

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

3N-68W-22 Hilgers 16-22HZ Pad

HILGERS 8N3-34HZ

Plan A

Plan: Permit Rev-1

Standard Planning Report

19 October, 2016

Project: WELD-NAD83-UTMFT13N
Site: 3N-68W-22 Hilgers 16-22HZ Pad
Well: HILGERS 8N3-34HZ
Wellbore: Plan A
Design: Permit Rev-1

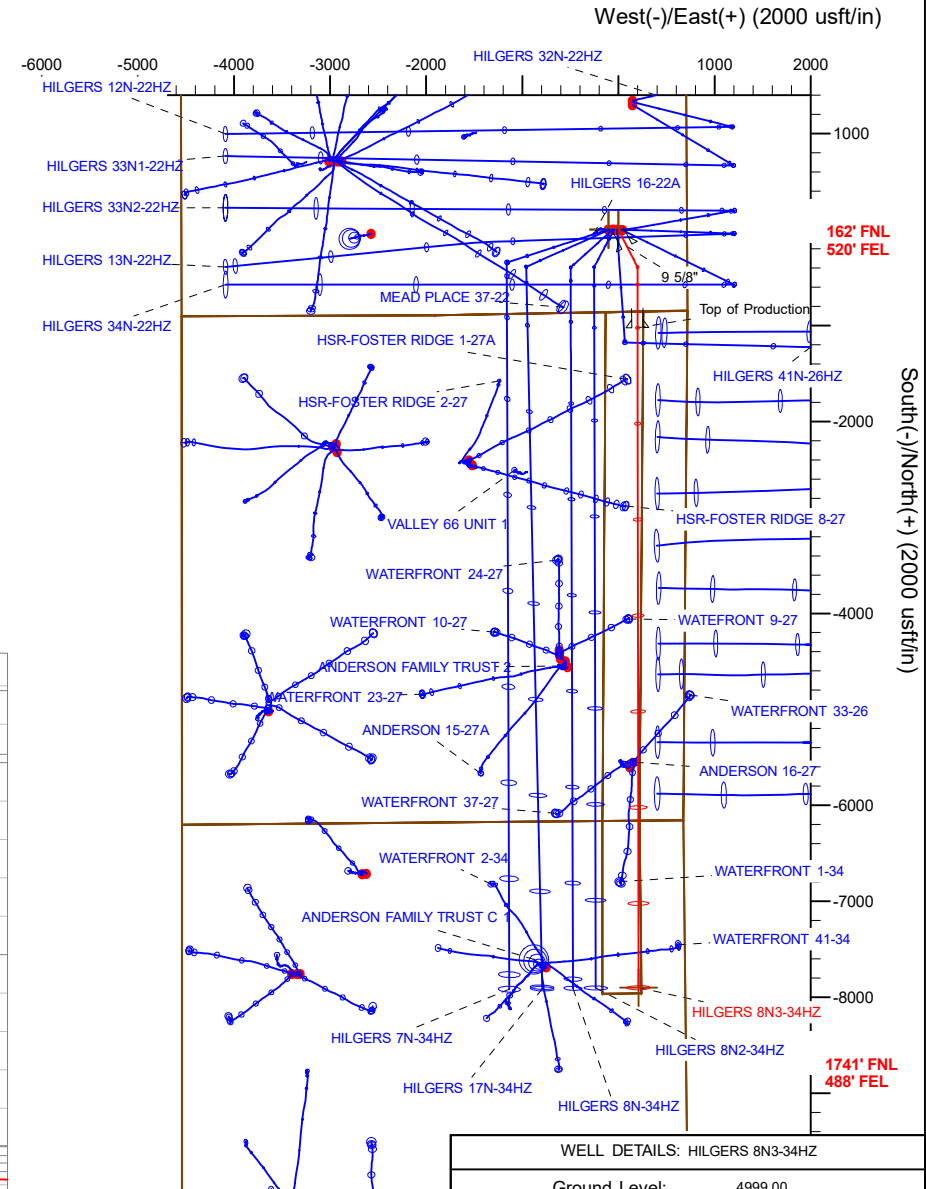
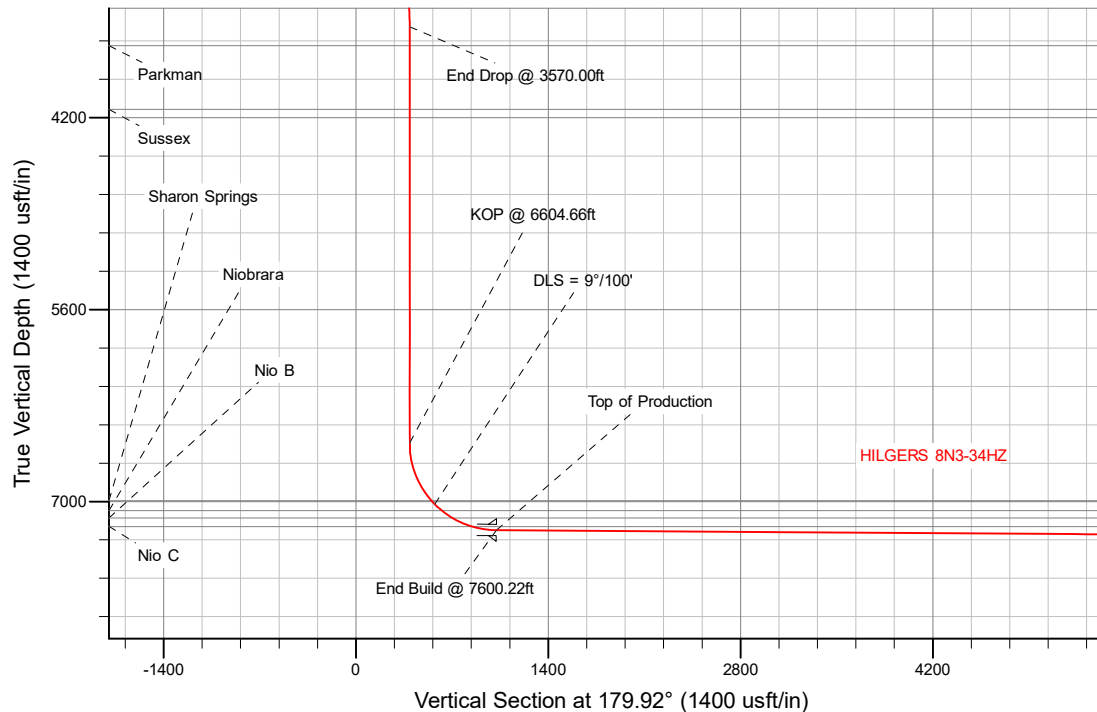
US ROCKIES WATTENBERG PLANNING

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	850.00	9.00	153.00	847.54	-41.90	21.35	1.50	153.00	41.93	
4	3120.00	9.00	153.00	3089.59	-358.30	182.56	0.00	0.00	358.56	
5	3570.00	0.00	0.00	3537.74	-389.73	198.58	2.00	-180.00	390.01	
6	6604.66	0.00	0.00	6572.40	-389.73	198.58	0.00	0.00	390.01	
7	7600.22	89.60	179.92	7209.00	-1021.91	199.43	9.00	179.92	1022.18	
8	14478.12	89.60	179.92	7257.00	-7899.64	208.69	0.00	0.00	7899.92	HILGERS 8N3-34HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
HILGERS 8N3-34HZ_SHL	0.00	0.00	0.00	40.206605	-104.982099	Point
HILGERS 8N3-34HZ_BHL	7257.00	-7899.64	208.69	40.184912	-104.981352	Point



WELL DETAILS: HILGERS 8N3-34HZ

Ground Level: 4999.00

RKB = 17' @ 5016.00usft (D Rig)

Plan: Permit Rev-1 (HILGERS 8N3-34HZ/Plan A)

Created By: _____ Date: 10/19/2016
Reviewed: _____ Date: _____

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 8N3-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5016.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5016.00usft (D Rig)
Site:	3N-68W-22 Hilgers 16-22HZ Pad	North Reference:	True
Well:	HILGERS 8N3-34HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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		3N-68W-22 Hilgers 16-22HZ Pad			
Site Position:		Northing:	14,601,968.89 usft	Latitude:	40.206606
From:	Lat/Long	Easting:	1,645,309.73 usft	Longitude:	-104.982475
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.01 °

Well	HILGERS 8N3-34HZ					
Well Position	+N/-S	-0.36 usft	Northing:	14,601,968.55 usft	Latitude:	40.206605
	+E/-W	104.98 usft	Easting:	1,645,414.71 usft	Longitude:	-104.982099
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,999.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/6/2015	8.39	66.71	52,561

Design	Permit Rev-1			
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	179.92

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	
850.00	9.00	153.00	847.54	-41.90	21.35	1.50	1.50	0.00	153.00	
3,120.00	9.00	153.00	3,089.59	-358.30	182.56	0.00	0.00	0.00	0.00	
3,570.00	0.00	0.00	3,537.74	-389.73	198.58	2.00	-2.00	-34.00	-180.00	
6,604.66	0.00	0.00	6,572.40	-389.73	198.58	0.00	0.00	0.00	0.00	
7,600.22	89.60	179.92	7,209.00	-1,021.91	199.43	9.00	9.00	18.07	179.92	
14,478.12	89.60	179.92	7,257.00	-7,899.64	208.69	0.00	0.00	0.00	0.00	HILGERS 8N3-34HZ_

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 8N3-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5016.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5016.00usft (D Rig)
Site:	3N-68W-22 Hilgers 16-22HZ Pad	North Reference:	True
Well:	HILGERS 8N3-34HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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
Begin Nudge @ 250.00ft									
300.00	0.75	153.00	300.00	-0.29	0.15	0.29	1.50	1.50	0.00
400.00	2.25	153.00	399.96	-2.62	1.34	2.63	1.50	1.50	0.00
500.00	3.75	153.00	499.82	-7.29	3.71	7.29	1.50	1.50	0.00
600.00	5.25	153.00	599.51	-14.28	7.27	14.29	1.50	1.50	0.00
700.00	6.75	153.00	698.96	-23.59	12.02	23.61	1.50	1.50	0.00
800.00	8.25	153.00	798.10	-35.22	17.95	35.25	1.50	1.50	0.00
850.00	9.00	153.00	847.54	-41.90	21.35	41.93	1.50	1.50	0.00
End Nudge @ 850.00ft									
900.00	9.00	153.00	896.92	-48.87	24.90	48.91	0.00	0.00	0.00
1,000.00	9.00	153.00	995.69	-62.81	32.00	62.85	0.00	0.00	0.00
1,100.00	9.00	153.00	1,094.46	-76.75	39.10	76.80	0.00	0.00	0.00
1,200.00	9.00	153.00	1,193.23	-90.69	46.21	90.75	0.00	0.00	0.00
1,300.00	9.00	153.00	1,292.00	-104.62	53.31	104.70	0.00	0.00	0.00
1,400.00	9.00	153.00	1,390.76	-118.56	60.41	118.65	0.00	0.00	0.00
1,500.00	9.00	153.00	1,489.53	-132.50	67.51	132.60	0.00	0.00	0.00
1,600.00	9.00	153.00	1,588.30	-146.44	74.61	146.54	0.00	0.00	0.00
1,700.00	9.00	153.00	1,687.07	-160.38	81.72	160.49	0.00	0.00	0.00
1,800.00	9.00	153.00	1,785.84	-174.32	88.82	174.44	0.00	0.00	0.00
1,814.34	9.00	153.00	1,800.00	-176.31	89.84	176.44	0.00	0.00	0.00
9 5/8"									
1,900.00	9.00	153.00	1,884.61	-188.25	95.92	188.39	0.00	0.00	0.00
2,000.00	9.00	153.00	1,983.38	-202.19	103.02	202.34	0.00	0.00	0.00
2,100.00	9.00	153.00	2,082.15	-216.13	110.12	216.29	0.00	0.00	0.00
2,200.00	9.00	153.00	2,180.91	-230.07	117.23	230.23	0.00	0.00	0.00
2,300.00	9.00	153.00	2,279.68	-244.01	124.33	244.18	0.00	0.00	0.00
2,400.00	9.00	153.00	2,378.45	-257.95	131.43	258.13	0.00	0.00	0.00
2,500.00	9.00	153.00	2,477.22	-271.89	138.53	272.08	0.00	0.00	0.00
2,600.00	9.00	153.00	2,575.99	-285.82	145.63	286.03	0.00	0.00	0.00
2,700.00	9.00	153.00	2,674.76	-299.76	152.74	299.98	0.00	0.00	0.00
2,800.00	9.00	153.00	2,773.53	-313.70	159.84	313.92	0.00	0.00	0.00
2,900.00	9.00	153.00	2,872.30	-327.64	166.94	327.87	0.00	0.00	0.00
3,000.00	9.00	153.00	2,971.07	-341.58	174.04	341.82	0.00	0.00	0.00
3,100.00	9.00	153.00	3,069.83	-355.52	181.14	355.77	0.00	0.00	0.00
3,120.00	9.00	153.00	3,089.59	-358.30	182.56	358.56	0.00	0.00	0.00
Begin Drop @ 3120.00ft									
3,200.00	7.40	153.00	3,168.77	-368.47	187.74	368.73	2.00	-2.00	0.00
3,300.00	5.40	153.00	3,268.14	-378.40	192.81	378.67	2.00	-2.00	0.00
3,400.00	3.40	153.00	3,367.84	-385.24	196.29	385.51	2.00	-2.00	0.00
3,500.00	1.40	153.00	3,467.75	-388.97	198.19	389.24	2.00	-2.00	0.00
3,570.00	0.00	0.00	3,537.74	-389.73	198.58	390.01	2.00	-2.00	-218.57
End Drop @ 3570.00ft									
3,600.00	0.00	0.00	3,567.74	-389.73	198.58	390.01	0.00	0.00	0.00
3,700.00	0.00	0.00	3,667.74	-389.73	198.58	390.01	0.00	0.00	0.00
3,800.00	0.00	0.00	3,767.74	-389.73	198.58	390.01	0.00	0.00	0.00
3,900.00	0.00	0.00	3,867.74	-389.73	198.58	390.01	0.00	0.00	0.00
4,000.00	0.00	0.00	3,967.74	-389.73	198.58	390.01	0.00	0.00	0.00
4,100.00	0.00	0.00	4,067.74	-389.73	198.58	390.01	0.00	0.00	0.00
4,200.00	0.00	0.00	4,167.74	-389.73	198.58	390.01	0.00	0.00	0.00
4,300.00	0.00	0.00	4,267.74	-389.73	198.58	390.01	0.00	0.00	0.00

Corporate
Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 8N3-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5016.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5016.00usft (D Rig)
Site:	3N-68W-22 Hilgers 16-22HZ Pad	North Reference:	True
Well:	HILGERS 8N3-34HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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	0.00	0.00	4,367.74	-389.73	198.58	390.01	0.00	0.00	0.00
4,500.00	0.00	0.00	4,467.74	-389.73	198.58	390.01	0.00	0.00	0.00
4,600.00	0.00	0.00	4,567.74	-389.73	198.58	390.01	0.00	0.00	0.00
4,700.00	0.00	0.00	4,667.74	-389.73	198.58	390.01	0.00	0.00	0.00
4,800.00	0.00	0.00	4,767.74	-389.73	198.58	390.01	0.00	0.00	0.00
4,900.00	0.00	0.00	4,867.74	-389.73	198.58	390.01	0.00	0.00	0.00
5,000.00	0.00	0.00	4,967.74	-389.73	198.58	390.01	0.00	0.00	0.00
5,100.00	0.00	0.00	5,067.74	-389.73	198.58	390.01	0.00	0.00	0.00
5,200.00	0.00	0.00	5,167.74	-389.73	198.58	390.01	0.00	0.00	0.00
5,300.00	0.00	0.00	5,267.74	-389.73	198.58	390.01	0.00	0.00	0.00
5,400.00	0.00	0.00	5,367.74	-389.73	198.58	390.01	0.00	0.00	0.00
5,500.00	0.00	0.00	5,467.74	-389.73	198.58	390.01	0.00	0.00	0.00
5,600.00	0.00	0.00	5,567.74	-389.73	198.58	390.01	0.00	0.00	0.00
5,700.00	0.00	0.00	5,667.74	-389.73	198.58	390.01	0.00	0.00	0.00
5,800.00	0.00	0.00	5,767.74	-389.73	198.58	390.01	0.00	0.00	0.00
5,900.00	0.00	0.00	5,867.74	-389.73	198.58	390.01	0.00	0.00	0.00
6,000.00	0.00	0.00	5,967.74	-389.73	198.58	390.01	0.00	0.00	0.00
6,100.00	0.00	0.00	6,067.74	-389.73	198.58	390.01	0.00	0.00	0.00
6,200.00	0.00	0.00	6,167.74	-389.73	198.58	390.01	0.00	0.00	0.00
6,300.00	0.00	0.00	6,267.74	-389.73	198.58	390.01	0.00	0.00	0.00
6,400.00	0.00	0.00	6,367.74	-389.73	198.58	390.01	0.00	0.00	0.00
6,500.00	0.00	0.00	6,467.74	-389.73	198.58	390.01	0.00	0.00	0.00
6,600.00	0.00	0.00	6,567.74	-389.73	198.58	390.01	0.00	0.00	0.00
6,604.66	0.00	0.00	6,572.40	-389.73	198.58	390.01	0.00	0.00	0.00
KOP @ 6604.66ft									
6,700.00	8.58	179.92	6,667.38	-396.86	198.59	397.13	9.00	9.00	188.72
6,800.00	17.58	179.92	6,764.69	-419.46	198.62	419.74	9.00	9.00	0.00
6,900.00	26.58	179.92	6,857.26	-457.02	198.67	457.29	9.00	9.00	0.00
7,000.00	35.58	179.92	6,942.82	-508.59	198.74	508.86	9.00	9.00	0.00
7,100.00	44.58	179.92	7,019.25	-572.91	198.82	573.18	9.00	9.00	0.00
DLS = 9°/100'									
7,200.00	53.58	179.92	7,084.68	-648.39	198.93	648.67	9.00	9.00	0.00
7,300.00	62.58	179.92	7,137.50	-733.19	199.04	733.46	9.00	9.00	0.00
7,400.00	71.58	179.92	7,176.41	-825.20	199.16	825.47	9.00	9.00	0.00
7,500.00	80.58	179.92	7,200.44	-922.16	199.29	922.44	9.00	9.00	0.00
7,600.00	89.58	179.92	7,209.00	-1,021.69	199.43	1,021.97	9.00	9.00	0.00
7,600.22	89.60	179.92	7,209.00	-1,021.91	199.43	1,022.19	8.90	8.90	0.00
End Build @ 7600.22ft - Top of Production									
7,700.00	89.60	179.92	7,209.70	-1,121.69	199.56	1,121.96	0.00	0.00	0.00
7,800.00	89.60	179.92	7,210.40	-1,221.68	199.70	1,221.96	0.00	0.00	0.00
7,900.00	89.60	179.92	7,211.10	-1,321.68	199.83	1,321.96	0.00	0.00	0.00
8,000.00	89.60	179.92	7,211.79	-1,421.68	199.97	1,421.96	0.00	0.00	0.00
8,100.00	89.60	179.92	7,212.49	-1,521.68	200.10	1,521.95	0.00	0.00	0.00
8,200.00	89.60	179.92	7,213.19	-1,621.67	200.24	1,621.95	0.00	0.00	0.00
8,300.00	89.60	179.92	7,213.89	-1,721.67	200.37	1,721.95	0.00	0.00	0.00
8,400.00	89.60	179.92	7,214.59	-1,821.67	200.51	1,821.95	0.00	0.00	0.00
8,500.00	89.60	179.92	7,215.28	-1,921.67	200.64	1,921.94	0.00	0.00	0.00
8,600.00	89.60	179.92	7,215.98	-2,021.66	200.77	2,021.94	0.00	0.00	0.00
8,700.00	89.60	179.92	7,216.68	-2,121.66	200.91	2,121.94	0.00	0.00	0.00
8,800.00	89.60	179.92	7,217.38	-2,221.66	201.04	2,221.94	0.00	0.00	0.00
8,900.00	89.60	179.92	7,218.07	-2,321.66	201.18	2,321.93	0.00	0.00	0.00
9,000.00	89.60	179.92	7,218.77	-2,421.65	201.31	2,421.93	0.00	0.00	0.00
9,100.00	89.60	179.92	7,219.47	-2,521.65	201.45	2,521.93	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 8N3-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5016.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5016.00usft (D Rig)
Site:	3N-68W-22 Hilgers 16-22HZ Pad	North Reference:	True
Well:	HILGERS 8N3-34HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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)
9,200.00	89.60	179.92	7,220.17	-2,621.65	201.58	2,621.93	0.00	0.00	0.00
9,300.00	89.60	179.92	7,220.87	-2,721.65	201.72	2,721.92	0.00	0.00	0.00
9,400.00	89.60	179.92	7,221.56	-2,821.64	201.85	2,821.92	0.00	0.00	0.00
9,500.00	89.60	179.92	7,222.26	-2,921.64	201.99	2,921.92	0.00	0.00	0.00
9,600.00	89.60	179.92	7,222.96	-3,021.64	202.12	3,021.92	0.00	0.00	0.00
9,700.00	89.60	179.92	7,223.66	-3,121.64	202.26	3,121.92	0.00	0.00	0.00
9,800.00	89.60	179.92	7,224.36	-3,221.63	202.39	3,221.91	0.00	0.00	0.00
9,900.00	89.60	179.92	7,225.05	-3,321.63	202.53	3,321.91	0.00	0.00	0.00
10,000.00	89.60	179.92	7,225.75	-3,421.63	202.66	3,421.91	0.00	0.00	0.00
10,100.00	89.60	179.92	7,226.45	-3,521.63	202.79	3,521.91	0.00	0.00	0.00
10,200.00	89.60	179.92	7,227.15	-3,621.62	202.93	3,621.90	0.00	0.00	0.00
10,300.00	89.60	179.92	7,227.84	-3,721.62	203.06	3,721.90	0.00	0.00	0.00
10,400.00	89.60	179.92	7,228.54	-3,821.62	203.20	3,821.90	0.00	0.00	0.00
10,500.00	89.60	179.92	7,229.24	-3,921.62	203.33	3,921.90	0.00	0.00	0.00
10,600.00	89.60	179.92	7,229.94	-4,021.61	203.47	4,021.89	0.00	0.00	0.00
10,700.00	89.60	179.92	7,230.64	-4,121.61	203.60	4,121.89	0.00	0.00	0.00
10,800.00	89.60	179.92	7,231.33	-4,221.61	203.74	4,221.89	0.00	0.00	0.00
10,900.00	89.60	179.92	7,232.03	-4,321.61	203.87	4,321.89	0.00	0.00	0.00
11,000.00	89.60	179.92	7,232.73	-4,421.60	204.01	4,421.88	0.00	0.00	0.00
11,100.00	89.60	179.92	7,233.43	-4,521.60	204.14	4,521.88	0.00	0.00	0.00
11,200.00	89.60	179.92	7,234.12	-4,621.60	204.28	4,621.88	0.00	0.00	0.00
11,300.00	89.60	179.92	7,234.82	-4,721.60	204.41	4,721.88	0.00	0.00	0.00
11,400.00	89.60	179.92	7,235.52	-4,821.59	204.55	4,821.87	0.00	0.00	0.00
11,500.00	89.60	179.92	7,236.22	-4,921.59	204.68	4,921.87	0.00	0.00	0.00
11,600.00	89.60	179.92	7,236.92	-5,021.59	204.81	5,021.87	0.00	0.00	0.00
11,700.00	89.60	179.92	7,237.61	-5,121.59	204.95	5,121.87	0.00	0.00	0.00
11,800.00	89.60	179.92	7,238.31	-5,221.58	205.08	5,221.86	0.00	0.00	0.00
11,900.00	89.60	179.92	7,239.01	-5,321.58	205.22	5,321.86	0.00	0.00	0.00
12,000.00	89.60	179.92	7,239.71	-5,421.58	205.35	5,421.86	0.00	0.00	0.00
12,100.00	89.60	179.92	7,240.41	-5,521.58	205.49	5,521.86	0.00	0.00	0.00
12,200.00	89.60	179.92	7,241.10	-5,621.57	205.62	5,621.85	0.00	0.00	0.00
12,300.00	89.60	179.92	7,241.80	-5,721.57	205.76	5,721.85	0.00	0.00	0.00
12,400.00	89.60	179.92	7,242.50	-5,821.57	205.89	5,821.85	0.00	0.00	0.00
12,500.00	89.60	179.92	7,243.20	-5,921.57	206.03	5,921.85	0.00	0.00	0.00
12,600.00	89.60	179.92	7,243.89	-6,021.56	206.16	6,021.84	0.00	0.00	0.00
12,700.00	89.60	179.92	7,244.59	-6,121.56	206.30	6,121.84	0.00	0.00	0.00
12,800.00	89.60	179.92	7,245.29	-6,221.56	206.43	6,221.84	0.00	0.00	0.00
12,900.00	89.60	179.92	7,245.99	-6,321.55	206.56	6,321.84	0.00	0.00	0.00
13,000.00	89.60	179.92	7,246.69	-6,421.55	206.70	6,421.83	0.00	0.00	0.00
13,100.00	89.60	179.92	7,247.38	-6,521.55	206.83	6,521.83	0.00	0.00	0.00
13,200.00	89.60	179.92	7,248.08	-6,621.55	206.97	6,621.83	0.00	0.00	0.00
13,300.00	89.60	179.92	7,248.78	-6,721.54	207.10	6,721.83	0.00	0.00	0.00
13,400.00	89.60	179.92	7,249.48	-6,821.54	207.24	6,821.83	0.00	0.00	0.00
13,500.00	89.60	179.92	7,250.17	-6,921.54	207.37	6,921.82	0.00	0.00	0.00
13,600.00	89.60	179.92	7,250.87	-7,021.54	207.51	7,021.82	0.00	0.00	0.00
13,700.00	89.60	179.92	7,251.57	-7,121.53	207.64	7,121.82	0.00	0.00	0.00
13,800.00	89.60	179.92	7,252.27	-7,221.53	207.78	7,221.82	0.00	0.00	0.00
13,900.00	89.60	179.92	7,252.97	-7,321.53	207.91	7,321.81	0.00	0.00	0.00
14,000.00	89.60	179.92	7,253.66	-7,421.53	208.05	7,421.81	0.00	0.00	0.00
14,100.00	89.60	179.92	7,254.36	-7,521.52	208.18	7,521.81	0.00	0.00	0.00
14,200.00	89.60	179.92	7,255.06	-7,621.52	208.32	7,621.81	0.00	0.00	0.00
14,300.00	89.60	179.92	7,255.76	-7,721.52	208.45	7,721.80	0.00	0.00	0.00
14,400.00	89.60	179.92	7,256.45	-7,821.52	208.58	7,821.80	0.00	0.00	0.00
14,478.12	89.60	179.92	7,257.00	-7,899.64	208.69	7,899.92	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 8N3-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5016.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5016.00usft (D Rig)
Site:	3N-68W-22 Hilgers 16-22HZ Pad	North Reference:	True
Well:	HILGERS 8N3-34HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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)
TD Well @ 14478.12ft									

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 8N3-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5016.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5016.00usft (D Rig)
Site:	3N-68W-22 Hilgers 16-22HZ Pad	North Reference:	True
Well:	HILGERS 8N3-34HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
3N-R68W-Sec. 27_Secti	0.00	0.00	0.00	0.36	-104.98	14,601,968.89	1,645,309.73	40.206606	-104.982475
- plan misses target center by 104.98usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			0.00	-901.61	-4,440.91	14,601,066.39	1,640,869.00		
Point 2			0.00	-893.57	-1,805.40	14,601,074.96	1,643,504.51		
Point 3			0.00	-845.64	823.41	14,601,123.42	1,646,133.31		
Point 4			0.00	-3,498.41	802.83	14,598,470.65	1,646,113.27		
Point 5			0.00	-6,154.53	782.53	14,595,814.52	1,646,093.50		
Point 6			0.00	-6,204.04	-4,436.84	14,595,763.96	1,640,874.14		
HILGERS 8N3-34HZ_St	0.00	0.00	0.00	0.00	0.00	14,601,968.55	1,645,414.71	40.206605	-104.982099
- plan hits target center									
- Point									
HILGERS 8N2-34HZ_Hz	0.00	0.00	0.00	0.00	0.00	14,601,968.55	1,645,414.71	40.206605	-104.982099
- plan hits target center									
- Polygon									
Point 1			0.00	-853.51	261.21	14,601,115.09	1,645,676.10		
Point 2			0.00	-2,179.30	250.84	14,599,789.30	1,645,665.99		
Point 3			0.00	-3,505.10	240.58	14,598,463.50	1,645,656.00		
Point 4			0.00	-4,833.00	230.41	14,597,135.60	1,645,646.10		
Point 5			0.00	-6,160.90	220.34	14,595,807.69	1,645,636.30		
Point 6			0.00	-7,500.50	234.67	14,594,468.10	1,645,650.90		
Point 7			0.00	-7,958.10	239.58	14,594,010.50	1,645,655.90		
Point 8			0.00	-7,960.32	-166.32	14,594,008.20	1,645,250.00		
Point 9			0.00	-7,500.32	-165.83	14,594,468.20	1,645,250.40		
Point 10			0.00	-6,171.52	-164.56	14,595,797.00	1,645,251.40		
Point 11			0.00	-4,836.82	-157.09	14,597,131.70	1,645,258.60		
Point 12			0.00	-3,509.02	-149.72	14,598,459.50	1,645,265.70		
Point 13			0.00	-2,185.13	-141.36	14,599,783.39	1,645,273.79		
Point 14			0.00	-861.13	-133.09	14,601,107.39	1,645,281.80		
Point 15			0.00	-853.51	261.21	14,601,115.09	1,645,676.10		
3N-R68W-Sec. 34_Secti	0.00	0.00	0.00	0.36	-104.98	14,601,968.89	1,645,309.73	40.206606	-104.982475
- plan misses target center by 104.98usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			0.00	-6,204.04	-4,436.84	14,595,763.96	1,640,874.14		
Point 2			0.00	-6,154.53	782.53	14,595,814.52	1,646,093.50		
Point 3			0.00	-11,510.48	839.68	14,590,458.58	1,646,151.73		
Point 4			0.00	-11,511.55	-4,434.16	14,590,456.45	1,640,877.89		
3N-R68W-Sec. 22_Secti	0.00	0.00	15.00	2,787.96	200.17	14,604,756.55	1,645,614.32	40.214261	-104.981382
- plan misses target center by 2795.14usft at 15.00usft MD (15.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			15.00	1,609.13	-4,756.64	14,606,364.72	1,640,857.35		
Point 2			15.00	1,644.10	-2,132.46	14,606,400.22	1,643,481.53		
Point 3			15.00	1,698.21	493.16	14,606,454.86	1,646,107.14		
Point 4			15.00	-967.02	505.37	14,603,789.63	1,646,119.88		
Point 5			15.00	-3,630.21	518.25	14,601,126.45	1,646,133.30		
Point 6			15.00	-3,681.09	-2,110.42	14,601,075.04	1,643,504.64		
Point 7			15.00	-3,689.13	-4,746.07	14,601,066.46	1,640,868.99		
Point 8			15.00	-1,042.08	-4,750.66	14,603,713.51	1,640,863.87		
HILGERS 8N3-34HZ_Bt	0.00	0.00	7,257.00	-7,899.64	208.69	14,594,068.95	1,645,625.00	40.184912	-104.981352
- plan hits target center									
- Point									

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 8N3-34HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5016.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5016.00usft (D Rig)
Site:	3N-68W-22 Hilgers 16-22HZ Pad	North Reference:	True
Well:	HILGERS 8N3-34HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,814.34	1,800.00	9 5/8"	9-5/8	13-1/2	
7,600.22	7,209.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
718.17	717.00	Fox Hills Mkr				
3,707.26	3,675.00	Parkman				
4,172.26	4,140.00	Sussex				
7,064.12	6,993.00	Sharon Springs				
7,172.68	7,068.00	Niobrara				
7,263.94	7,120.00	Nio B				
7,425.59	7,184.00	Nio C				

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	Begin Nudge @ 250.00ft	
850.00	847.54	-41.90	21.35	End Nudge @ 850.00ft	
3,120.00	3,089.59	-358.30	182.56	Begin Drop @ 3120.00ft	
3,570.00	3,537.74	-389.73	198.58	End Drop @ 3570.00ft	
6,604.66	6,572.40	-389.73	198.58	KOP @ 6604.66ft	
7,100.00	7,019.25	-572.91	198.82	DLS = 9°/100'	
7,600.22	7,209.00	-1,021.91	199.43	End Build @ 7600.22ft	
14,478.12	7,257.00	-7,899.64	208.69	TD Well @ 14478.12ft	