

BISON OIL & GAS II, LLC

WELD COUNTY, COLORADO (NAD 83)

SW NW SEC. 22 T8N R60W 6th P.M.

HALE FED 8-60 22-23-10

ORIGINAL WELLBORE

29 May, 2019

Plan: PROPOSAL #3



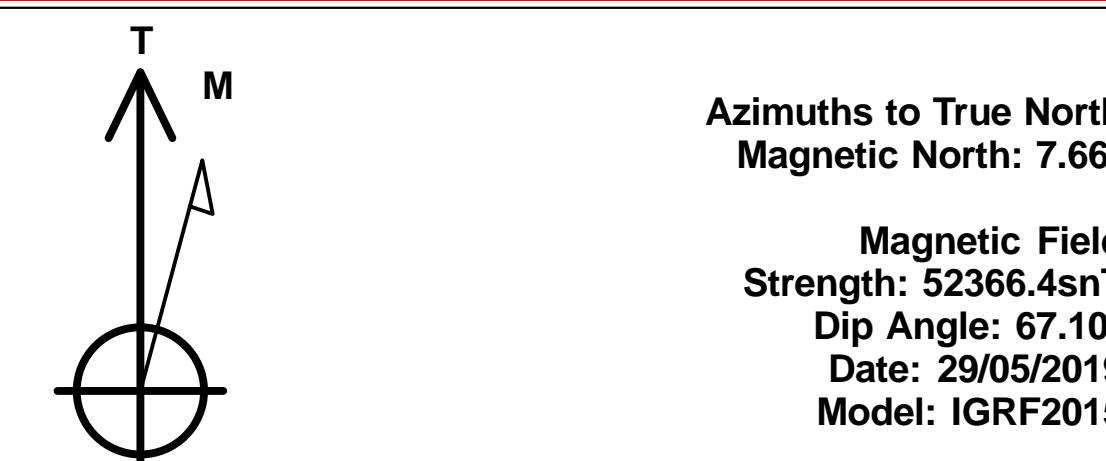
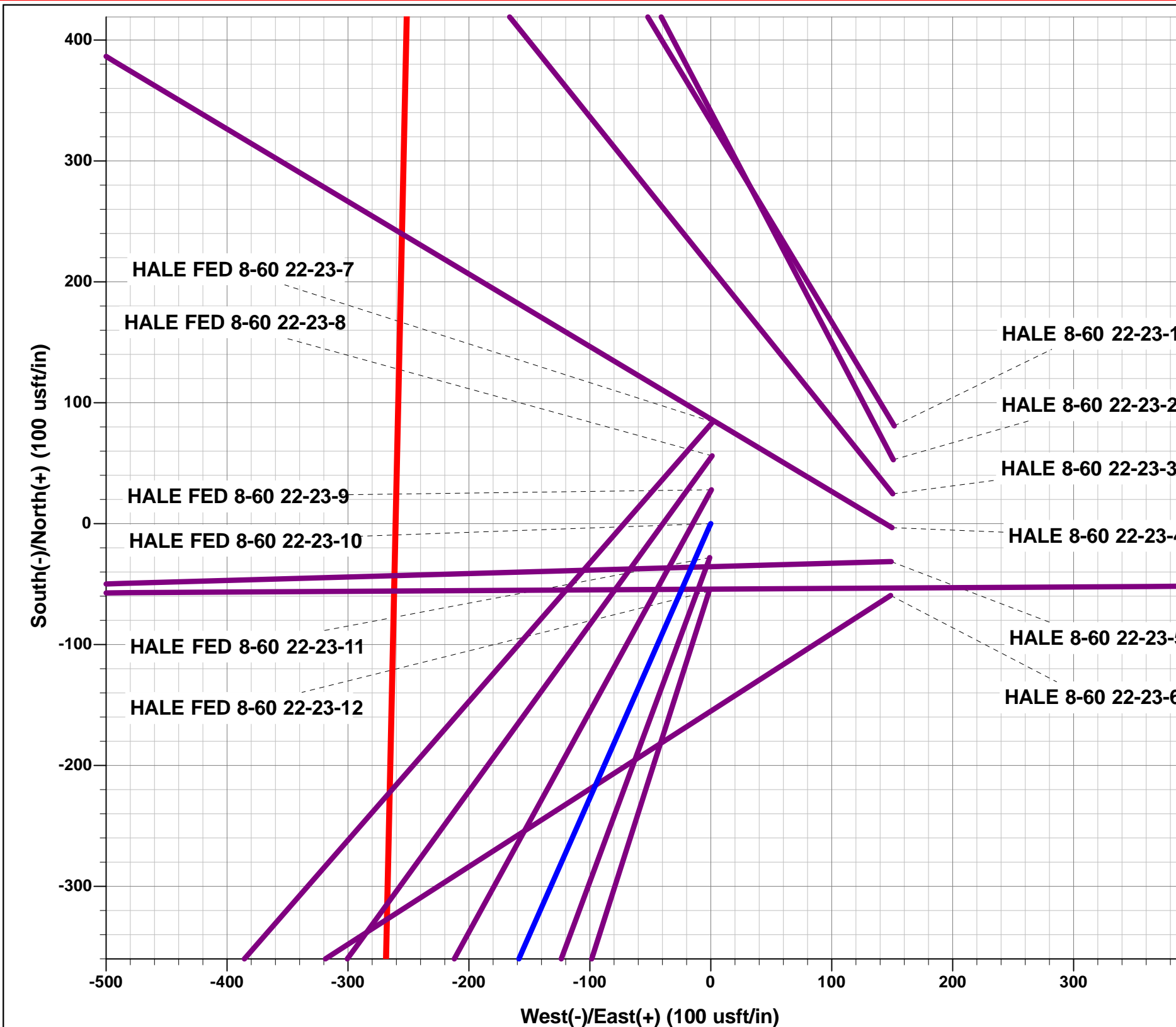
Project: WELD COUNTY, COLORADO (NAD 83)
Site: SW NW SEC. 22 T8N R60W 6th P.M.
Well: HALE FED 8-60 22-23-10
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #3

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 2160ft FNL & 560ft FWL of Sec 22
300.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1706.31	1769.97	29.40	203.78	-337.61	-148.76	-55.87	368.93	EOB TO 29.4° INC
4226.83	4663.07	29.40	203.78	-1637.25	-721.41	-270.94	1789.14	END OF TANGENT
5633.14	6133.04	0.00	0.00	-1974.86	-870.17	-326.81	2158.07	EOD TO VERTICAL
5733.14	6233.04	0.00	0.00	-1974.86	-870.17	-326.81	2158.07	KOP (10°/100ft BUR)
6306.10	7133.05	90.00	89.65	-1971.36	-297.21	225.53	2731.04	BPI: 1169ft FSL & 300ft FWL of Sec 22
6306.09	9491.57	90.00	89.65	-1956.98	2061.26	2499.17	5089.56	EXIT COC76980
6306.10	14483.41	90.00	89.65	-1926.63	7053.01	7311.37	10081.40	EPI: 1175ft FSL & 2350ft FWL of Sec 23
6306.10	14486.35	90.00	89.56	-1926.61	7055.95	7314.21	10084.34	EOT TO 89.56° AZ
6306.10	14583.32	90.00	89.56	-1925.88	7152.91	7407.64	10181.30	BHL: 1175ft FSL & 2450ft FWL of Sec 23

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - HALE FED 8-60 22-23-10 (P3)	5733.14	-1974.86	-870.17	40.643758	-104.088128
BPI - HALE FED 8-60 22-23-10 (P3)	6306.10	-1971.36	-297.22	40.643768	-104.086063
EPI - HALE FED 8-60 22-23-10 (P3)	6306.10	-1926.63	7053.01	40.643888	-104.059577
BHL - HALE FED 8-60 22-23-10 (P3)	6306.10	-1925.88	7152.91	40.643890	-104.059217

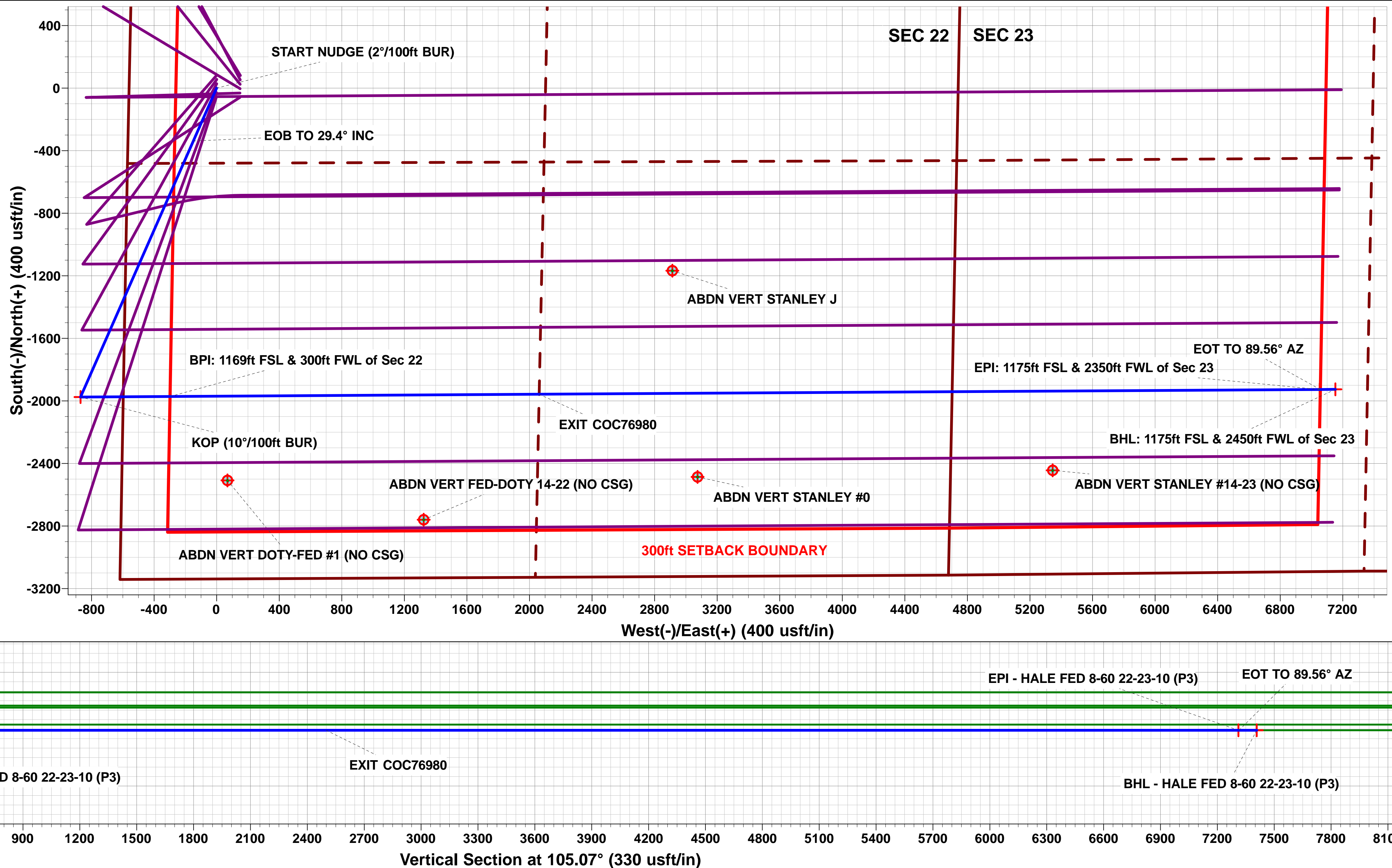
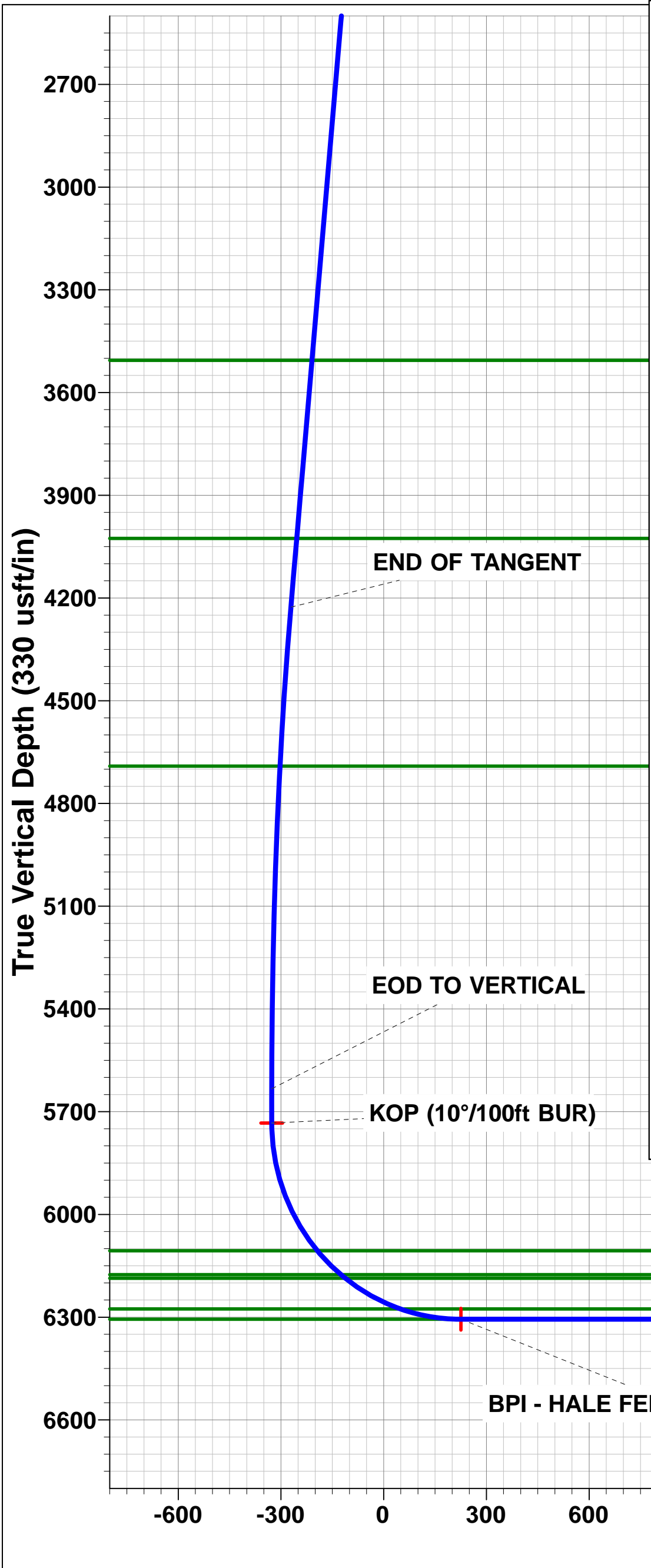
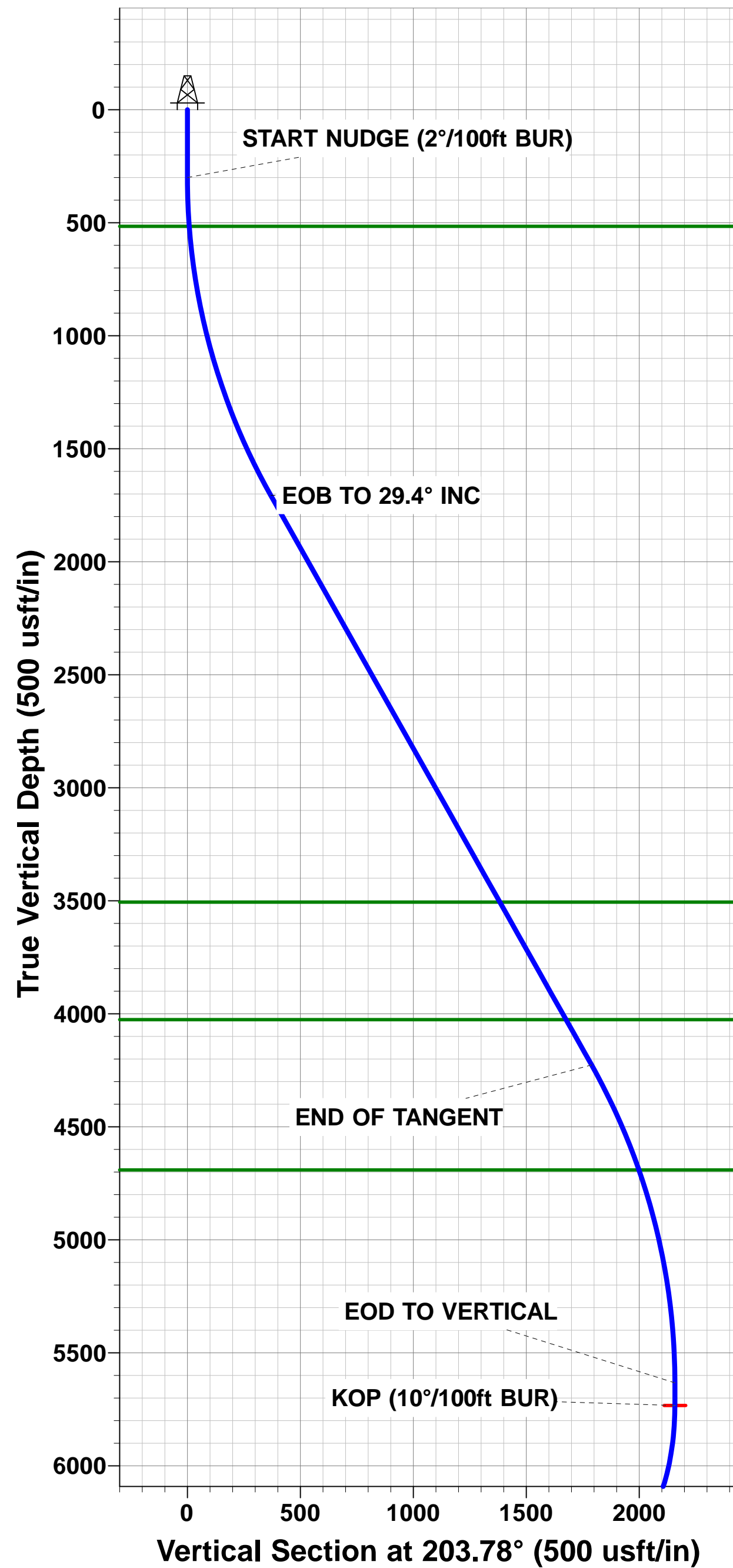


FORMATION TOP DETAILS

TVDPath	MDPath	Formation
516.10	516.31	P SHALE (BASE FOX HILLS)
3506.10	3835.80	PARKMAN
4026.10	4432.67	SUSSEX
4691.10	5173.14	SHANNON
6106.10	6639.16	SHARON SPRINGS SHALE
6176.10	6739.38	NIOBRARA FORMATION
6186.10	6755.42	NIOBRARA A CHALK
6276.10	6946.81	NIOBRARA B CHALK
6306.10	7133.05	NIOBRARA B LP

PROPOSED LOCAL COORDINATES:

SHL: 2160ft FNL & 560ft FWL of Sec 22
BEGIN PROD INT: 1169ft FSL & 300ft FWL of Sec 22
END PROD INTERVAL: 1175ft FSL & 2350ft FWL of Sec 23
BHL: 1175ft FSL & 2450ft FWL of Sec 23



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well HALE FED 8-60 22-23-10
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4956.10usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4956.10usft
Site:	SW NW SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	HALE FED 8-60 22-23-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3		

Project	WELD COUNTY, COLORADO (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	SW NW SEC. 22 T8N R60W 6th P.M.		
Site Position:		Northing:	1,482,610.76usft
From:	Lat/Long	Easting:	3,392,779.56usft
Position Uncertainty:	0.00 usft	Slot Radius:	1.10000ft
		Latitude:	40.649556
		Longitude:	-104.084442
		Grid Convergence:	0.91 °

Well	HALE FED 8-60 22-23-10		
Well Position	+N/-S	-137.36 usft	Northing:
	+E/-W	-152.62 usft	Easting:
Position Uncertainty	0.00 usft		Wellhead Elevation:
			Ground Level:
			4,931.10 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	29/05/2019	7.65	67.10	52,366

Design	PROPOSAL #3			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	6,306.10	0.00	0.00	105.07

Plan Sections											
MD (usft)	Inc (°)	Azi (°)	Vertical Depth	SS (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100usf)	Turn Rate (°/100usf)	TFO (°)	Target
0.00	0.00	0.00	0.00	-4,956.10	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	-4,656.10	0.00	0.00	0.00	0.00	0.00	0.00	
1,769.97	29.40	203.78	1,706.31	-3,249.79	-337.61	-148.76	2.00	2.00	0.00	203.78	
4,663.07	29.40	203.78	4,226.83	-729.27	-1,637.25	-721.41	0.00	0.00	0.00	0.00	
6,133.04	0.00	0.00	5,633.14	677.04	-1,974.86	-870.17	2.00	-2.00	0.00	180.00	
6,233.04	0.00	0.00	5,733.14	777.04	-1,974.86	-870.17	0.00	0.00	0.00	0.00	KOP - HALE FED 8
7,133.05	90.00	89.65	6,306.10	1,350.00	-1,971.36	-297.22	10.00	10.00	9.96	89.65	BPI - HALE FED 8-
14,483.41	90.00	89.65	6,306.10	1,350.00	-1,926.63	7,053.01	0.00	0.00	0.00	105.81	EPI - HALE FED 8-
14,486.35	90.00	89.56	6,306.10	1,350.00	-1,926.61	7,055.95	3.00	0.01	-3.00	-89.80	
14,583.32	90.00	89.56	6,306.10	1,350.00	-1,925.88	7,152.91	0.00	0.00	0.00	0.00	BHL - HALE FED 8

Planning Report



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Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4956.10usft
Site:	SW NW SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	HALE FED 8-60 22-23-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3		

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
SHL: 2160ft FNL & 560ft FWL of Sec 22										
0.00	0.00	0.00	0.00	4,956.10	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,856.10	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	4,756.10	0.00	0.00	0.00	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
300.00	0.00	0.00	300.00	4,656.10	0.00	0.00	0.00	0.00	0.00	0.00
400.00	2.00	203.78	399.98	4,556.12	-1.60	-0.70	-0.26	2.00	2.00	0.00
500.00	4.00	203.78	499.84	4,456.26	-6.39	-2.81	-1.06	2.00	2.00	0.00
PIERRE SHALE (BASE FOX HILLS)										
516.31	4.33	203.78	516.10	4,440.00	-7.47	-3.29	-1.24	2.00	2.00	0.00
600.00	6.00	203.78	599.45	4,356.65	-14.36	-6.33	-2.38	2.00	2.00	0.00
700.00	8.00	203.78	698.70	4,257.40	-25.51	-11.24	-4.22	2.00	2.00	0.00
800.00	10.00	203.78	797.47	4,158.63	-39.83	-17.55	-6.59	2.00	2.00	0.00
900.00	12.00	203.78	895.62	4,060.48	-57.29	-25.24	-9.48	2.00	2.00	0.00
1,000.00	14.00	203.78	993.06	3,963.04	-77.87	-34.31	-12.89	2.00	2.00	0.00
1,100.00	16.00	203.78	1,089.64	3,866.46	-101.56	-44.75	-16.81	2.00	2.00	0.00
1,200.00	18.00	203.78	1,185.27	3,770.83	-128.31	-56.54	-21.23	2.00	2.00	0.00
1,300.00	20.00	203.78	1,279.82	3,676.28	-158.10	-69.66	-26.16	2.00	2.00	0.00
1,400.00	22.00	203.78	1,373.17	3,582.93	-190.89	-84.11	-31.59	2.00	2.00	0.00
1,500.00	24.00	203.78	1,465.21	3,490.89	-226.65	-99.87	-37.51	2.00	2.00	0.00
1,600.00	26.00	203.78	1,555.84	3,400.26	-265.32	-116.91	-43.91	2.00	2.00	0.00
1,700.00	28.00	203.78	1,644.94	3,311.16	-306.86	-135.21	-50.78	2.00	2.00	0.00
EOB TO 29.4° INC										
1,769.97	29.40	203.78	1,706.31	3,249.79	-337.61	-148.76	-55.87	2.00	2.00	0.00
1,800.00	29.40	203.78	1,732.47	3,223.63	-351.10	-154.70	-58.10	0.00	0.00	0.00
1,900.00	29.40	203.78	1,819.59	3,136.51	-396.02	-174.50	-65.54	0.00	0.00	0.00
2,000.00	29.40	203.78	1,906.72	3,049.38	-440.94	-194.29	-72.97	0.00	0.00	0.00
2,100.00	29.40	203.78	1,993.84	2,962.26	-485.87	-214.08	-80.40	0.00	0.00	0.00
2,200.00	29.40	203.78	2,080.96	2,875.14	-530.79	-233.88	-87.84	0.00	0.00	0.00
2,300.00	29.40	203.78	2,168.08	2,788.02	-575.71	-253.67	-95.27	0.00	0.00	0.00
2,400.00	29.40	203.78	2,255.20	2,700.90	-620.63	-273.47	-102.71	0.00	0.00	0.00
2,500.00	29.40	203.78	2,342.33	2,613.77	-665.55	-293.26	-110.14	0.00	0.00	0.00
2,600.00	29.40	203.78	2,429.45	2,526.65	-710.48	-313.05	-117.57	0.00	0.00	0.00
2,700.00	29.40	203.78	2,516.57	2,439.53	-755.40	-332.85	-125.01	0.00	0.00	0.00
2,800.00	29.40	203.78	2,603.69	2,352.41	-800.32	-352.64	-132.44	0.00	0.00	0.00
2,900.00	29.40	203.78	2,690.81	2,265.29	-845.24	-372.43	-139.88	0.00	0.00	0.00
3,000.00	29.40	203.78	2,777.93	2,178.17	-890.17	-392.23	-147.31	0.00	0.00	0.00
3,100.00	29.40	203.78	2,865.06	2,091.04	-935.09	-412.02	-154.74	0.00	0.00	0.00
3,200.00	29.40	203.78	2,952.18	2,003.92	-980.01	-431.82	-162.18	0.00	0.00	0.00
3,300.00	29.40	203.78	3,039.30	1,916.80	-1,024.93	-451.61	-169.61	0.00	0.00	0.00
3,400.00	29.40	203.78	3,126.42	1,829.68	-1,069.85	-471.40	-177.05	0.00	0.00	0.00
3,500.00	29.40	203.78	3,213.54	1,742.56	-1,114.78	-491.20	-184.48	0.00	0.00	0.00
3,600.00	29.40	203.78	3,300.67	1,655.43	-1,159.70	-510.99	-191.91	0.00	0.00	0.00
3,700.00	29.40	203.78	3,387.79	1,568.31	-1,204.62	-530.78	-199.35	0.00	0.00	0.00
3,800.00	29.40	203.78	3,474.91	1,481.19	-1,249.54	-550.58	-206.78	0.00	0.00	0.00
PARKMAN										
3,835.80	29.40	203.78	3,506.10	1,450.00	-1,265.62	-557.66	-209.44	0.00	0.00	0.00
3,900.00	29.40	203.78	3,562.03	1,394.07	-1,294.46	-570.37	-214.22	0.00	0.00	0.00
4,000.00	29.40	203.78	3,649.15	1,306.95	-1,339.39	-590.17	-221.65	0.00	0.00	0.00
4,100.00	29.40	203.78	3,736.27	1,219.83	-1,384.31	-609.96	-229.08	0.00	0.00	0.00
4,200.00	29.40	203.78	3,823.40	1,132.70	-1,429.23	-629.75	-236.52	0.00	0.00	0.00
4,300.00	29.40	203.78	3,910.52	1,045.58	-1,474.15	-649.55	-243.95	0.00	0.00	0.00
4,400.00	29.40	203.78	3,997.64	958.46	-1,519.07	-669.34	-251.39	0.00	0.00	0.00

Planning Report



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Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4956.10usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4956.10usft
Site:	SW NW SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	HALE FED 8-60 22-23-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3		

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
SUSSEX										
4,432.67	29.40	203.78	4,026.10	930.00	-1,533.75	-675.81	-253.81	0.00	0.00	0.00
4,500.00	29.40	203.78	4,084.76	871.34	-1,564.00	-689.13	-258.82	0.00	0.00	0.00
4,600.00	29.40	203.78	4,171.88	784.22	-1,608.92	-708.93	-266.25	0.00	0.00	0.00
END OF TANGENT										
4,663.07	29.40	203.78	4,226.83	729.27	-1,637.25	-721.41	-270.94	0.00	0.00	0.00
4,700.00	28.66	203.78	4,259.12	696.98	-1,653.65	-728.64	-273.66	2.00	-2.00	0.00
4,800.00	26.66	203.78	4,347.69	608.41	-1,696.13	-747.36	-280.69	2.00	-2.00	0.00
4,900.00	24.66	203.78	4,437.82	518.28	-1,735.76	-764.82	-287.24	2.00	-2.00	0.00
5,000.00	22.66	203.78	4,529.41	426.69	-1,772.48	-781.00	-293.32	2.00	-2.00	0.00
5,100.00	20.66	203.78	4,622.34	333.76	-1,806.26	-795.88	-298.91	2.00	-2.00	0.00
SHANNON										
5,173.14	19.20	203.78	4,691.10	265.00	-1,829.07	-805.93	-302.69	2.00	-2.00	0.00
5,200.00	18.66	203.78	4,716.51	239.59	-1,837.04	-809.44	-304.01	2.00	-2.00	0.00
5,300.00	16.66	203.78	4,811.79	144.31	-1,864.80	-821.68	-308.60	2.00	-2.00	0.00
5,400.00	14.66	203.78	4,908.07	48.03	-1,889.50	-832.56	-312.69	2.00	-2.00	0.00
5,500.00	12.66	203.78	5,005.24	-49.14	-1,911.12	-842.08	-316.26	2.00	-2.00	0.00
5,600.00	10.66	203.78	5,103.17	-147.07	-1,929.61	-850.23	-319.32	2.00	-2.00	0.00
5,700.00	8.66	203.78	5,201.75	-245.65	-1,944.97	-857.00	-321.87	2.00	-2.00	0.00
5,800.00	6.66	203.78	5,300.85	-344.75	-1,957.17	-862.37	-323.88	2.00	-2.00	0.00
5,900.00	4.66	203.78	5,400.36	-444.26	-1,966.19	-866.35	-325.38	2.00	-2.00	0.00
6,000.00	2.66	203.78	5,500.15	-544.05	-1,972.03	-868.92	-326.35	2.00	-2.00	0.00
6,100.00	0.66	203.78	5,600.10	-644.00	-1,974.69	-870.09	-326.78	2.00	-2.00	0.00
EOD TO VERTICAL										
6,133.04	0.00	0.00	5,633.14	-677.04	-1,974.86	-870.17	-326.81	2.00	-2.00	0.00
6,200.00	0.00	0.00	5,700.10	-744.00	-1,974.86	-870.17	-326.81	0.00	0.00	0.00
KOP (10°/100ft BUR)										
6,233.04	0.00	0.00	5,733.14	-777.04	-1,974.86	-870.17	-326.81	0.00	0.00	0.00
6,300.00	6.70	89.65	5,799.95	-843.85	-1,974.84	-866.26	-323.05	10.00	10.00	0.00
6,400.00	16.70	89.65	5,897.75	-941.65	-1,974.71	-846.02	-303.53	10.00	10.00	0.00
6,500.00	26.70	89.65	5,990.55	-1,034.45	-1,974.49	-809.10	-267.94	10.00	10.00	0.00
6,600.00	36.70	89.65	6,075.52	-1,119.42	-1,974.17	-756.62	-217.35	10.00	10.00	0.00
SHARON SPRINGS SHALE										
6,639.16	40.61	89.65	6,106.10	-1,150.00	-1,974.02	-732.17	-193.77	10.00	10.00	0.00
6,700.00	46.70	89.65	6,150.10	-1,194.00	-1,973.76	-690.19	-153.31	10.00	10.00	0.00
NIOBRARA FORMATION										
6,739.38	50.63	89.65	6,176.10	-1,220.00	-1,973.58	-660.63	-124.81	10.00	10.00	0.00
NIOBRARA A CHALK										
6,755.42	52.24	89.65	6,186.10	-1,230.00	-1,973.50	-648.09	-112.72	10.00	10.00	0.00
6,800.00	56.70	89.65	6,212.00	-1,255.90	-1,973.28	-611.82	-77.75	10.00	10.00	0.00
6,900.00	66.70	89.65	6,259.36	-1,303.26	-1,972.75	-523.89	7.01	10.00	10.00	0.00
NIOBRARA B CHALK										
6,946.81	71.38	89.65	6,276.10	-1,320.00	-1,972.48	-480.19	49.14	10.00	10.00	0.00
7,000.00	76.70	89.65	6,290.72	-1,334.62	-1,972.17	-429.07	98.42	10.00	10.00	0.00
7,100.00	86.70	89.65	6,305.15	-1,349.05	-1,971.56	-330.24	193.69	10.00	10.00	0.00
BPI: 1169ft FSL & 300ft FWL of Sec 22 - NIOBRARA B LP										
7,133.05	90.00	89.65	6,306.10	-1,350.00	-1,971.36	-297.22	225.53	10.00	10.00	0.00
7,200.00	90.00	89.65	6,306.10	-1,350.00	-1,970.95	-230.26	290.07	0.00	0.00	0.00
7,300.00	90.00	89.65	6,306.10	-1,350.00	-1,970.34	-130.27	386.47	0.00	0.00	0.00
7,400.00	90.00	89.65	6,306.10	-1,350.00	-1,969.73	-30.27	482.87	0.00	0.00	0.00
7,500.00	90.00	89.65	6,306.10	-1,350.00	-1,969.12	69.73	579.28	0.00	0.00	0.00
7,600.00	90.00	89.65	6,306.10	-1,350.00	-1,968.51	169.73	675.68	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well HALE FED 8-60 22-23-10
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4956.10usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4956.10usft
Site:	SW NW SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	HALE FED 8-60 22-23-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,700.00	90.00	89.65	6,306.10	-1,350.00	-1,967.90	269.73	772.08	0.00	0.00	0.00
7,800.00	90.00	89.65	6,306.10	-1,350.00	-1,967.29	369.72	868.48	0.00	0.00	0.00
7,900.00	90.00	89.65	6,306.10	-1,350.00	-1,966.68	469.72	964.88	0.00	0.00	0.00
8,000.00	90.00	89.65	6,306.10	-1,350.00	-1,966.07	569.72	1,061.28	0.00	0.00	0.00
8,100.00	90.00	89.65	6,306.10	-1,350.00	-1,965.46	669.72	1,157.68	0.00	0.00	0.00
8,200.00	90.00	89.65	6,306.10	-1,350.00	-1,964.85	769.72	1,254.08	0.00	0.00	0.00
8,300.00	90.00	89.65	6,306.09	-1,349.99	-1,964.24	869.72	1,350.48	0.00	0.00	0.00
8,400.00	90.00	89.65	6,306.09	-1,349.99	-1,963.63	969.71	1,446.88	0.00	0.00	0.00
8,500.00	90.00	89.65	6,306.09	-1,349.99	-1,963.02	1,069.71	1,543.28	0.00	0.00	0.00
8,600.00	90.00	89.65	6,306.09	-1,349.99	-1,962.41	1,169.71	1,639.69	0.00	0.00	0.00
8,700.00	90.00	89.65	6,306.09	-1,349.99	-1,961.80	1,269.71	1,736.09	0.00	0.00	0.00
8,800.00	90.00	89.65	6,306.09	-1,349.99	-1,961.20	1,369.71	1,832.49	0.00	0.00	0.00
8,900.00	90.00	89.65	6,306.09	-1,349.99	-1,960.59	1,469.70	1,928.89	0.00	0.00	0.00
9,000.00	90.00	89.65	6,306.09	-1,349.99	-1,959.98	1,569.70	2,025.29	0.00	0.00	0.00
9,100.00	90.00	89.65	6,306.09	-1,349.99	-1,959.37	1,669.70	2,121.69	0.00	0.00	0.00
9,200.00	90.00	89.65	6,306.09	-1,349.99	-1,958.76	1,769.70	2,218.09	0.00	0.00	0.00
9,300.00	90.00	89.65	6,306.09	-1,349.99	-1,958.15	1,869.70	2,314.49	0.00	0.00	0.00
9,400.00	90.00	89.65	6,306.09	-1,349.99	-1,957.54	1,969.69	2,410.89	0.00	0.00	0.00
EXIT COC76980										
9,491.57	90.00	89.65	6,306.09	-1,349.99	-1,956.98	2,061.26	2,499.17	0.00	0.00	0.00
9,500.00	90.00	89.65	6,306.09	-1,349.99	-1,956.93	2,069.69	2,507.29	0.00	0.00	0.00
9,600.00	90.00	89.65	6,306.09	-1,349.99	-1,956.32	2,169.69	2,603.70	0.00	0.00	0.00
9,700.00	90.00	89.65	6,306.09	-1,349.99	-1,955.71	2,269.69	2,700.10	0.00	0.00	0.00
9,800.00	90.00	89.65	6,306.09	-1,349.99	-1,955.10	2,369.69	2,796.50	0.00	0.00	0.00
9,900.00	90.00	89.65	6,306.09	-1,349.99	-1,954.49	2,469.69	2,892.90	0.00	0.00	0.00
10,000.00	90.00	89.65	6,306.09	-1,349.99	-1,953.88	2,569.68	2,989.30	0.00	0.00	0.00
10,100.00	90.00	89.65	6,306.09	-1,349.99	-1,953.28	2,669.68	3,085.70	0.00	0.00	0.00
10,200.00	90.00	89.65	6,306.09	-1,349.99	-1,952.67	2,769.68	3,182.10	0.00	0.00	0.00
10,300.00	90.00	89.65	6,306.09	-1,349.99	-1,952.06	2,869.68	3,278.50	0.00	0.00	0.00
10,400.00	90.00	89.65	6,306.09	-1,349.99	-1,951.45	2,969.68	3,374.90	0.00	0.00	0.00
10,500.00	90.00	89.65	6,306.09	-1,349.99	-1,950.84	3,069.67	3,471.31	0.00	0.00	0.00
10,600.00	90.00	89.65	6,306.09	-1,349.99	-1,950.23	3,169.67	3,567.71	0.00	0.00	0.00
10,700.00	90.00	89.65	6,306.09	-1,349.99	-1,949.62	3,269.67	3,664.11	0.00	0.00	0.00
10,800.00	90.00	89.65	6,306.09	-1,349.99	-1,949.01	3,369.67	3,760.51	0.00	0.00	0.00
10,900.00	90.00	89.65	6,306.09	-1,349.99	-1,948.41	3,469.67	3,856.91	0.00	0.00	0.00
11,000.00	90.00	89.65	6,306.09	-1,349.99	-1,947.80	3,569.67	3,953.31	0.00	0.00	0.00
11,100.00	90.00	89.65	6,306.09	-1,349.99	-1,947.19	3,669.66	4,049.71	0.00	0.00	0.00
11,200.00	90.00	89.65	6,306.09	-1,349.99	-1,946.58	3,769.66	4,146.11	0.00	0.00	0.00
11,300.00	90.00	89.65	6,306.09	-1,349.99	-1,945.97	3,869.66	4,242.52	0.00	0.00	0.00
11,400.00	90.00	89.65	6,306.09	-1,349.99	-1,945.36	3,969.66	4,338.92	0.00	0.00	0.00
11,500.00	90.00	89.65	6,306.09	-1,349.99	-1,944.76	4,069.66	4,435.32	0.00	0.00	0.00
11,600.00	90.00	89.65	6,306.09	-1,349.99	-1,944.15	4,169.65	4,531.72	0.00	0.00	0.00
11,700.00	90.00	89.65	6,306.09	-1,349.99	-1,943.54	4,269.65	4,628.12	0.00	0.00	0.00
11,800.00	90.00	89.65	6,306.09	-1,349.99	-1,942.93	4,369.65	4,724.52	0.00	0.00	0.00
11,900.00	90.00	89.65	6,306.09	-1,349.99	-1,942.32	4,469.65	4,820.92	0.00	0.00	0.00
12,000.00	90.00	89.65	6,306.09	-1,349.99	-1,941.72	4,569.65	4,917.33	0.00	0.00	0.00
12,100.00	90.00	89.65	6,306.09	-1,349.99	-1,941.11	4,669.64	5,013.73	0.00	0.00	0.00
12,200.00	90.00	89.65	6,306.09	-1,349.99	-1,940.50	4,769.64	5,110.13	0.00	0.00	0.00
12,300.00	90.00	89.65	6,306.09	-1,349.99	-1,939.89	4,869.64	5,206.53	0.00	0.00	0.00
12,400.00	90.00	89.65	6,306.09	-1,349.99	-1,939.28	4,969.64	5,302.93	0.00	0.00	0.00
12,500.00	90.00	89.65	6,306.09	-1,349.99	-1,938.68	5,069.64	5,399.33	0.00	0.00	0.00
12,600.00	90.00	89.65	6,306.09	-1,349.99	-1,938.07	5,169.64	5,495.73	0.00	0.00	0.00
12,700.00	90.00	89.65	6,306.09	-1,349.99	-1,937.46	5,269.63	5,592.14	0.00	0.00	0.00
12,800.00	90.00	89.65	6,306.09	-1,349.99	-1,936.85	5,369.63	5,688.54	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well HALE FED 8-60 22-23-10
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4956.10usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4956.10usft
Site:	SW NW SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	HALE FED 8-60 22-23-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,900.00	90.00	89.65	6,306.09	-1,349.99	-1,936.25	5,469.63	5,784.94	0.00	0.00	0.00
13,000.00	90.00	89.65	6,306.09	-1,349.99	-1,935.64	5,569.63	5,881.34	0.00	0.00	0.00
13,100.00	90.00	89.65	6,306.09	-1,349.99	-1,935.03	5,669.63	5,977.74	0.00	0.00	0.00
13,200.00	90.00	89.65	6,306.09	-1,349.99	-1,934.42	5,769.62	6,074.14	0.00	0.00	0.00
13,300.00	90.00	89.65	6,306.09	-1,349.99	-1,933.82	5,869.62	6,170.55	0.00	0.00	0.00
13,400.00	90.00	89.65	6,306.10	-1,350.00	-1,933.21	5,969.62	6,266.95	0.00	0.00	0.00
13,500.00	90.00	89.65	6,306.10	-1,350.00	-1,932.60	6,069.62	6,363.35	0.00	0.00	0.00
13,600.00	90.00	89.65	6,306.10	-1,350.00	-1,932.00	6,169.62	6,459.75	0.00	0.00	0.00
13,700.00	90.00	89.65	6,306.10	-1,350.00	-1,931.39	6,269.62	6,556.15	0.00	0.00	0.00
13,800.00	90.00	89.65	6,306.10	-1,350.00	-1,930.78	6,369.61	6,652.55	0.00	0.00	0.00
13,900.00	90.00	89.65	6,306.10	-1,350.00	-1,930.17	6,469.61	6,748.96	0.00	0.00	0.00
14,000.00	90.00	89.65	6,306.10	-1,350.00	-1,929.57	6,569.61	6,845.36	0.00	0.00	0.00
14,100.00	90.00	89.65	6,306.10	-1,350.00	-1,928.96	6,669.61	6,941.76	0.00	0.00	0.00
14,200.00	90.00	89.65	6,306.10	-1,350.00	-1,928.35	6,769.61	7,038.16	0.00	0.00	0.00
14,300.00	90.00	89.65	6,306.10	-1,350.00	-1,927.75	6,869.60	7,134.56	0.00	0.00	0.00
14,400.00	90.00	89.65	6,306.10	-1,350.00	-1,927.14	6,969.60	7,230.96	0.00	0.00	0.00
EPI: 1175ft FSL & 2350ft FWL of Sec 23										
14,483.41	90.00	89.65	6,306.10	-1,350.00	-1,926.63	7,053.01	7,311.37	0.00	0.00	0.00
EOT TO 89.56° AZ										
14,486.35	90.00	89.56	6,306.10	-1,350.00	-1,926.61	7,055.95	7,314.21	3.00	0.01	-3.00
14,500.00	90.00	89.56	6,306.10	-1,350.00	-1,926.51	7,069.60	7,327.36	0.00	0.00	0.00
BHL: 1175ft FSL & 2450ft FWL of Sec 23										
14,583.32	90.00	89.56	6,306.10	-1,350.00	-1,925.88	7,152.91	7,407.64	0.00	0.00	0.00

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
516.31	516.10	PIERRE SHALE (BASE FOX HILLS)				
3,835.80	3,506.10	PARKMAN				
4,432.67	4,026.10	SUSSEX				
5,173.14	4,691.10	SHANNON				
6,639.16	6,106.10	SHARON SPRINGS SHALE				
6,739.38	6,176.10	NIOBRARA FORMATION				
6,755.42	6,186.10	NIOBRARA A CHALK				
6,946.81	6,276.10	NIOBRARA B CHALK				
7,133.05	6,306.10	NIOBRARA B LP		0.00		

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well HALE FED 8-60 22-23-10
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4956.10usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4956.10usft
Site:	SW NW SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	HALE FED 8-60 22-23-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3		

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.00	0.00	0.00	0.00	SHL: 2160ft FNL & 560ft FWL of Sec 22
300.00	300.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1,769.97	1,706.31	-337.61	-148.76	EOB TO 29.4° INC
4,663.07	4,226.83	-1,637.25	-721.41	END OF TANGENT
6,133.04	5,633.14	-1,974.86	-870.17	EOD TO VERTICAL
6,233.04	5,733.14	-1,974.86	-870.17	KOP (10°/100ft BUR)
7,133.05	6,306.10	-1,971.36	-297.21	BPI: 1169ft FSL & 300ft FWL of Sec 22
9,491.57	6,306.09	-1,956.98	2,061.26	EXIT COC76980
14,483.41	6,306.10	-1,926.63	7,053.01	EPI: 1175ft FSL & 2350ft FWL of Sec 23
14,486.35	6,306.10	-1,926.61	7,055.95	EOT TO 89.56° AZ
14,583.32	6,306.10	-1,925.88	7,152.91	BHL: 1175ft FSL & 2450ft FWL of Sec 23