

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N**

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

**HILGERS 8N-34HZ**

**Plan A**

**Plan: Permit Rev-2**

## **Standard Planning Report**

**19 October, 2016**

Project: WELD-NAD83-UTMFT13N  
Site: 3N-68W-22 Hilgers 16-22HZ Pad  
Well: HILGERS 8N-34HZ  
Wellbore: Plan A  
Design: Permit Rev-2

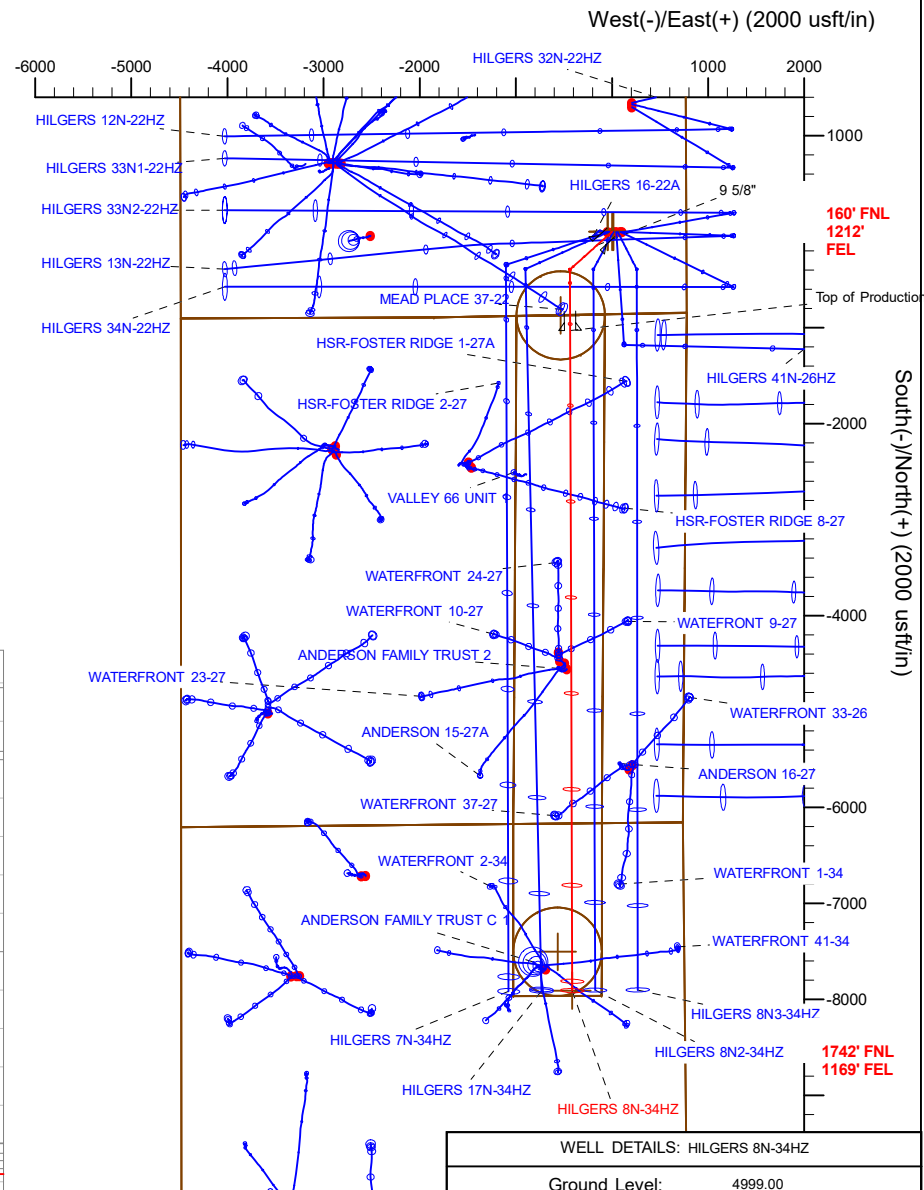
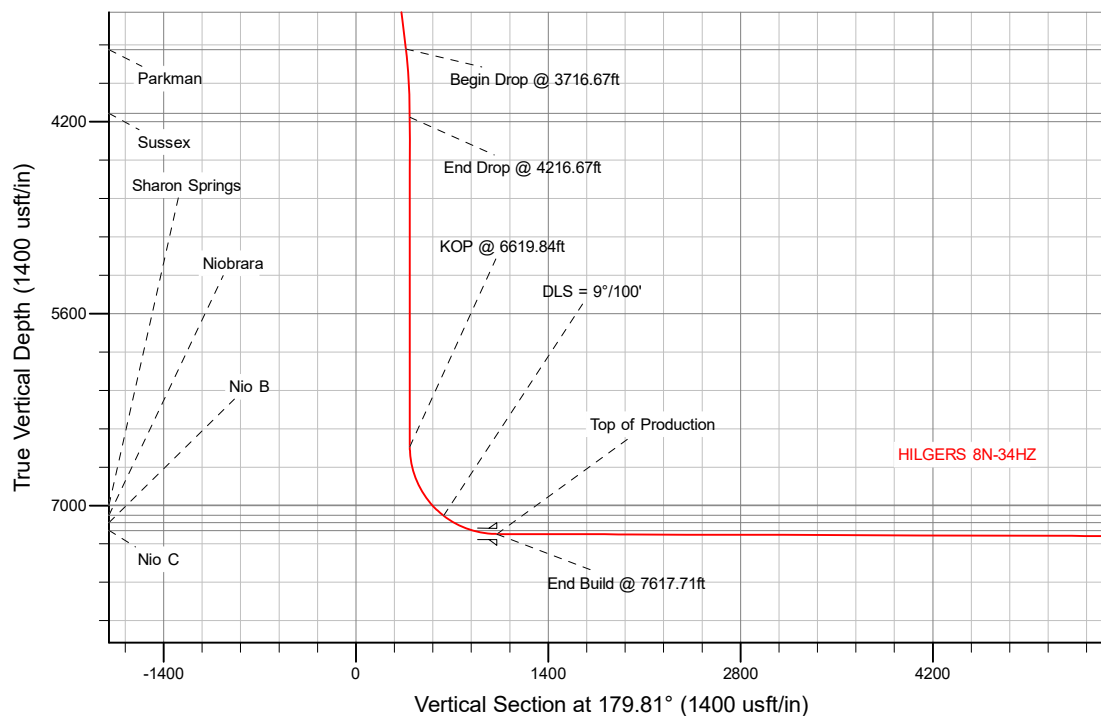
# US ROCKIES WATTENBERG PLANNING

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	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	916.67	10.00	228.00	913.29	-38.83	-43.12	1.50	228.00	38.69	
4	3716.67	10.00	228.00	3670.75	-364.17	-404.45	0.00	0.00	362.83	
5	4216.67	0.00	0.00	4168.21	-393.29	-436.80	2.00	180.00	391.84	
6	6619.84	0.00	0.00	6571.38	-393.29	-436.80	0.00	0.00	391.84	
7	7617.71	89.81	179.81	7208.00	-1027.78	-434.72	9.00	179.81	1026.33	
8	14496.85	89.81	179.81	7231.00	-7906.85	-412.26	0.00	0.00	7905.44	HILGERS 8N-34HZ_BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
HILGERS 8N-34HZ_SHL	0.00	0.00	0.00	40.206606	-104.982314	Point
HILGERS 8N-34HZ_BHL	7231.00	-7906.85	-412.26	40.184893	-104.983790	Point



WELL DETAILS: HILGERS 8N-34HZ	
Ground Level:	4999.00
RKB = 17' @ 5016.00usft (D Rig)	
Plan: Permit Rev-2 (HILGERS 8N-34HZ/Plan A)	
Created By:	Date: 10/19/2016
Reviewed:	Date:

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HILGERS 8N-34HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5016.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5016.00usft (D Rig)
<b>Site:</b>	3N-68W-22 Hilgers 16-22HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	HILGERS 8N-34HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-2		

<b>Project</b>	WELD-NAD83-UTMFT13N		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 8N-34HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,601,968.90 usft	Latitude:	40.206606
	+E/-W	44.95 usft	Easting:	1,645,354.68 usft	Longitude:	-104.982314
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,999.00 usft

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

<b>Design</b>	Permit Rev-2			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	179.81

<b>Plan Sections</b>										
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	
916.67	10.00	228.00	913.29	-38.83	-43.12	1.50	1.50	0.00	228.00	
3,716.67	10.00	228.00	3,670.75	-364.17	-404.45	0.00	0.00	0.00	0.00	
4,216.67	0.00	0.00	4,168.21	-393.29	-436.80	2.00	-2.00	0.00	180.00	
6,619.84	0.00	0.00	6,571.38	-393.29	-436.80	0.00	0.00	0.00	0.00	
7,617.71	89.81	179.81	7,208.00	-1,027.78	-434.72	9.00	9.00	18.02	179.81	
14,496.85	89.81	179.81	7,231.00	-7,906.85	-412.26	0.00	0.00	0.00	0.00	HILGERS 8N-34HZ_E

**Corporate**  
**Planning Report**

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HILGERS 8N-34HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5016.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5016.00usft (D Rig)
<b>Site:</b>	3N-68W-22 Hilgers 16-22HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	HILGERS 8N-34HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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
<b>Begin Nudge @ 250.00ft</b>									
300.00	0.75	228.00	300.00	-0.22	-0.24	0.22	1.50	1.50	0.00
400.00	2.25	228.00	399.96	-1.97	-2.19	1.96	1.50	1.50	0.00
500.00	3.75	228.00	499.82	-5.47	-6.08	5.45	1.50	1.50	0.00
600.00	5.25	228.00	599.51	-10.72	-11.91	10.68	1.50	1.50	0.00
700.00	6.75	228.00	698.96	-17.72	-19.68	17.65	1.50	1.50	0.00
800.00	8.25	228.00	798.10	-26.45	-29.38	26.35	1.50	1.50	0.00
900.00	9.75	228.00	896.87	-36.92	-41.00	36.78	1.50	1.50	0.00
916.67	10.00	228.00	913.29	-38.83	-43.13	38.69	1.50	1.50	0.00
<b>End Nudge @ 916.67ft</b>									
1,000.00	10.00	228.00	995.35	-48.51	-53.88	48.33	0.00	0.00	0.00
1,100.00	10.00	228.00	1,093.84	-60.13	-66.78	59.91	0.00	0.00	0.00
1,200.00	10.00	228.00	1,192.32	-71.75	-79.69	71.49	0.00	0.00	0.00
1,300.00	10.00	228.00	1,290.80	-83.37	-92.59	83.06	0.00	0.00	0.00
1,400.00	10.00	228.00	1,389.28	-94.99	-105.50	94.64	0.00	0.00	0.00
1,500.00	10.00	228.00	1,487.76	-106.61	-118.40	106.22	0.00	0.00	0.00
1,600.00	10.00	228.00	1,586.24	-118.23	-131.31	117.79	0.00	0.00	0.00
1,700.00	10.00	228.00	1,684.72	-129.85	-144.21	129.37	0.00	0.00	0.00
1,800.00	10.00	228.00	1,783.20	-141.47	-157.12	140.95	0.00	0.00	0.00
1,817.06	10.00	228.00	1,800.00	-143.45	-159.32	142.92	0.00	0.00	0.00
<b>9 5/8"</b>									
1,900.00	10.00	228.00	1,881.68	-153.09	-170.02	152.52	0.00	0.00	0.00
2,000.00	10.00	228.00	1,980.16	-164.71	-182.92	164.10	0.00	0.00	0.00
2,100.00	10.00	228.00	2,078.64	-176.33	-195.83	175.67	0.00	0.00	0.00
2,200.00	10.00	228.00	2,177.12	-187.94	-208.73	187.25	0.00	0.00	0.00
2,300.00	10.00	228.00	2,275.60	-199.56	-221.64	198.83	0.00	0.00	0.00
2,400.00	10.00	228.00	2,374.09	-211.18	-234.54	210.40	0.00	0.00	0.00
2,500.00	10.00	228.00	2,472.57	-222.80	-247.45	221.98	0.00	0.00	0.00
2,600.00	10.00	228.00	2,571.05	-234.42	-260.35	233.56	0.00	0.00	0.00
2,700.00	10.00	228.00	2,669.53	-246.04	-273.26	245.13	0.00	0.00	0.00
2,800.00	10.00	228.00	2,768.01	-257.66	-286.16	256.71	0.00	0.00	0.00
2,900.00	10.00	228.00	2,866.49	-269.28	-299.07	268.29	0.00	0.00	0.00
3,000.00	10.00	228.00	2,964.97	-280.90	-311.97	279.86	0.00	0.00	0.00
3,100.00	10.00	228.00	3,063.45	-292.52	-324.87	291.44	0.00	0.00	0.00
3,200.00	10.00	228.00	3,161.93	-304.14	-337.78	303.02	0.00	0.00	0.00
3,300.00	10.00	228.00	3,260.41	-315.76	-350.68	314.59	0.00	0.00	0.00
3,400.00	10.00	228.00	3,358.89	-327.38	-363.59	326.17	0.00	0.00	0.00
3,500.00	10.00	228.00	3,457.37	-339.00	-376.49	337.75	0.00	0.00	0.00
3,600.00	10.00	228.00	3,555.85	-350.62	-389.40	349.32	0.00	0.00	0.00
3,700.00	10.00	228.00	3,654.34	-362.23	-402.30	360.90	0.00	0.00	0.00
3,716.67	10.00	228.00	3,670.75	-364.17	-404.45	362.83	0.00	0.00	0.00
<b>Begin Drop @ 3716.67ft</b>									
3,800.00	8.33	228.00	3,753.02	-373.05	-414.32	371.68	2.00	-2.00	0.00
3,900.00	6.33	228.00	3,852.19	-381.59	-423.80	380.19	2.00	-2.00	0.00
4,000.00	4.33	228.00	3,951.75	-387.81	-430.71	386.38	2.00	-2.00	0.00
4,100.00	2.33	228.00	4,051.58	-391.70	-435.03	390.26	2.00	-2.00	0.00
4,200.00	0.33	228.00	4,151.55	-393.26	-436.76	391.81	2.00	-2.00	0.00
4,216.67	0.00	0.00	4,168.22	-393.29	-436.80	391.84	2.00	-2.00	0.00
<b>End Drop @ 4216.67ft</b>									
4,300.00	0.00	0.00	4,251.55	-393.29	-436.80	391.84	0.00	0.00	0.00

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HILGERS 8N-34HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5016.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5016.00usft (D Rig)
<b>Site:</b>	3N-68W-22 Hilgers 16-22HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	HILGERS 8N-34HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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	0.00	0.00	4,351.55	-393.29	-436.80	391.84	0.00	0.00	0.00
4,500.00	0.00	0.00	4,451.55	-393.29	-436.80	391.84	0.00	0.00	0.00
4,600.00	0.00	0.00	4,551.55	-393.29	-436.80	391.84	0.00	0.00	0.00
4,700.00	0.00	0.00	4,651.55	-393.29	-436.80	391.84	0.00	0.00	0.00
4,800.00	0.00	0.00	4,751.55	-393.29	-436.80	391.84	0.00	0.00	0.00
4,900.00	0.00	0.00	4,851.55	-393.29	-436.80	391.84	0.00	0.00	0.00
5,000.00	0.00	0.00	4,951.55	-393.29	-436.80	391.84	0.00	0.00	0.00
5,100.00	0.00	0.00	5,051.55	-393.29	-436.80	391.84	0.00	0.00	0.00
5,200.00	0.00	0.00	5,151.55	-393.29	-436.80	391.84	0.00	0.00	0.00
5,300.00	0.00	0.00	5,251.55	-393.29	-436.80	391.84	0.00	0.00	0.00
5,400.00	0.00	0.00	5,351.55	-393.29	-436.80	391.84	0.00	0.00	0.00
5,500.00	0.00	0.00	5,451.55	-393.29	-436.80	391.84	0.00	0.00	0.00
5,600.00	0.00	0.00	5,551.55	-393.29	-436.80	391.84	0.00	0.00	0.00
5,700.00	0.00	0.00	5,651.55	-393.29	-436.80	391.84	0.00	0.00	0.00
5,800.00	0.00	0.00	5,751.55	-393.29	-436.80	391.84	0.00	0.00	0.00
5,900.00	0.00	0.00	5,851.55	-393.29	-436.80	391.84	0.00	0.00	0.00
6,000.00	0.00	0.00	5,951.55	-393.29	-436.80	391.84	0.00	0.00	0.00
6,100.00	0.00	0.00	6,051.55	-393.29	-436.80	391.84	0.00	0.00	0.00
6,200.00	0.00	0.00	6,151.55	-393.29	-436.80	391.84	0.00	0.00	0.00
6,300.00	0.00	0.00	6,251.55	-393.29	-436.80	391.84	0.00	0.00	0.00
6,400.00	0.00	0.00	6,351.55	-393.29	-436.80	391.84	0.00	0.00	0.00
6,500.00	0.00	0.00	6,451.55	-393.29	-436.80	391.84	0.00	0.00	0.00
6,600.00	0.00	0.00	6,551.55	-393.29	-436.80	391.84	0.00	0.00	0.00
6,619.84	0.00	0.00	6,571.39	-393.29	-436.80	391.84	0.00	0.00	0.00
<b>KOP @ 6619.84ft</b>									
6,700.00	7.21	179.81	6,651.34	-398.33	-436.78	396.88	9.00	9.00	0.00
6,800.00	16.21	179.81	6,749.15	-418.62	-436.71	417.17	9.00	9.00	0.00
6,900.00	25.21	179.81	6,842.59	-453.95	-436.60	452.50	9.00	9.00	0.00
7,000.00	34.21	179.81	6,929.35	-503.47	-436.44	502.02	9.00	9.00	0.00
7,100.00	43.21	179.81	7,007.30	-565.95	-436.23	564.50	9.00	9.00	0.00
7,200.00	52.21	179.81	7,074.51	-639.85	-435.99	638.40	9.00	9.00	0.00
<b>DLS = 9°/100'</b>									
7,300.00	61.21	179.81	7,129.34	-723.36	-435.72	721.91	9.00	9.00	0.00
7,400.00	70.21	179.81	7,170.42	-814.42	-435.42	812.97	9.00	9.00	0.00
7,500.00	79.21	179.81	7,196.76	-910.78	-435.11	909.33	9.00	9.00	0.00
7,600.00	88.21	179.81	7,207.70	-1,010.08	-434.78	1,008.63	9.00	9.00	0.00
7,617.71	89.81	179.81	7,208.00	-1,027.78	-434.72	1,026.34	9.00	9.00	0.00
<b>End Build @ 7617.71ft - Top of Production</b>									
7,700.00	89.81	179.81	7,208.28	-1,110.07	-434.46	1,108.63	0.00	0.00	0.00
7,800.00	89.81	179.81	7,208.61	-1,210.07	-434.13	1,208.62	0.00	0.00	0.00
7,900.00	89.81	179.81	7,208.94	-1,310.07	-433.80	1,308.62	0.00	0.00	0.00
8,000.00	89.81	179.81	7,209.28	-1,410.07	-433.48	1,408.62	0.00	0.00	0.00
8,100.00	89.81	179.81	7,209.61	-1,510.07	-433.15	1,508.62	0.00	0.00	0.00
8,200.00	89.81	179.81	7,209.95	-1,610.07	-432.82	1,608.62	0.00	0.00	0.00
8,300.00	89.81	179.81	7,210.28	-1,710.07	-432.50	1,708.62	0.00	0.00	0.00
8,400.00	89.81	179.81	7,210.62	-1,810.06	-432.17	1,808.62	0.00	0.00	0.00
8,500.00	89.81	179.81	7,210.95	-1,910.06	-431.84	1,908.62	0.00	0.00	0.00
8,600.00	89.81	179.81	7,211.28	-2,010.06	-431.52	2,008.62	0.00	0.00	0.00
8,700.00	89.81	179.81	7,211.62	-2,110.06	-431.19	2,108.62	0.00	0.00	0.00
8,800.00	89.81	179.81	7,211.95	-2,210.06	-430.86	2,208.62	0.00	0.00	0.00
8,900.00	89.81	179.81	7,212.29	-2,310.06	-430.54	2,308.62	0.00	0.00	0.00
9,000.00	89.81	179.81	7,212.62	-2,410.06	-430.21	2,408.62	0.00	0.00	0.00
9,100.00	89.81	179.81	7,212.96	-2,510.06	-429.88	2,508.62	0.00	0.00	0.00

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HILGERS 8N-34HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5016.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5016.00usft (D Rig)
<b>Site:</b>	3N-68W-22 Hilgers 16-22HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	HILGERS 8N-34HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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)
9,200.00	89.81	179.81	7,213.29	-2,610.06	-429.56	2,608.62	0.00	0.00	0.00
9,300.00	89.81	179.81	7,213.63	-2,710.05	-429.23	2,708.62	0.00	0.00	0.00
9,400.00	89.81	179.81	7,213.96	-2,810.05	-428.90	2,808.62	0.00	0.00	0.00
9,500.00	89.81	179.81	7,214.29	-2,910.05	-428.58	2,908.62	0.00	0.00	0.00
9,600.00	89.81	179.81	7,214.63	-3,010.05	-428.25	3,008.61	0.00	0.00	0.00
9,700.00	89.81	179.81	7,214.96	-3,110.05	-427.92	3,108.61	0.00	0.00	0.00
9,800.00	89.81	179.81	7,215.30	-3,210.05	-427.60	3,208.61	0.00	0.00	0.00
9,900.00	89.81	179.81	7,215.63	-3,310.05	-427.27	3,308.61	0.00	0.00	0.00
10,000.00	89.81	179.81	7,215.97	-3,410.05	-426.94	3,408.61	0.00	0.00	0.00
10,100.00	89.81	179.81	7,216.30	-3,510.05	-426.62	3,508.61	0.00	0.00	0.00
10,200.00	89.81	179.81	7,216.63	-3,610.04	-426.29	3,608.61	0.00	0.00	0.00
10,300.00	89.81	179.81	7,216.97	-3,710.04	-425.97	3,708.61	0.00	0.00	0.00
10,400.00	89.81	179.81	7,217.30	-3,810.04	-425.64	3,808.61	0.00	0.00	0.00
10,500.00	89.81	179.81	7,217.64	-3,910.04	-425.31	3,908.61	0.00	0.00	0.00
10,600.00	89.81	179.81	7,217.97	-4,010.04	-424.99	4,008.61	0.00	0.00	0.00
10,700.00	89.81	179.81	7,218.31	-4,110.04	-424.66	4,108.61	0.00	0.00	0.00
10,800.00	89.81	179.81	7,218.64	-4,210.04	-424.33	4,208.61	0.00	0.00	0.00
10,900.00	89.81	179.81	7,218.97	-4,310.04	-424.01	4,308.61	0.00	0.00	0.00
11,000.00	89.81	179.81	7,219.31	-4,410.04	-423.68	4,408.61	0.00	0.00	0.00
11,100.00	89.81	179.81	7,219.64	-4,510.04	-423.35	4,508.61	0.00	0.00	0.00
11,200.00	89.81	179.81	7,219.98	-4,610.03	-423.03	4,608.61	0.00	0.00	0.00
11,300.00	89.81	179.81	7,220.31	-4,710.03	-422.70	4,708.61	0.00	0.00	0.00
11,400.00	89.81	179.81	7,220.65	-4,810.03	-422.37	4,808.60	0.00	0.00	0.00
11,500.00	89.81	179.81	7,220.98	-4,910.03	-422.05	4,908.60	0.00	0.00	0.00
11,600.00	89.81	179.81	7,221.31	-5,010.03	-421.72	5,008.60	0.00	0.00	0.00
11,700.00	89.81	179.81	7,221.65	-5,110.03	-421.39	5,108.60	0.00	0.00	0.00
11,800.00	89.81	179.81	7,221.98	-5,210.03	-421.07	5,208.60	0.00	0.00	0.00
11,900.00	89.81	179.81	7,222.32	-5,310.03	-420.74	5,308.60	0.00	0.00	0.00
12,000.00	89.81	179.81	7,222.65	-5,410.03	-420.41	5,408.60	0.00	0.00	0.00
12,100.00	89.81	179.81	7,222.99	-5,510.02	-420.09	5,508.60	0.00	0.00	0.00
12,200.00	89.81	179.81	7,223.32	-5,610.02	-419.76	5,608.60	0.00	0.00	0.00
12,300.00	89.81	179.81	7,223.66	-5,710.02	-419.43	5,708.60	0.00	0.00	0.00
12,400.00	89.81	179.81	7,223.99	-5,810.02	-419.11	5,808.60	0.00	0.00	0.00
12,500.00	89.81	179.81	7,224.32	-5,910.02	-418.78	5,908.60	0.00	0.00	0.00
12,600.00	89.81	179.81	7,224.66	-6,010.02	-418.45	6,008.60	0.00	0.00	0.00
12,700.00	89.81	179.81	7,224.99	-6,110.02	-418.13	6,108.60	0.00	0.00	0.00
12,800.00	89.81	179.81	7,225.33	-6,210.02	-417.80	6,208.60	0.00	0.00	0.00
12,900.00	89.81	179.81	7,225.66	-6,310.02	-417.47	6,308.60	0.00	0.00	0.00
13,000.00	89.81	179.81	7,226.00	-6,410.01	-417.15	6,408.60	0.00	0.00	0.00
13,100.00	89.81	179.81	7,226.33	-6,510.01	-416.82	6,508.60	0.00	0.00	0.00
13,200.00	89.81	179.81	7,226.66	-6,610.01	-416.49	6,608.59	0.00	0.00	0.00
13,300.00	89.81	179.81	7,227.00	-6,710.01	-416.17	6,708.59	0.00	0.00	0.00
13,400.00	89.81	179.81	7,227.33	-6,810.01	-415.84	6,808.59	0.00	0.00	0.00
13,500.00	89.81	179.81	7,227.67	-6,910.01	-415.52	6,908.59	0.00	0.00	0.00
13,600.00	89.81	179.81	7,228.00	-7,010.01	-415.19	7,008.59	0.00	0.00	0.00
13,700.00	89.81	179.81	7,228.34	-7,110.01	-414.86	7,108.59	0.00	0.00	0.00
13,800.00	89.81	179.81	7,228.67	-7,210.01	-414.54	7,208.59	0.00	0.00	0.00
13,900.00	89.81	179.81	7,229.00	-7,310.00	-414.21	7,308.59	0.00	0.00	0.00
14,000.00	89.81	179.81	7,229.34	-7,410.00	-413.88	7,408.59	0.00	0.00	0.00
14,100.00	89.81	179.81	7,229.67	-7,510.00	-413.56	7,508.59	0.00	0.00	0.00
14,200.00	89.81	179.81	7,230.01	-7,610.00	-413.23	7,608.59	0.00	0.00	0.00
14,300.00	89.81	179.81	7,230.34	-7,710.00	-412.90	7,708.59	0.00	0.00	0.00
14,400.00	89.81	179.81	7,230.68	-7,810.00	-412.58	7,808.59	0.00	0.00	0.00
14,496.85	89.81	179.81	7,231.00	-7,906.85	-412.26	7,905.44	0.00	0.00	0.00

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HILGERS 8N-34HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5016.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5016.00usft (D Rig)
<b>Site:</b>	3N-68W-22 Hilgers 16-22HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	HILGERS 8N-34HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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)
TD Well @ 14496.85ft									

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HILGERS 8N-34HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5016.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5016.00usft (D Rig)
<b>Site:</b>	3N-68W-22 Hilgers 16-22HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	HILGERS 8N-34HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-2		

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)		
HILGERS 8N-34HZ_Har	0.00	0.00	0.00	-0.36	15.08	14,601,968.54	1,645,369.76	40.206605	-104.982260
- plan misses target center by 15.08usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			0.00	-861.13	-88.14	14,601,107.39	1,645,281.79		
Point 2			0.00	-2,185.13	-96.40	14,599,783.39	1,645,273.80		
Point 3			0.00	-3,509.02	-104.77	14,598,459.50	1,645,265.69		
Point 4			0.00	-4,836.82	-112.13	14,597,131.70	1,645,258.60		
Point 5			0.00	-6,164.62	-119.60	14,595,803.90	1,645,251.39		
Point 6			0.00	-7,500.32	-120.86	14,594,468.20	1,645,250.40		
Point 7			0.00	-7,960.32	-121.36	14,594,008.20	1,645,249.99		
Point 8			0.00	-7,965.44	-1,041.36	14,594,002.89	1,644,329.99		
Point 9			0.00	-7,505.44	-1,040.87	14,594,462.89	1,644,330.39		
Point 10			0.00	-6,173.34	-1,039.60	14,595,794.99	1,644,331.39		
Point 11			0.00	-4,845.94	-1,032.23	14,597,122.40	1,644,338.50		
Point 12			0.00	-3,518.44	-1,024.87	14,598,449.90	1,644,345.59		
Point 13			0.00	-2,198.74	-1,016.50	14,599,769.60	1,644,353.70		
Point 14			0.00	-878.94	-1,008.14	14,601,089.40	1,644,361.80		
Point 15			0.00	-861.13	-88.14	14,601,107.39	1,645,281.79		
HILGERS 8N-34HZ_SHI	0.00	0.00	0.00	0.00	0.00	14,601,968.90	1,645,354.68	40.206606	-104.982314
- plan hits target center									
- Point									
3N-R68W-Sec. 27_Secti	0.00	0.00	0.00	0.00	-44.95	14,601,968.89	1,645,309.73	40.206606	-104.982475
- plan misses target center by 44.95usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			0.00	-901.61	-4,440.91	14,601,066.40	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	14,598,470.64	1,646,113.26		
Point 5			0.00	-6,154.53	782.53	14,595,814.52	1,646,093.49		
Point 6			0.00	-6,204.04	-4,436.84	14,595,763.97	1,640,874.13		
HILGERS 8N-34HZ_46C	0.00	0.00	0.00	-7,503.29	-565.78	14,594,465.50	1,644,790.40	40.186001	-104.984340
- plan misses target center by 7231.21usft at 14068.62usft MD (7229.57 TVD, -7478.63 N, -413.66 E)									
- Circle (radius 460.00)									
3N-R68W-Sec. 34_Secti	0.00	0.00	0.00	0.00	-44.95	14,601,968.89	1,645,309.73	40.206606	-104.982475
- plan misses target center by 44.95usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			0.00	-6,204.04	-4,436.84	14,595,763.97	1,640,874.13		
Point 2			0.00	-6,154.53	782.53	14,595,814.52	1,646,093.49		
Point 3			0.00	-11,510.48	839.68	14,590,458.58	1,646,151.71		
Point 4			0.00	-11,511.55	-4,434.16	14,590,456.46	1,640,877.87		
HILGERS 8N-34HZ_46C	0.00	0.00	0.00	-870.40	-533.06	14,601,098.40	1,644,821.80	40.204216	-104.984223
- plan misses target center by 1020.66usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Circle (radius 460.00)									
3N-R68W-Sec. 22_Secti	0.00	0.00	15.00	2,787.60	260.19	14,604,756.55	1,645,614.32	40.214261	-104.981382
- plan misses target center by 2799.71usft at 15.00usft MD (15.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			15.00	1,609.13	-4,756.64	14,606,364.73	1,640,857.36		
Point 2			15.00	1,644.10	-2,132.46	14,606,400.23	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	1,646,133.29		
Point 6			15.00	-3,681.09	-2,110.42	14,601,075.04	1,643,504.63		
Point 7			15.00	-3,689.13	-4,746.07	14,601,066.48	1,640,868.98		
Point 8			15.00	-1,042.08	-4,750.66	14,603,713.53	1,640,863.87		



# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HILGERS 8N-34HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5016.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5016.00usft (D Rig)
<b>Site:</b>	3N-68W-22 Hilgers 16-22HZ Pad	<b>North Reference:</b>	True
<b>Well:</b>	HILGERS 8N-34HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-2		

HILGERS 8N-34HZ_BHI	0.00	0.00	7,231.00	-7,906.85	-412.26	14,594,061.97	1,644,944.00	40.184893	-104.983790
- plan hits target center									
- Point									

## Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,817.06	1,800.00	9 5/8"	9-5/8	13-1/2
7,617.71	7,208.00	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			
3,720.98	3,675.00	Parkman			
4,188.45	4,140.00	Sussex			
7,084.67	6,996.00	Sharon Springs			
7,194.30	7,071.00	Niobrara			
7,289.09	7,124.00	Nio B			
7,444.46	7,184.00	Nio C			

## 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	Begin Nudge @ 250.00ft
916.67	913.29	-38.83	-43.13	End Nudge @ 916.67ft
3,716.67	3,670.75	-364.17	-404.45	Begin Drop @ 3716.67ft
4,216.67	4,168.22	-393.29	-436.80	End Drop @ 4216.67ft
6,619.84	6,571.39	-393.29	-436.80	KOP @ 6619.84ft
7,200.00	7,074.51	-639.85	-435.99	DLS = 9°/100'
7,617.71	7,208.00	-1,027.78	-434.72	End Build @ 7617.71ft
14,496.85	7,231.00	-7,906.85	-412.26	TD Well @ 14496.85ft