

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

HILGERS 8N2-34HZ

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 8N2-34HZ
 Wellbore: Plan A
 Design: Permit Rev-1

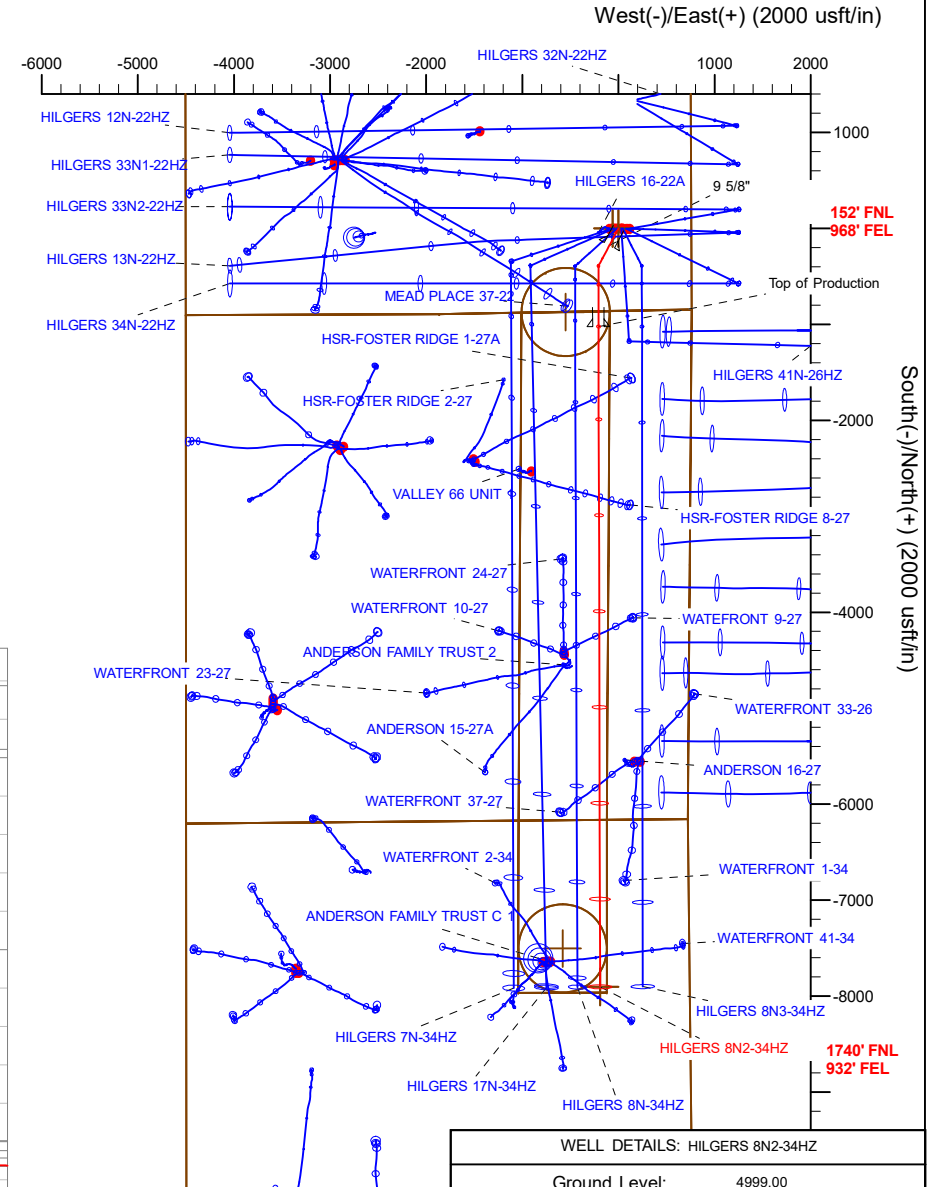
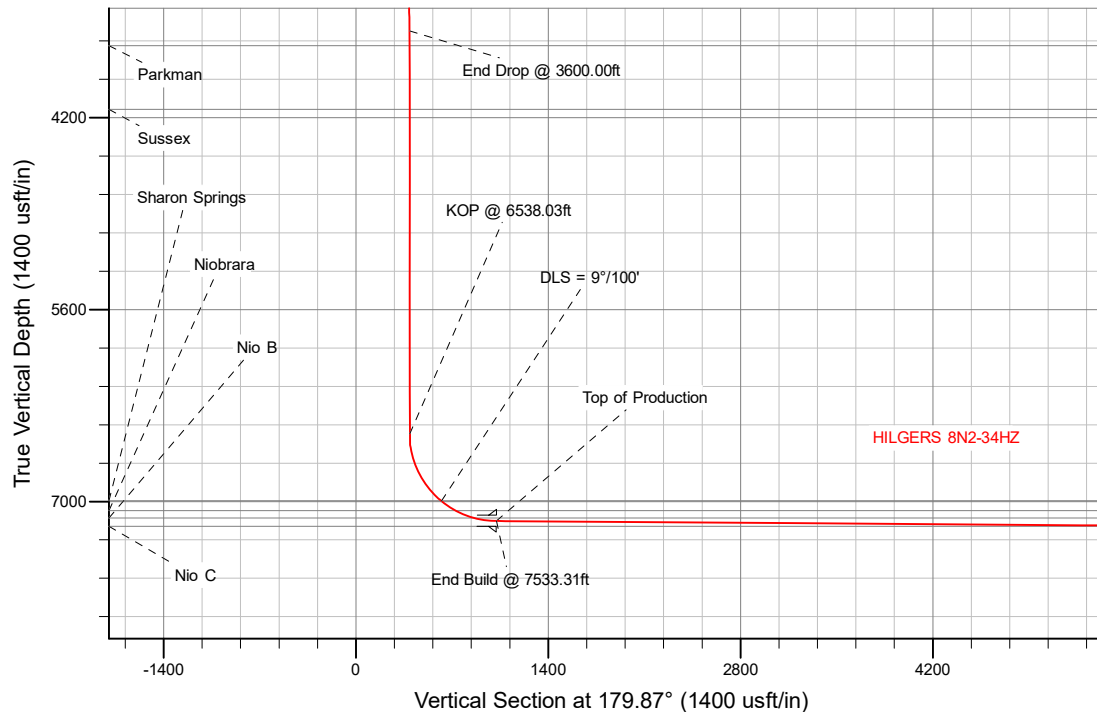
US ROCKIES WATTENBERG PLANNING

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	208.00	847.54	-41.52	-22.08	1.50	208.00	41.47	
4	3150.00	9.00	208.00	3119.22	-359.21	-190.99	0.00	0.00	358.77	
5	3600.00	0.00	0.00	3567.37	-390.35	-207.55	2.00	180.00	389.88	
6	6538.03	0.00	0.00	6505.40	-390.35	-207.55	0.00	0.00	389.88	
7	7533.31	89.58	179.87	7142.00	-1022.25	-206.10	9.00	179.87	1021.78	
8	14413.84	89.58	179.87	7193.00	-7902.57	-190.34	0.00	0.00	7902.12	HILGERS 8N2-34HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
HILGERS 8N2-34HZ_SHL	0.00	0.00	0.00	40.206605	-104.982260	Point
HILGERS 8N2-34HZ_BHL	7193.00	-7902.57	-190.34	40.184904	-104.982942	Point



WELL DETAILS: HILGERS 8N2-34HZ

Ground Level: 4999.00

RKB = 17' @ 5016.00usft (D Rig)

Plan: Permit Rev-1 (HILGERS 8N2-34HZ/Plan A)

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

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 8N2-34HZ
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 8N2-34HZ	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 8N2-34HZ					
Well Position	+N/-S	-0.36 usft	Northing:	14,601,968.54 usft	Latitude:	40.206605
	+E/-W	60.03 usft	Easting:	1,645,369.76 usft	Longitude:	-104.982260
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	179.87

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	208.00	847.54	-41.52	-22.08	1.50	1.50	0.00	208.00	
3,150.00	9.00	208.00	3,119.22	-359.21	-190.99	0.00	0.00	0.00	0.00	
3,600.00	0.00	0.00	3,567.37	-390.35	-207.55	2.00	-2.00	33.78	180.00	
6,538.03	0.00	0.00	6,505.40	-390.35	-207.55	0.00	0.00	0.00	0.00	
7,533.31	89.58	179.87	7,142.00	-1,022.25	-206.10	9.00	9.00	18.07	179.87	
14,413.84	89.58	179.87	7,193.00	-7,902.57	-190.34	0.00	0.00	0.00	0.00	HILGERS 8N2-34HZ_

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 8N2-34HZ
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 8N2-34HZ	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	208.00	300.00	-0.29	-0.15	0.29	1.50	1.50	0.00
400.00	2.25	208.00	399.96	-2.60	-1.38	2.60	1.50	1.50	0.00
500.00	3.75	208.00	499.82	-7.22	-3.84	7.21	1.50	1.50	0.00
600.00	5.25	208.00	599.51	-14.15	-7.52	14.13	1.50	1.50	0.00
700.00	6.75	208.00	698.96	-23.38	-12.43	23.35	1.50	1.50	0.00
800.00	8.25	208.00	798.10	-34.90	-18.56	34.86	1.50	1.50	0.00
850.00	9.00	208.00	847.54	-41.52	-22.08	41.47	1.50	1.50	0.00
End Nudge @ 850.00ft									
900.00	9.00	208.00	896.92	-48.43	-25.75	48.37	0.00	0.00	0.00
1,000.00	9.00	208.00	995.69	-62.24	-33.09	62.17	0.00	0.00	0.00
1,100.00	9.00	208.00	1,094.46	-76.05	-40.44	75.96	0.00	0.00	0.00
1,200.00	9.00	208.00	1,193.23	-89.87	-47.78	89.76	0.00	0.00	0.00
1,300.00	9.00	208.00	1,292.00	-103.68	-55.13	103.55	0.00	0.00	0.00
1,400.00	9.00	208.00	1,390.76	-117.49	-62.47	117.35	0.00	0.00	0.00
1,500.00	9.00	208.00	1,489.53	-131.30	-69.81	131.14	0.00	0.00	0.00
1,600.00	9.00	208.00	1,588.30	-145.12	-77.16	144.94	0.00	0.00	0.00
1,700.00	9.00	208.00	1,687.07	-158.93	-84.50	158.74	0.00	0.00	0.00
1,800.00	9.00	208.00	1,785.84	-172.74	-91.85	172.53	0.00	0.00	0.00
1,814.34	9.00	208.00	1,800.00	-174.72	-92.90	174.51	0.00	0.00	0.00
9 5/8"									
1,900.00	9.00	208.00	1,884.61	-186.55	-99.19	186.33	0.00	0.00	0.00
2,000.00	9.00	208.00	1,983.38	-200.36	-106.54	200.12	0.00	0.00	0.00
2,100.00	9.00	208.00	2,082.15	-214.18	-113.88	213.92	0.00	0.00	0.00
2,200.00	9.00	208.00	2,180.91	-227.99	-121.22	227.71	0.00	0.00	0.00
2,300.00	9.00	208.00	2,279.68	-241.80	-128.57	241.51	0.00	0.00	0.00
2,400.00	9.00	208.00	2,378.45	-255.61	-135.91	255.30	0.00	0.00	0.00
2,500.00	9.00	208.00	2,477.22	-269.43	-143.26	269.10	0.00	0.00	0.00
2,600.00	9.00	208.00	2,575.99	-283.24	-150.60	282.90	0.00	0.00	0.00
2,700.00	9.00	208.00	2,674.76	-297.05	-157.94	296.69	0.00	0.00	0.00
2,800.00	9.00	208.00	2,773.53	-310.86	-165.29	310.49	0.00	0.00	0.00
2,900.00	9.00	208.00	2,872.30	-324.68	-172.63	324.28	0.00	0.00	0.00
3,000.00	9.00	208.00	2,971.07	-338.49	-179.98	338.08	0.00	0.00	0.00
3,100.00	9.00	208.00	3,069.83	-352.30	-187.32	351.87	0.00	0.00	0.00
3,150.00	9.00	208.00	3,119.22	-359.21	-190.99	358.77	0.00	0.00	0.00
Begin Drop @ 3150.00ft									
3,200.00	8.00	208.00	3,168.67	-365.73	-194.46	365.29	2.00	-2.00	0.00
3,300.00	6.00	208.00	3,267.92	-376.49	-200.18	376.04	2.00	-2.00	0.00
3,400.00	4.00	208.00	3,367.53	-384.19	-204.28	383.72	2.00	-2.00	0.00
3,500.00	2.00	208.00	3,467.39	-388.81	-206.73	388.34	2.00	-2.00	0.00
3,600.00	0.00	0.00	3,567.37	-390.35	-207.55	389.88	2.00	-2.00	152.00
End Drop @ 3600.00ft									
3,700.00	0.00	0.00	3,667.37	-390.35	-207.55	389.88	0.00	0.00	0.00
3,800.00	0.00	0.00	3,767.37	-390.35	-207.55	389.88	0.00	0.00	0.00
3,900.00	0.00	0.00	3,867.37	-390.35	-207.55	389.88	0.00	0.00	0.00
4,000.00	0.00	0.00	3,967.37	-390.35	-207.55	389.88	0.00	0.00	0.00
4,100.00	0.00	0.00	4,067.37	-390.35	-207.55	389.88	0.00	0.00	0.00
4,200.00	0.00	0.00	4,167.37	-390.35	-207.55	389.88	0.00	0.00	0.00
4,300.00	0.00	0.00	4,267.37	-390.35	-207.55	389.88	0.00	0.00	0.00
4,400.00	0.00	0.00	4,367.37	-390.35	-207.55	389.88	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 8N2-34HZ
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 8N2-34HZ	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)
4,500.00	0.00	0.00	4,467.37	-390.35	-207.55	389.88	0.00	0.00	0.00
4,600.00	0.00	0.00	4,567.37	-390.35	-207.55	389.88	0.00	0.00	0.00
4,700.00	0.00	0.00	4,667.37	-390.35	-207.55	389.88	0.00	0.00	0.00
4,800.00	0.00	0.00	4,767.37	-390.35	-207.55	389.88	0.00	0.00	0.00
4,900.00	0.00	0.00	4,867.37	-390.35	-207.55	389.88	0.00	0.00	0.00
5,000.00	0.00	0.00	4,967.37	-390.35	-207.55	389.88	0.00	0.00	0.00
5,100.00	0.00	0.00	5,067.37	-390.35	-207.55	389.88	0.00	0.00	0.00
5,200.00	0.00	0.00	5,167.37	-390.35	-207.55	389.88	0.00	0.00	0.00
5,300.00	0.00	0.00	5,267.37	-390.35	-207.55	389.88	0.00	0.00	0.00
5,400.00	0.00	0.00	5,367.37	-390.35	-207.55	389.88	0.00	0.00	0.00
5,500.00	0.00	0.00	5,467.37	-390.35	-207.55	389.88	0.00	0.00	0.00
5,600.00	0.00	0.00	5,567.37	-390.35	-207.55	389.88	0.00	0.00	0.00
5,700.00	0.00	0.00	5,667.37	-390.35	-207.55	389.88	0.00	0.00	0.00
5,800.00	0.00	0.00	5,767.37	-390.35	-207.55	389.88	0.00	0.00	0.00
5,900.00	0.00	0.00	5,867.37	-390.35	-207.55	389.88	0.00	0.00	0.00
6,000.00	0.00	0.00	5,967.37	-390.35	-207.55	389.88	0.00	0.00	0.00
6,100.00	0.00	0.00	6,067.37	-390.35	-207.55	389.88	0.00	0.00	0.00
6,200.00	0.00	0.00	6,167.37	-390.35	-207.55	389.88	0.00	0.00	0.00
6,300.00	0.00	0.00	6,267.37	-390.35	-207.55	389.88	0.00	0.00	0.00
6,400.00	0.00	0.00	6,367.37	-390.35	-207.55	389.88	0.00	0.00	0.00
6,500.00	0.00	0.00	6,467.37	-390.35	-207.55	389.88	0.00	0.00	0.00
6,538.03	0.00	0.00	6,505.40	-390.35	-207.55	389.88	0.00	0.00	0.00
KOP @ 6538.03ft									
6,600.00	5.58	179.87	6,567.27	-393.36	-207.54	392.89	9.00	9.00	290.25
6,700.00	14.58	179.87	6,665.63	-410.84	-207.50	410.37	9.00	9.00	0.00
6,800.00	23.58	179.87	6,760.04	-443.49	-207.43	443.02	9.00	9.00	0.00
6,900.00	32.58	179.87	6,848.18	-490.51	-207.32	490.04	9.00	9.00	0.00
7,000.00	41.58	179.87	6,927.88	-550.74	-207.18	550.27	9.00	9.00	0.00
7,100.00	50.58	179.87	6,997.18	-622.69	-207.02	622.22	9.00	9.00	0.00
DLS = 9°/100'									
7,200.00	59.58	179.87	7,054.37	-704.60	-206.83	704.13	9.00	9.00	0.00
7,300.00	68.58	179.87	7,098.04	-794.44	-206.63	793.97	9.00	9.00	0.00
7,400.00	77.58	179.87	7,127.12	-890.02	-206.41	889.54	9.00	9.00	0.00
7,500.00	86.58	179.87	7,140.88	-988.96	-206.18	988.49	9.00	9.00	0.00
7,533.31	89.58	179.87	7,142.00	-1,022.25	-206.10	1,021.78	9.00	9.00	0.00
End Build @ 7533.31ft - Top of Production									
7,600.00	89.58	179.87	7,142.50	-1,088.93	-205.95	1,088.46	0.00	0.00	0.00
7,700.00	89.58	179.87	7,143.24	-1,188.93	-205.72	1,188.46	0.00	0.00	0.00
7,800.00	89.58	179.87	7,143.98	-1,288.93	-205.49	1,288.46	0.00	0.00	0.00
7,900.00	89.58	179.87	7,144.72	-1,388.93	-205.26	1,388.46	0.00	0.00	0.00
8,000.00	89.58	179.87	7,145.46	-1,488.92	-205.03	1,488.45	0.00	0.00	0.00
8,100.00	89.58	179.87	7,146.20	-1,588.92	-204.81	1,588.45	0.00	0.00	0.00
8,200.00	89.58	179.87	7,146.94	-1,688.92	-204.58	1,688.45	0.00	0.00	0.00
8,300.00	89.58	179.87	7,147.69	-1,788.91	-204.35	1,788.44	0.00	0.00	0.00
8,400.00	89.58	179.87	7,148.43	-1,888.91	-204.12	1,888.44	0.00	0.00	0.00
8,500.00	89.58	179.87	7,149.17	-1,988.91	-203.89	1,988.44	0.00	0.00	0.00
8,600.00	89.58	179.87	7,149.91	-2,088.90	-203.66	2,088.44	0.00	0.00	0.00
8,700.00	89.58	179.87	7,150.65	-2,188.90	-203.43	2,188.43	0.00	0.00	0.00
8,800.00	89.58	179.87	7,151.39	-2,288.90	-203.20	2,288.43	0.00	0.00	0.00
8,900.00	89.58	179.87	7,152.13	-2,388.90	-202.97	2,388.43	0.00	0.00	0.00
9,000.00	89.58	179.87	7,152.87	-2,488.89	-202.74	2,488.43	0.00	0.00	0.00
9,100.00	89.58	179.87	7,153.62	-2,588.89	-202.51	2,588.42	0.00	0.00	0.00
9,200.00	89.58	179.87	7,154.36	-2,688.89	-202.29	2,688.42	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 8N2-34HZ
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 8N2-34HZ	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)
9,300.00	89.58	179.87	7,155.10	-2,788.88	-202.06	2,788.42	0.00	0.00	0.00
9,400.00	89.58	179.87	7,155.84	-2,888.88	-201.83	2,888.41	0.00	0.00	0.00
9,500.00	89.58	179.87	7,156.58	-2,988.88	-201.60	2,988.41	0.00	0.00	0.00
9,600.00	89.58	179.87	7,157.32	-3,088.87	-201.37	3,088.41	0.00	0.00	0.00
9,700.00	89.58	179.87	7,158.06	-3,188.87	-201.14	3,188.41	0.00	0.00	0.00
9,800.00	89.58	179.87	7,158.80	-3,288.87	-200.91	3,288.40	0.00	0.00	0.00
9,900.00	89.58	179.87	7,159.54	-3,388.87	-200.68	3,388.40	0.00	0.00	0.00
10,000.00	89.58	179.87	7,160.29	-3,488.86	-200.45	3,488.40	0.00	0.00	0.00
10,100.00	89.58	179.87	7,161.03	-3,588.86	-200.22	3,588.40	0.00	0.00	0.00
10,200.00	89.58	179.87	7,161.77	-3,688.86	-199.99	3,688.39	0.00	0.00	0.00
10,300.00	89.58	179.87	7,162.51	-3,788.85	-199.77	3,788.39	0.00	0.00	0.00
10,400.00	89.58	179.87	7,163.25	-3,888.85	-199.54	3,888.39	0.00	0.00	0.00
10,500.00	89.58	179.87	7,163.99	-3,988.85	-199.31	3,988.38	0.00	0.00	0.00
10,600.00	89.58	179.87	7,164.73	-4,088.84	-199.08	4,088.38	0.00	0.00	0.00
10,700.00	89.58	179.87	7,165.47	-4,188.84	-198.85	4,188.38	0.00	0.00	0.00
10,800.00	89.58	179.87	7,166.22	-4,288.84	-198.62	4,288.38	0.00	0.00	0.00
10,900.00	89.58	179.87	7,166.96	-4,388.84	-198.39	4,388.37	0.00	0.00	0.00
11,000.00	89.58	179.87	7,167.70	-4,488.83	-198.16	4,488.37	0.00	0.00	0.00
11,100.00	89.58	179.87	7,168.44	-4,588.83	-197.93	4,588.37	0.00	0.00	0.00
11,200.00	89.58	179.87	7,169.18	-4,688.83	-197.70	4,688.37	0.00	0.00	0.00
11,300.00	89.58	179.87	7,169.92	-4,788.82	-197.47	4,788.36	0.00	0.00	0.00
11,400.00	89.58	179.87	7,170.66	-4,888.82	-197.25	4,888.36	0.00	0.00	0.00
11,500.00	89.58	179.87	7,171.40	-4,988.82	-197.02	4,988.36	0.00	0.00	0.00
11,600.00	89.58	179.87	7,172.14	-5,088.81	-196.79	5,088.35	0.00	0.00	0.00
11,700.00	89.58	179.87	7,172.89	-5,188.81	-196.56	5,188.35	0.00	0.00	0.00
11,800.00	89.58	179.87	7,173.63	-5,288.81	-196.33	5,288.35	0.00	0.00	0.00
11,900.00	89.58	179.87	7,174.37	-5,388.80	-196.10	5,388.35	0.00	0.00	0.00
12,000.00	89.58	179.87	7,175.11	-5,488.80	-195.87	5,488.34	0.00	0.00	0.00
12,100.00	89.58	179.87	7,175.85	-5,588.80	-195.64	5,588.34	0.00	0.00	0.00
12,200.00	89.58	179.87	7,176.59	-5,688.80	-195.41	5,688.34	0.00	0.00	0.00
12,300.00	89.58	179.87	7,177.33	-5,788.79	-195.18	5,788.34	0.00	0.00	0.00
12,400.00	89.58	179.87	7,178.07	-5,888.79	-194.95	5,888.33	0.00	0.00	0.00
12,500.00	89.58	179.87	7,178.82	-5,988.79	-194.72	5,988.33	0.00	0.00	0.00
12,600.00	89.58	179.87	7,179.56	-6,088.78	-194.50	6,088.33	0.00	0.00	0.00
12,700.00	89.58	179.87	7,180.30	-6,188.78	-194.27	6,188.32	0.00	0.00	0.00
12,800.00	89.58	179.87	7,181.04	-6,288.78	-194.04	6,288.32	0.00	0.00	0.00
12,900.00	89.58	179.87	7,181.78	-6,388.77	-193.81	6,388.32	0.00	0.00	0.00
13,000.00	89.58	179.87	7,182.52	-6,488.77	-193.58	6,488.32	0.00	0.00	0.00
13,100.00	89.58	179.87	7,183.26	-6,588.77	-193.35	6,588.31	0.00	0.00	0.00
13,200.00	89.58	179.87	7,184.00	-6,688.77	-193.12	6,688.31	0.00	0.00	0.00
13,300.00	89.58	179.87	7,184.74	-6,788.76	-192.89	6,788.31	0.00	0.00	0.00
13,400.00	89.58	179.87	7,185.49	-6,888.76	-192.66	6,888.30	0.00	0.00	0.00
13,500.00	89.58	179.87	7,186.23	-6,988.76	-192.43	6,988.30	0.00	0.00	0.00
13,600.00	89.58	179.87	7,186.97	-7,088.75	-192.20	7,088.30	0.00	0.00	0.00
13,700.00	89.58	179.87	7,187.71	-7,188.75	-191.98	7,188.30	0.00	0.00	0.00
13,800.00	89.58	179.87	7,188.45	-7,288.75	-191.75	7,288.29	0.00	0.00	0.00
13,900.00	89.58	179.87	7,189.19	-7,388.74	-191.52	7,388.29	0.00	0.00	0.00
14,000.00	89.58	179.87	7,189.93	-7,488.74	-191.29	7,488.29	0.00	0.00	0.00
14,100.00	89.58	179.87	7,190.67	-7,588.74	-191.06	7,588.29	0.00	0.00	0.00
14,200.00	89.58	179.87	7,191.42	-7,688.74	-190.83	7,688.28	0.00	0.00	0.00
14,300.00	89.58	179.87	7,192.16	-7,788.73	-190.60	7,788.28	0.00	0.00	0.00
14,400.00	89.58	179.87	7,192.90	-7,888.73	-190.37	7,888.28	0.00	0.00	0.00
14,413.84	89.58	179.87	7,193.00	-7,902.57	-190.34	7,902.12	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 8N2-34HZ
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 8N2-34HZ	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 @ 14413.84ft									

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 8N2-34HZ
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 8N2-34HZ	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)		
HILGERS 8N-34HZ_Har	0.00	0.00	0.00	0.00	0.00	14,601,968.54	1,645,369.76	40.206605	-104.982260
- plan hits target center									
- 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	1,644,331.40		
Point 11			0.00	-4,845.94	-1,032.23	14,597,122.39	1,644,338.50		
Point 12			0.00	-3,518.44	-1,024.87	14,598,449.90	1,644,345.60		
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		
3N-R68W-Sec. 27_Secti	0.00	0.00	0.00	0.36	-60.03	14,601,968.89	1,645,309.73	40.206606	-104.982475
- plan misses target center by 60.03usft 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	-7,502.93	-580.86	14,594,465.50	1,644,790.40	40.186001	-104.984340
- plan misses target center by 7200.38usft at 13960.00usft MD (7189.64 TVD, -7448.75 N, -191.38 E)									
- Circle (radius 460.00)									
HILGERS 8N2-34HZ_St	0.00	0.00	0.00	0.00	0.00	14,601,968.54	1,645,369.76	40.206605	-104.982260
- plan hits target center									
- Point									
3N-R68W-Sec. 34_Secti	0.00	0.00	0.00	0.36	-60.03	14,601,968.89	1,645,309.73	40.206606	-104.982475
- plan misses target center by 60.03usft 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	-870.04	-548.14	14,601,098.40	1,644,821.80	40.204216	-104.984223
- plan misses target center by 1028.31usft 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	2,787.96	245.11	14,604,756.55	1,645,614.32	40.214261	-104.981382
- plan misses target center by 2798.72usft 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	14,601,066.47	1,640,868.99		
Point 8			15.00	-1,042.08	-4,750.66	14,603,713.52	1,640,863.87		

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 8N2-34HZ
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 8N2-34HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

HILGERS 8N2-34HZ_BH	0.00	0.00	7,193.00	-7,902.57	-190.34	14,594,065.93	1,645,181.00	40.184904	-104.982942
- plan hits target center									
- Point									

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
7,533.31	7,142.00	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			
3,707.63	3,675.00	Parkman			
4,172.63	4,140.00	Sussex			
7,093.46	6,993.00	Sharon Springs			
7,227.98	7,068.00	Niobrara			
7,366.31	7,119.00	Nio B			
12,659.88	7,180.00	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
850.00	847.54	-41.52	-22.08	End Nudge @ 850.00ft
3,150.00	3,119.22	-359.21	-190.99	Begin Drop @ 3150.00ft
3,600.00	3,567.37	-390.35	-207.55	End Drop @ 3600.00ft
6,538.03	6,505.40	-390.35	-207.55	KOP @ 6538.03ft
7,100.00	6,997.18	-622.69	-207.02	DLS = 9°/100'
7,533.31	7,142.00	-1,022.25	-206.10	End Build @ 7533.31ft
14,413.84	7,193.00	-7,902.57	-190.34	TD Well @ 14413.84ft