

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N**

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

**HILGERS 40N-34HZ**

**Plan A**

**Plan: Permit Rev-1**

## **Standard Planning Report**

**08 September, 2015**

Project: WELD-NAD83-UTMFT13N

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

Well: HILGERS 40N-34HZ

Wellbore: Plan A

Design: Permit Rev-1

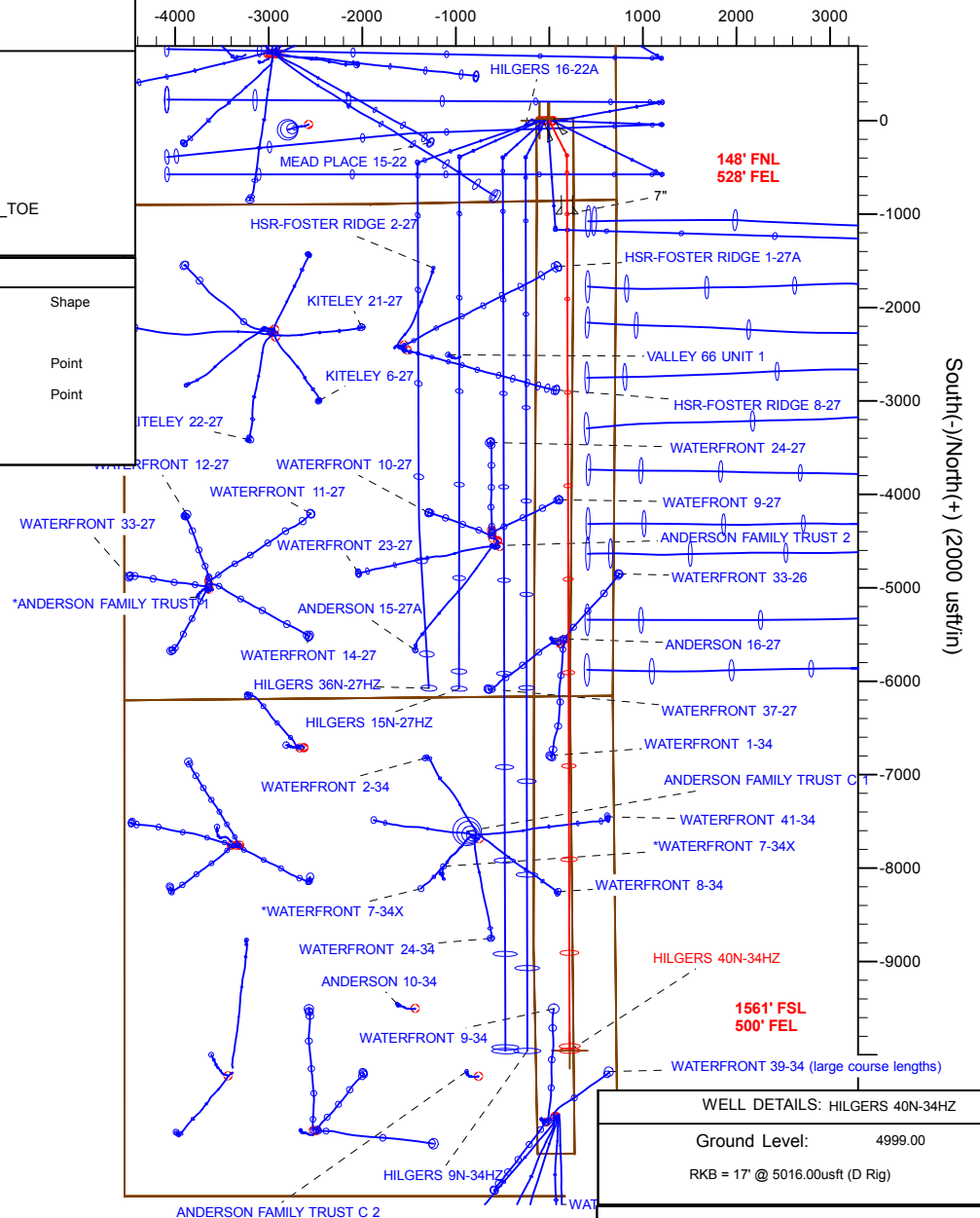
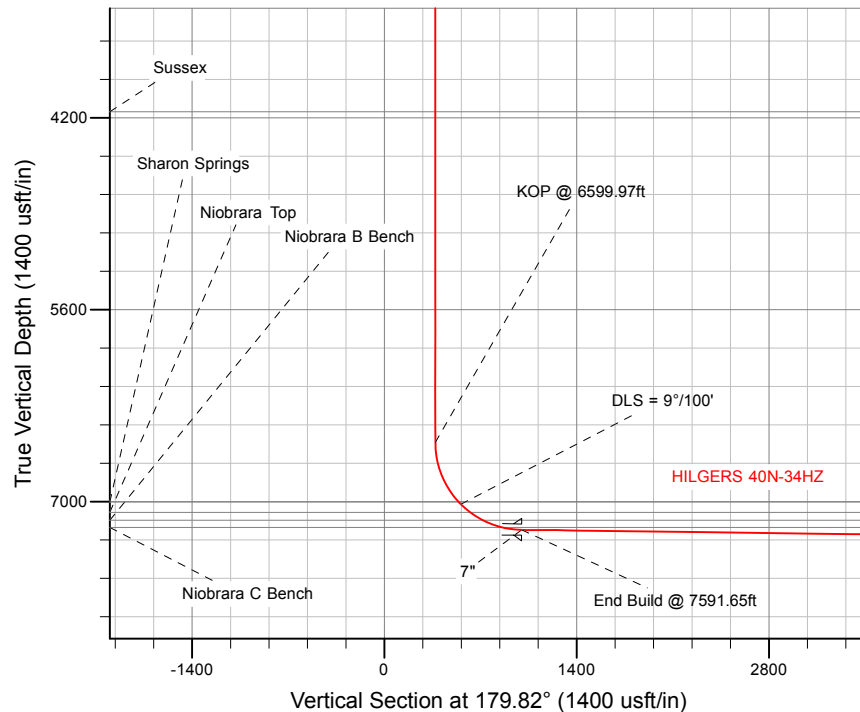
# US ROCKIES WATTENBERG PLANNING

## 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	41.97	
4	2980.00	9.00	153.00	2951.31	-338.79	172.62	0.00	0.00	339.33	
5	3430.00	0.00	0.00	3399.46	-370.22	188.63	2.00	-180.00	370.81	
6	6599.97	0.00	0.00	6569.43	-370.22	188.63	0.00	0.00	370.81	
7	7591.65	89.25	179.82	7206.00	-998.52	190.59	9.00	179.82	999.11	
8	16547.32	89.25	179.82	7323.00	-9953.38	218.39	0.00	0.00	9954.02	HILGERS 40N-34HZ_TOE

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
HILGERS 40N-34HZ_SHL	0.00	0.00	0.00	40.206605	-104.982099	Point
HILGERS 40N-34HZ_TOE	7323.00	-9953.38	218.39	40.179272	-104.981317	Point



WELL DETAILS: HILGERS 40N-34HZ

Ground Level: 4999.00

RKB = 17' @ 5016.00usft (D Rig)

Plan: Permit Rev-1 (HILGERS 40N-34HZ/Plan A)

Created By: Clint Eshelman

Date: 9/8/2015

Reviewed: \_\_\_\_\_

Date: \_\_\_\_\_

# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HILGERS 40N-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 40N-34HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

<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 40N-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

<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-1			
<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	179.82

<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	
850.00	9.00	153.00	847.54	-41.90	21.35	1.50	1.50	0.00	153.00	
2,980.00	9.00	153.00	2,951.31	-338.79	172.62	0.00	0.00	0.00	0.00	
3,430.00	0.00	0.00	3,399.46	-370.22	188.63	2.00	-2.00	-34.00	-180.00	
6,599.97	0.00	0.00	6,569.43	-370.22	188.63	0.00	0.00	0.00	0.00	
7,591.65	89.25	179.82	7,206.00	-998.52	190.59	9.00	9.00	18.13	179.82	
16,547.33	89.25	179.82	7,323.00	-9,953.38	218.39	0.00	0.00	0.00	0.00	HILGERS 40N-34HZ_

# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HILGERS 40N-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 40N-34HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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	
316.00	0.99	153.00	316.00	-0.51	0.26	0.51	1.50	1.50	0.00	
Fox Hills										
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	7.30	1.50	1.50	0.00	
600.00	5.25	153.00	599.51	-14.28	7.27	14.30	1.50	1.50	0.00	
700.00	6.75	153.00	698.96	-23.59	12.02	23.63	1.50	1.50	0.00	
800.00	8.25	153.00	798.10	-35.22	17.95	35.28	1.50	1.50	0.00	
850.00	9.00	153.00	847.54	-41.90	21.35	41.97	1.50	1.50	0.00	
End Nudge @ 850.00ft										
900.00	9.00	153.00	896.92	-48.87	24.90	48.95	0.00	0.00	0.00	
1,000.00	9.00	153.00	995.69	-62.81	32.00	62.91	0.00	0.00	0.00	
1,100.00	9.00	153.00	1,094.46	-76.75	39.10	76.87	0.00	0.00	0.00	
1,200.00	9.00	153.00	1,193.23	-90.69	46.21	90.83	0.00	0.00	0.00	
1,300.00	9.00	153.00	1,292.00	-104.62	53.31	104.79	0.00	0.00	0.00	
1,400.00	9.00	153.00	1,390.76	-118.56	60.41	118.75	0.00	0.00	0.00	
1,500.00	9.00	153.00	1,489.53	-132.50	67.51	132.71	0.00	0.00	0.00	
1,600.00	9.00	153.00	1,588.30	-146.44	74.61	146.67	0.00	0.00	0.00	
1,700.00	9.00	153.00	1,687.07	-160.38	81.72	160.63	0.00	0.00	0.00	
1,800.00	9.00	153.00	1,785.84	-174.32	88.82	174.59	0.00	0.00	0.00	
1,814.34	9.00	153.00	1,800.00	-176.31	89.84	176.60	0.00	0.00	0.00	
9 5/8"										
1,900.00	9.00	153.00	1,884.61	-188.25	95.92	188.56	0.00	0.00	0.00	
2,000.00	9.00	153.00	1,983.38	-202.19	103.02	202.52	0.00	0.00	0.00	
2,100.00	9.00	153.00	2,082.15	-216.13	110.12	216.48	0.00	0.00	0.00	
2,200.00	9.00	153.00	2,180.91	-230.07	117.23	230.44	0.00	0.00	0.00	
2,300.00	9.00	153.00	2,279.68	-244.01	124.33	244.40	0.00	0.00	0.00	
2,400.00	9.00	153.00	2,378.45	-257.95	131.43	258.36	0.00	0.00	0.00	
2,500.00	9.00	153.00	2,477.22	-271.89	138.53	272.32	0.00	0.00	0.00	
2,600.00	9.00	153.00	2,575.99	-285.82	145.63	286.28	0.00	0.00	0.00	
2,700.00	9.00	153.00	2,674.76	-299.76	152.74	300.24	0.00	0.00	0.00	
2,800.00	9.00	153.00	2,773.53	-313.70	159.84	314.20	0.00	0.00	0.00	
2,900.00	9.00	153.00	2,872.30	-327.64	166.94	328.16	0.00	0.00	0.00	
2,980.00	9.00	153.00	2,951.31	-338.79	172.62	339.33	0.00	0.00	0.00	
Begin Drop @ 2980.00ft										
3,000.00	8.60	153.00	2,971.08	-341.52	174.01	342.06	2.00	-2.00	0.00	
3,100.00	6.60	153.00	3,070.19	-353.30	180.02	353.86	2.00	-2.00	0.00	
3,200.00	4.60	153.00	3,169.71	-361.99	184.44	362.57	2.00	-2.00	0.00	
3,300.00	2.60	153.00	3,269.51	-367.59	187.30	368.17	2.00	-2.00	0.00	
3,400.00	0.60	153.00	3,369.46	-370.08	188.56	370.67	2.00	-2.00	0.00	
3,430.00	0.00	0.00	3,399.46	-370.22	188.63	370.81	2.00	-2.00	0.00	
End Drop @ 3430.00ft										
3,500.00	0.00	0.00	3,469.46	-370.22	188.63	370.81	0.00	0.00	0.00	
3,600.00	0.00	0.00	3,569.46	-370.22	188.63	370.81	0.00	0.00	0.00	
3,700.00	0.00	0.00	3,669.46	-370.22	188.63	370.81	0.00	0.00	0.00	
3,800.00	0.00	0.00	3,769.46	-370.22	188.63	370.81	0.00	0.00	0.00	
3,900.00	0.00	0.00	3,869.46	-370.22	188.63	370.81	0.00	0.00	0.00	
4,000.00	0.00	0.00	3,969.46	-370.22	188.63	370.81	0.00	0.00	0.00	

# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HILGERS 40N-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 40N-34HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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)	
4,100.00	0.00	0.00	4,069.46	-370.22	188.63	370.81	0.00	0.00	0.00	
4,186.54	0.00	0.00	4,156.00	-370.22	188.63	370.81	0.00	0.00	0.00	
<b>Sussex</b>										
4,200.00	0.00	0.00	4,169.46	-370.22	188.63	370.81	0.00	0.00	0.00	
4,300.00	0.00	0.00	4,269.46	-370.22	188.63	370.81	0.00	0.00	0.00	
4,400.00	0.00	0.00	4,369.46	-370.22	188.63	370.81	0.00	0.00	0.00	
4,500.00	0.00	0.00	4,469.46	-370.22	188.63	370.81	0.00	0.00	0.00	
4,600.00	0.00	0.00	4,569.46	-370.22	188.63	370.81	0.00	0.00	0.00	
4,700.00	0.00	0.00	4,669.46	-370.22	188.63	370.81	0.00	0.00	0.00	
4,800.00	0.00	0.00	4,769.46	-370.22	188.63	370.81	0.00	0.00	0.00	
4,900.00	0.00	0.00	4,869.46	-370.22	188.63	370.81	0.00	0.00	0.00	
5,000.00	0.00	0.00	4,969.46	-370.22	188.63	370.81	0.00	0.00	0.00	
5,100.00	0.00	0.00	5,069.46	-370.22	188.63	370.81	0.00	0.00	0.00	
5,200.00	0.00	0.00	5,169.46	-370.22	188.63	370.81	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,269.46	-370.22	188.63	370.81	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,369.46	-370.22	188.63	370.81	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,469.46	-370.22	188.63	370.81	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,569.46	-370.22	188.63	370.81	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,669.46	-370.22	188.63	370.81	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,769.46	-370.22	188.63	370.81	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,869.46	-370.22	188.63	370.81	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,969.46	-370.22	188.63	370.81	0.00	0.00	0.00	
6,100.00	0.00	0.00	6,069.46	-370.22	188.63	370.81	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,169.46	-370.22	188.63	370.81	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,269.46	-370.22	188.63	370.81	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,369.46	-370.22	188.63	370.81	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,469.46	-370.22	188.63	370.81	0.00	0.00	0.00	
6,599.97	0.00	0.00	6,569.43	-370.22	188.63	370.81	0.00	0.00	0.00	
<b>KOP @ 6599.97ft</b>										
6,600.00	0.00	179.82	6,569.46	-370.22	188.63	370.81	0.01	0.00	599,406.99	
6,700.00	9.00	179.82	6,669.05	-378.06	188.66	378.65	9.00	9.00	0.00	
6,800.00	18.00	179.82	6,766.19	-401.38	188.73	401.97	9.00	9.00	0.00	
6,900.00	27.00	179.82	6,858.48	-439.62	188.85	440.21	9.00	9.00	0.00	
7,000.00	36.00	179.82	6,943.65	-491.82	189.01	492.41	9.00	9.00	0.00	
7,076.65	42.90	179.82	7,002.80	-540.49	189.16	541.08	9.00	9.00	0.00	
<b>Sharon Springs</b>										
7,100.00	45.00	179.82	7,019.61	-556.70	189.21	557.29	9.00	9.00	0.00	
<b>DLS = 9°/100'</b>										
7,188.76	52.99	179.82	7,077.80	-623.63	189.42	624.22	9.00	9.00	0.00	
<b>Niobrara Top</b>										
7,200.00	54.00	179.82	7,084.49	-632.66	189.45	633.25	9.00	9.00	0.00	
7,297.63	62.79	179.82	7,135.60	-715.73	189.71	716.32	9.00	9.00	0.00	
<b>Niobrara B Bench</b>										
7,300.00	63.00	179.82	7,136.68	-717.84	189.71	718.43	9.00	9.00	0.00	
7,400.00	72.00	179.82	7,174.90	-810.14	190.00	810.73	9.00	9.00	0.00	
7,451.85	76.67	179.82	7,188.90	-860.05	190.16	860.64	9.00	9.00	0.00	
<b>Niobrara C Bench</b>										
7,500.00	81.00	179.82	7,198.22	-907.27	190.30	907.87	9.00	9.00	0.00	
7,591.65	89.25	179.82	7,206.00	-998.51	190.59	999.11	9.00	9.00	0.00	
<b>End Build @ 7591.65ft - 7"</b>										
7,600.00	89.25	179.82	7,206.11	-1,006.86	190.61	1,007.46	0.00	0.00	0.00	
7,700.00	89.25	179.82	7,207.41	-1,106.85	190.92	1,107.45	0.00	0.00	0.00	
7,800.00	89.25	179.82	7,208.72	-1,206.84	191.23	1,207.44	0.00	0.00	0.00	

# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HILGERS 40N-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 40N-34HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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)
7,900.00	89.25	179.82	7,210.03	-1,306.83	191.54	1,307.43	0.00	0.00	0.00
8,000.00	89.25	179.82	7,211.33	-1,406.83	191.85	1,407.42	0.00	0.00	0.00
8,100.00	89.25	179.82	7,212.64	-1,506.82	192.16	1,507.41	0.00	0.00	0.00
8,200.00	89.25	179.82	7,213.95	-1,606.81	192.47	1,607.40	0.00	0.00	0.00
8,300.00	89.25	179.82	7,215.25	-1,706.80	192.78	1,707.40	0.00	0.00	0.00
8,400.00	89.25	179.82	7,216.56	-1,806.79	193.09	1,807.39	0.00	0.00	0.00
8,500.00	89.25	179.82	7,217.87	-1,906.78	193.41	1,907.38	0.00	0.00	0.00
8,600.00	89.25	179.82	7,219.17	-2,006.77	193.72	2,007.37	0.00	0.00	0.00
8,700.00	89.25	179.82	7,220.48	-2,106.76	194.03	2,107.36	0.00	0.00	0.00
8,800.00	89.25	179.82	7,221.79	-2,206.75	194.34	2,207.35	0.00	0.00	0.00
8,900.00	89.25	179.82	7,223.09	-2,306.74	194.65	2,307.34	0.00	0.00	0.00
9,000.00	89.25	179.82	7,224.40	-2,406.74	194.96	2,407.34	0.00	0.00	0.00
9,100.00	89.25	179.82	7,225.70	-2,506.73	195.27	2,507.33	0.00	0.00	0.00
9,200.00	89.25	179.82	7,227.01	-2,606.72	195.58	2,607.32	0.00	0.00	0.00
9,300.00	89.25	179.82	7,228.32	-2,706.71	195.89	2,707.31	0.00	0.00	0.00
9,400.00	89.25	179.82	7,229.62	-2,806.70	196.20	2,807.30	0.00	0.00	0.00
9,500.00	89.25	179.82	7,230.93	-2,906.69	196.51	2,907.29	0.00	0.00	0.00
9,600.00	89.25	179.82	7,232.24	-3,006.68	196.82	3,007.29	0.00	0.00	0.00
9,700.00	89.25	179.82	7,233.54	-3,106.67	197.13	3,107.28	0.00	0.00	0.00
9,800.00	89.25	179.82	7,234.85	-3,206.66	197.44	3,207.27	0.00	0.00	0.00
9,900.00	89.25	179.82	7,236.16	-3,306.65	197.75	3,307.26	0.00	0.00	0.00
10,000.00	89.25	179.82	7,237.46	-3,406.65	198.06	3,407.25	0.00	0.00	0.00
10,100.00	89.25	179.82	7,238.77	-3,506.64	198.37	3,507.24	0.00	0.00	0.00
10,200.00	89.25	179.82	7,240.08	-3,606.63	198.68	3,607.23	0.00	0.00	0.00
10,300.00	89.25	179.82	7,241.38	-3,706.62	198.99	3,707.23	0.00	0.00	0.00
10,400.00	89.25	179.82	7,242.69	-3,806.61	199.30	3,807.22	0.00	0.00	0.00
10,500.00	89.25	179.82	7,244.00	-3,906.60	199.61	3,907.21	0.00	0.00	0.00
10,600.00	89.25	179.82	7,245.30	-4,006.59	199.93	4,007.20	0.00	0.00	0.00
10,700.00	89.25	179.82	7,246.61	-4,106.58	200.24	4,107.19	0.00	0.00	0.00
10,800.00	89.25	179.82	7,247.91	-4,206.57	200.55	4,207.18	0.00	0.00	0.00
10,900.00	89.25	179.82	7,249.22	-4,306.56	200.86	4,307.17	0.00	0.00	0.00
11,000.00	89.25	179.82	7,250.53	-4,406.56	201.17	4,407.17	0.00	0.00	0.00
11,100.00	89.25	179.82	7,251.83	-4,506.55	201.48	4,507.16	0.00	0.00	0.00
11,200.00	89.25	179.82	7,253.14	-4,606.54	201.79	4,607.15	0.00	0.00	0.00
11,300.00	89.25	179.82	7,254.45	-4,706.53	202.10	4,707.14	0.00	0.00	0.00
11,400.00	89.25	179.82	7,255.75	-4,806.52	202.41	4,807.13	0.00	0.00	0.00
11,500.00	89.25	179.82	7,257.06	-4,906.51	202.72	4,907.12	0.00	0.00	0.00
11,600.00	89.25	179.82	7,258.37	-5,006.50	203.03	5,007.11	0.00	0.00	0.00
11,700.00	89.25	179.82	7,259.67	-5,106.49	203.34	5,107.11	0.00	0.00	0.00
11,800.00	89.25	179.82	7,260.98	-5,206.48	203.65	5,207.10	0.00	0.00	0.00
11,900.00	89.25	179.82	7,262.29	-5,306.47	203.96	5,307.09	0.00	0.00	0.00
12,000.00	89.25	179.82	7,263.59	-5,406.47	204.27	5,407.08	0.00	0.00	0.00
12,100.00	89.25	179.82	7,264.90	-5,506.46	204.58	5,507.07	0.00	0.00	0.00
12,200.00	89.25	179.82	7,266.20	-5,606.45	204.89	5,607.06	0.00	0.00	0.00
12,300.00	89.25	179.82	7,267.51	-5,706.44	205.20	5,707.05	0.00	0.00	0.00
12,400.00	89.25	179.82	7,268.82	-5,806.43	205.51	5,807.05	0.00	0.00	0.00
12,500.00	89.25	179.82	7,270.12	-5,906.42	205.82	5,907.04	0.00	0.00	0.00
12,600.00	89.25	179.82	7,271.43	-6,006.41	206.13	6,007.03	0.00	0.00	0.00
12,700.00	89.25	179.82	7,272.74	-6,106.40	206.45	6,107.02	0.00	0.00	0.00
12,800.00	89.25	179.82	7,274.04	-6,206.39	206.76	6,207.01	0.00	0.00	0.00
12,900.00	89.25	179.82	7,275.35	-6,306.38	207.07	6,307.00	0.00	0.00	0.00
13,000.00	89.25	179.82	7,276.66	-6,406.38	207.38	6,406.99	0.00	0.00	0.00
13,100.00	89.25	179.82	7,277.96	-6,506.37	207.69	6,506.99	0.00	0.00	0.00
13,200.00	89.25	179.82	7,279.27	-6,606.36	208.00	6,606.98	0.00	0.00	0.00

# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HILGERS 40N-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 40N-34HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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)
13,300.00	89.25	179.82	7,280.58	-6,706.35	208.31	6,706.97	0.00	0.00	0.00
13,400.00	89.25	179.82	7,281.88	-6,806.34	208.62	6,806.96	0.00	0.00	0.00
13,500.00	89.25	179.82	7,283.19	-6,906.33	208.93	6,906.95	0.00	0.00	0.00
13,600.00	89.25	179.82	7,284.49	-7,006.32	209.24	7,006.94	0.00	0.00	0.00
13,700.00	89.25	179.82	7,285.80	-7,106.31	209.55	7,106.94	0.00	0.00	0.00
13,800.00	89.25	179.82	7,287.11	-7,206.30	209.86	7,206.93	0.00	0.00	0.00
13,900.00	89.25	179.82	7,288.41	-7,306.29	210.17	7,306.92	0.00	0.00	0.00
14,000.00	89.25	179.82	7,289.72	-7,406.28	210.48	7,406.91	0.00	0.00	0.00
14,100.00	89.25	179.82	7,291.03	-7,506.28	210.79	7,506.90	0.00	0.00	0.00
14,200.00	89.25	179.82	7,292.33	-7,606.27	211.10	7,606.89	0.00	0.00	0.00
14,300.00	89.25	179.82	7,293.64	-7,706.26	211.41	7,706.88	0.00	0.00	0.00
14,400.00	89.25	179.82	7,294.95	-7,806.25	211.72	7,806.88	0.00	0.00	0.00
14,500.00	89.25	179.82	7,296.25	-7,906.24	212.03	7,906.87	0.00	0.00	0.00
14,600.00	89.25	179.82	7,297.56	-8,006.23	212.34	8,006.86	0.00	0.00	0.00
14,700.00	89.25	179.82	7,298.87	-8,106.22	212.65	8,106.85	0.00	0.00	0.00
14,800.00	89.25	179.82	7,300.17	-8,206.21	212.97	8,206.84	0.00	0.00	0.00
14,900.00	89.25	179.82	7,301.48	-8,306.20	213.28	8,306.83	0.00	0.00	0.00
15,000.00	89.25	179.82	7,302.79	-8,406.19	213.59	8,406.82	0.00	0.00	0.00
15,100.00	89.25	179.82	7,304.09	-8,506.19	213.90	8,506.82	0.00	0.00	0.00
15,200.00	89.25	179.82	7,305.40	-8,606.18	214.21	8,606.81	0.00	0.00	0.00
15,300.00	89.25	179.82	7,306.70	-8,706.17	214.52	8,706.80	0.00	0.00	0.00
15,400.00	89.25	179.82	7,308.01	-8,806.16	214.83	8,806.79	0.00	0.00	0.00
15,500.00	89.25	179.82	7,309.32	-8,906.15	215.14	8,906.78	0.00	0.00	0.00
15,600.00	89.25	179.82	7,310.62	-9,006.14	215.45	9,006.77	0.00	0.00	0.00
15,700.00	89.25	179.82	7,311.93	-9,106.13	215.76	9,106.76	0.00	0.00	0.00
15,800.00	89.25	179.82	7,313.24	-9,206.12	216.07	9,206.76	0.00	0.00	0.00
15,900.00	89.25	179.82	7,314.54	-9,306.11	216.38	9,306.75	0.00	0.00	0.00
16,000.00	89.25	179.82	7,315.85	-9,406.10	216.69	9,406.74	0.00	0.00	0.00
16,100.00	89.25	179.82	7,317.16	-9,506.10	217.00	9,506.73	0.00	0.00	0.00
16,200.00	89.25	179.82	7,318.46	-9,606.09	217.31	9,606.72	0.00	0.00	0.00
16,300.00	89.25	179.82	7,319.77	-9,706.08	217.62	9,706.71	0.00	0.00	0.00
16,400.00	89.25	179.82	7,321.08	-9,806.07	217.93	9,806.70	0.00	0.00	0.00
16,500.00	89.25	179.82	7,322.38	-9,906.06	218.24	9,906.70	0.00	0.00	0.00
16,547.32	89.25	179.82	7,323.00	-9,953.38	218.39	9,954.01	0.00	0.00	0.00
TD Well @ 16547.32ft									



# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HILGERS 40N-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 40N-34HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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 40N-34HZ_Sf	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									
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. 26_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	-842.64	823.41	14,601,126.42	1,646,133.31		
Point 2			0.00	-816.40	6,107.25	14,601,153.73	1,651,417.15		
Point 3			0.00	-6,122.12	6,096.28	14,595,848.00	1,651,407.25		
Point 4			0.00	-6,154.53	782.53	14,595,814.52	1,646,093.50		
HILGERS 40N-34HZ_Hz	0.00	0.00	0.00	0.00	-15.08	14,601,968.55	1,645,399.64	40.206605	-104.982153
- 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	16.10	-122.70	14,601,984.62	1,645,276.93		
Point 2			0.00	21.13	272.16	14,601,989.73	1,645,671.79		
Point 3			0.00	-853.50	276.28	14,601,115.10	1,645,676.09		
Point 4			0.00	-2,179.28	265.97	14,599,789.32	1,645,666.05		
Point 5			0.00	-3,505.07	255.67	14,598,463.53	1,645,656.01		
Point 6			0.00	-4,833.00	245.51	14,597,135.60	1,645,646.12		
Point 7			0.00	-6,160.93	235.41	14,595,807.66	1,645,636.29		
Point 8			0.00	-7,500.51	249.78	14,594,468.09	1,645,650.93		
Point 9			0.00	-8,835.36	264.10	14,593,133.24	1,645,665.52		
Point 10			0.00	-10,174.76	276.96	14,591,793.84	1,645,678.65		
Point 11			0.00	-11,054.21	285.40	14,590,914.39	1,645,687.27		
Point 12			0.00	-11,057.61	-110.18	14,590,910.91	1,645,291.69		
Point 13			0.00	-10,176.82	-126.76	14,591,791.70	1,645,274.93		
Point 14			0.00	-8,836.06	-151.99	14,593,132.46	1,645,249.43		
Point 15			0.00	-7,500.34	-150.76	14,594,468.18	1,645,250.39		
Point 16			0.00	-6,171.51	-149.48	14,595,797.01	1,645,251.40		
Point 17			0.00	-4,836.82	-142.05	14,597,131.70	1,645,258.56		
Point 18			0.00	-3,509.05	-134.67	14,598,459.47	1,645,265.67		
Point 19			0.00	-2,185.10	-126.29	14,599,783.42	1,645,273.79		
Point 20			0.00	-861.14	-118.01	14,601,107.38	1,645,281.80		
Point 21			0.00	16.10	-122.70	14,601,984.62	1,645,276.93		
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		



# Anadarko

## Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well HILGERS 40N-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 40N-34HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

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 40N-34HZ_TC	0.00	0.00	7,323.00	-9,953.38	218.39	14,592,015.21	1,645,635.11	40.179272 -104.981317
- 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		
7,591.65	7,206.00	7"		7	8-3/4		

Formations							
Measured Depth (usft)	Vertical Depth (usft)	Name		Lithology	Dip (°)	Dip Direction (°)	
316.00	316.00	Fox Hills					
4,186.54	4,156.00	Sussex					
7,076.65	7,002.80	Sharon Springs					
7,188.76	7,077.80	Niobrara Top					
7,297.63	7,135.60	Niobrara B Bench					
7,451.85	7,188.90	Niobrara C Bench					

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	
2,980.00	2,951.31	-338.79	172.62	Begin Drop @ 2980.00ft	
3,430.00	3,399.46	-370.22	188.63	End Drop @ 3430.00ft	
6,599.97	6,569.43	-370.22	188.63	KOP @ 6599.97ft	
7,100.00	7,019.61	-556.70	189.21	DLS = 9°/100'	
7,591.65	7,206.00	-998.51	190.59	End Build @ 7591.65ft	
16,547.32	7,323.00	-9,953.38	218.39	TD Well @ 16547.32ft	