

WELL DETAILS: Hilgers 12N-22HZ

PROJECT DETAILS: US Rockies Wattenberg Planning UTM83

GL 4998' & KB 17' @ 5015.00ft (Xtreme 24) 4998.00
 Northing 14603298.11 Easting 1645564.09 Latitude 40.2102560 Longitude -104.9815630

Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Zone 13N (108 W to 102 W)

Design: OH (Hilgers 12N-22HZ/OH)

System Datum: Mean Sea Level
 Local North: True

Created By: Seth Burstad Date: 5-30-2017

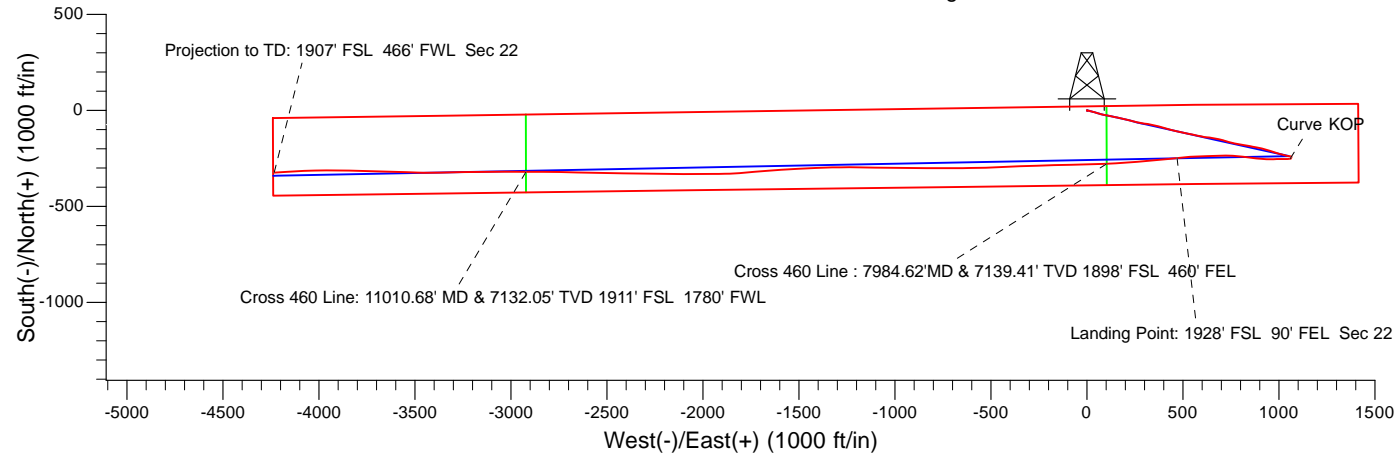
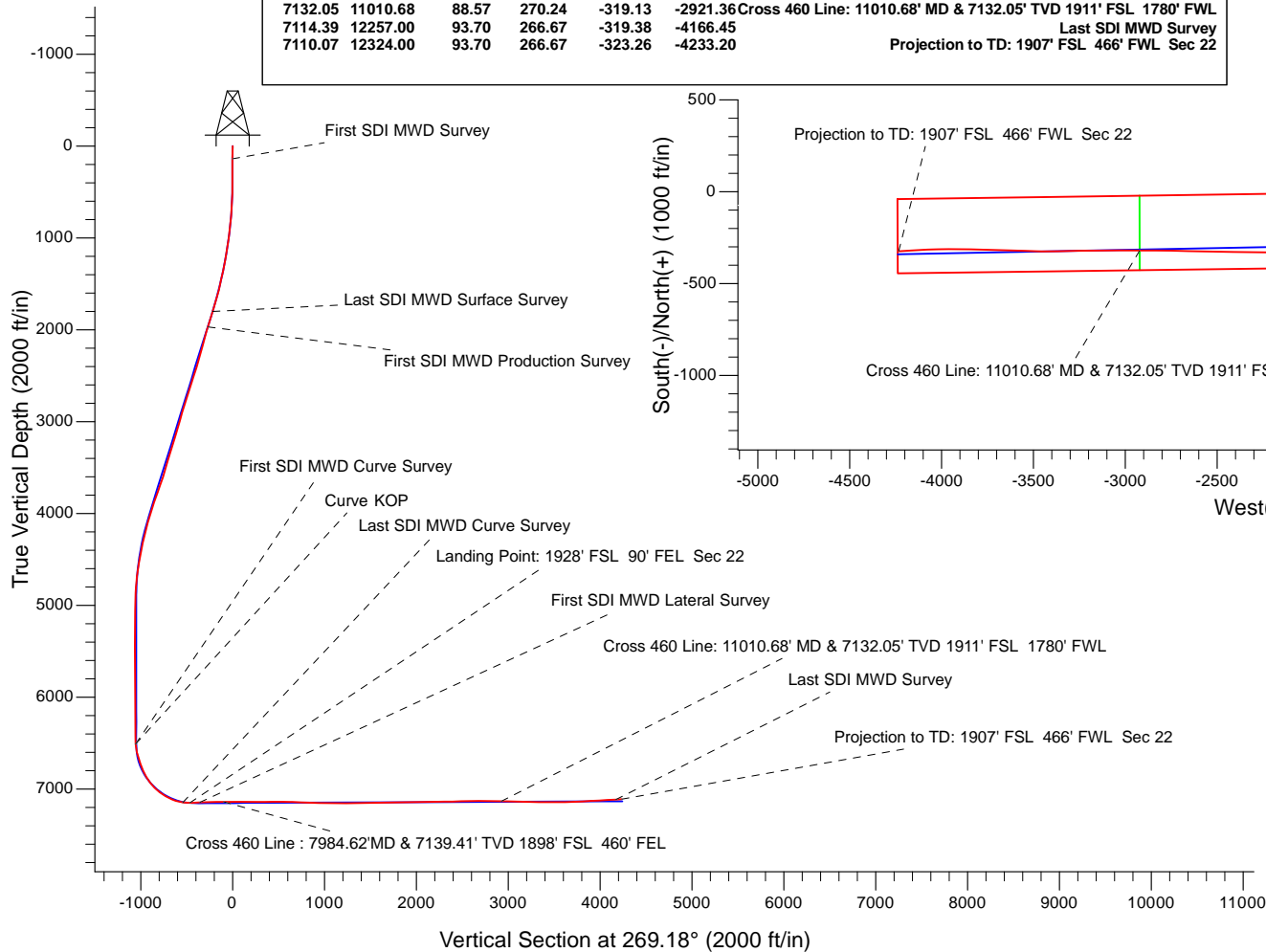
ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Annotation
140.00	140.00	0.17	97.03	-0.03	0.21	First SDI MWD Survey
1800.68	1824.00	18.27	104.75	-50.50	217.93	Last SDI MWD Surface Survey
1968.44	2000.00	16.93	101.72	-62.73	269.70	First SDI MWD Production Survey
6511.42	6661.00	2.89	270.40	-251.85	1058.72	Curve KOP
6511.42	6661.00	2.89	270.40	-251.85	1058.72	First SDI MWD Curve Survey
7146.89	7541.00	82.29	267.02	-241.03	544.08	Last SDI MWD Curve Survey
7151.01	7616.00	91.25	263.88	-246.81	469.51	Landing Point: 1928' FSL 90' FEL Sec 22
7145.42	7726.00	92.19	263.98	-259.39	360.38	First SDI MWD Lateral Survey
7139.41	7984.62	90.39	266.95	-277.36	102.48	Cross 460 Line : 7984.62' MD & 7139.41' TVD 1898' FSL 460' FEL
7132.05	11010.68	88.57	270.24	-319.13	-2921.36	Cross 460 Line: 11010.68' MD & 7132.05' TVD 1911' FSL 1780' FWL
7114.39	12257.00	93.70	266.67	-319.38	-4166.45	Last SDI MWD Survey
7110.07	12324.00	93.70	266.67	-323.26	-4233.20	Projection to TD: 1907' FSL 466' FWL Sec 22

Surface Hole:
 2183' FSL 559' FEL
 Sec 22 T3N R68W

Landing Point:
 1928' FSL 90' FEL Sec 22
 MD: 7,616.00
 TVD: 7,151.01
 Lat: 40.2095783
 Long: -104.9798813

BHL:
 1907' FSL 466' FWL Sec 22
 MD: 12,324.00
 TVD: 7,110.07
 Lat: 40.2093673
 Long: -104.9967252





US ROCKIES REGION PLANNING

US Rockies Wattenberg Planning UTM83

Hilgers 9-22HZ Pad

Hilgers 12N-22HZ

OH

Design: OH

Standard Survey Report

30 May, 2017



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Hilgers 12N-22HZ
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4998' & KB 17' @ 5015.00ft (Xtreme 24)
Site:	Hilgers 9-22HZ Pad	MD Reference:	GL 4998' & KB 17' @ 5015.00ft (Xtreme 24)
Well:	Hilgers 12N-22HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

Project	US Rockies Wattenberg Planning UTM83		
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						Hilgers 9-22HZ Pad, Site Center : Hilgers 12N-22HZ											
Site Position:			Northing:			14,603,298.11 usft			Latitude:			40.2102560					
From:			Lat/Long			Easting:			1,645,564.09 usft			Longitude:			-104.9815630		
Position Uncertainty:			0.00 ft			Slot Radius:			13.200 in			Grid Convergence:			0.01 °		

Well	Hilgers 12N-22HZ, 2183' FSL 559' FEL Sec 22 T3N R68W					
Well Position	+N/-S	0.00 ft	Northing:	14,603,298.11 usft	Latitude:	40.2102560
	+E/-W	0.00 ft	Easting:	1,645,564.09 usft	Longitude:	-104.9815630
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	4,998.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2016	4/28/2017	8.49	66.69	52,278

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	269.18	

Survey Program	Date	5/30/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
140.00	1,824.00	Survey #1 - Surface (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	
2,000.00	12,324.00	Survey #2 - Production (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:Rockies, crustal dec + 3-axis correction	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
140.00	0.17	97.03	140.00	-0.03	0.21	-0.21	0.12	0.12	0.00	
First SDI MWD Survey										
227.00	0.09	93.14	227.00	-0.04	0.40	-0.40	0.09	-0.09	-4.47	
314.00	0.27	16.98	314.00	0.15	0.53	-0.53	0.30	0.21	-87.54	
400.00	0.32	352.05	400.00	0.58	0.56	-0.56	0.16	0.06	-28.99	
489.00	1.17	102.50	488.99	0.63	1.41	-1.42	1.48	0.96	124.10	
578.00	2.39	106.60	577.95	-0.10	4.07	-4.07	1.38	1.37	4.61	
666.00	3.46	100.77	665.83	-1.12	8.44	-8.43	1.26	1.22	-6.63	
755.00	4.75	104.56	754.60	-2.55	14.65	-14.61	1.48	1.45	4.26	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Hilgers 12N-22HZ
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4998' & KB 17' @ 5015.00ft (Xtreme 24)
Site:	Hilgers 9-22HZ Pad	MD Reference:	GL 4998' & KB 17' @ 5015.00ft (Xtreme 24)
Well:	Hilgers 12N-22HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
844.00	5.95	106.44	843.21	-4.78	22.64	-22.57	1.36	1.35	2.11	
933.00	7.28	104.42	931.62	-7.49	32.52	-32.41	1.52	1.49	-2.27	
1,019.00	8.48	106.78	1,016.80	-10.68	43.87	-43.72	1.44	1.40	2.74	
1,106.00	9.12	106.35	1,102.78	-14.47	56.63	-56.42	0.74	0.74	-0.49	
1,193.00	10.22	104.45	1,188.54	-18.34	70.72	-70.45	1.32	1.26	-2.18	
1,281.00	11.18	102.03	1,275.01	-22.06	86.63	-86.30	1.20	1.09	-2.75	
1,370.00	11.87	102.42	1,362.22	-25.83	104.00	-103.62	0.78	0.78	0.44	
1,459.00	12.62	102.23	1,449.19	-29.86	122.44	-122.01	0.84	0.84	-0.21	
1,547.00	13.50	100.32	1,534.92	-33.73	141.95	-141.45	1.11	1.00	-2.17	
1,676.00	16.68	102.35	1,659.45	-40.39	174.85	-174.26	2.50	2.47	1.57	
1,763.00	17.46	103.02	1,742.62	-46.00	199.77	-199.09	0.92	0.90	0.77	
1,824.00	18.27	104.75	1,800.68	-50.50	217.93	-217.18	1.59	1.33	2.84	
Last SDI MWD Surface Survey										
2,000.00	16.93	101.72	1,968.44	-62.73	269.70	-268.78	0.92	-0.76	-1.72	
First SDI MWD Production Survey										
2,088.00	15.89	99.00	2,052.85	-67.22	294.15	-293.16	1.47	-1.18	-3.09	
2,177.00	14.79	99.37	2,138.68	-70.97	317.39	-316.34	1.24	-1.24	0.42	
2,266.00	15.68	101.26	2,224.55	-75.17	340.39	-339.28	1.15	1.00	2.12	
2,355.00	16.52	104.34	2,310.06	-80.65	364.45	-363.26	1.35	0.94	3.46	
2,443.00	17.83	105.50	2,394.14	-87.35	389.56	-388.27	1.54	1.49	1.32	
2,532.00	18.77	105.08	2,478.64	-94.72	416.51	-415.11	1.07	1.06	-0.47	
2,621.00	17.76	105.30	2,563.15	-102.03	443.43	-441.93	1.14	-1.13	0.25	
2,709.00	18.36	102.45	2,646.82	-108.56	469.91	-468.31	1.21	0.68	-3.24	
2,798.00	17.52	101.71	2,731.49	-114.30	496.72	-495.03	0.98	-0.94	-0.83	
2,886.00	18.25	102.76	2,815.24	-120.03	523.13	-521.35	0.91	0.83	1.19	
2,975.00	18.09	102.04	2,899.80	-125.99	550.23	-548.37	0.31	-0.18	-0.81	
3,064.00	16.07	101.49	2,984.87	-131.33	575.82	-573.88	2.28	-2.27	-0.62	
3,152.00	15.64	100.87	3,069.52	-135.99	599.40	-597.40	0.53	-0.49	-0.70	
3,241.00	17.04	97.44	3,154.93	-139.94	624.12	-622.05	1.91	1.57	-3.85	
3,330.00	16.62	95.83	3,240.11	-142.92	649.71	-647.60	0.70	-0.47	-1.81	
3,445.00	18.02	103.50	3,349.91	-148.75	683.37	-681.18	2.33	1.22	6.67	
3,533.00	18.60	106.74	3,433.46	-155.97	710.05	-707.74	1.33	0.66	3.68	
3,622.00	15.57	104.54	3,518.52	-163.06	735.21	-732.80	3.48	-3.40	-2.47	
3,710.00	18.91	103.90	3,602.56	-169.45	760.49	-757.99	3.80	3.80	-0.73	
3,799.00	18.78	99.54	3,686.79	-175.29	788.62	-786.03	1.59	-0.15	-4.90	
3,888.00	19.56	99.53	3,770.85	-180.13	817.44	-814.78	0.88	0.88	-0.01	
3,977.00	20.41	101.14	3,854.49	-185.59	847.36	-844.62	1.14	0.96	1.81	
4,066.00	19.00	99.70	3,938.28	-191.03	876.87	-874.05	1.68	-1.58	-1.62	
4,155.00	17.68	104.14	4,022.76	-196.78	904.26	-901.35	2.16	-1.48	4.99	
4,243.00	15.51	105.67	4,107.09	-203.22	928.55	-925.54	2.52	-2.47	1.74	
4,332.00	13.91	106.41	4,193.17	-209.46	950.27	-947.17	1.81	-1.80	0.83	
4,422.00	13.34	106.84	4,280.64	-215.52	970.58	-967.40	0.64	-0.63	0.48	
4,511.00	12.63	105.90	4,367.36	-221.16	989.77	-986.50	0.83	-0.80	-1.06	

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Site:	Hilgers 9-22HZ Pad	MD Reference:	GL 4998' & KB 17' @ 5015.00ft (Xtreme 24)
Well:	Hilgers 12N-22HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
4,600.00	11.18	107.06	4,454.45	-226.36	1,007.38	-1,004.03	1.65	-1.63	1.30	
4,689.00	10.07	107.80	4,541.92	-231.27	1,023.03	-1,019.62	1.26	-1.25	0.83	
4,778.00	8.36	106.58	4,629.77	-235.49	1,036.64	-1,033.17	1.93	-1.92	-1.37	
4,866.00	5.78	104.89	4,717.09	-238.46	1,047.06	-1,043.54	2.94	-2.93	-1.92	
4,955.00	4.12	92.48	4,805.76	-239.75	1,054.59	-1,051.05	2.21	-1.87	-13.94	
5,044.00	2.14	77.38	4,894.62	-239.52	1,059.40	-1,055.86	2.39	-2.22	-16.97	
5,133.00	1.14	82.87	4,983.58	-239.05	1,061.90	-1,058.37	1.14	-1.12	6.17	
5,222.00	0.69	71.41	5,072.57	-238.77	1,063.29	-1,059.76	0.54	-0.51	-12.88	
5,311.00	0.62	77.72	5,161.57	-238.50	1,064.27	-1,060.74	0.11	-0.08	7.09	
5,400.00	0.32	88.01	5,250.56	-238.38	1,064.99	-1,061.46	0.35	-0.34	11.56	
5,489.00	0.26	118.99	5,339.56	-238.47	1,065.41	-1,061.89	0.19	-0.07	34.81	
5,577.00	0.41	177.48	5,427.56	-238.88	1,065.60	-1,062.07	0.40	0.17	66.47	
5,666.00	0.78	186.11	5,516.56	-239.81	1,065.55	-1,062.01	0.43	0.42	9.70	
5,755.00	1.11	183.38	5,605.54	-241.27	1,065.43	-1,061.87	0.37	0.37	-3.07	
5,847.00	0.77	172.95	5,697.53	-242.77	1,065.46	-1,061.87	0.41	-0.37	-11.34	
5,940.00	0.95	216.36	5,790.52	-244.01	1,065.08	-1,061.47	0.71	0.19	46.68	
6,033.00	0.68	211.50	5,883.51	-245.10	1,064.33	-1,060.71	0.30	-0.29	-5.23	
6,125.00	0.86	224.83	5,975.51	-246.06	1,063.56	-1,059.93	0.27	0.20	14.49	
6,218.00	1.10	219.88	6,068.49	-247.24	1,062.49	-1,058.85	0.27	0.26	-5.32	
6,306.00	0.86	196.96	6,156.48	-248.52	1,061.76	-1,058.09	0.52	-0.27	-26.05	
6,395.00	0.77	179.14	6,245.47	-249.76	1,061.57	-1,057.89	0.30	-0.10	-20.02	
6,484.00	0.39	186.22	6,334.47	-250.65	1,061.55	-1,057.85	0.43	-0.43	7.96	
6,572.00	0.69	211.55	6,422.46	-251.40	1,061.24	-1,057.53	0.43	0.34	28.78	
6,661.00	2.89	270.40	6,511.42	-251.85	1,058.72	-1,055.00	2.92	2.47	66.12	
Curve KOP - First SDI MWD Curve Survey										
6,750.00	15.40	268.30	6,599.11	-252.18	1,044.60	-1,040.89	14.06	14.06	-2.36	
6,839.00	17.87	269.67	6,684.38	-252.61	1,019.13	-1,015.41	2.81	2.78	1.54	
6,927.00	21.15	269.14	6,767.32	-252.93	989.75	-986.03	3.73	3.73	-0.60	
7,016.00	27.81	267.82	6,848.27	-253.96	952.91	-949.18	7.51	7.48	-1.48	
7,104.00	36.01	275.19	6,922.94	-252.40	906.54	-902.83	10.30	9.32	8.38	
7,193.00	47.22	279.51	6,989.38	-244.61	848.07	-844.48	13.00	12.60	4.85	
7,282.00	54.47	273.23	7,045.58	-237.16	779.57	-776.09	9.81	8.15	-7.06	
7,371.00	61.64	269.14	7,092.65	-235.70	704.13	-700.69	8.95	8.06	-4.60	
7,460.00	71.10	268.12	7,128.28	-237.67	622.71	-619.25	10.68	10.63	-1.15	
7,541.00	82.29	267.02	7,146.89	-241.03	544.08	-540.58	13.88	13.82	-1.35	
Last SDI MWD Curve Survey										
7,549.00	83.40	266.92	7,147.89	-241.44	536.16	-532.65	13.88	13.82	-1.30	
7,616.00	91.25	263.88	7,151.01	-246.81	469.51	-465.93	12.56	11.72	-4.53	
Landing Point: 1928' FSL 90' FEL Sec 22										
7,638.00	93.83	262.89	7,150.04	-249.34	447.68	-444.06	12.56	11.72	-4.52	
7,726.00	92.19	263.98	7,145.42	-259.39	360.38	-356.63	2.24	-1.86	1.24	
First SDI MWD Lateral Survey										
7,815.00	91.35	266.32	7,142.67	-266.91	271.75	-267.90	2.79	-0.94	2.63	
7,903.00	91.31	266.31	7,140.63	-272.56	183.95	-180.03	0.05	-0.05	-0.01	

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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,984.62	90.39	266.95	7,139.41	-277.36	102.48	-98.50	1.37	-1.12	0.79
Cross 460 Line : 7984.62'MD & 7139.41' TVD 1898' FSL 460' FEL									
7,992.00	90.31	267.01	7,139.37	-277.75	95.11	-91.13	1.37	-1.12	0.79
8,081.00	89.37	268.83	7,139.62	-280.98	6.18	-2.16	2.30	-1.06	2.04
8,170.00	89.77	268.82	7,140.28	-282.80	-82.80	86.84	0.45	0.45	-0.01
8,259.00	89.67	268.41	7,140.72	-284.95	-171.77	175.83	0.47	-0.11	-0.46
8,348.00	89.94	268.31	7,141.02	-287.50	-260.74	264.82	0.32	0.30	-0.11
8,436.00	90.61	267.75	7,140.60	-290.52	-348.68	352.80	0.99	0.76	-0.64
8,525.00	90.64	267.31	7,139.63	-294.36	-437.59	441.76	0.50	0.03	-0.49
8,614.00	89.53	268.57	7,139.50	-297.56	-526.53	530.74	1.89	-1.25	1.42
8,703.00	89.43	268.42	7,140.30	-299.90	-615.50	619.73	0.20	-0.11	-0.17
8,792.00	87.96	270.60	7,142.33	-300.66	-704.47	708.70	2.95	-1.65	2.45
8,881.00	87.59	270.20	7,145.79	-300.04	-793.40	797.61	0.61	-0.42	-0.45
8,970.00	87.45	269.88	7,149.64	-299.97	-882.31	886.51	0.39	-0.16	-0.36
9,058.00	88.49	270.33	7,152.75	-299.81	-970.26	974.45	1.29	1.18	0.51
9,147.00	89.23	271.35	7,154.53	-298.51	-1,059.23	1,063.39	1.42	0.83	1.15
9,236.00	89.84	270.89	7,155.25	-296.77	-1,148.21	1,152.34	0.86	0.69	-0.52
9,325.00	90.01	270.17	7,155.36	-295.95	-1,237.20	1,241.31	0.83	0.19	-0.81
9,414.00	90.51	268.54	7,154.96	-296.95	-1,326.19	1,330.31	1.92	0.56	-1.83
9,503.00	91.18	267.84	7,153.65	-299.76	-1,415.14	1,419.28	1.09	0.75	-0.79
9,591.00	91.52	267.10	7,151.57	-303.64	-1,503.03	1,507.22	0.93	0.39	-0.84
9,680.00	91.72	266.38	7,149.06	-308.70	-1,591.85	1,596.10	0.84	0.22	-0.81
9,769.00	90.91	265.42	7,147.02	-315.06	-1,680.59	1,684.93	1.41	-0.91	-1.08
9,858.00	91.18	264.81	7,145.39	-322.64	-1,769.25	1,773.69	0.75	0.30	-0.69
9,946.00	90.34	267.47	7,144.23	-328.56	-1,857.04	1,861.55	3.17	-0.95	3.02
10,035.00	90.64	270.28	7,143.46	-330.31	-1,946.01	1,950.54	3.18	0.34	3.16
10,213.00	90.74	269.70	7,141.32	-330.34	-2,123.99	2,128.50	0.33	0.06	-0.33
10,301.00	91.25	269.73	7,139.79	-330.78	-2,211.98	2,216.49	0.58	0.58	0.03
10,391.00	91.15	271.29	7,137.91	-329.98	-2,301.95	2,306.44	1.74	-0.11	1.73
10,480.00	91.18	271.42	7,136.10	-327.87	-2,390.91	2,395.36	0.15	0.03	0.15
10,569.00	91.65	271.22	7,133.90	-325.82	-2,479.86	2,484.27	0.57	0.53	-0.22
10,657.00	91.65	271.09	7,131.37	-324.05	-2,567.81	2,572.18	0.15	0.00	-0.15
10,746.00	91.68	271.23	7,128.78	-322.25	-2,656.75	2,661.09	0.16	0.03	0.16
10,836.00	88.86	270.63	7,128.36	-320.79	-2,746.73	2,751.04	3.20	-3.13	-0.67
10,924.00	88.86	270.65	7,130.11	-319.81	-2,834.70	2,838.99	0.02	0.00	0.02
11,010.68	88.57	270.24	7,132.05	-319.13	-2,921.36	2,925.63	0.58	-0.34	-0.47
Cross 460 Line: 11010.68' MD & 7132.05' TVD 1911' FSL 1780' FWL									
11,013.00	88.56	270.23	7,132.11	-319.12	-2,923.68	2,927.95	0.58	-0.34	-0.47
11,102.00	88.19	269.96	7,134.63	-318.98	-3,012.64	3,016.90	0.51	-0.42	-0.30
11,191.00	87.82	269.40	7,137.73	-319.47	-3,101.59	3,105.84	0.75	-0.42	-0.63
11,280.00	89.00	269.34	7,140.20	-320.45	-3,190.55	3,194.80	1.33	1.33	-0.07
11,369.00	89.06	268.93	7,141.71	-321.79	-3,279.52	3,283.79	0.47	0.07	-0.46
11,457.00	89.30	268.43	7,142.97	-323.82	-3,367.49	3,371.78	0.63	0.27	-0.57
11,546.00	90.31	271.21	7,143.27	-324.10	-3,456.48	3,460.76	3.32	1.13	3.12

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Hilgers 12N-22HZ
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4998' & KB 17' @ 5015.00ft (Xtreme 24)
Site:	Hilgers 9-22HZ Pad	MD Reference:	GL 4998' & KB 17' @ 5015.00ft (Xtreme 24)
Well:	Hilgers 12N-22HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,635.00	91.11	271.83	7,142.17	-321.74	-3,545.44	3,549.68	1.14	0.90	0.70
11,724.00	91.52	271.80	7,140.13	-318.92	-3,634.37	3,638.56	0.46	0.46	-0.03
11,813.00	91.88	271.76	7,137.49	-316.16	-3,723.29	3,727.43	0.41	0.40	-0.04
11,902.00	92.59	271.11	7,134.01	-313.93	-3,812.19	3,816.29	1.08	0.80	-0.73
11,991.00	93.33	271.07	7,129.42	-312.24	-3,901.06	3,905.13	0.83	0.83	-0.04
12,080.00	93.20	269.33	7,124.35	-311.93	-3,989.91	3,993.96	1.96	-0.15	-1.96
12,169.00	93.00	267.16	7,119.54	-314.65	-4,078.73	4,082.82	2.44	-0.22	-2.44
12,257.00	93.70	266.67	7,114.39	-319.38	-4,166.45	4,170.60	0.97	0.80	-0.56
Last SDI MWD Survey									
12,324.00	93.70	266.67	7,110.07	-323.26	-4,233.20	4,237.39	0.00	0.00	0.00
Projection to TD: 1907' FSL 466' FWL Sec 22									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
140.00	140.00	-0.03	0.21	First SDI MWD Survey
1,824.00	1,800.68	-50.50	217.93	Last SDI MWD Surface Survey
2,000.00	1,968.44	-62.73	269.70	First SDI MWD Production Survey
6,661.00	6,511.42	-251.85	1,058.72	Curve KOP
6,661.00	6,511.42	-251.85	1,058.72	First SDI MWD Curve Survey
7,541.00	7,146.89	-241.03	544.08	Last SDI MWD Curve Survey
7,616.00	7,151.01	-246.81	469.51	Landing Point: 1928' FSL 90' FEL Sec 22
7,726.00	7,145.42	-259.39	360.38	First SDI MWD Lateral Survey
7,984.62	7,139.41	-277.36	102.48	Cross 460 Line : 7984.62'MD & 7139.41' TVD 1898' FSL 460' FEL
11,010.68	7,132.05	-319.13	-2,921.36	Cross 460 Line: 11010.68' MD & 7132.05' TVD 1911' FSL 1780' FWL
12,257.00	7,114.39	-319.38	-4,166.45	Last SDI MWD Survey
12,324.00	7,110.07	-323.26	-4,233.20	Projection to TD: 1907' FSL 466' FWL Sec 22

Checked By: _____ Approved By: _____ Date: _____