

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

HILGERS 36N-27HZ

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 36N-27HZ

Wellbore: Plan A

Design: Permit Rev-1

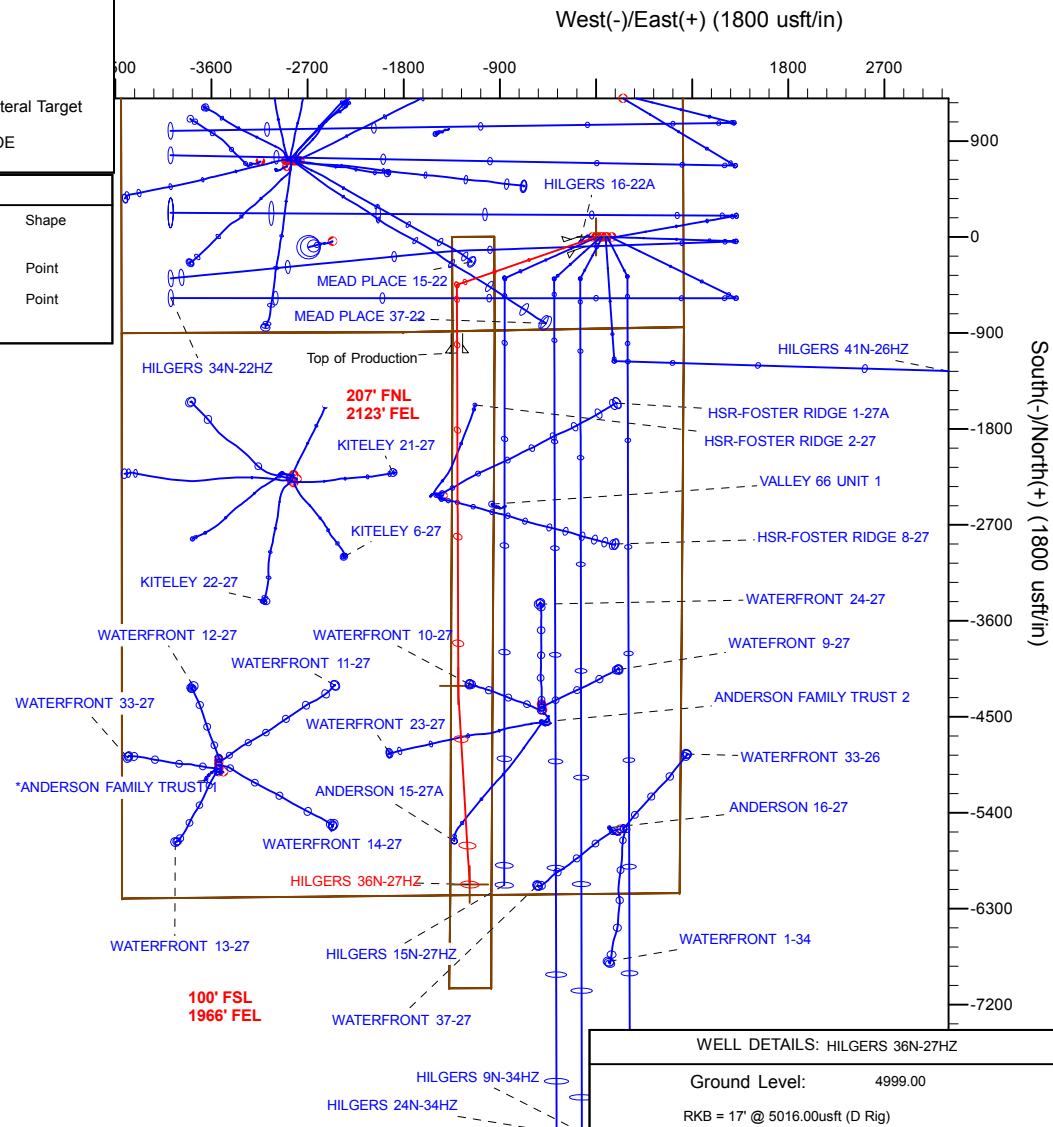
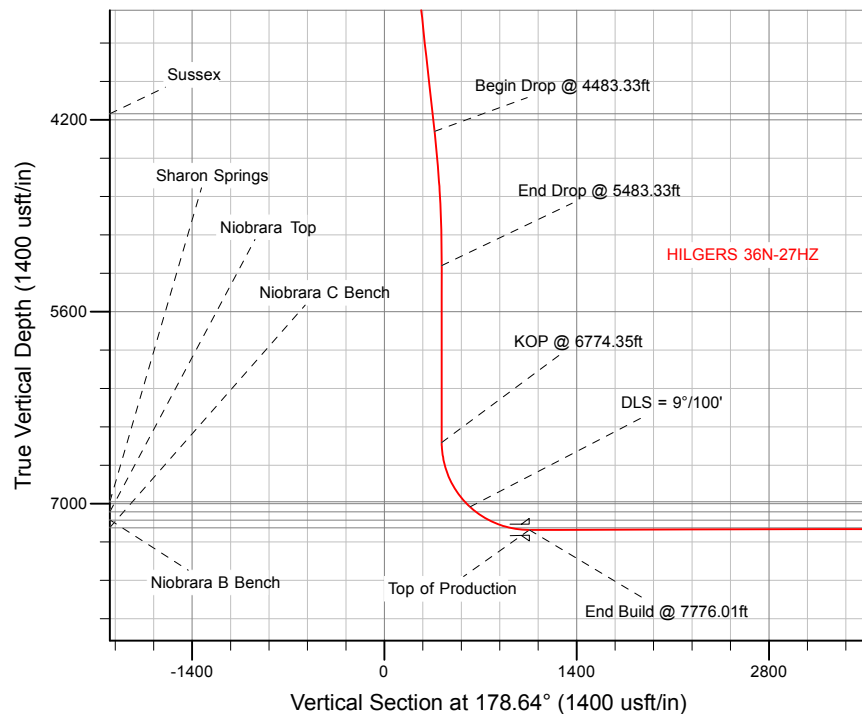
US ROCKIES WATTENBERG PLANNING

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	300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
3	1633.33	20.00	251.00	1606.42	-75.00	-217.81	1.50	251.00	69.81	
4	4483.33	20.00	251.00	4284.54	-392.35	-1139.46	0.00	0.00	365.19	
5	5483.33	0.00	0.00	5264.36	-448.59	-1302.81	2.00	180.00	417.55	
6	6774.35	0.00	0.00	6555.38	-448.59	-1302.81	0.00	0.00	417.55	
7	7776.01	90.15	179.79	7192.00	-1086.87	-1300.47	9.00	179.79	1055.70	
8	10900.00	90.15	179.79	7183.85	-4210.83	-1288.99	0.00	0.00	4179.05	HILGERS 36N-27HZ_Lateral Target
9	11060.56	90.15	176.58	7183.43	-4371.28	-1283.90	2.00	-90.00	4339.58	
10	12765.63	90.15	176.58	7179.00	-6073.31	-1182.14	0.00	0.00	6043.54	HILGERS 36N-27HZ_TOE

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
HILGERS 36N-27HZ_SHL	0.00	0.00	0.00	40.206606	-104.982475	Point
HILGERS 36N-27HZ_TOE	7179.00	-6073.31	-1182.14	40.189928	-104.986708	Point



WELL DETAILS: HILGERS 36N-27HZ

Ground Level: 4999.00

RKB = 17' @ 5016.00usft (D Rig)

Plan: Permit Rev-1 (HILGERS 36N-27HZ/Plan A)

Created By: Clint Eshelman

Date: 7/28/2015

Reviewed: _____

Date: _____

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 36N-27HZ
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 36N-27HZ	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 36N-27HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,601,968.89 usft	Latitude:	40.206606
	+E/-W	0.00 usft	Easting:	1,645,309.73 usft	Longitude:	-104.982475
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	8.40	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	178.64

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	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,633.33	20.00	251.00	1,606.42	-75.00	-217.81	1.50	1.50	0.00	251.00	
4,483.33	20.00	251.00	4,284.54	-392.35	-1,139.46	0.00	0.00	0.00	0.00	
5,483.33	0.00	0.00	5,264.36	-448.59	-1,302.81	2.00	-2.00	0.00	180.00	
6,774.35	0.00	0.00	6,555.38	-448.59	-1,302.81	0.00	0.00	0.00	0.00	
7,776.01	90.15	179.79	7,192.00	-1,086.87	-1,300.47	9.00	9.00	17.95	179.79	
10,900.01	90.15	179.79	7,183.85	-4,210.83	-1,288.99	0.00	0.00	0.00	0.00	HILGERS 36N-27HZ_
11,060.56	90.15	176.58	7,183.43	-4,371.28	-1,283.90	2.00	0.00	-2.00	-90.00	
12,765.63	90.15	176.58	7,179.00	-6,073.31	-1,182.14	0.00	0.00	0.00	0.00	HILGERS 36N-27HZ_

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 36N-27HZ
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 36N-27HZ	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
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 300.00ft									
316.00	0.24	251.00	316.00	-0.01	-0.03	0.01	1.50	1.50	0.00
Fox Hills									
400.00	1.50	251.00	399.99	-0.43	-1.24	0.40	1.50	1.50	0.00
500.00	3.00	251.00	499.91	-1.70	-4.95	1.59	1.50	1.50	0.00
600.00	4.50	251.00	599.69	-3.83	-11.13	3.57	1.50	1.50	0.00
700.00	6.00	251.00	699.27	-6.81	-19.78	6.34	1.50	1.50	0.00
800.00	7.50	251.00	798.57	-10.64	-30.90	9.90	1.50	1.50	0.00
900.00	9.00	251.00	897.54	-15.31	-44.46	14.25	1.50	1.50	0.00
1,000.00	10.50	251.00	996.09	-20.82	-60.48	19.38	1.50	1.50	0.00
1,100.00	12.00	251.00	1,094.16	-27.18	-78.92	25.29	1.50	1.50	0.00
1,200.00	13.50	251.00	1,191.70	-34.36	-99.79	31.98	1.50	1.50	0.00
1,300.00	15.00	251.00	1,288.62	-42.37	-123.06	39.44	1.50	1.50	0.00
1,400.00	16.50	251.00	1,384.86	-51.21	-148.73	47.67	1.50	1.50	0.00
1,500.00	18.00	251.00	1,480.36	-60.87	-176.77	56.65	1.50	1.50	0.00
1,600.00	19.50	251.00	1,575.05	-71.33	-207.16	66.39	1.50	1.50	0.00
1,633.33	20.00	251.00	1,606.42	-75.00	-217.81	69.81	1.50	1.50	0.00
End Nudge @ 1633.33ft									
1,700.00	20.00	251.00	1,669.07	-82.42	-239.37	76.72	0.00	0.00	0.00
1,800.00	20.00	251.00	1,763.04	-93.56	-271.70	87.08	0.00	0.00	0.00
1,839.34	20.00	251.00	1,800.00	-97.94	-284.43	91.16	0.00	0.00	0.00
9 5/8"									
1,900.00	20.00	251.00	1,857.01	-104.69	-304.04	97.44	0.00	0.00	0.00
2,000.00	20.00	251.00	1,950.97	-115.83	-336.38	107.81	0.00	0.00	0.00
2,100.00	20.00	251.00	2,044.94	-126.96	-368.72	118.17	0.00	0.00	0.00
2,200.00	20.00	251.00	2,138.91	-138.10	-401.06	128.54	0.00	0.00	0.00
2,300.00	20.00	251.00	2,232.88	-149.23	-433.40	138.90	0.00	0.00	0.00
2,400.00	20.00	251.00	2,326.85	-160.37	-465.74	149.27	0.00	0.00	0.00
2,500.00	20.00	251.00	2,420.82	-171.50	-498.08	159.63	0.00	0.00	0.00
2,600.00	20.00	251.00	2,514.79	-182.64	-530.41	170.00	0.00	0.00	0.00
2,700.00	20.00	251.00	2,608.76	-193.77	-562.75	180.36	0.00	0.00	0.00
2,800.00	20.00	251.00	2,702.73	-204.91	-595.09	190.72	0.00	0.00	0.00
2,900.00	20.00	251.00	2,796.70	-216.04	-627.43	201.09	0.00	0.00	0.00
3,000.00	20.00	251.00	2,890.67	-227.18	-659.77	211.45	0.00	0.00	0.00
3,100.00	20.00	251.00	2,984.64	-238.31	-692.11	221.82	0.00	0.00	0.00
3,200.00	20.00	251.00	3,078.61	-249.45	-724.45	232.18	0.00	0.00	0.00
3,300.00	20.00	251.00	3,172.58	-260.58	-756.78	242.55	0.00	0.00	0.00
3,400.00	20.00	251.00	3,266.54	-271.72	-789.12	252.91	0.00	0.00	0.00
3,500.00	20.00	251.00	3,360.51	-282.85	-821.46	263.28	0.00	0.00	0.00
3,600.00	20.00	251.00	3,454.48	-293.99	-853.80	273.64	0.00	0.00	0.00
3,700.00	20.00	251.00	3,548.45	-305.12	-886.14	284.00	0.00	0.00	0.00
3,800.00	20.00	251.00	3,642.42	-316.26	-918.48	294.37	0.00	0.00	0.00
3,900.00	20.00	251.00	3,736.39	-327.39	-950.82	304.73	0.00	0.00	0.00
4,000.00	20.00	251.00	3,830.36	-338.53	-983.15	315.10	0.00	0.00	0.00
4,100.00	20.00	251.00	3,924.33	-349.66	-1,015.49	325.46	0.00	0.00	0.00
4,200.00	20.00	251.00	4,018.30	-360.80	-1,047.83	335.83	0.00	0.00	0.00
4,300.00	20.00	251.00	4,112.27	-371.93	-1,080.17	346.19	0.00	0.00	0.00
4,346.54	20.00	251.00	4,156.00	-377.11	-1,095.22	351.01	0.00	0.00	0.00
Sussex									
4,400.00	20.00	251.00	4,206.24	-383.07	-1,112.51	356.56	0.00	0.00	0.00

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 36N-27HZ
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 36N-27HZ	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)
4,483.33	20.00	251.00	4,284.54	-392.35	-1,139.46	365.19	0.00	0.00	0.00
Begin Drop @ 4483.33ft									
4,500.00	19.67	251.00	4,300.22	-394.19	-1,144.80	366.91	2.00	-2.00	0.00
4,600.00	17.67	251.00	4,394.96	-404.61	-1,175.07	376.60	2.00	-2.00	0.00
4,700.00	15.67	251.00	4,490.75	-413.94	-1,202.18	385.30	2.00	-2.00	0.00
4,800.00	13.67	251.00	4,587.49	-422.19	-1,226.12	392.97	2.00	-2.00	0.00
4,900.00	11.67	251.00	4,685.05	-429.33	-1,246.85	399.61	2.00	-2.00	0.00
5,000.00	9.67	251.00	4,783.32	-435.35	-1,264.35	405.22	2.00	-2.00	0.00
5,100.00	7.67	251.00	4,882.17	-440.26	-1,278.60	409.79	2.00	-2.00	0.00
5,200.00	5.67	251.00	4,981.49	-444.04	-1,289.58	413.30	2.00	-2.00	0.00
5,300.00	3.67	251.00	5,081.15	-446.69	-1,297.27	415.77	2.00	-2.00	0.00
5,400.00	1.67	251.00	5,181.04	-448.20	-1,301.67	417.18	2.00	-2.00	0.00
5,483.33	0.00	251.00	5,264.36	-448.59	-1,302.81	417.55	2.00	-2.00	0.00
End Drop @ 5483.33ft									
5,500.00	0.00	0.00	5,281.03	-448.59	-1,302.81	417.55	0.00	0.00	0.00
5,600.00	0.00	0.00	5,381.03	-448.59	-1,302.81	417.55	0.00	0.00	0.00
5,700.00	0.00	0.00	5,481.03	-448.59	-1,302.81	417.55	0.00	0.00	0.00
5,800.00	0.00	0.00	5,581.03	-448.59	-1,302.81	417.55	0.00	0.00	0.00
5,900.00	0.00	0.00	5,681.03	-448.59	-1,302.81	417.55	0.00	0.00	0.00
6,000.00	0.00	0.00	5,781.03	-448.59	-1,302.81	417.55	0.00	0.00	0.00
6,100.00	0.00	0.00	5,881.03	-448.59	-1,302.81	417.55	0.00	0.00	0.00
6,200.00	0.00	0.00	5,981.03	-448.59	-1,302.81	417.55	0.00	0.00	0.00
6,300.00	0.00	0.00	6,081.03	-448.59	-1,302.81	417.55	0.00	0.00	0.00
6,400.00	0.00	0.00	6,181.03	-448.59	-1,302.81	417.55	0.00	0.00	0.00
6,500.00	0.00	0.00	6,281.03	-448.59	-1,302.81	417.55	0.00	0.00	0.00
6,600.00	0.00	0.00	6,381.03	-448.59	-1,302.81	417.55	0.00	0.00	0.00
6,700.00	0.00	0.00	6,481.03	-448.59	-1,302.81	417.55	0.00	0.00	0.00
6,774.35	0.00	0.00	6,555.38	-448.59	-1,302.81	417.55	0.00	0.00	0.00
KOP @ 6774.35ft									
6,800.00	2.31	179.79	6,581.02	-449.11	-1,302.81	418.06	9.00	9.00	0.00
6,900.00	11.31	179.79	6,680.21	-460.95	-1,302.77	429.90	9.00	9.00	0.00
7,000.00	20.31	179.79	6,776.33	-488.17	-1,302.67	457.11	9.00	9.00	0.00
7,100.00	29.31	179.79	6,867.01	-530.08	-1,302.51	499.02	9.00	9.00	0.00
7,200.00	38.31	179.79	6,950.02	-585.67	-1,302.31	554.59	9.00	9.00	0.00
7,246.88	42.53	179.79	6,985.70	-616.05	-1,302.20	584.97	9.00	9.00	0.00
Sharon Springs									
7,300.00	47.31	179.79	7,023.30	-653.55	-1,302.06	622.46	9.00	9.00	0.00
DLS = 9°/100'									
7,358.11	52.54	179.79	7,060.70	-698.00	-1,301.90	666.90	9.00	9.00	0.00
Niobrara Top									
7,400.00	56.31	179.79	7,085.07	-732.06	-1,301.77	700.96	9.00	9.00	0.00
7,469.52	62.56	179.79	7,120.40	-791.89	-1,301.55	760.78	9.00	9.00	0.00
Niobrara B Bench									
7,500.00	65.31	179.79	7,133.79	-819.27	-1,301.45	788.15	9.00	9.00	0.00
7,600.00	74.31	179.79	7,168.27	-913.03	-1,301.11	881.89	9.00	9.00	0.00
7,630.87	77.09	179.79	7,175.90	-942.94	-1,301.00	911.80	9.00	9.00	0.00
Niobrara C Bench									
7,700.00	83.31	179.79	7,187.66	-1,011.03	-1,300.75	979.87	9.00	9.00	0.00
7,776.01	90.15	179.79	7,192.00	-1,086.87	-1,300.47	1,055.70	9.00	9.00	0.00
End Build @ 7776.01ft - Top of Production									
7,800.00	90.15	179.79	7,191.94	-1,110.86	-1,300.38	1,079.68	0.00	0.00	0.00
7,900.00	90.15	179.79	7,191.67	-1,210.86	-1,300.01	1,179.66	0.00	0.00	0.00
8,000.00	90.15	179.79	7,191.41	-1,310.85	-1,299.65	1,279.64	0.00	0.00	0.00

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 36N-27HZ
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 36N-27HZ	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)	
8,100.00	90.15	179.79	7,191.15	-1,410.85	-1,299.28	1,379.62	0.00	0.00	0.00	
8,200.00	90.15	179.79	7,190.89	-1,510.85	-1,298.91	1,479.60	0.00	0.00	0.00	
8,300.00	90.15	179.79	7,190.63	-1,610.85	-1,298.54	1,579.58	0.00	0.00	0.00	
8,400.00	90.15	179.79	7,190.37	-1,710.85	-1,298.18	1,679.56	0.00	0.00	0.00	
8,500.00	90.15	179.79	7,190.11	-1,810.85	-1,297.81	1,779.54	0.00	0.00	0.00	
8,600.00	90.15	179.79	7,189.85	-1,910.85	-1,297.44	1,879.52	0.00	0.00	0.00	
8,700.00	90.15	179.79	7,189.59	-2,010.85	-1,297.07	1,979.50	0.00	0.00	0.00	
8,800.00	90.15	179.79	7,189.33	-2,110.85	-1,296.71	2,079.48	0.00	0.00	0.00	
8,900.00	90.15	179.79	7,189.07	-2,210.85	-1,296.34	2,179.46	0.00	0.00	0.00	
9,000.00	90.15	179.79	7,188.81	-2,310.84	-1,295.97	2,279.43	0.00	0.00	0.00	
9,100.00	90.15	179.79	7,188.54	-2,410.84	-1,295.60	2,379.41	0.00	0.00	0.00	
9,200.00	90.15	179.79	7,188.28	-2,510.84	-1,295.24	2,479.39	0.00	0.00	0.00	
9,300.00	90.15	179.79	7,188.02	-2,610.84	-1,294.87	2,579.37	0.00	0.00	0.00	
9,400.00	90.15	179.79	7,187.76	-2,710.84	-1,294.50	2,679.35	0.00	0.00	0.00	
9,500.00	90.15	179.79	7,187.50	-2,810.84	-1,294.13	2,779.33	0.00	0.00	0.00	
9,600.00	90.15	179.79	7,187.24	-2,910.84	-1,293.77	2,879.31	0.00	0.00	0.00	
9,700.00	90.15	179.79	7,186.98	-3,010.84	-1,293.40	2,979.29	0.00	0.00	0.00	
9,800.00	90.15	179.79	7,186.72	-3,110.84	-1,293.03	3,079.27	0.00	0.00	0.00	
9,900.00	90.15	179.79	7,186.46	-3,210.84	-1,292.66	3,179.25	0.00	0.00	0.00	
10,000.00	90.15	179.79	7,186.20	-3,310.83	-1,292.30	3,279.23	0.00	0.00	0.00	
10,100.00	90.15	179.79	7,185.94	-3,410.83	-1,291.93	3,379.21	0.00	0.00	0.00	
10,200.00	90.15	179.79	7,185.68	-3,510.83	-1,291.56	3,479.19	0.00	0.00	0.00	
10,300.00	90.15	179.79	7,185.42	-3,610.83	-1,291.19	3,579.17	0.00	0.00	0.00	
10,400.00	90.15	179.79	7,185.15	-3,710.83	-1,290.83	3,679.15	0.00	0.00	0.00	
10,500.00	90.15	179.79	7,184.89	-3,810.83	-1,290.46	3,779.13	0.00	0.00	0.00	
10,600.00	90.15	179.79	7,184.63	-3,910.83	-1,290.09	3,879.11	0.00	0.00	0.00	
10,700.00	90.15	179.79	7,184.37	-4,010.83	-1,289.72	3,979.09	0.00	0.00	0.00	
10,800.00	90.15	179.79	7,184.11	-4,110.83	-1,289.36	4,079.07	0.00	0.00	0.00	
10,900.00	90.15	179.79	7,183.85	-4,210.83	-1,288.99	4,179.05	0.00	0.00	0.00	
Begin Turn to BHL @ 10900.00ft										
11,000.00	90.15	177.79	7,183.59	-4,310.80	-1,286.88	4,279.04	2.00	0.00	-2.00	
11,060.56	90.15	176.58	7,183.43	-4,371.28	-1,283.90	4,339.58	2.00	0.00	-2.00	
End Turn @ 11060.56ft										
11,100.00	90.15	176.58	7,183.33	-4,410.65	-1,281.55	4,378.99	0.00	0.00	0.00	
11,200.00	90.15	176.58	7,183.07	-4,510.47	-1,275.58	4,478.93	0.00	0.00	0.00	
11,300.00	90.15	176.58	7,182.81	-4,610.30	-1,269.61	4,578.86	0.00	0.00	0.00	
11,400.00	90.15	176.58	7,182.55	-4,710.12	-1,263.64	4,678.80	0.00	0.00	0.00	
11,500.00	90.15	176.58	7,182.29	-4,809.94	-1,257.68	4,778.73	0.00	0.00	0.00	
11,600.00	90.15	176.58	7,182.03	-4,909.76	-1,251.71	4,878.67	0.00	0.00	0.00	
11,700.00	90.15	176.58	7,181.77	-5,009.58	-1,245.74	4,978.60	0.00	0.00	0.00	
11,800.00	90.15	176.58	7,181.51	-5,109.40	-1,239.77	5,078.54	0.00	0.00	0.00	
11,900.00	90.15	176.58	7,181.25	-5,209.22	-1,233.80	5,178.47	0.00	0.00	0.00	
12,000.00	90.15	176.58	7,180.99	-5,309.05	-1,227.83	5,278.41	0.00	0.00	0.00	
12,100.00	90.15	176.58	7,180.73	-5,408.87	-1,221.87	5,378.34	0.00	0.00	0.00	
12,200.00	90.15	176.58	7,180.47	-5,508.69	-1,215.90	5,478.28	0.00	0.00	0.00	
12,300.00	90.15	176.58	7,180.21	-5,608.51	-1,209.93	5,578.21	0.00	0.00	0.00	
12,400.00	90.15	176.58	7,179.95	-5,708.33	-1,203.96	5,678.15	0.00	0.00	0.00	
12,500.00	90.15	176.58	7,179.69	-5,808.15	-1,197.99	5,778.08	0.00	0.00	0.00	
12,600.00	90.15	176.58	7,179.43	-5,907.97	-1,192.03	5,878.02	0.00	0.00	0.00	
12,700.00	90.15	176.58	7,179.17	-6,007.80	-1,186.06	5,977.95	0.00	0.00	0.00	
12,765.63	90.15	176.58	7,179.00	-6,073.31	-1,182.14	6,043.54	0.00	0.00	0.00	
TD Well @ 12765.63ft										

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 36N-27HZ
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 36N-27HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
HILGERS 36N-27HZ_St	0.00	0.00	0.00	0.00	0.00	14,601,968.89	1,645,309.73	40.206606	-104.982475
- plan hits target center									
- Point									
3N-R68W-Sec. 27_Secti	0.00	0.00	0.00	0.00	0.00	14,601,968.89	1,645,309.73	40.206606	-104.982475
- plan hits target center									
- Polygon									
Point 1			0.00	-901.61	-4,440.91	14,601,066.41	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	1,646,113.25		
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	14,595,763.98	1,640,874.12		
3N-R68W-Sec. 34_Secti	0.00	0.00	0.00	0.00	0.00	14,601,968.89	1,645,309.73	40.206606	-104.982475
- plan hits target center									
- Polygon									
Point 1			0.00	-6,204.04	-4,436.84	14,595,763.98	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 36N-27HZ_Hz	0.00	0.00	0.00	0.00	0.00	14,601,968.89	1,645,309.73	40.206606	-104.982475
- plan hits target center									
- Polygon									
Point 1			0.00	-1.02	-1,347.62	14,601,967.61	1,643,962.11		
Point 2			0.00	4.01	-952.75	14,601,972.72	1,644,356.98		
Point 3			0.00	-879.32	-948.13	14,601,089.39	1,644,361.78		
Point 4			0.00	-2,199.07	-956.48	14,599,769.63	1,644,353.69		
Point 5			0.00	-3,518.82	-964.82	14,598,449.88	1,644,345.61		
Point 6			0.00	-4,846.26	-972.20	14,597,122.44	1,644,338.49		
Point 7			0.00	-6,173.69	-979.54	14,595,795.01	1,644,331.41		
Point 8			0.00	-7,045.79	-980.39	14,594,922.91	1,644,330.73		
Point 9			0.00	-7,047.99	-1,375.42	14,594,920.63	1,643,935.70		
Point 10			0.00	-6,177.36	-1,364.40	14,595,791.26	1,643,946.55		
Point 11			0.00	-4,850.08	-1,359.78	14,597,118.54	1,643,950.91		
Point 12			0.00	-3,522.81	-1,355.17	14,598,445.82	1,643,955.26		
Point 13			0.00	-2,204.88	-1,348.76	14,599,763.75	1,643,961.41		
Point 14			0.00	-886.95	-1,342.45	14,601,081.68	1,643,967.46		
Point 15			0.00	-1.02	-1,347.62	14,601,967.61	1,643,962.11		
3N-R68W-Sec. 26_Secti	0.00	0.00	0.00	0.00	0.00	14,601,968.89	1,645,309.73	40.206606	-104.982475
- plan hits target center									
- 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	14,601,153.70	1,651,417.14		
Point 3			0.00	-6,122.12	6,096.28	14,595,847.98	1,651,407.22		
Point 4			0.00	-6,154.53	782.53	14,595,814.52	1,646,093.48		
HILGERS 36N-27HZ_TC	0.00	0.00	7,179.00	-6,073.31	-1,182.14	14,595,895.35	1,644,128.79	40.189928	-104.986708
- plan hits target center									
- Point									
HILGERS 36N-27HZ_La	0.00	0.00	7,183.85	-4,210.83	-1,288.99	14,597,757.81	1,644,021.57	40.195043	-104.987091
- plan hits target center									
- Point									

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well HILGERS 36N-27HZ
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 36N-27HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,839.34	1,800.00	9 5/8"	9-5/8	13-1/2	
7,776.01	7,192.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
316.00	316.00	Fox Hills				
4,346.54	4,156.00	Sussex				
7,246.88	6,985.70	Sharon Springs				
7,358.11	7,060.70	Niobrara Top				
7,469.52	7,120.40	Niobrara B Bench				
7,630.87	7,175.90	Niobrara C Bench				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
300.00	300.00	0.00	0.00	Begin Nudge @ 300.00ft	
1,633.33	1,606.42	-75.00	-217.81	End Nudge @ 1633.33ft	
4,483.33	4,284.54	-392.35	-1,139.46	Begin Drop @ 4483.33ft	
5,483.33	5,264.36	-448.59	-1,302.81	End Drop @ 5483.33ft	
6,774.35	6,555.38	-448.59	-1,302.81	KOP @ 6774.35ft	
7,300.00	7,023.30	-653.55	-1,302.06	DLS = 9°/100'	
7,776.01	7,192.00	-1,086.87	-1,300.47	End Build @ 7776.01ft	
10,900.00	7,183.85	-4,210.83	-1,288.99	Begin Turn to BHL @ 10900.00ft	
11,060.56	7,183.43	-4,371.28	-1,283.90	End Turn @ 11060.56ft	
12,765.63	7,179.00	-6,073.31	-1,182.14	TD Well @ 12765.63ft	