

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

HILGERS 17N-34HZ

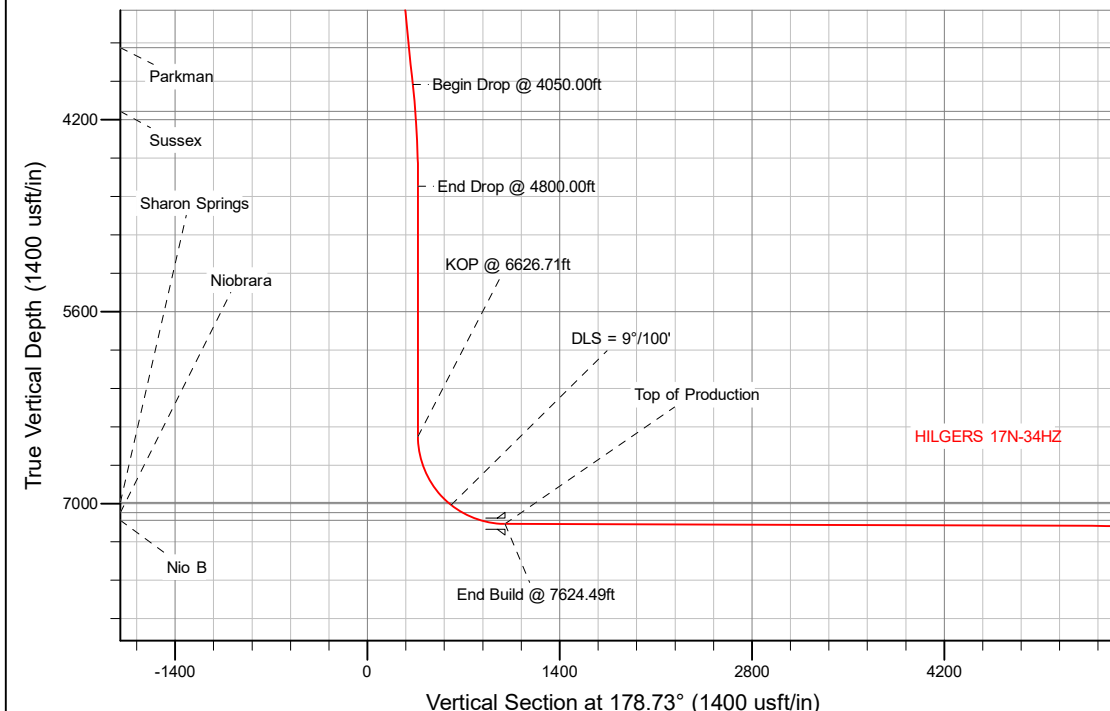
Plan A

Plan: Permit Rev-1

Standard Planning Report

19 October, 2016

US ROCKIES WATTENBERG PLANNING

[illegible]

WELL DETAILS: HILGERS 17N-34HZ	
Ground Level:	4999.00
RKB = 17' @ 5016.00usft (D Rig)	
Plan: Permit Rev-1 (HILGERS 17N-34HZ/Plan A)	
Created By:	Date: 10/19/2016
Reviewed: _____	Date: _____

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 17N-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 17N-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 17N-34HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,601,968.90 usft	Latitude:	40.206606
	+E/-W	15.08 usft	Easting:	1,645,324.81 usft	Longitude:	-104.982421
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	178.73

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	
1,250.00	15.00	246.00	1,238.62	-52.94	-118.90	1.50	1.50	0.00	246.00	
4,050.00	15.00	246.00	3,943.21	-347.70	-780.94	0.00	0.00	0.00	0.00	
4,800.00	0.00	0.00	4,684.67	-387.40	-870.12	2.00	-2.00	0.00	180.00	
6,626.71	0.00	0.00	6,511.38	-387.40	-870.12	0.00	0.00	0.00	0.00	
7,624.49	89.80	178.73	7,148.00	-1,021.65	-856.06	9.00	9.00	17.91	178.73	
14,515.34	89.80	178.73	7,172.00	-7,910.76	-703.38	0.00	0.00	0.00	0.00	HILGERS 17N-34HZ_

Corporate
Planning Report

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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 17N-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	246.00	300.00	-0.13	-0.30	0.13	1.50	1.50	0.00
400.00	2.25	246.00	399.96	-1.20	-2.69	1.14	1.50	1.50	0.00
500.00	3.75	246.00	499.82	-3.33	-7.47	3.16	1.50	1.50	0.00
600.00	5.25	246.00	599.51	-6.52	-14.64	6.19	1.50	1.50	0.00
700.00	6.75	246.00	698.96	-10.77	-24.19	10.23	1.50	1.50	0.00
800.00	8.25	246.00	798.10	-16.08	-36.11	15.27	1.50	1.50	0.00
900.00	9.75	246.00	896.87	-22.44	-50.40	21.32	1.50	1.50	0.00
1,000.00	11.25	246.00	995.19	-29.85	-67.05	28.36	1.50	1.50	0.00
1,100.00	12.75	246.00	1,093.00	-38.31	-86.04	36.39	1.50	1.50	0.00
1,200.00	14.25	246.00	1,190.24	-47.80	-107.37	45.41	1.50	1.50	0.00
1,250.00	15.00	246.00	1,238.62	-52.94	-118.90	50.29	1.50	1.50	0.00
End Nudge @ 1250.00ft									
1,300.00	15.00	246.00	1,286.91	-58.20	-130.72	55.29	0.00	0.00	0.00
1,400.00	15.00	246.00	1,383.50	-68.73	-154.37	65.29	0.00	0.00	0.00
1,500.00	15.00	246.00	1,480.10	-79.26	-178.01	75.29	0.00	0.00	0.00
1,600.00	15.00	246.00	1,576.69	-89.78	-201.66	85.29	0.00	0.00	0.00
1,700.00	15.00	246.00	1,673.28	-100.31	-225.30	95.29	0.00	0.00	0.00
1,800.00	15.00	246.00	1,769.88	-110.84	-248.95	105.29	0.00	0.00	0.00
1,831.19	15.00	246.00	1,800.00	-114.12	-256.32	108.41	0.00	0.00	0.00
9 5/8"									
1,900.00	15.00	246.00	1,866.47	-121.36	-272.59	115.29	0.00	0.00	0.00
2,000.00	15.00	246.00	1,963.06	-131.89	-296.23	125.29	0.00	0.00	0.00
2,100.00	15.00	246.00	2,059.65	-142.42	-319.88	135.29	0.00	0.00	0.00
2,200.00	15.00	246.00	2,156.25	-152.95	-343.52	145.29	0.00	0.00	0.00
2,300.00	15.00	246.00	2,252.84	-163.47	-367.17	155.30	0.00	0.00	0.00
2,400.00	15.00	246.00	2,349.43	-174.00	-390.81	165.30	0.00	0.00	0.00
2,500.00	15.00	246.00	2,446.02	-184.53	-414.46	175.30	0.00	0.00	0.00
2,600.00	15.00	246.00	2,542.62	-195.05	-438.10	185.30	0.00	0.00	0.00
2,700.00	15.00	246.00	2,639.21	-205.58	-461.74	195.30	0.00	0.00	0.00
2,800.00	15.00	246.00	2,735.80	-216.11	-485.39	205.30	0.00	0.00	0.00
2,900.00	15.00	246.00	2,832.39	-226.64	-509.03	215.30	0.00	0.00	0.00
3,000.00	15.00	246.00	2,928.99	-237.16	-532.68	225.30	0.00	0.00	0.00
3,100.00	15.00	246.00	3,025.58	-247.69	-556.32	235.30	0.00	0.00	0.00
3,200.00	15.00	246.00	3,122.17	-258.22	-579.97	245.30	0.00	0.00	0.00
3,300.00	15.00	246.00	3,218.76	-268.74	-603.61	255.30	0.00	0.00	0.00
3,400.00	15.00	246.00	3,315.36	-279.27	-627.25	265.30	0.00	0.00	0.00
3,500.00	15.00	246.00	3,411.95	-289.80	-650.90	275.30	0.00	0.00	0.00
3,600.00	15.00	246.00	3,508.54	-300.33	-674.54	285.30	0.00	0.00	0.00
3,700.00	15.00	246.00	3,605.13	-310.85	-698.19	295.30	0.00	0.00	0.00
3,800.00	15.00	246.00	3,701.73	-321.38	-721.83	305.30	0.00	0.00	0.00
3,900.00	15.00	246.00	3,798.32	-331.91	-745.48	315.30	0.00	0.00	0.00
4,000.00	15.00	246.00	3,894.91	-342.43	-769.12	325.30	0.00	0.00	0.00
4,050.00	15.00	246.00	3,943.21	-347.70	-780.94	330.30	0.00	0.00	0.00
Begin Drop @ 4050.00ft									
4,100.00	14.00	246.00	3,991.62	-352.79	-792.38	335.14	2.00	-2.00	0.00
4,200.00	12.00	246.00	4,089.05	-361.94	-812.93	343.83	2.00	-2.00	0.00
4,300.00	10.00	246.00	4,187.20	-369.70	-830.36	351.20	2.00	-2.00	0.00
4,400.00	8.00	246.00	4,285.97	-376.06	-844.65	357.25	2.00	-2.00	0.00
4,500.00	6.00	246.00	4,385.22	-381.02	-855.78	361.96	2.00	-2.00	0.00

Corporate
Planning Report

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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 17N-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)
4,600.00	4.00	246.00	4,484.83	-384.56	-863.74	365.32	2.00	-2.00	0.00
4,700.00	2.00	246.00	4,584.69	-386.69	-868.52	367.35	2.00	-2.00	0.00
4,800.00	0.00	0.00	4,684.67	-387.40	-870.12	368.02	2.00	-2.00	0.00
End Drop @ 4800.00ft									
4,900.00	0.00	0.00	4,784.67	-387.40	-870.12	368.02	0.00	0.00	0.00
5,000.00	0.00	0.00	4,884.67	-387.40	-870.12	368.02	0.00	0.00	0.00
5,100.00	0.00	0.00	4,984.67	-387.40	-870.12	368.02	0.00	0.00	0.00
5,200.00	0.00	0.00	5,084.67	-387.40	-870.12	368.02	0.00	0.00	0.00
5,300.00	0.00	0.00	5,184.67	-387.40	-870.12	368.02	0.00	0.00	0.00
5,400.00	0.00	0.00	5,284.67	-387.40	-870.12	368.02	0.00	0.00	0.00
5,500.00	0.00	0.00	5,384.67	-387.40	-870.12	368.02	0.00	0.00	0.00
5,600.00	0.00	0.00	5,484.67	-387.40	-870.12	368.02	0.00	0.00	0.00
5,700.00	0.00	0.00	5,584.67	-387.40	-870.12	368.02	0.00	0.00	0.00
5,800.00	0.00	0.00	5,684.67	-387.40	-870.12	368.02	0.00	0.00	0.00
5,900.00	0.00	0.00	5,784.67	-387.40	-870.12	368.02	0.00	0.00	0.00
6,000.00	0.00	0.00	5,884.67	-387.40	-870.12	368.02	0.00	0.00	0.00
6,100.00	0.00	0.00	5,984.67	-387.40	-870.12	368.02	0.00	0.00	0.00
6,200.00	0.00	0.00	6,084.67	-387.40	-870.12	368.02	0.00	0.00	0.00
6,300.00	0.00	0.00	6,184.67	-387.40	-870.12	368.02	0.00	0.00	0.00
6,400.00	0.00	0.00	6,284.67	-387.40	-870.12	368.02	0.00	0.00	0.00
6,500.00	0.00	0.00	6,384.67	-387.40	-870.12	368.02	0.00	0.00	0.00
6,600.00	0.00	0.00	6,484.67	-387.40	-870.12	368.02	0.00	0.00	0.00
6,626.71	0.00	0.00	6,511.38	-387.40	-870.12	368.02	0.00	0.00	0.00
KOP @ 6626.71ft									
6,700.00	6.60	178.73	6,584.51	-391.61	-870.02	372.24	9.00	9.00	0.00
6,800.00	15.60	178.73	6,682.54	-410.84	-869.60	391.46	9.00	9.00	0.00
6,900.00	24.60	178.73	6,776.35	-445.15	-868.84	425.79	9.00	9.00	0.00
7,000.00	33.60	178.73	6,863.64	-493.72	-867.76	474.36	9.00	9.00	0.00
7,100.00	42.60	178.73	6,942.26	-555.34	-866.40	536.00	9.00	9.00	0.00
7,200.00	51.60	178.73	7,010.27	-628.49	-864.77	609.17	9.00	9.00	0.00
DLS = 9°/100'									
7,300.00	60.60	178.73	7,065.99	-711.38	-862.94	692.08	9.00	9.00	0.00
7,400.00	69.60	178.73	7,108.06	-801.97	-860.93	782.69	9.00	9.00	0.00
7,500.00	78.60	178.73	7,135.43	-898.02	-858.80	878.77	9.00	9.00	0.00
7,600.00	87.60	178.73	7,147.44	-997.17	-856.60	977.94	9.00	9.00	0.00
7,624.49	89.80	178.73	7,148.00	-1,021.65	-856.06	1,002.42	9.00	9.00	0.00
End Build @ 7624.49ft - Top of Production									
7,700.00	89.80	178.73	7,148.26	-1,097.14	-854.39	1,077.93	0.00	0.00	0.00
7,800.00	89.80	178.73	7,148.61	-1,197.11	-852.17	1,177.93	0.00	0.00	0.00
7,900.00	89.80	178.73	7,148.96	-1,297.09	-849.96	1,277.93	0.00	0.00	0.00
8,000.00	89.80	178.73	7,149.30	-1,397.06	-847.74	1,377.93	0.00	0.00	0.00
8,100.00	89.80	178.73	7,149.65	-1,497.04	-845.53	1,477.93	0.00	0.00	0.00
8,200.00	89.80	178.73	7,150.00	-1,597.01	-843.31	1,577.93	0.00	0.00	0.00
8,300.00	89.80	178.73	7,150.35	-1,696.99	-841.09	1,677.93	0.00	0.00	0.00
8,400.00	89.80	178.73	7,150.70	-1,796.96	-838.88	1,777.93	0.00	0.00	0.00
8,500.00	89.80	178.73	7,151.05	-1,896.94	-836.66	1,877.93	0.00	0.00	0.00
8,600.00	89.80	178.73	7,151.39	-1,996.91	-834.45	1,977.92	0.00	0.00	0.00
8,700.00	89.80	178.73	7,151.74	-2,096.88	-832.23	2,077.92	0.00	0.00	0.00
8,800.00	89.80	178.73	7,152.09	-2,196.86	-830.02	2,177.92	0.00	0.00	0.00
8,900.00	89.80	178.73	7,152.44	-2,296.83	-827.80	2,277.92	0.00	0.00	0.00
9,000.00	89.80	178.73	7,152.79	-2,396.81	-825.58	2,377.92	0.00	0.00	0.00
9,100.00	89.80	178.73	7,153.14	-2,496.78	-823.37	2,477.92	0.00	0.00	0.00
9,200.00	89.80	178.73	7,153.48	-2,596.76	-821.15	2,577.92	0.00	0.00	0.00

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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 17N-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	89.80	178.73	7,153.83	-2,696.73	-818.94	2,677.92	0.00	0.00	0.00
9,400.00	89.80	178.73	7,154.18	-2,796.71	-816.72	2,777.92	0.00	0.00	0.00
9,500.00	89.80	178.73	7,154.53	-2,896.68	-814.51	2,877.92	0.00	0.00	0.00
9,600.00	89.80	178.73	7,154.88	-2,996.66	-812.29	2,977.92	0.00	0.00	0.00
9,700.00	89.80	178.73	7,155.23	-3,096.63	-810.07	3,077.92	0.00	0.00	0.00
9,800.00	89.80	178.73	7,155.57	-3,196.61	-807.86	3,177.92	0.00	0.00	0.00
9,900.00	89.80	178.73	7,155.92	-3,296.58	-805.64	3,277.92	0.00	0.00	0.00
10,000.00	89.80	178.73	7,156.27	-3,396.56	-803.43	3,377.92	0.00	0.00	0.00
10,100.00	89.80	178.73	7,156.62	-3,496.53	-801.21	3,477.92	0.00	0.00	0.00
10,200.00	89.80	178.73	7,156.97	-3,596.51	-799.00	3,577.92	0.00	0.00	0.00
10,300.00	89.80	178.73	7,157.32	-3,696.48	-796.78	3,677.91	0.00	0.00	0.00
10,400.00	89.80	178.73	7,157.66	-3,796.46	-794.56	3,777.91	0.00	0.00	0.00
10,500.00	89.80	178.73	7,158.01	-3,896.43	-792.35	3,877.91	0.00	0.00	0.00
10,600.00	89.80	178.73	7,158.36	-3,996.41	-790.13	3,977.91	0.00	0.00	0.00
10,700.00	89.80	178.73	7,158.71	-4,096.38	-787.92	4,077.91	0.00	0.00	0.00
10,800.00	89.80	178.73	7,159.06	-4,196.36	-785.70	4,177.91	0.00	0.00	0.00
10,900.00	89.80	178.73	7,159.41	-4,296.33	-783.49	4,277.91	0.00	0.00	0.00
11,000.00	89.80	178.73	7,159.75	-4,396.31	-781.27	4,377.91	0.00	0.00	0.00
11,100.00	89.80	178.73	7,160.10	-4,496.28	-779.05	4,477.91	0.00	0.00	0.00
11,200.00	89.80	178.73	7,160.45	-4,596.26	-776.84	4,577.91	0.00	0.00	0.00
11,300.00	89.80	178.73	7,160.80	-4,696.23	-774.62	4,677.91	0.00	0.00	0.00
11,400.00	89.80	178.73	7,161.15	-4,796.21	-772.41	4,777.91	0.00	0.00	0.00
11,500.00	89.80	178.73	7,161.50	-4,896.18	-770.19	4,877.91	0.00	0.00	0.00
11,600.00	89.80	178.73	7,161.84	-4,996.16	-767.98	4,977.91	0.00	0.00	0.00
11,700.00	89.80	178.73	7,162.19	-5,096.13	-765.76	5,077.91	0.00	0.00	0.00
11,800.00	89.80	178.73	7,162.54	-5,196.11	-763.54	5,177.91	0.00	0.00	0.00
11,900.00	89.80	178.73	7,162.89	-5,296.08	-761.33	5,277.90	0.00	0.00	0.00
12,000.00	89.80	178.73	7,163.24	-5,396.05	-759.11	5,377.90	0.00	0.00	0.00
12,100.00	89.80	178.73	7,163.59	-5,496.03	-756.90	5,477.90	0.00	0.00	0.00
12,200.00	89.80	178.73	7,163.93	-5,596.00	-754.68	5,577.90	0.00	0.00	0.00
12,300.00	89.80	178.73	7,164.28	-5,695.98	-752.47	5,677.90	0.00	0.00	0.00
12,400.00	89.80	178.73	7,164.63	-5,795.95	-750.25	5,777.90	0.00	0.00	0.00
12,500.00	89.80	178.73	7,164.98	-5,895.93	-748.03	5,877.90	0.00	0.00	0.00
12,600.00	89.80	178.73	7,165.33	-5,995.90	-745.82	5,977.90	0.00	0.00	0.00
12,700.00	89.80	178.73	7,165.68	-6,095.88	-743.60	6,077.90	0.00	0.00	0.00
12,800.00	89.80	178.73	7,166.02	-6,195.85	-741.39	6,177.90	0.00	0.00	0.00
12,900.00	89.80	178.73	7,166.37	-6,295.83	-739.17	6,277.90	0.00	0.00	0.00
13,000.00	89.80	178.73	7,166.72	-6,395.80	-736.96	6,377.90	0.00	0.00	0.00
13,100.00	89.80	178.73	7,167.07	-6,495.78	-734.74	6,477.90	0.00	0.00	0.00
13,200.00	89.80	178.73	7,167.42	-6,595.75	-732.52	6,577.90	0.00	0.00	0.00
13,300.00	89.80	178.73	7,167.77	-6,695.73	-730.31	6,677.90	0.00	0.00	0.00
13,400.00	89.80	178.73	7,168.11	-6,795.70	-728.09	6,777.90	0.00	0.00	0.00
13,500.00	89.80	178.73	7,168.46	-6,895.68	-725.88	6,877.90	0.00	0.00	0.00
13,600.00	89.80	178.73	7,168.81	-6,995.65	-723.66	6,977.89	0.00	0.00	0.00
13,700.00	89.80	178.73	7,169.16	-7,095.63	-721.45	7,077.89	0.00	0.00	0.00
13,800.00	89.80	178.73	7,169.51	-7,195.60	-719.23	7,177.89	0.00	0.00	0.00
13,900.00	89.80	178.73	7,169.86	-7,295.58	-717.01	7,277.89	0.00	0.00	0.00
14,000.00	89.80	178.73	7,170.21	-7,395.55	-714.80	7,377.89	0.00	0.00	0.00
14,100.00	89.80	178.73	7,170.55	-7,495.53	-712.58	7,477.89	0.00	0.00	0.00
14,200.00	89.80	178.73	7,170.90	-7,595.50	-710.37	7,577.89	0.00	0.00	0.00
14,300.00	89.80	178.73	7,171.25	-7,695.48	-708.15	7,677.89	0.00	0.00	0.00
14,400.00	89.80	178.73	7,171.60	-7,795.45	-705.94	7,777.89	0.00	0.00	0.00
14,500.00	89.80	178.73	7,171.95	-7,895.43	-703.72	7,877.89	0.00	0.00	0.00
14,515.34	89.80	178.73	7,172.00	-7,910.76	-703.38	7,893.23	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 17N-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 17N-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 @ 14515.34ft									

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 17N-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 17N-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 17N-34HZ_St	0.00	0.00	0.00	0.00	0.00	14,601,968.90	1,645,324.81	40.206606	-104.982421
- plan hits target center									
- Point									
3N-R68W-Sec. 27_Secti	0.00	0.00	0.00	0.00	-15.08	14,601,968.89	1,645,309.73	40.206606	-104.982475
- 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	-901.61	-4,440.91	14,601,066.40	1,640,869.00		
Point 2			0.00	-893.57	-1,805.40	14,601,074.97	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	1,646,093.48		
Point 6			0.00	-6,204.04	-4,436.84	14,595,763.97	1,640,874.12		
HILGERS 17N-34HZ_46	0.00	0.00	0.00	-7,503.29	-535.90	14,594,465.50	1,644,790.40	40.186001	-104.984340
- plan misses target center by 7172.72usft at 14086.70usft MD (7170.51 TVD, -7482.23 N, -712.88 E)									
- Circle (radius 460.00)									
3N-R68W-Sec. 34_Secti	0.00	0.00	0.00	0.00	-15.08	14,601,968.89	1,645,309.73	40.206606	-104.982475
- 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	-6,204.04	-4,436.84	14,595,763.97	1,640,874.12		
Point 2			0.00	-6,154.53	782.53	14,595,814.52	1,646,093.48		
Point 3			0.00	-11,510.48	839.68	14,590,458.58	1,646,151.69		
Point 4			0.00	-11,511.55	-4,434.16	14,590,456.47	1,640,877.85		
HILGERS 17N-34HZ_Hz	0.00	0.00	0.00	0.00	0.00	14,601,968.90	1,645,324.81	40.206606	-104.982421
- plan hits target center									
- Polygon									
Point 1			0.00	-861.49	-43.18	14,601,107.40	1,645,281.80		
Point 2			0.00	-2,185.49	-51.45	14,599,783.40	1,645,273.79		
Point 3			0.00	-3,509.39	-59.81	14,598,459.49	1,645,265.69		
Point 4			0.00	-4,837.19	-67.17	14,597,131.69	1,645,258.60		
Point 5			0.00	-6,164.99	-74.63	14,595,803.89	1,645,251.40		
Point 6			0.00	-7,500.69	-75.90	14,594,468.19	1,645,250.40		
Point 7			0.00	-7,960.68	-76.39	14,594,008.20	1,645,250.00		
Point 8			0.00	-7,965.80	-996.39	14,594,002.90	1,644,330.00		
Point 9			0.00	-7,505.80	-995.90	14,594,462.90	1,644,330.40		
Point 10			0.00	-6,173.70	-994.64	14,595,795.00	1,644,331.39		
Point 11			0.00	-4,846.30	-987.27	14,597,122.40	1,644,338.50		
Point 12			0.00	-3,518.81	-979.91	14,598,449.89	1,644,345.60		
Point 13			0.00	-2,199.11	-971.55	14,599,769.59	1,644,353.70		
Point 14			0.00	-879.31	-963.19	14,601,089.40	1,644,361.79		
Point 15			0.00	-861.49	-43.18	14,601,107.40	1,645,281.80		
HILGERS 17N-34HZ_46	0.00	0.00	0.00	-870.40	-503.19	14,601,098.40	1,644,821.80	40.204216	-104.984223
- plan misses target center by 1005.38usft 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	290.06	14,604,756.55	1,645,614.32	40.214261	-104.981382
- plan misses target center by 2802.65usft at 15.00usft MD (15.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			15.00	1,609.13	-4,756.64	14,606,364.74	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	14,601,126.44	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

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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 17N-34HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

HILGERS 17N-34HZ_BH	0.00	0.00	7,172.00	-7,910.76	-703.38	14,594,058.00	1,644,623.00	40.184882	-104.984940
- plan hits target center									
- Point									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,831.19	1,800.00	9 5/8"	9-5/8	13-1/2
7,624.49	7,148.00	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			
3,772.33	3,675.00	Parkman			
4,251.99	4,140.00	Sussex			
7,169.87	6,991.00	Sharon Springs			
7,300.02	7,066.00	Niobrara			
7,447.71	7,123.00	Nio B			

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
1,250.00	1,238.62	-52.94	-118.90	End Nudge @ 1250.00ft
4,050.00	3,943.21	-347.70	-780.94	Begin Drop @ 4050.00ft
4,800.00	4,684.67	-387.40	-870.12	End Drop @ 4800.00ft
6,626.71	6,511.38	-387.40	-870.12	KOP @ 6626.71ft
7,200.00	7,010.27	-628.49	-864.77	DLS = 9°/100'
7,624.49	7,148.00	-1,021.65	-856.06	End Build @ 7624.49ft
14,515.34	7,172.00	-7,910.76	-703.38	TD Well @ 14515.34ft