

WELL DETAILS: Hilgers 32N-22HZ

GL 4998' & KB 17' @ 5015.00ft (Xtreme 24) 4998.00
 Northing 14603313.04 Easting 1645564.09 Latitude 40.2102970 Longitude -104.9815630

Design: OH (Hilgers 32N-22HZ/OH)

Created By: Seth Burstad Date: 6-05-2017

PROJECT DETAILS: US Rockies Wattenberg Planning UTM83

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

System Datum: Mean Sea Level
 Local North: True

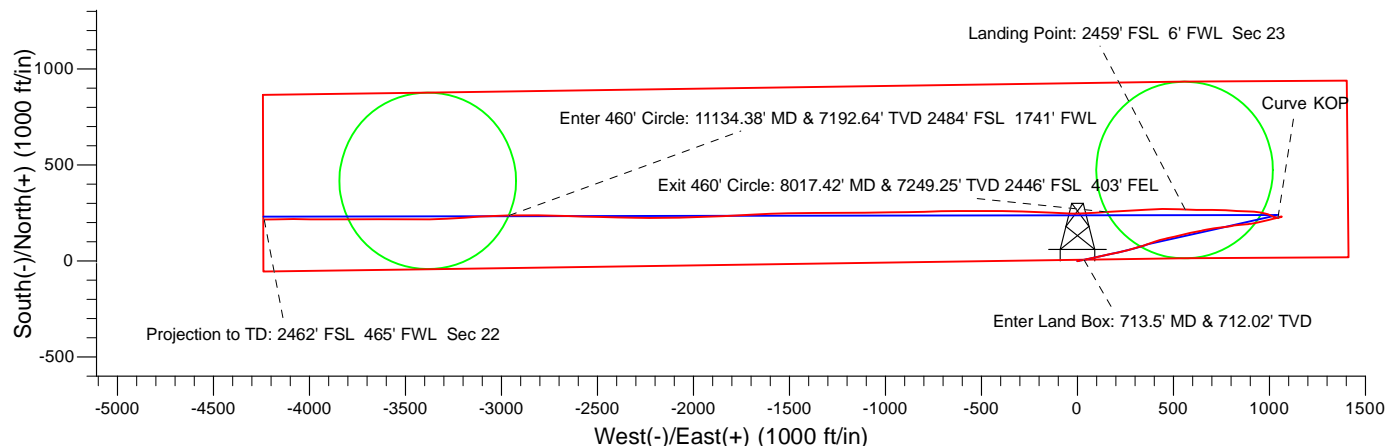
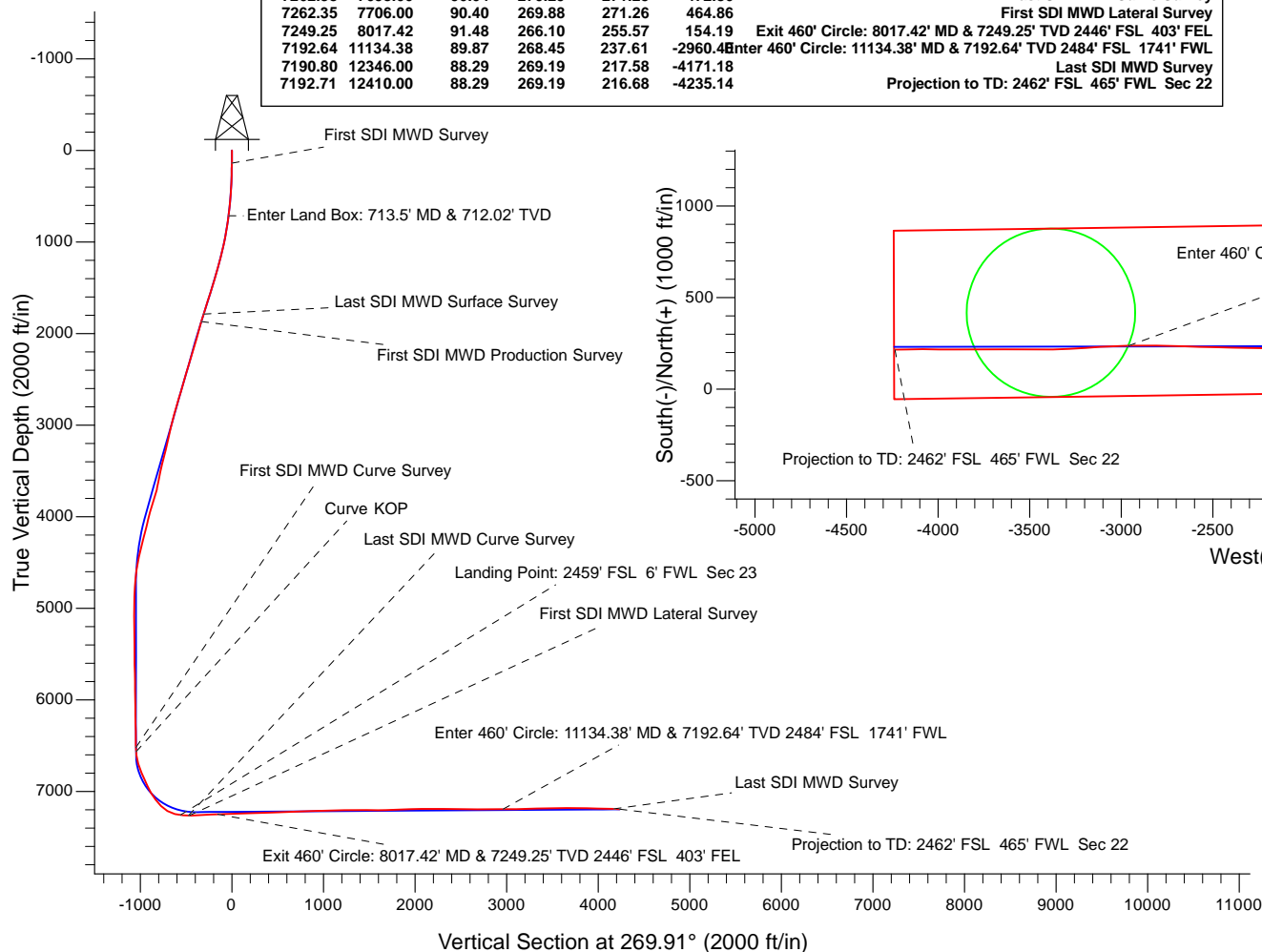
Surface Hole:
 2198' FSL 559' FEL
 Sec 22 T3N R68W

Landing Point:
 2459' FSL 6' FWL Sec 23
 MD: 7,608.00
 TVD: 7,258.50
 Lat: 40.2110328
 Long: -104.9795476

BHL:
 2462' FSL 465' FWL Sec 22
 MD: 12,410.00
 TVD: 7,192.71
 Lat: 40.2108911
 Long: -104.9967325

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Annotation
140.00	140.00	0.11	196.55	-0.13	-0.04	First SDI MWD Survey
712.02	713.50	7.22	78.54	6.60	34.61	Enter Land Box: 713.5' MD & 712.02' TVD
1786.62	1826.00	17.74	73.44	69.08	307.48	Last SDI MWD Surface Survey
1868.69	1912.00	17.07	72.76	76.56	332.09	First SDI MWD Production Survey
6519.31	6661.00	0.85	243.21	225.81	1047.08	First SDI MWD Curve Survey
6564.26	6706.00	4.68	267.68	225.58	1044.94	Curve KOP
7258.50	7608.00	83.08	272.21	267.94	562.66	Landing Point: 2459' FSL 6' FWL Sec 23
7262.38	7698.00	90.04	270.29	271.25	472.86	Last SDI MWD Curve Survey
7262.35	7706.00	90.40	269.88	271.26	464.86	First SDI MWD Lateral Survey
7249.25	8017.42	91.48	266.10	255.57	154.19	Exit 460' Circle: 8017.42' MD & 7249.25' TVD 2446' FSL 403' FEL
7192.64	11134.38	89.87	268.45	237.61	-2960.48	Enter 460' Circle: 11134.38' MD & 7192.64' TVD 2484' FSL 1741' FWL
7190.80	12346.00	88.29	269.19	217.58	-4171.18	Last SDI MWD Survey
7192.71	12410.00	88.29	269.19	216.68	-4235.14	Projection to TD: 2462' FSL 465' FWL Sec 22





US ROCKIES REGION PLANNING

US Rockies Wattenberg Planning UTM83

Hilgers 9-22HZ Pad

Hilgers 32N-22HZ

OH

Design: OH

Standard Survey Report

05 June, 2017



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Hilgers 32N-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 32N-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 32N-22HZ, 2198' FSL 559' FEL Sec 22 T3N R68W					
Well Position	+N/-S	0.00 ft	Northing:	14,603,313.04 usft	Latitude:	40.2102970
	+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	269.91	

Survey Program	Date	6/5/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
140.00	1,826.00	Survey #1 - Surface (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	
1,912.00	12,410.00	Survey #2 - Production (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	

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	0.11	196.55	140.00	-0.13	-0.04	0.04	0.08	0.08	0.00	
First SDI MWD Survey										
195.00	0.49	86.96	195.00	-0.17	0.18	-0.18	0.98	0.69	-199.25	
271.00	1.56	88.14	270.99	-0.12	1.54	-1.54	1.41	1.41	1.55	
358.00	2.57	78.84	357.93	0.30	4.64	-4.64	1.22	1.16	-10.69	
445.00	3.96	76.20	444.79	1.39	9.47	-9.47	1.61	1.60	-3.03	
533.00	5.01	75.36	532.51	3.09	16.14	-16.14	1.20	1.19	-0.95	
622.00	5.84	81.38	621.12	4.75	24.37	-24.38	1.13	0.93	6.76	
711.00	7.18	78.51	709.54	6.54	34.30	-34.31	1.55	1.51	-3.22	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Hilgers 32N-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 32N-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)
713.50	7.22	78.54	712.02	6.60	34.61	-34.62	1.53	1.52	1.39
Enter Land Box: 713.5' MD & 712.02' TVD									
800.00	8.53	79.56	797.70	8.84	46.24	-46.26	1.53	1.52	1.17
888.00	10.17	77.45	884.53	11.71	60.25	-60.27	1.90	1.86	-2.40
977.00	11.84	77.08	971.89	15.46	76.82	-76.84	1.88	1.88	-0.42
1,064.00	13.05	77.93	1,056.85	19.51	95.12	-95.15	1.41	1.39	0.98
1,148.00	14.06	77.90	1,138.51	23.63	114.37	-114.41	1.20	1.20	-0.04
1,237.00	15.10	77.71	1,224.64	28.37	136.27	-136.32	1.17	1.17	-0.21
1,326.00	16.20	78.61	1,310.34	33.29	159.77	-159.82	1.27	1.24	1.01
1,414.00	16.88	78.76	1,394.70	38.20	184.34	-184.39	0.77	0.77	0.17
1,503.00	17.67	77.55	1,479.68	43.63	210.20	-210.27	0.98	0.89	-1.36
1,592.00	18.12	75.04	1,564.38	50.12	236.76	-236.84	1.00	0.51	-2.82
1,676.00	18.60	75.64	1,644.10	56.81	262.36	-262.45	0.61	0.57	0.71
1,763.00	18.09	74.83	1,726.68	63.79	288.84	-288.94	0.66	-0.59	-0.93
1,826.00	17.74	73.44	1,786.62	69.08	307.48	-307.58	0.88	-0.56	-2.21
Last SDI MWD Surface Survey									
1,912.00	17.07	72.76	1,868.69	76.56	332.09	-332.21	0.81	-0.78	-0.79
First SDI MWD Production Survey									
2,000.00	15.82	70.61	1,953.08	84.37	355.74	-355.87	1.58	-1.42	-2.44
2,089.00	17.46	71.17	2,038.35	92.71	379.82	-379.97	1.85	1.84	0.63
2,177.00	18.09	68.97	2,122.15	101.87	405.07	-405.23	1.05	0.72	-2.50
2,266.00	17.20	76.27	2,206.98	109.95	430.76	-430.93	2.68	-1.00	8.20
2,355.00	16.66	77.70	2,292.12	115.79	456.00	-456.19	0.77	-0.61	1.61
2,444.00	15.67	75.83	2,377.60	121.45	480.12	-480.31	1.26	-1.11	-2.10
2,532.00	17.15	78.37	2,462.01	126.98	504.36	-504.55	1.87	1.68	2.89
2,621.00	16.90	75.68	2,547.12	132.82	529.74	-529.95	0.93	-0.28	-3.02
2,710.00	17.23	77.09	2,632.20	138.97	555.13	-555.34	0.59	0.37	1.58
2,798.00	16.58	77.60	2,716.39	144.58	580.09	-580.32	0.76	-0.74	0.58
2,887.00	16.56	77.41	2,801.70	150.07	604.87	-605.11	0.06	-0.02	-0.21
2,975.00	16.22	79.84	2,886.12	154.97	629.21	-629.45	0.87	-0.39	2.76
3,064.00	14.23	77.42	2,972.00	159.55	652.12	-652.37	2.35	-2.24	-2.72
3,153.00	14.00	80.86	3,058.31	163.64	673.43	-673.68	0.98	-0.26	3.87
3,241.00	13.08	79.87	3,143.86	167.08	693.74	-694.00	1.08	-1.05	-1.13
3,330.00	11.38	79.51	3,230.84	170.45	712.29	-712.56	1.91	-1.91	-0.40
3,418.00	14.78	83.91	3,316.55	173.22	731.99	-732.27	4.02	3.86	5.00
3,533.00	14.34	83.96	3,427.85	176.28	760.74	-761.02	0.38	-0.38	0.04
3,622.00	11.76	81.18	3,514.55	178.83	780.67	-780.95	2.98	-2.90	-3.12
3,710.00	11.41	78.81	3,600.76	181.89	798.07	-798.35	0.67	-0.40	-2.69
3,799.00	12.27	80.30	3,687.86	185.20	816.03	-816.32	1.03	0.97	1.67
3,888.00	17.66	85.41	3,773.82	187.87	838.82	-839.12	6.23	6.06	5.74
3,976.00	17.62	85.35	3,857.68	190.02	865.41	-865.70	0.05	-0.05	-0.07
4,065.00	15.77	83.48	3,942.92	192.48	890.85	-891.15	2.16	-2.08	-2.10
4,154.00	12.81	80.29	4,029.16	195.52	912.60	-912.90	3.44	-3.33	-3.58
4,243.00	14.69	78.85	4,115.61	199.37	933.39	-933.71	2.15	2.11	-1.62

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Hilgers 32N-22HZ
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Site:	Hilgers 9-22HZ Pad	MD Reference:	GL 4998' & KB 17' @ 5015.00ft (Xtreme 24)
Well:	Hilgers 32N-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)
4,332.00	14.96	77.59	4,201.64	204.02	955.68	-956.00	0.47	0.30	-1.42
4,421.00	15.06	76.10	4,287.61	209.27	978.13	-978.46	0.45	0.11	-1.67
4,510.00	13.75	75.17	4,373.81	214.75	999.58	-999.91	1.49	-1.47	-1.04
4,599.00	11.91	75.80	4,460.58	219.71	1,018.71	-1,019.05	2.07	-2.07	0.71
4,689.00	9.12	74.72	4,549.06	223.87	1,034.59	-1,034.94	3.11	-3.10	-1.20
4,777.00	6.70	76.12	4,636.22	226.94	1,046.31	-1,046.66	2.76	-2.75	1.59
4,866.00	5.50	86.94	4,724.72	228.41	1,055.61	-1,055.96	1.86	-1.35	12.16
4,955.00	2.23	75.63	4,813.50	229.07	1,061.54	-1,061.90	3.76	-3.67	-12.71
5,044.00	0.95	51.58	4,902.47	229.96	1,063.80	-1,064.16	1.59	-1.44	-27.02
5,133.00	0.54	30.92	4,991.46	230.78	1,064.59	-1,064.95	0.54	-0.46	-23.21
5,222.00	0.42	346.00	5,080.46	231.45	1,064.73	-1,065.09	0.43	-0.13	-50.47
5,311.00	0.48	303.54	5,169.45	231.98	1,064.34	-1,064.70	0.37	0.07	-47.71
5,399.00	0.41	296.84	5,257.45	232.32	1,063.75	-1,064.12	0.10	-0.08	-7.61
5,489.00	0.35	258.34	5,347.45	232.41	1,063.20	-1,063.56	0.29	-0.07	-42.78
5,577.00	0.74	254.10	5,435.45	232.20	1,062.39	-1,062.75	0.45	0.44	-4.82
5,666.00	0.77	230.94	5,524.44	231.67	1,061.37	-1,061.73	0.34	0.03	-26.02
5,755.00	0.92	268.84	5,613.43	231.28	1,060.19	-1,060.55	0.64	0.17	42.58
5,847.00	0.84	264.06	5,705.42	231.19	1,058.78	-1,059.14	0.12	-0.09	-5.20
5,940.00	0.81	248.59	5,798.41	230.88	1,057.49	-1,057.85	0.24	-0.03	-16.63
6,032.00	0.93	246.85	5,890.40	230.35	1,056.20	-1,056.56	0.13	0.13	-1.89
6,125.00	0.81	248.10	5,983.39	229.81	1,054.90	-1,055.26	0.13	-0.13	1.34
6,217.00	0.90	251.59	6,075.38	229.34	1,053.61	-1,053.97	0.11	0.10	3.79
6,306.00	1.01	237.24	6,164.37	228.69	1,052.28	-1,052.64	0.29	0.12	-16.12
6,395.00	1.12	241.07	6,253.35	227.85	1,050.86	-1,051.22	0.15	0.12	4.30
6,483.00	0.92	238.09	6,341.34	227.06	1,049.51	-1,049.87	0.24	-0.23	-3.39
6,572.00	0.88	244.99	6,430.33	226.39	1,048.28	-1,048.64	0.13	-0.04	7.75
6,661.00	0.85	243.21	6,519.32	225.81	1,047.08	-1,047.43	0.05	-0.03	-2.00
First SDI MWD Curve Survey									
6,706.00	4.68	267.68	6,564.26	225.58	1,044.94	-1,045.30	8.71	8.50	54.38
Curve KOP									
6,750.00	8.50	270.01	6,607.96	225.51	1,039.90	-1,040.25	8.71	8.69	5.29
6,838.00	18.70	296.30	6,693.45	231.78	1,020.68	-1,021.04	13.27	11.59	29.88
6,927.00	22.03	288.44	6,776.89	243.39	992.04	-992.42	4.83	3.74	-8.83
7,015.00	25.01	281.18	6,857.58	252.22	958.12	-958.52	4.72	3.39	-8.25
7,104.00	25.44	274.17	6,938.12	257.26	920.59	-920.99	3.39	0.48	-7.88
7,193.00	29.00	269.65	7,017.26	258.52	879.94	-880.34	4.62	4.00	-5.08
7,282.00	37.37	274.71	7,091.69	260.61	831.35	-831.76	9.90	9.40	5.69
7,371.00	45.81	273.02	7,158.19	264.51	772.46	-772.87	9.57	9.48	-1.90
7,460.00	59.09	270.44	7,212.32	266.50	702.09	-702.51	15.10	14.92	-2.90
7,549.00	74.70	270.01	7,247.14	266.80	620.48	-620.90	17.54	17.54	-0.48
7,608.00	83.08	272.21	7,258.50	267.94	562.66	-563.08	14.66	14.20	3.74
Landing Point: 2459' FSL 6' FWL Sec 23									
7,638.00	87.34	273.30	7,261.01	269.38	532.80	-533.23	14.66	14.21	3.62

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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)
7,698.00	90.04	270.29	7,262.38	271.25	472.86	-473.29	6.74	4.49	-5.02
Last SDI MWD Curve Survey									
7,706.00	90.40	269.88	7,262.35	271.26	464.86	-465.29	6.74	4.50	-5.02
First SDI MWD Lateral Survey									
7,727.00	91.34	268.83	7,262.03	271.03	443.87	-444.29	6.74	4.50	-5.02
7,815.00	92.49	266.68	7,259.09	267.58	355.99	-356.41	2.77	1.31	-2.44
7,904.00	94.01	266.89	7,254.04	262.60	267.28	-267.69	1.72	1.71	0.24
7,993.00	91.38	266.16	7,249.86	257.21	178.55	-178.95	3.07	-2.96	-0.82
8,017.42	91.48	266.10	7,249.25	255.57	154.19	-154.59	0.48	0.42	-0.23
Exit 460' Circle: 8017.42' MD & 7249.25' TVD 2446' FSL 403' FEL									
8,081.00	91.75	265.96	7,247.46	251.17	90.79	-91.18	0.48	0.42	-0.23
8,170.00	92.46	269.60	7,244.19	247.72	1.93	-2.32	4.16	0.80	4.09
8,259.00	91.78	272.47	7,240.89	249.33	-86.99	86.59	3.31	-0.76	3.22
8,348.00	91.92	273.04	7,238.02	253.60	-175.84	175.44	0.66	0.16	0.64
8,437.00	91.01	272.12	7,235.74	257.61	-264.72	264.31	1.45	-1.02	-1.03
8,526.00	91.88	270.79	7,233.50	259.87	-353.66	353.25	1.79	0.98	-1.49
8,615.00	92.12	270.00	7,230.39	260.48	-442.60	442.19	0.93	0.27	-0.89
8,704.00	92.59	270.62	7,226.74	260.96	-531.52	531.11	0.87	0.53	0.70
8,792.00	91.65	269.01	7,223.48	260.68	-619.46	619.05	2.12	-1.07	-1.83
8,882.00	91.55	269.04	7,220.97	259.15	-709.41	709.00	0.12	-0.11	0.03
8,970.00	92.16	268.03	7,218.12	256.90	-797.33	796.93	1.34	0.69	-1.15
9,059.00	92.39	268.54	7,214.59	254.24	-886.22	885.82	0.63	0.26	0.57
9,148.00	93.45	270.25	7,210.05	253.30	-975.10	974.70	2.26	1.19	1.92
9,237.00	91.21	269.09	7,206.44	252.79	-1,064.01	1,063.62	2.83	-2.52	-1.30
9,325.00	91.21	269.63	7,204.58	251.80	-1,151.99	1,151.59	0.61	0.00	0.61
9,414.00	90.30	269.74	7,203.40	251.31	-1,240.98	1,240.58	1.03	-1.02	0.12
9,503.00	89.56	269.10	7,203.51	250.41	-1,329.97	1,329.58	1.10	-0.83	-0.72
9,592.00	89.53	269.76	7,204.22	249.53	-1,418.97	1,418.57	0.74	-0.03	0.74
9,681.00	89.19	269.04	7,205.21	248.60	-1,507.95	1,507.56	0.89	-0.38	-0.81
9,770.00	90.80	268.07	7,205.22	246.35	-1,596.92	1,596.53	2.11	1.81	-1.09
9,858.00	91.61	266.94	7,203.37	242.52	-1,684.82	1,684.43	1.58	0.92	-1.28
9,947.00	92.15	267.19	7,200.45	237.97	-1,773.65	1,773.28	0.67	0.61	0.28
10,035.00	92.65	267.41	7,196.77	233.83	-1,861.48	1,861.11	0.62	0.57	0.25
10,124.00	91.57	267.54	7,193.49	229.91	-1,950.33	1,949.97	1.22	-1.21	0.15
10,213.00	90.40	268.34	7,191.96	226.71	-2,039.26	2,038.90	1.59	-1.31	0.90
10,302.00	91.11	269.53	7,190.79	225.05	-2,128.23	2,127.87	1.56	0.80	1.34
10,391.00	89.13	270.17	7,190.60	224.82	-2,217.23	2,216.87	2.34	-2.22	0.72
10,480.00	89.16	270.57	7,191.93	225.40	-2,306.21	2,305.86	0.45	0.03	0.45
10,569.00	89.83	271.75	7,192.71	227.20	-2,395.19	2,394.83	1.52	0.75	1.33
10,658.00	89.53	271.46	7,193.21	229.69	-2,484.15	2,483.79	0.47	-0.34	-0.33
10,747.00	89.60	271.51	7,193.89	232.00	-2,573.12	2,572.75	0.10	0.08	0.06
10,836.00	90.03	271.66	7,194.17	234.46	-2,662.09	2,661.71	0.51	0.48	0.17
10,925.00	90.30	271.55	7,193.92	236.95	-2,751.05	2,750.67	0.33	0.30	-0.12
11,013.00	90.77	270.63	7,193.09	238.63	-2,839.03	2,838.65	1.17	0.53	-1.05

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Hilgers 32N-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 32N-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)	
11,102.00	89.90	268.99	7,192.57	238.33	-2,928.02	2,927.65	2.09	-0.98	-1.84	
11,134.38	89.87	268.45	7,192.64	237.61	-2,960.40	2,960.02	1.66	-0.08	-1.66	
Enter 460' Circle: 11134.38' MD & 7192.64' TVD 2484' FSL 1741' FWL										
11,191.00	89.83	267.51	7,192.78	235.61	-3,016.98	3,016.61	1.66	-0.08	-1.66	
11,280.00	90.87	267.25	7,192.24	231.54	-3,105.88	3,105.52	1.20	1.17	-0.29	
11,369.00	89.97	265.55	7,191.59	225.96	-3,194.70	3,194.34	2.16	-1.01	-1.91	
11,458.00	91.68	267.49	7,190.31	220.55	-3,283.52	3,283.17	2.91	1.92	2.18	
11,547.00	92.15	268.48	7,187.33	217.43	-3,372.41	3,372.07	1.23	0.53	1.11	
11,636.00	92.42	270.41	7,183.78	216.57	-3,461.34	3,460.99	2.19	0.30	2.17	
11,724.00	90.67	271.30	7,181.41	217.88	-3,549.29	3,548.94	2.23	-1.99	1.01	
11,813.00	89.09	269.55	7,181.60	218.54	-3,638.28	3,637.93	2.65	-1.78	-1.97	
11,902.00	89.16	268.98	7,182.96	217.40	-3,727.26	3,726.92	0.65	0.08	-0.64	
11,991.00	89.50	270.49	7,184.00	216.99	-3,816.25	3,815.91	1.74	0.38	1.70	
12,080.00	88.96	270.33	7,185.19	217.62	-3,905.24	3,904.89	0.63	-0.61	-0.18	
12,169.00	88.76	270.02	7,186.96	217.89	-3,994.22	3,993.88	0.41	-0.22	-0.35	
12,258.00	88.99	270.19	7,188.71	218.06	-4,083.21	4,082.86	0.32	0.26	0.19	
12,346.00	88.29	269.19	7,190.80	217.58	-4,171.18	4,170.83	1.39	-0.80	-1.14	
Last SDI MWD Survey										
12,410.00	88.29	269.19	7,192.71	216.68	-4,235.14	4,234.80	0.00	0.00	0.00	
Projection to TD: 2462' FSL 465' FWL Sec 22										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
140.00	140.00	-0.13	-0.04	First SDI MWD Survey	
713.50	712.02	6.60	34.61	Enter Land Box: 713.5' MD & 712.02' TVD	
1,826.00	1,786.62	69.08	307.48	Last SDI MWD Surface Survey	
1,912.00	1,868.69	76.56	332.09	First SDI MWD Production Survey	
6,661.00	6,519.32	225.81	1,047.08	First SDI MWD Curve Survey	
6,706.00	6,564.26	225.58	1,044.94	Curve KOP	
7,608.00	7,258.50	267.94	562.66	Landing Point: 2459' FSL 6' FWL Sec 23	
7,698.00	7,262.38	271.25	472.86	Last SDI MWD Curve Survey	
7,706.00	7,262.35	271.26	464.86	First SDI MWD Lateral Survey	
8,017.42	7,249.25	255.57	154.19	Exit 460' Circle: 8017.42' MD & 7249.25' TVD 2446' FSL 403' FEL	
11,134.38	7,192.64	237.61	-2,960.40	Enter 460' Circle: 11134.38' MD & 7192.64' TVD 2484' FSL 1741' FWL	
12,346.00	7,190.80	217.58	-4,171.18	Last SDI MWD Survey	
12,410.00	7,192.71	216.68	-4,235.14	Projection to TD: 2462' FSL 465' FWL Sec 22	

Checked By: _____	Approved By: _____	Date: _____
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