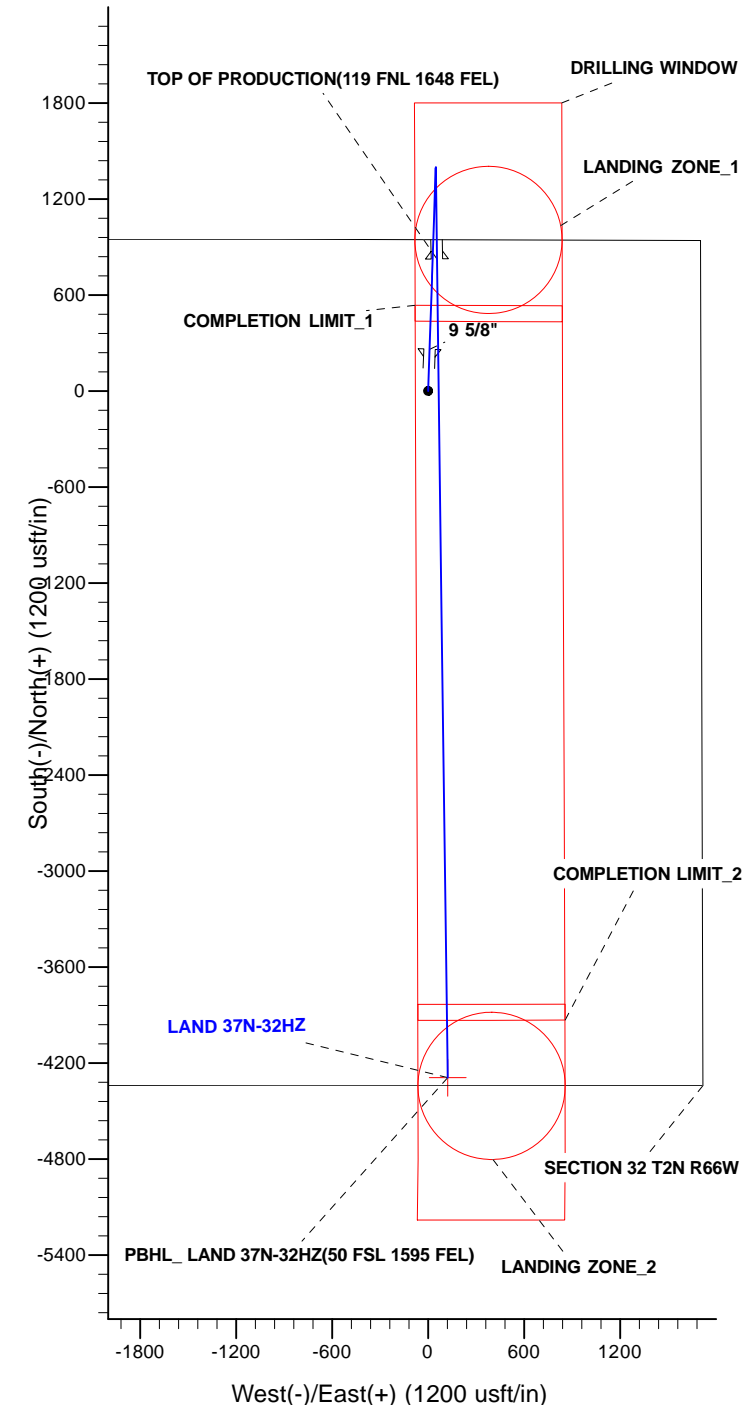
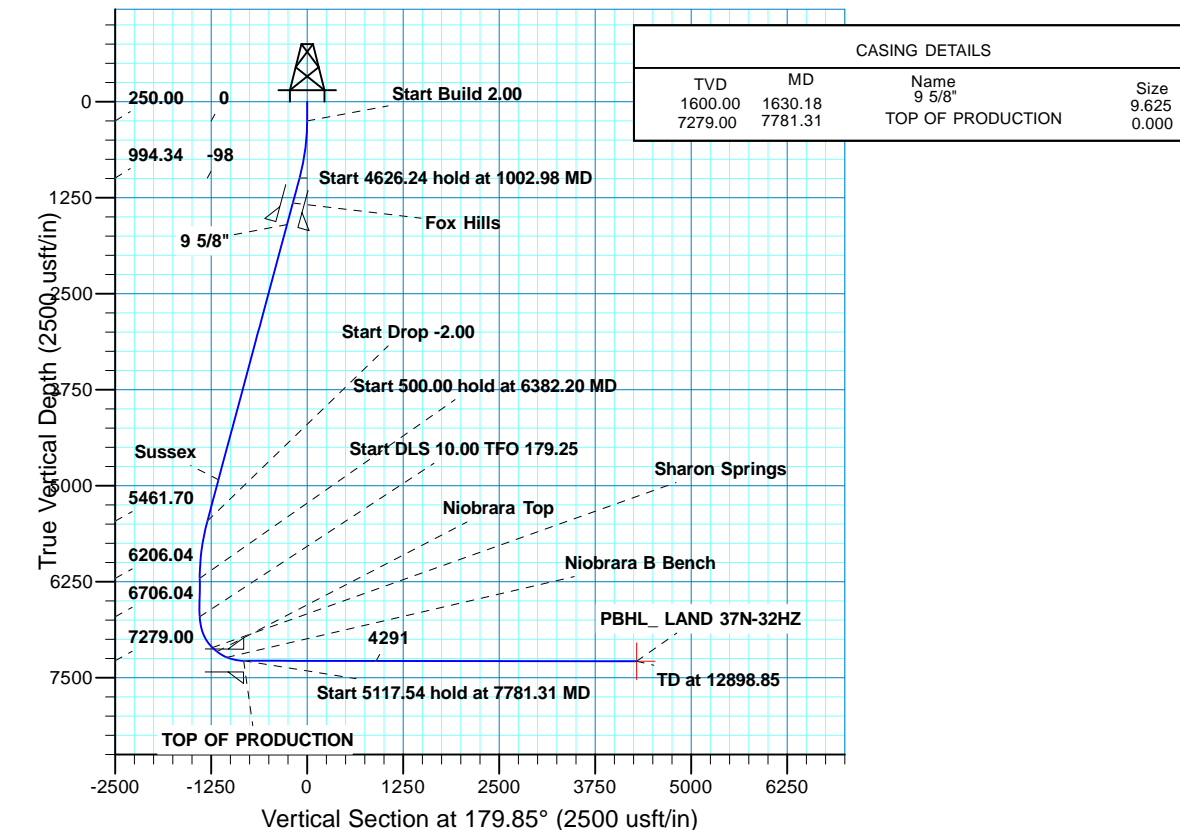




Project: WELD-NAD83-UTMFT13N
Site: 2N-66W-32 LAND 17-32HZ PAD
Well: LAND 37N-32HZ
Wellbore: PLAN A
Design: PERMIT REV-3



WELL DETAILS: LAND 37N-32HZ									
GL 4908 & KB 17 @ 4925.00usft (ASSUMED)									
+N/-S		+E/-W		Northing		Easting		Latitude	Longitude
0.00		0.00		14562948.50		1696982.15		40.099276	-104.797724
SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
1002.98	15.06	1.94	994.34	98.33	3.32	2.00	1.94	-98.32	
5629.22	15.06	1.94	5461.70	1299.66	43.93	0.00	0.00	1299.54	
6382.20	0.00	0.00	6206.04	1397.99	47.25	2.00	180.00	1397.86	
6882.20	0.00	0.00	6706.04	1397.99	47.25	0.00	0.00	1397.86	
7781.31	89.91	179.25	7279.00	825.98	54.76	10.00	179.25	-825.83	PBHL_ LAND 37N-32HZ
12898.85	89.91	179.25	7287.00	-4291.12	121.94	0.00	0.00	4291.42	
DESIGN TARGET DETAILS									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	
PBHL	7287.00	-4291.12	121.94	14558657.68	1697113.85	40.087492	-104.797288	Point	
- plan hits target center									
FORMATION TOP DETAILS									
	TVDP	MDP	Formation	DipDir	Inc				
	1319.00	1339.19	Fox Hills		15.06				
	4923.00	5071.37	Sussex		15.06				
	7108.43	7328.32	Sharon Springs		44.61				
	7161.43	7408.57	Niobrara Top		52.64				
	7235.12	7556.53	Niobrara B Bench		67.43				



US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

2N-66W-32 LAND 17-32HZ PAD

LAND 37N-32HZ

PLAN A

Plan: PERMIT REV-3

Standard Planning Report

26 May, 2015

Database:	Denver Sales	Local Co-ordinate Reference:	Well LAND 37N-32HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
Site:	2N-66W-32 LAND 17-32HZ PAD	North Reference:	True
Well:	LAND 37N-32HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-3		

Project	WELD-NAD83-UTMFT13N		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	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 37N-32HZ, 947 FNL 1705 FEL					
Well Position	+N/-S	0.37 usft	Northing:	14,562,948.50 usft	Latitude:	40.099276
	+E/-W	59.84 usft	Easting:	1,696,982.15 usft	Longitude:	-104.797724
Position Uncertainty		3.20 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,908.00 usft

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

Design	PERMIT REV-3			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	179.85

Plan Sections										
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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,002.98	15.06	1.94	994.34	98.33	3.32	2.00	2.00	0.00	1.94	
5,629.22	15.06	1.94	5,461.70	1,299.66	43.93	0.00	0.00	0.00	0.00	
6,382.20	0.00	0.00	6,206.04	1,397.99	47.25	2.00	-2.00	0.00	180.00	
6,882.20	0.00	0.00	6,706.04	1,397.99	47.25	0.00	0.00	0.00	0.00	
7,781.31	89.91	179.25	7,279.00	825.98	54.76	10.00	10.00	19.94	179.25	
12,898.85	89.91	179.25	7,287.00	-4,291.12	121.94	0.00	0.00	0.00	0.00	PBHL_ LAND 37N-32

Database:	Denver Sales	Local Co-ordinate Reference:	Well LAND 37N-32HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
Site:	2N-66W-32 LAND 17-32HZ PAD	North Reference:	True
Well:	LAND 37N-32HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-3		

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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
300.00	1.00	1.94	300.00	0.44	0.01	-0.44	2.00	2.00	0.00
400.00	3.00	1.94	399.93	3.92	0.13	-3.92	2.00	2.00	0.00
500.00	5.00	1.94	499.68	10.90	0.37	-10.89	2.00	2.00	0.00
600.00	7.00	1.94	599.13	21.34	0.72	-21.34	2.00	2.00	0.00
700.00	9.00	1.94	698.15	35.25	1.19	-35.25	2.00	2.00	0.00
800.00	11.00	1.94	796.63	52.60	1.78	-52.60	2.00	2.00	0.00
900.00	13.00	1.94	894.44	73.38	2.48	-73.38	2.00	2.00	0.00
1,000.00	15.00	1.94	991.46	97.56	3.30	-97.55	2.00	2.00	0.00
1,002.98	15.06	1.94	994.34	98.33	3.32	-98.32	2.00	2.00	0.00
Start 4626.24 hold at 1002.98 MD									
1,100.00	15.06	1.94	1,088.03	123.53	4.17	-123.51	0.00	0.00	0.00
1,200.00	15.06	1.94	1,184.59	149.49	5.05	-149.48	0.00	0.00	0.00
1,300.00	15.06	1.94	1,281.16	175.46	5.93	-175.44	0.00	0.00	0.00
1,339.19	15.06	1.94	1,319.00	185.64	6.27	-185.62	0.00	0.00	0.00
Fox Hills									
1,400.00	15.06	1.94	1,377.72	201.43	6.81	-201.41	0.00	0.00	0.00
1,500.00	15.06	1.94	1,474.29	227.40	7.69	-227.38	0.00	0.00	0.00
1,600.00	15.06	1.94	1,570.86	253.36	8.56	-253.34	0.00	0.00	0.00
1,630.18	15.06	1.94	1,600.00	261.20	8.83	-261.18	0.00	0.00	0.00
9 5/8"									
1,700.00	15.06	1.94	1,667.42	279.33	9.44	-279.31	0.00	0.00	0.00
1,800.00	15.06	1.94	1,763.99	305.30	10.32	-305.27	0.00	0.00	0.00
1,900.00	15.06	1.94	1,860.55	331.27	11.20	-331.24	0.00	0.00	0.00
2,000.00	15.06	1.94	1,957.12	357.23	12.07	-357.20	0.00	0.00	0.00
2,100.00	15.06	1.94	2,053.68	383.20	12.95	-383.17	0.00	0.00	0.00
2,200.00	15.06	1.94	2,150.25	409.17	13.83	-409.13	0.00	0.00	0.00
2,300.00	15.06	1.94	2,246.81	435.14	14.71	-435.10	0.00	0.00	0.00
2,400.00	15.06	1.94	2,343.38	461.10	15.58	-461.06	0.00	0.00	0.00
2,500.00	15.06	1.94	2,439.95	487.07	16.46	-487.03	0.00	0.00	0.00
2,600.00	15.06	1.94	2,536.51	513.04	17.34	-512.99	0.00	0.00	0.00
2,700.00	15.06	1.94	2,633.08	539.01	18.22	-538.96	0.00	0.00	0.00
2,800.00	15.06	1.94	2,729.64	564.98	19.10	-564.92	0.00	0.00	0.00
2,900.00	15.06	1.94	2,826.21	590.94	19.97	-590.89	0.00	0.00	0.00
3,000.00	15.06	1.94	2,922.77	616.91	20.85	-616.85	0.00	0.00	0.00
3,100.00	15.06	1.94	3,019.34	642.88	21.73	-642.82	0.00	0.00	0.00
3,200.00	15.06	1.94	3,115.91	668.85	22.61	-668.78	0.00	0.00	0.00
3,300.00	15.06	1.94	3,212.47	694.81	23.48	-694.75	0.00	0.00	0.00
3,400.00	15.06	1.94	3,309.04	720.78	24.36	-720.72	0.00	0.00	0.00
3,500.00	15.06	1.94	3,405.60	746.75	25.24	-746.68	0.00	0.00	0.00
3,600.00	15.06	1.94	3,502.17	772.72	26.12	-772.65	0.00	0.00	0.00
3,700.00	15.06	1.94	3,598.73	798.68	26.99	-798.61	0.00	0.00	0.00
3,800.00	15.06	1.94	3,695.30	824.65	27.87	-824.58	0.00	0.00	0.00
3,900.00	15.06	1.94	3,791.86	850.62	28.75	-850.54	0.00	0.00	0.00
4,000.00	15.06	1.94	3,888.43	876.59	29.63	-876.51	0.00	0.00	0.00
4,100.00	15.06	1.94	3,985.00	902.55	30.51	-902.47	0.00	0.00	0.00
4,200.00	15.06	1.94	4,081.56	928.52	31.38	-928.44	0.00	0.00	0.00
4,300.00	15.06	1.94	4,178.13	954.49	32.26	-954.40	0.00	0.00	0.00

Database:	Denver Sales	Local Co-ordinate Reference:	Well LAND 37N-32HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
Site:	2N-66W-32 LAND 17-32HZ PAD	North Reference:	True
Well:	LAND 37N-32HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-3		

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)	
4,400.00	15.06	1.94	4,274.69	980.46	33.14	-980.37	0.00	0.00	0.00	
4,500.00	15.06	1.94	4,371.26	1,006.43	34.02	-1,006.33	0.00	0.00	0.00	
4,600.00	15.06	1.94	4,467.82	1,032.39	34.89	-1,032.30	0.00	0.00	0.00	
4,700.00	15.06	1.94	4,564.39	1,058.36	35.77	-1,058.26	0.00	0.00	0.00	
4,800.00	15.06	1.94	4,660.95	1,084.33	36.65	-1,084.23	0.00	0.00	0.00	
4,900.00	15.06	1.94	4,757.52	1,110.30	37.53	-1,110.19	0.00	0.00	0.00	
5,000.00	15.06	1.94	4,854.09	1,136.26	38.40	-1,136.16	0.00	0.00	0.00	
5,071.37	15.06	1.94	4,923.00	1,154.80	39.03	-1,154.69	0.00	0.00	0.00	
Sussex										
5,100.00	15.06	1.94	4,950.65	1,162.23	39.28	-1,162.12	0.00	0.00	0.00	
5,200.00	15.06	1.94	5,047.22	1,188.20	40.16	-1,188.09	0.00	0.00	0.00	
5,300.00	15.06	1.94	5,143.78	1,214.17	41.04	-1,214.05	0.00	0.00	0.00	
5,400.00	15.06	1.94	5,240.35	1,240.13	41.91	-1,240.02	0.00	0.00	0.00	
5,500.00	15.06	1.94	5,336.91	1,266.10	42.79	-1,265.99	0.00	0.00	0.00	
5,600.00	15.06	1.94	5,433.48	1,292.07	43.67	-1,291.95	0.00	0.00	0.00	
5,629.22	15.06	1.94	5,461.70	1,299.66	43.93	-1,299.54	0.00	0.00	0.00	
Start Drop -2.00										
5,700.00	13.64	1.94	5,530.27	1,317.19	44.52	-1,317.07	2.00	-2.00	0.00	
5,800.00	11.64	1.94	5,627.83	1,339.07	45.26	-1,338.94	2.00	-2.00	0.00	
5,900.00	9.64	1.94	5,726.11	1,357.53	45.88	-1,357.40	2.00	-2.00	0.00	
6,000.00	7.64	1.94	5,824.97	1,372.55	46.39	-1,372.42	2.00	-2.00	0.00	
6,100.00	5.64	1.94	5,924.29	1,384.11	46.78	-1,383.98	2.00	-2.00	0.00	
6,200.00	3.64	1.94	6,023.96	1,392.20	47.05	-1,392.07	2.00	-2.00	0.00	
6,300.00	1.64	1.94	6,123.85	1,396.81	47.21	-1,396.68	2.00	-2.00	0.00	
6,382.20	0.00	0.00	6,206.04	1,397.99	47.25	-1,397.86	2.00	-2.00	0.00	
Start 500.00 hold at 6382.20 MD										
6,400.00	0.00	0.00	6,223.84	1,397.99	47.25	-1,397.86	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,323.84	1,397.99	47.25	-1,397.86	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,423.84	1,397.99	47.25	-1,397.86	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,523.84	1,397.99	47.25	-1,397.86	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,623.84	1,397.99	47.25	-1,397.86	0.00	0.00	0.00	
6,882.20	0.00	0.00	6,706.04	1,397.99	47.25	-1,397.86	0.00	0.00	0.00	
Start DLS 10.00 TFO 179.25										
6,900.00	1.78	179.25	6,723.83	1,397.71	47.25	-1,397.59	10.00	10.00	0.00	
7,000.00	11.78	179.25	6,823.01	1,385.92	47.41	-1,385.80	10.00	10.00	0.00	
7,100.00	21.78	179.25	6,918.63	1,357.09	47.79	-1,356.97	10.00	10.00	0.00	
7,200.00	31.78	179.25	7,007.79	1,312.10	48.38	-1,311.97	10.00	10.00	0.00	
7,300.00	41.78	179.25	7,087.78	1,252.31	49.16	-1,252.17	10.00	10.00	0.00	
7,328.32	44.61	179.25	7,108.43	1,232.92	49.42	-1,232.79	10.00	10.00	0.00	
Sharon Springs										
7,400.00	51.78	179.25	7,156.18	1,179.53	50.12	-1,179.40	10.00	10.00	0.00	
7,408.57	52.64	179.25	7,161.43	1,172.76	50.21	-1,172.63	10.00	10.00	0.00	
Niobrara Top										
7,500.00	61.78	179.25	7,210.89	1,095.99	51.22	-1,095.85	10.00	10.00	0.00	
7,556.53	67.43	179.25	7,235.12	1,044.95	51.89	-1,044.81	10.00	10.00	0.00	
Niobrara B Bench										
7,600.00	71.78	179.25	7,250.27	1,004.22	52.42	-1,004.07	10.00	10.00	0.00	
7,700.00	81.78	179.25	7,273.11	907.00	53.70	-906.85	10.00	10.00	0.00	
7,781.31	89.91	179.25	7,279.00	825.98	54.76	-825.83	10.00	10.00	0.00	
Start 5117.54 hold at 7781.31 MD - TOP OF PRODUCTION										
7,800.00	89.91	179.25	7,279.03	807.29	55.01	-807.14	0.00	0.00	0.00	

Database:	Denver Sales	Local Co-ordinate Reference:	Well LAND 37N-32HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
Site:	2N-66W-32 LAND 17-32HZ PAD	North Reference:	True
Well:	LAND 37N-32HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-3		

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)	
7,900.00	89.91	179.25	7,279.18	707.30	56.32	-707.15	0.00	0.00	0.00	
8,000.00	89.91	179.25	7,279.34	607.31	57.63	-607.15	0.00	0.00	0.00	
8,100.00	89.91	179.25	7,279.50	507.31	58.94	-507.16	0.00	0.00	0.00	
8,200.00	89.91	179.25	7,279.65	407.32	60.26	-407.16	0.00	0.00	0.00	
8,300.00	89.91	179.25	7,279.81	307.33	61.57	-307.17	0.00	0.00	0.00	
8,400.00	89.91	179.25	7,279.96	207.34	62.88	-207.17	0.00	0.00	0.00	
8,500.00	89.91	179.25	7,280.12	107.35	64.20	-107.18	0.00	0.00	0.00	
8,600.00	89.91	179.25	7,280.28	7.36	65.51	-7.19	0.00	0.00	0.00	
8,700.00	89.91	179.25	7,280.43	-92.63	66.82	92.81	0.00	0.00	0.00	
8,800.00	89.91	179.25	7,280.59	-192.62	68.13	192.80	0.00	0.00	0.00	
8,900.00	89.91	179.25	7,280.75	-292.62	69.45	292.80	0.00	0.00	0.00	
9,000.00	89.91	179.25	7,280.90	-392.61	70.76	392.79	0.00	0.00	0.00	
9,100.00	89.91	179.25	7,281.06	-492.60	72.07	492.79	0.00	0.00	0.00	
9,200.00	89.91	179.25	7,281.22	-592.59	73.39	592.78	0.00	0.00	0.00	
9,300.00	89.91	179.25	7,281.37	-692.58	74.70	692.77	0.00	0.00	0.00	
9,400.00	89.91	179.25	7,281.53	-792.57	76.01	792.77	0.00	0.00	0.00	
9,500.00	89.91	179.25	7,281.68	-892.56	77.32	892.76	0.00	0.00	0.00	
9,600.00	89.91	179.25	7,281.84	-992.55	78.64	992.76	0.00	0.00	0.00	
9,700.00	89.91	179.25	7,282.00	-1,092.55	79.95	1,092.75	0.00	0.00	0.00	
9,800.00	89.91	179.25	7,282.15	-1,192.54	81.26	1,192.75	0.00	0.00	0.00	
9,900.00	89.91	179.25	7,282.31	-1,292.53	82.58	1,292.74	0.00	0.00	0.00	
10,000.00	89.91	179.25	7,282.47	-1,392.52	83.89	1,392.73	0.00	0.00	0.00	
10,100.00	89.91	179.25	7,282.62	-1,492.51	85.20	1,492.73	0.00	0.00	0.00	
10,200.00	89.91	179.25	7,282.78	-1,592.50	86.51	1,592.72	0.00	0.00	0.00	
10,300.00	89.91	179.25	7,282.94	-1,692.49	87.83	1,692.72	0.00	0.00	0.00	
10,400.00	89.91	179.25	7,283.09	-1,792.49	89.14	1,792.71	0.00	0.00	0.00	
10,500.00	89.91	179.25	7,283.25	-1,892.48	90.45	1,892.71	0.00	0.00	0.00	
10,600.00	89.91	179.25	7,283.41	-1,992.47	91.76	1,992.70	0.00	0.00	0.00	
10,700.00	89.91	179.25	7,283.56	-2,092.46	93.08	2,092.70	0.00	0.00	0.00	
10,800.00	89.91	179.25	7,283.72	-2,192.45	94.39	2,192.69	0.00	0.00	0.00	
10,900.00	89.91	179.25	7,283.87	-2,292.44	95.70	2,292.68	0.00	0.00	0.00	
11,000.00	89.91	179.25	7,284.03	-2,392.43	97.02	2,392.68	0.00	0.00	0.00	
11,100.00	89.91	179.25	7,284.19	-2,492.42	98.33	2,492.67	0.00	0.00	0.00	
11,200.00	89.91	179.25	7,284.34	-2,592.42	99.64	2,592.67	0.00	0.00	0.00	
11,300.00	89.91	179.25	7,284.50	-2,692.41	100.95	2,692.66	0.00	0.00	0.00	
11,400.00	89.91	179.25	7,284.66	-2,792.40	102.27	2,792.66	0.00	0.00	0.00	
11,500.00	89.91	179.25	7,284.81	-2,892.39	103.58	2,892.65	0.00	0.00	0.00	
11,600.00	89.91	179.25	7,284.97	-2,992.38	104.89	2,992.64	0.00	0.00	0.00	
11,700.00	89.91	179.25	7,285.13	-3,092.37	106.21	3,092.64	0.00	0.00	0.00	
11,800.00	89.91	179.25	7,285.28	-3,192.36	107.52	3,192.63	0.00	0.00	0.00	
11,900.00	89.91	179.25	7,285.44	-3,292.35	108.83	3,292.63	0.00	0.00	0.00	
12,000.00	89.91	179.25	7,285.59	-3,392.35	110.14	3,392.62	0.00	0.00	0.00	
12,100.00	89.91	179.25	7,285.75	-3,492.34	111.46	3,492.62	0.00	0.00	0.00	
12,200.00	89.91	179.25	7,285.91	-3,592.33	112.77	3,592.61	0.00	0.00	0.00	
12,300.00	89.91	179.25	7,286.06	-3,692.32	114.08	3,692.61	0.00	0.00	0.00	
12,400.00	89.91	179.25	7,286.22	-3,792.31	115.40	3,792.60	0.00	0.00	0.00	
12,500.00	89.91	179.25	7,286.38	-3,892.30	116.71	3,892.59	0.00	0.00	0.00	
12,600.00	89.91	179.25	7,286.53	-3,992.29	118.02	3,992.59	0.00	0.00	0.00	
12,700.00	89.91	179.25	7,286.69	-4,092.28	119.33	4,092.58	0.00	0.00	0.00	
12,800.00	89.91	179.25	7,286.85	-4,192.28	120.65	4,192.58	0.00	0.00	0.00	
12,898.85	89.91	179.25	7,287.00	-4,291.12	121.94	4,291.42	0.00	0.00	0.00	
TD at 12898.85 - PBHL_ LAND 37N-32HZ										

Database:	Denver Sales	Local Co-ordinate Reference:	Well LAND 37N-32HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4908 & KB 17 @ 4925.00usft (ASSUMED)
Site:	2N-66W-32 LAND 17-32HZ PAD	North Reference:	True
Well:	LAND 37N-32HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-3		

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 37N-32HZ	0.00	0.00	7,287.00	-4,291.12	121.94	14,558,657.67	1,697,113.85	40.087492	-104.797288
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,630.18	1,600.00	9 5/8"	9.625	13.500	
7,781.31	7,279.00	TOP OF PRODUCTION	0.000	8.500	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,339.19	1,319.00	Fox Hills				
5,071.37	4,923.00	Sussex				
7,328.32	7,108.43	Sharon Springs				
7,408.57	7,161.43	Niobrara Top				
7,556.53	7,235.12	Niobrara B Bench				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
250.00	250.00	0.00	0.00	Start Build 2.00	
1,002.98	994.34	98.33	3.32	Start 4626.24 hold at 1002.98 MD	
5,629.22	5,461.70	1,299.66	43.93	Start Drop -2.00	
6,382.20	6,206.04	1,397.99	47.25	Start 500.00 hold at 6382.20 MD	
6,882.20	6,706.04	1,397.99	47.25	Start DLS 10.00 TFO 179.25	
7,781.31	7,279.00	825.98	54.76	Start 5117.54 hold at 7781.31 MD	
12,898.85	7,287.00	-4,291.12	121.94	TD at 12898.85	