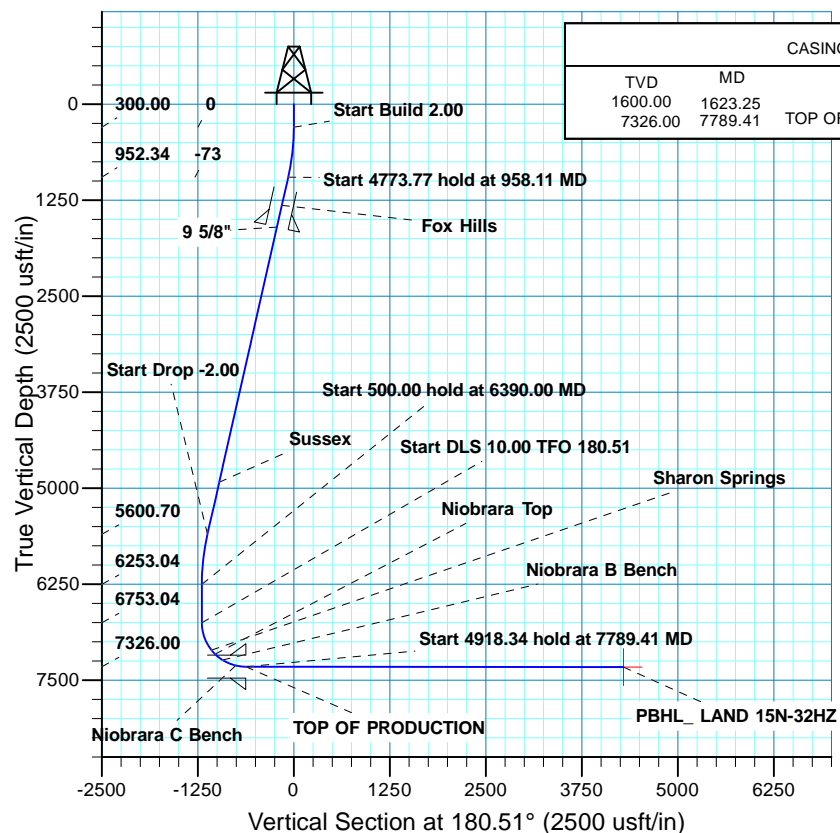




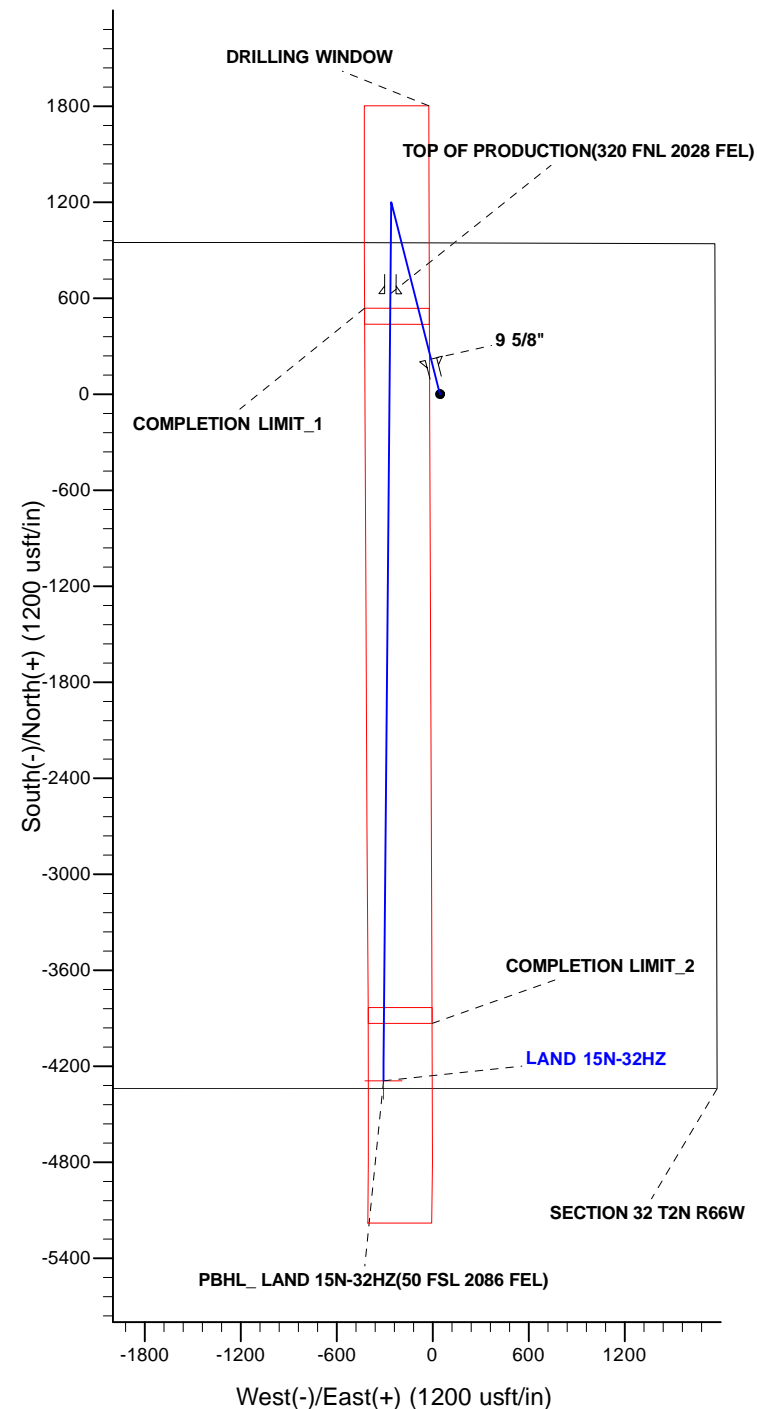
Project: WELD-NAD83-UTMFT13N  
Site: 2N-66W-32 LAND 17-32HZ PAD  
Well: LAND 15N-32HZ  
Wellbore: PLAN A  
Design: PERMIT REV-2



WELL DETAILS: LAND 15N-32HZ										
GL 4908 & KB 17 @ 4925.00usft (ASSUMED)										
			+N/S	+E/W	Northing	Easting	Latitude	Longitude		
			0.37	45.02	14562948.47	1696967.33	40.099276	-104.797777		
SECTION DETAILS										
MD	Inc	Azi	TVD	+N/S	+E/W	Dleg	TFace	VSect	Target	
0.00	0.00	0.00	0.00	0.37	45.02	0.00	0.00	0.00		
300.00	0.00	0.00	300.00	0.37	45.02	0.00	0.00	0.00		
958.11	13.16	345.73	952.34	73.31	26.47	2.00	345.73	-72.77		
5731.89	13.16	345.73	5600.70	1126.81	-241.43	0.00	0.00	1123.85		
6390.00	0.00	0.00	6253.04	1199.75	-259.98	2.00	180.00	1196.62		
6890.00	0.00	0.00	6753.04	1199.75	-259.98	0.00	0.00	1196.62		
7789.41	89.94	180.51	7326.00	627.40	-265.09	10.00	180.51	-624.24		
12707.76	89.94	180.51	7331.00	-4290.74	-309.01	0.00	0.00	4294.10	PBHL_ LAND 15N-32HZ	
DESIGN TARGET DETAILS										
Name		TVD	+N/S	+E/W	Northing	Easting	Latitude	Longitude	Shape	
PBHL		7331.00	-4290.74	-309.01	14558656.56	1696623.05	40.087492	-104.799043	Point	
- plan hits target center										
FORMATION TOP DETAILS										
			TVDP	MDP	Path	Formation	DipDir	Inc		
			1319.00	1334.67		Fox Hills		13.16		
			4923.00	5035.90		Sussex		13.16		
			7109.32	7274.49		Sharon Springs		38.45		
			7162.32	7345.87		Niobrara Top		45.59		
			7237.76	7467.78		Niobrara B Bench		57.78		
			7310.46	7656.25		Niobrara C Bench		76.63		



CASING DETAILS			
TVD	MD	Name	Size
1600.00	1623.25	9 5/8"	9.625
7326.00	7789.41	TOP OF PRODUCTION	0.000



# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N  
2N-66W-32 LAND 17-32HZ PAD  
LAND 15N-32HZ**

**PLAN A**

**Plan: PERMIT REV-2**

## **Standard Planning Report**

**22 May, 2015**

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well LAND 15N-32HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
<b>Site:</b>	2N-66W-32 LAND 17-32HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	LAND 15N-32HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	PLAN A		
<b>Design:</b>	PERMIT REV-2		

<b>Project</b>	WELD-NAD83-UTMFT13N		
<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)		

Site						2N-66W-32 LAND 17-32HZ PAD											
Site Position:			Northing:			14,562,947.99 usft			Latitude:			40.099275					
From:			Lat/Long			Easting:			1,696,922.31 usft			Longitude:			-104.797938		
Position Uncertainty:			0.00 usft			Slot Radius:			13.200 in			Grid Convergence:			0.13		

Well	LAND 15N-32HZ, 947 FNL 1720 FEL					
Well Position	+N/-S	0.37 usft	Northing:	14,562,948.46 usft	Latitude:	40.099276
	+E/-W	45.02 usft	Easting:	1,696,967.33 usft	Longitude:	-104.797777
Position Uncertainty		3.20 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,908.00 usft

<b>Wellbore</b>	PLAN A				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	5/14/2015	8.33	66.67	52,557

<b>Design</b>	PERMIT REV-2			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	180.51

<b>Plan Sections</b>										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	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	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
958.11	13.16	345.73	952.34	72.94	-18.55	2.00	2.00	0.00	345.73	
5,731.89	13.16	345.73	5,600.70	1,126.44	-286.45	0.00	0.00	0.00	0.00	
6,390.00	0.00	0.00	6,253.04	1,199.38	-305.00	2.00	-2.00	0.00	180.00	
6,890.00	0.00	0.00	6,753.04	1,199.38	-305.00	0.00	0.00	0.00	0.00	
7,789.41	89.94	180.51	7,326.00	627.03	-310.11	10.00	10.00	-19.96	180.51	
12,707.76	89.94	180.51	7,331.00	-4,291.12	-354.04	0.00	0.00	0.00	0.00	PBHL_ LAND 15N-32

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well LAND 15N-32HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
<b>Site:</b>	2N-66W-32 LAND 17-32HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	LAND 15N-32HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	PLAN A		
<b>Design:</b>	PERMIT REV-2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	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
Start Build 2.00									
400.00	2.00	345.73	399.98	1.69	-0.43	-1.69	2.00	2.00	0.00
500.00	4.00	345.73	499.84	6.76	-1.72	-6.75	2.00	2.00	0.00
600.00	6.00	345.73	599.45	15.21	-3.87	-15.17	2.00	2.00	0.00
700.00	8.00	345.73	698.70	27.02	-6.87	-26.96	2.00	2.00	0.00
800.00	10.00	345.73	797.47	42.18	-10.73	-42.08	2.00	2.00	0.00
900.00	12.00	345.73	895.62	60.67	-15.43	-60.53	2.00	2.00	0.00
958.11	13.16	345.73	952.34	72.94	-18.55	-72.77	2.00	2.00	0.00
Start 4773.77 hold at 958.11 MD									
1,000.00	13.16	345.73	993.13	82.18	-20.90	-81.99	0.00	0.00	0.00
1,100.00	13.16	345.73	1,090.50	104.25	-26.51	-104.01	0.00	0.00	0.00
1,200.00	13.16	345.73	1,187.87	126.32	-32.12	-126.03	0.00	0.00	0.00
1,300.00	13.16	345.73	1,285.25	148.39	-37.73	-148.05	0.00	0.00	0.00
1,334.67	13.16	345.73	1,319.00	156.04	-39.68	-155.68	0.00	0.00	0.00
Fox Hills									
1,400.00	13.16	345.73	1,382.62	170.46	-43.35	-170.06	0.00	0.00	0.00
1,500.00	13.16	345.73	1,479.99	192.53	-48.96	-192.08	0.00	0.00	0.00
1,600.00	13.16	345.73	1,577.36	214.59	-54.57	-214.10	0.00	0.00	0.00
1,623.25	13.16	345.73	1,600.00	219.72	-55.88	-219.22	0.00	0.00	0.00
9 5/8"									
1,700.00	13.16	345.73	1,674.74	236.66	-60.18	-236.12	0.00	0.00	0.00
1,800.00	13.16	345.73	1,772.11	258.73	-65.79	-258.14	0.00	0.00	0.00
1,900.00	13.16	345.73	1,869.48	280.80	-71.41	-280.15	0.00	0.00	0.00
2,000.00	13.16	345.73	1,966.86	302.87	-77.02	-302.17	0.00	0.00	0.00
2,100.00	13.16	345.73	2,064.23	324.94	-82.63	-324.19	0.00	0.00	0.00
2,200.00	13.16	345.73	2,161.60	347.01	-88.24	-346.21	0.00	0.00	0.00
2,300.00	13.16	345.73	2,258.97	369.07	-93.85	-368.22	0.00	0.00	0.00
2,400.00	13.16	345.73	2,356.35	391.14	-99.47	-390.24	0.00	0.00	0.00
2,500.00	13.16	345.73	2,453.72	413.21	-105.08	-412.26	0.00	0.00	0.00
2,600.00	13.16	345.73	2,551.09	435.28	-110.69	-434.28	0.00	0.00	0.00
2,700.00	13.16	345.73	2,648.47	457.35	-116.30	-456.29	0.00	0.00	0.00
2,800.00	13.16	345.73	2,745.84	479.42	-121.91	-478.31	0.00	0.00	0.00
2,900.00	13.16	345.73	2,843.21	501.49	-127.53	-500.33	0.00	0.00	0.00
3,000.00	13.16	345.73	2,940.58	523.55	-133.14	-522.35	0.00	0.00	0.00
3,100.00	13.16	345.73	3,037.96	545.62	-138.75	-544.37	0.00	0.00	0.00
3,200.00	13.16	345.73	3,135.33	567.69	-144.36	-566.38	0.00	0.00	0.00
3,300.00	13.16	345.73	3,232.70	589.76	-149.97	-588.40	0.00	0.00	0.00
3,400.00	13.16	345.73	3,330.08	611.83	-155.59	-610.42	0.00	0.00	0.00
3,500.00	13.16	345.73	3,427.45	633.90	-161.20	-632.44	0.00	0.00	0.00
3,600.00	13.16	345.73	3,524.82	655.97	-166.81	-654.45	0.00	0.00	0.00
3,700.00	13.16	345.73	3,622.20	678.03	-172.42	-676.47	0.00	0.00	0.00
3,800.00	13.16	345.73	3,719.57	700.10	-178.03	-698.49	0.00	0.00	0.00
3,900.00	13.16	345.73	3,816.94	722.17	-183.65	-720.51	0.00	0.00	0.00
4,000.00	13.16	345.73	3,914.31	744.24	-189.26	-742.53	0.00	0.00	0.00
4,100.00	13.16	345.73	4,011.69	766.31	-194.87	-764.54	0.00	0.00	0.00
4,200.00	13.16	345.73	4,109.06	788.38	-200.48	-786.56	0.00	0.00	0.00
4,300.00	13.16	345.73	4,206.43	810.44	-206.09	-808.58	0.00	0.00	0.00
4,400.00	13.16	345.73	4,303.81	832.51	-211.71	-830.60	0.00	0.00	0.00

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well LAND 15N-32HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
<b>Site:</b>	2N-66W-32 LAND 17-32HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	LAND 15N-32HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	PLAN A		
<b>Design:</b>	PERMIT REV-2		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,500.00	13.16	345.73	4,401.18	854.58	-217.32	-852.61	0.00	0.00	0.00	
4,600.00	13.16	345.73	4,498.55	876.65	-222.93	-874.63	0.00	0.00	0.00	
4,700.00	13.16	345.73	4,595.92	898.72	-228.54	-896.65	0.00	0.00	0.00	
4,800.00	13.16	345.73	4,693.30	920.79	-234.15	-918.67	0.00	0.00	0.00	
4,900.00	13.16	345.73	4,790.67	942.86	-239.77	-940.68	0.00	0.00	0.00	
5,000.00	13.16	345.73	4,888.04	964.92	-245.38	-962.70	0.00	0.00	0.00	
5,035.90	13.16	345.73	4,923.00	972.85	-247.39	-970.61	0.00	0.00	0.00	
<b>Sussex</b>										
5,100.00	13.16	345.73	4,985.42	986.99	-250.99	-984.72	0.00	0.00	0.00	
5,200.00	13.16	345.73	5,082.79	1,009.06	-256.60	-1,006.74	0.00	0.00	0.00	
5,300.00	13.16	345.73	5,180.16	1,031.13	-262.21	-1,028.76	0.00	0.00	0.00	
5,400.00	13.16	345.73	5,277.53	1,053.20	-267.83	-1,050.77	0.00	0.00	0.00	
5,500.00	13.16	345.73	5,374.91	1,075.27	-273.44	-1,072.79	0.00	0.00	0.00	
5,600.00	13.16	345.73	5,472.28	1,097.34	-279.05	-1,094.81	0.00	0.00	0.00	
5,700.00	13.16	345.73	5,569.65	1,119.40	-284.66	-1,116.83	0.00	0.00	0.00	
5,731.89	13.16	345.73	5,600.70	1,126.44	-286.45	-1,123.85	0.00	0.00	0.00	
<b>Start Drop -2.00</b>										
5,800.00	11.80	345.73	5,667.20	1,140.71	-290.08	-1,138.08	2.00	-2.00	0.00	
5,900.00	9.80	345.73	5,765.43	1,158.87	-294.70	-1,156.20	2.00	-2.00	0.00	
6,000.00	7.80	345.73	5,864.25	1,173.69	-298.47	-1,170.99	2.00	-2.00	0.00	
6,100.00	5.80	345.73	5,963.54	1,185.17	-301.39	-1,182.44	2.00	-2.00	0.00	
6,200.00	3.80	345.73	6,063.18	1,193.28	-303.45	-1,190.53	2.00	-2.00	0.00	
6,300.00	1.80	345.73	6,163.06	1,198.01	-304.65	-1,195.25	2.00	-2.00	0.00	
6,390.00	0.00	0.00	6,253.04	1,199.38	-305.00	-1,196.62	2.00	-2.00	0.00	
<b>Start 500.00 hold at 6390.00 MD</b>										
6,400.00	0.00	0.00	6,263.04	1,199.38	-305.00	-1,196.62	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,363.04	1,199.38	-305.00	-1,196.62	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,463.04	1,199.38	-305.00	-1,196.62	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,563.04	1,199.38	-305.00	-1,196.62	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,663.04	1,199.38	-305.00	-1,196.62	0.00	0.00	0.00	
6,890.00	0.00	0.00	6,753.04	1,199.38	-305.00	-1,196.62	0.00	0.00	0.00	
<b>Start DLS 10.00 TFO 180.51</b>										
6,900.00	1.00	180.51	6,763.04	1,199.29	-305.00	-1,196.53	10.00	10.00	0.00	
7,000.00	11.00	180.51	6,862.37	1,188.85	-305.09	-1,186.09	10.00	10.00	0.00	
7,100.00	21.00	180.51	6,958.37	1,161.33	-305.34	-1,158.56	10.00	10.00	0.00	
7,200.00	31.00	180.51	7,048.14	1,117.54	-305.73	-1,114.78	10.00	10.00	0.00	
7,274.49	38.45	180.51	7,109.32	1,075.15	-306.11	-1,072.38	10.00	10.00	0.00	
<b>Sharon Springs</b>										
7,300.00	41.00	180.51	7,128.94	1,058.84	-306.26	-1,056.07	10.00	10.00	0.00	
7,345.87	45.59	180.51	7,162.32	1,027.40	-306.54	-1,024.63	10.00	10.00	0.00	
<b>Niobrara Top</b>										
7,400.00	51.00	180.51	7,198.31	987.00	-306.90	-984.23	10.00	10.00	0.00	
7,467.78	57.78	180.51	7,237.76	931.93	-307.39	-929.16	10.00	10.00	0.00	
<b>Niobrara B Bench</b>										
7,500.00	61.00	180.51	7,254.16	904.21	-307.64	-901.43	10.00	10.00	0.00	
7,600.00	71.00	180.51	7,294.78	812.97	-308.45	-810.19	10.00	10.00	0.00	
7,656.25	76.63	180.51	7,310.46	758.97	-308.93	-756.19	10.00	10.00	0.00	
<b>Niobrara C Bench</b>										
7,700.00	81.00	180.51	7,318.94	716.07	-309.32	-713.29	10.00	10.00	0.00	
7,789.41	89.94	180.51	7,326.00	627.03	-310.11	-624.25	10.00	10.00	0.00	
<b>Start 4918.34 hold at 7789.41 MD - TOP OF PRODUCTION</b>										

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well LAND 15N-32HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
<b>Site:</b>	2N-66W-32 LAND 17-32HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	LAND 15N-32HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	PLAN A		
<b>Design:</b>	PERMIT REV-2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,800.00	89.94	180.51	7,326.01	616.44	-310.21	-613.66	0.00	0.00	0.00
7,900.00	89.94	180.51	7,326.11	516.45	-311.10	-513.66	0.00	0.00	0.00
8,000.00	89.94	180.51	7,326.21	416.45	-311.99	-413.66	0.00	0.00	0.00
8,100.00	89.94	180.51	7,326.31	316.45	-312.89	-313.66	0.00	0.00	0.00
8,200.00	89.94	180.51	7,326.42	216.46	-313.78	-213.66	0.00	0.00	0.00
8,300.00	89.94	180.51	7,326.52	116.46	-314.67	-113.66	0.00	0.00	0.00
8,400.00	89.94	180.51	7,326.62	16.47	-315.57	-13.66	0.00	0.00	0.00
8,500.00	89.94	180.51	7,326.72	-83.53	-316.46	86.34	0.00	0.00	0.00
8,600.00	89.94	180.51	7,326.82	-183.52	-317.35	186.34	0.00	0.00	0.00
8,700.00	89.94	180.51	7,326.92	-283.52	-318.24	286.34	0.00	0.00	0.00
8,800.00	89.94	180.51	7,327.03	-383.52	-319.14	386.34	0.00	0.00	0.00
8,900.00	89.94	180.51	7,327.13	-483.51	-320.03	486.34	0.00	0.00	0.00
9,000.00	89.94	180.51	7,327.23	-583.51	-320.92	586.34	0.00	0.00	0.00
9,100.00	89.94	180.51	7,327.33	-683.50	-321.82	686.34	0.00	0.00	0.00
9,200.00	89.94	180.51	7,327.43	-783.50	-322.71	786.34	0.00	0.00	0.00
9,300.00	89.94	180.51	7,327.53	-883.50	-323.60	886.34	0.00	0.00	0.00
9,400.00	89.94	180.51	7,327.64	-983.49	-324.50	986.34	0.00	0.00	0.00
9,500.00	89.94	180.51	7,327.74	-1,083.49	-325.39	1,086.34	0.00	0.00	0.00
9,600.00	89.94	180.51	7,327.84	-1,183.48	-326.28	1,186.34	0.00	0.00	0.00
9,700.00	89.94	180.51	7,327.94	-1,283.48	-327.18	1,286.34	0.00	0.00	0.00
9,800.00	89.94	180.51	7,328.04	-1,383.48	-328.07	1,386.34	0.00	0.00	0.00
9,900.00	89.94	180.51	7,328.14	-1,483.47	-328.96	1,486.34	0.00	0.00	0.00
10,000.00	89.94	180.51	7,328.25	-1,583.47	-329.86	1,586.34	0.00	0.00	0.00
10,100.00	89.94	180.51	7,328.35	-1,683.46	-330.75	1,686.34	0.00	0.00	0.00
10,200.00	89.94	180.51	7,328.45	-1,783.46	-331.64	1,786.34	0.00	0.00	0.00
10,300.00	89.94	180.51	7,328.55	-1,883.46	-332.54	1,886.34	0.00	0.00	0.00
10,400.00	89.94	180.51	7,328.65	-1,983.45	-333.43	1,986.34	0.00	0.00	0.00
10,500.00	89.94	180.51	7,328.75	-2,083.45	-334.32	2,086.34	0.00	0.00	0.00
10,600.00	89.94	180.51	7,328.86	-2,183.44	-335.21	2,186.34	0.00	0.00	0.00
10,700.00	89.94	180.51	7,328.96	-2,283.44	-336.11	2,286.34	0.00	0.00	0.00
10,800.00	89.94	180.51	7,329.06	-2,383.44	-337.00	2,386.34	0.00	0.00	0.00
10,900.00	89.94	180.51	7,329.16	-2,483.43	-337.89	2,486.34	0.00	0.00	0.00
11,000.00	89.94	180.51	7,329.26	-2,583.43	-338.79	2,586.34	0.00	0.00	0.00
11,100.00	89.94	180.51	7,329.36	-2,683.42	-339.68	2,686.34	0.00	0.00	0.00
11,200.00	89.94	180.51	7,329.47	-2,783.42	-340.57	2,786.34	0.00	0.00	0.00
11,300.00	89.94	180.51	7,329.57	-2,883.42	-341.47	2,886.34	0.00	0.00	0.00
11,400.00	89.94	180.51	7,329.67	-2,983.41	-342.36	2,986.34	0.00	0.00	0.00
11,500.00	89.94	180.51	7,329.77	-3,083.41	-343.25	3,086.34	0.00	0.00	0.00
11,600.00	89.94	180.51	7,329.87	-3,183.40	-344.15	3,186.34	0.00	0.00	0.00
11,700.00	89.94	180.51	7,329.98	-3,283.40	-345.04	3,286.34	0.00	0.00	0.00
11,800.00	89.94	180.51	7,330.08	-3,383.40	-345.93	3,386.34	0.00	0.00	0.00
11,900.00	89.94	180.51	7,330.18	-3,483.39	-346.83	3,486.34	0.00	0.00	0.00
12,000.00	89.94	180.51	7,330.28	-3,583.39	-347.72	3,586.34	0.00	0.00	0.00
12,100.00	89.94	180.51	7,330.38	-3,683.38	-348.61	3,686.34	0.00	0.00	0.00
12,200.00	89.94	180.51	7,330.48	-3,783.38	-349.51	3,786.34	0.00	0.00	0.00
12,300.00	89.94	180.51	7,330.59	-3,883.38	-350.40	3,886.34	0.00	0.00	0.00
12,400.00	89.94	180.51	7,330.69	-3,983.37	-351.29	3,986.34	0.00	0.00	0.00
12,500.00	89.94	180.51	7,330.79	-4,083.37	-352.18	4,086.34	0.00	0.00	0.00
12,600.00	89.94	180.51	7,330.89	-4,183.36	-353.08	4,186.34	0.00	0.00	0.00
12,700.00	89.94	180.51	7,330.99	-4,283.36	-353.97	4,286.34	0.00	0.00	0.00
12,707.76	89.94	180.51	7,331.00	-4,291.12	-354.04	4,294.10	0.00	0.00	0.00
TD at 12707.76 - PBHL_ LAND 15N-32HZ									

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well LAND 15N-32HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
<b>Site:</b>	2N-66W-32 LAND 17-32HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	LAND 15N-32HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	PLAN A		
<b>Design:</b>	PERMIT REV-2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL_ LAND 15N-32HZ	0.00	0.00	7,331.00	-4,291.12	-354.04	14,558,656.55	1,696,623.04	40.087492	-104.799043
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,623.25	1,600.00	9 5/8"	9.625	13.500	
7,789.41	7,326.00	TOP OF PRODUCTION	0.000	8.500	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,334.67	1,319.00	Fox Hills				
5,035.90	4,923.00	Sussex				
7,274.49	7,109.32	Sharon Springs				
7,345.87	7,162.32	Niobrara Top				
7,467.78	7,237.76	Niobrara B Bench				
7,656.25	7,310.46	Niobrara C Bench				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
300.00	300.00	0.00	0.00	Start Build 2.00	
958.11	952.34	72.94	-18.55	Start 4773.77 hold at 958.11 MD	
5,731.89	5,600.70	1,126.44	-286.45	Start Drop -2.00	
6,390.00	6,253.04	1,199.38	-305.00	Start 500.00 hold at 6390.00 MD	
6,890.00	6,753.04	1,199.38	-305.00	Start DLS 10.00 TFO 180.51	
7,789.41	7,326.00	627.03	-310.11	Start 4918.34 hold at 7789.41 MD	
12,707.76	7,331.00	-4,291.12	-354.04	TD at 12707.76	