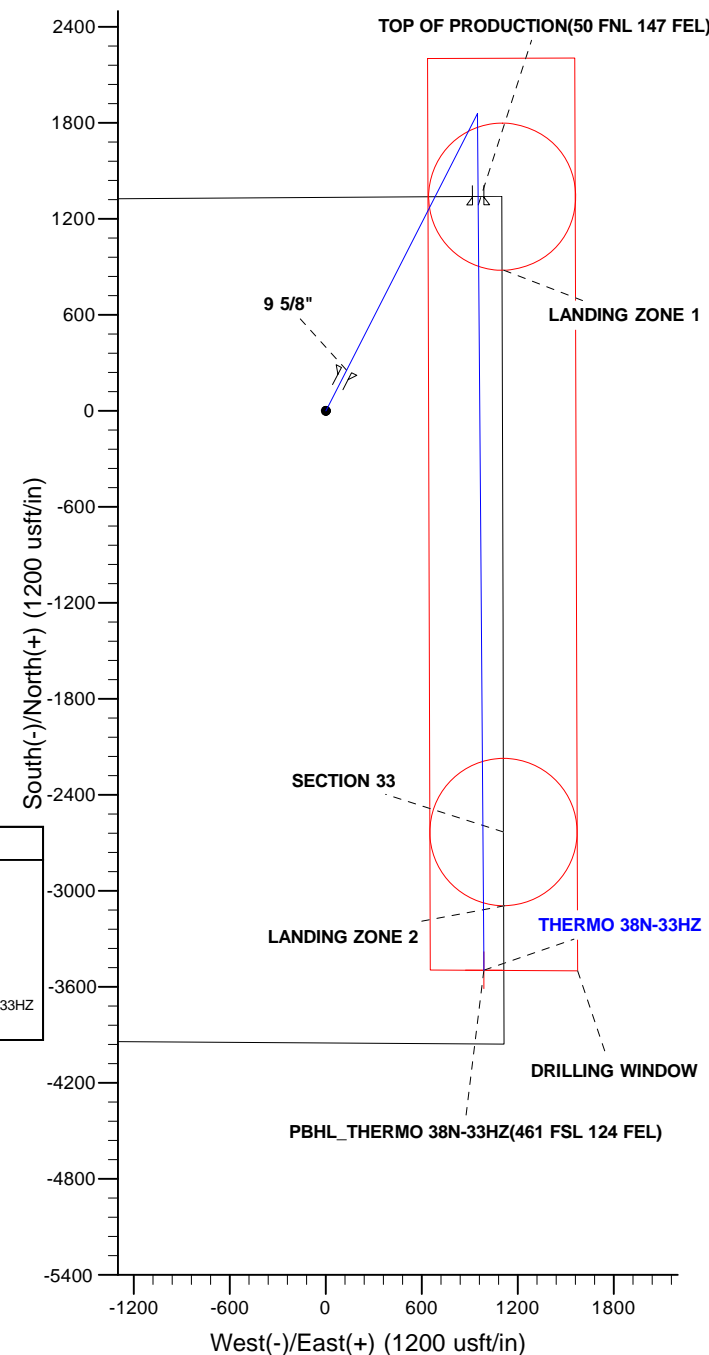
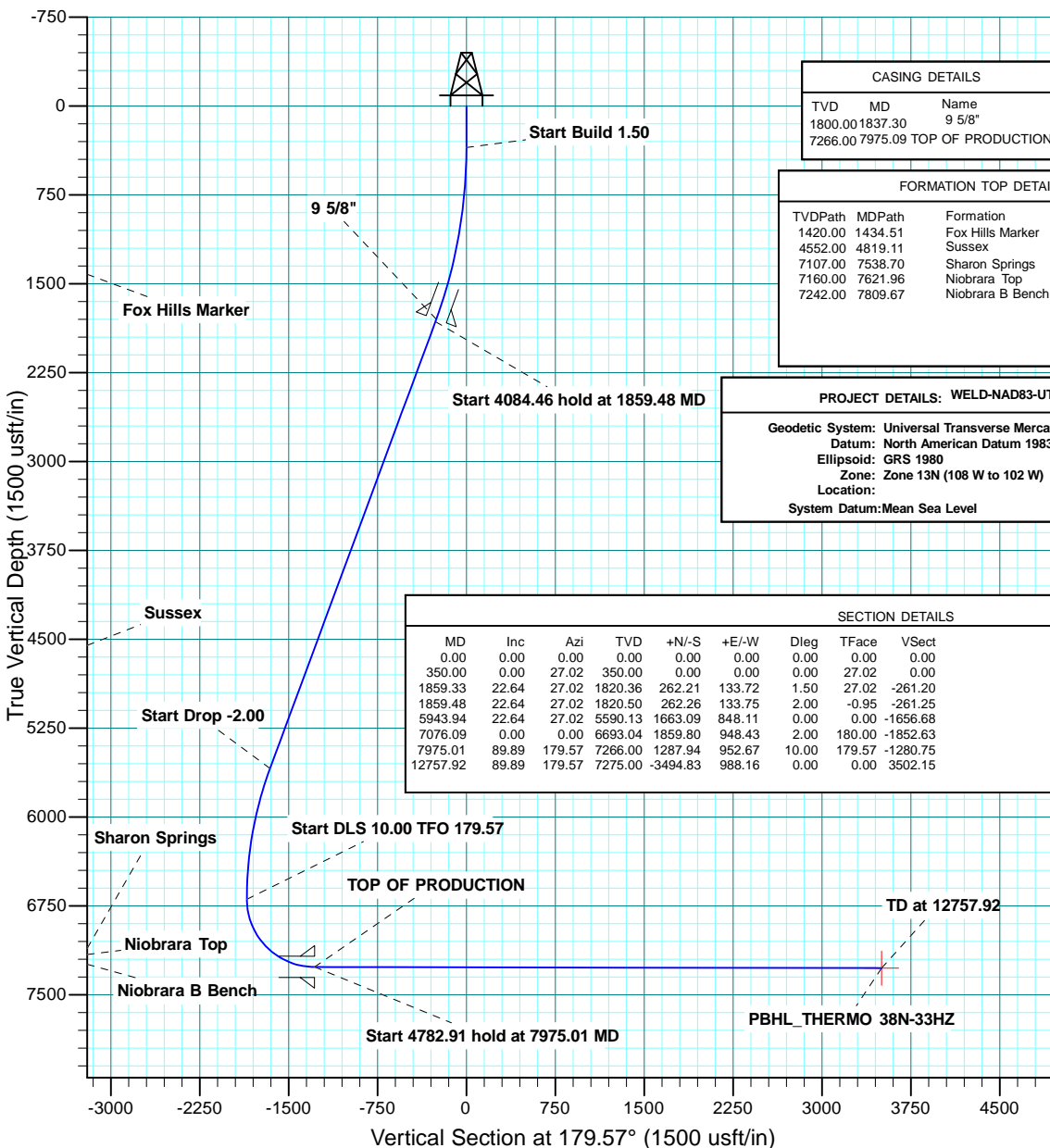


SHL: THERMO 38N-33HZ							
GL 4984 & KB 17 @ 5000.99usft (ASSUMED)							
		+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
		0.00	0.00	14562569.67	1702870.51	40.098197	-104.776671
DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL 7275.00		-3494.83	988.16	14559077.33	1703867.44	40.088600	-104.773138
- plan hits target center							
Shape	Point						



US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

2N-66W-33 THERMO 37N-33HZ PAD

THERMO 38N-33HZ

PLAN A

Plan: PERMIT REV-3

Standard Planning Report

08 June, 2015

Database:	Denver Sales	Local Co-ordinate Reference:	Well THERMO 38N-33HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4984 & KB 17 @ 5000.99usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4984 & KB 17 @ 5000.99usft (ASSUMED)
Site:	2N-66W-33 THERMO 37N-33HZ PAD	North Reference:	True
Well:	THERMO 38N-33HZ	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-33 THERMO 37N-33HZ PAD				
Site Position:		Northing:	14,562,570.50 usft	Latitude:	40.098200
From:	Lat/Long	Easting:	1,702,765.64 usft	Longitude:	-104.777046
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.14

Well	THERMO 38N-33HZ					
Well Position	+N/-S	-1.09 usft	Northing:	14,562,569.67 usft	Latitude:	40.098197
	+E/-W	104.87 usft	Easting:	1,702,870.51 usft	Longitude:	-104.776671
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,984.00 usft

Wellbore	PLAN A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/22/2015	8.36	66.68	52,591

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	179.57

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	
350.00	0.00	27.02	350.00	0.00	0.00	0.00	0.00	0.00	27.02	
1,859.33	22.64	27.02	1,820.36	262.21	133.72	1.50	1.50	0.00	27.02	
1,859.48	22.64	27.02	1,820.50	262.26	133.75	2.00	2.00	-0.09	-0.95	
5,943.94	22.64	27.02	5,590.13	1,663.09	848.12	0.00	0.00	0.00	0.00	
7,076.09	0.00	0.00	6,693.04	1,859.80	948.43	2.00	-2.00	0.00	180.00	
7,975.01	89.89	179.57	7,266.00	1,287.94	952.67	10.00	10.00	19.98	179.57	
12,757.92	89.89	179.57	7,275.00	-3,494.83	988.16	0.00	0.00	0.00	0.00	PBHL_THERMO 38N

Database:	Denver Sales	Local Co-ordinate Reference:	Well THERMO 38N-33HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4984 & KB 17 @ 5000.99usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4984 & KB 17 @ 5000.99usft (ASSUMED)
Site:	2N-66W-33 THERMO 37N-33HZ PAD	North Reference:	True
Well:	THERMO 38N-33HZ	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
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 1.50									
400.00	0.75	27.02	400.00	0.29	0.15	-0.29	1.50	1.50	0.00
500.00	2.25	27.02	499.96	2.62	1.34	-2.61	1.50	1.50	0.00
600.00	3.75	27.02	599.82	7.29	3.72	-7.26	1.50	1.50	0.00
700.00	5.25	27.02	699.51	14.27	7.28	-14.22	1.50	1.50	0.00
800.00	6.75	27.02	798.96	23.59	12.03	-23.50	1.50	1.50	0.00
900.00	8.25	27.02	898.10	35.21	17.96	-35.08	1.50	1.50	0.00
1,000.00	9.75	27.02	996.87	49.15	25.06	-48.96	1.50	1.50	0.00
1,100.00	11.25	27.02	1,095.19	65.38	33.34	-65.13	1.50	1.50	0.00
1,200.00	12.75	27.02	1,193.00	83.90	42.79	-83.58	1.50	1.50	0.00
1,300.00	14.25	27.02	1,290.24	104.70	53.39	-104.30	1.50	1.50	0.00
1,400.00	15.75	27.02	1,386.83	127.76	65.15	-127.26	1.50	1.50	0.00
1,434.51	16.27	27.02	1,420.00	136.24	69.48	-135.71	1.50	1.50	0.00
Fox Hills Marker									
1,500.00	17.25	27.02	1,482.71	153.06	78.05	-152.47	1.50	1.50	0.00
1,600.00	18.75	27.02	1,577.81	180.59	92.09	-179.89	1.50	1.50	0.00
1,700.00	20.25	27.02	1,672.07	210.32	107.26	-209.51	1.50	1.50	0.00
1,800.00	21.75	27.02	1,765.43	242.25	123.54	-241.31	1.50	1.50	0.00
1,837.30	22.31	27.02	1,800.00	254.71	129.89	-253.73	1.50	1.50	0.00
9 5/8"									
1,859.33	22.64	27.02	1,820.36	262.21	133.72	-261.20	1.50	1.50	0.00
1,859.48	22.64	27.02	1,820.50	262.26	133.75	-261.25	0.00	0.00	0.00
Start 4084.46 hold at 1859.48 MD									
1,900.00	22.64	27.02	1,857.89	276.16	140.83	-275.10	0.01	0.01	0.00
2,000.00	22.64	27.02	1,950.19	310.46	158.32	-309.26	0.00	0.00	0.00
2,100.00	22.64	27.02	2,042.48	344.75	175.81	-343.42	0.00	0.00	0.00
2,200.00	22.64	27.02	2,134.77	379.05	193.30	-377.59	0.00	0.00	0.00
2,300.00	22.64	27.02	2,227.06	413.35	210.79	-411.75	0.00	0.00	0.00
2,400.00	22.64	27.02	2,319.35	447.64	228.28	-445.92	0.00	0.00	0.00
2,500.00	22.64	27.02	2,411.65	481.94	245.77	-480.08	0.00	0.00	0.00
2,600.00	22.64	27.02	2,503.94	516.24	263.26	-514.25	0.00	0.00	0.00
2,700.00	22.64	27.02	2,596.23	550.53	280.75	-548.41	0.00	0.00	0.00
2,800.00	22.64	27.02	2,688.52	584.83	298.24	-582.57	0.00	0.00	0.00
2,900.00	22.64	27.02	2,780.82	619.13	315.73	-616.74	0.00	0.00	0.00
3,000.00	22.64	27.02	2,873.11	653.42	333.22	-650.90	0.00	0.00	0.00
3,100.00	22.64	27.02	2,965.40	687.72	350.71	-685.07	0.00	0.00	0.00
3,200.00	22.64	27.02	3,057.69	722.02	368.20	-719.23	0.00	0.00	0.00
3,300.00	22.64	27.02	3,149.98	756.31	385.69	-753.40	0.00	0.00	0.00
3,400.00	22.64	27.02	3,242.28	790.61	403.18	-787.56	0.00	0.00	0.00
3,500.00	22.64	27.02	3,334.57	824.91	420.67	-821.72	0.00	0.00	0.00
3,600.00	22.64	27.02	3,426.86	859.20	438.16	-855.89	0.00	0.00	0.00
3,700.00	22.64	27.02	3,519.15	893.50	455.65	-890.05	0.00	0.00	0.00
3,800.00	22.64	27.02	3,611.45	927.79	473.14	-924.22	0.00	0.00	0.00
3,900.00	22.64	27.02	3,703.74	962.09	490.63	-958.38	0.00	0.00	0.00
4,000.00	22.64	27.02	3,796.03	996.39	508.12	-992.55	0.00	0.00	0.00
4,100.00	22.64	27.02	3,888.32	1,030.68	525.61	-1,026.71	0.00	0.00	0.00
4,200.00	22.64	27.02	3,980.61	1,064.98	543.10	-1,060.88	0.00	0.00	0.00

Database:	Denver Sales	Local Co-ordinate Reference:	Well THERMO 38N-33HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4984 & KB 17 @ 5000.99usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4984 & KB 17 @ 5000.99usft (ASSUMED)
Site:	2N-66W-33 THERMO 37N-33HZ PAD	North Reference:	True
Well:	THERMO 38N-33HZ	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)
4,300.00	22.64	27.02	4,072.91	1,099.28	560.59	-1,095.04	0.00	0.00	0.00
4,400.00	22.64	27.02	4,165.20	1,133.57	578.08	-1,129.20	0.00	0.00	0.00
4,500.00	22.64	27.02	4,257.49	1,167.87	595.57	-1,163.37	0.00	0.00	0.00
4,600.00	22.64	27.02	4,349.78	1,202.17	613.06	-1,197.53	0.00	0.00	0.00
4,700.00	22.64	27.02	4,442.08	1,236.46	630.55	-1,231.70	0.00	0.00	0.00
4,800.00	22.64	27.02	4,534.37	1,270.76	648.04	-1,265.86	0.00	0.00	0.00
4,819.11	22.64	27.02	4,552.00	1,277.31	651.38	-1,272.39	0.00	0.00	0.00
Sussex									
4,900.00	22.64	27.02	4,626.66	1,305.06	665.53	-1,300.03	0.00	0.00	0.00
5,000.00	22.64	27.02	4,718.95	1,339.35	683.02	-1,334.19	0.00	0.00	0.00
5,100.00	22.64	27.02	4,811.24	1,373.65	700.51	-1,368.35	0.00	0.00	0.00
5,200.00	22.64	27.02	4,903.54	1,407.95	718.00	-1,402.52	0.00	0.00	0.00
5,300.00	22.64	27.02	4,995.83	1,442.24	735.49	-1,436.68	0.00	0.00	0.00
5,400.00	22.64	27.02	5,088.12	1,476.54	752.98	-1,470.85	0.00	0.00	0.00
5,500.00	22.64	27.02	5,180.41	1,510.84	770.47	-1,505.01	0.00	0.00	0.00
5,600.00	22.64	27.02	5,272.70	1,545.13	787.96	-1,539.18	0.00	0.00	0.00
5,700.00	22.64	27.02	5,365.00	1,579.43	805.45	-1,573.34	0.00	0.00	0.00
5,800.00	22.64	27.02	5,457.29	1,613.73	822.94	-1,607.50	0.00	0.00	0.00
5,900.00	22.64	27.02	5,549.58	1,648.02	840.43	-1,641.67	0.00	0.00	0.00
5,943.94	22.64	27.02	5,590.13	1,663.09	848.12	-1,656.68	0.00	0.00	0.00
Start Drop -2.00									
6,000.00	21.52	27.02	5,642.08	1,681.87	857.69	-1,675.38	2.00	-2.00	0.00
6,100.00	19.52	27.02	5,735.73	1,713.09	873.61	-1,706.49	2.00	-2.00	0.00
6,200.00	17.52	27.02	5,830.55	1,741.39	888.05	-1,734.68	2.00	-2.00	0.00
6,300.00	15.52	27.02	5,926.41	1,766.73	900.96	-1,759.91	2.00	-2.00	0.00
6,400.00	13.52	27.02	6,023.21	1,789.06	912.36	-1,782.16	2.00	-2.00	0.00
6,500.00	11.52	27.02	6,120.83	1,808.38	922.20	-1,801.40	2.00	-2.00	0.00
6,600.00	9.52	27.02	6,219.14	1,824.64	930.50	-1,817.61	2.00	-2.00	0.00
6,700.00	7.52	27.02	6,318.03	1,837.84	937.23	-1,830.76	2.00	-2.00	0.00
6,800.00	5.52	27.02	6,417.38	1,847.96	942.39	-1,840.84	2.00	-2.00	0.00
6,900.00	3.52	27.02	6,517.07	1,854.98	945.97	-1,847.83	2.00	-2.00	0.00
7,000.00	1.52	27.02	6,616.96	1,858.90	947.97	-1,851.74	2.00	-2.00	0.00
7,076.09	0.00	0.00	6,693.04	1,859.80	948.43	-1,852.63	2.00	-2.00	0.00
Start DLS 10.00 TFO 179.57									
7,100.00	2.39	179.57	6,716.95	1,859.30	948.43	-1,852.13	10.00	10.00	0.00
7,200.00	12.39	179.57	6,815.99	1,846.46	948.53	-1,839.28	10.00	10.00	0.00
7,300.00	22.39	179.57	6,911.30	1,816.60	948.75	-1,809.43	10.00	10.00	0.00
7,400.00	32.39	179.57	6,999.97	1,770.66	949.09	-1,763.48	10.00	10.00	0.00
7,500.00	42.39	179.57	7,079.32	1,710.01	949.54	-1,702.84	10.00	10.00	0.00
7,538.70	46.26	179.57	7,107.00	1,682.98	949.74	-1,675.80	10.00	10.00	0.00
Sharon Springs									
7,600.00	52.39	179.57	7,146.94	1,636.51	950.09	-1,629.33	10.00	10.00	0.00
7,621.96	54.59	179.57	7,160.00	1,618.86	950.22	-1,611.68	10.00	10.00	0.00
Niobrara Top									
7,700.00	62.39	179.57	7,200.76	1,552.38	950.71	-1,545.20	10.00	10.00	0.00
7,800.00	72.39	179.57	7,239.15	1,460.18	951.40	-1,453.00	10.00	10.00	0.00
7,809.67	73.36	179.57	7,242.00	1,450.94	951.46	-1,443.76	10.00	10.00	0.00
Niobrara B Bench									
7,900.00	82.39	179.57	7,260.95	1,362.72	952.12	-1,355.54	10.00	10.00	0.00
7,975.01	89.89	179.57	7,266.00	1,287.94	952.67	-1,280.75	10.00	10.00	0.00
Start 4782.91 hold at 7975.01 MD									

Database:	Denver Sales	Local Co-ordinate Reference:	Well THERMO 38N-33HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4984 & KB 17 @ 5000.99usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4984 & KB 17 @ 5000.99usft (ASSUMED)
Site:	2N-66W-33 THERMO 37N-33HZ PAD	North Reference:	True
Well:	THERMO 38N-33HZ	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)
7,975.09	89.89	179.57	7,266.00	1,287.85	952.67	-1,280.67	0.00	0.00	0.00
TOP OF PRODUCTION(50 FNL 147 FEL)									
8,000.00	89.89	179.57	7,266.04	1,262.95	952.86	-1,255.76	0.00	0.00	0.00
8,100.00	89.89	179.57	7,266.23	1,162.95	953.60	-1,155.76	0.00	0.00	0.00
8,200.00	89.89	179.57	7,266.42	1,062.95	954.34	-1,055.76	0.00	0.00	0.00
8,300.00	89.89	179.57	7,266.61	962.96	955.08	-955.76	0.00	0.00	0.00
8,400.00	89.89	179.57	7,266.80	862.96	955.83	-855.76	0.00	0.00	0.00
8,500.00	89.89	179.57	7,266.99	762.96	956.57	-755.76	0.00	0.00	0.00
8,600.00	89.89	179.57	7,267.17	662.96	957.31	-655.76	0.00	0.00	0.00
8,700.00	89.89	179.57	7,267.36	562.97	958.05	-555.76	0.00	0.00	0.00
8,800.00	89.89	179.57	7,267.55	462.97	958.79	-455.76	0.00	0.00	0.00
8,900.00	89.89	179.57	7,267.74	362.97	959.54	-355.76	0.00	0.00	0.00
9,000.00	89.89	179.57	7,267.93	262.98	960.28	-255.76	0.00	0.00	0.00
9,100.00	89.89	179.57	7,268.11	162.98	961.02	-155.76	0.00	0.00	0.00
9,200.00	89.89	179.57	7,268.30	62.98	961.76	-55.76	0.00	0.00	0.00
9,300.00	89.89	179.57	7,268.49	-37.02	962.50	44.24	0.00	0.00	0.00
9,400.00	89.89	179.57	7,268.68	-137.01	963.25	144.24	0.00	0.00	0.00
9,500.00	89.89	179.57	7,268.87	-237.01	963.99	244.24	0.00	0.00	0.00
9,600.00	89.89	179.57	7,269.06	-337.01	964.73	344.24	0.00	0.00	0.00
9,700.00	89.89	179.57	7,269.24	-437.00	965.47	444.24	0.00	0.00	0.00
9,800.00	89.89	179.57	7,269.43	-537.00	966.21	544.24	0.00	0.00	0.00
9,900.00	89.89	179.57	7,269.62	-637.00	966.96	644.24	0.00	0.00	0.00
10,000.00	89.89	179.57	7,269.81	-736.99	967.70	744.24	0.00	0.00	0.00
10,100.00	89.89	179.57	7,270.00	-836.99	968.44	844.24	0.00	0.00	0.00
10,200.00	89.89	179.57	7,270.19	-936.99	969.18	944.24	0.00	0.00	0.00
10,300.00	89.89	179.57	7,270.37	-1,036.99	969.92	1,044.24	0.00	0.00	0.00
10,400.00	89.89	179.57	7,270.56	-1,136.98	970.67	1,144.24	0.00	0.00	0.00
10,500.00	89.89	179.57	7,270.75	-1,236.98	971.41	1,244.24	0.00	0.00	0.00
10,600.00	89.89	179.57	7,270.94	-1,336.98	972.15	1,344.24	0.00	0.00	0.00
10,700.00	89.89	179.57	7,271.13	-1,436.97	972.89	1,444.24	0.00	0.00	0.00
10,800.00	89.89	179.57	7,271.31	-1,536.97	973.63	1,544.24	0.00	0.00	0.00
10,900.00	89.89	179.57	7,271.50	-1,636.97	974.38	1,644.23	0.00	0.00	0.00
11,000.00	89.89	179.57	7,271.69	-1,736.97	975.12	1,744.23	0.00	0.00	0.00
11,100.00	89.89	179.57	7,271.88	-1,836.96	975.86	1,844.23	0.00	0.00	0.00
11,200.00	89.89	179.57	7,272.07	-1,936.96	976.60	1,944.23	0.00	0.00	0.00
11,300.00	89.89	179.57	7,272.26	-2,036.96	977.34	2,044.23	0.00	0.00	0.00
11,400.00	89.89	179.57	7,272.44	-2,136.95	978.08	2,144.23	0.00	0.00	0.00
11,500.00	89.89	179.57	7,272.63	-2,236.95	978.83	2,244.23	0.00	0.00	0.00
11,600.00	89.89	179.57	7,272.82	-2,336.95	979.57	2,344.23	0.00	0.00	0.00
11,700.00	89.89	179.57	7,273.01	-2,436.95	980.31	2,444.23	0.00	0.00	0.00
11,800.00	89.89	179.57	7,273.20	-2,536.94	981.05	2,544.23	0.00	0.00	0.00
11,900.00	89.89	179.57	7,273.39	-2,636.94	981.79	2,644.23	0.00	0.00	0.00
12,000.00	89.89	179.57	7,273.57	-2,736.94	982.54	2,744.23	0.00	0.00	0.00
12,100.00	89.89	179.57	7,273.76	-2,836.93	983.28	2,844.23	0.00	0.00	0.00
12,200.00	89.89	179.57	7,273.95	-2,936.93	984.02	2,944.23	0.00	0.00	0.00
12,300.00	89.89	179.57	7,274.14	-3,036.93	984.76	3,044.23	0.00	0.00	0.00
12,400.00	89.89	179.57	7,274.33	-3,136.92	985.50	3,144.23	0.00	0.00	0.00
12,500.00	89.89	179.57	7,274.51	-3,236.92	986.25	3,244.23	0.00	0.00	0.00
12,600.00	89.89	179.57	7,274.70	-3,336.92	986.99	3,344.23	0.00	0.00	0.00
12,700.00	89.89	179.57	7,274.89	-3,436.92	987.73	3,444.23	0.00	0.00	0.00
12,757.92	89.89	179.57	7,275.00	-3,494.83	988.16	3,502.15	0.00	0.00	0.00
TD at 12757.92 - PBHL_THERMO 38N-33HZ(461 FSL 125 FEL)									

Database:	Denver Sales	Local Co-ordinate Reference:	Well THERMO 38N-33HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4984 & KB 17 @ 5000.99usft (ASSUMED)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4984 & KB 17 @ 5000.99usft (ASSUMED)
Site:	2N-66W-33 THERMO 37N-33HZ PAD	North Reference:	True
Well:	THERMO 38N-33HZ	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_THERMO 38N-33	0.00	0.00	7,275.00	-3,494.83	988.16	14,559,077.33	1,703,867.44	40.088600	-104.773138
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,837.30	1,800.00	9 5/8"	9.625	13.500	
7,975.09	7,266.00	TOP OF PRODUCTION(50 FNL 147 FEL)	5.500	7.875	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,434.51	1,420.01	Fox Hills Marker		0.00	
4,819.11	4,552.01	Sussex		0.00	
7,538.70	7,107.01	Sharon Springs		0.00	
7,621.96	7,160.01	Niobrara Top		0.00	
7,809.67	7,242.01	Niobrara B Bench		0.00	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
350.00	350.00	0.00	0.00	Start Build 1.50	
1,859.48	1,820.50	262.26	133.75	Start 4084.46 hold at 1859.48 MD	
5,943.94	5,590.13	1,663.09	848.12	Start Drop -2.00	
7,076.09	6,693.04	1,859.80	948.43	Start DLS 10.00 TFO 179.57	
7,975.01	7,266.00	1,287.94	952.67	Start 4782.91 hold at 7975.01 MD	
12,757.92	7,275.00	-3,494.83	988.16	TD at 12757.92	