

BISON OIL & GAS II, LLC

WELD COUNTY, COLORADO (NAD 83)

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

HALE FED 8-60 22-23-9

ORIGINAL WELLBORE

29 May, 2019

Plan: PROPOSAL #3



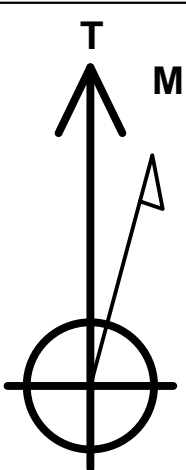
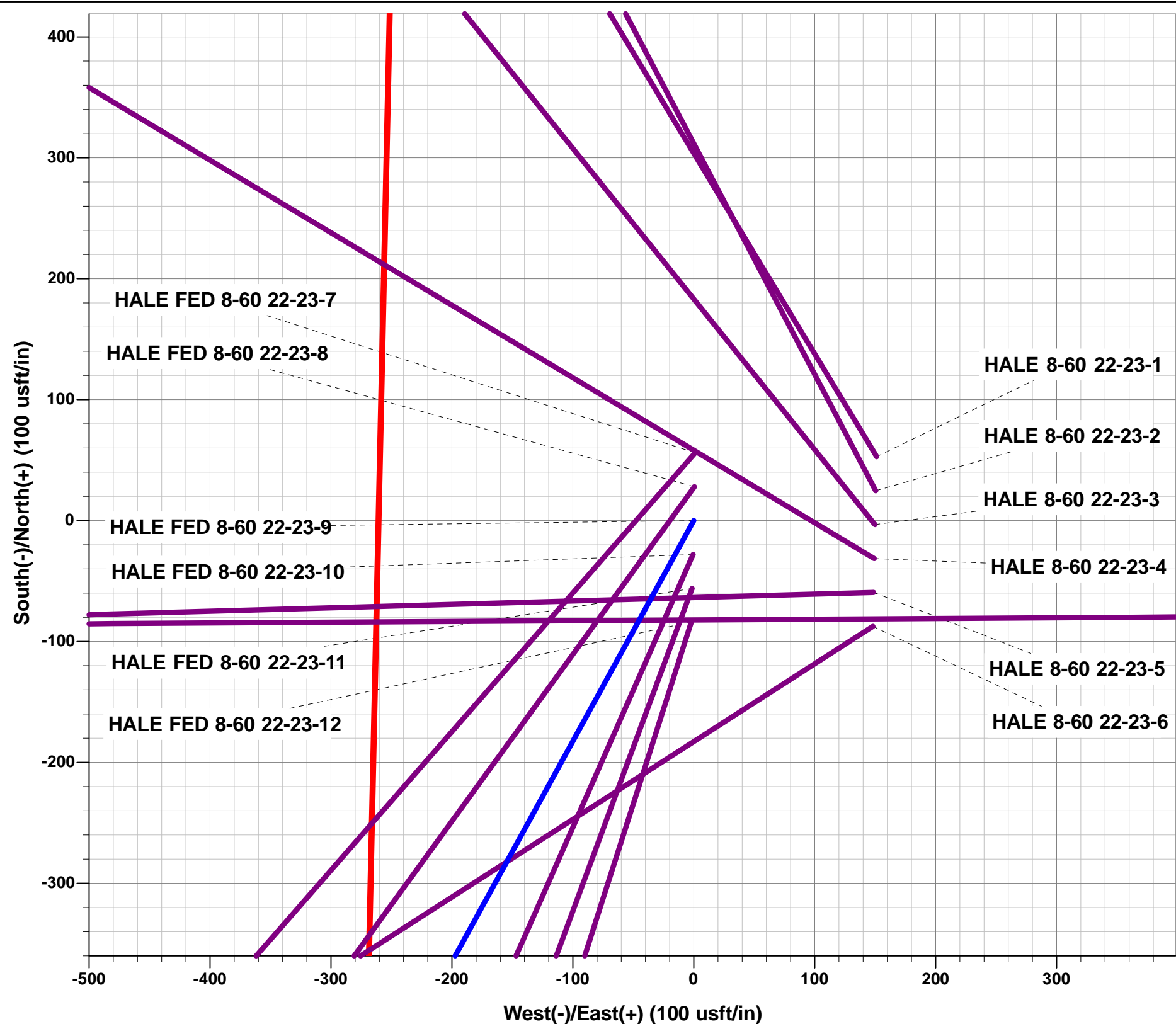
Project: WELD COUNTY, COLORADO (NAD 83)
Site: SW NW SEC. 22 T8N R60W 6th P.M.
Well: HALE FED 8-60 22-23-9
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #3

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: 2132ft FNL & 560ft FWL of Sec 22
400.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1519.11	1549.73	22.99	208.72	-199.64	-109.37	-65.35	227.63	EOB TO 22.99° INC
4678.72	4982.07	22.99	208.72	-1375.56	-753.58	-450.29	1568.46	END OF TANGENT
5797.84	6131.80	0.00	0.00	-1575.20	-862.95	-515.64	1796.09	EOD TO VERTICAL
5897.84	6231.80	0.00	0.00	-1575.20	-862.95	-515.64	1796.09	KOP (10°/100ft BUR)
6470.80	7131.81	90.00	89.65	-1571.70	-290.00	44.00	2369.05	BPI: 1597ft FSL & 300ft FWL of Sec 22
6470.79	9335.05	90.00	89.65	-1558.21	1913.20	2195.99	4572.29	EXIT COC76980
6470.80	14482.88	90.00	89.65	-1526.60	7060.94	7224.05	9720.12	EPI: 1603ft FSL & 2350ft FWL of Sec 23
6470.80	14487.21	90.00	89.78	-1526.58	7065.27	7228.28	9724.45	EOT TO 89.78° AZ
6470.80	14582.78	90.00	89.78	-1526.21	7160.84	7321.67	9820.02	BHL: 1603ft FSL & 2450ft FWL of Sec 23

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - HALE FED 8-60 22-23-9 (P3)	5897.84	-1575.20	-862.95	40.644932	-104.088100
BPI - HALE FED 8-60 22-23-9 (P3)	6470.80	-1571.70	-290.00	40.644942	-104.086035
EPI - HALE FED 8-60 22-23-9 (P3)	6470.80	-1526.60	7060.93	40.645063	-104.059546
BHL - HALE FED 8-60 22-23-9 (P3)	6470.80	-1526.21	7160.84	40.645064	-104.059186



Azimuths to True North
Magnetic North: 7.66°

Magnetic Field
Strength: 52366.5snT
Dip Angle: 67.10°
Date: 29/05/2019
Model: IGRF2015

FORMATION TOP DETAILS

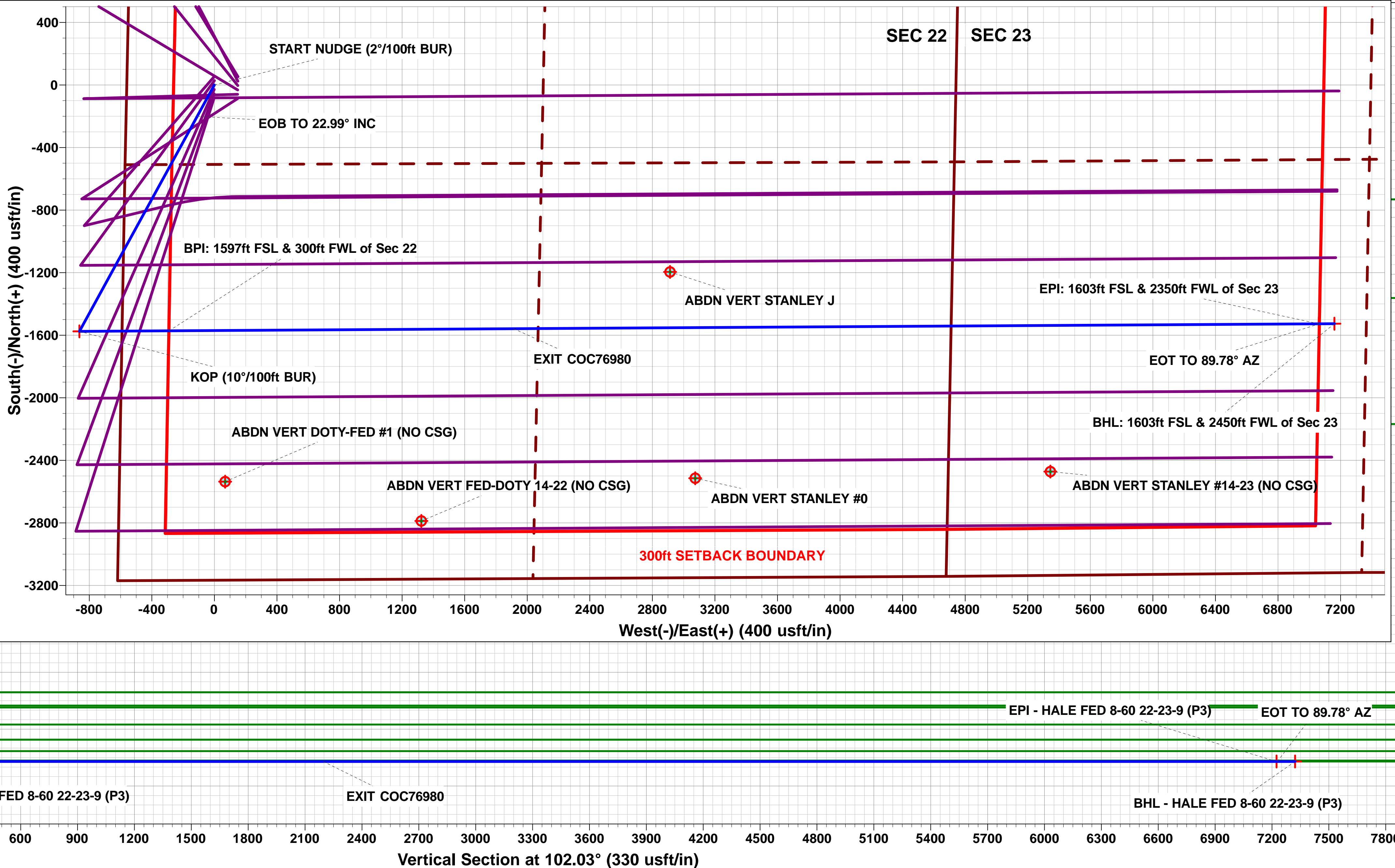
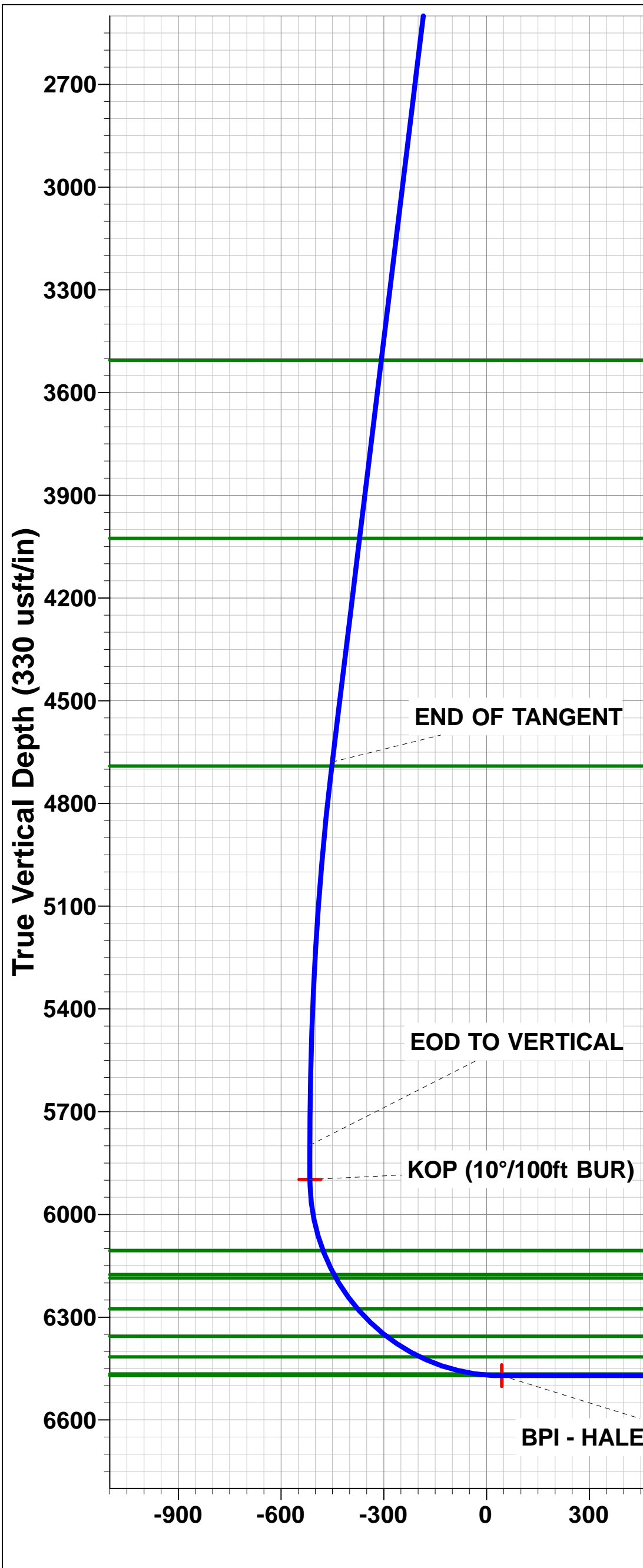
TVDPath	MDPath	Formation
515.80	515.83	P SHALE (BASE FOX HILLS)
3505.80	3707.90	PARKMAN
4025.80	4272.79	SUSSEX
4690.80	4995.17	SHANNON
6105.80	6444.62	SHARON SPRINGS SHALE
6175.80	6522.01	NIOBRARA FORMATION
6185.80	6533.51	NIOBRARA A CHALK
6275.80	6644.54	NIOBRARA B CHALK
6355.80	6762.43	NIOBRARA C CHALK
6415.80	6878.70	FT HAYS
6465.80	7056.06	CODELL
6470.80	7131.81	CODELL LP

PROPOSED LOCAL COORDINATES:

SHL: 2132ft FNL & 560ft FWL of Sec 22

BEGIN PROD INT: 1597ft FSL & 300ft FWL of Sec 22
END PROD INTERVAL: 1603ft FSL & 2350ft FWL of Sec 23

BHL: 1603ft FSL & 2450ft FWL of Sec 23



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well HALE FED 8-60 22-23-9
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4955.80usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4955.80usft
Site:	SW NW SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	HALE FED 8-60 22-23-9	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:	1,482,610.76 usft	Latitude:	40.649556
From:	Lat/Long	Easting:	3,392,779.56 usft	Longitude:	-104.084442
Position Uncertainty:	0.00 usft	Slot Radius:	1.10000ft	Grid Convergence:	0.91 °

Well	HALE FED 8-60 22-23-9					
Well Position	+N-S	-109.31 usft	Northing:	1,482,499.05 usfi	Latitude:	40.649256
	+E-W	-152.07 usft	Easting:	3,392,629.26 usfi	Longitude:	-104.084990
Position Uncertainty		0.00 usft	Wellhead Elevation:	usfi	Ground Level:	4,930.80 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 (°)
	6,470.80	0.00	0.00	102.03

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	-4,955.80	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	-4,555.80	0.00	0.00	0.00	0.00	0.00	0.00	
1,549.73	22.99	208.72	1,519.12	-3,436.68	-199.64	-109.37	2.00	2.00	0.00	208.72	
4,982.07	22.99	208.72	4,678.72	-277.08	-1,375.56	-753.58	0.00	0.00	0.00	0.00	
6,131.80	0.00	0.00	5,797.84	842.04	-1,575.20	-862.95	2.00	-2.00	0.00	180.00	
6,231.80	0.00	0.00	5,897.84	942.04	-1,575.20	-862.95	0.00	0.00	0.00	0.00	KOP - HALE FED 8
7,131.81	90.00	89.65	6,470.80	1,515.00	-1,571.70	-290.00	10.00	10.00	9.96	89.65	BPI - HALE FED 8-
14,482.88	90.00	89.65	6,470.80	1,515.00	-1,526.60	7,060.93	0.00	0.00	0.00	-106.93	EPI - HALE FED 8-
14,487.21	90.00	89.78	6,470.80	1,515.00	-1,526.58	7,065.27	3.00	0.01	3.00	89.84	
14,582.78	90.00	89.78	6,470.80	1,515.00	-1,526.21	7,160.84	0.00	0.00	0.00	0.00	BHL - HALE FED 8

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Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4955.80usft
Site:	SW NW SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	HALE FED 8-60 22-23-9	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: 2132ft FNL & 560ft FWL of Sec 22										
0.00	0.00	0.00	0.00	4,955.80	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,855.80	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	4,755.80	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	4,655.80	0.00	0.00	0.00	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
400.00	0.00	0.00	400.00	4,555.80	0.00	0.00	0.00	0.00	0.00	0.00
500.00	2.00	208.72	499.98	4,455.82	-1.53	-0.84	-0.50	2.00	2.00	0.00
PIERRE SHALE (BASE FOX HILLS)										
515.83	2.32	208.72	515.80	4,440.00	-2.05	-1.12	-0.67	2.00	2.00	0.00
600.00	4.00	208.72	599.84	4,355.96	-6.12	-3.35	-2.00	2.00	2.00	0.00
700.00	6.00	208.72	699.45	4,256.35	-13.76	-7.54	-4.51	2.00	2.00	0.00
800.00	8.00	208.72	798.70	4,157.10	-24.45	-13.40	-8.00	2.00	2.00	0.00
900.00	10.00	208.72	897.47	4,058.33	-38.17	-20.91	-12.49	2.00	2.00	0.00
1,000.00	12.00	208.72	995.62	3,960.18	-54.90	-30.08	-17.97	2.00	2.00	0.00
1,100.00	14.00	208.72	1,093.06	3,862.74	-74.63	-40.89	-24.43	2.00	2.00	0.00
1,200.00	16.00	208.72	1,189.64	3,766.16	-97.33	-53.32	-31.86	2.00	2.00	0.00
1,300.00	18.00	208.72	1,285.27	3,670.53	-122.97	-67.37	-40.25	2.00	2.00	0.00
1,400.00	20.00	208.72	1,379.82	3,575.98	-151.52	-83.01	-49.60	2.00	2.00	0.00
1,500.00	22.00	208.72	1,473.17	3,482.63	-182.95	-100.23	-59.89	2.00	2.00	0.00
EOB TO 22.99° INC										
1,549.73	22.99	208.72	1,519.11	3,436.69	-199.64	-109.37	-65.35	2.00	2.00	0.00
1,600.00	22.99	208.72	1,565.39	3,390.41	-216.86	-118.80	-70.99	0.00	0.00	0.00
1,700.00	22.99	208.72	1,657.44	3,298.36	-251.12	-137.57	-82.20	0.00	0.00	0.00
1,800.00	22.99	208.72	1,749.50	3,206.30	-285.38	-156.34	-93.42	0.00	0.00	0.00
1,900.00	22.99	208.72	1,841.55	3,114.25	-319.64	-175.11	-104.63	0.00	0.00	0.00
2,000.00	22.99	208.72	1,933.61	3,022.19	-353.90	-193.88	-115.85	0.00	0.00	0.00
2,100.00	22.99	208.72	2,025.66	2,930.14	-388.16	-212.65	-127.06	0.00	0.00	0.00
2,200.00	22.99	208.72	2,117.71	2,838.09	-422.42	-231.42	-138.28	0.00	0.00	0.00
2,300.00	22.99	208.72	2,209.77	2,746.03	-456.68	-250.19	-149.49	0.00	0.00	0.00
2,400.00	22.99	208.72	2,301.82	2,653.98	-490.94	-268.95	-160.71	0.00	0.00	0.00
2,500.00	22.99	208.72	2,393.88	2,561.92	-525.20	-287.72	-171.92	0.00	0.00	0.00
2,600.00	22.99	208.72	2,485.93	2,469.87	-559.46	-306.49	-183.14	0.00	0.00	0.00
2,700.00	22.99	208.72	2,577.98	2,377.82	-593.72	-325.26	-194.35	0.00	0.00	0.00
2,800.00	22.99	208.72	2,670.04	2,285.76	-627.98	-344.03	-205.57	0.00	0.00	0.00
2,900.00	22.99	208.72	2,762.09	2,193.71	-662.24	-362.80	-216.78	0.00	0.00	0.00
3,000.00	22.99	208.72	2,854.15	2,101.65	-696.50	-381.57	-228.00	0.00	0.00	0.00
3,100.00	22.99	208.72	2,946.20	2,009.60	-730.76	-400.34	-239.21	0.00	0.00	0.00
3,200.00	22.99	208.72	3,038.26	1,917.54	-765.02	-419.11	-250.43	0.00	0.00	0.00
3,300.00	22.99	208.72	3,130.31	1,825.49	-799.28	-437.88	-261.65	0.00	0.00	0.00
3,400.00	22.99	208.72	3,222.36	1,733.44	-833.54	-456.64	-272.86	0.00	0.00	0.00
3,500.00	22.99	208.72	3,314.42	1,641.38	-867.80	-475.41	-284.08	0.00	0.00	0.00
3,600.00	22.99	208.72	3,406.47	1,549.33	-902.06	-494.18	-295.29	0.00	0.00	0.00
3,700.00	22.99	208.72	3,498.53	1,457.27	-936.32	-512.95	-306.51	0.00	0.00	0.00
PARKMAN										
3,707.90	22.99	208.72	3,505.80	1,450.00	-939.03	-514.43	-307.39	0.00	0.00	0.00
3,800.00	22.99	208.72	3,590.58	1,365.22	-970.58	-531.72	-317.72	0.00	0.00	0.00
3,900.00	22.99	208.72	3,682.63	1,273.17	-1,004.84	-550.49	-328.94	0.00	0.00	0.00
4,000.00	22.99	208.72	3,774.69	1,181.11	-1,039.10	-569.26	-340.15	0.00	0.00	0.00
4,100.00	22.99	208.72	3,866.74	1,089.06	-1,073.36	-588.03	-351.37	0.00	0.00	0.00
4,200.00	22.99	208.72	3,958.80	997.00	-1,107.62	-606.80	-362.58	0.00	0.00	0.00
SUSSEX										
4,272.79	22.99	208.72	4,025.80	930.00	-1,132.56	-620.46	-370.74	0.00	0.00	0.00

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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)
4,300.00	22.99	208.72	4,050.85	904.95	-1,141.88	-625.56	-373.80	0.00	0.00	0.00
4,400.00	22.99	208.72	4,142.91	812.89	-1,176.14	-644.33	-385.01	0.00	0.00	0.00
4,500.00	22.99	208.72	4,234.96	720.84	-1,210.40	-663.10	-396.23	0.00	0.00	0.00
4,600.00	22.99	208.72	4,327.01	628.79	-1,244.67	-681.87	-407.44	0.00	0.00	0.00
4,700.00	22.99	208.72	4,419.07	536.73	-1,278.93	-700.64	-418.66	0.00	0.00	0.00
4,800.00	22.99	208.72	4,511.12	444.68	-1,313.19	-719.41	-429.87	0.00	0.00	0.00
4,900.00	22.99	208.72	4,603.18	352.62	-1,347.45	-738.18	-441.09	0.00	0.00	0.00
END OF TANGENT										
4,982.07	22.99	208.72	4,678.72	277.08	-1,375.56	-753.58	-450.29	0.00	0.00	0.00
SHANNON										
4,995.17	22.73	208.72	4,690.80	265.00	-1,380.03	-756.03	-451.75	2.00	-2.00	0.00
5,000.00	22.64	208.72	4,695.25	260.55	-1,381.66	-756.92	-452.29	2.00	-2.00	0.00
5,100.00	20.64	208.72	4,788.20	167.60	-1,414.00	-774.64	-462.87	2.00	-2.00	0.00
5,200.00	18.64	208.72	4,882.38	73.42	-1,443.47	-790.78	-472.52	2.00	-2.00	0.00
5,300.00	16.64	208.72	4,977.68	-21.88	-1,470.03	-805.34	-481.22	2.00	-2.00	0.00
5,400.00	14.64	208.72	5,073.97	-118.17	-1,493.67	-818.29	-488.95	2.00	-2.00	0.00
5,500.00	12.64	208.72	5,171.15	-215.35	-1,514.35	-829.61	-495.72	2.00	-2.00	0.00
5,600.00	10.64	208.72	5,269.09	-313.29	-1,532.03	-839.30	-501.51	2.00	-2.00	0.00
5,700.00	8.64	208.72	5,367.67	-411.87	-1,546.71	-847.34	-506.32	2.00	-2.00	0.00
5,800.00	6.64	208.72	5,466.78	-510.98	-1,558.37	-853.73	-510.13	2.00	-2.00	0.00
5,900.00	4.64	208.72	5,566.29	-610.49	-1,566.98	-858.45	-512.95	2.00	-2.00	0.00
6,000.00	2.64	208.72	5,666.08	-710.28	-1,572.54	-861.49	-514.77	2.00	-2.00	0.00
6,100.00	0.64	208.72	5,766.04	-810.24	-1,575.05	-862.87	-515.59	2.00	-2.00	0.00
EOD TO VERTICAL										
6,131.80	0.00	0.00	5,797.84	-842.04	-1,575.20	-862.95	-515.64	2.00	-2.00	475.74
6,200.00	0.00	0.00	5,866.04	-910.24	-1,575.20	-862.95	-515.64	0.00	0.00	0.00
KOP (10°/100ft BUR)										
6,231.80	0.00	0.00	5,897.84	-942.04	-1,575.20	-862.95	-515.64	0.00	0.00	0.00
6,300.00	6.82	89.65	5,965.88	-1,010.08	-1,575.18	-858.90	-511.68	10.00	10.00	0.00
6,400.00	16.82	89.65	6,063.63	-1,107.83	-1,575.05	-838.44	-491.70	10.00	10.00	0.00
SHARON SPRINGS SHALE										
6,444.62	21.28	89.65	6,105.80	-1,150.00	-1,574.96	-823.88	-477.48	10.00	10.00	0.00
6,500.00	26.82	89.65	6,156.35	-1,200.55	-1,574.82	-801.32	-455.44	10.00	10.00	0.00
NIOBRARA FORMATION										
6,522.01	29.02	89.65	6,175.80	-1,220.00	-1,574.76	-791.01	-445.38	10.00	10.00	0.00
NIOBRARA A CHALK										
6,533.51	30.17	89.65	6,185.80	-1,230.00	-1,574.73	-785.33	-439.83	10.00	10.00	0.00
6,600.00	36.82	89.65	6,241.21	-1,285.41	-1,574.50	-748.66	-404.01	10.00	10.00	0.00
NIOBRARA B CHALK										
6,644.54	41.27	89.65	6,275.80	-1,320.00	-1,574.33	-720.61	-376.61	10.00	10.00	0.00
6,700.00	46.82	89.65	6,315.64	-1,359.84	-1,574.09	-682.07	-338.96	10.00	10.00	0.00
NIOBRARA C CHALK										
6,762.43	53.06	89.65	6,355.80	-1,400.00	-1,573.80	-634.31	-292.32	10.00	10.00	0.00
6,800.00	56.82	89.65	6,377.38	-1,421.58	-1,573.61	-603.56	-262.28	10.00	10.00	0.00
FT HAYS										
6,878.70	64.69	89.65	6,415.80	-1,460.00	-1,573.19	-534.95	-195.26	10.00	10.00	0.00
6,900.00	66.82	89.65	6,424.54	-1,468.74	-1,573.08	-515.53	-176.30	10.00	10.00	0.00
7,000.00	76.82	89.65	6,455.71	-1,499.91	-1,572.50	-420.64	-83.62	10.00	10.00	0.00
CODELL										
7,056.06	82.43	89.65	6,465.80	-1,510.00	-1,572.16	-365.53	-29.78	10.00	10.00	0.00
7,100.00	86.82	89.65	6,469.92	-1,514.12	-1,571.89	-321.79	12.94	10.00	10.00	0.00
BPI: 1597ft FSL & 300ft FWL of Sec 22 - CODELL LP										

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well HALE FED 8-60 22-23-9
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4955.80usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4955.80usft
Site:	SW NW SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	HALE FED 8-60 22-23-9	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)
7,131.81	90.00	89.65	6,470.80	-1,515.00	-1,571.70	-290.00	43.99	10.00	10.00	0.00
7,200.00	90.00	89.65	6,470.80	-1,515.00	-1,571.28	-221.81	110.60	0.00	0.00	0.00
7,300.00	90.00	89.65	6,470.80	-1,515.00	-1,570.67	-121.81	208.27	0.00	0.00	0.00
7,400.00	90.00	89.65	6,470.80	-1,515.00	-1,570.06	-21.81	305.95	0.00	0.00	0.00
7,500.00	90.00	89.65	6,470.80	-1,515.00	-1,569.44	78.19	403.62	0.00	0.00	0.00
7,600.00	90.00	89.65	6,470.80	-1,515.00	-1,568.83	178.19	501.30	0.00	0.00	0.00
7,700.00	90.00	89.65	6,470.80	-1,515.00	-1,568.22	278.18	598.97	0.00	0.00	0.00
7,800.00	90.00	89.65	6,470.80	-1,515.00	-1,567.61	378.18	696.64	0.00	0.00	0.00
7,900.00	90.00	89.65	6,470.80	-1,515.00	-1,567.00	478.18	794.32	0.00	0.00	0.00
8,000.00	90.00	89.65	6,470.80	-1,515.00	-1,566.39	578.18	891.99	0.00	0.00	0.00
8,100.00	90.00	89.65	6,470.79	-1,514.99	-1,565.77	678.18	989.67	0.00	0.00	0.00
8,200.00	90.00	89.65	6,470.79	-1,514.99	-1,565.16	778.17	1,087.34	0.00	0.00	0.00
8,300.00	90.00	89.65	6,470.79	-1,514.99	-1,564.55	878.17	1,185.01	0.00	0.00	0.00
8,400.00	90.00	89.65	6,470.79	-1,514.99	-1,563.94	978.17	1,282.69	0.00	0.00	0.00
8,500.00	90.00	89.65	6,470.79	-1,514.99	-1,563.33	1,078.17	1,380.36	0.00	0.00	0.00
8,600.00	90.00	89.65	6,470.79	-1,514.99	-1,562.71	1,178.17	1,478.03	0.00	0.00	0.00
8,700.00	90.00	89.65	6,470.79	-1,514.99	-1,562.10	1,278.16	1,575.71	0.00	0.00	0.00
8,800.00	90.00	89.65	6,470.79	-1,514.99	-1,561.49	1,378.16	1,673.38	0.00	0.00	0.00
8,900.00	90.00	89.65	6,470.79	-1,514.99	-1,560.88	1,478.16	1,771.06	0.00	0.00	0.00
9,000.00	90.00	89.65	6,470.79	-1,514.99	-1,560.26	1,578.16	1,868.73	0.00	0.00	0.00
9,100.00	90.00	89.65	6,470.79	-1,514.99	-1,559.65	1,678.16	1,966.40	0.00	0.00	0.00
9,200.00	90.00	89.65	6,470.79	-1,514.99	-1,559.04	1,778.16	2,064.08	0.00	0.00	0.00
9,300.00	90.00	89.65	6,470.79	-1,514.99	-1,558.43	1,878.15	2,161.75	0.00	0.00	0.00
EXIT COC76980										
9,335.05	90.00	89.65	6,470.79	-1,514.99	-1,558.21	1,913.20	2,195.99	0.00	0.00	0.00
9,400.00	90.00	89.65	6,470.79	-1,514.99	-1,557.81	1,978.15	2,259.42	0.00	0.00	0.00
9,500.00	90.00	89.65	6,470.79	-1,514.99	-1,557.20	2,078.15	2,357.10	0.00	0.00	0.00
9,600.00	90.00	89.65	6,470.79	-1,514.99	-1,556.59	2,178.15	2,454.77	0.00	0.00	0.00
9,700.00	90.00	89.65	6,470.79	-1,514.99	-1,555.98	2,278.15	2,552.45	0.00	0.00	0.00
9,800.00	90.00	89.65	6,470.79	-1,514.99	-1,555.36	2,378.14	2,650.12	0.00	0.00	0.00
9,900.00	90.00	89.65	6,470.79	-1,514.99	-1,554.75	2,478.14	2,747.79	0.00	0.00	0.00
10,000.00	90.00	89.65	6,470.79	-1,514.99	-1,554.14	2,578.14	2,845.47	0.00	0.00	0.00
10,100.00	90.00	89.65	6,470.79	-1,514.99	-1,553.52	2,678.14	2,943.14	0.00	0.00	0.00
10,200.00	90.00	89.65	6,470.79	-1,514.99	-1,552.91	2,778.14	3,040.81	0.00	0.00	0.00
10,300.00	90.00	89.65	6,470.79	-1,514.99	-1,552.30	2,878.13	3,138.49	0.00	0.00	0.00
10,400.00	90.00	89.65	6,470.79	-1,514.99	-1,551.68	2,978.13	3,236.16	0.00	0.00	0.00
10,500.00	90.00	89.65	6,470.79	-1,514.99	-1,551.07	3,078.13	3,333.84	0.00	0.00	0.00
10,600.00	90.00	89.65	6,470.79	-1,514.99	-1,550.46	3,178.13	3,431.51	0.00	0.00	0.00
10,700.00	90.00	89.65	6,470.79	-1,514.99	-1,549.84	3,278.13	3,529.18	0.00	0.00	0.00
10,800.00	90.00	89.65	6,470.79	-1,514.99	-1,549.23	3,378.13	3,626.86	0.00	0.00	0.00
10,900.00	90.00	89.65	6,470.79	-1,514.99	-1,548.62	3,478.12	3,724.53	0.00	0.00	0.00
11,000.00	90.00	89.65	6,470.79	-1,514.99	-1,548.00	3,578.12	3,822.20	0.00	0.00	0.00
11,100.00	90.00	89.65	6,470.79	-1,514.99	-1,547.39	3,678.12	3,919.88	0.00	0.00	0.00
11,200.00	90.00	89.65	6,470.79	-1,514.99	-1,546.78	3,778.12	4,017.55	0.00	0.00	0.00
11,300.00	90.00	89.65	6,470.79	-1,514.99	-1,546.16	3,878.12	4,115.22	0.00	0.00	0.00
11,400.00	90.00	89.65	6,470.79	-1,514.99	-1,545.55	3,978.11	4,212.90	0.00	0.00	0.00
11,500.00	90.00	89.65	6,470.79	-1,514.99	-1,544.94	4,078.11	4,310.57	0.00	0.00	0.00
11,600.00	90.00	89.65	6,470.79	-1,514.99	-1,544.32	4,178.11	4,408.24	0.00	0.00	0.00
11,700.00	90.00	89.65	6,470.79	-1,514.99	-1,543.71	4,278.11	4,505.92	0.00	0.00	0.00
11,800.00	90.00	89.65	6,470.79	-1,514.99	-1,543.09	4,378.11	4,603.59	0.00	0.00	0.00
11,900.00	90.00	89.65	6,470.79	-1,514.99	-1,542.48	4,478.10	4,701.26	0.00	0.00	0.00
12,000.00	90.00	89.65	6,470.79	-1,514.99	-1,541.87	4,578.10	4,798.94	0.00	0.00	0.00
12,100.00	90.00	89.65	6,470.79	-1,514.99	-1,541.25	4,678.10	4,896.61	0.00	0.00	0.00
12,200.00	90.00	89.65	6,470.79	-1,514.99	-1,540.64	4,778.10	4,994.28	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well HALE FED 8-60 22-23-9
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4955.80usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4955.80usft
Site:	SW NW SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	HALE FED 8-60 22-23-9	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)
12,300.00	90.00	89.65	6,470.79	-1,514.99	-1,540.02	4,878.10	5,091.96	0.00	0.00	0.00
12,400.00	90.00	89.65	6,470.79	-1,514.99	-1,539.41	4,978.10	5,189.63	0.00	0.00	0.00
12,500.00	90.00	89.65	6,470.79	-1,514.99	-1,538.79	5,078.09	5,287.31	0.00	0.00	0.00
12,600.00	90.00	89.65	6,470.79	-1,514.99	-1,538.18	5,178.09	5,384.98	0.00	0.00	0.00
12,700.00	90.00	89.65	6,470.79	-1,514.99	-1,537.57	5,278.09	5,482.65	0.00	0.00	0.00
12,800.00	90.00	89.65	6,470.79	-1,514.99	-1,536.95	5,378.09	5,580.33	0.00	0.00	0.00
12,900.00	90.00	89.65	6,470.79	-1,514.99	-1,536.34	5,478.09	5,678.00	0.00	0.00	0.00
13,000.00	90.00	89.65	6,470.79	-1,514.99	-1,535.72	5,578.08	5,775.67	0.00	0.00	0.00
13,100.00	90.00	89.65	6,470.79	-1,514.99	-1,535.11	5,678.08	5,873.35	0.00	0.00	0.00
13,200.00	90.00	89.65	6,470.79	-1,514.99	-1,534.49	5,778.08	5,971.02	0.00	0.00	0.00
13,300.00	90.00	89.65	6,470.79	-1,514.99	-1,533.88	5,878.08	6,068.69	0.00	0.00	0.00
13,400.00	90.00	89.65	6,470.79	-1,514.99	-1,533.26	5,978.08	6,166.37	0.00	0.00	0.00
13,500.00	90.00	89.65	6,470.79	-1,514.99	-1,532.65	6,078.07	6,264.04	0.00	0.00	0.00
13,600.00	90.00	89.65	6,470.80	-1,515.00	-1,532.03	6,178.07	6,361.71	0.00	0.00	0.00
13,700.00	90.00	89.65	6,470.80	-1,515.00	-1,531.42	6,278.07	6,459.38	0.00	0.00	0.00
13,800.00	90.00	89.65	6,470.80	-1,515.00	-1,530.80	6,378.07	6,557.06	0.00	0.00	0.00
13,900.00	90.00	89.65	6,470.80	-1,515.00	-1,530.19	6,478.07	6,654.73	0.00	0.00	0.00
14,000.00	90.00	89.65	6,470.80	-1,515.00	-1,529.57	6,578.07	6,752.40	0.00	0.00	0.00
14,100.00	90.00	89.65	6,470.80	-1,515.00	-1,528.96	6,678.06	6,850.08	0.00	0.00	0.00
14,200.00	90.00	89.65	6,470.80	-1,515.00	-1,528.34	6,778.06	6,947.75	0.00	0.00	0.00
14,300.00	90.00	89.65	6,470.80	-1,515.00	-1,527.73	6,878.06	7,045.42	0.00	0.00	0.00
14,400.00	90.00	89.65	6,470.80	-1,515.00	-1,527.11	6,978.06	7,143.10	0.00	0.00	0.00
EPI: 1603ft FSL & 2350ft FWL of Sec 23										
14,482.88	90.00	89.65	6,470.80	-1,515.00	-1,526.60	7,060.94	7,224.05	0.00	0.00	0.00
EOT TO 89.78° AZ										
14,487.21	90.00	89.78	6,470.80	-1,515.00	-1,526.58	7,065.27	7,228.28	3.00	0.01	3.00
14,500.00	90.00	89.78	6,470.80	-1,515.00	-1,526.53	7,078.06	7,240.78	0.00	0.00	0.00
BHL: 1603ft FSL & 2450ft FWL of Sec 23										
14,582.78	90.00	89.78	6,470.80	-1,515.00	-1,526.21	7,160.84	7,321.67	0.00	0.00	0.00

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
515.83	515.80	PIERRE SHALE (BASE FOX HILLS)				
3,707.90	3,505.80	PARKMAN				
4,272.79	4,025.80	SUSSEX				
4,995.17	4,690.80	SHANNON				
6,444.62	6,105.80	SHARON SPRINGS SHALE				
6,522.01	6,175.80	NIOBRARA FORMATION				
6,533.51	6,185.80	NIOBRARA A CHALK				
6,644.54	6,275.80	NIOBRARA B CHALK				
6,762.43	6,355.80	NIOBRARA C CHALK		0.00		
6,878.70	6,415.80	FT HAYS		0.00		
7,056.06	6,465.80	CODELL		0.00		
7,131.81	6,470.80	CODELL LP		0.00		

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well HALE FED 8-60 22-23-9
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4955.80usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4955.80usft
Site:	SW NW SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	HALE FED 8-60 22-23-9	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: 2132ft FNL & 560ft FWL of Sec 22
400.00	400.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1,549.73	1,519.11	-199.64	-109.37	EOB TO 22.99° INC
4,982.07	4,678.72	-1,375.56	-753.58	END OF TANGENT
6,131.80	5,797.84	-1,575.20	-862.95	EOD TO VERTICAL
6,231.80	5,897.84	-1,575.20	-862.95	KOP (10°/100ft BUR)
7,131.81	6,470.80	-1,571.70	-290.00	BPI: 1597ft FSL & 300ft FWL of Sec 22
9,335.05	6,470.79	-1,558.21	1,913.20	EXIT COC76980
14,482.88	6,470.80	-1,526.60	7,060.94	EPI: 1603ft FSL & 2350ft FWL of Sec 23
14,487.21	6,470.80	-1,526.58	7,065.27	EOT TO 89.78° AZ
14,582.78	6,470.80	-1,526.21	7,160.84	BHL: 1603ft FSL & 2450ft FWL of Sec 23