014.59	-942.10	-1,058.62	9.00	9.00	0.00
7,900.00	85.26	180.25	7,271.82	915.99	-942.52	-960.15	9.00	9.00	0.00
7,952.66	90.00	180.25	7,274.00	863.38	-942.75	-907.62	9.00	9.00	0.00
<b>Start 5154.19 hold at 7952.66 MD</b>									

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<b>Project:</b>	US Rockies Wattenberg Planning	<b>MD Reference:</b>	GL 4913' & KB 20' @ 4933.00ft (Precision 461)
<b>Site:</b>	Land 17-32HZ Pad, 2N-66W-32	<b>North Reference:</b>	True
<b>Well:</b>	Land 36N-32HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan 3		

Planned 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)	
8,000.00	90.00	180.25	7,274.00	816.05	-942.95	-860.35	0.00	0.00	0.00	
8,100.00	90.00	180.25	7,274.00	716.05	-943.38	-760.49	0.00	0.00	0.00	
8,200.00	90.00	180.25	7,274.00	616.05	-943.82	-660.62	0.00	0.00	0.00	
8,300.00	90.00	180.25	7,274.00	516.05	-944.25	-560.76	0.00	0.00	0.00	
8,400.00	90.00	180.25	7,274.00	416.05	-944.68	-460.90	0.00	0.00	0.00	
8,500.00	90.00	180.25	7,274.00	316.05	-945.11	-361.03	0.00	0.00	0.00	
8,600.00	90.00	180.25	7,274.00	216.05	-945.54	-261.17	0.00	0.00	0.00	
8,700.00	90.00	180.25	7,274.00	116.05	-945.97	-161.31	0.00	0.00	0.00	
8,800.00	90.00	180.25	7,274.00	16.06	-946.41	-61.44	0.00	0.00	0.00	
8,900.00	90.00	180.25	7,274.00	-83.94	-946.84	38.42	0.00	0.00	0.00	
9,000.00	90.00	180.25	7,274.00	-183.94	-947.27	138.28	0.00	0.00	0.00	
9,100.00	90.00	180.25	7,274.00	-283.94	-947.70	238.15	0.00	0.00	0.00	
9,200.00	90.00	180.25	7,274.00	-383.94	-948.13	338.01	0.00	0.00	0.00	
9,300.00	90.00	180.25	7,274.00	-483.94	-948.57	437.87	0.00	0.00	0.00	
9,400.00	90.00	180.25	7,274.00	-583.94	-949.00	537.74	0.00	0.00	0.00	
9,500.00	90.00	180.25	7,274.00	-683.94	-949.43	637.60	0.00	0.00	0.00	
9,600.00	90.00	180.25	7,274.00	-783.94	-949.86	737.46	0.00	0.00	0.00	
9,700.00	90.00	180.25	7,274.00	-883.94	-950.29	837.32	0.00	0.00	0.00	
9,800.00	90.00	180.25	7,274.00	-983.94	-950.72	937.19	0.00	0.00	0.00	
9,900.00	90.00	180.25	7,274.00	-1,083.93	-951.16	1,037.05	0.00	0.00	0.00	
10,000.00	90.00	180.25	7,274.00	-1,183.93	-951.59	1,136.91	0.00	0.00	0.00	
10,100.00	90.00	180.25	7,274.00	-1,283.93	-952.02	1,236.78	0.00	0.00	0.00	
10,200.00	90.00	180.25	7,274.00	-1,383.93	-952.45	1,336.64	0.00	0.00	0.00	
10,300.00	90.00	180.25	7,274.00	-1,483.93	-952.88	1,436.50	0.00	0.00	0.00	
10,400.00	90.00	180.25	7,274.00	-1,583.93	-953.31	1,536.37	0.00	0.00	0.00	
10,500.00	90.00	180.25	7,274.00	-1,683.93	-953.75	1,636.23	0.00	0.00	0.00	
10,600.00	90.00	180.25	7,274.00	-1,783.93	-954.18	1,736.09	0.00	0.00	0.00	
10,700.00	90.00	180.25	7,274.00	-1,883.93	-954.61	1,835.96	0.00	0.00	0.00	
10,800.00	90.00	180.25	7,274.00	-1,983.93	-955.04	1,935.82	0.00	0.00	0.00	
10,900.00	90.00	180.25	7,274.00	-2,083.92	-955.47	2,035.68	0.00	0.00	0.00	
11,000.00	90.00	180.25	7,274.00	-2,183.92	-955.90	2,135.55	0.00	0.00	0.00	
11,100.00	90.00	180.25	7,274.00	-2,283.92	-956.34	2,235.41	0.00	0.00	0.00	
11,200.00	90.00	180.25	7,274.00	-2,383.92	-956.77	2,335.27	0.00	0.00	0.00	
11,300.00	90.00	180.25	7,274.00	-2,483.92	-957.20	2,435.14	0.00	0.00	0.00	
11,400.00	90.00	180.25	7,274.00	-2,583.92	-957.63	2,535.00	0.00	0.00	0.00	
11,500.00	90.00	180.25	7,274.00	-2,683.92	-958.06	2,634.86	0.00	0.00	0.00	
11,600.00	90.00	180.25	7,274.00	-2,783.92	-958.49	2,734.73	0.00	0.00	0.00	
11,700.00	90.00	180.25	7,274.00	-2,883.92	-958.93	2,834.59	0.00	0.00	0.00	
11,800.00	90.00	180.25	7,274.00	-2,983.92	-959.36	2,934.45	0.00	0.00	0.00	
11,900.00	90.00	180.25	7,274.00	-3,083.92	-959.79	3,034.32	0.00	0.00	0.00	
12,000.00	90.00	180.25	7,274.00	-3,183.91	-960.22	3,134.18	0.00	0.00	0.00	
12,100.00	90.00	180.25	7,274.00	-3,283.91	-960.65	3,234.04	0.00	0.00	0.00	
12,200.00	90.00	180.25	7,274.00	-3,383.91	-961.08	3,333.90	0.00	0.00	0.00	
12,300.00	90.00	180.25	7,274.00	-3,483.91	-961.52	3,433.77	0.00	0.00	0.00	
12,400.00	90.00	180.25	7,274.00	-3,583.91	-961.95	3,533.63	0.00	0.00	0.00	
12,500.00	90.00	180.25	7,274.00	-3,683.91	-962.38	3,633.49	0.00	0.00	0.00	
12,600.00	90.00	180.25	7,274.00	-3,783.91	-962.81	3,733.36	0.00	0.00	0.00	
12,700.00	90.00	180.25	7,274.00	-3,883.91	-963.24	3,833.22	0.00	0.00	0.00	
12,800.00	90.00	180.25	7,274.00	-3,983.91	-963.68	3,933.08	0.00	0.00	0.00	
12,900.00	90.00	180.25	7,274.00	-4,083.91	-964.11	4,032.95	0.00	0.00	0.00	
13,000.00	90.00	180.25	7,274.00	-4,183.91	-964.54	4,132.81	0.00	0.00	0.00	
13,100.00	90.00	180.25	7,274.00	-4,283.90	-964.97	4,232.67	0.00	0.00	0.00	

<b>Database:</b>	Denver Sales Office	<b>Local Co-ordinate Reference:</b>	Well Land 36N-32HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4913' & KB 20' @ 4933.00ft (Precision 461)
<b>Project:</b>	US Rockies Wattenberg Planning	<b>MD Reference:</b>	GL 4913' & KB 20' @ 4933.00ft (Precision 461)
<b>Site:</b>	Land 17-32HZ Pad, 2N-66W-32	<b>North Reference:</b>	True
<b>Well:</b>	Land 36N-32HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan 3		

Planned 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)
13,106.85	90.00	180.25	7,274.00	-4,290.75	-965.00	4,239.51	0.00	0.00	0.00
TD at 13106.85									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Land 36N-32HZ PBHL F - plan hits target center - Point	0.00	0.00	7,274.00	-4,290.75	-965.00	14,558,655.11	1,695,983.28	40.0874920	-104.8013302
Land 36N-32HZ Heal Rē - plan hits target center - Point	0.00	0.00	7,274.00	863.38	-942.75	14,563,809.27	1,695,993.82	40.1016459	-104.8012513

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,402.50	1,400.00	Surface Casing	9.625	13.500	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,717.68	4,499.00	Sussex			
5,186.69	4,933.00	Parkman			
7,486.77	7,111.00	SSPG			
7,585.45	7,171.00	NBRR			
7,792.66	7,254.00	N470_B_CK			

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
800.00	800.00	0.00	0.00	Start Build 1.50
2,285.08	2,247.95	241.56	-151.38	Start 3353.77 hold at 2285.08 MD
5,638.85	5,351.42	1,318.83	-826.47	Start Drop -2.00
6,752.66	6,437.38	1,500.00	-940.00	Start 200.00 hold at 6752.66 MD
6,952.66	6,637.38	1,500.00	-940.00	Start DLS 9.00 TFO 180.25
7,952.66	7,274.00	863.38	-942.75	Start 5154.19 hold at 7952.66 MD
13,106.85	7,274.00	-4,290.75	-965.00	TD at 13106.85