



Project: WELD-NAD83-UTMFT13N
Site: 2N-66W-32 LAND 17-32HZ PAD
Well: LAND 14C-32HZ
Wellbore: PLAN A
Design: PERMIT REV-2



WELL DETAILS: LAND 14C-32HZ

GL 4908 & KB 17 @ 4925.00usft (ASSUMED)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	14562947.99	1696922.31	40.099275	-104.797938

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	
1248.73	19.97	320.98	1228.62	133.88	-108.51	2.00	320.98	-134.05	
5723.73	19.97	320.98	5434.43	1321.51	-1071.00	0.00		0.001323.19	
6722.46	0.00	0.00	6413.05	1455.39	-1179.51	2.00	180.00	1457.24	
7222.46	0.00	0.00	6913.05	1455.39	-1179.51	0.00		0.001457.24	
8125.12	90.27	179.92	7486.00	879.77	-1178.66	10.00	179.92	-881.62	
13295.31	90.27	179.92	7462.00	-4290.35	-1171.02	0.00		0.004288.51	PBHL LAND 14C-32HZ

DESIGN TARGET DETAILS

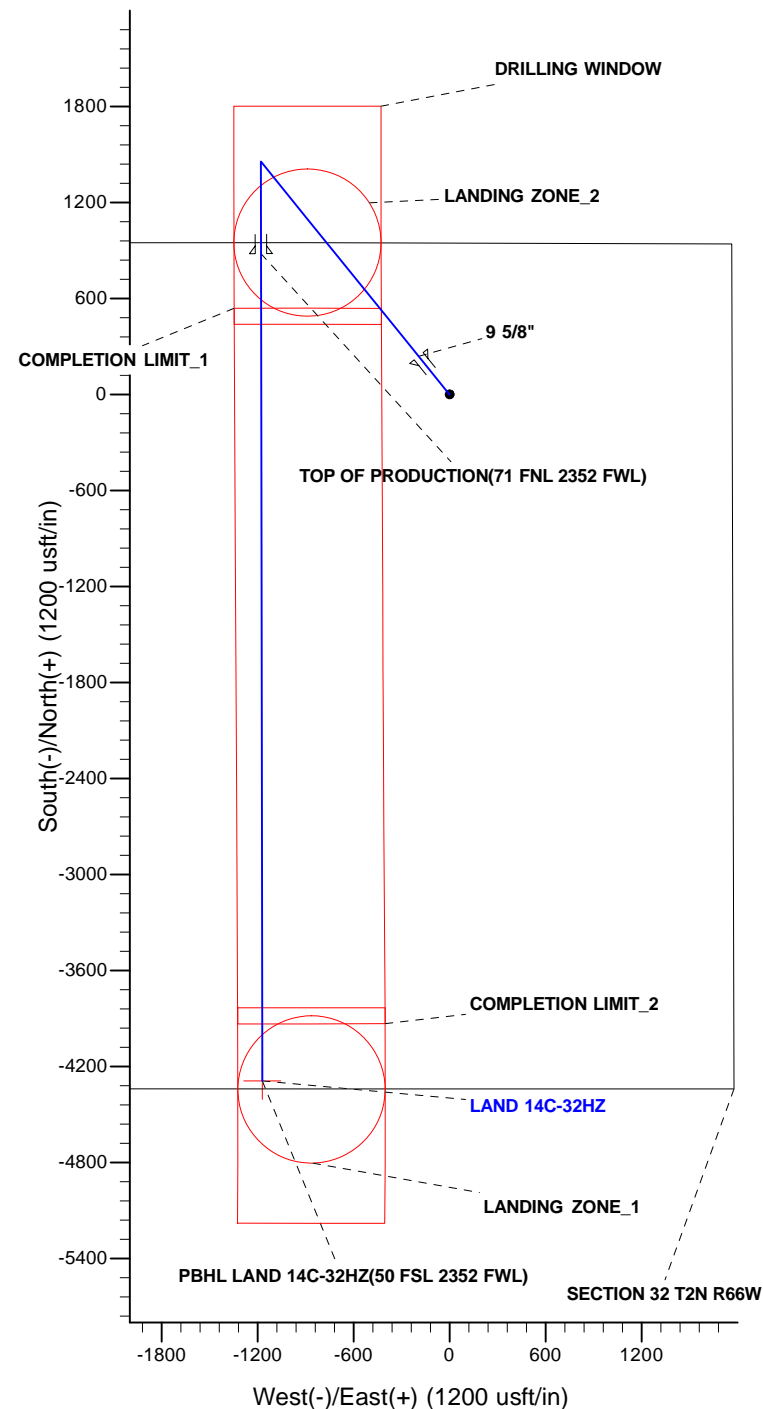
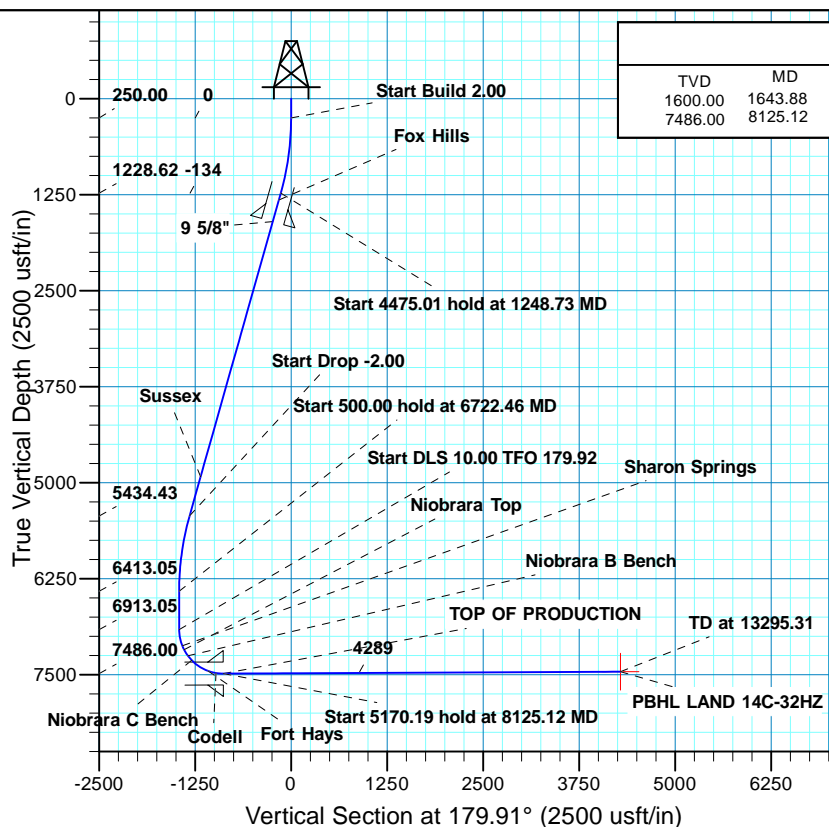
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	7462.00	-4290.35	-1171.02	14558654.99	1695761.04	40.087493	-104.802125	Point
plan hits target center								

FORMATION TOP DETAILS

TVDP	MDPath	Formation	DipDirInc
1319.00	1344.89	Fox Hills	19.97
4923.00	5179.57	Sussex	19.97
7123.29	7437.73	Sharon Springs	21.53
7176.29	7495.98	Niobrara Top	27.35
7253.34	7586.82	Niobrara B Bench	36.44
7312.97	7665.13	Niobrara C Bench	44.27
7450.97	7921.06	Fort Hays	69.86
7478.25	8028.09	Codell	80.56

CASING DETAILS

TVD	MD	Name	Size
1600.00	1643.88	9 5/8"	
7486.00	8125.12	TOP OF PRODUCTION	0.000



Plan: PERMIT REV-2 (LAND 14C-32HZ/PLAN A)

Created By: RobertScott Date: 15:13, May 26 2015

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

LAND 14C-32HZ

PLAN A

Plan: PERMIT REV-2

Standard Planning Report

22 May, 2015

Database:	Denver Sales	Local Co-ordinate Reference:	Well LAND 14C-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 14C-32HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-2		

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 14C-32HZ, 947 FNL 1765 FEL					
Well Position	+N/-S	0.00 usft	Northing:	14,562,947.99 usft	Latitude:	40.099275
	+E/-W	0.00 usft	Easting:	1,696,922.31 usft	Longitude:	-104.797938
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-2			
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	179.91

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	
1,248.73	19.97	320.98	1,228.62	133.88	-108.51	2.00	2.00	0.00	320.98	
5,723.73	19.97	320.98	5,434.43	1,321.51	-1,071.00	0.00	0.00	0.00	0.00	
6,722.46	0.00	0.00	6,413.05	1,455.39	-1,179.51	2.00	-2.00	0.00	180.00	
7,222.46	0.00	0.00	6,913.05	1,455.39	-1,179.51	0.00	0.00	0.00	0.00	
8,125.12	90.27	179.92	7,486.00	879.77	-1,178.66	10.00	10.00	19.93	179.92	
13,295.31	90.27	179.92	7,462.00	-4,290.35	-1,171.02	0.00	0.00	0.00	0.00	PBHL LAND 14C-32H

Database:	Denver Sales	Local Co-ordinate Reference:	Well LAND 14C-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 14C-32HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	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
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	320.98	300.00	0.34	-0.27	-0.34	2.00	2.00	0.00
400.00	3.00	320.98	399.93	3.05	-2.47	-3.05	2.00	2.00	0.00
500.00	5.00	320.98	499.68	8.47	-6.86	-8.48	2.00	2.00	0.00
600.00	7.00	320.98	599.13	16.59	-13.44	-16.61	2.00	2.00	0.00
700.00	9.00	320.98	698.15	27.40	-22.21	-27.44	2.00	2.00	0.00
800.00	11.00	320.98	796.63	40.89	-33.14	-40.94	2.00	2.00	0.00
900.00	13.00	320.98	894.44	57.04	-46.23	-57.12	2.00	2.00	0.00
1,000.00	15.00	320.98	991.46	75.84	-61.46	-75.93	2.00	2.00	0.00
1,100.00	17.00	320.98	1,087.58	97.25	-78.82	-97.37	2.00	2.00	0.00
1,200.00	19.00	320.98	1,182.68	121.26	-98.27	-121.41	2.00	2.00	0.00
1,248.73	19.97	320.98	1,228.62	133.88	-108.51	-134.05	2.00	2.00	0.00
Start 4475.01 hold at 1248.73 MD									
1,300.00	19.97	320.98	1,276.81	147.49	-119.53	-147.68	0.00	0.00	0.00
1,344.89	19.97	320.98	1,319.00	159.41	-129.19	-159.61	0.00	0.00	0.00
Fox Hills									
1,400.00	19.97	320.98	1,370.79	174.03	-141.04	-174.25	0.00	0.00	0.00
1,500.00	19.97	320.98	1,464.78	200.57	-162.55	-200.82	0.00	0.00	0.00
1,600.00	19.97	320.98	1,558.76	227.11	-184.06	-227.40	0.00	0.00	0.00
1,643.88	19.97	320.98	1,600.00	238.75	-193.50	-239.06	0.00	0.00	0.00
9 5/8"									
1,700.00	19.97	320.98	1,652.75	253.65	-205.57	-253.97	0.00	0.00	0.00
1,800.00	19.97	320.98	1,746.73	280.19	-227.08	-280.54	0.00	0.00	0.00
1,900.00	19.97	320.98	1,840.71	306.73	-248.58	-307.12	0.00	0.00	0.00
2,000.00	19.97	320.98	1,934.70	333.26	-270.09	-333.69	0.00	0.00	0.00
2,100.00	19.97	320.98	2,028.68	359.80	-291.60	-360.26	0.00	0.00	0.00
2,200.00	19.97	320.98	2,122.67	386.34	-313.11	-386.83	0.00	0.00	0.00
2,300.00	19.97	320.98	2,216.65	412.88	-334.62	-413.41	0.00	0.00	0.00
2,400.00	19.97	320.98	2,310.64	439.42	-356.13	-439.98	0.00	0.00	0.00
2,500.00	19.97	320.98	2,404.62	465.96	-377.63	-466.55	0.00	0.00	0.00
2,600.00	19.97	320.98	2,498.61	492.50	-399.14	-493.12	0.00	0.00	0.00
2,700.00	19.97	320.98	2,592.59	519.04	-420.65	-519.70	0.00	0.00	0.00
2,800.00	19.97	320.98	2,686.57	545.58	-442.16	-546.27	0.00	0.00	0.00
2,900.00	19.97	320.98	2,780.56	572.12	-463.67	-572.84	0.00	0.00	0.00
3,000.00	19.97	320.98	2,874.54	598.65	-485.17	-599.42	0.00	0.00	0.00
3,100.00	19.97	320.98	2,968.53	625.19	-506.68	-625.99	0.00	0.00	0.00
3,200.00	19.97	320.98	3,062.51	651.73	-528.19	-652.56	0.00	0.00	0.00
3,300.00	19.97	320.98	3,156.50	678.27	-549.70	-679.13	0.00	0.00	0.00
3,400.00	19.97	320.98	3,250.48	704.81	-571.21	-705.71	0.00	0.00	0.00
3,500.00	19.97	320.98	3,344.47	731.35	-592.72	-732.28	0.00	0.00	0.00
3,600.00	19.97	320.98	3,438.45	757.89	-614.22	-758.85	0.00	0.00	0.00
3,700.00	19.97	320.98	3,532.43	784.43	-635.73	-785.42	0.00	0.00	0.00
3,800.00	19.97	320.98	3,626.42	810.97	-657.24	-812.00	0.00	0.00	0.00
3,900.00	19.97	320.98	3,720.40	837.51	-678.75	-838.57	0.00	0.00	0.00
4,000.00	19.97	320.98	3,814.39	864.04	-700.26	-865.14	0.00	0.00	0.00
4,100.00	19.97	320.98	3,908.37	890.58	-721.77	-891.72	0.00	0.00	0.00
4,200.00	19.97	320.98	4,002.36	917.12	-743.27	-918.29	0.00	0.00	0.00
4,300.00	19.97	320.98	4,096.34	943.66	-764.78	-944.86	0.00	0.00	0.00

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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 14C-32HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	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)	
4,400.00	19.97	320.98	4,190.33	970.20	-786.29	-971.43	0.00	0.00	0.00	
4,500.00	19.97	320.98	4,284.31	996.74	-807.80	-998.01	0.00	0.00	0.00	
4,600.00	19.97	320.98	4,378.29	1,023.28	-829.31	-1,024.58	0.00	0.00	0.00	
4,700.00	19.97	320.98	4,472.28	1,049.82	-850.82	-1,051.15	0.00	0.00	0.00	
4,800.00	19.97	320.98	4,566.26	1,076.36	-872.32	-1,077.72	0.00	0.00	0.00	
4,900.00	19.97	320.98	4,660.25	1,102.89	-893.83	-1,104.30	0.00	0.00	0.00	
5,000.00	19.97	320.98	4,754.23	1,129.43	-915.34	-1,130.87	0.00	0.00	0.00	
5,100.00	19.97	320.98	4,848.22	1,155.97	-936.85	-1,157.44	0.00	0.00	0.00	
5,179.57	19.97	320.98	4,923.00	1,177.09	-953.96	-1,178.59	0.00	0.00	0.00	
Sussex										
5,200.00	19.97	320.98	4,942.20	1,182.51	-958.36	-1,184.02	0.00	0.00	0.00	
5,300.00	19.97	320.98	5,036.19	1,209.05	-979.87	-1,210.59	0.00	0.00	0.00	
5,400.00	19.97	320.98	5,130.17	1,235.59	-1,001.37	-1,237.16	0.00	0.00	0.00	
5,500.00	19.97	320.98	5,224.15	1,262.13	-1,022.88	-1,263.73	0.00	0.00	0.00	
5,600.00	19.97	320.98	5,318.14	1,288.67	-1,044.39	-1,290.31	0.00	0.00	0.00	
5,700.00	19.97	320.98	5,412.12	1,315.21	-1,065.90	-1,316.88	0.00	0.00	0.00	
5,723.73	19.97	320.98	5,434.43	1,321.51	-1,071.00	-1,323.19	0.00	0.00	0.00	
Start Drop -2.00										
5,800.00	18.45	320.98	5,506.45	1,341.00	-1,086.80	-1,342.71	2.00	-2.00	0.00	
5,900.00	16.45	320.98	5,601.84	1,364.30	-1,105.68	-1,366.03	2.00	-2.00	0.00	
6,000.00	14.45	320.98	5,698.22	1,384.99	-1,122.46	-1,386.75	2.00	-2.00	0.00	
6,100.00	12.45	320.98	5,795.47	1,403.06	-1,137.10	-1,404.84	2.00	-2.00	0.00	
6,200.00	10.45	320.98	5,893.48	1,418.48	-1,149.60	-1,420.28	2.00	-2.00	0.00	
6,300.00	8.45	320.98	5,992.12	1,431.23	-1,159.93	-1,433.05	2.00	-2.00	0.00	
6,400.00	6.45	320.98	6,091.27	1,441.31	-1,168.10	-1,443.14	2.00	-2.00	0.00	
6,500.00	4.45	320.98	6,190.81	1,448.68	-1,174.07	-1,450.53	2.00	-2.00	0.00	
6,600.00	2.45	320.98	6,290.63	1,453.36	-1,177.86	-1,455.21	2.00	-2.00	0.00	
6,700.00	0.45	320.98	6,390.59	1,455.32	-1,179.45	-1,457.17	2.00	-2.00	0.00	
6,722.46	0.00	0.00	6,413.05	1,455.39	-1,179.51	-1,457.24	2.00	-2.00	0.00	
Start 500.00 hold at 6722.46 MD										
6,800.00	0.00	0.00	6,490.59	1,455.39	-1,179.51	-1,457.24	0.00	0.00	0.00	
6,900.00	0.00	0.00	6,590.59	1,455.39	-1,179.51	-1,457.24	0.00	0.00	0.00	
7,000.00	0.00	0.00	6,690.59	1,455.39	-1,179.51	-1,457.24	0.00	0.00	0.00	
7,100.00	0.00	0.00	6,790.59	1,455.39	-1,179.51	-1,457.24	0.00	0.00	0.00	
7,200.00	0.00	0.00	6,890.59	1,455.39	-1,179.51	-1,457.24	0.00	0.00	0.00	
7,222.46	0.00	0.00	6,913.05	1,455.39	-1,179.51	-1,457.24	0.00	0.00	0.00	
Start DLS 10.00 TFO 179.92										
7,300.00	7.75	179.92	6,990.35	1,450.15	-1,179.50	-1,452.00	10.00	10.00	0.00	
7,400.00	17.75	179.92	7,087.76	1,428.10	-1,179.47	-1,429.95	10.00	10.00	0.00	
7,437.73	21.53	179.92	7,123.29	1,415.42	-1,179.45	-1,417.27	10.00	10.00	0.00	
Sharon Springs										
7,495.98	27.35	179.92	7,176.29	1,391.34	-1,179.42	-1,393.19	10.00	10.00	0.00	
Niobrara Top										
7,500.00	27.75	179.92	7,179.86	1,389.48	-1,179.41	-1,391.33	10.00	10.00	0.00	
7,586.82	36.44	179.92	7,253.34	1,343.39	-1,179.34	-1,345.24	10.00	10.00	0.00	
Niobrara B Bench										
7,600.00	37.75	179.92	7,263.85	1,335.44	-1,179.33	-1,337.29	10.00	10.00	0.00	
7,665.13	44.27	179.92	7,312.97	1,292.73	-1,179.27	-1,294.58	10.00	10.00	0.00	
Niobrara C Bench										
7,700.00	47.75	179.92	7,337.19	1,267.64	-1,179.23	-1,269.49	10.00	10.00	0.00	
7,800.00	57.75	179.92	7,397.64	1,188.14	-1,179.12	-1,189.99	10.00	10.00	0.00	

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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 14C-32HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	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)
7,900.00	67.75	179.92	7,443.36	1,099.35	-1,178.98	-1,101.20	10.00	10.00	0.00
7,921.06	69.86	179.92	7,450.97	1,079.72	-1,178.95	-1,081.57	10.00	10.00	0.00
Fort Hays									
8,000.00	77.75	179.92	7,472.97	1,003.96	-1,178.84	-1,005.82	10.00	10.00	0.00
8,028.09	80.56	179.92	7,478.25	976.38	-1,178.80	-978.23	10.00	10.00	0.00
Codell									
8,100.00	87.75	179.92	7,485.57	904.89	-1,178.70	-906.74	10.00	10.00	0.00
8,125.12	90.27	179.92	7,486.00	879.77	-1,178.66	-881.63	10.00	10.00	0.00
Start 5170.19 hold at 8125.12 MD - TOP OF PRODUCTION									
8,200.00	90.27	179.92	7,485.65	804.90	-1,178.55	-806.75	0.00	0.00	0.00
8,300.00	90.27	179.92	7,485.19	704.90	-1,178.40	-706.75	0.00	0.00	0.00
8,400.00	90.27	179.92	7,484.73	604.90	-1,178.25	-606.75	0.00	0.00	0.00
8,500.00	90.27	179.92	7,484.26	504.90	-1,178.11	-506.75	0.00	0.00	0.00
8,600.00	90.27	179.92	7,483.80	404.90	-1,177.96	-406.75	0.00	0.00	0.00
8,700.00	90.27	179.92	7,483.33	304.90	-1,177.81	-306.75	0.00	0.00	0.00
8,800.00	90.27	179.92	7,482.87	204.90	-1,177.66	-206.75	0.00	0.00	0.00
8,900.00	90.27	179.92	7,482.40	104.90	-1,177.51	-106.75	0.00	0.00	0.00
9,000.00	90.27	179.92	7,481.94	4.91	-1,177.37	-6.75	0.00	0.00	0.00
9,100.00	90.27	179.92	7,481.48	-95.09	-1,177.22	93.24	0.00	0.00	0.00
9,200.00	90.27	179.92	7,481.01	-195.09	-1,177.07	193.24	0.00	0.00	0.00
9,300.00	90.27	179.92	7,480.55	-295.09	-1,176.92	293.24	0.00	0.00	0.00
9,400.00	90.27	179.92	7,480.08	-395.09	-1,176.78	393.24	0.00	0.00	0.00
9,500.00	90.27	179.92	7,479.62	-495.09	-1,176.63	493.24	0.00	0.00	0.00
9,600.00	90.27	179.92	7,479.15	-595.09	-1,176.48	593.24	0.00	0.00	0.00
9,700.00	90.27	179.92	7,478.69	-695.09	-1,176.33	693.24	0.00	0.00	0.00
9,800.00	90.27	179.92	7,478.23	-795.09	-1,176.18	793.24	0.00	0.00	0.00
9,900.00	90.27	179.92	7,477.76	-895.08	-1,176.04	893.24	0.00	0.00	0.00
10,000.00	90.27	179.92	7,477.30	-995.08	-1,175.89	993.23	0.00	0.00	0.00
10,100.00	90.27	179.92	7,476.83	-1,095.08	-1,175.74	1,093.23	0.00	0.00	0.00
10,200.00	90.27	179.92	7,476.37	-1,195.08	-1,175.59	1,193.23	0.00	0.00	0.00
10,300.00	90.27	179.92	7,475.91	-1,295.08	-1,175.45	1,293.23	0.00	0.00	0.00
10,400.00	90.27	179.92	7,475.44	-1,395.08	-1,175.30	1,393.23	0.00	0.00	0.00
10,500.00	90.27	179.92	7,474.98	-1,495.08	-1,175.15	1,493.23	0.00	0.00	0.00
10,600.00	90.27	179.92	7,474.51	-1,595.08	-1,175.00	1,593.23	0.00	0.00	0.00
10,700.00	90.27	179.92	7,474.05	-1,695.07	-1,174.85	1,693.23	0.00	0.00	0.00
10,800.00	90.27	179.92	7,473.58	-1,795.07	-1,174.71	1,793.23	0.00	0.00	0.00
10,900.00	90.27	179.92	7,473.12	-1,895.07	-1,174.56	1,893.22	0.00	0.00	0.00
11,000.00	90.27	179.92	7,472.66	-1,995.07	-1,174.41	1,993.22	0.00	0.00	0.00
11,100.00	90.27	179.92	7,472.19	-2,095.07	-1,174.26	2,093.22	0.00	0.00	0.00
11,200.00	90.27	179.92	7,471.73	-2,195.07	-1,174.12	2,193.22	0.00	0.00	0.00
11,300.00	90.27	179.92	7,471.26	-2,295.07	-1,173.97	2,293.22	0.00	0.00	0.00
11,400.00	90.27	179.92	7,470.80	-2,395.07	-1,173.82	2,393.22	0.00	0.00	0.00
11,500.00	90.27	179.92	7,470.33	-2,495.07	-1,173.67	2,493.22	0.00	0.00	0.00
11,600.00	90.27	179.92	7,469.87	-2,595.06	-1,173.53	2,593.22	0.00	0.00	0.00
11,700.00	90.27	179.92	7,469.41	-2,695.06	-1,173.38	2,693.22	0.00	0.00	0.00
11,800.00	90.27	179.92	7,468.94	-2,795.06	-1,173.23	2,793.22	0.00	0.00	0.00
11,900.00	90.27	179.92	7,468.48	-2,895.06	-1,173.08	2,893.21	0.00	0.00	0.00
12,000.00	90.27	179.92	7,468.01	-2,995.06	-1,172.93	2,993.21	0.00	0.00	0.00
12,100.00	90.27	179.92	7,467.55	-3,095.06	-1,172.79	3,093.21	0.00	0.00	0.00
12,200.00	90.27	179.92	7,467.08	-3,195.06	-1,172.64	3,193.21	0.00	0.00	0.00
12,300.00	90.27	179.92	7,466.62	-3,295.06	-1,172.49	3,293.21	0.00	0.00	0.00
12,400.00	90.27	179.92	7,466.16	-3,395.05	-1,172.34	3,393.21	0.00	0.00	0.00

Database:	Denver Sales	Local Co-ordinate Reference:	Well LAND 14C-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 14C-32HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	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)
12,500.00	90.27	179.92	7,465.69	-3,495.05	-1,172.20	3,493.21	0.00	0.00	0.00
12,600.00	90.27	179.92	7,465.23	-3,595.05	-1,172.05	3,593.21	0.00	0.00	0.00
12,700.00	90.27	179.92	7,464.76	-3,695.05	-1,171.90	3,693.21	0.00	0.00	0.00
12,800.00	90.27	179.92	7,464.30	-3,795.05	-1,171.75	3,793.20	0.00	0.00	0.00
12,900.00	90.27	179.92	7,463.84	-3,895.05	-1,171.60	3,893.20	0.00	0.00	0.00
13,000.00	90.27	179.92	7,463.37	-3,995.05	-1,171.46	3,993.20	0.00	0.00	0.00
13,100.00	90.27	179.92	7,462.91	-4,095.05	-1,171.31	4,093.20	0.00	0.00	0.00
13,200.00	90.27	179.92	7,462.44	-4,195.04	-1,171.16	4,193.20	0.00	0.00	0.00
13,295.31	90.27	179.92	7,462.00	-4,290.35	-1,171.02	4,288.51	0.00	0.00	0.00
TD at 13295.31 - PBHL LAND 14C-32HZ									

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 14C-32HZ(0.00	0.00	7,462.00	-4,290.35	-1,171.02	14,558,654.99	1,695,761.04	40.087493	-104.802125
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,643.88	1,600.00	9 5/8"	9.625	13.500	
8,125.12	7,486.00	TOP OF PRODUCTION	0.000	8.500	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,344.89	1,319.00	Fox Hills				
5,179.57	4,923.00	Sussex				
7,437.73	7,123.29	Sharon Springs				
7,495.98	7,176.29	Niobrara Top				
7,586.82	7,253.34	Niobrara B Bench				
7,665.13	7,312.97	Niobrara C Bench				
7,921.06	7,450.97	Fort Hays				
8,028.09	7,478.25	Codell				

Database:	Denver Sales	Local Co-ordinate Reference:	Well LAND 14C-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 14C-32HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-2		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
250.00	250.00	0.00	0.00	Start Build 2.00
1,248.73	1,228.62	133.88	-108.51	Start 4475.01 hold at 1248.73 MD
5,723.73	5,434.43	1,321.51	-1,071.00	Start Drop -2.00
6,722.46	6,413.05	1,455.39	-1,179.51	Start 500.00 hold at 6722.46 MD
7,222.46	6,913.05	1,455.39	-1,179.51	Start DLS 10.00 TFO 179.92
8,125.12	7,486.00	879.77	-1,178.66	Start 5170.19 hold at 8125.12 MD
13,295.31	7,462.00	-4,290.35	-1,171.02	TD at 13295.31