

BISON OIL & GAS II, LLC

WELD COUNTY, COLORADO (NAD 83)

NW SW SEC. 16 T8N R59W 6th P.M.

BIG MOUNTAIN VIPER FED 8-59 16-17-18-5

ORIGINAL WELLBORE

28 April, 2019

Plan: PROPOSAL #1



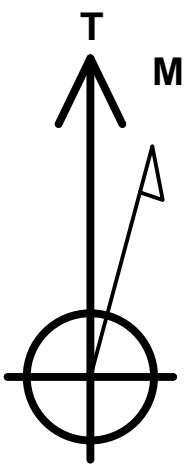
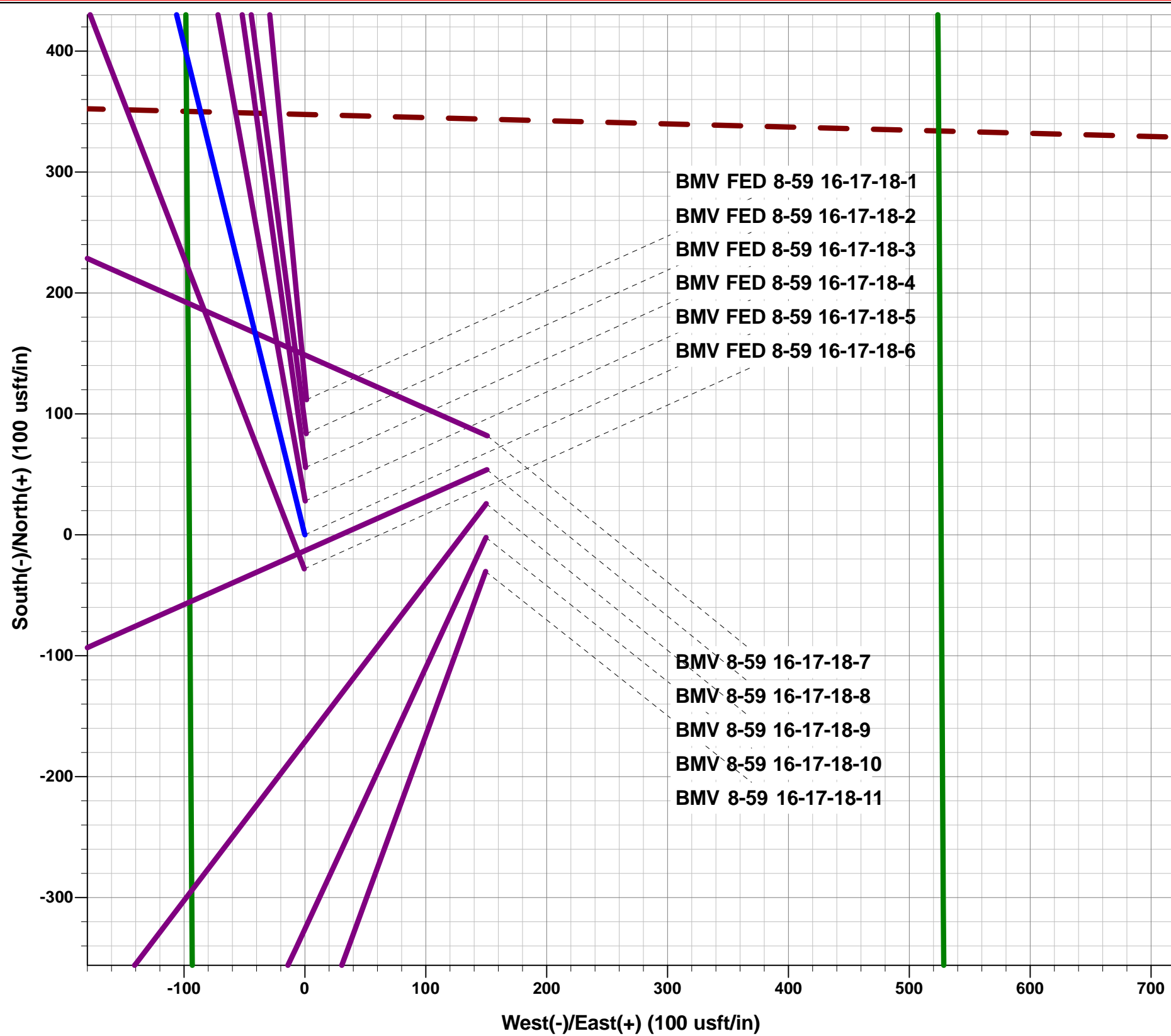
Project: WELD COUNTY, COLORADO (NAD 83)
Site: NW SW SEC. 16 T8N R59W 6th P.M.
Well: BIG MOUNTAIN VIPER FED 8-59 16-17-18-5
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #1

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: 2298ft FSL & 560ft FWL of Sec 16
500.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1252.12	1261.04	15.22	346.14	97.57	-24.07	37.12	100.49	EOB TO 15.22° INC
4701.12	4835.42	15.22	346.14	1008.66	-248.87	383.76	1038.91	END OF TANGENT
5453.24	5596.46	0.00	0.00	1106.23	-272.94	420.88	1139.40	EOD TO VERTICAL
5553.24	5696.46	0.00	0.00	1106.23	-272.94	420.88	1139.40	KOP (10°/100ft BUR)
6126.20	6596.47	90.00	270.38	1110.13	-845.88	989.03	1712.36	BPI: 2014ft FNL & 300ft FEL of Sec 17
6126.20	14151.87	90.00	270.38	1161.10	-8401.12	8480.97	9267.77	EPI: 2014ft FNL & 2557ft FEL of Sec 18
6126.20	14209.85	90.00	270.38	1161.48	-8459.10	8538.47	9325.75	BHL: 2014ft FNL & 2615ft FEL of Sec 18

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - BMV FED 8-59 16-17-18-5	5553.24	1106.23	-272.94	40.664154	-103.990082
BPI - BMV FED 8-59 16-17-18-5	6126.20	1110.13	-845.88	40.664165	-103.992147
EPI - BMV FED 8-59 16-17-18-5	6126.20	1161.10	-8401.12	40.664301	-104.019380
BHL - BMV FED 8-59 16-17-18-5	6126.20	1161.48	-8459.10	40.664302	-104.019589



Azimuths to True North
Magnetic North: 7.61°

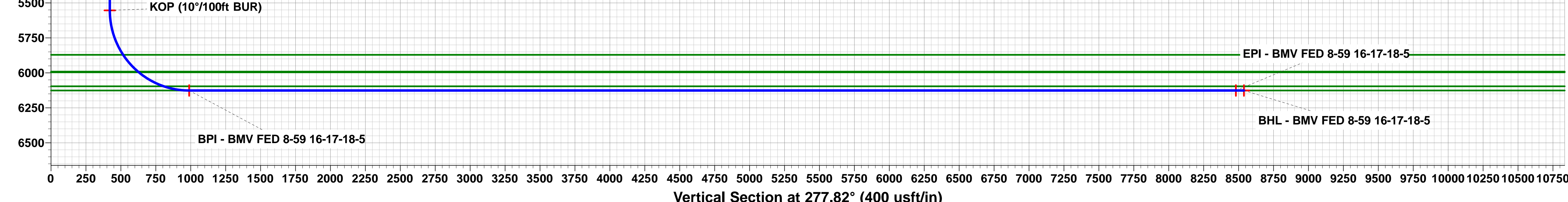
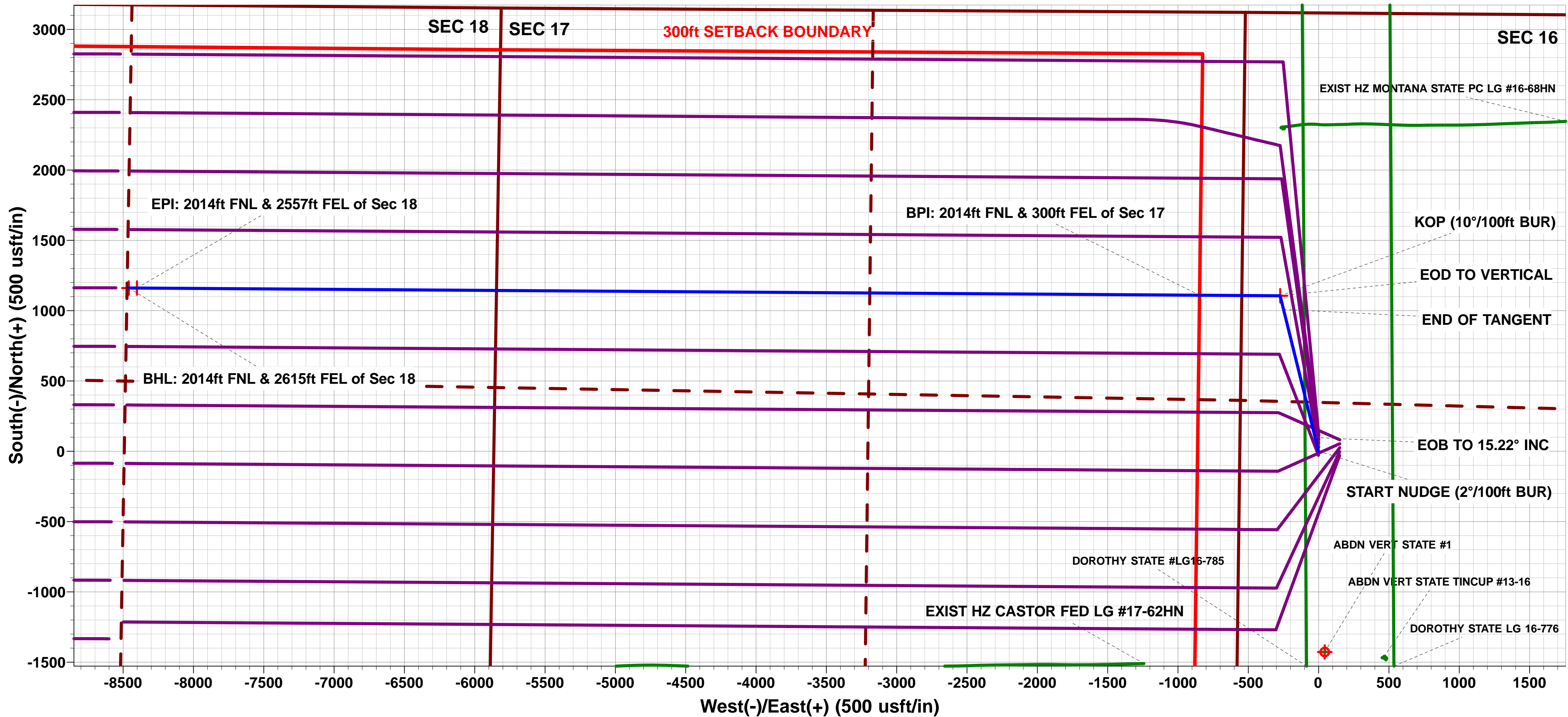
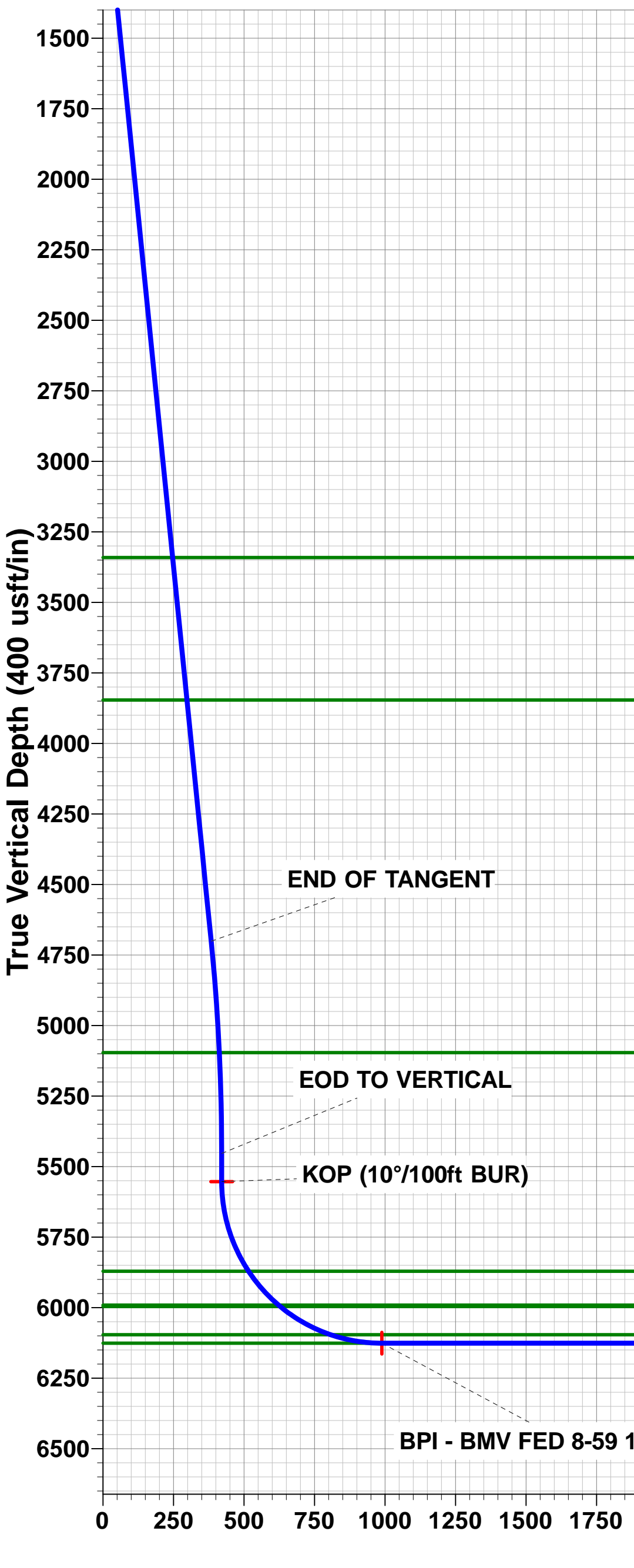
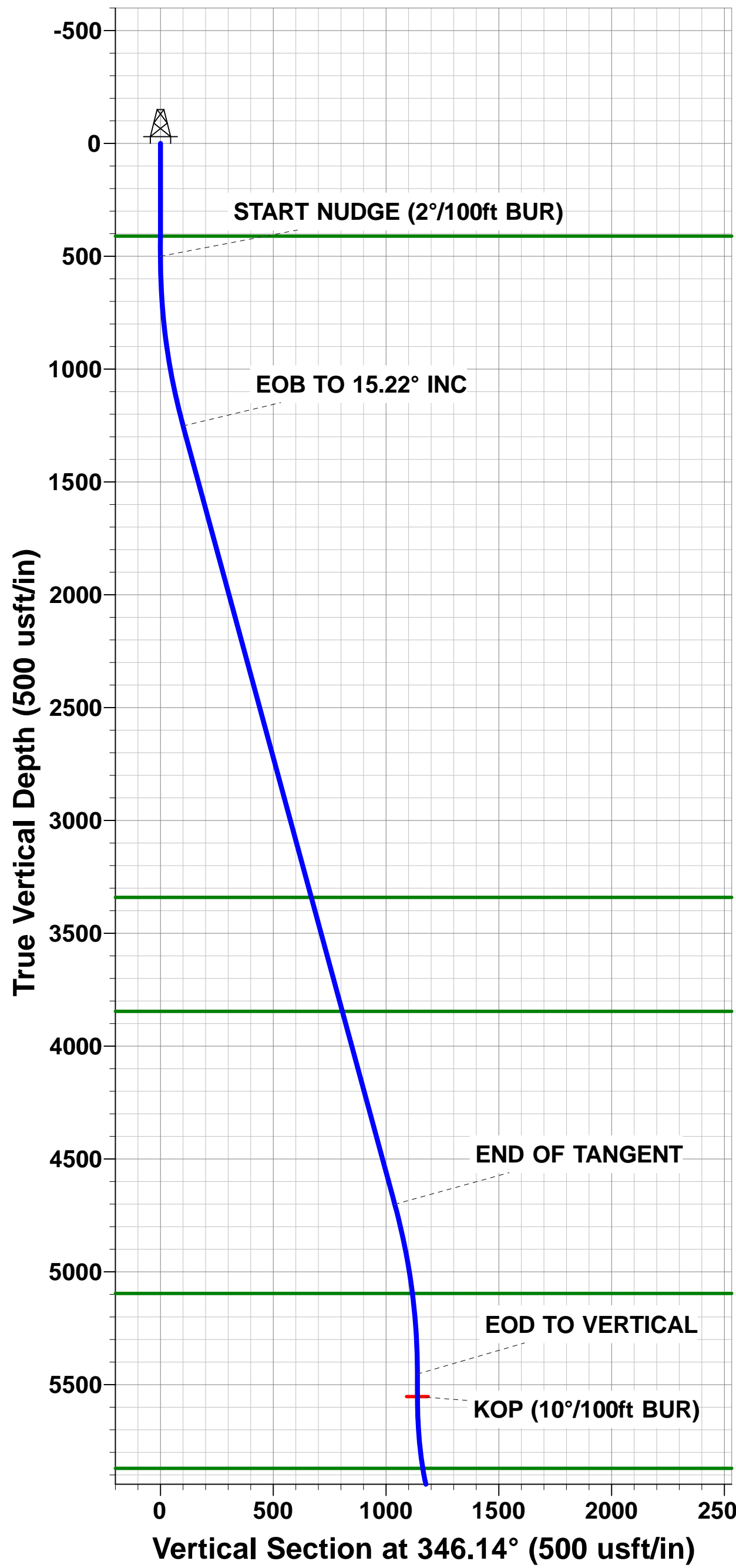
Magnetic Field
Strength: 52392.2snT
Dip Angle: 67.13°
Date: 28/04/2019
Model: IGRF2015

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
411.20	411.20	PIERRE SHALE (BFH)
3341.20	3426.07	PARKMAN
3846.20	3949.43	SUSSEX
5096.20	5238.49	SHANNON
5871.20	6033.53	SHARON SPRINGS SHALE
5991.20	6194.99	NIOBRARA FORMATION
5996.20	6202.80	NIOBRARA A CHALK
6096.20	6410.24	NIOBRARA B CHALK
6126.20	6596.47	NIOBRARA B LP

PROPOSED LOCAL COORDINATES:

SHL: 2298ft FSL & 560ft FWL of Sec 16
BEGIN PROD INT: 2014ft FNL & 300ft FEL of Sec 17
END PROD INTERVAL: 2014ft FNL & 2557ft FEL of Sec 18
BHL: 2014ft FNL & 2615ft FEL of Sec 18



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well BIG MOUNTAIN VIPER FED 8-59 16-17-18-5
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4901.20usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4901.20usft (Original Well Elev)
Site:	NW SW SEC. 16 T8N R59W 6th P.M.	North Reference:	True
Well:	BIG MOUNTAIN VIPER FED 8-59 16-17-18-5	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

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	NW SW SEC. 16 T8N R59W 6th P.M.				
Site Position:		Northing:	1,487,370.83 usft	Latitude:	40.661425
From:	Lat/Long	Easting:	3,419,160.21 usft	Longitude:	-103.989093
Position Uncertainty:	0.00 usft	Slot Radius:	1.10000ft	Grid Convergence:	0.98 °

Well	BIG MOUNTAIN VIPER FED 8-59 16-17-18-5					
Well Position	+N-S	-111.86 usft	Northing:	1,487,258.96 usft	Latitude:	40.661118
	+E-W	-1.39 usft	Easting:	3,419,160.73 usft	Longitude:	-103.989098
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,876.20 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	28/04/2019	7.61	67.13	52,392

Design	PROPOSAL #1				
Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E/-W (usft)	Direction (°)	
	6,126.20	0.00	0.00	277.82	

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	-4,901.20	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	-4,401.20	0.00	0.00	0.00	0.00	0.00	0.00	
1,261.04	15.22	346.14	1,252.12	-3,649.08	97.57	-24.07	2.00	2.00	0.00	346.14	
4,835.42	15.22	346.14	4,701.12	-200.08	1,008.66	-248.87	0.00	0.00	0.00	0.00	
5,596.46	0.00	0.00	5,453.24	552.04	1,106.23	-272.94	2.00	-2.00	0.00	180.00	
5,696.46	0.00	0.00	5,553.24	652.04	1,106.23	-272.94	0.00	0.00	0.00	0.00	KOP - BMV FED 8-
6,596.47	90.00	270.39	6,126.20	1,225.00	1,110.13	-845.88	10.00	10.00	-9.96	270.39	BPI - BMV FED 8-5
14,151.87	90.00	270.38	6,126.20	1,225.00	1,161.10	-8,401.12	0.00	0.00	0.00	-85.35	EPI - BMV FED 8-5
14,209.85	90.00	270.38	6,126.20	1,225.00	1,161.48	-8,459.10	0.01	0.00	-0.01	-94.81	BHL - BMV FED 8-4

Planning Report



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Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4901.20usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4901.20usft (Original Well Elev)
Site:	NW SW SEC. 16 T8N R59W 6th P.M.	North Reference:	True
Well:	BIG MOUNTAIN VIPER FED 8-59 16-17-18-5	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
SHL: 2298ft FSL & 560ft FWL of Sec 16										
0.00	0.00	0.00	0.00	4,901.20	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,801.20	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	4,701.20	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	4,601.20	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	4,501.20	0.00	0.00	0.00	0.00	0.00	0.00
PIERRE SHALE (BFH)										
411.20	0.00	0.00	411.20	4,490.00	0.00	0.00	0.00	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
500.00	0.00	0.00	500.00	4,401.20	0.00	0.00	0.00	0.00	0.00	0.00
600.00	2.00	346.14	599.98	4,301.22	1.69	-0.42	0.64	2.00	2.00	0.00
700.00	4.00	346.14	699.84	4,201.36	6.78	-1.67	2.58	2.00	2.00	0.00
800.00	6.00	346.14	799.45	4,101.75	15.24	-3.76	5.80	2.00	2.00	0.00
900.00	8.00	346.14	898.70	4,002.50	27.07	-6.68	10.30	2.00	2.00	0.00
1,000.00	10.00	346.14	997.47	3,903.73	42.26	-10.43	16.08	2.00	2.00	0.00
1,100.00	12.00	346.14	1,095.62	3,805.58	60.78	-15.00	23.12	2.00	2.00	0.00
1,200.00	14.00	346.14	1,193.06	3,708.14	82.62	-20.38	31.43	2.00	2.00	0.00
EOB TO 15.22° INC										
1,261.04	15.22	346.14	1,252.12	3,649.08	97.57	-24.07	37.12	2.00	2.00	0.00
1,300.00	15.22	346.14	1,289.71	3,611.49	107.50	-26.52	40.90	0.00	0.00	0.00
1,400.00	15.22	346.14	1,386.21	3,514.99	132.99	-32.81	50.60	0.00	0.00	0.00
1,500.00	15.22	346.14	1,482.70	3,418.50	158.48	-39.10	60.30	0.00	0.00	0.00
1,600.00	15.22	346.14	1,579.19	3,322.01	183.97	-45.39	69.99	0.00	0.00	0.00
1,700.00	15.22	346.14	1,675.68	3,225.52	209.46	-51.68	79.69	0.00	0.00	0.00
1,800.00	15.22	346.14	1,772.17	3,129.03	234.95	-57.97	89.39	0.00	0.00	0.00
1,900.00	15.22	346.14	1,868.67	3,032.53	260.44	-64.26	99.09	0.00	0.00	0.00
2,000.00	15.22	346.14	1,965.16	2,936.04	285.93	-70.55	108.78	0.00	0.00	0.00
2,100.00	15.22	346.14	2,061.65	2,839.55	311.41	-76.84	118.48	0.00	0.00	0.00
2,200.00	15.22	346.14	2,158.14	2,743.06	336.90	-83.12	128.18	0.00	0.00	0.00
2,300.00	15.22	346.14	2,254.63	2,646.57	362.39	-89.41	137.88	0.00	0.00	0.00
2,400.00	15.22	346.14	2,351.13	2,550.07	387.88	-95.70	147.58	0.00	0.00	0.00
2,500.00	15.22	346.14	2,447.62	2,453.58	413.37	-101.99	157.27	0.00	0.00	0.00
2,600.00	15.22	346.14	2,544.11	2,357.09	438.86	-108.28	166.97	0.00	0.00	0.00
2,700.00	15.22	346.14	2,640.60	2,260.60	464.35	-114.57	176.67	0.00	0.00	0.00
2,800.00	15.22	346.14	2,737.10	2,164.10	489.84	-120.86	186.37	0.00	0.00	0.00
2,900.00	15.22	346.14	2,833.59	2,067.61	515.33	-127.15	196.07	0.00	0.00	0.00
3,000.00	15.22	346.14	2,930.08	1,971.12	540.82	-133.44	205.76	0.00	0.00	0.00
3,100.00	15.22	346.14	3,026.57	1,874.63	566.31	-139.73	215.46	0.00	0.00	0.00
3,200.00	15.22	346.14	3,123.06	1,778.14	591.80	-146.01	225.16	0.00	0.00	0.00
3,300.00	15.22	346.14	3,219.56	1,681.64	617.29	-152.30	234.86	0.00	0.00	0.00
3,400.00	15.22	346.14	3,316.05	1,585.15	642.78	-158.59	244.56	0.00	0.00	0.00
PARKMAN										
3,426.07	15.22	346.14	3,341.20	1,560.00	649.42	-160.23	247.08	0.00	0.00	0.00
3,500.00	15.22	346.14	3,412.54	1,488.66	668.27	-164.88	254.25	0.00	0.00	0.00
3,600.00	15.22	346.14	3,509.03	1,392.17	693.76	-171.17	263.95	0.00	0.00	0.00
3,700.00	15.22	346.14	3,605.52	1,295.68	719.25	-177.46	273.65	0.00	0.00	0.00
3,800.00	15.22	346.14	3,702.02	1,199.18	744.74	-183.75	283.35	0.00	0.00	0.00
3,900.00	15.22	346.14	3,798.51	1,102.69	770.23	-190.04	293.05	0.00	0.00	0.00
SUSSEX										
3,949.43	15.22	346.14	3,846.20	1,055.00	782.83	-193.15	297.84	0.00	0.00	0.00
4,000.00	15.22	346.14	3,895.00	1,006.20	795.72	-196.33	302.74	0.00	0.00	0.00
4,100.00	15.22	346.14	3,991.49	909.71	821.21	-202.62	312.44	0.00	0.00	0.00

Planning Report



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Site:	NW SW SEC. 16 T8N R59W 6th P.M.	North Reference:	True
Well:	BIG MOUNTAIN VIPER FED 8-59 16-17-18-5	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
4,200.00	15.22	346.14	4,087.99	813.21	846.70	-208.91	322.14	0.00	0.00	0.00
4,300.00	15.22	346.14	4,184.48	716.72	872.19	-215.19	331.84	0.00	0.00	0.00
4,400.00	15.22	346.14	4,280.97	620.23	897.67	-221.48	341.53	0.00	0.00	0.00
4,500.00	15.22	346.14	4,377.46	523.74	923.16	-227.77	351.23	0.00	0.00	0.00
4,600.00	15.22	346.14	4,473.95	427.25	948.65	-234.06	360.93	0.00	0.00	0.00
4,700.00	15.22	346.14	4,570.45	330.75	974.14	-240.35	370.63	0.00	0.00	0.00
4,800.00	15.22	346.14	4,666.94	234.26	999.63	-246.64	380.33	0.00	0.00	0.00
END OF TANGENT										
4,835.42	15.22	346.14	4,701.12	200.08	1,008.66	-248.87	383.76	0.00	0.00	0.00
4,900.00	13.93	346.14	4,763.62	137.58	1,024.44	-252.76	389.76	2.00	-2.00	0.00
5,000.00	11.93	346.14	4,861.08	40.12	1,046.16	-258.12	398.03	2.00	-2.00	0.00
5,100.00	9.93	346.14	4,959.26	-58.06	1,064.57	-262.66	405.03	2.00	-2.00	0.00
5,200.00	7.93	346.14	5,058.04	-156.84	1,079.64	-266.38	410.77	2.00	-2.00	0.00
SHANNON										
5,238.49	7.16	346.14	5,096.20	-195.00	1,084.54	-267.59	412.63	2.00	-2.00	0.00
5,300.00	5.93	346.14	5,157.30	-256.10	1,091.35	-269.27	415.22	2.00	-2.00	0.00
5,400.00	3.93	346.14	5,256.93	-355.73	1,099.69	-271.33	418.40	2.00	-2.00	0.00
5,500.00	1.93	346.14	5,356.79	-455.59	1,104.65	-272.55	420.28	2.00	-2.00	0.00
EOD TO VERTICAL										
5,596.46	0.00	0.00	5,453.24	-552.04	1,106.23	-272.94	420.88	2.00	-2.00	0.00
5,600.00	0.00	0.00	5,456.78	-555.58	1,106.23	-272.94	420.88	0.00	0.00	0.00
KOP (10°/100ft BUR)										
5,696.46	0.00	0.00	5,553.24	-652.04	1,106.23	-272.94	420.88	0.00	0.00	0.00
5,700.00	0.35	270.39	5,556.78	-655.58	1,106.23	-272.95	420.89	10.00	10.00	0.00
5,800.00	10.35	270.39	5,656.21	-755.01	1,106.29	-282.27	430.13	10.00	10.00	0.00
5,900.00	20.35	270.39	5,752.52	-851.32	1,106.47	-308.71	456.36	10.00	10.00	0.00
6,000.00	30.35	270.39	5,842.78	-941.58	1,106.76	-351.48	498.76	10.00	10.00	0.00
SHARON SPRINGS SHALE										
6,033.53	33.71	270.39	5,871.20	-970.00	1,106.89	-369.26	516.40	10.00	10.00	0.00
6,100.00	40.35	270.39	5,924.23	-1,023.03	1,107.16	-409.26	556.07	10.00	10.00	0.00
NIOBRARA FORMATION										
6,194.99	49.85	270.39	5,991.20	-1,090.00	1,107.62	-476.47	622.71	10.00	10.00	0.00
6,200.00	50.35	270.39	5,994.42	-1,093.22	1,107.64	-480.32	626.52	10.00	10.00	0.00
NIOBRARA A CHALK										
6,202.80	50.63	270.39	5,996.20	-1,095.00	1,107.66	-482.48	628.67	10.00	10.00	0.00
6,300.00	60.35	270.39	6,051.20	-1,150.00	1,108.20	-562.48	708.00	10.00	10.00	0.00
6,400.00	70.35	270.39	6,092.84	-1,191.64	1,108.82	-653.25	798.01	10.00	10.00	0.00
NIOBRARA B CHALK										
6,410.24	71.38	270.39	6,096.20	-1,195.00	1,108.88	-662.92	807.60	10.00	10.00	0.00
6,500.00	80.35	270.39	6,118.10	-1,216.90	1,109.48	-749.88	893.83	10.00	10.00	0.00
BPI: 2014ft FNL & 300ft FEL of Sec 17 - NIOBRARA B LP										
6,596.47	90.00	270.39	6,126.20	-1,225.00	1,110.13	-845.88	989.03	10.00	10.00	0.00
6,600.00	90.00	270.39	6,126.20	-1,225.00	1,110.15	-849.42	992.54	0.00	0.00	0.00
6,700.00	90.00	270.39	6,126.20	-1,225.00	1,110.83	-949.42	1,091.70	0.00	0.00	0.00
6,800.00	90.00	270.39	6,126.20	-1,225.00	1,111.52	-1,049.41	1,190.86	0.00	0.00	0.00
6,900.00	90.00	270.39	6,126.20	-1,225.00	1,112.20	-1,149.41	1,290.02	0.00	0.00	0.00
7,000.00	90.00	270.39	6,126.20	-1,225.00	1,112.88	-1,249.41	1,389.18	0.00	0.00	0.00
7,100.00	90.00	270.39	6,126.20	-1,225.00	1,113.56	-1,349.41	1,488.34	0.00	0.00	0.00
7,200.00	90.00	270.39	6,126.20	-1,225.00	1,114.24	-1,449.40	1,587.50	0.00	0.00	0.00
7,300.00	90.00	270.39	6,126.20	-1,225.00	1,114.92	-1,549.40	1,686.66	0.00	0.00	0.00
7,400.00	90.00	270.39	6,126.20	-1,225.00	1,115.59	-1,649.40	1,785.82	0.00	0.00	0.00
7,500.00	90.00	270.39	6,126.20	-1,225.00	1,116.27	-1,749.40	1,884.98	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well BIG MOUNTAIN VIPER FED 8-59 16-17-18-5
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4901.20usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4901.20usft (Original Well Elev)
Site:	NW SW SEC. 16 T8N R59W 6th P.M.	North Reference:	True
Well:	BIG MOUNTAIN VIPER FED 8-59 16-17-18-5	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
7,600.00	90.00	270.39	6,126.20	-1,225.00	1,116.95	-1,849.40	1,984.14	0.00	0.00	0.00
7,700.00	90.00	270.39	6,126.20	-1,225.00	1,117.63	-1,949.39	2,083.30	0.00	0.00	0.00
7,800.00	90.00	270.39	6,126.21	-1,225.01	1,118.31	-2,049.39	2,182.46	0.00	0.00	0.00
7,900.00	90.00	270.39	6,126.21	-1,225.01	1,118.99	-2,149.39	2,281.63	0.00	0.00	0.00
8,000.00	90.00	270.39	6,126.21	-1,225.01	1,119.67	-2,249.39	2,380.79	0.00	0.00	0.00
8,100.00	90.00	270.39	6,126.21	-1,225.01	1,120.35	-2,349.38	2,479.95	0.00	0.00	0.00
8,200.00	90.00	270.39	6,126.21	-1,225.01	1,121.02	-2,449.38	2,579.11	0.00	0.00	0.00
8,300.00	90.00	270.39	6,126.21	-1,225.01	1,121.70	-2,549.38	2,678.27	0.00	0.00	0.00
8,400.00	90.00	270.39	6,126.21	-1,225.01	1,122.38	-2,649.38	2,777.43	0.00	0.00	0.00
8,500.00	90.00	270.39	6,126.21	-1,225.01	1,123.06	-2,749.37	2,876.59	0.00	0.00	0.00
8,600.00	90.00	270.39	6,126.21	-1,225.01	1,123.74	-2,849.37	2,975.75	0.00	0.00	0.00
8,700.00	90.00	270.39	6,126.21	-1,225.01	1,124.41	-2,949.37	3,074.91	0.00	0.00	0.00
8,800.00	90.00	270.39	6,126.21	-1,225.01	1,125.09	-3,049.37	3,174.07	0.00	0.00	0.00
8,900.00	90.00	270.39	6,126.21	-1,225.01	1,125.77	-3,149.37	3,273.23	0.00	0.00	0.00
9,000.00	90.00	270.39	6,126.21	-1,225.01	1,126.44	-3,249.36	3,372.39	0.00	0.00	0.00
9,100.00	90.00	270.39	6,126.21	-1,225.01	1,127.12	-3,349.36	3,471.55	0.00	0.00	0.00
9,200.00	90.00	270.39	6,126.21	-1,225.01	1,127.80	-3,449.36	3,570.71	0.00	0.00	0.00
9,300.00	90.00	270.39	6,126.21	-1,225.01	1,128.47	-3,549.36	3,669.87	0.00	0.00	0.00
9,400.00	90.00	270.39	6,126.21	-1,225.01	1,129.15	-3,649.35	3,769.03	0.00	0.00	0.00
9,500.00	90.00	270.39	6,126.21	-1,225.01	1,129.83	-3,749.35	3,868.19	0.00	0.00	0.00
9,600.00	90.00	270.39	6,126.21	-1,225.01	1,130.50	-3,849.35	3,967.35	0.00	0.00	0.00
9,700.00	90.00	270.39	6,126.21	-1,225.01	1,131.18	-3,949.35	4,066.51	0.00	0.00	0.00
9,800.00	90.00	270.39	6,126.21	-1,225.01	1,131.85	-4,049.35	4,165.67	0.00	0.00	0.00
9,900.00	90.00	270.39	6,126.21	-1,225.01	1,132.53	-4,149.34	4,264.83	0.00	0.00	0.00
10,000.00	90.00	270.39	6,126.21	-1,225.01	1,133.20	-4,249.34	4,363.99	0.00	0.00	0.00
10,100.00	90.00	270.39	6,126.21	-1,225.01	1,133.88	-4,349.34	4,463.15	0.00	0.00	0.00
10,200.00	90.00	270.39	6,126.21	-1,225.01	1,134.55	-4,449.34	4,562.31	0.00	0.00	0.00
10,300.00	90.00	270.39	6,126.21	-1,225.01	1,135.23	-4,549.33	4,661.47	0.00	0.00	0.00
10,400.00	90.00	270.39	6,126.21	-1,225.01	1,135.90	-4,649.33	4,760.63	0.00	0.00	0.00
10,500.00	90.00	270.39	6,126.21	-1,225.01	1,136.58	-4,749.33	4,859.79	0.00	0.00	0.00
10,600.00	90.00	270.39	6,126.21	-1,225.01	1,137.25	-4,849.33	4,958.95	0.00	0.00	0.00
10,700.00	90.00	270.39	6,126.21	-1,225.01	1,137.93	-4,949.32	5,058.11	0.00	0.00	0.00
10,800.00	90.00	270.39	6,126.21	-1,225.01	1,138.60	-5,049.32	5,157.27	0.00	0.00	0.00
10,900.00	90.00	270.39	6,126.21	-1,225.01	1,139.27	-5,149.32	5,256.43	0.00	0.00	0.00
11,000.00	90.00	270.39	6,126.21	-1,225.01	1,139.95	-5,249.32	5,355.59	0.00	0.00	0.00
11,100.00	90.00	270.39	6,126.21	-1,225.01	1,140.62	-5,349.32	5,454.75	0.00	0.00	0.00
11,200.00	90.00	270.39	6,126.21	-1,225.01	1,141.30	-5,449.31	5,553.91	0.00	0.00	0.00
11,300.00	90.00	270.39	6,126.21	-1,225.01	1,141.97	-5,549.31	5,653.07	0.00	0.00	0.00
11,400.00	90.00	270.39	6,126.21	-1,225.01	1,142.64	-5,649.31	5,752.23	0.00	0.00	0.00
11,500.00	90.00	270.39	6,126.21	-1,225.01	1,143.31	-5,749.31	5,851.39	0.00	0.00	0.00
11,600.00	90.00	270.39	6,126.21	-1,225.01	1,143.99	-5,849.30	5,950.55	0.00	0.00	0.00
11,700.00	90.00	270.39	6,126.21	-1,225.01	1,144.66	-5,949.30	6,049.71	0.00	0.00	0.00
11,800.00	90.00	270.39	6,126.21	-1,225.01	1,145.33	-6,049.30	6,148.87	0.00	0.00	0.00
11,900.00	90.00	270.39	6,126.21	-1,225.01	1,146.00	-6,149.30	6,248.03	0.00	0.00	0.00
12,000.00	90.00	270.39	6,126.21	-1,225.01	1,146.68	-6,249.30	6,347.19	0.00	0.00	0.00
12,100.00	90.00	270.38	6,126.21	-1,225.01	1,147.35	-6,349.29	6,446.35	0.00	0.00	0.00
12,200.00	90.00	270.38	6,126.21	-1,225.01	1,148.02	-6,449.29	6,545.51	0.00	0.00	0.00
12,300.00	90.00	270.38	6,126.21	-1,225.01	1,148.69	-6,549.29	6,644.67	0.00	0.00	0.00
12,400.00	90.00	270.38	6,126.21	-1,225.01	1,149.36	-6,649.29	6,743.83	0.00	0.00	0.00
12,500.00	90.00	270.38	6,126.21	-1,225.01	1,150.03	-6,749.28	6,842.99	0.00	0.00	0.00
12,600.00	90.00	270.38	6,126.21	-1,225.01	1,150.71	-6,849.28	6,942.15	0.00	0.00	0.00
12,700.00	90.00	270.38	6,126.21	-1,225.01	1,151.38	-6,949.28	7,041.31	0.00	0.00	0.00
12,800.00	90.00	270.38	6,126.21	-1,225.01	1,152.05	-7,049.28	7,140.46	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well BIG MOUNTAIN VIPER FED 8-59 16-17-18-5
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4901.20usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4901.20usft (Original Well Elev)
Site:	NW SW SEC. 16 T8N R59W 6th P.M.	North Reference:	True
Well:	BIG MOUNTAIN VIPER FED 8-59 16-17-18-5	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
12,900.00	90.00	270.38	6,126.21	-1,225.01	1,152.72	-7,149.27	7,239.62	0.00	0.00	0.00
13,000.00	90.00	270.38	6,126.20	-1,225.00	1,153.39	-7,249.27	7,338.78	0.00	0.00	0.00
13,100.00	90.00	270.38	6,126.20	-1,225.00	1,154.06	-7,349.27	7,437.94	0.00	0.00	0.00
13,200.00	90.00	270.38	6,126.20	-1,225.00	1,154.73	-7,449.27	7,537.10	0.00	0.00	0.00
13,300.00	90.00	270.38	6,126.20	-1,225.00	1,155.40	-7,549.27	7,636.26	0.00	0.00	0.00
13,400.00	90.00	270.38	6,126.20	-1,225.00	1,156.07	-7,649.26	7,735.42	0.00	0.00	0.00
13,500.00	90.00	270.38	6,126.20	-1,225.00	1,156.74	-7,749.26	7,834.58	0.00	0.00	0.00
13,600.00	90.00	270.38	6,126.20	-1,225.00	1,157.41	-7,849.26	7,933.74	0.00	0.00	0.00
13,700.00	90.00	270.38	6,126.20	-1,225.00	1,158.08	-7,949.26	8,032.90	0.00	0.00	0.00
13,800.00	90.00	270.38	6,126.20	-1,225.00	1,158.75	-8,049.25	8,132.06	0.00	0.00	0.00
13,900.00	90.00	270.38	6,126.20	-1,225.00	1,159.41	-8,149.25	8,231.22	0.00	0.00	0.00
14,000.00	90.00	270.38	6,126.20	-1,225.00	1,160.08	-8,249.25	8,330.38	0.00	0.00	0.00
14,100.00	90.00	270.38	6,126.20	-1,225.00	1,160.75	-8,349.25	8,429.54	0.00	0.00	0.00
EPI: 2014ft FNL & 2557ft FEL of Sec 18										
14,151.87	90.00	270.38	6,126.20	-1,225.00	1,161.10	-8,401.12	8,480.97	0.00	0.00	0.00
14,200.00	90.00	270.38	6,126.20	-1,225.00	1,161.42	-8,449.25	8,528.70	0.01	0.00	-0.01
BHL: 2014ft FNL & 2615ft FEL of Sec 18										
14,209.85	90.00	270.38	6,126.20	-1,225.00	1,161.48	-8,459.10	8,538.47	0.01	0.00	-0.01

Formations

MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
411.20	411.20	PIERRE SHALE (BFH)			
3,426.07	3,341.20	PARKMAN			
3,949.43	3,846.20	SUSSEX			
5,238.49	5,096.20	SHANNON			
6,033.53	5,871.20	SHARON SPRINGS SHALE			
6,194.99	5,991.20	NIOBRARA FORMATION			
6,202.80	5,996.20	NIOBRARA A CHALK			
6,410.24	6,096.20	NIOBRARA B CHALK			
6,596.47	6,126.20	NIOBRARA B LP			

Plan Annotations

MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.00	0.00	0.00	0.00	SHL: 2298ft FSL & 560ft FWL of Sec 16
500.00	500.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1,261.04	1,252.12	97.57	-24.07	EOB TO 15.22° INC
4,835.42	4,701.12	1,008.66	-248.87	END OF TANGENT
5,596.46	5,453.24	1,106.23	-272.94	EOD TO VERTICAL
5,696.46	5,553.24	1,106.23	-272.94	KOP (10°/100ft BUR)
6,596.47	6,126.20	1,110.13	-845.88	BPI: 2014ft FNL & 300ft FEL of Sec 17
14,151.87	6,126.20	1,161.10	-8,401.12	EPI: 2014ft FNL & 2557ft FEL of Sec 18
14,209.85	6,126.20	1,161.48	-8,459.10	BHL: 2014ft FNL & 2615ft FEL of Sec 18