

BISON OIL & GAS II, LLC

WELD COUNTY, COLORADO (NAD 83)

NE SE SEC. 19 T8N R59W 6th P.M.

CASTOR FED 8-59 19-24-6

ORIGINAL WELLBORE

18 April, 2019

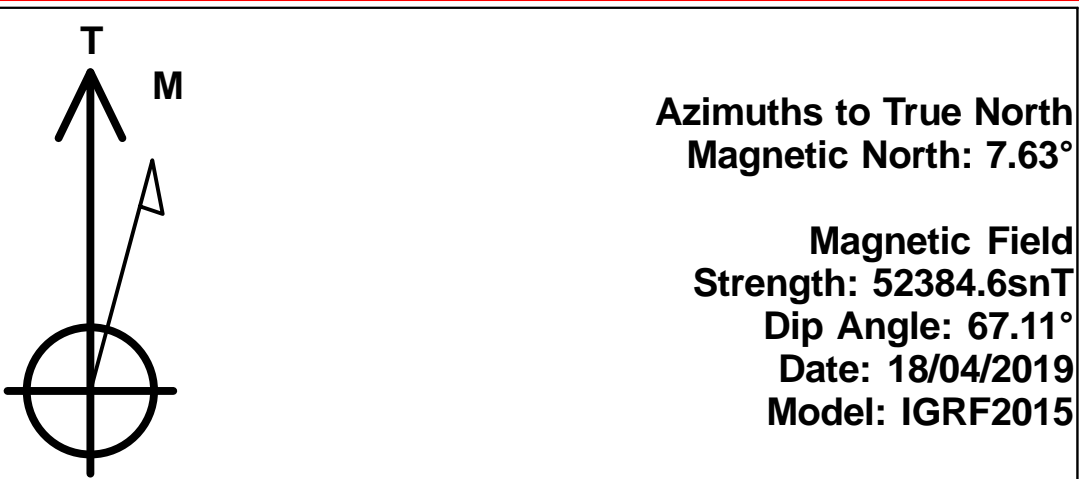
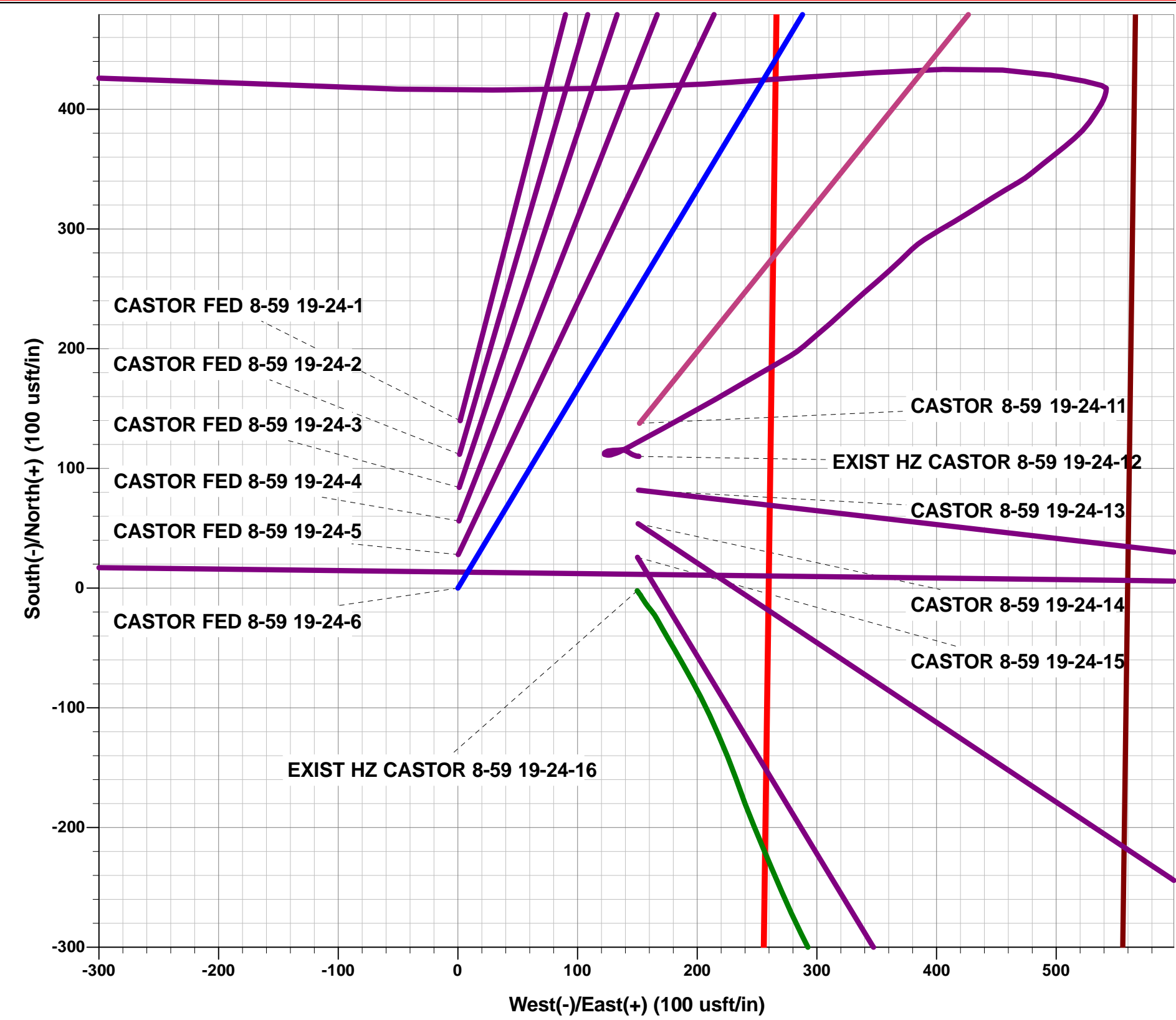
Plan: PROPOSAL #3



Project: WELD COUNTY, COLORADO (NAD 83)
Site: NE SE SEC. 19 T8N R59W 6th P.M.
Well: CASTOR FED 8-59 19-24-6
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #3

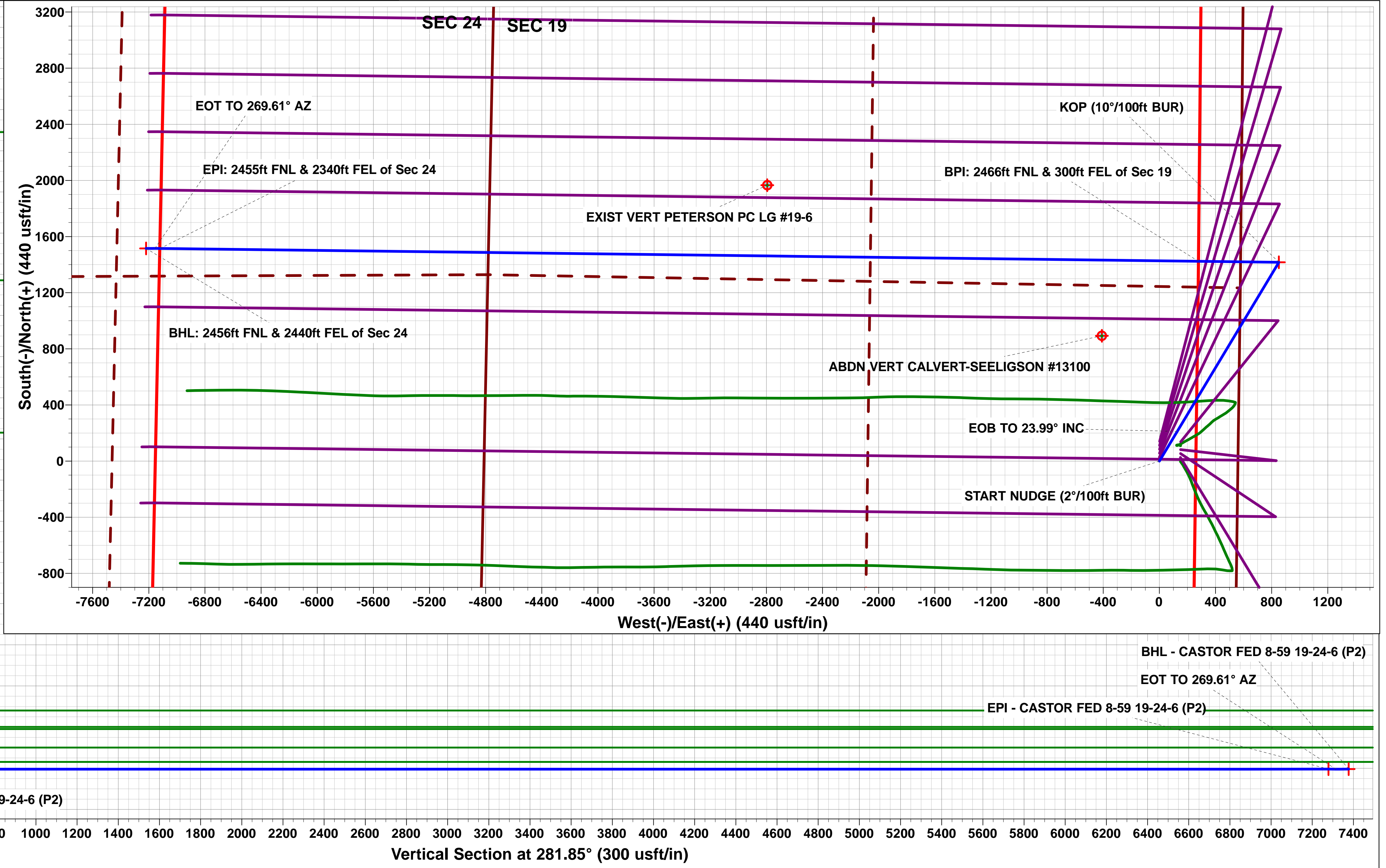
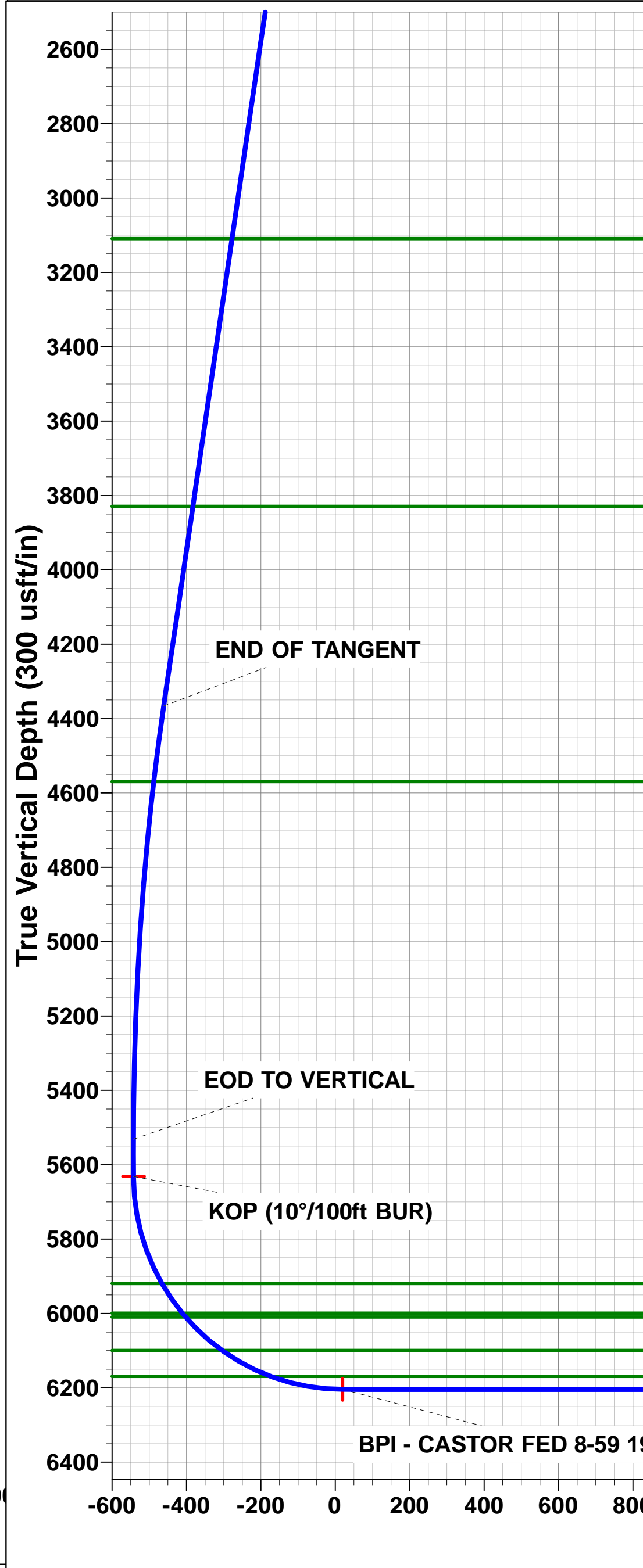
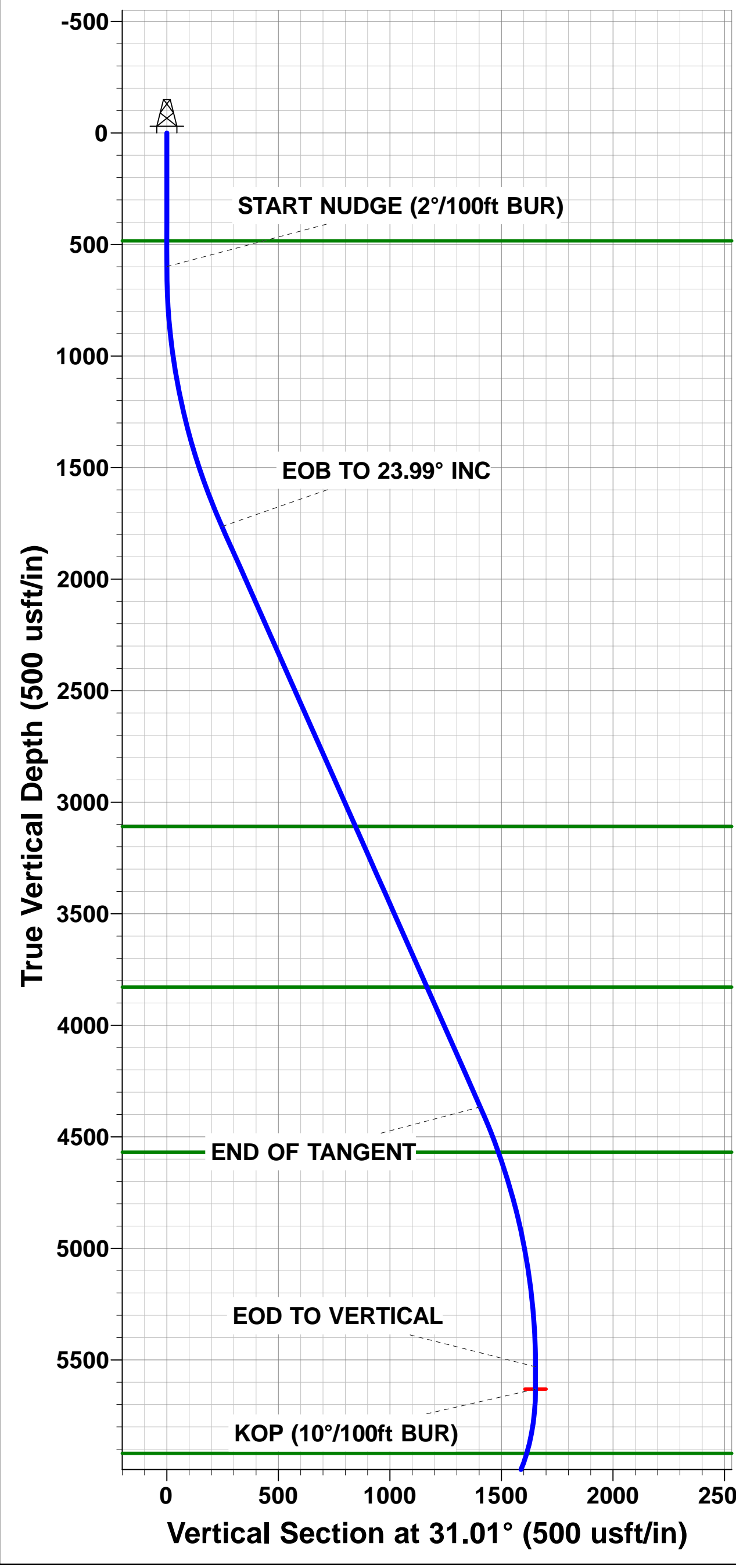
ANNOTATIONS										
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 1420ft FSL & 560ft FEL of Sec 19		
600.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)		
1764.92	1799.68	23.99	31.01	212.17	127.53	-81.23	247.54	EOB TO 23.99° INC		
4366.22	4647.01	23.99	31.01	1204.53	723.99	-461.15	1405.37	END OF TANGENT		
5531.14	5846.69	0.00	0.00	1416.70	851.52	-542.37	1652.91	EOD TO VERTICAL		
5631.14	5946.69	0.00	0.00	1416.70	851.52	-542.37	1652.91	KOP (10°/100ft BUR)		
6204.10	6846.69	90.00	270.71	1423.80	278.61	19.78	2225.87	BPI: 2466ft FNL & 300ft FEL of Sec 19		
6204.10	14245.27	90.00	270.71	1515.55	-7119.40	7278.90	9624.45	EPI: 2455ft FNL & 2340ft FEL of Sec 24		
6204.10	14282.09	90.00	269.61	1515.65	-7156.22	7314.95	9661.27	EOT TO 269.61° AZ		
6204.10	14345.45	90.00	269.61	1515.21	-7219.58	7376.87	9724.63	BHL: 2456ft FNL & 2440ft FEL of Sec 24		

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - CASTOR FED 8-59 19-24-6 (P2)	5631.14	1416.70	851.52	40.648302	-104.009464
BPI - CASTOR FED 8-59 19-24-6 (P2)	6204.10	1423.80	278.61	40.648322	-104.011529
EPI - CASTOR FED 8-59 19-24-6 (P2)	6204.10	1515.55	-7119.40	40.648571	-104.038189
BHL - CASTOR FED 8-59 19-24-6 (P2)	6204.10	1515.21	-7219.58	40.648570	-104.038550



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
484.10	484.10	PIERRE SH (BASE FOX HILLS)
3109.10	3270.99	PARKMAN
3829.10	4059.09	SUSSEX
4569.10	4865.59	SHANNON
5919.10	6248.40	SHARON SPRINGS SHALE
5999.10	6346.26	NIOBRARA FORMATION
6009.10	6359.43	NIOBRARA A CHALK
6099.10	6494.29	NIOBRARA B CHALK
6169.10	6645.39	NIOBRARA C CHALK

PROPOSED LOCAL COORDINATES:
SHL: 1420ft FSL & 560ft FEL of Sec 19
BEGIN PROD INT: 2466ft FNL & 300ft FEL of Sec 19
END PROD INTERVAL: 2455ft FNL & 2340ft FEL of Sec 24
BHL: 2456ft FNL & 2440ft FEL of Sec 24



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CASTOR FED 8-59 19-24-6
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB @ 4879.10usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB @ 4879.10usft
Site:	NE SE SEC. 19 T8N R59W 6th P.M.	North Reference:	True
Well:	CASTOR FED 8-59 19-24-6	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	NE SE SEC. 19 T8N R59W 6th P.M.		
Site Position:		Northing:	1,481,260.32 usft
From:	Lat/Long	Easting:	3,412,761.19 usft
Position Uncertainty:	0.00 usft	Slot Radius:	1.10000ft
		Latitude:	40.644952
		Longitude:	-104.012524
		Grid Convergence:	0.96 °

Well	CASTOR FED 8-59 19-24-6		
Well Position	+N/-S	-196.02 usft	Northing: 1,481,064.29 usfi
	+E/-W	-2.50 usft	Easting: 3,412,761.98 usfi
Position Uncertainty	0.00 usft	Wellhead Elevation:	usfi
		Latitude:	40.644414
		Longitude:	-104.012533
		Ground Level:	4,854.10 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	18/04/2019	7.63	67.11	52,385

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 (°)
	6,204.10	0.00	0.00	281.85

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	-4,879.10	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	-4,279.10	0.00	0.00	0.00	0.00	0.00	0.00	
1,799.68	23.99	31.01	1,764.93	-3,114.17	212.17	127.53	2.00	2.00	0.00	31.01	
4,647.01	23.99	31.01	4,366.21	-512.89	1,204.53	723.99	0.00	0.00	0.00	0.00	
5,846.69	0.00	0.00	5,531.14	652.04	1,416.70	851.52	2.00	-2.00	0.00	180.00	
5,946.69	0.00	0.00	5,631.14	752.04	1,416.70	851.52	0.00	0.00	0.00	0.00	KOP - CASTOR FE
6,846.69	90.00	270.71	6,204.10	1,325.00	1,423.80	278.61	10.00	10.00	-9.92	270.71	BPI - CASTOR FE
14,245.27	90.00	270.71	6,204.10	1,325.00	1,515.55	-7,119.40	0.00	0.00	0.00	0.00	EPI - CASTOR FE
14,282.09	90.00	269.61	6,204.10	1,325.00	1,515.65	-7,156.22	3.00	0.00	-3.00	-89.99	
14,345.45	90.00	269.61	6,204.10	1,325.00	1,515.21	-7,219.58	0.00	0.00	0.00	0.00	BHL - CASTOR FE

Planning Report



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Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB @ 4879.10usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB @ 4879.10usft
Site:	NE SE SEC. 19 T8N R59W 6th P.M.	North Reference:	True
Well:	CASTOR FED 8-59 19-24-6	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: 1420ft FSL & 560ft FEL of Sec 19										
0.00	0.00	0.00	0.00	4,879.10	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,779.10	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	4,679.10	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	4,579.10	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	4,479.10	0.00	0.00	0.00	0.00	0.00	0.00
PIERRE SHALE (BASE FOX HILLS)										
484.10	0.00	0.00	484.10	4,395.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	4,379.10	0.00	0.00	0.00	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
600.00	0.00	0.00	600.00	4,279.10	0.00	0.00	0.00	0.00	0.00	0.00
700.00	2.00	31.01	699.98	4,179.12	1.50	0.90	-0.57	2.00	2.00	0.00
800.00	4.00	31.01	799.84	4,079.26	5.98	3.60	-2.29	2.00	2.00	0.00
900.00	6.00	31.01	899.45	3,979.65	13.45	8.08	-5.15	2.00	2.00	0.00
1,000.00	8.00	31.01	998.70	3,880.40	23.90	14.36	-9.15	2.00	2.00	0.00
1,100.00	10.00	31.01	1,097.47	3,781.63	37.30	22.42	-14.28	2.00	2.00	0.00
1,200.00	12.00	31.01	1,195.62	3,683.48	53.66	32.25	-20.54	2.00	2.00	0.00
1,300.00	14.00	31.01	1,293.06	3,586.04	72.94	43.84	-27.92	2.00	2.00	0.00
1,400.00	16.00	31.01	1,389.64	3,489.46	95.12	57.17	-36.42	2.00	2.00	0.00
1,500.00	18.00	31.01	1,485.27	3,393.83	120.18	72.23	-46.01	2.00	2.00	0.00
1,600.00	20.00	31.01	1,579.82	3,299.28	148.08	89.00	-56.69	2.00	2.00	0.00
1,700.00	22.00	31.01	1,673.17	3,205.93	178.79	107.46	-68.45	2.00	2.00	0.00
EOB TO 23.99° INC										
1,799.68	23.99	31.01	1,764.92	3,114.18	212.17	127.53	-81.23	2.00	2.00	0.00
1,800.00	23.99	31.01	1,765.21	3,113.89	212.28	127.59	-81.27	0.02	0.02	0.00
1,900.00	23.99	31.01	1,856.57	3,022.53	247.13	148.54	-94.61	0.00	0.00	0.00
2,000.00	23.99	31.01	1,947.93	2,931.17	281.98	169.49	-107.96	0.00	0.00	0.00
2,100.00	23.99	31.01	2,039.29	2,839.81	316.84	190.44	-121.30	0.00	0.00	0.00
2,200.00	23.99	31.01	2,130.65	2,748.45	351.69	211.39	-134.64	0.00	0.00	0.00
2,300.00	23.99	31.01	2,222.01	2,657.09	386.54	232.33	-147.98	0.00	0.00	0.00
2,400.00	23.99	31.01	2,313.37	2,565.73	421.39	253.28	-161.33	0.00	0.00	0.00
2,500.00	23.99	31.01	2,404.73	2,474.37	456.25	274.23	-174.67	0.00	0.00	0.00
2,600.00	23.99	31.01	2,496.09	2,383.01	491.10	295.18	-188.01	0.00	0.00	0.00
2,700.00	23.99	31.01	2,587.45	2,291.65	525.95	316.13	-201.36	0.00	0.00	0.00
2,800.00	23.99	31.01	2,678.81	2,200.29	560.80	337.08	-214.70	0.00	0.00	0.00
2,900.00	23.99	31.01	2,770.16	2,108.94	595.66	358.02	-228.04	0.00	0.00	0.00
3,000.00	23.99	31.01	2,861.52	2,017.58	630.51	378.97	-241.39	0.00	0.00	0.00
3,100.00	23.99	31.01	2,952.88	1,926.22	665.36	399.92	-254.73	0.00	0.00	0.00
3,200.00	23.99	31.01	3,044.24	1,834.86	700.21	420.87	-268.07	0.00	0.00	0.00
PARKMAN										
3,270.99	23.99	31.01	3,109.10	1,770.00	724.96	435.74	-277.54	0.00	0.00	0.00
3,300.00	23.99	31.01	3,135.60	1,743.50	735.07	441.82	-281.41	0.00	0.00	0.00
3,400.00	23.99	31.01	3,226.96	1,652.14	769.92	462.77	-294.76	0.00	0.00	0.00
3,500.00	23.99	31.01	3,318.32	1,560.78	804.77	483.71	-308.10	0.00	0.00	0.00
3,600.00	23.99	31.01	3,409.68	1,469.42	839.62	504.66	-321.44	0.00	0.00	0.00
3,700.00	23.99	31.01	3,501.04	1,378.06	874.48	525.61	-334.79	0.00	0.00	0.00
3,800.00	23.99	31.01	3,592.40	1,286.70	909.33	546.56	-348.13	0.00	0.00	0.00
3,900.00	23.99	31.01	3,683.75	1,195.35	944.18	567.51	-361.47	0.00	0.00	0.00
4,000.00	23.99	31.01	3,775.11	1,103.99	979.03	588.46	-374.82	0.00	0.00	0.00
SUSSEX										
4,059.09	23.99	31.01	3,829.10	1,050.00	999.63	600.84	-382.70	0.00	0.00	0.00
4,100.00	23.99	31.01	3,866.47	1,012.63	1,013.89	609.40	-388.16	0.00	0.00	0.00
4,200.00	23.99	31.01	3,957.83	921.27	1,048.74	630.35	-401.50	0.00	0.00	0.00

Planning Report



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Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB @ 4879.10usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB @ 4879.10usft
Site:	NE SE SEC. 19 T8N R59W 6th P.M.	North Reference:	True
Well:	CASTOR FED 8-59 19-24-6	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)
4,300.00	23.99	31.01	4,049.19	829.91	1,083.59	651.30	-414.84	0.00	0.00	0.00
4,400.00	23.99	31.01	4,140.55	738.55	1,118.44	672.25	-428.19	0.00	0.00	0.00
4,500.00	23.99	31.01	4,231.91	647.19	1,153.29	693.20	-441.53	0.00	0.00	0.00
4,600.00	23.99	31.01	4,323.27	555.83	1,188.15	714.15	-454.87	0.00	0.00	0.00
END OF TANGENT										
4,647.01	23.99	31.01	4,366.22	512.88	1,204.53	723.99	-461.15	0.00	0.00	0.00
4,700.00	22.93	31.01	4,414.82	464.28	1,222.61	734.86	-468.07	2.00	-2.00	0.00
4,800.00	20.93	31.01	4,507.58	371.52	1,254.63	754.11	-480.33	2.00	-2.00	0.00
SHANNON										
4,865.59	19.62	31.01	4,569.10	310.00	1,274.11	765.82	-487.78	2.00	-2.00	0.00
4,900.00	18.93	31.01	4,601.58	277.52	1,283.85	771.67	-491.51	2.00	-2.00	0.00
5,000.00	16.93	31.01	4,696.72	182.38	1,310.24	787.53	-501.62	2.00	-2.00	0.00
5,100.00	14.93	31.01	4,792.87	86.23	1,333.77	801.67	-510.62	2.00	-2.00	0.00
5,200.00	12.93	31.01	4,889.93	-10.83	1,354.40	814.08	-518.52	2.00	-2.00	0.00
5,300.00	10.93	31.01	4,987.76	-108.66	1,372.13	824.73	-525.31	2.00	-2.00	0.00
5,400.00	8.93	31.01	5,086.26	-207.16	1,386.91	833.62	-530.97	2.00	-2.00	0.00
5,500.00	6.93	31.01	5,185.29	-306.19	1,398.74	840.73	-535.50	2.00	-2.00	0.00
5,600.00	4.93	31.01	5,284.75	-405.65	1,407.60	846.05	-538.89	2.00	-2.00	0.00
5,700.00	2.93	31.01	5,384.51	-505.41	1,413.48	849.59	-541.14	2.00	-2.00	0.00
5,800.00	0.93	31.01	5,484.45	-605.35	1,416.37	851.32	-542.25	2.00	-2.00	0.00
EOD TO VERTICAL										
5,846.69	0.00	0.00	5,531.14	-652.04	1,416.70	851.52	-542.37	2.00	-2.00	-66.41
5,900.00	0.00	0.00	5,584.45	-705.35	1,416.70	851.52	-542.37	0.00	0.00	0.00
KOP (10°/100ft BUR)										
5,946.69	0.00	0.00	5,631.14	-752.04	1,416.70	851.52	-542.37	0.00	0.00	0.00
6,000.00	5.33	270.71	5,684.37	-805.27	1,416.73	849.04	-539.94	10.00	10.00	0.00
6,100.00	15.33	270.71	5,782.63	-903.53	1,416.95	831.13	-522.37	10.00	10.00	0.00
6,200.00	25.33	270.71	5,876.28	-997.18	1,417.38	796.44	-488.32	10.00	10.00	0.00
SHARON SPRINGS SHALE										
6,248.40	30.17	270.71	5,919.10	-1,040.00	1,417.66	773.91	-466.22	10.00	10.00	0.00
6,300.00	35.33	270.71	5,962.48	-1,083.38	1,418.01	746.01	-438.84	10.00	10.00	0.00
NIORARA FORMATION										
6,346.26	39.96	270.71	5,999.10	-1,120.00	1,418.36	717.76	-411.13	10.00	10.00	0.00
NIORARA A CHALK										
6,359.43	41.27	270.71	6,009.10	-1,130.00	1,418.46	709.19	-402.71	10.00	10.00	0.00
6,400.00	45.33	270.71	6,038.62	-1,159.52	1,418.81	681.37	-375.42	10.00	10.00	0.00
NIORARA B CHALK										
6,494.29	54.76	270.71	6,099.10	-1,220.00	1,419.70	609.18	-304.58	10.00	10.00	0.00
6,500.00	55.33	270.71	6,102.37	-1,223.27	1,419.76	604.50	-299.99	10.00	10.00	0.00
6,600.00	65.33	270.71	6,151.81	-1,272.71	1,420.84	517.73	-214.85	10.00	10.00	0.00
NIORARA C CHALK										
6,645.39	69.87	270.71	6,169.10	-1,290.00	1,421.36	475.77	-173.68	10.00	10.00	0.00
6,700.00	75.33	270.71	6,185.42	-1,306.32	1,422.00	423.69	-122.58	10.00	10.00	0.00
6,800.00	85.33	270.71	6,202.20	-1,323.10	1,423.22	325.24	-25.98	10.00	10.00	0.00
BPI: 2466ft FNL & 300ft FEL of Sec 19										
6,846.69	90.00	270.71	6,204.10	-1,325.00	1,423.80	278.61	19.78	10.00	10.00	0.00
6,900.00	90.00	270.71	6,204.10	-1,325.00	1,424.46	225.30	72.08	0.00	0.00	0.00
7,000.00	90.00	270.71	6,204.10	-1,325.00	1,425.70	125.31	170.20	0.00	0.00	0.00
7,100.00	90.00	270.71	6,204.10	-1,325.00	1,426.94	25.32	268.31	0.00	0.00	0.00
7,200.00	90.00	270.71	6,204.10	-1,325.00	1,428.18	-74.67	366.43	0.00	0.00	0.00
7,300.00	90.00	270.71	6,204.10	-1,325.00	1,429.42	-174.67	464.54	0.00	0.00	0.00
7,400.00	90.00	270.71	6,204.10	-1,325.00	1,430.66	-274.66	562.66	0.00	0.00	0.00
7,500.00	90.00	270.71	6,204.10	-1,325.00	1,431.89	-374.65	660.77	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CASTOR FED 8-59 19-24-6
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB @ 4879.10usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB @ 4879.10usft
Site:	NE SE SEC. 19 T8N R59W 6th P.M.	North Reference:	True
Well:	CASTOR FED 8-59 19-24-6	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	270.71	6,204.10	-1,325.00	1,433.13	-474.64	758.89	0.00	0.00	0.00
7,700.00	90.00	270.71	6,204.10	-1,325.00	1,434.37	-574.64	857.00	0.00	0.00	0.00
7,800.00	90.00	270.71	6,204.10	-1,325.00	1,435.61	-674.63	955.12	0.00	0.00	0.00
7,900.00	90.00	270.71	6,204.10	-1,325.00	1,436.85	-774.62	1,053.23	0.00	0.00	0.00
8,000.00	90.00	270.71	6,204.10	-1,325.00	1,438.09	-874.61	1,151.35	0.00	0.00	0.00
8,100.00	90.00	270.71	6,204.10	-1,325.00	1,439.33	-974.60	1,249.46	0.00	0.00	0.00
8,200.00	90.00	270.71	6,204.10	-1,325.00	1,440.57	-1,074.60	1,347.58	0.00	0.00	0.00
8,300.00	90.00	270.71	6,204.10	-1,325.00	1,441.81	-1,174.59	1,445.69	0.00	0.00	0.00
8,400.00	90.00	270.71	6,204.10	-1,325.00	1,443.05	-1,274.58	1,543.81	0.00	0.00	0.00
8,500.00	90.00	270.71	6,204.10	-1,325.00	1,444.29	-1,374.57	1,641.92	0.00	0.00	0.00
8,600.00	90.00	270.71	6,204.10	-1,325.00	1,445.53	-1,474.57	1,740.04	0.00	0.00	0.00
8,700.00	90.00	270.71	6,204.11	-1,325.01	1,446.76	-1,574.56	1,838.15	0.00	0.00	0.00
8,800.00	90.00	270.71	6,204.11	-1,325.01	1,448.00	-1,674.55	1,936.27	0.00	0.00	0.00
8,900.00	90.00	270.71	6,204.11	-1,325.01	1,449.24	-1,774.54	2,034.38	0.00	0.00	0.00
9,000.00	90.00	270.71	6,204.11	-1,325.01	1,450.48	-1,874.54	2,132.50	0.00	0.00	0.00
9,100.00	90.00	270.71	6,204.11	-1,325.01	1,451.72	-1,974.53	2,230.61	0.00	0.00	0.00
9,200.00	90.00	270.71	6,204.11	-1,325.01	1,452.96	-2,074.52	2,328.73	0.00	0.00	0.00
9,300.00	90.00	270.71	6,204.11	-1,325.01	1,454.20	-2,174.51	2,426.84	0.00	0.00	0.00
9,400.00	90.00	270.71	6,204.11	-1,325.01	1,455.44	-2,274.50	2,524.96	0.00	0.00	0.00
9,500.00	90.00	270.71	6,204.11	-1,325.01	1,456.68	-2,374.50	2,623.07	0.00	0.00	0.00
9,600.00	90.00	270.71	6,204.11	-1,325.01	1,457.92	-2,474.49	2,721.18	0.00	0.00	0.00
9,700.00	90.00	270.71	6,204.11	-1,325.01	1,459.16	-2,574.48	2,819.30	0.00	0.00	0.00
9,800.00	90.00	270.71	6,204.11	-1,325.01	1,460.39	-2,674.47	2,917.41	0.00	0.00	0.00
9,900.00	90.00	270.71	6,204.11	-1,325.01	1,461.63	-2,774.47	3,015.53	0.00	0.00	0.00
10,000.00	90.00	270.71	6,204.11	-1,325.01	1,462.87	-2,874.46	3,113.64	0.00	0.00	0.00
10,100.00	90.00	270.71	6,204.11	-1,325.01	1,464.11	-2,974.45	3,211.76	0.00	0.00	0.00
10,200.00	90.00	270.71	6,204.11	-1,325.01	1,465.35	-3,074.44	3,309.87	0.00	0.00	0.00
10,300.00	90.00	270.71	6,204.11	-1,325.01	1,466.59	-3,174.44	3,407.99	0.00	0.00	0.00
10,400.00	90.00	270.71	6,204.11	-1,325.01	1,467.83	-3,274.43	3,506.10	0.00	0.00	0.00
10,500.00	90.00	270.71	6,204.11	-1,325.01	1,469.07	-3,374.42	3,604.22	0.00	0.00	0.00
10,600.00	90.00	270.71	6,204.11	-1,325.01	1,470.31	-3,474.41	3,702.33	0.00	0.00	0.00
10,700.00	90.00	270.71	6,204.11	-1,325.01	1,471.55	-3,574.40	3,800.45	0.00	0.00	0.00
10,800.00	90.00	270.71	6,204.11	-1,325.01	1,472.79	-3,674.40	3,898.56	0.00	0.00	0.00
10,900.00	90.00	270.71	6,204.11	-1,325.01	1,474.03	-3,774.39	3,996.68	0.00	0.00	0.00
11,000.00	90.00	270.71	6,204.11	-1,325.01	1,475.26	-3,874.38	4,094.79	0.00	0.00	0.00
11,100.00	90.00	270.71	6,204.11	-1,325.01	1,476.50	-3,974.37	4,192.91	0.00	0.00	0.00
11,200.00	90.00	270.71	6,204.11	-1,325.01	1,477.74	-4,074.37	4,291.02	0.00	0.00	0.00
11,300.00	90.00	270.71	6,204.11	-1,325.01	1,478.98	-4,174.36	4,389.14	0.00	0.00	0.00
11,400.00	90.00	270.71	6,204.11	-1,325.01	1,480.22	-4,274.35	4,487.25	0.00	0.00	0.00
11,500.00	90.00	270.71	6,204.11	-1,325.01	1,481.46	-4,374.34	4,585.37	0.00	0.00	0.00
11,600.00	90.00	270.71	6,204.11	-1,325.01	1,482.70	-4,474.34	4,683.48	0.00	0.00	0.00
11,700.00	90.00	270.71	6,204.11	-1,325.01	1,483.94	-4,574.33	4,781.60	0.00	0.00	0.00
11,800.00	90.00	270.71	6,204.11	-1,325.01	1,485.18	-4,674.32	4,879.71	0.00	0.00	0.00
11,900.00	90.00	270.71	6,204.11	-1,325.01	1,486.42	-4,774.31	4,977.83	0.00	0.00	0.00
12,000.00	90.00	270.71	6,204.11	-1,325.01	1,487.66	-4,874.30	5,075.94	0.00	0.00	0.00
12,100.00	90.00	270.71	6,204.11	-1,325.01	1,488.89	-4,974.30	5,174.05	0.00	0.00	0.00
12,200.00	90.00	270.71	6,204.11	-1,325.01	1,490.13	-5,074.29	5,272.17	0.00	0.00	0.00
12,300.00	90.00	270.71	6,204.12	-1,325.02	1,491.37	-5,174.28	5,370.28	0.00	0.00	0.00
12,400.00	90.00	270.71	6,204.12	-1,325.02	1,492.61	-5,274.27	5,468.40	0.00	0.00	0.00
12,500.00	90.00	270.71	6,204.12	-1,325.02	1,493.85	-5,374.27	5,566.51	0.00	0.00	0.00
12,600.00	90.00	270.71	6,204.12	-1,325.02	1,495.09	-5,474.26	5,664.63	0.00	0.00	0.00
12,700.00	90.00	270.71	6,204.12	-1,325.02	1,496.33	-5,574.25	5,762.74	0.00	0.00	0.00
12,800.00	90.00	270.71	6,204.12	-1,325.02	1,497.57	-5,674.24	5,860.86	0.00	0.00	0.00
12,900.00	90.00	270.71	6,204.12	-1,325.02	1,498.81	-5,774.24	5,958.97	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CASTOR FED 8-59 19-24-6
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB @ 4879.10usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB @ 4879.10usft
Site:	NE SE SEC. 19 T8N R59W 6th P.M.	North Reference:	True
Well:	CASTOR FED 8-59 19-24-6	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)
13,000.00	90.00	270.71	6,204.12	-1,325.02	1,500.05	-5,874.23	6,057.09	0.00	0.00	0.00
13,100.00	90.00	270.71	6,204.12	-1,325.02	1,501.29	-5,974.22	6,155.20	0.00	0.00	0.00
13,200.00	90.00	270.71	6,204.12	-1,325.02	1,502.53	-6,074.21	6,253.32	0.00	0.00	0.00
13,300.00	90.00	270.71	6,204.12	-1,325.02	1,503.76	-6,174.21	6,351.43	0.00	0.00	0.00
13,400.00	90.00	270.71	6,204.12	-1,325.02	1,505.00	-6,274.20	6,449.55	0.00	0.00	0.00
13,500.00	90.00	270.71	6,204.12	-1,325.02	1,506.24	-6,374.19	6,547.66	0.00	0.00	0.00
13,600.00	90.00	270.71	6,204.12	-1,325.02	1,507.48	-6,474.18	6,645.78	0.00	0.00	0.00
13,700.00	90.00	270.71	6,204.12	-1,325.02	1,508.72	-6,574.17	6,743.89	0.00	0.00	0.00
13,800.00	90.00	270.71	6,204.12	-1,325.02	1,509.96	-6,674.17	6,842.01	0.00	0.00	0.00
13,900.00	90.00	270.71	6,204.12	-1,325.02	1,511.20	-6,774.16	6,940.12	0.00	0.00	0.00
14,000.00	90.00	270.71	6,204.12	-1,325.02	1,512.44	-6,874.15	7,038.24	0.00	0.00	0.00
14,100.00	90.00	270.71	6,204.12	-1,325.02	1,513.68	-6,974.14	7,136.35	0.00	0.00	0.00
14,200.00	90.00	270.71	6,204.12	-1,325.02	1,514.92	-7,074.14	7,234.47	0.00	0.00	0.00
EPI: 2455ft FNL & 2340ft FEL of Sec 24										
14,245.27	90.00	270.71	6,204.10	-1,325.00	1,515.55	-7,119.40	7,278.90	0.00	0.00	0.00
EOT TO 269.61° AZ										
14,282.09	90.00	269.61	6,204.10	-1,325.00	1,515.65	-7,156.22	7,314.95	3.00	0.00	-3.00
14,300.00	90.00	269.61	6,204.10	-1,325.00	1,515.52	-7,174.13	7,332.45	0.00	0.00	0.00
BHL: 2456ft FNL & 2440ft FEL of Sec 24										
14,345.45	90.00	269.61	6,204.10	-1,325.00	1,515.21	-7,219.58	7,376.87	0.00	0.00	0.00

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
484.10	484.10	PIERRE SHALE (BASE FOX HILLS				
3,270.99	3,109.10	PARKMAN				
4,059.09	3,829.10	SUSSEX				
4,865.59	4,569.10	SHANNON				
6,248.40	5,919.10	SHARON SPRINGS SHALE				
6,346.26	5,999.10	NIOBRARA FORMATION				
6,359.43	6,009.10	NIOBRARA A CHALK				
6,494.29	6,099.10	NIOBRARA B CHALK				
6,645.39	6,169.10	NIOBRARA C CHALK				

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.00	0.00	0.00	0.00	SHL: 1420ft FSL & 560ft FEL of Sec 19
600.00	600.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1,799.68	1,764.92	212.17	127.53	EOB TO 23.99° INC
4,647.01	4,366.22	1,204.53	723.99	END OF TANGENT
5,846.69	5,531.14	1,416.70	851.52	EOD TO VERTICAL
5,946.69	5,631.14	1,416.70	851.52	KOP (10°/100ft BUR)
6,846.69	6,204.10	1,423.80	278.61	BPI: 2466ft FNL & 300ft FEL of Sec 19
14,245.27	6,204.10	1,515.55	-7,119.40	EPI: 2455ft FNL & 2340ft FEL of Sec 24
14,282.09	6,204.10	1,515.65	-7,156.22	EOT TO 269.61° AZ
14,345.45	6,204.10	1,515.21	-7,219.58	BHL: 2456ft FNL & 2440ft FEL of Sec 24