

# **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**

**12 July, 2017**

**Plan: PROPOSAL #1**



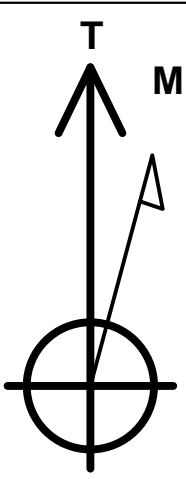
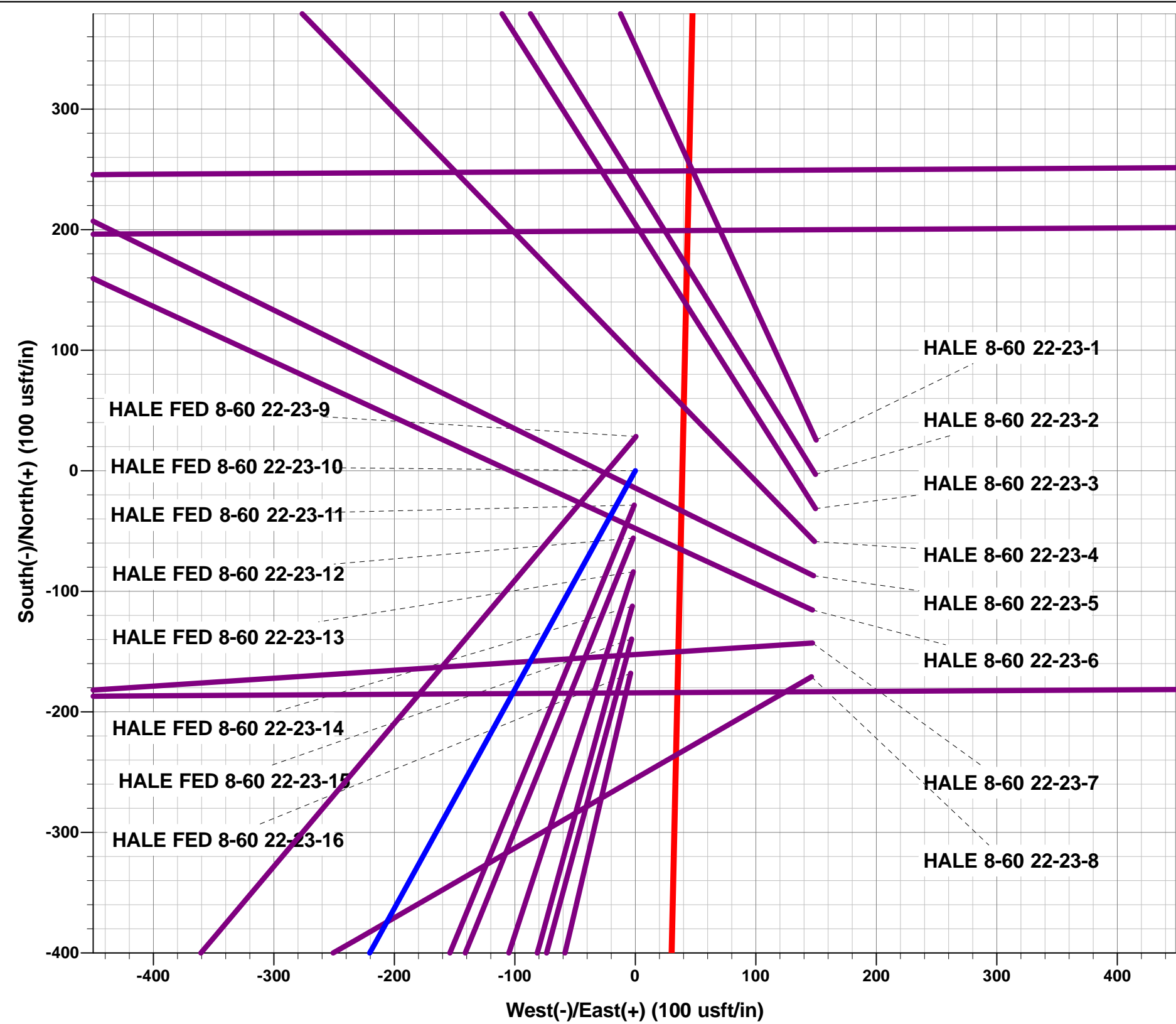
Project: WELD COUNTY, COLORADO (NAD 83)  
Site: SW NW SEC. 22 T8N R60W 6th P.M.  
Well: HALE FED 8-60 22-23-10  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL #1

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation
0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	SHL: 2048ft FNL & 560ft FWL of Sec 22
700.0	700.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2°/100ft BUR)
1446.9	1455.6	15.11	208.86	-86.8	-47.8	-35.7	99.1	EOB TO 15.11° INC
4954.9	5089.3	15.11	208.86	-916.4	-505.1	-377.5	1046.4	END OF TANGENT
5701.8	5844.9	0.00	0.00	-1003.2	-552.9	-413.3	1145.5	EOD TO VERTICAL
5731.8	5874.9	0.00	0.00	-1003.2	-552.9	-413.3	1145.5	KOP (10°/100ft BUR)
6304.7	6774.8	90.00	89.65	-999.7	20.0	154.0	1718.4	BPI: 2251ft FSL & 600ft FWL of Sec 22
6304.7	13496.6	90.00	89.64	-958.3	6741.6	6809.2	8440.1	EPI: 2257ft FSL & 2020ft FWL of Sec 23
6304.7	13817.4	90.00	89.67	-956.4	7062.4	7126.9	8760.9	BHL: 2257ft FSL & 2340ft 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	5731.8	-1003.2	-552.9	40.646732	-104.086975
BPI - HALE FED 8-60 22-23-10	6304.7	-999.7	20.0	40.646742	-104.084911
EPI - HALE FED 8-60 22-23-10	6304.7	-958.3	6741.6	40.646853	-104.060689
BHL - HALE FED 8-60 22-23-10	6304.7	-956.4	7062.4	40.646858	-104.059533



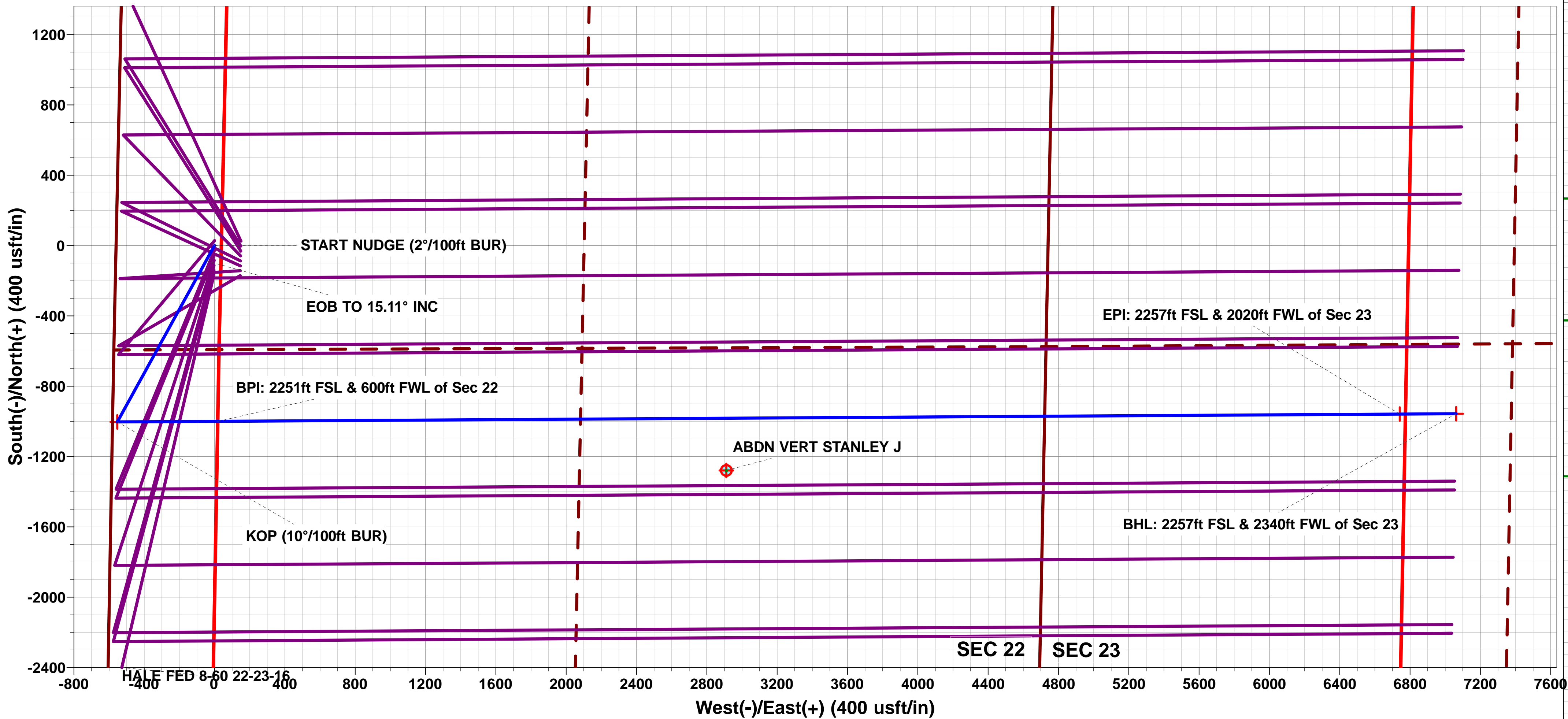
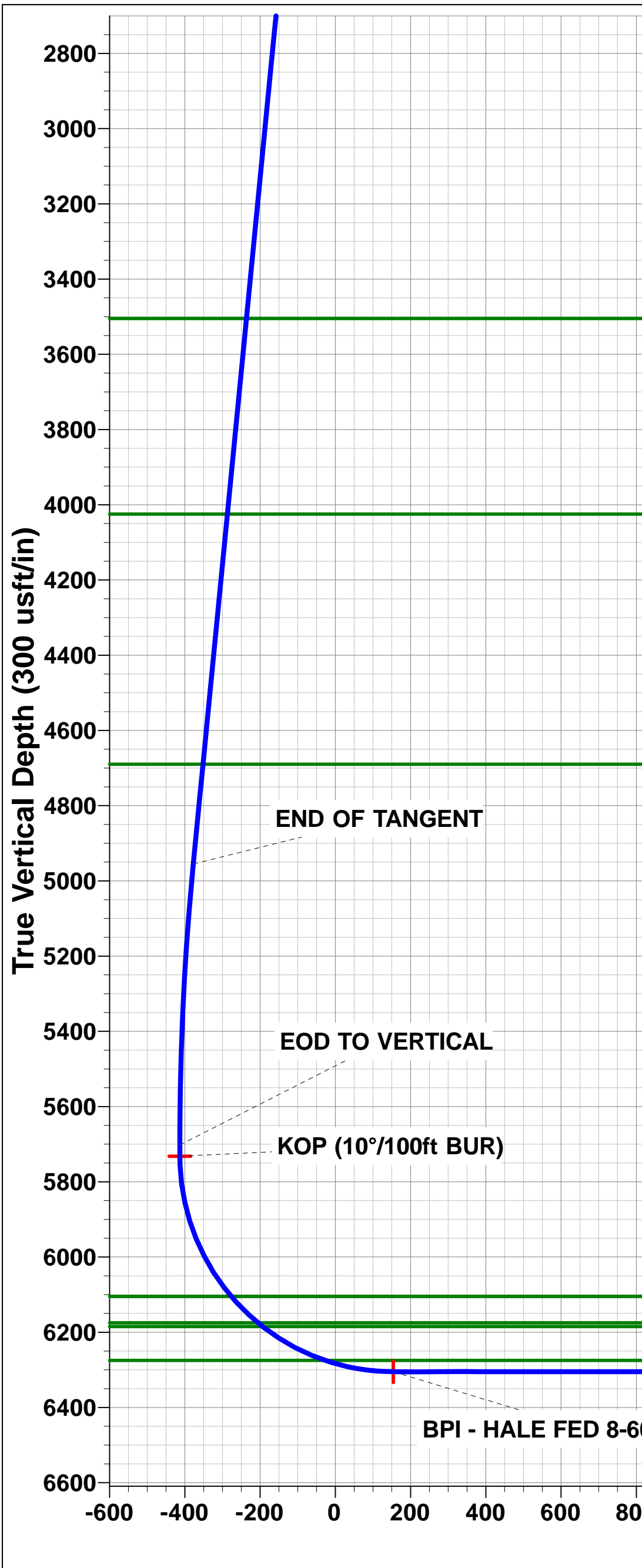
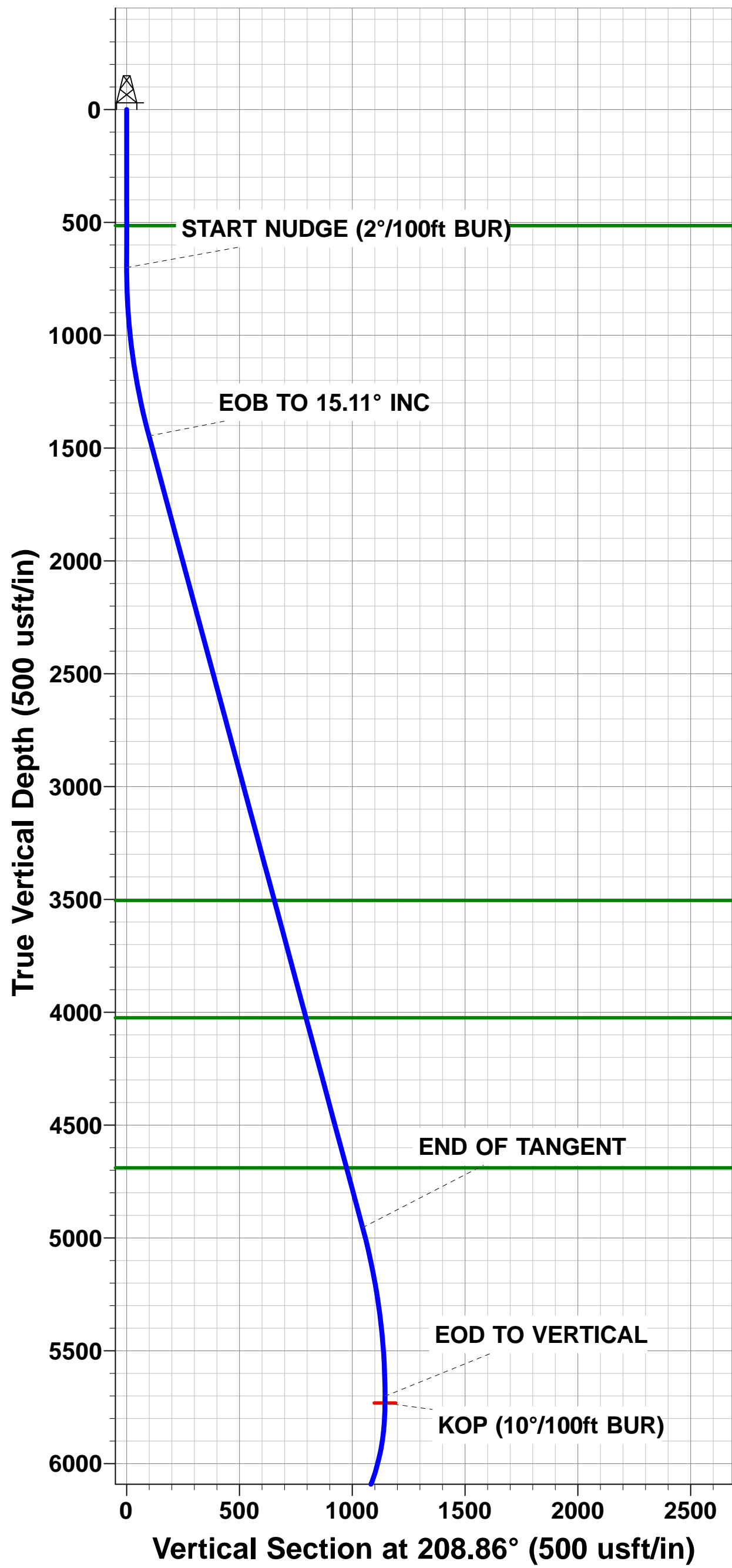
Azimuths to True North  
Magnetic North: 7.86°  
  
Magnetic Field  
Strength: 52582.4snT  
Dip Angle: 67.16°  
Date: 11/07/2017  
Model: IGRF2015

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
514.7	514.7	PIERRE SH (BASE FOX HILLS)
3504.7	3587.1	PARKMAN
4024.7	4125.8	SUSSEX
4689.7	4814.6	SHANNON
6104.7	6281.0	SHARON SPRINGS SHALE
6174.7	6381.2	IOBRARA FORMATION
6184.7	6397.2	IOBRARA A CHALK
6274.7	6588.6	IOBRARA B CHALK

PROPOSED LOCAL COORDINATES:

SHL: 2048ft FNL & 560ft FWL of Sec 22  
BEGIN PROD INT: 2251ft FSL & 600ft FWL of Sec 22  
END PROD INTERVAL: 2257ft FSL & 2020ft FWL of Sec 23  
BHL: 2257ft FSL & 2340ft FWL of Sec 23



EPI - HALE FED 8-60 22-23-10

BHL - HALE FED 8-60 22-23-10

Vertical Section at 97.71° (300 usft/in)

# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well HALE FED 8-60 22-23-10
<b>Company:</b>	BISON OIL & GAS II, LLC	<b>TVD Reference:</b>	KB-EST @ 4954.7usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4954.7usft (Original Well Elev)
<b>Site:</b>	SW NW SEC. 22 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	HALE FED 8-60 22-23-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #1		

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

<b>Site</b>	SW NW SEC. 22 T8N R60W 6th P.M.		
<b>Site Position:</b>		<b>Northing:</b>	1,482,610.76usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,392,779.56usft
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	1.10000ft
		<b>Latitude:</b>	40.649556
		<b>Longitude:</b>	-104.084442
		<b>Grid Convergence:</b>	0.91 °

<b>Well</b>	HALE FED 8-60 22-23-10		
<b>Well Position</b>	<b>+N/-S</b>	-25.5 usft	<b>Northing:</b>
	<b>+E/-W</b>	-150.1 usft	<b>Easting:</b>
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>
			<b>Latitude:</b>
			<b>Longitude:</b>
			<b>Ground Level:</b>

<b>Wellbore</b>	ORIGINAL WELLBORE				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	11/07/2017	7.86	67.16	52,582

<b>Design</b>	PROPOSAL #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	97.71

<b>Plan Sections</b>											
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
0.0	0.00	0.00	0.0	-4,954.7	0.0	0.0	0.00	0.00	0.00	0.00	
700.0	0.00	0.00	700.0	-4,254.7	0.0	0.0	0.00	0.00	0.00	0.00	
1,455.6	15.11	208.86	1,446.9	-3,507.8	-86.8	-47.8	2.00	2.00	0.00	208.86	
5,089.3	15.11	208.86	4,954.9	0.2	-916.4	-505.1	0.00	0.00	0.00	0.00	
5,844.9	0.00	0.00	5,701.8	747.1	-1,003.2	-552.9	2.00	-2.00	0.00	180.00	
5,874.9	0.00	0.00	5,731.8	777.1	-1,003.2	-552.9	0.00	0.00	0.00	0.00	KOP - HALE FED 8
6,774.8	90.00	89.65	6,304.7	1,350.0	-999.7	20.0	10.00	10.00	9.96	89.65	BPI - HALE FED 8-
13,496.6	90.00	89.64	6,304.7	1,350.0	-958.3	6,741.6	0.00	0.00	0.00	-73.31	EPI - HALE FED 8-
13,817.4	90.00	89.67	6,304.7	1,350.0	-956.4	7,062.4	0.01	0.00	0.01	93.70	BHL - HALE FED 8

# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well HALE FED 8-60 22-23-10
<b>Company:</b>	BISON OIL & GAS II, LLC	<b>TVD Reference:</b>	KB-EST @ 4954.7usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4954.7usft (Original Well Elev)
<b>Site:</b>	SW NW SEC. 22 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	HALE FED 8-60 22-23-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #1		

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)
<b>SHL: 2048ft FNL &amp; 560ft FWL of Sec 22</b>										
0.0	0.00	0.00	0.0	4,954.70	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	4,854.70	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	4,754.70	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	4,654.70	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	4,554.70	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	4,454.70	0.0	0.0	0.0	0.00	0.00	0.00
<b>PIERRE SHALE (BASE FOX HILLS)</b>										
514.7	0.00	0.00	514.7	4,440.00	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	4,354.70	0.0	0.0	0.0	0.00	0.00	0.00
<b>START NUDGE (2°/100ft BUR)</b>										
700.0	0.00	0.00	700.0	4,254.70	0.0	0.0	0.0	0.00	0.00	0.00
800.0	2.00	208.86	800.0	4,154.72	-1.5	-0.8	-0.6	2.00	2.00	0.00
900.0	4.00	208.86	899.8	4,054.86	-6.1	-3.4	-2.5	2.00	2.00	0.00
1,000.0	6.00	208.86	999.5	3,955.25	-13.7	-7.6	-5.7	2.00	2.00	0.00
1,100.0	8.00	208.86	1,098.7	3,856.00	-24.4	-13.5	-10.1	2.00	2.00	0.00
1,200.0	10.00	208.86	1,197.5	3,757.23	-38.1	-21.0	-15.7	2.00	2.00	0.00
1,300.0	12.00	208.86	1,295.6	3,659.08	-54.8	-30.2	-22.6	2.00	2.00	0.00
1,400.0	14.00	208.86	1,393.1	3,561.64	-74.5	-41.1	-30.7	2.00	2.00	0.00
<b>EOB TO 15.11° INC</b>										
1,455.6	15.11	208.86	1,446.9	3,507.83	-86.8	-47.8	-35.7	2.00	2.00	0.00
1,500.0	15.11	208.86	1,489.7	3,464.97	-96.9	-53.4	-39.9	0.00	0.00	0.00
1,600.0	15.11	208.86	1,586.3	3,368.42	-119.7	-66.0	-49.3	0.00	0.00	0.00
1,700.0	15.11	208.86	1,682.8	3,271.88	-142.6	-78.6	-58.7	0.00	0.00	0.00
1,800.0	15.11	208.86	1,779.4	3,175.34	-165.4	-91.2	-68.1	0.00	0.00	0.00
1,900.0	15.11	208.86	1,875.9	3,078.80	-188.2	-103.7	-77.5	0.00	0.00	0.00
2,000.0	15.11	208.86	1,972.4	2,982.26	-211.1	-116.3	-86.9	0.00	0.00	0.00
2,100.0	15.11	208.86	2,069.0	2,885.71	-233.9	-128.9	-96.4	0.00	0.00	0.00
2,200.0	15.11	208.86	2,165.5	2,789.17	-256.7	-141.5	-105.8	0.00	0.00	0.00
2,300.0	15.11	208.86	2,262.1	2,692.63	-279.6	-154.1	-115.2	0.00	0.00	0.00
2,400.0	15.11	208.86	2,358.6	2,596.09	-302.4	-166.7	-124.6	0.00	0.00	0.00
2,500.0	15.11	208.86	2,455.2	2,499.55	-325.2	-179.2	-134.0	0.00	0.00	0.00
2,600.0	15.11	208.86	2,551.7	2,403.01	-348.1	-191.8	-143.4	0.00	0.00	0.00
2,700.0	15.11	208.86	2,648.2	2,306.46	-370.9	-204.4	-152.8	0.00	0.00	0.00
2,800.0	15.11	208.86	2,744.8	2,209.92	-393.7	-217.0	-162.2	0.00	0.00	0.00
2,900.0	15.11	208.86	2,841.3	2,113.38	-416.6	-229.6	-171.6	0.00	0.00	0.00
3,000.0	15.11	208.86	2,937.9	2,016.84	-439.4	-242.2	-181.0	0.00	0.00	0.00
3,100.0	15.11	208.86	3,034.4	1,920.30	-462.2	-254.7	-190.4	0.00	0.00	0.00
3,200.0	15.11	208.86	3,130.9	1,823.75	-485.1	-267.3	-199.8	0.00	0.00	0.00
3,300.0	15.11	208.86	3,227.5	1,727.21	-507.9	-279.9	-209.2	0.00	0.00	0.00
3,400.0	15.11	208.86	3,324.0	1,630.67	-530.7	-292.5	-218.6	0.00	0.00	0.00
3,500.0	15.11	208.86	3,420.6	1,534.13	-553.6	-305.1	-228.0	0.00	0.00	0.00
<b>PARKMAN</b>										
3,587.1	15.11	208.86	3,504.7	1,450.00	-573.4	-316.0	-236.2	0.00	0.00	0.00
3,600.0	15.11	208.86	3,517.1	1,437.59	-576.4	-317.7	-237.4	0.00	0.00	0.00
3,700.0	15.11	208.86	3,613.7	1,341.05	-599.2	-330.3	-246.8	0.00	0.00	0.00
3,800.0	15.11	208.86	3,710.2	1,244.50	-622.0	-342.8	-256.3	0.00	0.00	0.00
3,900.0	15.11	208.86	3,806.7	1,147.96	-644.9	-355.4	-265.7	0.00	0.00	0.00
4,000.0	15.11	208.86	3,903.3	1,051.42	-667.7	-368.0	-275.1	0.00	0.00	0.00
4,100.0	15.11	208.86	3,999.8	954.88	-690.5	-380.6	-284.5	0.00	0.00	0.00
<b>SUSSEX</b>										
4,125.8	15.11	208.86	4,024.7	930.00	-696.4	-383.8	-286.9	0.00	0.00	0.00
4,200.0	15.11	208.86	4,096.4	858.34	-713.4	-393.2	-293.9	0.00	0.00	0.00



# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well HALE FED 8-60 22-23-10
<b>Company:</b>	BISON OIL & GAS II, LLC	<b>TVD Reference:</b>	KB-EST @ 4954.7usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4954.7usft (Original Well Elev)
<b>Site:</b>	SW NW SEC. 22 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	HALE FED 8-60 22-23-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #1		

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)
4,300.0	15.11	208.86	4,192.9	761.79	-736.2	-405.8	-303.3	0.00	0.00	0.00
4,400.0	15.11	208.86	4,289.4	665.25	-759.0	-418.3	-312.7	0.00	0.00	0.00
4,500.0	15.11	208.86	4,386.0	568.71	-781.9	-430.9	-322.1	0.00	0.00	0.00
4,600.0	15.11	208.86	4,482.5	472.17	-804.7	-443.5	-331.5	0.00	0.00	0.00
4,700.0	15.11	208.86	4,579.1	375.63	-827.5	-456.1	-340.9	0.00	0.00	0.00
4,800.0	15.11	208.86	4,675.6	279.08	-850.4	-468.7	-350.3	0.00	0.00	0.00
<b>SHANNON</b>										
4,814.6	15.11	208.86	4,689.7	265.00	-853.7	-470.5	-351.7	0.00	0.00	0.00
4,900.0	15.11	208.86	4,772.2	182.54	-873.2	-481.3	-359.7	0.00	0.00	0.00
5,000.0	15.11	208.86	4,868.7	86.00	-896.0	-493.8	-369.1	0.00	0.00	0.00
<b>END OF TANGENT</b>										
5,089.3	15.11	208.86	4,954.9	-0.23	-916.4	-505.1	-377.5	0.00	0.00	0.00
5,100.0	14.90	208.86	4,965.2	-10.55	-918.9	-506.4	-378.5	2.00	-2.00	0.00
5,200.0	12.90	208.86	5,062.3	-107.61	-939.9	-518.0	-387.2	2.00	-2.00	0.00
5,300.0	10.90	208.86	5,160.2	-205.46	-957.9	-528.0	-394.6	2.00	-2.00	0.00
5,400.0	8.90	208.86	5,258.7	-303.97	-973.0	-536.3	-400.8	2.00	-2.00	0.00
5,500.0	6.90	208.86	5,357.7	-403.01	-985.0	-542.9	-405.8	2.00	-2.00	0.00
5,600.0	4.90	208.86	5,457.2	-502.48	-994.0	-547.8	-409.5	2.00	-2.00	0.00
5,700.0	2.90	208.86	5,556.9	-602.24	-1,000.0	-551.1	-411.9	2.00	-2.00	0.00
5,800.0	0.90	208.86	5,656.9	-702.18	-1,002.9	-552.7	-413.1	2.00	-2.00	0.00
<b>EOD TO VERTICAL</b>										
5,844.9	0.00	0.00	5,701.8	-747.10	-1,003.2	-552.9	-413.3	2.00	-2.00	0.00
<b>KOP (10°/100ft BUR)</b>										
5,874.9	0.00	0.00	5,731.8	-777.10	-1,003.2	-552.9	-413.3	0.00	0.00	0.00
5,900.0	2.51	89.65	5,756.9	-802.17	-1,003.2	-552.4	-412.7	10.00	10.00	0.00
6,000.0	12.51	89.65	5,855.9	-901.19	-1,003.1	-539.3	-399.8	10.00	10.00	0.00
6,100.0	22.51	89.65	5,951.1	-996.43	-1,002.9	-509.3	-370.1	10.00	10.00	0.00
6,200.0	32.51	89.65	6,039.7	-1,085.01	-1,002.6	-463.1	-324.4	10.00	10.00	0.00
<b>SHARON SPRINGS SHALE</b>										
6,281.0	40.61	89.65	6,104.7	-1,150.00	-1,002.4	-414.9	-276.7	10.00	10.00	0.00
6,300.0	42.51	89.65	6,118.9	-1,164.24	-1,002.3	-402.3	-264.2	10.00	10.00	0.00
<b>NIOBRARA FORMATION</b>										
6,381.2	50.63	89.65	6,174.7	-1,220.00	-1,001.9	-343.4	-205.8	10.00	10.00	0.00
<b>NIOBRARA A CHALK</b>										
6,397.2	52.24	89.65	6,184.7	-1,230.00	-1,001.8	-330.9	-193.4	10.00	10.00	0.00
6,400.0	52.51	89.65	6,186.4	-1,231.69	-1,001.8	-328.7	-191.2	10.00	10.00	0.00
6,500.0	62.51	89.65	6,240.0	-1,285.33	-1,001.3	-244.4	-107.8	10.00	10.00	0.00
<b>NIOBRARA B CHALK</b>										
6,588.6	71.38	89.65	6,274.7	-1,320.00	-1,000.8	-163.0	-27.2	10.00	10.00	0.00
6,600.0	72.52	89.65	6,278.2	-1,323.53	-1,000.8	-152.1	-16.5	10.00	10.00	0.00
6,700.0	82.52	89.65	6,299.8	-1,345.12	-1,000.2	-54.6	80.1	10.00	10.00	0.00
<b>BPI: 2251ft FSL &amp; 600ft FWL of Sec 22</b>										
6,774.8	90.00	89.65	6,304.7	-1,350.00	-999.7	20.0	154.0	10.00	10.00	0.00
6,800.0	90.00	89.65	6,304.7	-1,350.00	-999.5	45.2	178.9	0.00	0.00	0.00
6,900.0	90.00	89.65	6,304.7	-1,350.00	-998.9	145.2	277.9	0.00	0.00	0.00
7,000.0	90.00	89.65	6,304.7	-1,350.00	-998.3	245.2	376.9	0.00	0.00	0.00
7,100.0	90.00	89.65	6,304.7	-1,350.00	-997.7	345.2	475.9	0.00	0.00	0.00
7,200.0	90.00	89.65	6,304.7	-1,350.01	-997.1	445.2	574.9	0.00	0.00	0.00
7,300.0	90.00	89.65	6,304.7	-1,350.01	-996.5	545.2	673.9	0.00	0.00	0.00
7,400.0	90.00	89.65	6,304.7	-1,350.01	-995.9	645.1	773.0	0.00	0.00	0.00
7,500.0	90.00	89.65	6,304.7	-1,350.01	-995.3	745.1	872.0	0.00	0.00	0.00
7,600.0	90.00	89.65	6,304.7	-1,350.01	-994.7	845.1	971.0	0.00	0.00	0.00
7,700.0	90.00	89.65	6,304.7	-1,350.01	-994.1	945.1	1,070.0	0.00	0.00	0.00

# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well HALE FED 8-60 22-23-10
<b>Company:</b>	BISON OIL & GAS II, LLC	<b>TVD Reference:</b>	KB-EST @ 4954.7usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4954.7usft (Original Well Elev)
<b>Site:</b>	SW NW SEC. 22 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	HALE FED 8-60 22-23-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #1		

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)
7,800.0	90.00	89.65	6,304.7	-1,350.01	-993.4	1,045.1	1,169.0	0.00	0.00	0.00
7,900.0	90.00	89.65	6,304.7	-1,350.02	-992.8	1,145.1	1,268.0	0.00	0.00	0.00
8,000.0	90.00	89.65	6,304.7	-1,350.02	-992.2	1,245.1	1,367.0	0.00	0.00	0.00
8,100.0	90.00	89.65	6,304.7	-1,350.02	-991.6	1,345.1	1,466.0	0.00	0.00	0.00
8,200.0	90.00	89.65	6,304.7	-1,350.02	-991.0	1,445.1	1,565.1	0.00	0.00	0.00
8,300.0	90.00	89.65	6,304.7	-1,350.02	-990.4	1,545.1	1,664.1	0.00	0.00	0.00
8,400.0	90.00	89.65	6,304.7	-1,350.02	-989.8	1,645.1	1,763.1	0.00	0.00	0.00
8,500.0	90.00	89.65	6,304.7	-1,350.02	-989.2	1,745.1	1,862.1	0.00	0.00	0.00
8,600.0	90.00	89.65	6,304.7	-1,350.02	-988.5	1,845.1	1,961.1	0.00	0.00	0.00
8,700.0	90.00	89.65	6,304.7	-1,350.02	-987.9	1,945.1	2,060.1	0.00	0.00	0.00
8,800.0	90.00	89.65	6,304.7	-1,350.02	-987.3	2,045.1	2,159.1	0.00	0.00	0.00
8,900.0	90.00	89.65	6,304.7	-1,350.02	-986.7	2,145.1	2,258.1	0.00	0.00	0.00
9,000.0	90.00	89.65	6,304.7	-1,350.02	-986.1	2,245.1	2,357.1	0.00	0.00	0.00
9,100.0	90.00	89.65	6,304.7	-1,350.02	-985.5	2,345.1	2,456.2	0.00	0.00	0.00
9,200.0	90.00	89.65	6,304.7	-1,350.02	-984.9	2,445.1	2,555.2	0.00	0.00	0.00
9,300.0	90.00	89.65	6,304.7	-1,350.03	-984.2	2,545.1	2,654.2	0.00	0.00	0.00
9,400.0	90.00	89.65	6,304.7	-1,350.03	-983.6	2,645.1	2,753.2	0.00	0.00	0.00
9,500.0	90.00	89.65	6,304.7	-1,350.03	-983.0	2,745.1	2,852.2	0.00	0.00	0.00
9,600.0	90.00	89.65	6,304.7	-1,350.03	-982.4	2,845.1	2,951.2	0.00	0.00	0.00
9,700.0	90.00	89.65	6,304.7	-1,350.03	-981.8	2,945.1	3,050.2	0.00	0.00	0.00
9,800.0	90.00	89.65	6,304.7	-1,350.03	-981.2	3,045.1	3,149.2	0.00	0.00	0.00
9,900.0	90.00	89.65	6,304.7	-1,350.03	-980.6	3,145.1	3,248.2	0.00	0.00	0.00
10,000.0	90.00	89.65	6,304.7	-1,350.03	-979.9	3,245.1	3,347.3	0.00	0.00	0.00
10,100.0	90.00	89.65	6,304.7	-1,350.03	-979.3	3,345.1	3,446.3	0.00	0.00	0.00
10,200.0	90.00	89.65	6,304.7	-1,350.03	-978.7	3,445.1	3,545.3	0.00	0.00	0.00
10,300.0	90.00	89.65	6,304.7	-1,350.03	-978.1	3,545.1	3,644.3	0.00	0.00	0.00
10,400.0	90.00	89.65	6,304.7	-1,350.03	-977.5	3,645.1	3,743.3	0.00	0.00	0.00
10,500.0	90.00	89.65	6,304.7	-1,350.03	-976.9	3,745.1	3,842.3	0.00	0.00	0.00
10,600.0	90.00	89.65	6,304.7	-1,350.03	-976.3	3,845.1	3,941.3	0.00	0.00	0.00
10,700.0	90.00	89.65	6,304.7	-1,350.03	-975.6	3,945.1	4,040.3	0.00	0.00	0.00
10,800.0	90.00	89.65	6,304.7	-1,350.03	-975.0	4,045.1	4,139.3	0.00	0.00	0.00
10,900.0	90.00	89.65	6,304.7	-1,350.03	-974.4	4,145.1	4,238.4	0.00	0.00	0.00
11,000.0	90.00	89.65	6,304.7	-1,350.03	-973.8	4,245.1	4,337.4	0.00	0.00	0.00
11,100.0	90.00	89.65	6,304.7	-1,350.02	-973.2	4,345.1	4,436.4	0.00	0.00	0.00
11,200.0	90.00	89.65	6,304.7	-1,350.02	-972.6	4,445.1	4,535.4	0.00	0.00	0.00
11,300.0	90.00	89.65	6,304.7	-1,350.02	-971.9	4,545.1	4,634.4	0.00	0.00	0.00
11,400.0	90.00	89.65	6,304.7	-1,350.02	-971.3	4,645.1	4,733.4	0.00	0.00	0.00
11,500.0	90.00	89.65	6,304.7	-1,350.02	-970.7	4,745.1	4,832.4	0.00	0.00	0.00
11,600.0	90.00	89.65	6,304.7	-1,350.02	-970.1	4,845.1	4,931.4	0.00	0.00	0.00
11,700.0	90.00	89.65	6,304.7	-1,350.02	-969.5	4,945.1	5,030.4	0.00	0.00	0.00
11,800.0	90.00	89.65	6,304.7	-1,350.02	-968.8	5,045.1	5,129.4	0.00	0.00	0.00
11,900.0	90.00	89.65	6,304.7	-1,350.02	-968.2	5,145.1	5,228.5	0.00	0.00	0.00
12,000.0	90.00	89.65	6,304.7	-1,350.02	-967.6	5,245.1	5,327.5	0.00	0.00	0.00
12,100.0	90.00	89.65	6,304.7	-1,350.02	-967.0	5,345.1	5,426.5	0.00	0.00	0.00
12,200.0	90.00	89.65	6,304.7	-1,350.02	-966.4	5,445.1	5,525.5	0.00	0.00	0.00
12,300.0	90.00	89.65	6,304.7	-1,350.02	-965.8	5,545.1	5,624.5	0.00	0.00	0.00
12,400.0	90.00	89.65	6,304.7	-1,350.01	-965.1	5,645.1	5,723.5	0.00	0.00	0.00
12,500.0	90.00	89.65	6,304.7	-1,350.01	-964.5	5,745.1	5,822.5	0.00	0.00	0.00
12,600.0	90.00	89.65	6,304.7	-1,350.01	-963.9	5,845.0	5,921.5	0.00	0.00	0.00
12,700.0	90.00	89.65	6,304.7	-1,350.01	-963.3	5,945.0	6,020.5	0.00	0.00	0.00
12,800.0	90.00	89.64	6,304.7	-1,350.01	-962.7	6,045.0	6,119.6	0.00	0.00	0.00
12,900.0	90.00	89.64	6,304.7	-1,350.01	-962.0	6,145.0	6,218.6	0.00	0.00	0.00
13,000.0	90.00	89.64	6,304.7	-1,350.01	-961.4	6,245.0	6,317.6	0.00	0.00	0.00
13,100.0	90.00	89.64	6,304.7	-1,350.01	-960.8	6,345.0	6,416.6	0.00	0.00	0.00

# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well HALE FED 8-60 22-23-10
<b>Company:</b>	BISON OIL & GAS II, LLC	<b>TVD Reference:</b>	KB-EST @ 4954.7usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4954.7usft (Original Well Elev)
<b>Site:</b>	SW NW SEC. 22 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	HALE FED 8-60 22-23-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #1		

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)
13,200.0	90.00	89.64	6,304.7	-1,350.00	-960.2	6,445.0	6,515.6	0.00	0.00	0.00
13,300.0	90.00	89.64	6,304.7	-1,350.00	-959.6	6,545.0	6,614.6	0.00	0.00	0.00
13,400.0	90.00	89.64	6,304.7	-1,350.00	-958.9	6,645.0	6,713.6	0.00	0.00	0.00
<b>EPI: 2257ft FSL &amp; 2020ft FWL of Sec 23</b>										
<b>13,496.6</b>	<b>90.00</b>	<b>89.64</b>	<b>6,304.7</b>	<b>-1,350.00</b>	<b>-958.3</b>	<b>6,741.6</b>	<b>6,809.2</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
13,500.0	90.00	89.64	6,304.7	-1,350.00	-958.3	6,745.0	6,812.6	0.01	0.00	0.01
13,600.0	90.00	89.65	6,304.7	-1,350.00	-957.7	6,845.0	6,911.6	0.01	0.00	0.01
13,700.0	90.00	89.66	6,304.7	-1,350.00	-957.1	6,945.0	7,010.6	0.01	0.00	0.01
13,800.0	90.00	89.67	6,304.7	-1,350.00	-956.5	7,045.0	7,109.7	0.01	0.00	0.01
<b>BHL: 2257ft FSL &amp; 2340ft FWL of Sec 23</b>										
<b>13,817.4</b>	<b>90.00</b>	<b>89.67</b>	<b>6,304.7</b>	<b>-1,350.00</b>	<b>-956.4</b>	<b>7,062.4</b>	<b>7,126.9</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
514.7	514.7	PIERRE SHALE (BASE FOX HILLS				
3,587.1	3,504.7	PARKMAN				
4,125.8	4,024.7	SUSSEX				
4,814.6	4,689.7	SHANNON				
6,281.0	6,104.7	SHARON SPRINGS SHALE				
6,381.2	6,174.7	NIOBRARA FORMATION				
6,397.2	6,184.7	NIOBRARA A CHALK				
6,588.6	6,274.7	NIOBRARA B CHALK				

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.0	0.0	0.0	0.0	SHL: 2048ft FNL & 560ft FWL of Sec 22
700.0	700.0	0.0	0.0	START NUDGE (2°/100ft BUR)
1,455.6	1,446.9	-86.8	-47.8	EOB TO 15.11° INC
5,089.3	4,954.9	-916.4	-505.1	END OF TANGENT
5,844.9	5,701.8	-1,003.2	-552.9	EOD TO VERTICAL
5,874.9	5,731.8	-1,003.2	-552.9	KOP (10°/100ft BUR)
6,774.8	6,304.7	-999.7	20.0	BPI: 2251ft FSL & 600ft FWL of Sec 22
13,496.6	6,304.7	-958.3	6,741.6	EPI: 2257ft FSL & 2020ft FWL of Sec 23
13,817.4	6,304.7	-956.4	7,062.4	BHL: 2257ft FSL & 2340ft FWL of Sec 23