

BISON OIL & GAS II, LLC

WELD COUNTY, COLORADO (NAD 83)

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

HALE FED 8-60 22-23-11

ORIGINAL WELLBORE

29 May, 2019

Plan: PROPOSAL #3



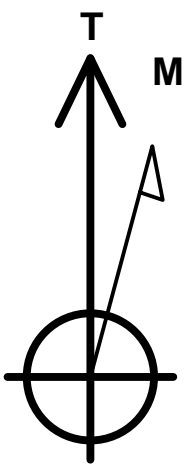
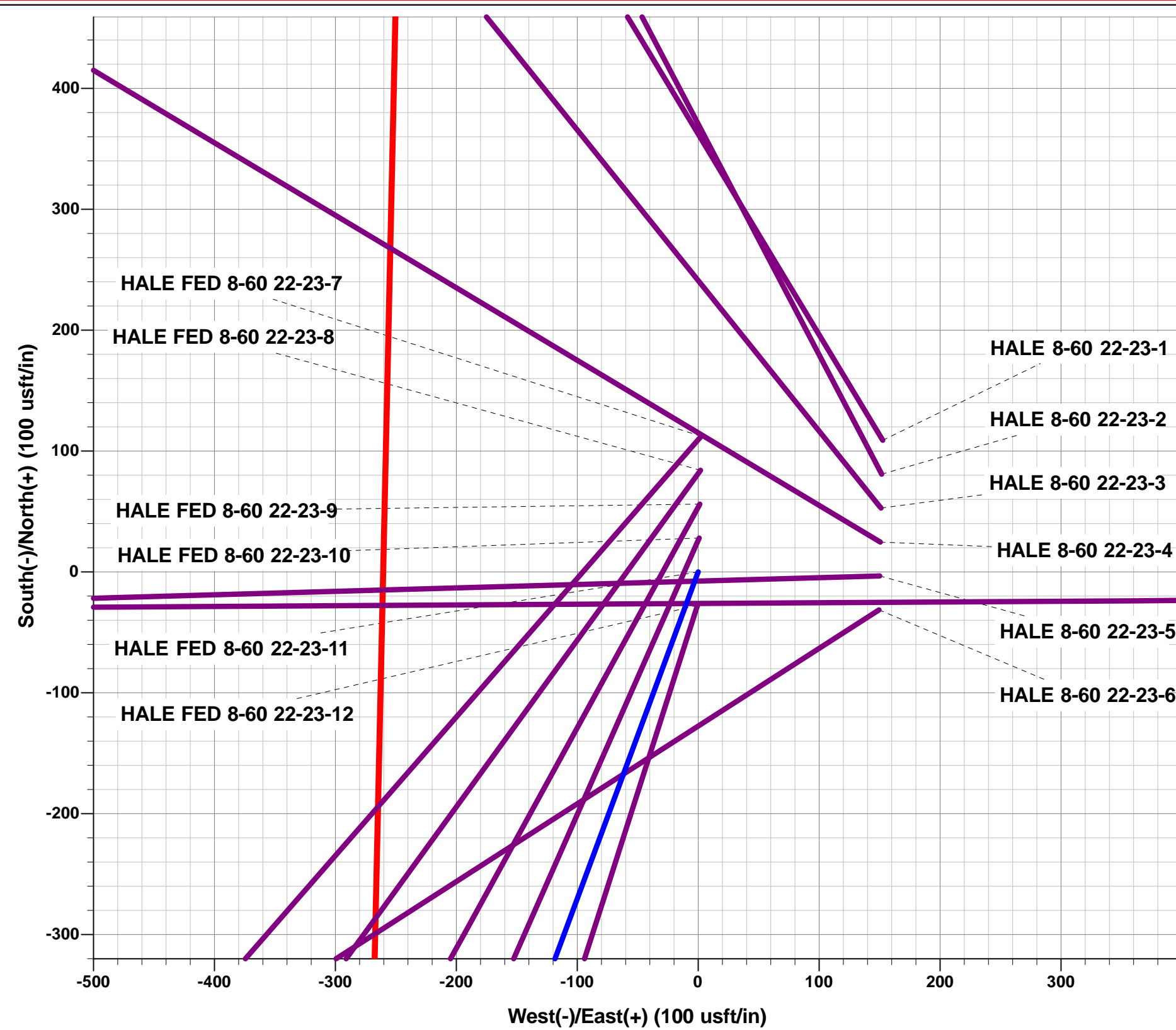
Project: WELD COUNTY, COLORADO (NAD 83)
Site: SW NW SEC. 22 T8N R60W 6th P.M.
Well: HALE FED 8-60 22-23-11
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #3

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: 2188ft FNL & 560ft FWL of Sec 22
200.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2.5°/100ft BUR)
1369.78	1427.65	30.69	200.29	-301.10	-111.31	-12.76	321.02	EOB TO 30.69° INC
4548.67	5124.33	30.69	200.29	-2070.88	-765.52	-87.74	2207.84	END OF TANGENT
5718.44	6351.98	0.00	0.00	-2371.98	-876.83	-100.50	2528.85	EOD TO VERTICAL
5818.44	6451.98	0.00	0.00	-2371.98	-876.83	-100.50	2528.85	KOP (10°/100ft BUR)
6391.40	7351.98	90.00	89.65	-2368.47	-303.88	443.29	3101.82	BPI: 744ft FSL & 300ft FWL of Sec 22
6391.41	9711.94	90.00	89.65	-2354.03	2056.04	2683.12	5461.78	EXIT COC76980
6391.40	14701.36	90.00	89.65	-2323.38	7045.36	7418.51	10451.20	EPI: 750ft FSL & 2350ft FWL of Sec 23
6391.40	14705.70	90.00	89.78	-2323.36	7049.70	7422.63	10455.54	EOT TO 89.78° AZ
6391.40	14801.27	90.00	89.78	-2322.99	7145.27	7513.40	10551.10	BHL: 750ft FSL & 2450ft FWL of Sec 23

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - HALE FED 8-60 22-23-11 (P3)	5818.44	-2371.98	-876.83	40.642591	-104.088155
BPI - HALE FED 8-60 22-23-11 (P3)	6391.40	-2368.47	-303.88	40.642601	-104.086090
EPI - HALE FED 8-60 22-23-11 (P3)	6391.40	-2323.38	7045.36	40.642722	-104.059608
BHL - HALE FED 8-60 22-23-11 (P3)	6391.40	-2322.99	7145.27	40.642723	-104.059248



Azimuths to True North
Magnetic North: 7.66°

Magnetic Field
Strength: 52366.4snT
Dip Angle: 67.10°
Date: 29/05/2019
Model: IGRF2015

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
516.40	517.41	P SHALE (BASE FOX HILLS)
3506.40	3912.29	PARKMAN
4026.40	4516.99	SUSSEX
4691.40	5287.02	SHANNON
6106.40	6753.69	SHARON SPRINGS SHALE
6176.40	6838.62	NIOBRARA FORMATION
6186.40	6851.54	NIOBRARA A CHALK
6276.40	6982.60	NIOBRARA B CHALK
6356.40	7150.68	NIOBRARA C CHALK
6391.40	7351.98	NIOBRARA C LP

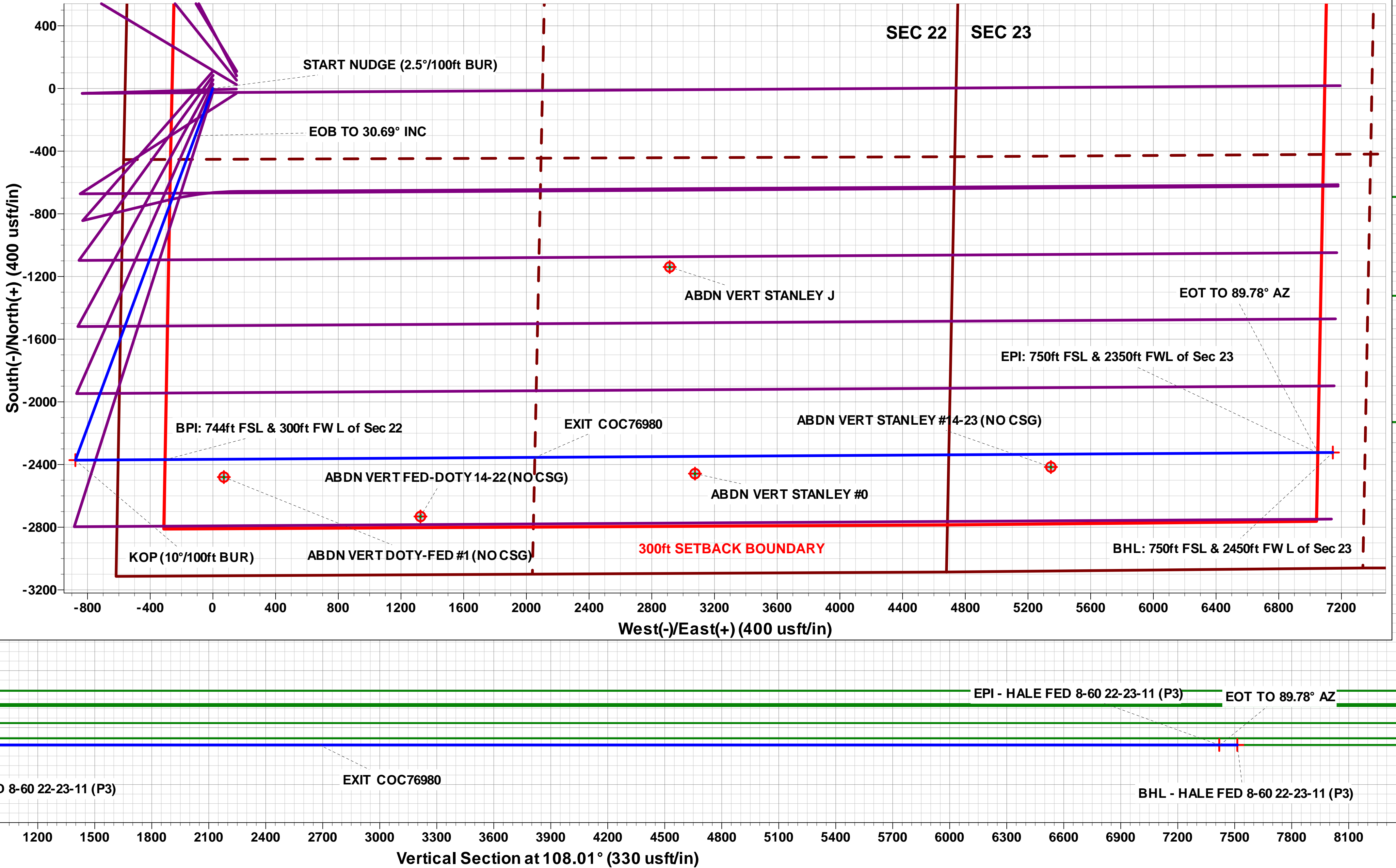
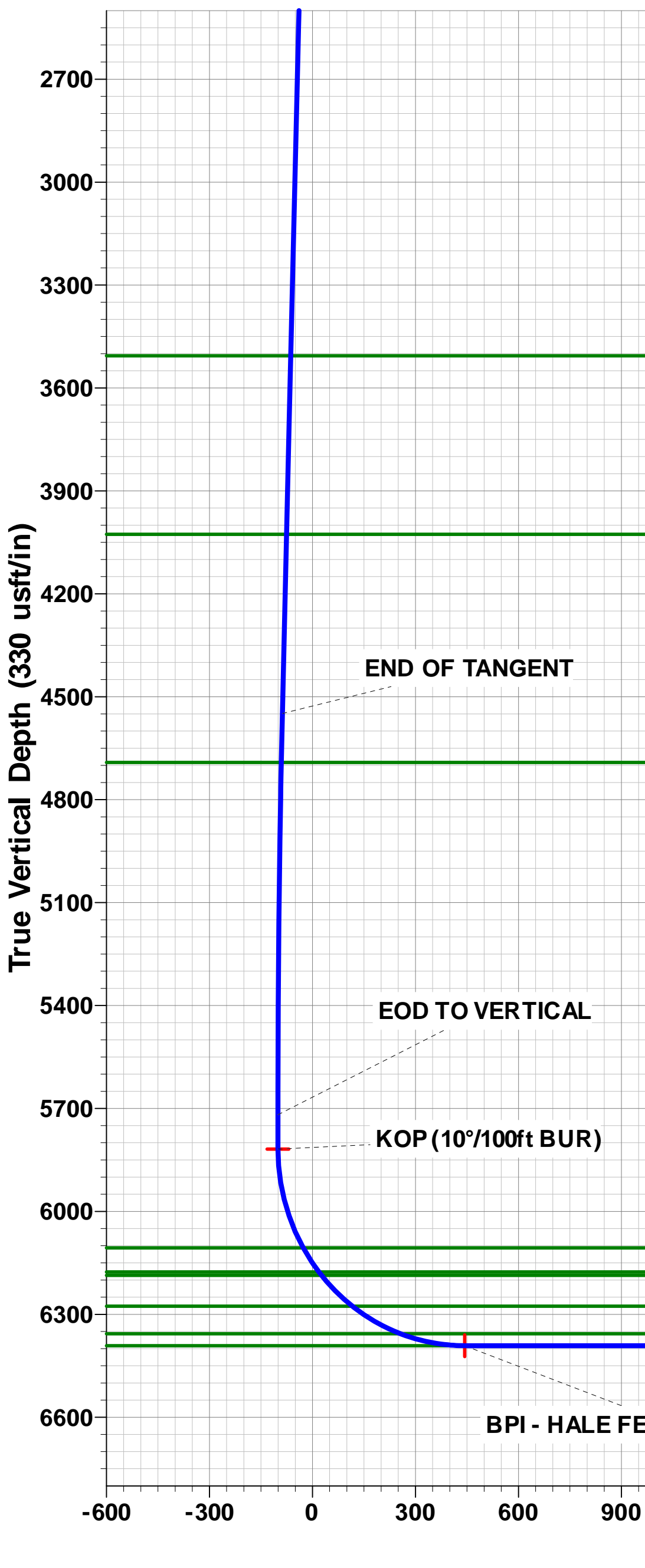
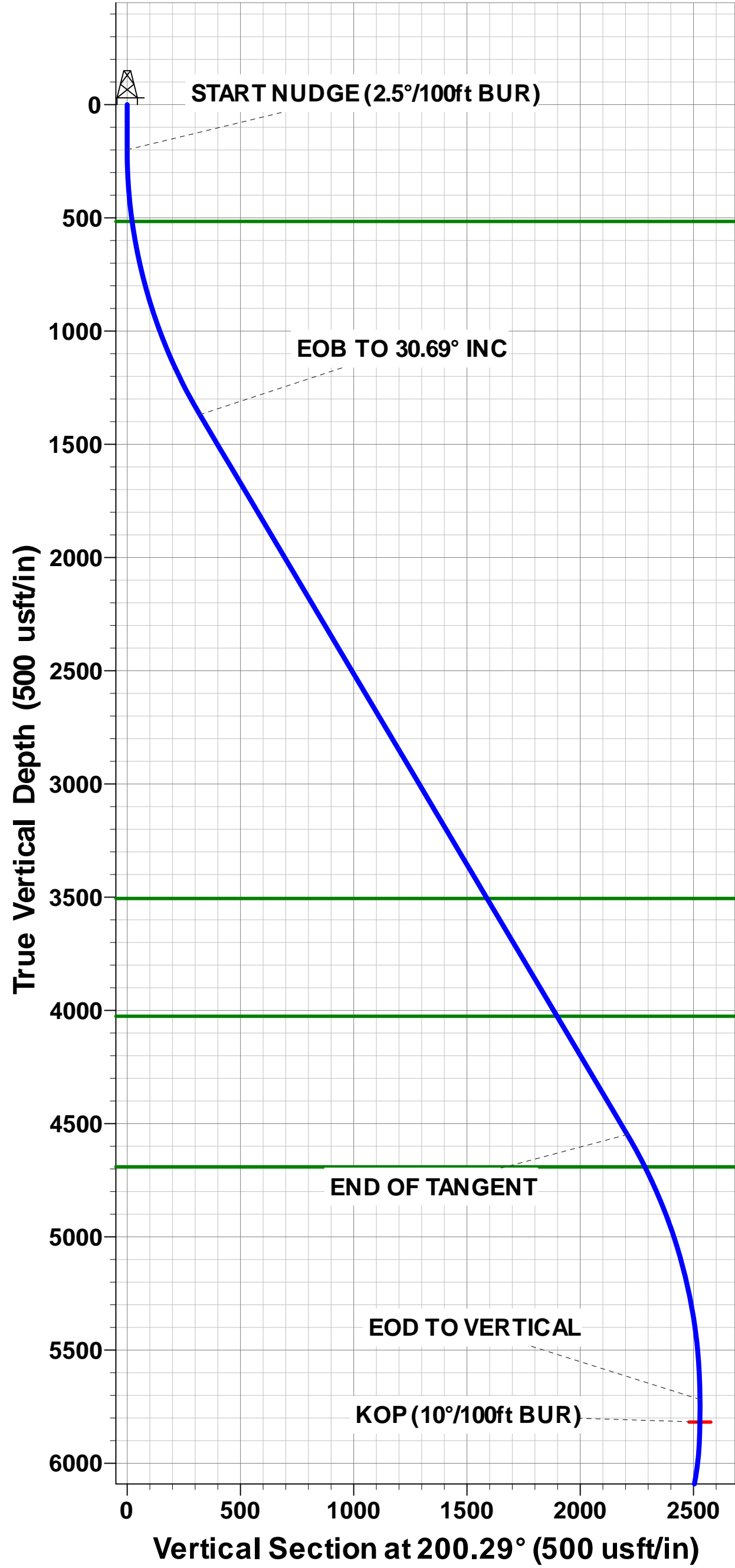
PROPOSED LOCAL COORDINATES:

SHL: 2188ft FNL & 560ft FWL of Sec 22

BEGIN PROD INT: 744ft FSL & 300ft FWL of Sec 22

END PROD INTERVAL: 750ft FSL & 2350ft FWL of Sec 23

BHL: 750ft FSL & 2450ft FWL of Sec 23



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well HALE FED 8-60 22-23-11
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4956.40usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4956.40usft
Site:	SW NW SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	HALE FED 8-60 22-23-11	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 22-23-11					
Well Position	+N/-S	-165.41 usft	Northing:	1,482,442.93 usfi	Latitude:	40.649102
	+E/-W	-153.45 usft	Easting:	3,392,628.77 usfi	Longitude:	-104.084995
Position Uncertainty		0.00 usft	Wellhead Elevation:	usfi	Ground Level:	4,931.40 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 (°)
	6,391.40	0.00	0.00	108.01

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	-4,956.40	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	-4,756.40	0.00	0.00	0.00	0.00	0.00	0.00	
1,427.65	30.69	200.29	1,369.78	-3,586.62	-301.10	-111.31	2.50	2.50	0.00	200.29	
5,124.33	30.69	200.29	4,548.66	-407.74	-2,070.88	-765.52	0.00	0.00	0.00	0.00	
6,351.98	0.00	0.00	5,718.44	762.04	-2,371.98	-876.83	2.50	-2.50	0.00	180.00	
6,451.98	0.00	0.00	5,818.44	862.04	-2,371.98	-876.83	0.00	0.00	0.00	0.00	KOP - HALE FED 8
7,351.98	90.00	89.65	6,391.40	1,435.00	-2,368.48	-303.88	10.00	10.00	9.96	89.65	BPI - HALE FED 8-
14,701.36	90.00	89.65	6,391.40	1,435.00	-2,323.39	7,045.36	0.00	0.00	0.00	-79.52	EPI - HALE FED 8-
14,705.70	90.00	89.78	6,391.40	1,435.00	-2,323.37	7,049.70	3.00	-0.01	3.00	90.11	
14,801.27	90.00	89.78	6,391.40	1,435.00	-2,323.00	7,145.27	0.00	0.00	0.00	0.00	BHL - HALE FED 8

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well HALE FED 8-60 22-23-11
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4956.40usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4956.40usft
Site:	SW NW SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	HALE FED 8-60 22-23-11	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: 2188ft FNL & 560ft FWL of Sec 22										
0.00	0.00	0.00	0.00	4,956.40	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,856.40	0.00	0.00	0.00	0.00	0.00	0.00
START NUDGE (2.5°/100ft BUR)										
200.00	0.00	0.00	200.00	4,756.40	0.00	0.00	0.00	0.00	0.00	0.00
300.00	2.50	200.29	299.97	4,656.43	-2.05	-0.76	-0.09	2.50	2.50	0.00
400.00	5.00	200.29	399.75	4,556.65	-8.18	-3.02	-0.35	2.50	2.50	0.00
500.00	7.50	200.29	499.14	4,457.26	-18.39	-6.80	-0.78	2.50	2.50	0.00
PIERRE SHALE (BASE FOX HILLS)										
517.41	7.94	200.29	516.40	4,440.00	-20.58	-7.61	-0.87	2.50	2.50	0.00
600.00	10.00	200.29	597.97	4,358.43	-32.66	-12.07	-1.38	2.50	2.50	0.00
700.00	12.50	200.29	696.04	4,260.36	-50.96	-18.84	-2.16	2.50	2.50	0.00
800.00	15.00	200.29	793.17	4,163.23	-73.25	-27.08	-3.10	2.50	2.50	0.00
900.00	17.50	200.29	889.17	4,067.23	-99.49	-36.78	-4.22	2.50	2.50	0.00
1,000.00	20.00	200.29	983.85	3,972.55	-129.64	-47.92	-5.49	2.50	2.50	0.00
1,100.00	22.50	200.29	1,077.05	3,879.35	-163.63	-60.49	-6.93	2.50	2.50	0.00
1,200.00	25.00	200.29	1,168.57	3,787.83	-201.41	-74.45	-8.53	2.50	2.50	0.00
1,300.00	27.50	200.29	1,258.25	3,698.15	-242.89	-89.79	-10.29	2.50	2.50	0.00
1,400.00	30.00	200.29	1,345.92	3,610.48	-288.00	-106.46	-12.20	2.50	2.50	0.00
EOB TO 30.69° INC										
1,427.65	30.69	200.29	1,369.78	3,586.62	-301.10	-111.31	-12.76	2.50	2.50	0.00
1,500.00	30.69	200.29	1,431.99	3,524.41	-335.74	-124.11	-14.22	0.00	0.00	0.00
1,600.00	30.69	200.29	1,517.99	3,438.41	-383.61	-141.81	-16.25	0.00	0.00	0.00
1,700.00	30.69	200.29	1,603.98	3,352.42	-431.49	-159.50	-18.28	0.00	0.00	0.00
1,800.00	30.69	200.29	1,689.97	3,266.43	-479.36	-177.20	-20.31	0.00	0.00	0.00
1,900.00	30.69	200.29	1,775.97	3,180.43	-527.24	-194.90	-22.34	0.00	0.00	0.00
2,000.00	30.69	200.29	1,861.96	3,094.44	-575.11	-212.60	-24.37	0.00	0.00	0.00
2,100.00	30.69	200.29	1,947.95	3,008.45	-622.99	-230.29	-26.40	0.00	0.00	0.00
2,200.00	30.69	200.29	2,033.94	2,922.46	-670.86	-247.99	-28.42	0.00	0.00	0.00
2,300.00	30.69	200.29	2,119.94	2,836.46	-718.74	-265.69	-30.45	0.00	0.00	0.00
2,400.00	30.69	200.29	2,205.93	2,750.47	-766.61	-283.39	-32.48	0.00	0.00	0.00
2,500.00	30.69	200.29	2,291.92	2,664.48	-814.49	-301.08	-34.51	0.00	0.00	0.00
2,600.00	30.69	200.29	2,377.92	2,578.48	-862.36	-318.78	-36.54	0.00	0.00	0.00
2,700.00	30.69	200.29	2,463.91	2,492.49	-910.24	-336.48	-38.57	0.00	0.00	0.00
2,800.00	30.69	200.29	2,549.90	2,406.50	-958.11	-354.18	-40.59	0.00	0.00	0.00
2,900.00	30.69	200.29	2,635.90	2,320.50	-1,005.99	-371.87	-42.62	0.00	0.00	0.00
3,000.00	30.69	200.29	2,721.89	2,234.51	-1,053.86	-389.57	-44.65	0.00	0.00	0.00
3,100.00	30.69	200.29	2,807.88	2,148.52	-1,101.74	-407.27	-46.68	0.00	0.00	0.00
3,200.00	30.69	200.29	2,893.88	2,062.52	-1,149.61	-424.97	-48.71	0.00	0.00	0.00
3,300.00	30.69	200.29	2,979.87	1,976.53	-1,197.49	-442.66	-50.74	0.00	0.00	0.00
3,400.00	30.69	200.29	3,065.86	1,890.54	-1,245.36	-460.36	-52.76	0.00	0.00	0.00
3,500.00	30.69	200.29	3,151.85	1,804.55	-1,293.23	-478.06	-54.79	0.00	0.00	0.00
3,600.00	30.69	200.29	3,237.85	1,718.55	-1,341.11	-495.76	-56.82	0.00	0.00	0.00
3,700.00	30.69	200.29	3,323.84	1,632.56	-1,388.98	-513.45	-58.85	0.00	0.00	0.00
3,800.00	30.69	200.29	3,409.83	1,546.57	-1,436.86	-531.15	-60.88	0.00	0.00	0.00
3,900.00	30.69	200.29	3,495.83	1,460.57	-1,484.73	-548.85	-62.91	0.00	0.00	0.00
PARKMAN										
3,912.30	30.69	200.29	3,506.40	1,450.00	-1,490.62	-551.03	-63.16	0.00	0.00	0.00
4,000.00	30.69	200.29	3,581.82	1,374.58	-1,532.61	-566.55	-64.94	0.00	0.00	0.00
4,100.00	30.69	200.29	3,667.81	1,288.59	-1,580.48	-584.24	-66.96	0.00	0.00	0.00
4,200.00	30.69	200.29	3,753.81	1,202.59	-1,628.36	-601.94	-68.99	0.00	0.00	0.00
4,300.00	30.69	200.29	3,839.80	1,116.60	-1,676.23	-619.64	-71.02	0.00	0.00	0.00
4,400.00	30.69	200.29	3,925.79	1,030.61	-1,724.11	-637.34	-73.05	0.00	0.00	0.00
4,500.00	30.69	200.29	4,011.78	944.62	-1,771.98	-655.03	-75.08	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well HALE FED 8-60 22-23-11
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4956.40usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4956.40usft
Site:	SW NW SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	HALE FED 8-60 22-23-11	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										
4,517.00	30.69	200.29	4,026.40	930.00	-1,780.12	-658.04	-75.42	0.00	0.00	0.00
4,600.00	30.69	200.29	4,097.78	858.62	-1,819.86	-672.73	-77.11	0.00	0.00	0.00
4,700.00	30.69	200.29	4,183.77	772.63	-1,867.73	-690.43	-79.13	0.00	0.00	0.00
4,800.00	30.69	200.29	4,269.76	686.64	-1,915.61	-708.13	-81.16	0.00	0.00	0.00
4,900.00	30.69	200.29	4,355.76	600.64	-1,963.48	-725.82	-83.19	0.00	0.00	0.00
5,000.00	30.69	200.29	4,441.75	514.65	-2,011.36	-743.52	-85.22	0.00	0.00	0.00
5,100.00	30.69	200.29	4,527.74	428.66	-2,059.23	-761.22	-87.25	0.00	0.00	0.00
END OF TANGENT										
5,124.33	30.69	200.29	4,548.67	407.73	-2,070.88	-765.52	-87.74	0.00	0.00	0.00
5,200.00	28.80	200.29	4,614.36	342.04	-2,106.09	-778.54	-89.23	2.50	-2.50	0.00
SHANNON										
5,287.02	26.62	200.29	4,691.40	265.00	-2,144.05	-792.57	-90.84	2.50	-2.50	0.00
5,300.00	26.30	200.29	4,703.02	253.38	-2,149.47	-794.58	-91.07	2.50	-2.50	0.00
5,400.00	23.80	200.29	4,793.60	162.80	-2,189.18	-809.26	-92.75	2.50	-2.50	0.00
5,500.00	21.30	200.29	4,885.95	70.45	-2,225.15	-822.55	-94.28	2.50	-2.50	0.00
5,600.00	18.80	200.29	4,979.88	-23.48	-2,257.30	-834.44	-95.64	2.50	-2.50	0.00
5,700.00	16.30	200.29	5,075.22	-118.82	-2,285.58	-844.89	-96.84	2.50	-2.50	0.00
5,800.00	13.80	200.29	5,171.78	-215.38	-2,309.93	-853.89	-97.87	2.50	-2.50	0.00
5,900.00	11.30	200.29	5,269.39	-312.99	-2,330.31	-861.43	-98.73	2.50	-2.50	0.00
6,000.00	8.80	200.29	5,367.84	-411.44	-2,346.68	-867.48	-99.43	2.50	-2.50	0.00
6,100.00	6.30	200.29	5,466.97	-510.57	-2,359.00	-872.03	-99.95	2.50	-2.50	0.00
6,200.00	3.80	200.29	5,566.57	-610.17	-2,367.26	-875.08	-100.30	2.50	-2.50	0.00
6,300.00	1.30	200.29	5,666.47	-710.07	-2,371.43	-876.63	-100.48	2.50	-2.50	0.00
EOD TO VERTICAL										
6,351.98	0.00	0.00	5,718.44	-762.04	-2,371.98	-876.83	-100.50	2.50	-2.50	0.00
6,400.00	0.00	0.00	5,766.46	-810.06	-2,371.98	-876.83	-100.50	0.00	0.00	0.00
KOP (10°/100ft BUR)										
6,451.98	0.00	0.00	5,818.44	-862.04	-2,371.98	-876.83	-100.50	0.00	0.00	0.00
6,500.00	4.80	89.65	5,866.41	-910.01	-2,371.97	-874.82	-98.59	10.00	10.00	0.00
6,600.00	14.80	89.65	5,964.82	-1,008.42	-2,371.86	-857.82	-82.45	10.00	10.00	0.00
6,700.00	24.80	89.65	6,058.79	-1,102.39	-2,371.66	-823.98	-50.34	10.00	10.00	0.00
SHARON SPRINGS SHALE										
6,753.69	30.17	89.65	6,106.40	-1,150.00	-2,371.51	-799.21	-26.83	10.00	10.00	0.00
6,800.00	34.80	89.65	6,145.45	-1,189.05	-2,371.35	-774.35	-3.23	10.00	10.00	0.00
NIOBRARA FORMATION										
6,838.62	38.66	89.65	6,176.40	-1,220.00	-2,371.21	-751.25	18.69	10.00	10.00	0.00
NIOBRARA A CHALK										
6,851.55	39.96	89.65	6,186.40	-1,230.00	-2,371.16	-743.06	26.46	10.00	10.00	0.00
6,900.00	44.80	89.65	6,222.18	-1,265.78	-2,370.96	-710.41	57.45	10.00	10.00	0.00
NIOBRARA B CHALK										
6,982.60	53.06	89.65	6,276.40	-1,320.00	-2,370.58	-648.19	116.50	10.00	10.00	0.00
7,000.00	54.80	89.65	6,286.64	-1,330.24	-2,370.50	-634.13	129.85	10.00	10.00	0.00
7,100.00	64.80	89.65	6,336.88	-1,380.48	-2,369.97	-547.81	211.78	10.00	10.00	0.00
NIOBRARA C CHALK										
7,150.68	69.87	89.65	6,356.40	-1,400.00	-2,369.68	-501.06	256.15	10.00	10.00	0.00
7,200.00	74.80	89.65	6,371.36	-1,414.96	-2,369.40	-454.08	300.74	10.00	10.00	0.00
7,300.00	84.80	89.65	6,389.04	-1,432.64	-2,368.80	-355.79	394.03	10.00	10.00	0.00
BPI: 744ft FSL & 300ft FWL of Sec 22 - NIOBRARA C LP										
7,351.98	90.00	89.65	6,391.40	-1,435.00	-2,368.48	-303.88	443.29	10.00	10.00	0.00
7,400.00	90.00	89.65	6,391.40	-1,435.00	-2,368.19	-255.86	488.87	0.00	0.00	0.00
7,500.00	90.00	89.65	6,391.40	-1,435.00	-2,367.57	-155.86	583.78	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well HALE FED 8-60 22-23-11
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4956.40usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4956.40usft
Site:	SW NW SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	HALE FED 8-60 22-23-11	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)
7,600.00	90.00	89.65	6,391.40	-1,435.00	-2,366.96	-55.87	678.69	0.00	0.00	0.00
7,700.00	90.00	89.65	6,391.40	-1,435.00	-2,366.35	44.13	773.60	0.00	0.00	0.00
7,800.00	90.00	89.65	6,391.40	-1,435.00	-2,365.74	144.13	868.51	0.00	0.00	0.00
7,900.00	90.00	89.65	6,391.40	-1,435.00	-2,365.13	244.13	963.42	0.00	0.00	0.00
8,000.00	90.00	89.65	6,391.40	-1,435.00	-2,364.52	344.13	1,058.33	0.00	0.00	0.00
8,100.00	90.00	89.65	6,391.40	-1,435.00	-2,363.91	444.12	1,153.24	0.00	0.00	0.00
8,200.00	90.00	89.65	6,391.40	-1,435.00	-2,363.29	544.12	1,248.15	0.00	0.00	0.00
8,300.00	90.00	89.65	6,391.40	-1,435.00	-2,362.68	644.12	1,343.06	0.00	0.00	0.00
8,400.00	90.00	89.65	6,391.40	-1,435.00	-2,362.07	744.12	1,437.97	0.00	0.00	0.00
8,500.00	90.00	89.65	6,391.40	-1,435.00	-2,361.46	844.12	1,532.87	0.00	0.00	0.00
8,600.00	90.00	89.65	6,391.40	-1,435.00	-2,360.85	944.12	1,627.78	0.00	0.00	0.00
8,700.00	90.00	89.65	6,391.40	-1,435.00	-2,360.23	1,044.11	1,722.69	0.00	0.00	0.00
8,800.00	90.00	89.65	6,391.41	-1,435.01	-2,359.62	1,144.11	1,817.60	0.00	0.00	0.00
8,900.00	90.00	89.65	6,391.41	-1,435.01	-2,359.01	1,244.11	1,912.51	0.00	0.00	0.00
9,000.00	90.00	89.65	6,391.41	-1,435.01	-2,358.40	1,344.11	2,007.42	0.00	0.00	0.00
9,100.00	90.00	89.65	6,391.41	-1,435.01	-2,357.79	1,444.11	2,102.33	0.00	0.00	0.00
9,200.00	90.00	89.65	6,391.41	-1,435.01	-2,357.17	1,544.10	2,197.24	0.00	0.00	0.00
9,300.00	90.00	89.65	6,391.41	-1,435.01	-2,356.56	1,644.10	2,292.15	0.00	0.00	0.00
9,400.00	90.00	89.65	6,391.41	-1,435.01	-2,355.95	1,744.10	2,387.06	0.00	0.00	0.00
9,500.00	90.00	89.65	6,391.41	-1,435.01	-2,355.34	1,844.10	2,481.97	0.00	0.00	0.00
9,600.00	90.00	89.65	6,391.41	-1,435.01	-2,354.72	1,944.10	2,576.88	0.00	0.00	0.00
9,700.00	90.00	89.65	6,391.41	-1,435.01	-2,354.11	2,044.09	2,671.79	0.00	0.00	0.00
EXIT COC76980										
9,711.94	90.00	89.65	6,391.41	-1,435.01	-2,354.04	2,056.03	2,683.12	0.00	0.00	0.00
9,800.00	90.00	89.65	6,391.41	-1,435.01	-2,353.50	2,144.09	2,766.70	0.00	0.00	0.00
9,900.00	90.00	89.65	6,391.41	-1,435.01	-2,352.89	2,244.09	2,861.60	0.00	0.00	0.00
10,000.00	90.00	89.65	6,391.41	-1,435.01	-2,352.27	2,344.09	2,956.51	0.00	0.00	0.00
10,100.00	90.00	89.65	6,391.41	-1,435.01	-2,351.66	2,444.09	3,051.42	0.00	0.00	0.00
10,200.00	90.00	89.65	6,391.41	-1,435.01	-2,351.05	2,544.09	3,146.33	0.00	0.00	0.00
10,300.00	90.00	89.65	6,391.41	-1,435.01	-2,350.43	2,644.08	3,241.24	0.00	0.00	0.00
10,400.00	90.00	89.65	6,391.41	-1,435.01	-2,349.82	2,744.08	3,336.15	0.00	0.00	0.00
10,500.00	90.00	89.65	6,391.41	-1,435.01	-2,349.21	2,844.08	3,431.06	0.00	0.00	0.00
10,600.00	90.00	89.65	6,391.41	-1,435.01	-2,348.59	2,944.08	3,525.97	0.00	0.00	0.00
10,700.00	90.00	89.65	6,391.41	-1,435.01	-2,347.98	3,044.08	3,620.88	0.00	0.00	0.00
10,800.00	90.00	89.65	6,391.41	-1,435.01	-2,347.37	3,144.07	3,715.79	0.00	0.00	0.00
10,900.00	90.00	89.65	6,391.41	-1,435.01	-2,346.75	3,244.07	3,810.69	0.00	0.00	0.00
11,000.00	90.00	89.65	6,391.41	-1,435.01	-2,346.14	3,344.07	3,905.60	0.00	0.00	0.00
11,100.00	90.00	89.65	6,391.41	-1,435.01	-2,345.53	3,444.07	4,000.51	0.00	0.00	0.00
11,200.00	90.00	89.65	6,391.41	-1,435.01	-2,344.91	3,544.07	4,095.42	0.00	0.00	0.00
11,300.00	90.00	89.65	6,391.41	-1,435.01	-2,344.30	3,644.06	4,190.33	0.00	0.00	0.00
11,400.00	90.00	89.65	6,391.41	-1,435.01	-2,343.69	3,744.06	4,285.24	0.00	0.00	0.00
11,500.00	90.00	89.65	6,391.41	-1,435.01	-2,343.07	3,844.06	4,380.15	0.00	0.00	0.00
11,600.00	90.00	89.65	6,391.41	-1,435.01	-2,342.46	3,944.06	4,475.06	0.00	0.00	0.00
11,700.00	90.00	89.65	6,391.41	-1,435.01	-2,341.85	4,044.06	4,569.96	0.00	0.00	0.00
11,800.00	90.00	89.65	6,391.41	-1,435.01	-2,341.23	4,144.06	4,664.87	0.00	0.00	0.00
11,900.00	90.00	89.65	6,391.41	-1,435.01	-2,340.62	4,244.05	4,759.78	0.00	0.00	0.00
12,000.00	90.00	89.65	6,391.41	-1,435.01	-2,340.00	4,344.05	4,854.69	0.00	0.00	0.00
12,100.00	90.00	89.65	6,391.41	-1,435.01	-2,339.39	4,444.05	4,949.60	0.00	0.00	0.00
12,200.00	90.00	89.65	6,391.41	-1,435.01	-2,338.77	4,544.05	5,044.51	0.00	0.00	0.00
12,300.00	90.00	89.65	6,391.41	-1,435.01	-2,338.16	4,644.05	5,139.42	0.00	0.00	0.00
12,400.00	90.00	89.65	6,391.41	-1,435.01	-2,337.55	4,744.04	5,234.33	0.00	0.00	0.00
12,500.00	90.00	89.65	6,391.41	-1,435.01	-2,336.93	4,844.04	5,329.23	0.00	0.00	0.00
12,600.00	90.00	89.65	6,391.41	-1,435.01	-2,336.32	4,944.04	5,424.14	0.00	0.00	0.00
12,700.00	90.00	89.65	6,391.41	-1,435.01	-2,335.70	5,044.04	5,519.05	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well HALE FED 8-60 22-23-11
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4956.40usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4956.40usft
Site:	SW NW SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	HALE FED 8-60 22-23-11	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)
12,800.00	90.00	89.65	6,391.41	-1,435.01	-2,335.09	5,144.04	5,613.96	0.00	0.00	0.00
12,900.00	90.00	89.65	6,391.41	-1,435.01	-2,334.47	5,244.03	5,708.87	0.00	0.00	0.00
13,000.00	90.00	89.65	6,391.41	-1,435.01	-2,333.86	5,344.03	5,803.78	0.00	0.00	0.00
13,100.00	90.00	89.65	6,391.41	-1,435.01	-2,333.24	5,444.03	5,898.68	0.00	0.00	0.00
13,200.00	90.00	89.65	6,391.41	-1,435.01	-2,332.63	5,544.03	5,993.59	0.00	0.00	0.00
13,300.00	90.00	89.65	6,391.41	-1,435.01	-2,332.01	5,644.03	6,088.50	0.00	0.00	0.00
13,400.00	90.00	89.65	6,391.40	-1,435.00	-2,331.40	5,744.03	6,183.41	0.00	0.00	0.00
13,500.00	90.00	89.65	6,391.40	-1,435.00	-2,330.78	5,844.02	6,278.32	0.00	0.00	0.00
13,600.00	90.00	89.65	6,391.40	-1,435.00	-2,330.17	5,944.02	6,373.23	0.00	0.00	0.00
13,700.00	90.00	89.65	6,391.40	-1,435.00	-2,329.55	6,044.02	6,468.14	0.00	0.00	0.00
13,800.00	90.00	89.65	6,391.40	-1,435.00	-2,328.94	6,144.02	6,563.04	0.00	0.00	0.00
13,900.00	90.00	89.65	6,391.40	-1,435.00	-2,328.32	6,244.02	6,657.95	0.00	0.00	0.00
14,000.00	90.00	89.65	6,391.40	-1,435.00	-2,327.71	6,344.01	6,752.86	0.00	0.00	0.00
14,100.00	90.00	89.65	6,391.40	-1,435.00	-2,327.09	6,444.01	6,847.77	0.00	0.00	0.00
14,200.00	90.00	89.65	6,391.40	-1,435.00	-2,326.48	6,544.01	6,942.68	0.00	0.00	0.00
14,300.00	90.00	89.65	6,391.40	-1,435.00	-2,325.86	6,644.01	7,037.58	0.00	0.00	0.00
14,400.00	90.00	89.65	6,391.40	-1,435.00	-2,325.24	6,744.01	7,132.49	0.00	0.00	0.00
14,500.00	90.00	89.65	6,391.40	-1,435.00	-2,324.63	6,844.00	7,227.40	0.00	0.00	0.00
14,600.00	90.00	89.65	6,391.40	-1,435.00	-2,324.01	6,944.00	7,322.31	0.00	0.00	0.00
14,700.00	90.00	89.65	6,391.40	-1,435.00	-2,323.40	7,044.00	7,417.22	0.00	0.00	0.00
EPI: 750ft FSL & 2350ft FWL of Sec 23										
14,701.36	90.00	89.65	6,391.40	-1,435.00	-2,323.39	7,045.36	7,418.51	0.00	0.00	0.00
EOT TO 89.78° AZ										
14,705.70	90.00	89.78	6,391.40	-1,435.00	-2,323.37	7,049.70	7,422.63	3.00	-0.01	3.00
14,800.00	90.00	89.78	6,391.40	-1,435.00	-2,323.00	7,144.00	7,512.19	0.00	0.00	0.00
BHL: 750ft FSL & 2450ft FWL of Sec 23										
14,801.27	90.00	89.78	6,391.40	-1,435.00	-2,323.00	7,145.27	7,513.40	0.00	0.00	0.00

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
517.41	516.40	PIERRE SHALE (BASE FOX HILLS				
3,912.30	3,506.40	PARKMAN				
4,517.00	4,026.40	SUSSEX				
5,287.02	4,691.40	SHANNON				
6,753.69	6,106.40	SHARON SPRINGS SHALE				
6,838.62	6,176.40	NIOBRARA FORMATION				
6,851.55	6,186.40	NIOBRARA A CHALK				
6,982.60	6,276.40	NIOBRARA B CHALK				
7,150.68	6,356.40	NIOBRARA C CHALK		0.00		
7,351.98	6,391.40	NIOBRARA C LP		0.00		

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well HALE FED 8-60 22-23-11
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4956.40usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4956.40usft
Site:	SW NW SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	HALE FED 8-60 22-23-11	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: 2188ft FNL & 560ft FWL of Sec 22
200.00	200.00	0.00	0.00	START NUDGE (2.5°/100ft BUR)
1,427.65	1,369.78	-301.10	-111.31	EOB TO 30.69° INC
5,124.33	4,548.67	-2,070.88	-765.52	END OF TANGENT
6,351.98	5,718.44	-2,371.98	-876.83	EOD TO VERTICAL
6,451.98	5,818.44	-2,371.98	-876.83	KOP (10°/100ft BUR)
7,351.98	6,391.40	-2,368.48	-303.88	BPI: 744ft FSL & 300ft FWL of Sec 22
9,711.94	6,391.41	-2,354.04	2,056.03	EXIT COC76980
14,701.36	6,391.40	-2,323.39	7,045.36	EPI: 750ft FSL & 2350ft FWL of Sec 23
14,705.70	6,391.40	-2,323.37	7,049.70	EOT TO 89.78° AZ
14,801.27	6,391.40	-2,323.00	7,145.27	BHL: 750ft FSL & 2450ft FWL of Sec 23