

BISON OIL & GAS II, LLC

WELD COUNTY, COLORADO (NAD 83)

SW SW SEC. 20 T8N R59W 6th P.M.

WADE 8-59 20A-29-32-5

ORIGINAL WELLBORE

10 December, 2017

Plan: PROPOSAL #1





Project: WELD COUNTY, COLORADO (NAD 83)
Site: SW SW SEC. 20 T8N R59W 6th P.M.
Well: WADE 8-59 20A-29-32-5
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #1

ANNOTATIONS										
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Dep	Annotation		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 310ft FSL & 534ft FWL of Sec 20		
600.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)		
1229.04	1234.21	12.68	111.94	-26.13	64.85	30.43	69.92	EOB TO 12.68° INC		
4824.50	4919.61	12.68	111.94	-328.54	815.45	382.65	879.15	END OF TANGENT		
5453.54	5553.82	0.00	0.00	-354.67	880.30	413.08	949.06	EOD TO VERTICAL		
5553.54	5653.82	0.00	0.00	-354.67	880.30	413.08	949.06	KOP (10°/100ft BUR)		
6126.50	6553.82	90.00	180.94	-927.55	870.90	984.03	1522.02	BPI: 600ft FNL & 1416ft FWL of Sec 29		
6126.50	15907.66	90.00	180.93	-10280.14	717.98	10305.16	10875.86	EPI: 600ft FSL & 1414ft FWL of Sec 32		
6126.50	16207.54	90.00	180.87	-10579.98	713.27	10604.00	11175.74	BHL: 300ft FSL & 1416ft FWL of Sec 32		

PROPOSED LOCAL COORDINATES:

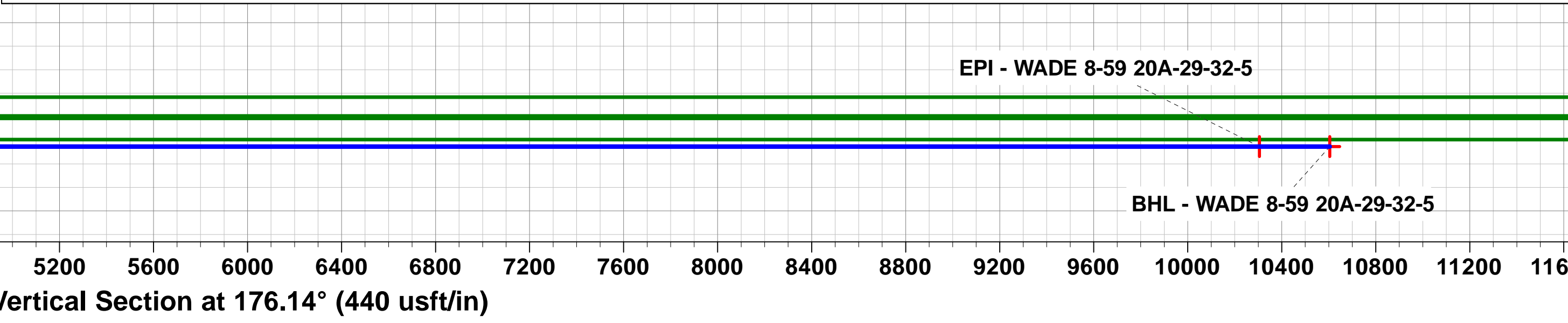
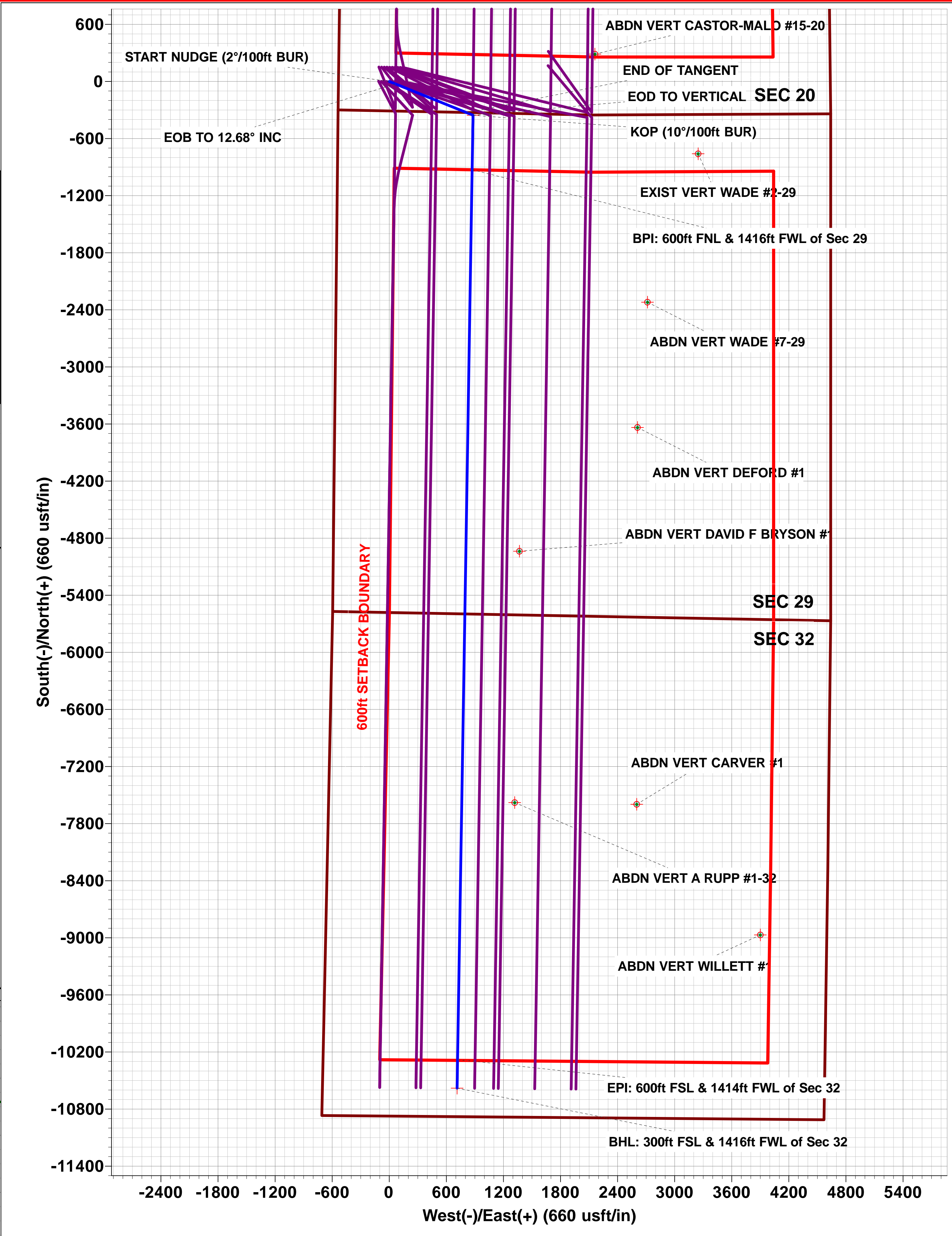
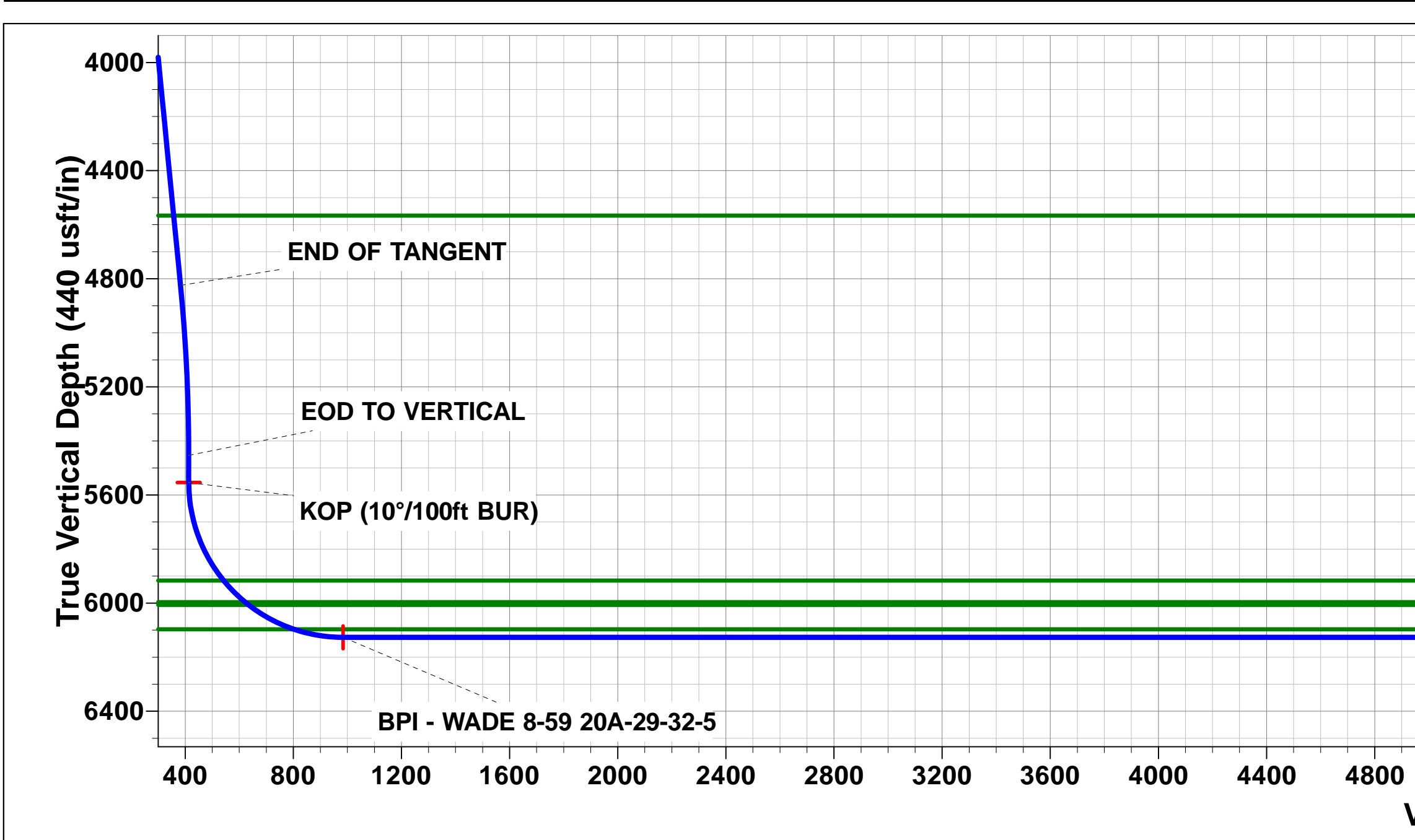
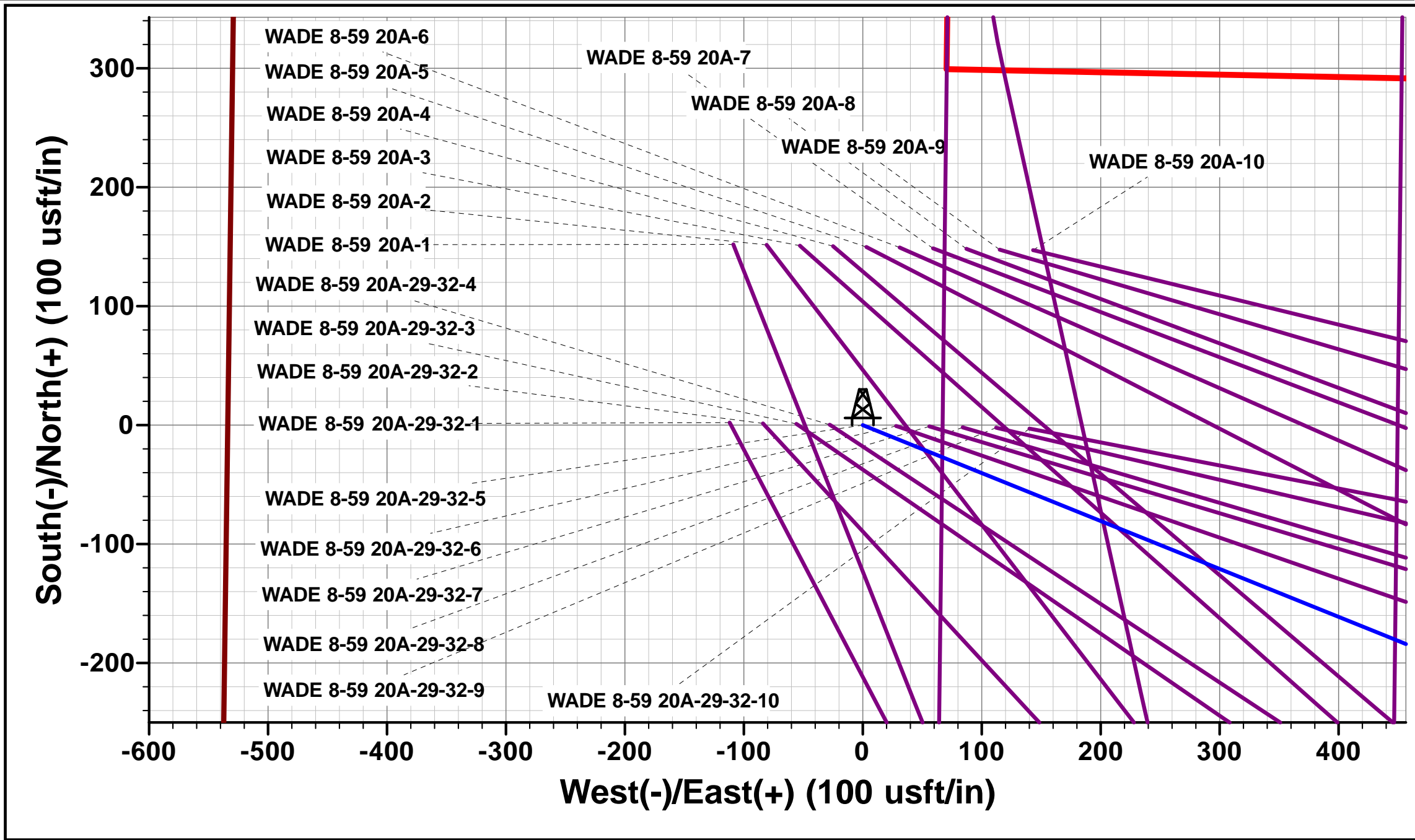
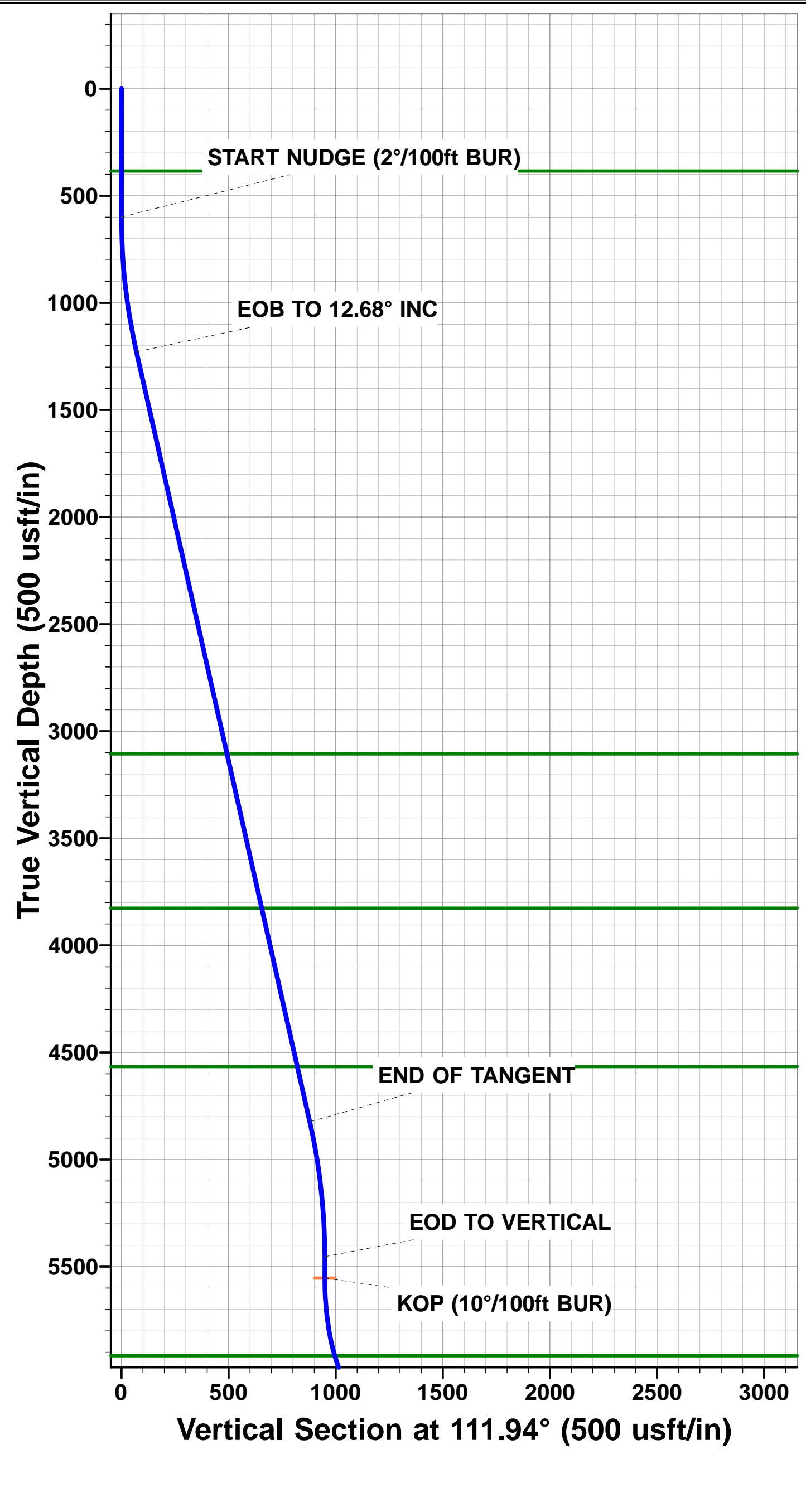
SHL: 310ft FSL & 534ft FWL Sec 20

BPI: 600ft FNL & 1416ft FWL Sec 29

EPI: 600ft FSL & 1414ft FWL Sec 32

BHL: 300ft FSL & 1416ft FWL of Sec 32

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - WADE 8-59 20A-29-32-5	5553.54	-354.67	880.30	40.640333	-104.005476
BPI - WADE 8-59 20A-29-32-5	6126.50	-927.55	870.90	40.638761	-104.005510
EPI - WADE 8-59 20A-29-32-5	6126.50	-10280.14	717.98	40.613090	-104.006062
BHL - WADE 8-59 20A-29-32-5	6126.50	-10579.98	713.27	40.612267	-104.006079



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well WADE 8-59 20A-29-32-5
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB-EST @ 4896.50usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4896.50usft (Original Well Elev)
Site:	SW SW SEC. 20 T8N R59W 6th P.M.	North Reference:	True
Well:	WADE 8-59 20A-29-32-5	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	SW SW SEC. 20 T8N R59W 6th P.M.		
Site Position:		Northing:	1,480,100.70 usft
From:	Lat/Long	Easting:	3,413,747.65 usft
Position Uncertainty:	0.00 usft	Slot Radius:	1.10000 ft
		Latitude:	40.641724
		Longitude:	-104.009040
		Grid Convergence:	0.96 °

Well	WADE 8-59 20A-29-32-5		
Well Position	+N/-S	-151.93 usft	Northing: 1,479,950.62 usft
	+E/-W	108.79 usft	Easting: 3,413,858.98 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	40.641307
		Longitude:	-104.008648
		Ground Level:	4,871.50 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/12/2017	7.77	67.15	52,538

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 (°)
	6,126.50	0.00	0.00	176.14

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	-4,896.50	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	-4,296.50	0.00	0.00	0.00	0.00	0.00	0.00	
1,234.21	12.68	111.94	1,229.04	-3,667.46	-26.13	64.85	2.00	2.00	0.00	111.94	
4,919.61	12.68	111.94	4,824.50	-72.00	-328.54	815.45	0.00	0.00	0.00	0.00	
5,553.82	0.00	0.00	5,453.54	557.04	-354.67	880.30	2.00	-2.00	0.00	180.00	
5,653.82	0.00	0.00	5,553.54	657.04	-354.67	880.30	0.00	0.00	0.00	0.00	KOP - WADE 8-59 2
6,553.82	90.00	180.94	6,126.50	1,230.00	-927.55	870.90	10.00	10.00	-19.90	180.94	BPI - WADE 8-59 2
15,907.66	90.00	180.93	6,126.50	1,230.00	-10,280.14	717.98	0.00	0.00	0.00	-87.72	EPI - WADE 8-59 2
16,207.54	90.00	180.87	6,126.50	1,230.00	-10,579.98	713.27	0.02	0.00	-0.02	-90.19	BHL - WADE 8-59 2

Planning Report



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Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB-EST @ 4896.50usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4896.50usft (Original Well Elev)
Site:	SW SW SEC. 20 T8N R59W 6th P.M.	North Reference:	True
Well:	WADE 8-59 20A-29-32-5	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: 310ft FSL & 534ft FWL of Sec 20										
0.00	0.00	0.00	0.00	4,896.50	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,796.50	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	4,696.50	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	4,596.50	0.00	0.00	0.00	0.00	0.00	0.00
PIERRE SHALE (BASE OF FOX HILLS)										
384.50	0.00	0.00	384.50	4,512.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	4,496.50	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	4,396.50	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	4,296.50	0.00	0.00	0.00	0.00	0.00	0.00
700.00	2.00	111.94	699.98	4,196.52	-0.65	1.62	0.76	2.00	2.00	0.00
800.00	4.00	111.94	799.84	4,096.66	-2.61	6.47	3.04	2.00	2.00	0.00
900.00	6.00	111.94	899.45	3,997.05	-5.86	14.56	6.83	2.00	2.00	0.00
1,000.00	8.00	111.94	998.70	3,897.80	-10.42	25.86	12.13	2.00	2.00	0.00
1,100.00	10.00	111.94	1,097.47	3,799.03	-16.26	40.37	18.94	2.00	2.00	0.00
1,200.00	12.00	111.94	1,195.62	3,700.88	-23.39	58.07	27.25	2.00	2.00	0.00
EOB TO 12.68° INC										
1,234.21	12.68	111.94	1,229.04	3,667.46	-26.13	64.85	30.43	2.00	2.00	0.00
1,300.00	12.68	111.94	1,293.23	3,603.27	-31.53	78.25	36.72	0.00	0.00	0.00
1,400.00	12.68	111.94	1,390.79	3,505.71	-39.73	98.62	46.28	0.00	0.00	0.00
1,500.00	12.68	111.94	1,488.35	3,408.15	-47.94	118.98	55.83	0.00	0.00	0.00
1,600.00	12.68	111.94	1,585.91	3,310.59	-56.14	139.35	65.39	0.00	0.00	0.00
1,700.00	12.68	111.94	1,683.46	3,213.04	-64.35	159.72	74.95	0.00	0.00	0.00
1,800.00	12.68	111.94	1,781.02	3,115.48	-72.55	180.08	84.50	0.00	0.00	0.00
1,900.00	12.68	111.94	1,878.58	3,017.92	-80.76	200.45	94.06	0.00	0.00	0.00
2,000.00	12.68	111.94	1,976.14	2,920.36	-88.97	220.82	103.62	0.00	0.00	0.00
2,100.00	12.68	111.94	2,073.70	2,822.80	-97.17	241.18	113.18	0.00	0.00	0.00
2,200.00	12.68	111.94	2,171.26	2,725.24	-105.38	261.55	122.73	0.00	0.00	0.00
2,300.00	12.68	111.94	2,268.82	2,627.68	-113.58	281.92	132.29	0.00	0.00	0.00
2,400.00	12.68	111.94	2,366.38	2,530.12	-121.79	302.28	141.85	0.00	0.00	0.00
2,500.00	12.68	111.94	2,463.94	2,432.56	-130.00	322.65	151.40	0.00	0.00	0.00
2,600.00	12.68	111.94	2,561.50	2,335.00	-138.20	343.02	160.96	0.00	0.00	0.00
2,700.00	12.68	111.94	2,659.06	2,237.44	-146.41	363.39	170.52	0.00	0.00	0.00
2,800.00	12.68	111.94	2,756.62	2,139.88	-154.61	383.75	180.08	0.00	0.00	0.00
2,900.00	12.68	111.94	2,854.18	2,042.32	-162.82	404.12	189.63	0.00	0.00	0.00
3,000.00	12.68	111.94	2,951.74	1,944.76	-171.02	424.49	199.19	0.00	0.00	0.00
3,100.00	12.68	111.94	3,049.30	1,847.20	-179.23	444.85	208.75	0.00	0.00	0.00
PARKMAN										
3,158.63	12.68	111.94	3,106.50	1,790.00	-184.04	456.79	214.35	0.00	0.00	0.00
3,200.00	12.68	111.94	3,146.86	1,749.64	-187.44	465.22	218.30	0.00	0.00	0.00
3,300.00	12.68	111.94	3,244.42	1,652.08	-195.64	485.59	227.86	0.00	0.00	0.00
3,400.00	12.68	111.94	3,341.98	1,554.52	-203.85	505.95	237.42	0.00	0.00	0.00
3,500.00	12.68	111.94	3,439.54	1,456.96	-212.05	526.32	246.97	0.00	0.00	0.00
3,600.00	12.68	111.94	3,537.10	1,359.40	-220.26	546.69	256.53	0.00	0.00	0.00
3,700.00	12.68	111.94	3,634.65	1,261.85	-228.46	567.05	266.09	0.00	0.00	0.00
3,800.00	12.68	111.94	3,732.21	1,164.29	-236.67	587.42	275.65	0.00	0.00	0.00
SUSSEX										
3,896.64	12.68	111.94	3,826.50	1,070.00	-244.60	607.10	284.88	0.00	0.00	0.00
3,900.00	12.68	111.94	3,829.77	1,066.73	-244.88	607.79	285.20	0.00	0.00	0.00
4,000.00	12.68	111.94	3,927.33	969.17	-253.08	628.16	294.76	0.00	0.00	0.00
4,100.00	12.68	111.94	4,024.89	871.61	-261.29	648.52	304.32	0.00	0.00	0.00
4,200.00	12.68	111.94	4,122.45	774.05	-269.49	668.89	313.87	0.00	0.00	0.00

Planning Report



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Well:	WADE 8-59 20A-29-32-5	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)
4,300.00	12.68	111.94	4,220.01	676.49	-277.70	689.26	323.43	0.00	0.00	0.00
4,400.00	12.68	111.94	4,317.57	578.93	-285.90	709.62	332.99	0.00	0.00	0.00
4,500.00	12.68	111.94	4,415.13	481.37	-294.11	729.99	342.55	0.00	0.00	0.00
4,600.00	12.68	111.94	4,512.69	383.81	-302.32	750.36	352.10	0.00	0.00	0.00
SHANNON										
4,655.16	12.68	111.94	4,566.50	330.00	-306.84	761.59	357.37	0.00	0.00	0.00
4,700.00	12.68	111.94	4,610.25	286.25	-310.52	770.72	361.66	0.00	0.00	0.00
4,800.00	12.68	111.94	4,707.81	188.69	-318.73	791.09	371.22	0.00	0.00	0.00
4,900.00	12.68	111.94	4,805.37	91.13	-326.93	811.46	380.77	0.00	0.00	0.00
END OF TANGENT										
4,919.61	12.68	111.94	4,824.50	72.00	-328.54	815.45	382.65	0.00	0.00	0.00
5,000.00	11.08	111.94	4,903.17	-6.67	-334.73	830.80	389.85	2.00	-2.00	0.00
5,100.00	9.08	111.94	5,001.62	-105.12	-341.27	847.03	397.47	2.00	-2.00	0.00
5,200.00	7.08	111.94	5,100.62	-204.12	-346.52	860.06	403.58	2.00	-2.00	0.00
5,300.00	5.08	111.94	5,200.05	-303.55	-350.47	869.88	408.19	2.00	-2.00	0.00
5,400.00	3.08	111.94	5,299.80	-403.30	-353.13	876.47	411.28	2.00	-2.00	0.00
5,500.00	1.08	111.94	5,399.73	-503.23	-354.48	879.83	412.86	2.00	-2.00	0.00
EOD TO VERTICAL										
5,553.82	0.00	0.00	5,453.54	-557.04	-354.67	880.30	413.08	2.00	-2.00	0.00
5,600.00	0.00	0.00	5,499.72	-603.22	-354.67	880.30	413.08	0.00	0.00	0.00
KOP (10°/100ft BUR)										
5,653.82	0.00	0.00	5,553.54	-657.04	-354.67	880.30	413.08	0.00	0.00	0.00
5,700.00	4.62	180.94	5,599.67	-703.17	-356.53	880.27	414.93	10.00	10.00	0.00
5,800.00	14.62	180.94	5,698.14	-801.64	-373.21	880.00	431.56	10.00	10.00	0.00
5,900.00	24.62	180.94	5,792.22	-895.72	-406.74	879.45	464.98	10.00	10.00	0.00
6,000.00	34.62	180.94	5,879.04	-982.54	-456.09	878.64	514.16	10.00	10.00	0.00
SHARON SPRINGS SHALE										
6,046.89	39.31	180.94	5,916.50	-1,020.00	-484.28	878.17	542.25	10.00	10.00	0.00
6,100.00	44.62	180.94	5,955.97	-1,059.47	-519.77	877.59	577.63	10.00	10.00	0.00
NIOBRARA FORMATION										
6,160.16	50.63	180.94	5,996.50	-1,100.00	-564.19	876.86	621.89	10.00	10.00	0.00
NIOBRARA A CHALK										
6,176.20	52.24	180.94	6,006.50	-1,110.00	-576.73	876.66	634.39	10.00	10.00	0.00
6,200.00	54.62	180.94	6,020.68	-1,124.18	-595.84	876.34	653.44	10.00	10.00	0.00
6,300.00	64.62	180.94	6,071.19	-1,174.69	-681.99	874.93	739.29	10.00	10.00	0.00
NIOBRARA B CHALK										
6,367.59	71.38	180.94	6,096.50	-1,200.00	-744.61	873.91	801.70	10.00	10.00	0.00
6,400.00	74.62	180.94	6,105.98	-1,209.48	-775.59	873.40	832.58	10.00	10.00	0.00
6,500.00	84.62	180.94	6,123.97	-1,227.47	-873.82	871.79	930.48	10.00	10.00	0.00
BPI: 600ft FNL & 1416ft FWL of Sec 29										
6,553.82	90.00	180.94	6,126.50	-1,230.00	-927.55	870.90	984.03	10.00	10.00	0.00
6,600.00	90.00	180.94	6,126.50	-1,230.00	-973.73	870.15	1,030.05	0.00	0.00	0.00
6,700.00	90.00	180.94	6,126.50	-1,230.00	-1,073.71	868.51	1,129.70	0.00	0.00	0.00
6,800.00	90.00	180.94	6,126.50	-1,230.00	-1,173.70	866.87	1,229.35	0.00	0.00	0.00
6,900.00	90.00	180.94	6,126.50	-1,230.00	-1,273.69	865.23	1,329.00	0.00	0.00	0.00
7,000.00	90.00	180.94	6,126.50	-1,230.00	-1,373.67	863.59	1,428.65	0.00	0.00	0.00
7,100.00	90.00	180.94	6,126.50	-1,230.00	-1,473.66	861.95	1,528.30	0.00	0.00	0.00
7,200.00	90.00	180.94	6,126.50	-1,230.00	-1,573.64	860.31	1,627.95	0.00	0.00	0.00
7,300.00	90.00	180.94	6,126.50	-1,230.00	-1,673.63	858.67	1,727.60	0.00	0.00	0.00
7,400.00	90.00	180.94	6,126.50	-1,230.00	-1,773.62	857.03	1,827.25	0.00	0.00	0.00
7,500.00	90.00	180.94	6,126.50	-1,230.00	-1,873.60	855.39	1,926.90	0.00	0.00	0.00
7,600.00	90.00	180.94	6,126.50	-1,230.00	-1,973.59	853.76	2,026.55	0.00	0.00	0.00
7,700.00	90.00	180.94	6,126.50	-1,230.00	-2,073.58	852.12	2,126.20	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well WADE 8-59 20A-29-32-5
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB-EST @ 4896.50usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4896.50usft (Original Well Elev)
Site:	SW SW SEC. 20 T8N R59W 6th P.M.	North Reference:	True
Well:	WADE 8-59 20A-29-32-5	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)
7,800.00	90.00	180.94	6,126.50	-1,230.00	-2,173.56	850.48	2,225.85	0.00	0.00	0.00
7,900.00	90.00	180.94	6,126.50	-1,230.00	-2,273.55	848.84	2,325.50	0.00	0.00	0.00
8,000.00	90.00	180.94	6,126.50	-1,230.00	-2,373.54	847.20	2,425.15	0.00	0.00	0.00
8,100.00	90.00	180.94	6,126.50	-1,230.00	-2,473.52	845.56	2,524.80	0.00	0.00	0.00
8,200.00	90.00	180.94	6,126.50	-1,230.00	-2,573.51	843.93	2,624.45	0.00	0.00	0.00
8,300.00	90.00	180.94	6,126.50	-1,230.00	-2,673.50	842.29	2,724.10	0.00	0.00	0.00
8,400.00	90.00	180.94	6,126.50	-1,230.00	-2,773.48	840.65	2,823.75	0.00	0.00	0.00
8,500.00	90.00	180.94	6,126.50	-1,230.00	-2,873.47	839.01	2,923.40	0.00	0.00	0.00
8,600.00	90.00	180.94	6,126.50	-1,230.00	-2,973.46	837.37	3,023.05	0.00	0.00	0.00
8,700.00	90.00	180.94	6,126.50	-1,230.00	-3,073.44	835.74	3,122.70	0.00	0.00	0.00
8,800.00	90.00	180.94	6,126.50	-1,230.00	-3,173.43	834.10	3,222.35	0.00	0.00	0.00
8,900.00	90.00	180.94	6,126.50	-1,230.00	-3,273.42	832.46	3,322.00	0.00	0.00	0.00
9,000.00	90.00	180.94	6,126.50	-1,230.00	-3,373.40	830.82	3,421.65	0.00	0.00	0.00
9,100.00	90.00	180.94	6,126.50	-1,230.00	-3,473.39	829.19	3,521.30	0.00	0.00	0.00
9,200.00	90.00	180.94	6,126.50	-1,230.00	-3,573.38	827.55	3,620.95	0.00	0.00	0.00
9,300.00	90.00	180.94	6,126.50	-1,230.00	-3,673.36	825.91	3,720.60	0.00	0.00	0.00
9,400.00	90.00	180.94	6,126.50	-1,230.00	-3,773.35	824.28	3,820.25	0.00	0.00	0.00
9,500.00	90.00	180.94	6,126.50	-1,230.00	-3,873.34	822.64	3,919.90	0.00	0.00	0.00
9,600.00	90.00	180.94	6,126.50	-1,230.00	-3,973.32	821.00	4,019.55	0.00	0.00	0.00
9,700.00	90.00	180.94	6,126.50	-1,230.00	-4,073.31	819.37	4,119.20	0.00	0.00	0.00
9,800.00	90.00	180.94	6,126.50	-1,230.00	-4,173.30	817.73	4,218.85	0.00	0.00	0.00
9,900.00	90.00	180.94	6,126.50	-1,230.00	-4,273.28	816.09	4,318.50	0.00	0.00	0.00
10,000.00	90.00	180.94	6,126.50	-1,230.00	-4,373.27	814.46	4,418.15	0.00	0.00	0.00
10,100.00	90.00	180.94	6,126.50	-1,230.00	-4,473.26	812.82	4,517.80	0.00	0.00	0.00
10,200.00	90.00	180.94	6,126.50	-1,230.00	-4,573.24	811.18	4,617.45	0.00	0.00	0.00
10,300.00	90.00	180.94	6,126.50	-1,230.00	-4,673.23	809.55	4,717.10	0.00	0.00	0.00
10,400.00	90.00	180.94	6,126.50	-1,230.00	-4,773.22	807.91	4,816.75	0.00	0.00	0.00
10,500.00	90.00	180.94	6,126.50	-1,230.00	-4,873.20	806.28	4,916.40	0.00	0.00	0.00
10,600.00	90.00	180.94	6,126.50	-1,230.00	-4,973.19	804.64	5,016.05	0.00	0.00	0.00
10,700.00	90.00	180.94	6,126.50	-1,230.00	-5,073.18	803.01	5,115.70	0.00	0.00	0.00
10,800.00	90.00	180.94	6,126.50	-1,230.00	-5,173.16	801.37	5,215.35	0.00	0.00	0.00
10,900.00	90.00	180.94	6,126.50	-1,230.00	-5,273.15	799.74	5,315.00	0.00	0.00	0.00
11,000.00	90.00	180.94	6,126.50	-1,230.00	-5,373.14	798.10	5,414.65	0.00	0.00	0.00
11,100.00	90.00	180.94	6,126.50	-1,230.00	-5,473.12	796.47	5,514.30	0.00	0.00	0.00
11,200.00	90.00	180.94	6,126.50	-1,230.00	-5,573.11	794.83	5,613.95	0.00	0.00	0.00
11,300.00	90.00	180.94	6,126.50	-1,230.00	-5,673.10	793.20	5,713.60	0.00	0.00	0.00
11,400.00	90.00	180.94	6,126.50	-1,230.00	-5,773.08	791.56	5,813.25	0.00	0.00	0.00
11,500.00	90.00	180.94	6,126.50	-1,230.00	-5,873.07	789.93	5,912.90	0.00	0.00	0.00
11,600.00	90.00	180.94	6,126.50	-1,230.00	-5,973.06	788.29	6,012.55	0.00	0.00	0.00
11,700.00	90.00	180.94	6,126.50	-1,230.00	-6,073.04	786.66	6,112.20	0.00	0.00	0.00
11,800.00	90.00	180.94	6,126.50	-1,230.00	-6,173.03	785.02	6,211.85	0.00	0.00	0.00
11,900.00	90.00	180.94	6,126.50	-1,230.00	-6,273.02	783.39	6,311.50	0.00	0.00	0.00
12,000.00	90.00	180.94	6,126.50	-1,230.00	-6,373.00	781.75	6,411.15	0.00	0.00	0.00
12,100.00	90.00	180.94	6,126.50	-1,230.00	-6,472.99	780.12	6,510.80	0.00	0.00	0.00
12,200.00	90.00	180.94	6,126.50	-1,230.00	-6,572.98	778.49	6,610.45	0.00	0.00	0.00
12,300.00	90.00	180.94	6,126.50	-1,230.00	-6,672.96	776.85	6,710.10	0.00	0.00	0.00
12,400.00	90.00	180.94	6,126.50	-1,230.00	-6,772.95	775.22	6,809.75	0.00	0.00	0.00
12,500.00	90.00	180.94	6,126.50	-1,230.00	-6,872.94	773.58	6,909.40	0.00	0.00	0.00
12,600.00	90.00	180.94	6,126.50	-1,230.00	-6,972.92	771.95	7,009.05	0.00	0.00	0.00
12,700.00	90.00	180.94	6,126.50	-1,230.00	-7,072.91	770.32	7,108.70	0.00	0.00	0.00
12,800.00	90.00	180.94	6,126.50	-1,230.00	-7,172.90	768.68	7,208.35	0.00	0.00	0.00
12,900.00	90.00	180.94	6,126.50	-1,230.00	-7,272.88	767.05	7,308.01	0.00	0.00	0.00
13,000.00	90.00	180.94	6,126.50	-1,230.00	-7,372.87	765.42	7,407.66	0.00	0.00	0.00
13,100.00	90.00	180.94	6,126.50	-1,230.00	-7,472.86	763.79	7,507.31	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well WADE 8-59 20A-29-32-5
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB-EST @ 4896.50usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4896.50usft (Original Well Elev)
Site:	SW SW SEC. 20 T8N R59W 6th P.M.	North Reference:	True
Well:	WADE 8-59 20A-29-32-5	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)
13,200.00	90.00	180.94	6,126.50	-1,230.00	-7,572.84	762.15	7,606.96	0.00	0.00	0.00
13,300.00	90.00	180.94	6,126.50	-1,230.00	-7,672.83	760.52	7,706.61	0.00	0.00	0.00
13,400.00	90.00	180.94	6,126.50	-1,230.00	-7,772.82	758.89	7,806.26	0.00	0.00	0.00
13,500.00	90.00	180.94	6,126.50	-1,230.00	-7,872.80	757.25	7,905.91	0.00	0.00	0.00
13,600.00	90.00	180.94	6,126.50	-1,230.00	-7,972.79	755.62	8,005.56	0.00	0.00	0.00
13,700.00	90.00	180.94	6,126.50	-1,230.00	-8,072.78	753.99	8,105.21	0.00	0.00	0.00
13,800.00	90.00	180.94	6,126.50	-1,230.00	-8,172.76	752.36	8,204.86	0.00	0.00	0.00
13,900.00	90.00	180.94	6,126.50	-1,230.00	-8,272.75	750.72	8,304.51	0.00	0.00	0.00
14,000.00	90.00	180.94	6,126.50	-1,230.00	-8,372.74	749.09	8,404.16	0.00	0.00	0.00
14,100.00	90.00	180.94	6,126.50	-1,230.00	-8,472.72	747.46	8,503.81	0.00	0.00	0.00
14,200.00	90.00	180.94	6,126.50	-1,230.00	-8,572.71	745.83	8,603.46	0.00	0.00	0.00
14,300.00	90.00	180.93	6,126.50	-1,230.00	-8,672.70	744.20	8,703.11	0.00	0.00	0.00
14,400.00	90.00	180.93	6,126.50	-1,230.00	-8,772.68	742.57	8,802.76	0.00	0.00	0.00
14,500.00	90.00	180.93	6,126.50	-1,230.00	-8,872.67	740.93	8,902.41	0.00	0.00	0.00
14,600.00	90.00	180.93	6,126.50	-1,230.00	-8,972.66	739.30	9,002.06	0.00	0.00	0.00
14,700.00	90.00	180.93	6,126.50	-1,230.00	-9,072.64	737.67	9,101.71	0.00	0.00	0.00
14,800.00	90.00	180.93	6,126.50	-1,230.00	-9,172.63	736.04	9,201.36	0.00	0.00	0.00
14,900.00	90.00	180.93	6,126.50	-1,230.00	-9,272.62	734.41	9,301.01	0.00	0.00	0.00
15,000.00	90.00	180.93	6,126.50	-1,230.00	-9,372.60	732.78	9,400.66	0.00	0.00	0.00
15,100.00	90.00	180.93	6,126.50	-1,230.00	-9,472.59	731.15	9,500.32	0.00	0.00	0.00
15,200.00	90.00	180.93	6,126.50	-1,230.00	-9,572.58	729.52	9,599.97	0.00	0.00	0.00
15,300.00	90.00	180.93	6,126.50	-1,230.00	-9,672.56	727.89	9,699.62	0.00	0.00	0.00
15,400.00	90.00	180.93	6,126.50	-1,230.00	-9,772.55	726.25	9,799.27	0.00	0.00	0.00
15,500.00	90.00	180.93	6,126.50	-1,230.00	-9,872.54	724.62	9,898.92	0.00	0.00	0.00
15,600.00	90.00	180.93	6,126.50	-1,230.00	-9,972.52	722.99	9,998.57	0.00	0.00	0.00
15,700.00	90.00	180.93	6,126.50	-1,230.00	-10,072.51	721.36	10,098.22	0.00	0.00	0.00
15,800.00	90.00	180.93	6,126.50	-1,230.00	-10,172.50	719.73	10,197.87	0.00	0.00	0.00
15,900.00	90.00	180.93	6,126.50	-1,230.00	-10,272.48	718.10	10,297.52	0.00	0.00	0.00
EPI: 600ft FSL & 1414ft FWL of Sec 32										
15,907.66	90.00	180.93	6,126.50	-1,230.00	-10,280.14	717.98	10,305.16	0.00	0.00	0.00
16,000.00	90.00	180.91	6,126.50	-1,230.00	-10,372.47	716.49	10,397.17	0.02	0.00	-0.02
16,100.00	90.00	180.89	6,126.50	-1,230.00	-10,472.46	714.92	10,496.83	0.02	0.00	-0.02
16,200.00	90.00	180.87	6,126.50	-1,230.00	-10,572.45	713.38	10,596.49	0.02	0.00	-0.02
BHL: 300ft FSL & 1416ft FWL of Sec 32										
16,207.54	90.00	180.87	6,126.50	-1,230.00	-10,579.98	713.27	10,604.00	0.02	0.00	-0.02

Formations					
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
384.50	384.50	PIERRE SHALE (BASE OF FOX HI			
3,158.63	3,106.50	PARKMAN			
3,896.64	3,826.50	SUSSEX			
4,655.16	4,566.50	SHANNON			
6,046.89	5,916.50	SHARON SPRINGS SHALE			
6,160.16	5,996.50	NIOBRARA FORMATION			
6,176.20	6,006.50	NIOBRARA A CHALK			
6,367.59	6,096.50	NIOBRARA B CHALK			

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well WADE 8-59 20A-29-32-5
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB-EST @ 4896.50usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4896.50usft (Original Well Elev)
Site:	SW SW SEC. 20 T8N R59W 6th P.M.	North Reference:	True
Well:	WADE 8-59 20A-29-32-5	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.00	0.00	0.00	0.00	SHL: 310ft FSL & 534ft FWL of Sec 20
600.00	600.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1,234.21	1,229.04	-26.13	64.85	EOB TO 12.68° INC
4,919.61	4,824.50	-328.54	815.45	END OF TANGENT
5,553.82	5,453.54	-354.67	880.30	EOD TO VERTICAL
5,653.82	5,553.54	-354.67	880.30	KOP (10°/100ft BUR)
6,553.82	6,126.50	-927.55	870.90	BPI: 600ft FNL & 1416ft FWL of Sec 29
15,907.66	6,126.50	-10,280.14	717.98	EPI: 600ft FSL & 1414ft FWL of Sec 32
16,207.54	6,126.50	-10,579.98	713.27	BHL: 300ft FSL & 1416ft FWL of Sec 32