

Company: D90 Energy, LLC
 Well Name: Gregory 0780 4-4H9
 County: Jackson County, CO
 Rig: Ironhand 118
 Wellbore: OWB_
 Plan: P1
 Created By: B Hand
 Job #:

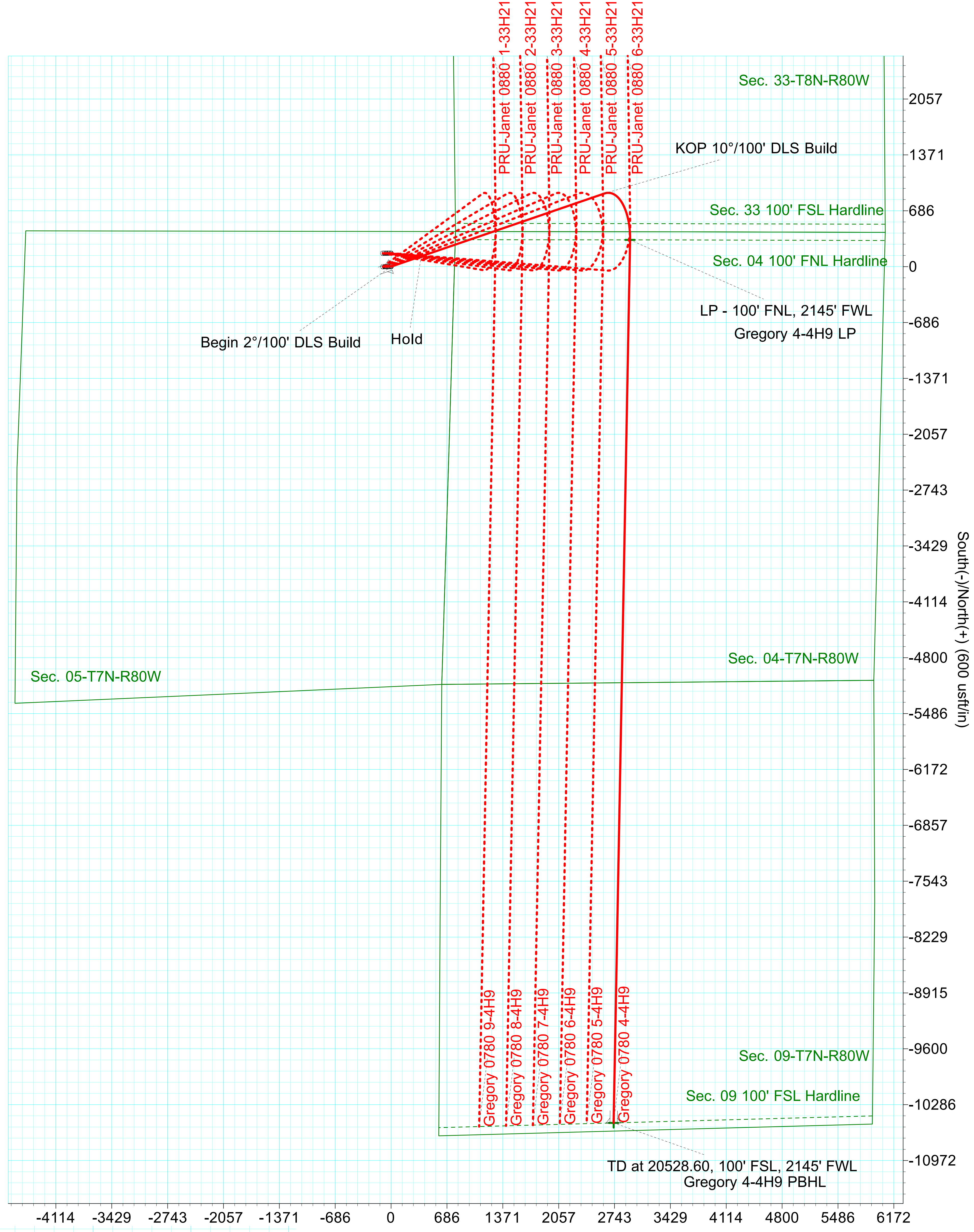
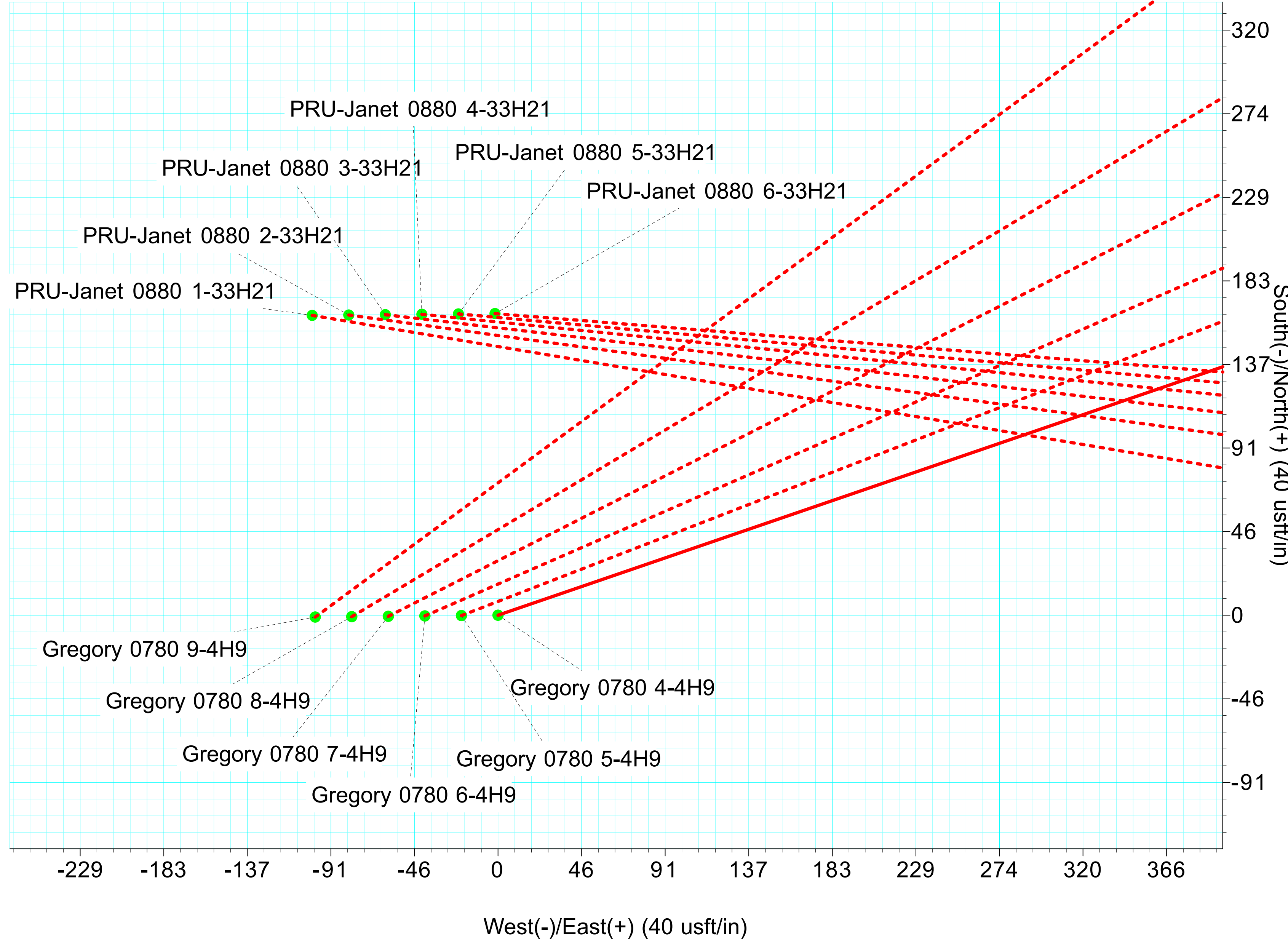
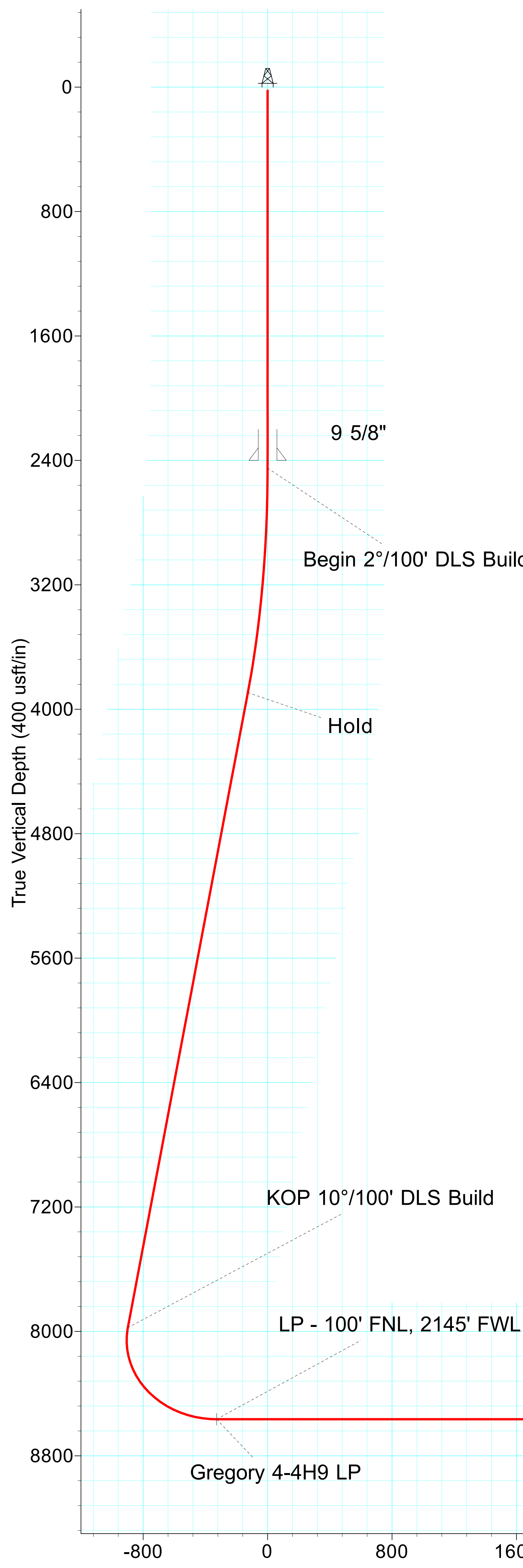
PROJECT DETAILS: Jackson County, CO
 Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Northern Zone
 System Datum: Mean Sea Level
 Date: 12:24, June 15 2022

WELL DETAILS: Gregory 0780 4-4H9
 Ground Level: 8097.25
 RKB = 23.5' @ 8120.75usft (Ironhand 118)
 +N/-S 0.00 +E/-W 0.00 Northing 1467751.42 Easting 2752879.41 Latitude 40.613970 Longitude -106.390118

Compass rose showing True North (T) and Magnetic North (M).
 Azimuths to True North
 Magnetic North: 8.61°
 Magnetic Field
 Strength: 51925.6snT
 Dip Angle: 66.59°
 Date: 6/15/2022
 Model: BGGM2022

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	23.50	0.00	0.00	23.50	0.00	0.00	0.00	0.00	0.00	
2	2450.00	0.00	0.00	2450.00	0.00	0.00	0.00	0.00	0.00	Begin 2°/100' DLS Build
3	3962.56	30.25	71.08	3893.26	126.48	369.04	2.00	71.08	-126.48	Hold
4	8688.97	30.25	71.08	7976.05	898.45	2621.56	0.00	0.00	-898.45	KOP 10°/100' DLS Build
5	9688.12	90.00	181.07	8565.00	328.13	2933.78	10.00	107.44	-328.13	LP - 100' FNL, 2145' FWL
6	20528.60	90.00	181.07	8565.00-10510.46	2731.69		0.00	0.00	10510.46	TD at 20528.60, 100' FSL, 2145' FWL



Vertical Section at 180.00° (400 usft/in)

Ironhand 118

D90 Energy, LLC

Jackson County, CO Sec. 05-T7N-R80W

API#

Gregory 0780 4-4H9

432' FNL, 778' FEL

OWB_

Plan: P1

Sperry Drilling Services

Combo Report

15 June, 2022

Well Coordinates: 40.613970
-106.390119

North American Datum 1983
Colorado Northern Zone
1,467,751.42 N
2,752,879.41 E

Ground Level: 8,097.25 usft

Geodetic Scale Factor Applied

Local Coordinate Origin:

Centered on Well Gregory 0780 4-4H9

Viewing Datum:

RKB = 23.5' @ 8120.75usft (Ironhand 118)

TVDs to System:

N

North Reference:

True

Unit System:

Midcon

Geodetic Scale Factor Applied

Version: 5000.15 Build: 91F

Report Version: Midcon Combo v1.15

HALLIBURTON

Plan Report for Gregory 0780 4-4H9 - P1

Measured Depth (usft)	Inclination (°)	True Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
23.50	0.00	0.00	23.50	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
1,000.00	0.00	0.00	1,000.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
1,100.00	0.00	0.00	1,100.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
1,200.00	0.00	0.00	1,200.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
1,300.00	0.00	0.00	1,300.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
1,400.00	0.00	0.00	1,400.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
1,500.00	0.00	0.00	1,500.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
1,600.00	0.00	0.00	1,600.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
1,700.00	0.00	0.00	1,700.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
1,800.00	0.00	0.00	1,800.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
1,900.00	0.00	0.00	1,900.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
2,000.00	0.00	0.00	2,000.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
2,100.00	0.00	0.00	2,100.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
2,200.00	0.00	0.00	2,200.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
2,300.00	0.00	0.00	2,300.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	
2,400.00	0.00	0.00	2,400.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	9 5/8"
2,450.00	0.00	0.00	2,450.00	0.00 N	0.00 E	1,467,751.42	2,752,879.41	0.00	0.00	0.00	Begin 2"/100' DLS Build
2,500.00	1.00	71.08	2,500.00	0.14 N	0.41 E	1,467,751.56	2,752,879.82	2.00	-0.14	71.08	
2,600.00	3.00	71.08	2,599.93	1.27 N	3.71 E	1,467,752.66	2,752,883.14	2.00	-1.27	0.00	
2,700.00	5.00	71.08	2,699.68	3.53 N	10.31 E	1,467,754.85	2,752,889.76	2.00	-3.53	0.00	
2,800.00	7.00	71.08	2,799.13	6.92 N	20.20 E	1,467,758.14	2,752,899.68	2.00	-6.92	0.00	
2,900.00	9.00	71.08	2,898.15	11.43 N	33.37 E	1,467,762.52	2,752,912.89	2.00	-11.43	0.00	
3,000.00	11.00	71.08	2,996.63	17.06 N	49.79 E	1,467,767.98	2,752,929.37	2.00	-17.06	0.00	
3,100.00	13.00	71.08	3,094.44	23.80 N	69.46 E	1,467,774.53	2,752,949.10	2.00	-23.80	0.00	
3,200.00	15.00	71.08	3,191.46	31.65 N	92.34 E	1,467,782.14	2,752,972.06	2.00	-31.65	0.00	
3,300.00	17.00	71.08	3,287.58	40.58 N	118.42 E	1,467,790.81	2,752,998.23	2.00	-40.58	0.00	
3,400.00	19.00	71.08	3,382.68	50.60 N	147.65 E	1,467,800.54	2,753,027.55	2.00	-50.60	0.00	

Plan Report for Gregory 0780 4-4H9 - P1

Measured Depth (usft)	Inclination (°)	True Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
3,500.00	21.00	71.08	3,476.65	61.69 N	180.00 E	1,467,811.30	2,753,060.02	2.00	-61.69	0.00	
3,600.00	23.00	71.08	3,569.36	73.83 N	215.44 E	1,467,823.09	2,753,095.57	2.00	-73.83	0.00	
3,700.00	25.00	71.08	3,660.71	87.02 N	253.91 E	1,467,835.88	2,753,134.18	2.00	-87.02	0.00	
3,800.00	27.00	71.08	3,750.59	101.23 N	295.38 E	1,467,849.68	2,753,175.78	2.00	-101.23	0.00	
3,900.00	29.00	71.08	3,838.88	116.45 N	339.79 E	1,467,864.45	2,753,220.34	2.00	-116.45	0.00	
3,962.56	30.25	71.08	3,893.26	126.48 N	369.04 E	1,467,874.18	2,753,249.70	2.00	-126.48	0.00	Hold
4,000.00	30.25	71.08	3,925.60	132.59 N	386.88 E	1,467,880.12	2,753,267.60	0.00	-132.59	0.00	
4,100.00	30.25	71.08	4,011.98	148.93 N	434.54 E	1,467,895.97	2,753,315.42	0.00	-148.93	0.00	
4,200.00	30.25	71.08	4,098.36	165.26 N	482.20 E	1,467,911.83	2,753,363.23	0.00	-165.26	0.00	
4,300.00	30.25	71.08	4,184.75	181.59 N	529.86 E	1,467,927.68	2,753,411.05	0.00	-181.59	0.00	
4,400.00	30.25	71.08	4,271.13	197.92 N	577.52 E	1,467,943.53	2,753,458.87	0.00	-197.92	0.00	
4,500.00	30.25	71.08	4,357.51	214.26 N	625.18 E	1,467,959.39	2,753,506.69	0.00	-214.26	0.00	
4,600.00	30.25	71.08	4,443.89	230.59 N	672.83 E	1,467,975.24	2,753,554.51	0.00	-230.59	0.00	
4,700.00	30.25	71.08	4,530.28	246.92 N	720.49 E	1,467,991.09	2,753,602.33	0.00	-246.92	0.00	
4,800.00	30.25	71.08	4,616.66	263.26 N	768.15 E	1,468,006.95	2,753,650.15	0.00	-263.26	0.00	
4,900.00	30.25	71.08	4,703.04	279.59 N	815.81 E	1,468,022.80	2,753,697.96	0.00	-279.59	0.00	
5,000.00	30.25	71.08	4,789.42	295.92 N	863.47 E	1,468,038.66	2,753,745.78	0.00	-295.92	0.00	
5,100.00	30.25	71.08	4,875.81	312.26 N	911.12 E	1,468,054.51	2,753,793.60	0.00	-312.26	0.00	
5,200.00	30.25	71.08	4,962.19	328.59 N	958.78 E	1,468,070.36	2,753,841.42	0.00	-328.59	0.00	
5,300.00	30.25	71.08	5,048.57	344.92 N	1,006.44 E	1,468,086.22	2,753,889.24	0.00	-344.92	0.00	
5,400.00	30.25	71.08	5,134.95	361.26 N	1,054.10 E	1,468,102.07	2,753,937.06	0.00	-361.26	0.00	
5,500.00	30.25	71.08	5,221.34	377.59 N	1,101.76 E	1,468,117.92	2,753,984.88	0.00	-377.59	0.00	
5,600.00	30.25	71.08	5,307.72	393.92 N	1,149.41 E	1,468,133.78	2,754,032.69	0.00	-393.92	0.00	
5,700.00	30.25	71.08	5,394.10	410.26 N	1,197.07 E	1,468,149.63	2,754,080.51	0.00	-410.26	0.00	
5,800.00	30.25	71.08	5,480.48	426.59 N	1,244.73 E	1,468,165.48	2,754,128.33	0.00	-426.59	0.00	
5,900.00	30.25	71.08	5,566.87	442.92 N	1,292.39 E	1,468,181.34	2,754,176.15	0.00	-442.92	0.00	
6,000.00	30.25	71.08	5,653.25	459.26 N	1,340.05 E	1,468,197.19	2,754,223.97	0.00	-459.26	0.00	
6,100.00	30.25	71.08	5,739.63	475.59 N	1,387.71 E	1,468,213.05	2,754,271.79	0.00	-475.59	0.00	
6,200.00	30.25	71.08	5,826.01	491.92 N	1,435.36 E	1,468,228.90	2,754,319.61	0.00	-491.92	0.00	
6,300.00	30.25	71.08	5,912.40	508.26 N	1,483.02 E	1,468,244.75	2,754,367.42	0.00	-508.26	0.00	
6,400.00	30.25	71.08	5,998.78	524.59 N	1,530.68 E	1,468,260.61	2,754,415.24	0.00	-524.59	0.00	
6,500.00	30.25	71.08	6,085.16	540.92 N	1,578.34 E	1,468,276.46	2,754,463.06	0.00	-540.92	0.00	
6,600.00	30.25	71.08	6,171.54	557.26 N	1,626.00 E	1,468,292.31	2,754,510.88	0.00	-557.26	0.00	
6,700.00	30.25	71.08	6,257.93	573.59 N	1,673.65 E	1,468,308.17	2,754,558.70	0.00	-573.59	0.00	
6,800.00	30.25	71.08	6,344.31	589.92 N	1,721.31 E	1,468,324.02	2,754,606.52	0.00	-589.92	0.00	
6,900.00	30.25	71.08	6,430.69	606.26 N	1,768.97 E	1,468,339.87	2,754,654.34	0.00	-606.26	0.00	
7,000.00	30.25	71.08	6,517.07	622.59 N	1,816.63 E	1,468,355.73	2,754,702.15	0.00	-622.59	0.00	

Plan Report for Gregory 0780 4-4H9 - P1

Measured Depth (usft)	Inclination (°)	True Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
7,100.00	30.25	71.08	6,603.46	638.92 N	1,864.29 E	1,468,371.58	2,754,749.97	0.00	-638.92	0.00	
7,200.00	30.25	71.08	6,689.84	655.26 N	1,911.94 E	1,468,387.44	2,754,797.79	0.00	-655.26	0.00	
7,300.00	30.25	71.08	6,776.22	671.59 N	1,959.60 E	1,468,403.29	2,754,845.61	0.00	-671.59	0.00	
7,400.00	30.25	71.08	6,862.60	687.92 N	2,007.26 E	1,468,419.14	2,754,893.43	0.00	-687.92	0.00	
7,500.00	30.25	71.08	6,948.99	704.25 N	2,054.92 E	1,468,435.00	2,754,941.25	0.00	-704.25	0.00	
7,600.00	30.25	71.08	7,035.37	720.59 N	2,102.58 E	1,468,450.85	2,754,989.07	0.00	-720.59	0.00	
7,700.00	30.25	71.08	7,121.75	736.92 N	2,150.24 E	1,468,466.70	2,755,036.88	0.00	-736.92	0.00	
7,800.00	30.25	71.08	7,208.13	753.25 N	2,197.89 E	1,468,482.56	2,755,084.70	0.00	-753.25	0.00	
7,900.00	30.25	71.08	7,294.52	769.59 N	2,245.55 E	1,468,498.41	2,755,132.52	0.00	-769.59	0.00	
8,000.00	30.25	71.08	7,380.90	785.92 N	2,293.21 E	1,468,514.26	2,755,180.34	0.00	-785.92	0.00	
8,100.00	30.25	71.08	7,467.28	802.25 N	2,340.87 E	1,468,530.12	2,755,228.16	0.00	-802.25	0.00	
8,200.00	30.25	71.08	7,553.66	818.59 N	2,388.53 E	1,468,545.97	2,755,275.98	0.00	-818.59	0.00	
8,300.00	30.25	71.08	7,640.05	834.92 N	2,436.18 E	1,468,561.83	2,755,323.80	0.00	-834.92	0.00	
8,400.00	30.25	71.08	7,726.43	851.25 N	2,483.84 E	1,468,577.68	2,755,371.61	0.00	-851.25	0.00	
8,500.00	30.25	71.08	7,812.81	867.59 N	2,531.50 E	1,468,593.53	2,755,419.43	0.00	-867.59	0.00	
8,600.00	30.25	71.08	7,899.19	883.92 N	2,579.16 E	1,468,609.39	2,755,467.25	0.00	-883.92	0.00	
8,688.97	30.25	71.08	7,976.05	898.45 N	2,621.56 E	1,468,623.49	2,755,509.80	0.00	-898.45	0.00	KOP 10°/100' DLS Build
8,700.00	29.94	73.19	7,985.59	900.15 N	2,626.82 E	1,468,625.14	2,755,515.08	10.00	-900.15	107.44	
8,800.00	28.75	93.54	8,072.98	905.89 N	2,674.83 E	1,468,630.40	2,755,563.14	10.00	-905.89	105.62	
8,900.00	30.65	113.44	8,160.05	894.24 N	2,722.35 E	1,468,618.27	2,755,610.53	10.00	-894.24	87.83	
9,000.00	35.15	129.95	8,244.16	865.54 N	2,767.92 E	1,468,589.12	2,755,655.82	10.00	-865.54	70.51	
9,100.00	41.39	142.62	8,322.75	820.67 N	2,810.17 E	1,468,543.82	2,755,697.61	10.00	-820.67	56.60	
9,200.00	48.71	152.29	8,393.43	760.99 N	2,847.80 E	1,468,483.77	2,755,734.64	10.00	-760.99	46.63	
9,300.00	56.66	159.93	8,454.06	688.31 N	2,879.68 E	1,468,410.78	2,755,765.79	10.00	-688.31	39.77	
9,400.00	65.00	166.26	8,502.80	604.85 N	2,904.84 E	1,468,327.07	2,755,790.11	10.00	-604.85	35.12	
9,500.00	73.57	171.77	8,538.16	513.13 N	2,922.52 E	1,468,235.18	2,755,806.86	10.00	-513.13	32.03	
9,600.00	82.28	176.81	8,559.07	415.95 N	2,932.17 E	1,468,137.91	2,755,815.54	10.00	-415.95	30.07	
9,688.12	90.00	181.07	8,565.00	328.13 N	2,933.78 E	1,468,050.08	2,755,816.27	10.00	-328.13	29.01	LP - 100' FNL, 2145' FWL
9,700.00	90.00	181.07	8,565.00	316.25 N	2,933.56 E	1,468,038.21	2,755,815.93	0.00	-316.25	0.00	
9,800.00	90.00	181.07	8,565.00	216.27 N	2,931.70 E	1,467,938.25	2,755,813.06	0.00	-216.27	0.00	
9,900.00	90.00	181.07	8,565.00	116.29 N	2,929.83 E	1,467,838.29	2,755,810.19	0.00	-116.29	0.00	
10,000.00	90.00	181.07	8,565.00	16.31 N	2,927.97 E	1,467,738.34	2,755,807.33	0.00	-16.31	0.00	
10,100.00	90.00	181.07	8,565.00	83.68 S	2,926.10 E	1,467,638.38	2,755,804.46	0.00	83.68	0.00	
10,200.00	90.00	181.07	8,565.00	183.66 S	2,924.24 E	1,467,538.42	2,755,801.59	0.00	183.66	0.00	
10,300.00	90.00	181.07	8,565.00	283.64 S	2,922.38 E	1,467,438.47	2,755,798.72	0.00	283.64	0.00	
10,400.00	90.00	181.07	8,565.00	383.62 S	2,920.51 E	1,467,338.51	2,755,795.86	0.00	383.62	0.00	
10,500.00	90.00	181.07	8,565.00	483.61 S	2,918.65 E	1,467,238.55	2,755,792.99	0.00	483.61	0.00	



Plan Report for Gregory 0780 4-4H9 - P1

Measured Depth (usft)	Inclination (°)	True Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
10,600.00	90.00	181.07	8,565.00	583.59 S	2,916.78 E	1,467,138.60	2,755,790.12	0.00	583.59	0.00	
10,700.00	90.00	181.07	8,565.00	683.57 S	2,914.92 E	1,467,038.64	2,755,787.25	0.00	683.57	0.00	
10,800.00	90.00	181.07	8,565.00	783.55 S	2,913.05 E	1,466,938.68	2,755,784.39	0.00	783.55	0.00	
10,900.00	90.00	181.07	8,565.00	883.54 S	2,911.19 E	1,466,838.73	2,755,781.52	0.00	883.54	0.00	
11,000.00	90.00	181.07	8,565.00	983.52 S	2,909.33 E	1,466,738.77	2,755,778.65	0.00	983.52	0.00	
11,100.00	90.00	181.07	8,565.00	1,083.50 S	2,907.46 E	1,466,638.81	2,755,775.78	0.00	1,083.50	0.00	
11,200.00	90.00	181.07	8,565.00	1,183.48 S	2,905.60 E	1,466,538.86	2,755,772.91	0.00	1,183.48	0.00	
11,300.00	90.00	181.07	8,565.00	1,283.47 S	2,903.73 E	1,466,438.90	2,755,770.05	0.00	1,283.47	0.00	
11,400.00	90.00	181.07	8,565.00	1,383.45 S	2,901.87 E	1,466,338.94	2,755,767.18	0.00	1,383.45	0.00	
11,500.00	90.00	181.07	8,565.00	1,483.43 S	2,900.00 E	1,466,238.99	2,755,764.31	0.00	1,483.43	0.00	
11,600.00	90.00	181.07	8,565.00	1,583.42 S	2,898.14 E	1,466,139.03	2,755,761.44	0.00	1,583.42	0.00	
11,700.00	90.00	181.07	8,565.00	1,683.40 S	2,896.28 E	1,466,039.07	2,755,758.58	0.00	1,683.40	0.00	
11,800.00	90.00	181.07	8,565.00	1,783.38 S	2,894.41 E	1,465,939.12	2,755,755.71	0.00	1,783.38	0.00	
11,900.00	90.00	181.07	8,565.00	1,883.36 S	2,892.55 E	1,465,839.16	2,755,752.84	0.00	1,883.36	0.00	
12,000.00	90.00	181.07	8,565.00	1,983.35 S	2,890.68 E	1,465,739.20	2,755,749.97	0.00	1,983.35	0.00	
12,100.00	90.00	181.07	8,565.00	2,083.33 S	2,888.82 E	1,465,639.25	2,755,747.11	0.00	2,083.33	0.00	
12,200.00	90.00	181.07	8,565.00	2,183.31 S	2,886.96 E	1,465,539.29	2,755,744.24	0.00	2,183.31	0.00	
12,300.00	90.00	181.07	8,565.00	2,283.29 S	2,885.09 E	1,465,439.33	2,755,741.37	0.00	2,283.29	0.00	
12,400.00	90.00	181.07	8,565.00	2,383.28 S	2,883.23 E	1,465,339.38	2,755,738.50	0.00	2,383.28	0.00	
12,500.00	90.00	181.07	8,565.00	2,483.26 S	2,881.36 E	1,465,239.42	2,755,735.64	0.00	2,483.26	0.00	
12,600.00	90.00	181.07	8,565.00	2,583.24 S	2,879.50 E	1,465,139.47	2,755,732.77	0.00	2,583.24	0.00	
12,700.00	90.00	181.07	8,565.00	2,683.22 S	2,877.63 E	1,465,039.51	2,755,729.90	0.00	2,683.22	0.00	
12,800.00	90.00	181.07	8,565.00	2,783.21 S	2,875.77 E	1,464,939.55	2,755,727.03	0.00	2,783.21	0.00	
12,900.00	90.00	181.07	8,565.00	2,883.19 S	2,873.91 E	1,464,839.60	2,755,724.16	0.00	2,883.19	0.00	
13,000.00	90.00	181.07	8,565.00	2,983.17 S	2,872.04 E	1,464,739.64	2,755,721.30	0.00	2,983.17	0.00	
13,100.00	90.00	181.07	8,565.00	3,083.15 S	2,870.18 E	1,464,639.68	2,755,718.43	0.00	3,083.15	0.00	
13,200.00	90.00	181.07	8,565.00	3,183.14 S	2,868.31 E	1,464,539.73	2,755,715.56	0.00	3,183.14	0.00	
13,300.00	90.00	181.07	8,565.00	3,283.12 S	2,866.45 E	1,464,439.77	2,755,712.69	0.00	3,283.12	0.00	
13,400.00	90.00	181.07	8,565.00	3,383.10 S	2,864.59 E	1,464,339.81	2,755,709.83	0.00	3,383.10	0.00	
13,500.00	90.00	181.07	8,565.00	3,483.09 S	2,862.72 E	1,464,239.86	2,755,706.96	0.00	3,483.09	0.00	
13,600.00	90.00	181.07	8,565.00	3,583.07 S	2,860.86 E	1,464,139.90	2,755,704.09	0.00	3,583.07	0.00	
13,700.00	90.00	181.07	8,565.00	3,683.05 S	2,858.99 E	1,464,039.94	2,755,701.22	0.00	3,683.05	0.00	
13,800.00	90.00	181.07	8,565.00	3,783.03 S	2,857.13 E	1,463,939.99	2,755,698.36	0.00	3,783.03	0.00	
13,900.00	90.00	181.07	8,565.00	3,883.02 S	2,855.26 E	1,463,840.03	2,755,695.49	0.00	3,883.02	0.00	
14,000.00	90.00	181.07	8,565.00	3,983.00 S	2,853.40 E	1,463,740.07	2,755,692.62	0.00	3,983.00	0.00	
14,100.00	90.00	181.07	8,565.00	4,082.98 S	2,851.54 E	1,463,640.12	2,755,689.75	0.00	4,082.98	0.00	

Plan Report for Gregory 0780 4-4H9 - P1

Measured Depth (usft)	Inclination (°)	True Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
14,200.00	90.00	181.07	8,565.00	4,182.96 S	2,849.67 E	1,463,540.16	2,755,686.89	0.00	4,182.96	0.00	
14,300.00	90.00	181.07	8,565.00	4,282.95 S	2,847.81 E	1,463,440.20	2,755,684.02	0.00	4,282.95	0.00	
14,400.00	90.00	181.07	8,565.00	4,382.93 S	2,845.94 E	1,463,340.25	2,755,681.15	0.00	4,382.93	0.00	
14,500.00	90.00	181.07	8,565.00	4,482.91 S	2,844.08 E	1,463,240.29	2,755,678.28	0.00	4,482.91	0.00	
14,600.00	90.00	181.07	8,565.00	4,582.89 S	2,842.22 E	1,463,140.33	2,755,675.41	0.00	4,582.89	0.00	
14,700.00	90.00	181.07	8,565.00	4,682.88 S	2,840.35 E	1,463,040.38	2,755,672.55	0.00	4,682.88	0.00	
14,800.00	90.00	181.07	8,565.00	4,782.86 S	2,838.49 E	1,462,940.42	2,755,669.68	0.00	4,782.86	0.00	
14,900.00	90.00	181.07	8,565.00	4,882.84 S	2,836.62 E	1,462,840.46	2,755,666.81	0.00	4,882.84	0.00	
15,000.00	90.00	181.07	8,565.00	4,982.82 S	2,834.76 E	1,462,740.51	2,755,663.94	0.00	4,982.82	0.00	
15,100.00	90.00	181.07	8,565.00	5,082.81 S	2,832.89 E	1,462,640.55	2,755,661.08	0.00	5,082.81	0.00	
15,200.00	90.00	181.07	8,565.00	5,182.79 S	2,831.03 E	1,462,540.59	2,755,658.21	0.00	5,182.79	0.00	
15,300.00	90.00	181.07	8,565.00	5,282.77 S	2,829.17 E	1,462,440.64	2,755,655.34	0.00	5,282.77	0.00	
15,400.00	90.00	181.07	8,565.00	5,382.75 S	2,827.30 E	1,462,340.68	2,755,652.47	0.00	5,382.75	0.00	
15,500.00	90.00	181.07	8,565.00	5,482.74 S	2,825.44 E	1,462,240.72	2,755,649.61	0.00	5,482.74	0.00	
15,600.00	90.00	181.07	8,565.00	5,582.72 S	2,823.57 E	1,462,140.77	2,755,646.74	0.00	5,582.72	0.00	
15,700.00	90.00	181.07	8,565.00	5,682.70 S	2,821.71 E	1,462,040.81	2,755,643.87	0.00	5,682.70	0.00	
15,800.00	90.00	181.07	8,565.00	5,782.69 S	2,819.84 E	1,461,940.85	2,755,641.00	0.00	5,782.69	0.00	
15,900.00	90.00	181.07	8,565.00	5,882.67 S	2,817.98 E	1,461,840.90	2,755,638.14	0.00	5,882.67	0.00	
16,000.00	90.00	181.07	8,565.00	5,982.65 S	2,816.12 E	1,461,740.94	2,755,635.27	0.00	5,982.65	0.00	
16,100.00	90.00	181.07	8,565.00	6,082.63 S	2,814.25 E	1,461,640.99	2,755,632.40	0.00	6,082.63	0.00	
16,200.00	90.00	181.07	8,565.00	6,182.62 S	2,812.39 E	1,461,541.03	2,755,629.53	0.00	6,182.62	0.00	
16,300.00	90.00	181.07	8,565.00	6,282.60 S	2,810.52 E	1,461,441.07	2,755,626.67	0.00	6,282.60	0.00	
16,400.00	90.00	181.07	8,565.00	6,382.58 S	2,808.66 E	1,461,341.12	2,755,623.80	0.00	6,382.58	0.00	
16,500.00	90.00	181.07	8,565.00	6,482.56 S	2,806.80 E	1,461,241.16	2,755,620.93	0.00	6,482.56	0.00	
16,600.00	90.00	181.07	8,565.00	6,582.55 S	2,804.93 E	1,461,141.20	2,755,618.06	0.00	6,582.55	0.00	
16,700.00	90.00	181.07	8,565.00	6,682.53 S	2,803.07 E	1,461,041.25	2,755,615.19	0.00	6,682.53	0.00	
16,800.00	90.00	181.07	8,565.00	6,782.51 S	2,801.20 E	1,460,941.29	2,755,612.33	0.00	6,782.51	0.00	
16,900.00	90.00	181.07	8,565.00	6,882.49 S	2,799.34 E	1,460,841.33	2,755,609.46	0.00	6,882.49	0.00	
17,000.00	90.00	181.07	8,565.00	6,982.48 S	2,797.47 E	1,460,741.38	2,755,606.59	0.00	6,982.48	0.00	
17,100.00	90.00	181.07	8,565.00	7,082.46 S	2,795.61 E	1,460,641.42	2,755,603.72	0.00	7,082.46	0.00	
17,200.00	90.00	181.07	8,565.00	7,182.44 S	2,793.75 E	1,460,541.46	2,755,600.86	0.00	7,182.44	0.00	
17,300.00	90.00	181.07	8,565.00	7,282.42 S	2,791.88 E	1,460,441.51	2,755,597.99	0.00	7,282.42	0.00	
17,400.00	90.00	181.07	8,565.00	7,382.41 S	2,790.02 E	1,460,341.55	2,755,595.12	0.00	7,382.41	0.00	
17,500.00	90.00	181.07	8,565.00	7,482.39 S	2,788.15 E	1,460,241.59	2,755,592.25	0.00	7,482.39	0.00	
17,600.00	90.00	181.07	8,565.00	7,582.37 S	2,786.29 E	1,460,141.64	2,755,589.39	0.00	7,582.37	0.00	
17,700.00	90.00	181.07	8,565.00	7,682.36 S	2,784.43 E	1,460,041.68	2,755,586.52	0.00	7,682.36	0.00	
17,800.00	90.00	181.07	8,565.00	7,782.34 S	2,782.56 E	1,459,941.72	2,755,583.65	0.00	7,782.34	0.00	

Plan Report for Gregory 0780 4-4H9 - P1

Measured Depth (usft)	Inclination (°)	True Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
17,900.00	90.00	181.07	8,565.00	7,882.32 S	2,780.70 E	1,459,841.77	2,755,580.78	0.00	7,882.32	0.00	
18,000.00	90.00	181.07	8,565.00	7,982.30 S	2,778.83 E	1,459,741.81	2,755,577.92	0.00	7,982.30	0.00	
18,100.00	90.00	181.07	8,565.00	8,082.29 S	2,776.97 E	1,459,641.85	2,755,575.05	0.00	8,082.29	0.00	
18,200.00	90.00	181.07	8,565.00	8,182.27 S	2,775.10 E	1,459,541.90	2,755,572.18	0.00	8,182.27	0.00	
18,300.00	90.00	181.07	8,565.00	8,282.25 S	2,773.24 E	1,459,441.94	2,755,569.31	0.00	8,282.25	0.00	
18,400.00	90.00	181.07	8,565.00	8,382.23 S	2,771.38 E	1,459,341.98	2,755,566.44	0.00	8,382.23	0.00	
18,500.00	90.00	181.07	8,565.00	8,482.22 S	2,769.51 E	1,459,242.03	2,755,563.58	0.00	8,482.22	0.00	
18,600.00	90.00	181.07	8,565.00	8,582.20 S	2,767.65 E	1,459,142.07	2,755,560.71	0.00	8,582.20	0.00	
18,700.00	90.00	181.07	8,565.00	8,682.18 S	2,765.78 E	1,459,042.11	2,755,557.84	0.00	8,682.18	0.00	
18,800.00	90.00	181.07	8,565.00	8,782.16 S	2,763.92 E	1,458,942.16	2,755,554.97	0.00	8,782.16	0.00	
18,900.00	90.00	181.07	8,565.00	8,882.15 S	2,762.05 E	1,458,842.20	2,755,552.11	0.00	8,882.15	0.00	
19,000.00	90.00	181.07	8,565.00	8,982.13 S	2,760.19 E	1,458,742.24	2,755,549.24	0.00	8,982.13	0.00	
19,100.00	90.00	181.07	8,565.00	9,082.11 S	2,758.33 E	1,458,642.29	2,755,546.37	0.00	9,082.11	0.00	
19,200.00	90.00	181.07	8,565.00	9,182.09 S	2,756.46 E	1,458,542.33	2,755,543.50	0.00	9,182.09	0.00	
19,300.00	90.00	181.07	8,565.00	9,282.08 S	2,754.60 E	1,458,442.38	2,755,540.64	0.00	9,282.08	0.00	
19,400.00	90.00	181.07	8,565.00	9,382.06 S	2,752.73 E	1,458,342.42	2,755,537.77	0.00	9,382.06	0.00	
19,500.00	90.00	181.07	8,565.00	9,482.04 S	2,750.87 E	1,458,242.46	2,755,534.90	0.00	9,482.04	0.00	
19,600.00	90.00	181.07	8,565.00	9,582.03 S	2,749.01 E	1,458,142.51	2,755,532.03	0.00	9,582.03	0.00	
19,700.00	90.00	181.07	8,565.00	9,682.01 S	2,747.14 E	1,458,042.55	2,755,529.17	0.00	9,682.01	0.00	
19,800.00	90.00	181.07	8,565.00	9,781.99 S	2,745.28 E	1,457,942.59	2,755,526.30	0.00	9,781.99	0.00	
19,900.00	90.00	181.07	8,565.00	9,881.97 S	2,743.41 E	1,457,842.64	2,755,523.43	0.00	9,881.97	0.00	
20,000.00	90.00	181.07	8,565.00	9,981.96 S	2,741.55 E	1,457,742.68	2,755,520.56	0.00	9,981.96	0.00	
20,100.00	90.00	181.07	8,565.00	10,081.94 S	2,739.68 E	1,457,642.72	2,755,517.69	0.00	10,081.94	0.00	
20,200.00	90.00	181.07	8,565.00	10,181.92 S	2,737.82 E	1,457,542.77	2,755,514.83	0.00	10,181.92	0.00	
20,300.00	90.00	181.07	8,565.00	10,281.90 S	2,735.96 E	1,457,442.81	2,755,511.96	0.00	10,281.90	0.00	
20,400.00	90.00	181.07	8,565.00	10,381.89 S	2,734.09 E	1,457,342.85	2,755,509.09	0.00	10,381.89	0.00	
20,500.00	90.00	181.07	8,565.00	10,481.87 S	2,732.23 E	1,457,242.90	2,755,506.22	0.00	10,481.87	0.00	
20,528.60	90.00	181.07	8,565.00	10,510.46 S	2,731.69 E	1,457,214.31	2,755,505.40	0.00	10,510.46	0.00	TD at 20528.60, 100' FSL, 2145' FWL

Plan Report for Gregory 0780 4-4H9 - P1

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,450.00	2,450.00	0.00	0.00	Begin 2°/100' DLS Build
3,962.56	3,893.26	126.48	369.04	Hold
8,688.97	7,976.05	898.45	2,621.56	KOP 10°/100' DLS Build
9,688.12	8,565.00	328.13	2,933.78	LP - 100' FNL, 2145' FWL
20,528.60	8,565.00	-10,510.46	2,731.69	TD at 20528.60, 100' FSL, 2145' FWL

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/-S (usft)	+E/-W (usft)	
User	No Target (Freehand)	180.00	Slot	0.00	0.00	23.50

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
23.50	20,528.60	P1	3_MWD+HRGM

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,400.00	2,400.00	9 5/8"	9-5/8	12-1/4
20,528.60	8,565.00	5 1/2"	5-1/2	8-3/4

Plan Report for Gregory 0780 4-4H9 - P1

Design Targets

Target Name	Dip Angle	Dip Dir.	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Gregory 4-4H9 PBHL (100' FSL, 2145' FWL)	0.00	0.00	8,565.00	-10,510.46	2,731.65	1,457,214.31	2,755,505.36	40.585121	-106.380284
- hit/miss target									
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- plan misses target center by 0.04usft at 20528.60usft MD (8565.00 TVD, -10510.46 N, 2731.69 E)									
- Point									
Gregory 4-4H9 LP (100' FNL, 2145' FWL)	0.00	0.00	8,565.00	328.13	2,933.78	1,468,050.08	2,755,816.27	40.614870	-106.379551
- plan hits target center									
- Point									

Directional Difficulty Index

Average Dogleg over Survey:	0.63 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 9,688.12 usft
Net Tortosity applicable to Plans:	0.63 °/100usft	Directional Difficulty Index:	6.879

Audit Info

North Reference Sheet for Sec. 05-T7N-R80W - Gregory 0780 4-4H9 - OWB_

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to RKB = 23.5' @ 8120.75usft (Ironhand 118). Northing and Easting are relative to Gregory 0780 4-4H9

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.500000°, Longitude Origin:0.000000°, Latitude Origin:40.783333°

False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99997690

Grid Coordinates of Well: 1,467,751.42 usft N, 2,752,879.41 usft E

Geographical Coordinates of Well: 40.613970, -106.390119

Grid Convergence at Surface is: -0.58°

Based upon Minimum Curvature type calculations, at a Measured Depth of 20,528.60usft
the Bottom Hole Displacement is 10,859.65usft in the Direction of 165.43° (True).

Magnetic Convergence at surface is: -9.18° (15 June 2022, , BGGM2022)

