

BISON OIL & GAS II, LLC

WELD COUNTY, COLORADO (NAD 83)

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

WADE 8-59 20A-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-5
 Wellbore: ORIGINAL WELLBORE
 Design: PROPOSAL #1

ANNOTATIONS

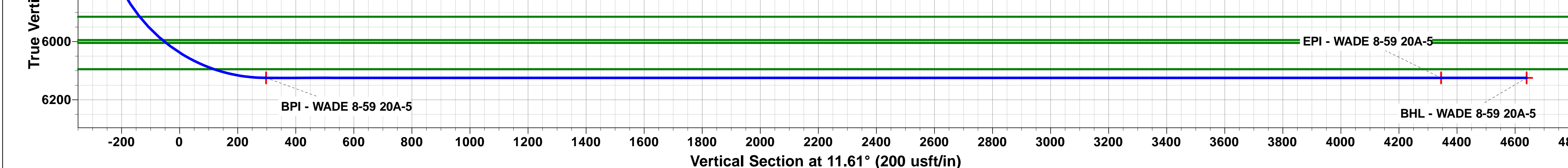
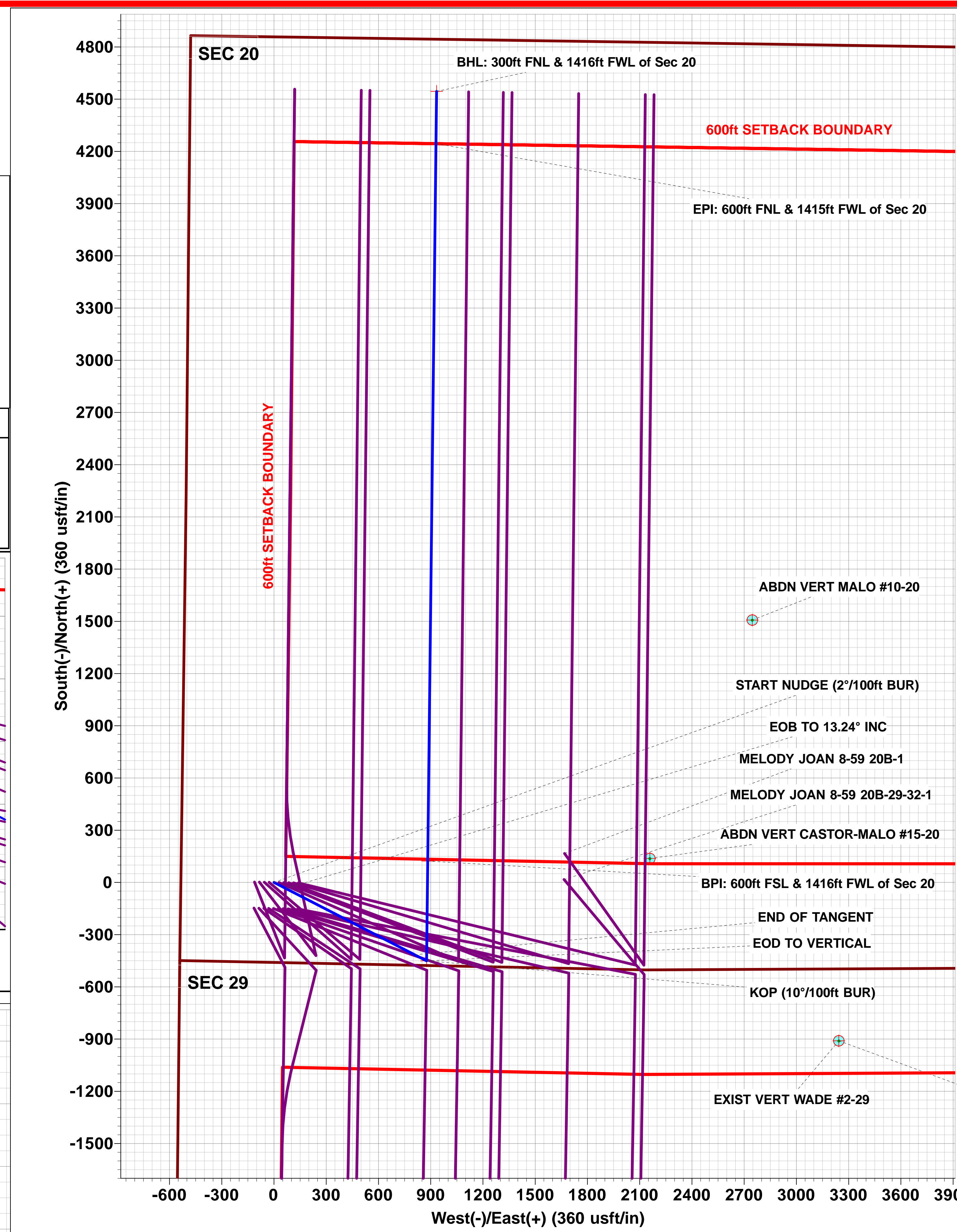
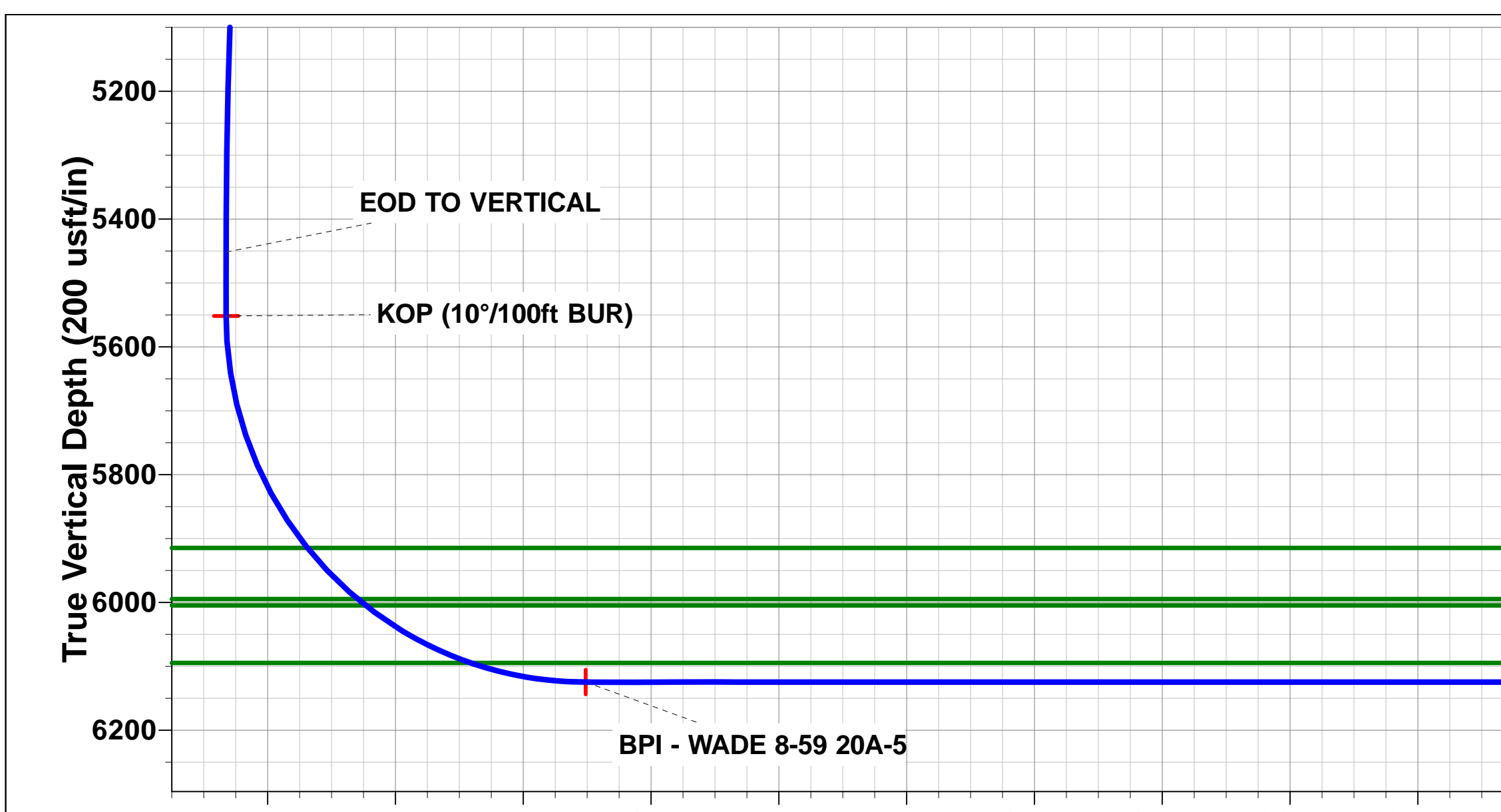
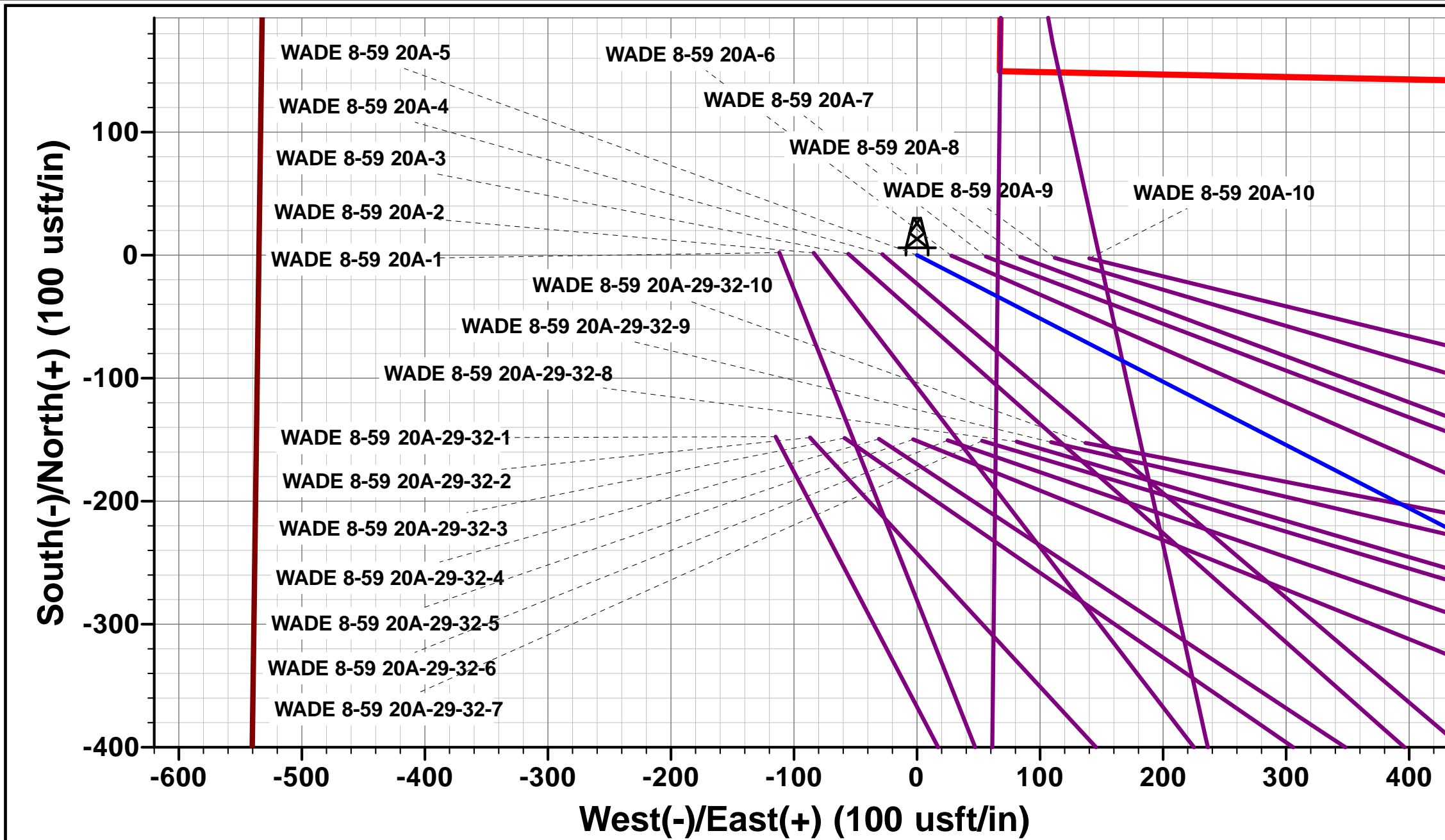
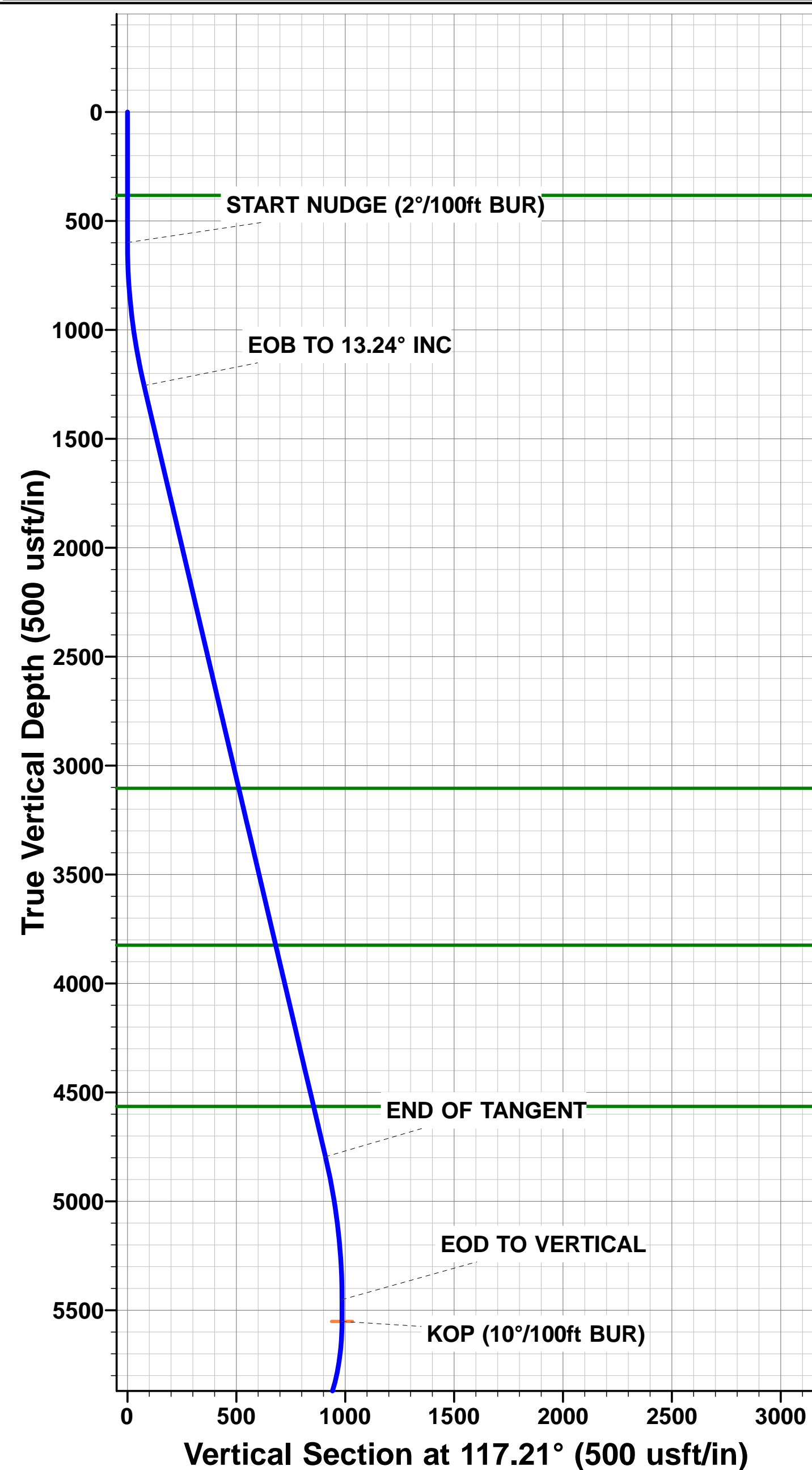
TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Dep	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 460ft FSL & 535ft FWL of Sec 20
600.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDDGE (2°/100ft BUR)
1256.23	1262.10	13.24	117.21	-34.83	67.74	-20.48	76.17	EOB TO 13.24° INC
4795.51	4898.07	13.24	117.21	-415.65	808.46	-244.40	909.05	END OF TANGENT
5451.74	5560.17	0.00	0.00	-450.48	876.20	-264.88	985.22	EOD TO VERTICAL
5551.74	5660.17	0.00	0.00	-450.48	876.20	-264.88	985.22	KOP (10°/100ft BUR)
6124.70	6560.17	90.00	0.66	122.44	882.80	297.64	1558.18	BPI: 600ft FSL & 1416ft FWL of Sec 20
6124.70	10682.81	90.00	0.66	4244.80	930.37	4345.19	5680.82	EPI: 600ft FNL & 1415ft FWL of Sec 20
6124.70	10982.68	90.00	0.71	4544.64	933.97	4639.62	5980.68	BHL: 300ft FNL & 1416ft FWL of Sec 20

PROPOSED LOCAL COORDINATES:

SHL: 460ft FSL & 535ft FWL Sec 20
 BPI: 600ft FSL & 1416ft FWL Sec 20
 EPI: 600ft FNL & 1415ft FWL Sec 20
 BHL: 300ft FNL & 1416ft FWL of Sec 20

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - WADE 8-59 20A-5	5551.74	-450.48	876.20	40.640481	-104.005480
BPI - WADE 8-59 20A-5	6124.70	122.44	882.80	40.642054	-104.005456
EPI - WADE 8-59 20A-5	6124.70	4244.80	930.37	40.653369	-104.005284
BHL - WADE 8-59 20A-5	6124.70	4544.64	933.97	40.654192	-104.005271



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well WADE 8-59 20A-5
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB-EST @ 4894.70usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4894.70usft (Original Well Elev)
Site:	SW SW SEC. 20 T8N R59W 6th P.M.	North Reference:	True
Well:	WADE 8-59 20A-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	Latitude:	40.641724
From:	Lat/Long	Easting:	3,413,747.65 usft	Longitude:	-104.009040
Position Uncertainty:	0.00 usft	Slot Radius:	1.10000ft	Grid Convergence:	0.96 °

Well	WADE 8-59 20A-5					
Well Position	+N-S	-2.19 usft	Northing:	1,480,100.38 usft	Latitude:	40.641718
	+E-W	111.84 usft	Easting:	3,413,859.51 usft	Longitude:	-104.008637
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,869.70 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/12/2017	7.77	67.15	52,539

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 (°)
	6,124.70	0.00	0.00	11.61

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	-4,894.70	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	-4,294.70	0.00	0.00	0.00	0.00	0.00	0.00	
1,262.10	13.24	117.21	1,256.23	-3,638.47	-34.83	67.74	2.00	2.00	0.00	117.21	
4,898.07	13.24	117.21	4,795.51	-99.19	-415.65	808.46	0.00	0.00	0.00	0.00	
5,560.17	0.00	0.00	5,451.74	557.04	-450.48	876.20	2.00	-2.00	0.00	180.00	
5,660.17	0.00	0.00	5,551.74	657.04	-450.48	876.20	0.00	0.00	0.00	0.00	KOP - WADE 8-59 :
6,560.17	90.00	0.66	6,124.70	1,230.00	122.44	882.80	10.00	10.00	0.07	0.66	BPI - WADE 8-59 2
10,682.81	90.00	0.66	6,124.70	1,230.00	4,244.80	930.37	0.00	0.00	0.00	75.03	EPI - WADE 8-59 2
10,982.68	90.00	0.71	6,124.70	1,230.00	4,544.64	933.97	0.02	0.00	0.02	91.05	BHL - WADE 8-59 2

Planning Report



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Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB-EST @ 4894.70usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4894.70usft (Original Well Elev)
Site:	SW SW SEC. 20 T8N R59W 6th P.M.	North Reference:	True
Well:	WADE 8-59 20A-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: 460ft FSL & 535ft FWL of Sec 20										
0.00	0.00	0.00	0.00	4,894.70	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,794.70	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	4,694.70	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	4,594.70	0.00	0.00	0.00	0.00	0.00	0.00
PIERRE SHALE (BASE OF FOX HILLS)										
382.70	0.00	0.00	382.70	4,512.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	4,494.70	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	4,394.70	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	4,294.70	0.00	0.00	0.00	0.00	0.00	0.00
700.00	2.00	117.21	699.98	4,194.72	-0.80	1.55	-0.47	2.00	2.00	0.00
800.00	4.00	117.21	799.84	4,094.86	-3.19	6.21	-1.88	2.00	2.00	0.00
900.00	6.00	117.21	899.45	3,995.25	-7.18	13.96	-4.22	2.00	2.00	0.00
1,000.00	8.00	117.21	998.70	3,896.00	-12.75	24.79	-7.50	2.00	2.00	0.00
1,100.00	10.00	117.21	1,097.47	3,797.23	-19.90	38.71	-11.70	2.00	2.00	0.00
1,200.00	12.00	117.21	1,195.62	3,699.08	-28.62	55.68	-16.83	2.00	2.00	0.00
EOB TO 13.24° INC										
1,262.10	13.24	117.21	1,256.23	3,638.47	-34.83	67.74	-20.48	2.00	2.00	0.00
1,300.00	13.24	117.21	1,293.11	3,601.59	-38.80	75.46	-22.81	0.00	0.00	0.00
1,400.00	13.24	117.21	1,390.45	3,504.25	-49.27	95.84	-28.97	0.00	0.00	0.00
1,500.00	13.24	117.21	1,487.80	3,406.90	-59.75	116.21	-35.13	0.00	0.00	0.00
1,600.00	13.24	117.21	1,585.14	3,309.56	-70.22	136.58	-41.29	0.00	0.00	0.00
1,700.00	13.24	117.21	1,682.48	3,212.22	-80.69	156.95	-47.45	0.00	0.00	0.00
1,800.00	13.24	117.21	1,779.82	3,114.88	-91.17	177.32	-53.60	0.00	0.00	0.00
1,900.00	13.24	117.21	1,877.16	3,017.54	-101.64	197.69	-59.76	0.00	0.00	0.00
2,000.00	13.24	117.21	1,974.50	2,920.20	-112.11	218.07	-65.92	0.00	0.00	0.00
2,100.00	13.24	117.21	2,071.84	2,822.86	-122.59	238.44	-72.08	0.00	0.00	0.00
2,200.00	13.24	117.21	2,169.18	2,725.52	-133.06	258.81	-78.24	0.00	0.00	0.00
2,300.00	13.24	117.21	2,266.52	2,628.18	-143.54	279.18	-84.40	0.00	0.00	0.00
2,400.00	13.24	117.21	2,363.87	2,530.83	-154.01	299.55	-90.56	0.00	0.00	0.00
2,500.00	13.24	117.21	2,461.21	2,433.49	-164.48	319.93	-96.71	0.00	0.00	0.00
2,600.00	13.24	117.21	2,558.55	2,336.15	-174.96	340.30	-102.87	0.00	0.00	0.00
2,700.00	13.24	117.21	2,655.89	2,238.81	-185.43	360.67	-109.03	0.00	0.00	0.00
2,800.00	13.24	117.21	2,753.23	2,141.47	-195.90	381.04	-115.19	0.00	0.00	0.00
2,900.00	13.24	117.21	2,850.57	2,044.13	-206.38	401.41	-121.35	0.00	0.00	0.00
3,000.00	13.24	117.21	2,947.91	1,946.79	-216.85	421.78	-127.51	0.00	0.00	0.00
3,100.00	13.24	117.21	3,045.25	1,849.45	-227.33	442.16	-133.66	0.00	0.00	0.00
PARKMAN										
3,161.07	13.24	117.21	3,104.70	1,790.00	-233.72	454.60	-137.43	0.00	0.00	0.00
3,200.00	13.24	117.21	3,142.59	1,752.11	-237.80	462.53	-139.82	0.00	0.00	0.00
3,300.00	13.24	117.21	3,239.94	1,654.76	-248.27	482.90	-145.98	0.00	0.00	0.00
3,400.00	13.24	117.21	3,337.28	1,557.42	-258.75	503.27	-152.14	0.00	0.00	0.00
3,500.00	13.24	117.21	3,434.62	1,460.08	-269.22	523.64	-158.30	0.00	0.00	0.00
3,600.00	13.24	117.21	3,531.96	1,362.74	-279.69	544.02	-164.46	0.00	0.00	0.00
3,700.00	13.24	117.21	3,629.30	1,265.40	-290.17	564.39	-170.62	0.00	0.00	0.00
3,800.00	13.24	117.21	3,726.64	1,168.06	-300.64	584.76	-176.77	0.00	0.00	0.00
3,900.00	13.24	117.21	3,823.98	1,070.72	-311.12	605.13	-182.93	0.00	0.00	0.00
SUSSEX										
3,900.74	13.24	117.21	3,824.70	1,070.00	-311.19	605.28	-182.98	0.00	0.00	0.00
4,000.00	13.24	117.21	3,921.32	973.38	-321.59	625.50	-189.09	0.00	0.00	0.00
4,100.00	13.24	117.21	4,018.66	876.04	-332.06	645.88	-195.25	0.00	0.00	0.00
4,200.00	13.24	117.21	4,116.01	778.69	-342.54	666.25	-201.41	0.00	0.00	0.00

Planning Report



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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	13.24	117.21	4,213.35	681.35	-353.01	686.62	-207.57	0.00	0.00	0.00
4,400.00	13.24	117.21	4,310.69	584.01	-363.48	706.99	-213.72	0.00	0.00	0.00
4,500.00	13.24	117.21	4,408.03	486.67	-373.96	727.36	-219.88	0.00	0.00	0.00
4,600.00	13.24	117.21	4,505.37	389.33	-384.43	747.73	-226.04	0.00	0.00	0.00
SHANNON										
4,660.95	13.24	117.21	4,564.70	330.00	-390.82	760.15	-229.79	0.00	0.00	0.00
4,700.00	13.24	117.21	4,602.71	291.99	-394.91	768.11	-232.20	0.00	0.00	0.00
4,800.00	13.24	117.21	4,700.05	194.65	-405.38	788.48	-238.36	0.00	0.00	0.00
END OF TANGENT										
4,898.07	13.24	117.21	4,795.51	99.19	-415.65	808.46	-244.40	0.00	0.00	0.00
4,900.00	13.20	117.21	4,797.39	97.31	-415.85	808.85	-244.52	2.00	-2.00	0.00
5,000.00	11.20	117.21	4,895.13	-0.43	-425.52	827.65	-250.20	2.00	-2.00	0.00
5,100.00	9.20	117.21	4,993.54	-98.84	-433.62	843.40	-254.96	2.00	-2.00	0.00
5,200.00	7.20	117.21	5,092.51	-197.81	-440.14	856.09	-258.80	2.00	-2.00	0.00
5,300.00	5.20	117.21	5,191.92	-297.22	-445.08	865.70	-261.70	2.00	-2.00	0.00
5,400.00	3.20	117.21	5,291.65	-396.95	-448.43	872.22	-263.67	2.00	-2.00	0.00
5,500.00	1.20	117.21	5,391.57	-496.87	-450.19	875.64	-264.71	2.00	-2.00	0.00
EOD TO VERTICAL										
5,560.17	0.00	0.00	5,451.74	-557.04	-450.48	876.20	-264.88	2.00	-2.00	0.00
5,600.00	0.00	0.00	5,491.57	-596.87	-450.48	876.20	-264.88	0.00	0.00	0.00
KOP (10°/100ft BUR)										
5,660.17	0.00	0.00	5,551.74	-657.04	-450.48	876.20	-264.88	0.00	0.00	0.00
5,700.00	3.98	0.66	5,591.53	-696.83	-449.10	876.22	-263.52	10.00	10.00	0.00
5,800.00	13.98	0.66	5,690.18	-795.48	-433.50	876.40	-248.21	10.00	10.00	0.00
5,900.00	23.98	0.66	5,784.62	-889.92	-401.02	876.77	-216.31	10.00	10.00	0.00
6,000.00	33.98	0.66	5,871.99	-977.29	-352.63	877.33	-168.80	10.00	10.00	0.00
SHARON SPRINGS SHALE										
6,053.25	39.31	0.66	5,914.70	-1,020.00	-320.86	877.69	-137.61	10.00	10.00	0.00
6,100.00	43.98	0.66	5,949.62	-1,054.92	-289.81	878.05	-107.12	10.00	10.00	0.00
NIOBRARA FORMATION										
6,166.51	50.63	0.66	5,994.70	-1,100.00	-240.95	878.61	-59.15	10.00	10.00	0.00
NIOBRARA A CHALK										
6,182.56	52.24	0.66	6,004.70	-1,110.00	-228.41	878.76	-46.83	10.00	10.00	0.00
6,200.00	53.98	0.66	6,015.17	-1,120.47	-214.46	878.92	-33.14	10.00	10.00	0.00
6,300.00	63.98	0.66	6,066.64	-1,171.94	-128.87	879.90	50.90	10.00	10.00	0.00
NIOBRARA B CHALK										
6,373.95	71.38	0.66	6,094.70	-1,200.00	-60.51	880.69	118.01	10.00	10.00	0.00
6,400.00	73.98	0.66	6,102.46	-1,207.76	-35.65	880.98	142.43	10.00	10.00	0.00
6,500.00	83.98	0.66	6,121.54	-1,226.84	62.38	882.10	238.67	10.00	10.00	0.00
BPI: 600ft FSL & 1416ft FWL of Sec 20										
6,560.17	90.00	0.66	6,124.70	-1,230.00	122.44	882.80	297.64	10.00	10.00	0.00
6,600.00	90.00	0.66	6,124.70	-1,230.00	162.26	883.25	336.74	0.00	0.00	0.00
6,700.00	90.00	0.66	6,124.70	-1,230.00	262.25	884.41	434.92	0.00	0.00	0.00
6,800.00	90.00	0.66	6,124.70	-1,230.00	362.25	885.56	533.10	0.00	0.00	0.00
6,900.00	90.00	0.66	6,124.70	-1,230.00	462.24	886.71	631.28	0.00	0.00	0.00
7,000.00	90.00	0.66	6,124.70	-1,230.00	562.23	887.86	729.45	0.00	0.00	0.00
7,100.00	90.00	0.66	6,124.70	-1,230.00	662.23	889.01	827.63	0.00	0.00	0.00
7,200.00	90.00	0.66	6,124.70	-1,230.00	762.22	890.16	925.81	0.00	0.00	0.00
7,300.00	90.00	0.66	6,124.70	-1,230.00	862.22	891.32	1,023.99	0.00	0.00	0.00
7,400.00	90.00	0.66	6,124.71	-1,230.01	962.21	892.47	1,122.17	0.00	0.00	0.00
7,500.00	90.00	0.66	6,124.71	-1,230.01	1,062.20	893.62	1,220.35	0.00	0.00	0.00
7,600.00	90.00	0.66	6,124.71	-1,230.01	1,162.20	894.77	1,318.52	0.00	0.00	0.00
7,700.00	90.00	0.66	6,124.71	-1,230.01	1,262.19	895.93	1,416.70	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well WADE 8-59 20A-5
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB-EST @ 4894.70usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4894.70usft (Original Well Elev)
Site:	SW SW SEC. 20 T8N R59W 6th P.M.	North Reference:	True
Well:	WADE 8-59 20A-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	0.66	6,124.71	-1,230.01	1,362.18	897.08	1,514.88	0.00	0.00	0.00
7,900.00	90.00	0.66	6,124.71	-1,230.01	1,462.18	898.23	1,613.06	0.00	0.00	0.00
8,000.00	90.00	0.66	6,124.71	-1,230.01	1,562.17	899.39	1,711.24	0.00	0.00	0.00
8,100.00	90.00	0.66	6,124.71	-1,230.01	1,662.16	900.54	1,809.42	0.00	0.00	0.00
8,200.00	90.00	0.66	6,124.71	-1,230.01	1,762.16	901.69	1,907.60	0.00	0.00	0.00
8,300.00	90.00	0.66	6,124.71	-1,230.01	1,862.15	902.85	2,005.77	0.00	0.00	0.00
8,400.00	90.00	0.66	6,124.71	-1,230.01	1,962.14	904.00	2,103.95	0.00	0.00	0.00
8,500.00	90.00	0.66	6,124.71	-1,230.01	2,062.14	905.15	2,202.13	0.00	0.00	0.00
8,600.00	90.00	0.66	6,124.71	-1,230.01	2,162.13	906.31	2,300.31	0.00	0.00	0.00
8,700.00	90.00	0.66	6,124.71	-1,230.01	2,262.12	907.46	2,398.49	0.00	0.00	0.00
8,800.00	90.00	0.66	6,124.71	-1,230.01	2,362.12	908.62	2,496.67	0.00	0.00	0.00
8,900.00	90.00	0.66	6,124.71	-1,230.01	2,462.11	909.77	2,594.85	0.00	0.00	0.00
9,000.00	90.00	0.66	6,124.71	-1,230.01	2,562.10	910.92	2,693.02	0.00	0.00	0.00
9,100.00	90.00	0.66	6,124.71	-1,230.01	2,662.10	912.08	2,791.20	0.00	0.00	0.00
9,200.00	90.00	0.66	6,124.71	-1,230.01	2,762.09	913.23	2,889.38	0.00	0.00	0.00
9,300.00	90.00	0.66	6,124.71	-1,230.01	2,862.08	914.39	2,987.56	0.00	0.00	0.00
9,400.00	90.00	0.66	6,124.71	-1,230.01	2,962.08	915.54	3,085.74	0.00	0.00	0.00
9,500.00	90.00	0.66	6,124.71	-1,230.01	3,062.07	916.70	3,183.92	0.00	0.00	0.00
9,600.00	90.00	0.66	6,124.71	-1,230.01	3,162.06	917.85	3,282.10	0.00	0.00	0.00
9,700.00	90.00	0.66	6,124.71	-1,230.01	3,262.06	919.01	3,380.28	0.00	0.00	0.00
9,800.00	90.00	0.66	6,124.71	-1,230.01	3,362.05	920.17	3,478.46	0.00	0.00	0.00
9,900.00	90.00	0.66	6,124.70	-1,230.00	3,462.04	921.32	3,576.64	0.00	0.00	0.00
10,000.00	90.00	0.66	6,124.70	-1,230.00	3,562.04	922.48	3,674.81	0.00	0.00	0.00
10,100.00	90.00	0.66	6,124.70	-1,230.00	3,662.03	923.63	3,772.99	0.00	0.00	0.00
10,200.00	90.00	0.66	6,124.70	-1,230.00	3,762.02	924.79	3,871.17	0.00	0.00	0.00
10,300.00	90.00	0.66	6,124.70	-1,230.00	3,862.02	925.95	3,969.35	0.00	0.00	0.00
10,400.00	90.00	0.66	6,124.70	-1,230.00	3,962.01	927.10	4,067.53	0.00	0.00	0.00
10,500.00	90.00	0.66	6,124.70	-1,230.00	4,062.00	928.26	4,165.71	0.00	0.00	0.00
10,600.00	90.00	0.66	6,124.70	-1,230.00	4,162.00	929.42	4,263.89	0.00	0.00	0.00
EPI: 600ft FNL & 1415ft FWL of Sec 20										
10,682.81	90.00	0.66	6,124.70	-1,230.00	4,244.80	930.37	4,345.19	0.00	0.00	0.00
10,700.00	90.00	0.67	6,124.70	-1,230.00	4,261.99	930.57	4,362.07	0.02	0.00	0.02
10,800.00	90.00	0.68	6,124.70	-1,230.00	4,361.98	931.75	4,460.25	0.02	0.00	0.02
10,900.00	90.00	0.70	6,124.70	-1,230.00	4,461.97	932.95	4,558.44	0.02	0.00	0.02
BHL: 300ft FNL & 1416ft FWL of Sec 20										
10,982.68	90.00	0.71	6,124.70	-1,230.00	4,544.64	933.97	4,639.62	0.02	0.00	0.02

Formations

MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
382.70	382.70	PIERRE SHALE (BASE OF FOX HI			
3,161.07	3,104.70	PARKMAN			
3,900.74	3,824.70	SUSSEX			
4,660.95	4,564.70	SHANNON			
6,053.25	5,914.70	SHARON SPRINGS SHALE			
6,166.51	5,994.70	NIOBRARA FORMATION			
6,182.56	6,004.70	NIOBRARA A CHALK			
6,373.95	6,094.70	NIOBRARA B CHALK			

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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: 460ft FSL & 535ft FWL of Sec 20
600.00	600.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1,262.10	1,256.23	-34.83	67.74	EOB TO 13.24° INC
4,898.07	4,795.51	-415.65	808.46	END OF TANGENT
5,560.17	5,451.74	-450.48	876.20	EOD TO VERTICAL
5,660.17	5,551.74	-450.48	876.20	KOP (10°/100ft BUR)
6,560.17	6,124.70	122.44	882.80	BPI: 600ft FSL & 1416ft FWL of Sec 20
10,682.81	6,124.70	4,244.80	930.37	EPI: 600ft FNL & 1415ft FWL of Sec 20
10,982.68	6,124.70	4,544.64	933.97	BHL: 300ft FNL & 1416ft FWL of Sec 20