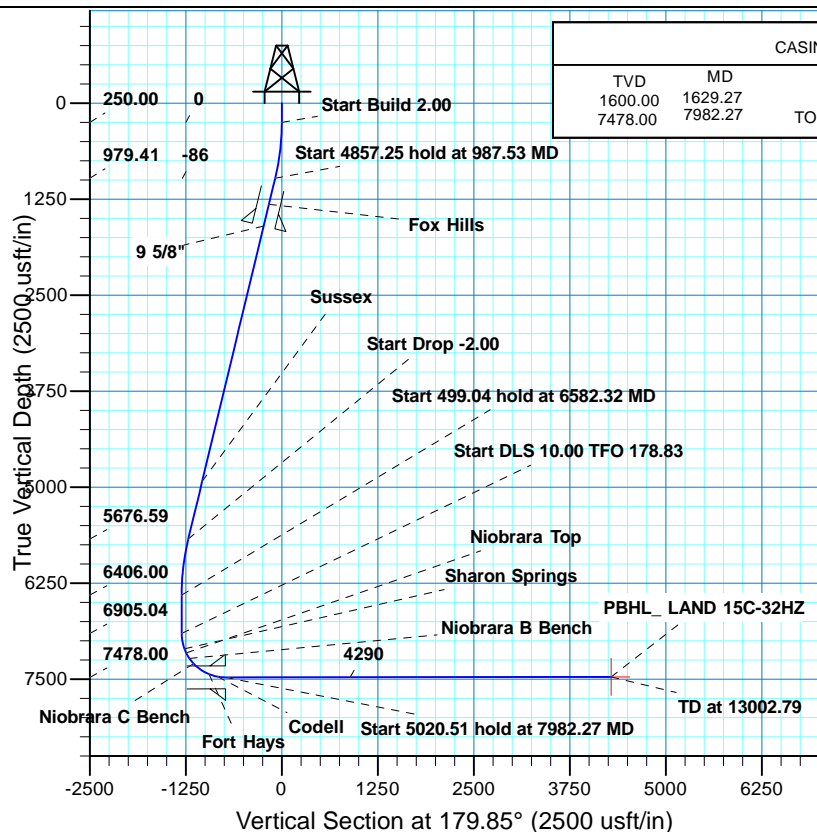




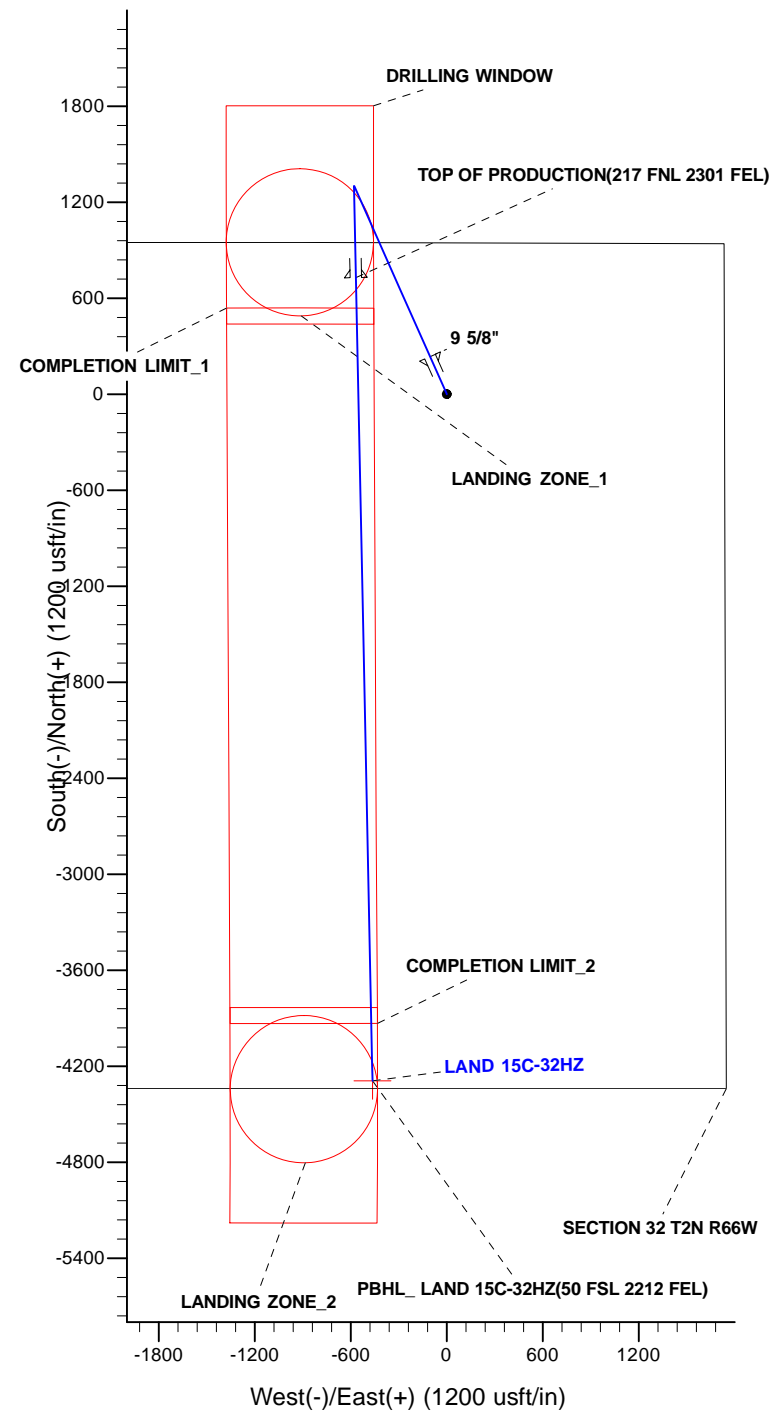
Project: WELD-NAD83-UTMFT13N
Site: 2N-66W-32 LAND 17-32HZ PAD
Well: LAND 15C-32HZ
Wellbore: PLAN A
Design: PERMIT REV-3



WELL DETAILS: LAND 15C-32HZ													
GL 4908 & KB 17 @ 4925.00usft (ASSUMED)													
+N/-S		+E/-W		Northing		Easting		Latitude		Longitude			
0.00		0.00		14562948.07		1696952.23		40.099275		-104.797831			
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					
987.53	14.75	336.02	979.41	86.26	-38.38	2.00	336.02	-86.36					
5844.79	14.75	336.02	5676.59	1216.20	-541.10	0.00	0.00	1217.61					
6582.32	0.00	0.00	6406.00	1302.46	-579.48	2.00	180.00	1303.97					
7081.36	0.00	0.00	6905.04	1302.46	-579.48	0.00	0.00	1303.97					
7982.27	90.09	178.83	7478.00	728.71	-567.73	10.00	178.83	-730.19	PBHL_ LAND 15C-32HZ				
13002.79	90.09	178.83	7470.00	-4290.75	-464.92	0.00	0.00	4289.51					
DESIGN TARGET DETAILS													
Name		TVD		+N/-S		+E/-W		Northing		Easting	Latitude	Longitude	Shape
PBHL		7470.00		-4290.75		-464.92		14558656.28		1696497.06	40.087492	-104.799493	Point
- plan hits target center													
FORMATION TOP DETAILS													
				TVDP		MDP		Path		Formation		DipDir	
				1319.00		1338.69				Fox Hills		14.75	
				4923.00		5065.52				Sussex		14.75	
				7106.99		7287.74				Sharon Springs		20.64	
				7159.99		7345.57				Niobrara Top		26.42	
				7232.25		7429.63				Niobrara B Bench		34.83	
				7297.75		7514.04				Niobrara C Bench		43.27	
				7435.75		7759.97				Fort Hays		67.86	
				7468.48		7876.80				Codell		79.54	



CASING DETAILS				
TVD	MD	Name	Size	
1600.00	1629.27	9 5/8"	9.625	
7478.00	7982.27	TOP OF PRODUCTION	0.000	



US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

LAND 15C-32HZ

PLAN A

Plan: PERMIT REV-3

Standard Planning Report

27 May, 2015

Database:	Denver Sales	Local Co-ordinate Reference:	Well LAND 15C-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 15C-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 15C-32HZ, 947 FNL 1735 FEL			
Well Position	+N/-S	0.01 usft	Northing:	14,562,948.07 usft
	+E/-W	29.92 usft	Easting:	1,696,952.23 usft
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	
987.53	14.75	336.02	979.41	86.26	-38.38	2.00	2.00	0.00	336.02	
5,844.79	14.75	336.02	5,676.59	1,216.20	-541.10	0.00	0.00	0.00	0.00	
6,582.32	0.00	0.00	6,406.00	1,302.46	-579.48	2.00	-2.00	0.00	180.00	
7,081.36	0.00	0.00	6,905.04	1,302.46	-579.48	0.00	0.00	0.00	0.00	
7,982.27	90.09	178.83	7,478.00	728.71	-567.73	10.00	10.00	19.85	178.83	
13,002.79	90.09	178.83	7,470.00	-4,290.75	-464.92	0.00	0.00	0.00	0.00	PBHL_ LAND 15C-32

Database:	Denver Sales	Local Co-ordinate Reference:	Well LAND 15C-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 15C-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	336.02	300.00	0.40	-0.18	-0.40	2.00	2.00	0.00
400.00	3.00	336.02	399.93	3.59	-1.60	-3.59	2.00	2.00	0.00
500.00	5.00	336.02	499.68	9.96	-4.43	-9.97	2.00	2.00	0.00
600.00	7.00	336.02	599.13	19.51	-8.68	-19.53	2.00	2.00	0.00
700.00	9.00	336.02	698.15	32.22	-14.34	-32.26	2.00	2.00	0.00
800.00	11.00	336.02	796.63	48.09	-21.40	-48.15	2.00	2.00	0.00
900.00	13.00	336.02	894.44	67.08	-29.85	-67.16	2.00	2.00	0.00
987.53	14.75	336.02	979.41	86.26	-38.38	-86.36	2.00	2.00	0.00
Start 4857.25 hold at 987.53 MD									
1,000.00	14.75	336.02	991.47	89.16	-39.67	-89.27	0.00	0.00	0.00
1,100.00	14.75	336.02	1,088.17	112.43	-50.02	-112.56	0.00	0.00	0.00
1,200.00	14.75	336.02	1,184.88	135.69	-60.37	-135.85	0.00	0.00	0.00
1,300.00	14.75	336.02	1,281.58	158.95	-70.72	-159.14	0.00	0.00	0.00
1,338.69	14.75	336.02	1,319.00	167.95	-74.72	-168.15	0.00	0.00	0.00
Fox Hills									
1,400.00	14.75	336.02	1,378.29	182.21	-81.07	-182.43	0.00	0.00	0.00
1,500.00	14.75	336.02	1,474.99	205.48	-91.42	-205.72	0.00	0.00	0.00
1,600.00	14.75	336.02	1,571.69	228.74	-101.77	-229.01	0.00	0.00	0.00
1,629.27	14.75	336.02	1,600.00	235.55	-104.80	-235.82	0.00	0.00	0.00
9 5/8"									
1,700.00	14.75	336.02	1,668.40	252.00	-112.12	-252.30	0.00	0.00	0.00
1,800.00	14.75	336.02	1,765.10	275.27	-122.47	-275.58	0.00	0.00	0.00
1,900.00	14.75	336.02	1,861.81	298.53	-132.82	-298.87	0.00	0.00	0.00
2,000.00	14.75	336.02	1,958.51	321.79	-143.17	-322.16	0.00	0.00	0.00
2,100.00	14.75	336.02	2,055.22	345.05	-153.52	-345.45	0.00	0.00	0.00
2,200.00	14.75	336.02	2,151.92	368.32	-163.87	-368.74	0.00	0.00	0.00
2,300.00	14.75	336.02	2,248.62	391.58	-174.22	-392.03	0.00	0.00	0.00
2,400.00	14.75	336.02	2,345.33	414.84	-184.57	-415.32	0.00	0.00	0.00
2,500.00	14.75	336.02	2,442.03	438.11	-194.92	-438.61	0.00	0.00	0.00
2,600.00	14.75	336.02	2,538.74	461.37	-205.27	-461.90	0.00	0.00	0.00
2,700.00	14.75	336.02	2,635.44	484.63	-215.62	-485.19	0.00	0.00	0.00
2,800.00	14.75	336.02	2,732.15	507.89	-225.97	-508.48	0.00	0.00	0.00
2,900.00	14.75	336.02	2,828.85	531.16	-236.32	-531.77	0.00	0.00	0.00
3,000.00	14.75	336.02	2,925.55	554.42	-246.67	-555.06	0.00	0.00	0.00
3,100.00	14.75	336.02	3,022.26	577.68	-257.02	-578.35	0.00	0.00	0.00
3,200.00	14.75	336.02	3,118.96	600.94	-267.37	-601.64	0.00	0.00	0.00
3,300.00	14.75	336.02	3,215.67	624.21	-277.72	-624.93	0.00	0.00	0.00
3,400.00	14.75	336.02	3,312.37	647.47	-288.07	-648.22	0.00	0.00	0.00
3,500.00	14.75	336.02	3,409.08	670.73	-298.42	-671.51	0.00	0.00	0.00
3,600.00	14.75	336.02	3,505.78	694.00	-308.77	-694.80	0.00	0.00	0.00
3,700.00	14.75	336.02	3,602.48	717.26	-319.12	-718.09	0.00	0.00	0.00
3,800.00	14.75	336.02	3,699.19	740.52	-329.47	-741.38	0.00	0.00	0.00
3,900.00	14.75	336.02	3,795.89	763.78	-339.82	-764.67	0.00	0.00	0.00
4,000.00	14.75	336.02	3,892.60	787.05	-350.17	-787.96	0.00	0.00	0.00
4,100.00	14.75	336.02	3,989.30	810.31	-360.52	-811.25	0.00	0.00	0.00
4,200.00	14.75	336.02	4,086.01	833.57	-370.87	-834.54	0.00	0.00	0.00
4,300.00	14.75	336.02	4,182.71	856.84	-381.22	-857.83	0.00	0.00	0.00

Database:	Denver Sales	Local Co-ordinate Reference:	Well LAND 15C-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 15C-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	14.75	336.02	4,279.41	880.10	-391.57	-881.12	0.00	0.00	0.00	
4,500.00	14.75	336.02	4,376.12	903.36	-401.92	-904.41	0.00	0.00	0.00	
4,600.00	14.75	336.02	4,472.82	926.62	-412.27	-927.70	0.00	0.00	0.00	
4,700.00	14.75	336.02	4,569.53	949.89	-422.62	-950.99	0.00	0.00	0.00	
4,800.00	14.75	336.02	4,666.23	973.15	-432.97	-974.28	0.00	0.00	0.00	
4,900.00	14.75	336.02	4,762.94	996.41	-443.32	-997.57	0.00	0.00	0.00	
5,000.00	14.75	336.02	4,859.64	1,019.68	-453.67	-1,020.86	0.00	0.00	0.00	
5,065.52	14.75	336.02	4,923.00	1,034.92	-460.45	-1,036.12	0.00	0.00	0.00	
Sussex										
5,100.00	14.75	336.02	4,956.34	1,042.94	-464.02	-1,044.15	0.00	0.00	0.00	
5,200.00	14.75	336.02	5,053.05	1,066.20	-474.37	-1,067.44	0.00	0.00	0.00	
5,300.00	14.75	336.02	5,149.75	1,089.46	-484.72	-1,090.73	0.00	0.00	0.00	
5,400.00	14.75	336.02	5,246.46	1,112.73	-495.07	-1,114.02	0.00	0.00	0.00	
5,500.00	14.75	336.02	5,343.16	1,135.99	-505.42	-1,137.31	0.00	0.00	0.00	
5,600.00	14.75	336.02	5,439.87	1,159.25	-515.77	-1,160.60	0.00	0.00	0.00	
5,700.00	14.75	336.02	5,536.57	1,182.52	-526.12	-1,183.89	0.00	0.00	0.00	
5,800.00	14.75	336.02	5,633.27	1,205.78	-536.47	-1,207.18	0.00	0.00	0.00	
5,844.79	14.75	336.02	5,676.59	1,216.20	-541.10	-1,217.61	0.00	0.00	0.00	
Start Drop -2.00										
5,900.00	13.65	336.02	5,730.11	1,228.57	-546.61	-1,230.00	2.00	-2.00	0.00	
6,000.00	11.65	336.02	5,827.68	1,248.57	-555.50	-1,250.02	2.00	-2.00	0.00	
6,100.00	9.65	336.02	5,925.95	1,265.45	-563.01	-1,266.92	2.00	-2.00	0.00	
6,200.00	7.65	336.02	6,024.81	1,279.19	-569.13	-1,280.67	2.00	-2.00	0.00	
6,300.00	5.65	336.02	6,124.14	1,289.76	-573.83	-1,291.26	2.00	-2.00	0.00	
6,400.00	3.65	336.02	6,223.80	1,297.16	-577.12	-1,298.67	2.00	-2.00	0.00	
6,500.00	1.65	336.02	6,323.69	1,301.38	-579.00	-1,302.89	2.00	-2.00	0.00	
6,582.32	0.00	0.00	6,406.00	1,302.46	-579.48	-1,303.97	2.00	-2.00	0.00	
Start 499.04 hold at 6582.32 MD										
6,600.00	0.00	0.00	6,423.68	1,302.46	-579.48	-1,303.97	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,523.68	1,302.46	-579.48	-1,303.97	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,623.68	1,302.46	-579.48	-1,303.97	0.00	0.00	0.00	
6,900.00	0.00	0.00	6,723.68	1,302.46	-579.48	-1,303.97	0.00	0.00	0.00	
7,000.00	0.00	0.00	6,823.68	1,302.46	-579.48	-1,303.97	0.00	0.00	0.00	
7,081.36	0.00	0.00	6,905.04	1,302.46	-579.48	-1,303.97	0.00	0.00	0.00	
Start DLS 10.00 TFO 178.83										
7,100.00	1.86	178.83	6,923.68	1,302.16	-579.47	-1,303.67	10.00	10.00	0.00	
7,200.00	11.86	178.83	7,022.83	1,290.22	-579.23	-1,291.74	10.00	10.00	0.00	
7,287.74	20.64	178.83	7,106.99	1,265.70	-578.73	-1,267.21	10.00	10.00	0.00	
Sharon Springs										
7,300.00	21.86	178.83	7,118.41	1,261.26	-578.64	-1,262.77	10.00	10.00	0.00	
7,345.57	26.42	178.83	7,159.99	1,242.63	-578.25	-1,244.14	10.00	10.00	0.00	
Niobrara Top										
7,400.00	31.86	178.83	7,207.51	1,216.14	-577.71	-1,217.64	10.00	10.00	0.00	
7,429.63	34.83	178.83	7,232.25	1,199.86	-577.38	-1,201.36	10.00	10.00	0.00	
Niobrara B Bench										
7,500.00	41.86	178.83	7,287.41	1,156.23	-576.48	-1,157.74	10.00	10.00	0.00	
7,514.04	43.27	178.83	7,297.75	1,146.74	-576.29	-1,148.24	10.00	10.00	0.00	
Niobrara C Bench										
7,600.00	51.86	178.83	7,355.70	1,083.37	-574.99	-1,084.87	10.00	10.00	0.00	
7,700.00	61.86	178.83	7,410.29	999.75	-573.28	-1,001.25	10.00	10.00	0.00	
7,759.97	67.86	178.83	7,435.75	945.50	-572.17	-947.00	10.00	10.00	0.00	

Database:	Denver Sales	Local Co-ordinate Reference:	Well LAND 15C-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 15C-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)
Fort Hays									
7,800.00	71.86	178.83	7,449.53	907.93	-571.40	-909.43	10.00	10.00	0.00
7,876.80	79.54	178.83	7,468.48	833.58	-569.88	-835.07	10.00	10.00	0.00
Codell									
7,900.00	81.86	178.83	7,472.23	810.69	-569.41	-812.18	10.00	10.00	0.00
7,982.27	90.09	178.83	7,478.00	728.71	-567.73	-730.20	10.00	10.00	0.00
Start 5020.51 hold at 7982.27 MD - TOP OF PRODUCTION(217 FNL 2301 FEL)									
8,000.00	90.09	178.83	7,477.97	710.99	-567.37	-712.47	0.00	0.00	0.00
8,100.00	90.09	178.83	7,477.81	611.01	-565.32	-612.49	0.00	0.00	0.00
8,200.00	90.09	178.83	7,477.65	511.03	-563.27	-512.50	0.00	0.00	0.00
8,300.00	90.09	178.83	7,477.49	411.05	-561.22	-412.52	0.00	0.00	0.00
8,400.00	90.09	178.83	7,477.33	311.07	-559.17	-312.54	0.00	0.00	0.00
8,500.00	90.09	178.83	7,477.17	211.09	-557.13	-212.55	0.00	0.00	0.00
8,600.00	90.09	178.83	7,477.01	111.11	-555.08	-112.57	0.00	0.00	0.00
8,700.00	90.09	178.83	7,476.85	11.14	-553.03	-12.58	0.00	0.00	0.00
8,800.00	90.09	178.83	7,476.69	-88.84	-550.98	87.40	0.00	0.00	0.00
8,900.00	90.09	178.83	7,476.54	-188.82	-548.94	187.38	0.00	0.00	0.00
9,000.00	90.09	178.83	7,476.38	-288.80	-546.89	287.37	0.00	0.00	0.00
9,100.00	90.09	178.83	7,476.22	-388.78	-544.84	387.35	0.00	0.00	0.00
9,200.00	90.09	178.83	7,476.06	-488.76	-542.79	487.34	0.00	0.00	0.00
9,300.00	90.09	178.83	7,475.90	-588.74	-540.74	587.32	0.00	0.00	0.00
9,400.00	90.09	178.83	7,475.74	-688.72	-538.70	687.30	0.00	0.00	0.00
9,500.00	90.09	178.83	7,475.58	-788.70	-536.65	787.29	0.00	0.00	0.00
9,600.00	90.09	178.83	7,475.42	-888.67	-534.60	887.27	0.00	0.00	0.00
9,700.00	90.09	178.83	7,475.26	-988.65	-532.55	987.26	0.00	0.00	0.00
9,800.00	90.09	178.83	7,475.10	-1,088.63	-530.51	1,087.24	0.00	0.00	0.00
9,900.00	90.09	178.83	7,474.94	-1,188.61	-528.46	1,187.22	0.00	0.00	0.00
10,000.00	90.09	178.83	7,474.78	-1,288.59	-526.41	1,287.21	0.00	0.00	0.00
10,100.00	90.09	178.83	7,474.62	-1,388.57	-524.36	1,387.19	0.00	0.00	0.00
10,200.00	90.09	178.83	7,474.46	-1,488.55	-522.31	1,487.18	0.00	0.00	0.00
10,300.00	90.09	178.83	7,474.31	-1,588.53	-520.27	1,587.16	0.00	0.00	0.00
10,400.00	90.09	178.83	7,474.15	-1,688.51	-518.22	1,687.14	0.00	0.00	0.00
10,500.00	90.09	178.83	7,473.99	-1,788.48	-516.17	1,787.13	0.00	0.00	0.00
10,600.00	90.09	178.83	7,473.83	-1,888.46	-514.12	1,887.11	0.00	0.00	0.00
10,700.00	90.09	178.83	7,473.67	-1,988.44	-512.08	1,987.10	0.00	0.00	0.00
10,800.00	90.09	178.83	7,473.51	-2,088.42	-510.03	2,087.08	0.00	0.00	0.00
10,900.00	90.09	178.83	7,473.35	-2,188.40	-507.98	2,187.06	0.00	0.00	0.00
11,000.00	90.09	178.83	7,473.19	-2,288.38	-505.93	2,287.05	0.00	0.00	0.00
11,100.00	90.09	178.83	7,473.03	-2,388.36	-503.88	2,387.03	0.00	0.00	0.00
11,200.00	90.09	178.83	7,472.87	-2,488.34	-501.84	2,487.01	0.00	0.00	0.00
11,300.00	90.09	178.83	7,472.71	-2,588.32	-499.79	2,587.00	0.00	0.00	0.00
11,400.00	90.09	178.83	7,472.55	-2,688.30	-497.74	2,686.98	0.00	0.00	0.00
11,500.00	90.09	178.83	7,472.39	-2,788.27	-495.69	2,786.97	0.00	0.00	0.00
11,600.00	90.09	178.83	7,472.23	-2,888.25	-493.65	2,886.95	0.00	0.00	0.00
11,700.00	90.09	178.83	7,472.08	-2,988.23	-491.60	2,986.93	0.00	0.00	0.00
11,800.00	90.09	178.83	7,471.92	-3,088.21	-489.55	3,086.92	0.00	0.00	0.00
11,900.00	90.09	178.83	7,471.76	-3,188.19	-487.50	3,186.90	0.00	0.00	0.00
12,000.00	90.09	178.83	7,471.60	-3,288.17	-485.45	3,286.89	0.00	0.00	0.00
12,100.00	90.09	178.83	7,471.44	-3,388.15	-483.41	3,386.87	0.00	0.00	0.00
12,200.00	90.09	178.83	7,471.28	-3,488.13	-481.36	3,486.85	0.00	0.00	0.00
12,300.00	90.09	178.83	7,471.12	-3,588.11	-479.31	3,586.84	0.00	0.00	0.00
12,400.00	90.09	178.83	7,470.96	-3,688.08	-477.26	3,686.82	0.00	0.00	0.00

Database:	Denver Sales	Local Co-ordinate Reference:	Well LAND 15C-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 15C-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)
12,500.00	90.09	178.83	7,470.80	-3,788.06	-475.22	3,786.81	0.00	0.00	0.00
12,600.00	90.09	178.83	7,470.64	-3,888.04	-473.17	3,886.79	0.00	0.00	0.00
12,700.00	90.09	178.83	7,470.48	-3,988.02	-471.12	3,986.77	0.00	0.00	0.00
12,800.00	90.09	178.83	7,470.32	-4,088.00	-469.07	4,086.76	0.00	0.00	0.00
12,900.00	90.09	178.83	7,470.16	-4,187.98	-467.02	4,186.74	0.00	0.00	0.00
13,000.00	90.09	178.83	7,470.00	-4,287.96	-464.98	4,286.73	0.00	0.00	0.00
13,002.79	90.09	178.83	7,470.00	-4,290.75	-464.92	4,289.51	0.00	0.00	0.00
TD at 13002.79 - PBHL_ LAND 15C-32HZ(50 FSL 2211 FEL)									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL_ LAND 15C-32HZ - plan hits target center - Point	0.00	0.00	7,470.00	-4,290.75	-464.92	14,558,656.27	1,696,497.06	40.087492	-104.799494

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,629.27	1,600.00	9 5/8"	9.625	13.500	
7,982.27	7,478.00	TOP OF PRODUCTION(217 FNL 2301 FEL)	0.000	8.500	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,338.69	1,319.00	Fox Hills				
5,065.52	4,923.00	Sussex				
7,287.74	7,106.99	Sharon Springs				
7,345.57	7,159.99	Niobrara Top				
7,429.63	7,232.25	Niobrara B Bench				
7,514.04	7,297.75	Niobrara C Bench				
7,759.97	7,435.75	Fort Hays				
7,876.80	7,468.48	Codell				

Database:	Denver Sales	Local Co-ordinate Reference:	Well LAND 15C-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 15C-32HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-3		

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
987.53	979.41	86.26	-38.38	Start 4857.25 hold at 987.53 MD
5,844.79	5,676.59	1,216.20	-541.10	Start Drop -2.00
6,582.32	6,406.00	1,302.46	-579.48	Start 499.04 hold at 6582.32 MD
7,081.36	6,905.04	1,302.46	-579.48	Start DLS 10.00 TFO 178.83
7,982.27	7,478.00	728.71	-567.73	Start 5020.51 hold at 7982.27 MD
13,002.79	7,470.00	-4,290.75	-464.92	TD at 13002.79