

BISON OIL & GAS II, LLC

WELD COUNTY, COLORADO (NAD 83)

SW SW SEC. 11 T5N R61W 6th P.M.

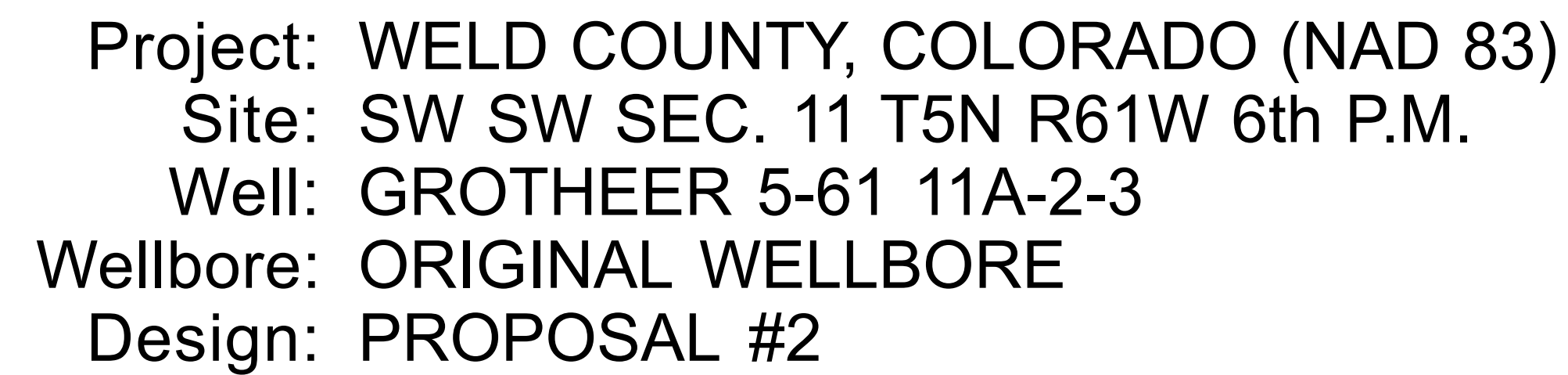
GROTHER 5-61 11A-2-3

ORIGINAL WELLBORE

26 April, 2022

Plan: PROPOSAL #2

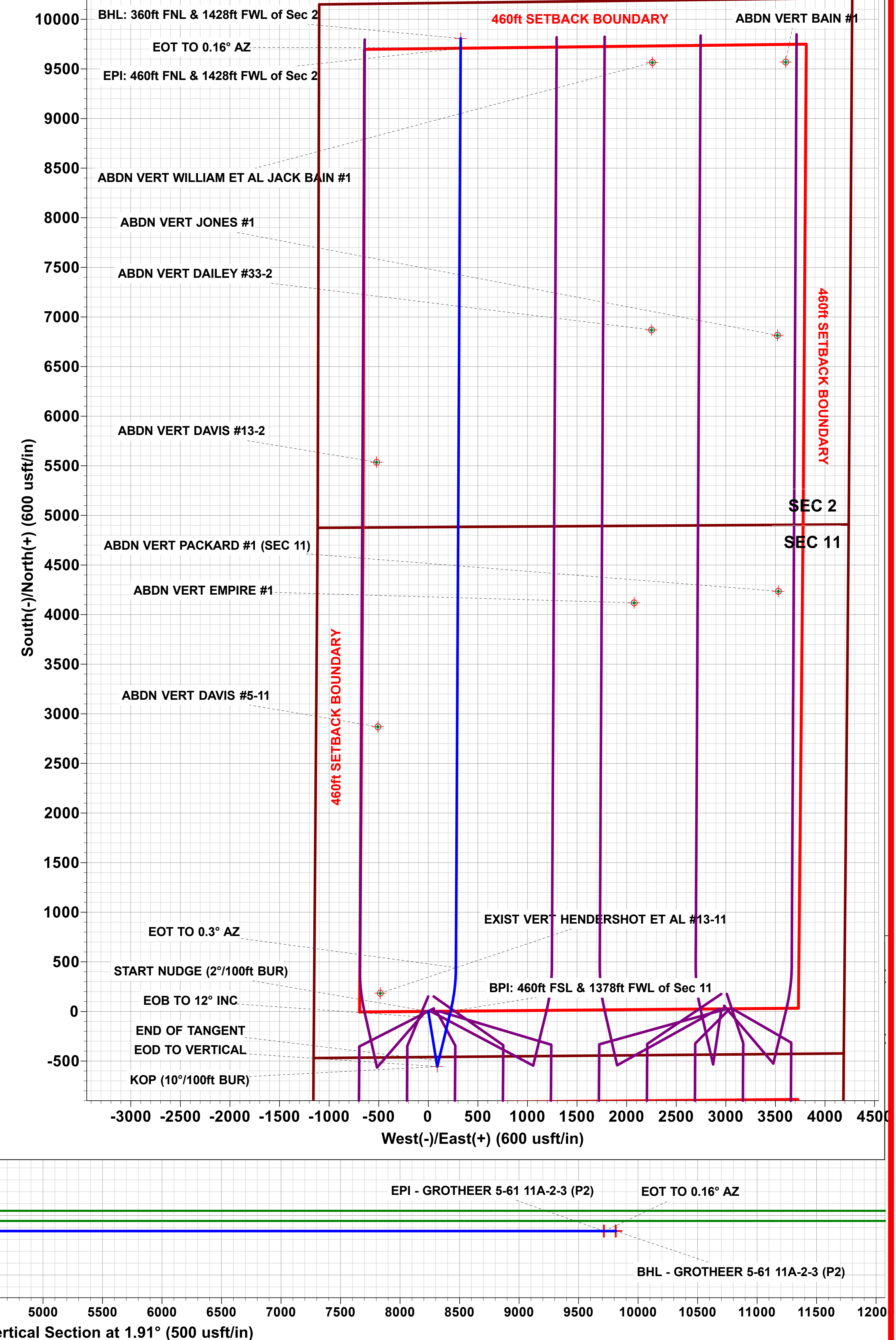
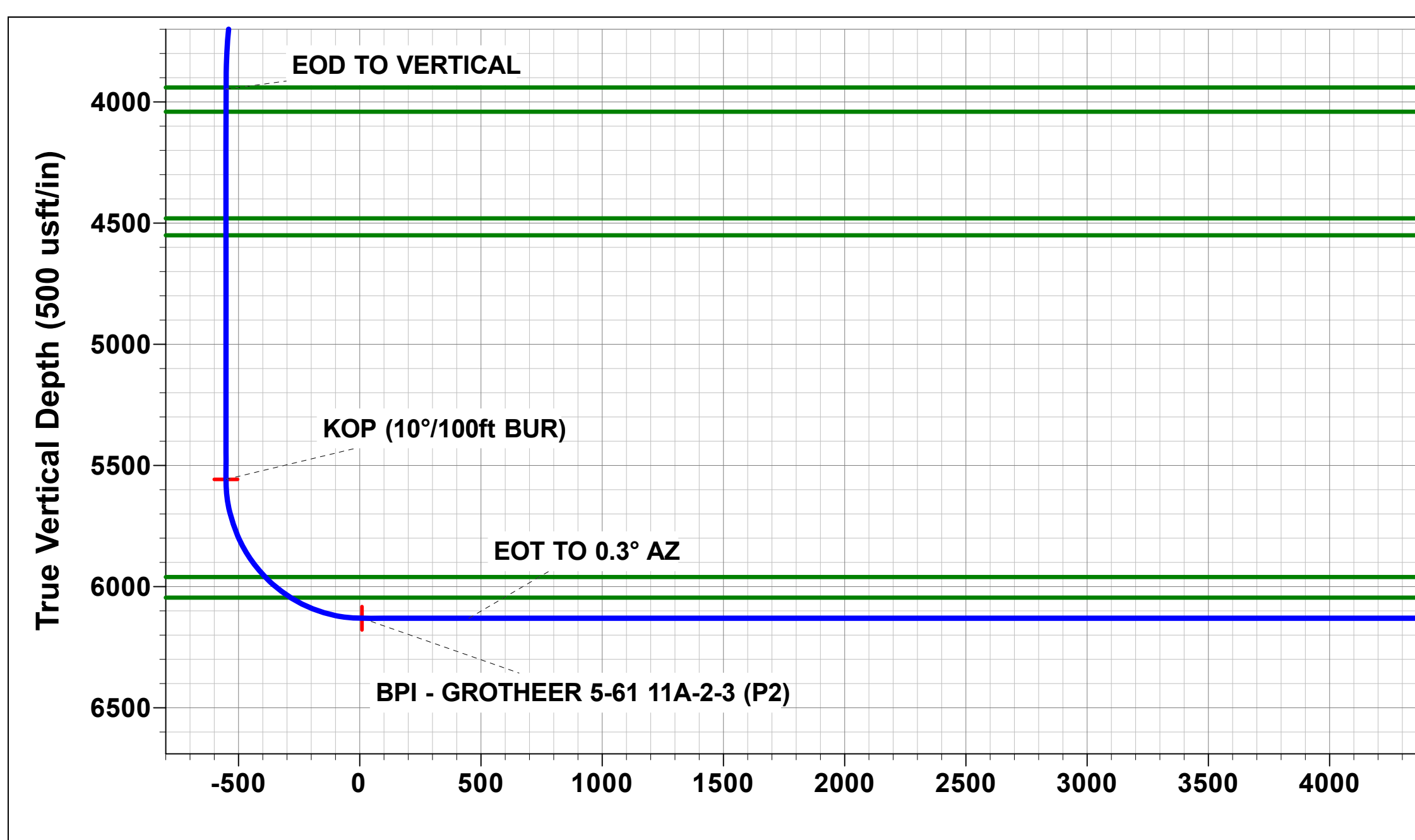
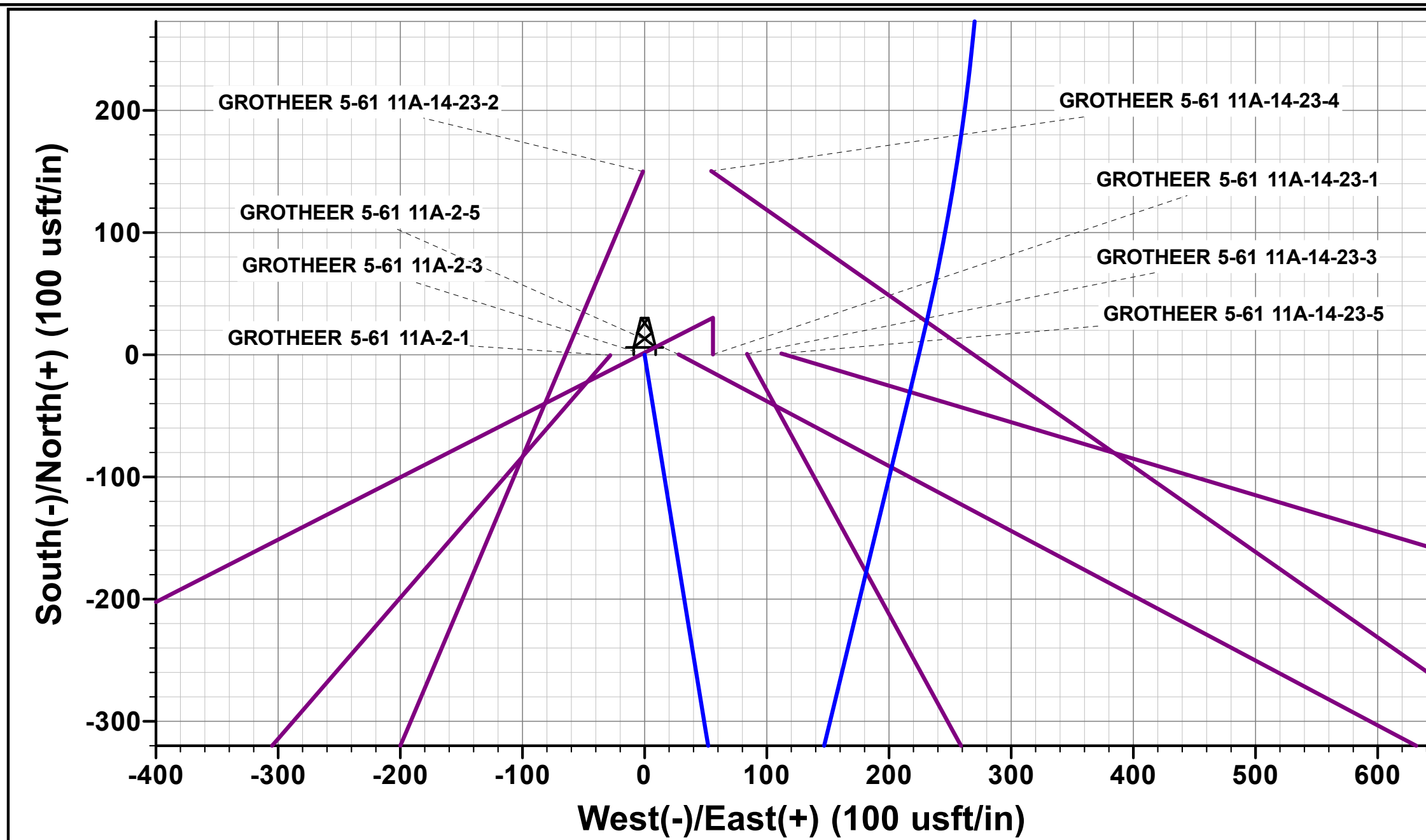




MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Dep	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 460ft FSL & 1153ft FWL of Sec 11
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1300.00	12.00	170.78	1295.62	-61.79	10.03	-61.43	62.60	EOB TO 12° INC
3402.45	12.00	170.78	3352.13	-493.27	80.09	-490.33	499.73	END OF TANGENT
4002.45	0.00	170.78	3947.75	-555.06	90.13	-551.75	562.33	EOD TO VERTICAL
5612.44	0.00	0.00	5557.74	-555.06	90.13	-551.75	562.33	KOP (10°/100ft BUR)
6512.44	90.00	13.60	6130.70	1.83	224.86	9.31	1135.29	BPI: 460ft FSL & 1378ft FWL of Sec 11
6955.92	90.00	0.30	6130.70	441.07	278.39	450.09	1578.77	EOT TO 0.3° AZ
16222.11	90.00	0.30	6130.70	9707.13	326.25	9717.61	10844.96	EPI: 460ft FNL & 1428ft FWL of Sec 2
16226.80	90.00	0.16	6130.70	9711.82	326.27	9712.30	10849.65	EOT TO 0.16° AZ
16322.29	90.00	0.16	6130.70	9807.31	326.53	9817.75	10945.14	BHL: 360ft FNL & 1428ft FWL of Sec 2

BHL: 360ft FNL & 1428ft FWL of Sec 2

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - GROTHEER 5-61 11A-2-3 (P2)	5557.74	-555.06	90.13	40.408248	-104.180716
BPI - GROTHEER 5-61 11A-2-3 (P2)	6130.70	1.83	224.86	40.409777	-104.180233
EPI - GROTHEER 5-61 11A-2-3 (P2)	6130.70	9707.13	326.25	40.436417	-104.179868
BHL - GROTHEER 5-61 11A-2-3 (P2)	6130.70	9807.32	326.53	40.436692	-104.179867



Planning Report



Database:	EDM 5000.15.1	Local Co-ordinate Reference:	Well GROTHEER 5-61 11A-2-3
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KBE 24ft @ 4730.70usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KBE 24ft @ 4730.70usft
Site:	SW SW SEC. 11 T5N R61W 6th P.M.	North Reference:	True
Well:	GROTHEER 5-61 11A-2-3	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

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. 11 T5N R61W 6th P.M.				
Site Position:		Northing:	1,395,001.09usft	Latitude:	40.410183
From:	Lat/Long	Easting:	3,367,246.06usft	Longitude:	-104.181145
Position Uncertainty:	0.00 usft	Slot Radius:	1.10000ft	Grid Convergence:	0.85 °

Well		GROTHER 5-61 11A-2-3				
Well Position	+N/-S	-149.74 usft	Northing:	1,394,851.81 usfi	Latitude:	40.409772
	+E/-W	29.24 usft	Easting:	3,367,277.53 usfi	Longitude:	-104.181040
Position Uncertainty		0.00 usft	Wellhead Elevation:	usfi	Ground Level:	4,706.70 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	2022-04-26	7.45	66.71	51,928.08255498

Design	PROPOSAL #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	1.91

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	-4,730.70	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	-4,030.70	0.00	0.00	0.00	0.00	0.00	0.00	
1,300.00	12.00	170.78	1,295.62	-3,435.08	-61.79	10.03	2.00	2.00	0.00	170.78	
3,402.45	12.00	170.78	3,352.13	-1,378.57	-493.27	80.09	0.00	0.00	0.00	0.00	
4,002.45	0.00	0.00	3,947.76	-782.94	-555.06	90.13	2.00	-2.00	0.00	180.00	
5,612.44	0.00	0.00	5,557.74	827.04	-555.06	90.13	0.00	0.00	0.00	0.00	KOP - GROTHEER
6,512.44	90.00	13.60	6,130.70	1,400.00	1.83	224.86	10.00	10.00	1.51	13.60	BPI - GROTHEER !
6,955.92	90.00	0.30	6,130.70	1,400.00	441.06	278.39	3.00	0.00	-3.00	-90.00	
16,222.11	90.00	0.30	6,130.70	1,400.00	9,707.13	326.25	0.00	0.00	0.00	0.00	EPI - GROTHEER !
16,226.80	90.00	0.16	6,130.70	1,400.00	9,711.83	326.27	3.00	0.00	-3.00	-90.00	
16,322.29	90.00	0.16	6,130.70	1,400.00	9,807.32	326.53	0.00	0.00	0.00	0.00	BHL - GROTHEER

Planning Report



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Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KBE 24ft @ 4730.70usft
Site:	SW SW SEC. 11 T5N R61W 6th P.M.	North Reference:	True
Well:	GROTHEER 5-61 11A-2-3	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

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 & 1153ft FWL of Sec 11										
0.00	0.00	0.00	0.00	4,730.70	0.00	0.00	0.00	0.00	0.00	0.00
Laramie-Fox Hills Formation										
41.70	0.00	0.00	41.70	4,689.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,630.70	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	4,530.70	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	4,430.70	0.00	0.00	0.00	0.00	0.00	0.00
Pierre Formation										
330.70	0.00	0.00	330.70	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	4,330.70	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre aquifer										
490.70	0.00	0.00	490.70	4,240.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	4,230.70	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	4,130.70	0.00	0.00	0.00	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
700.00	0.00	0.00	700.00	4,030.70	0.00	0.00	0.00	0.00	0.00	0.00
800.00	2.00	170.78	799.98	3,930.72	-1.72	0.28	-1.71	2.00	2.00	0.00
900.00	4.00	170.78	899.84	3,830.86	-6.89	1.12	-6.85	2.00	2.00	0.00
1,000.00	6.00	170.78	999.45	3,731.25	-15.49	2.52	-15.40	2.00	2.00	0.00
1,100.00	8.00	170.78	1,098.70	3,632.00	-27.52	4.47	-27.36	2.00	2.00	0.00
1,200.00	10.00	170.78	1,197.47	3,533.23	-42.96	6.98	-42.70	2.00	2.00	0.00
EOB TO 12° INC										
1,300.00	12.00	170.78	1,295.62	3,435.08	-61.79	10.03	-61.43	2.00	2.00	0.00
1,400.00	12.00	170.78	1,393.44	3,337.26	-82.32	13.37	-81.83	0.00	0.00	0.00
Base of Upper Pierre aquifer										
1,458.54	12.00	170.78	1,450.70	3,280.00	-94.33	15.32	-93.77	0.00	0.00	0.00
1,500.00	12.00	170.78	1,491.25	3,239.45	-102.84	16.70	-102.23	0.00	0.00	0.00
1,600.00	12.00	170.78	1,589.07	3,141.63	-123.36	20.03	-122.63	0.00	0.00	0.00
1,700.00	12.00	170.78	1,686.88	3,043.82	-143.88	23.36	-143.03	0.00	0.00	0.00
1,800.00	12.00	170.78	1,784.70	2,946.00	-164.41	26.70	-163.43	0.00	0.00	0.00
1,900.00	12.00	170.78	1,882.51	2,848.19	-184.93	30.03	-183.83	0.00	0.00	0.00
2,000.00	12.00	170.78	1,980.33	2,750.37	-205.45	33.36	-204.23	0.00	0.00	0.00
2,100.00	12.00	170.78	2,078.14	2,652.56	-225.97	36.69	-224.63	0.00	0.00	0.00
2,200.00	12.00	170.78	2,175.96	2,554.74	-246.49	40.02	-245.03	0.00	0.00	0.00
2,300.00	12.00	170.78	2,273.77	2,456.93	-267.02	43.36	-265.43	0.00	0.00	0.00
2,400.00	12.00	170.78	2,371.59	2,359.11	-287.54	46.69	-285.83	0.00	0.00	0.00
2,500.00	12.00	170.78	2,469.40	2,261.30	-308.06	50.02	-306.23	0.00	0.00	0.00
2,600.00	12.00	170.78	2,567.22	2,163.48	-328.58	53.35	-326.63	0.00	0.00	0.00
2,700.00	12.00	170.78	2,665.03	2,065.67	-349.11	56.69	-347.03	0.00	0.00	0.00
2,800.00	12.00	170.78	2,762.84	1,967.86	-369.63	60.02	-367.43	0.00	0.00	0.00
2,900.00	12.00	170.78	2,860.66	1,870.04	-390.15	63.35	-387.83	0.00	0.00	0.00
3,000.00	12.00	170.78	2,958.47	1,772.23	-410.67	66.68	-408.23	0.00	0.00	0.00
3,100.00	12.00	170.78	3,056.29	1,674.41	-431.20	70.02	-428.63	0.00	0.00	0.00
3,200.00	12.00	170.78	3,154.10	1,576.60	-451.72	73.35	-449.03	0.00	0.00	0.00
3,300.00	12.00	170.78	3,251.92	1,478.78	-472.24	76.68	-469.43	0.00	0.00	0.00
Larimer ("Parkman") sandstone										
3,319.20	12.00	170.78	3,270.70	1,460.00	-476.18	77.32	-473.34	0.00	0.00	0.00
3,400.00	12.00	170.78	3,349.73	1,380.97	-492.76	80.01	-489.83	0.00	0.00	0.00
END OF TANGENT										
3,402.45	12.00	170.78	3,352.13	1,378.57	-493.27	80.09	-490.33	0.00	0.00	0.00
3,500.00	10.05	170.78	3,447.87	1,282.83	-511.68	83.08	-508.63	2.00	-2.00	0.00
Pierre Formation										
3,583.91	8.37	170.78	3,530.70	1,200.00	-524.93	85.24	-521.81	2.00	-2.00	0.00

Planning Report



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Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KBE 24ft @ 4730.70usft
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Well:	GROTHEER 5-61 11A-2-3	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

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)
3,600.00	8.05	170.78	3,546.63	1,184.07	-527.20	85.61	-524.06	2.00	-2.00	0.00
3,700.00	6.05	170.78	3,645.86	1,084.84	-539.32	87.57	-536.10	2.00	-2.00	0.00
3,800.00	4.05	170.78	3,745.47	985.23	-548.00	88.98	-544.74	2.00	-2.00	0.00
3,900.00	2.05	170.78	3,845.32	885.38	-553.25	89.84	-549.96	2.00	-2.00	0.00
Terry ("Sussex") sandstone										
3,995.40	0.14	170.78	3,940.70	790.00	-555.05	90.13	-551.74	2.00	-2.00	0.00
4,000.00	0.05	170.78	3,945.30	785.40	-555.06	90.13	-551.75	2.00	-2.00	0.00
EOD TO VERTICAL										
4,002.45	0.00	170.78	3,947.75	782.95	-555.06	90.13	-551.75	2.00	-2.00	0.00
Pierre Formation										
4,095.40	0.00	0.00	4,040.70	690.00	-555.06	90.13	-551.75	0.00	0.00	0.00
4,100.00	0.00	0.00	4,045.30	685.40	-555.06	90.13	-551.75	0.00	0.00	0.00
4,200.00	0.00	0.00	4,145.30	585.40	-555.06	90.13	-551.75	0.00	0.00	0.00
4,300.00	0.00	0.00	4,245.30	485.40	-555.06	90.13	-551.75	0.00	0.00	0.00
4,400.00	0.00	0.00	4,345.30	385.40	-555.06	90.13	-551.75	0.00	0.00	0.00
4,500.00	0.00	0.00	4,445.30	285.40	-555.06	90.13	-551.75	0.00	0.00	0.00
Hygiene ("Shannon") sandstone										
4,535.40	0.00	0.00	4,480.70	250.00	-555.06	90.13	-551.75	0.00	0.00	0.00
4,600.00	0.00	0.00	4,545.30	185.40	-555.06	90.13	-551.75	0.00	0.00	0.00
Pierre Formation										
4,605.40	0.00	0.00	4,550.70	180.00	-555.06	90.13	-551.75	0.00	0.00	0.00
4,700.00	0.00	0.00	4,645.30	85.40	-555.06	90.13	-551.75	0.00	0.00	0.00
4,800.00	0.00	0.00	4,745.30	-14.60	-555.06	90.13	-551.75	0.00	0.00	0.00
4,900.00	0.00	0.00	4,845.30	-114.60	-555.06	90.13	-551.75	0.00	0.00	0.00
5,000.00	0.00	0.00	4,945.30	-214.60	-555.06	90.13	-551.75	0.00	0.00	0.00
5,100.00	0.00	0.00	5,045.30	-314.60	-555.06	90.13	-551.75	0.00	0.00	0.00
5,200.00	0.00	0.00	5,145.30	-414.60	-555.06	90.13	-551.75	0.00	0.00	0.00
5,300.00	0.00	0.00	5,245.30	-514.60	-555.06	90.13	-551.75	0.00	0.00	0.00
5,400.00	0.00	0.00	5,345.30	-614.60	-555.06	90.13	-551.75	0.00	0.00	0.00
5,500.00	0.00	0.00	5,445.30	-714.60	-555.06	90.13	-551.75	0.00	0.00	0.00
5,600.00	0.00	0.00	5,545.30	-814.60	-555.06	90.13	-551.75	0.00	0.00	0.00
KOP (10°/100ft BUR)										
5,612.44	0.00	0.00	5,557.74	-827.04	-555.06	90.13	-551.75	0.00	0.00	0.00
5,700.00	8.76	13.60	5,644.96	-914.26	-548.57	91.70	-545.21	10.00	10.00	0.00
5,800.00	18.76	13.60	5,741.97	-1,011.27	-525.49	97.28	-521.96	10.00	10.00	0.00
5,900.00	28.76	13.60	5,833.38	-1,102.68	-486.38	106.74	-482.56	10.00	10.00	0.00
6,000.00	38.76	13.60	5,916.42	-1,185.72	-432.44	119.79	-428.22	10.00	10.00	0.00
Sharon Springs Member										
6,059.36	44.69	13.60	5,960.70	-1,230.00	-394.06	129.08	-389.55	10.00	10.00	0.00
6,100.00	48.76	13.60	5,988.55	-1,257.85	-365.31	136.04	-360.58	10.00	10.00	0.00
Niobrara Formation										
6,196.35	58.39	13.60	6,045.70	-1,315.00	-290.04	154.24	-284.75	10.00	10.00	0.00
6,200.00	58.76	13.60	6,047.60	-1,316.90	-287.02	154.98	-281.70	10.00	10.00	0.00
6,300.00	68.76	13.60	6,091.76	-1,361.06	-199.95	176.04	-193.98	10.00	10.00	0.00
6,400.00	78.76	13.60	6,119.70	-1,389.00	-106.75	198.59	-100.09	10.00	10.00	0.00
6,500.00	88.76	13.60	6,130.56	-1,399.86	-10.26	221.93	-2.87	10.00	10.00	0.00
BPI: 460ft FSL & 1378ft FWL of Sec 11										
6,512.44	90.00	13.60	6,130.70	-1,400.00	1.83	224.86	9.31	10.00	10.00	0.00
6,600.00	90.00	10.97	6,130.70	-1,400.00	87.38	243.49	95.43	3.00	0.00	-3.00
6,700.00	90.00	7.97	6,130.70	-1,400.00	186.00	259.95	194.55	3.00	0.00	-3.00
6,800.00	90.00	4.97	6,130.70	-1,400.00	285.36	271.22	294.22	3.00	0.00	-3.00
6,900.00	90.00	1.97	6,130.70	-1,400.00	385.16	277.28	394.17	3.00	0.00	-3.00

Planning Report



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Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KBE 24ft @ 4730.70usft
Site:	SW SW SEC. 11 T5N R61W 6th P.M.	North Reference:	True
Well:	GROTHEER 5-61 11A-2-3	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

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)
EOT TO 0.3° AZ										
6,955.92	90.00	0.30	6,130.70	-1,400.00	441.07	278.39	450.09	3.00	0.00	-3.00
7,000.00	90.00	0.30	6,130.70	-1,400.00	485.15	278.61	494.15	0.00	0.00	0.00
7,100.00	90.00	0.30	6,130.70	-1,400.00	585.15	279.13	594.11	0.00	0.00	0.00
7,200.00	90.00	0.30	6,130.70	-1,400.00	685.14	279.65	694.07	0.00	0.00	0.00
7,300.00	90.00	0.30	6,130.70	-1,400.00	785.14	280.16	794.03	0.00	0.00	0.00
7,400.00	90.00	0.30	6,130.70	-1,400.00	885.14	280.68	893.99	0.00	0.00	0.00
7,500.00	90.00	0.30	6,130.70	-1,400.00	985.14	281.20	993.95	0.00	0.00	0.00
7,600.00	90.00	0.30	6,130.70	-1,400.00	1,085.14	281.71	1,093.91	0.00	0.00	0.00
7,700.00	90.00	0.30	6,130.70	-1,400.00	1,185.14	282.23	1,193.87	0.00	0.00	0.00
7,800.00	90.00	0.30	6,130.70	-1,400.00	1,285.14	282.75	1,293.83	0.00	0.00	0.00
7,900.00	90.00	0.30	6,130.70	-1,400.00	1,385.14	283.26	1,393.79	0.00	0.00	0.00
8,000.00	90.00	0.30	6,130.70	-1,400.00	1,485.13	283.78	1,493.75	0.00	0.00	0.00
8,100.00	90.00	0.30	6,130.70	-1,400.00	1,585.13	284.30	1,593.72	0.00	0.00	0.00
8,200.00	90.00	0.30	6,130.70	-1,400.00	1,685.13	284.81	1,693.68	0.00	0.00	0.00
8,300.00	90.00	0.30	6,130.70	-1,400.00	1,785.13	285.33	1,793.64	0.00	0.00	0.00
8,400.00	90.00	0.30	6,130.70	-1,400.00	1,885.13	285.85	1,893.60	0.00	0.00	0.00
8,500.00	90.00	0.30	6,130.70	-1,400.00	1,985.13	286.36	1,993.56	0.00	0.00	0.00
8,600.00	90.00	0.30	6,130.70	-1,400.00	2,085.13	286.88	2,093.52	0.00	0.00	0.00
8,700.00	90.00	0.30	6,130.70	-1,400.00	2,185.12	287.40	2,193.48	0.00	0.00	0.00
8,800.00	90.00	0.30	6,130.70	-1,400.00	2,285.12	287.91	2,293.44	0.00	0.00	0.00
8,900.00	90.00	0.30	6,130.70	-1,400.00	2,385.12	288.43	2,393.40	0.00	0.00	0.00
9,000.00	90.00	0.30	6,130.70	-1,400.00	2,485.12	288.94	2,493.36	0.00	0.00	0.00
9,100.00	90.00	0.30	6,130.70	-1,400.00	2,585.12	289.46	2,593.32	0.00	0.00	0.00
9,200.00	90.00	0.30	6,130.70	-1,400.00	2,685.12	289.98	2,693.28	0.00	0.00	0.00
9,300.00	90.00	0.30	6,130.70	-1,400.00	2,785.12	290.49	2,793.24	0.00	0.00	0.00
9,400.00	90.00	0.30	6,130.70	-1,400.00	2,885.12	291.01	2,893.20	0.00	0.00	0.00
9,500.00	90.00	0.30	6,130.70	-1,400.00	2,985.11	291.53	2,993.16	0.00	0.00	0.00
9,600.00	90.00	0.30	6,130.70	-1,400.00	3,085.11	292.04	3,093.12	0.00	0.00	0.00
9,700.00	90.00	0.30	6,130.70	-1,400.00	3,185.11	292.56	3,193.08	0.00	0.00	0.00
9,800.00	90.00	0.30	6,130.70	-1,400.00	3,285.11	293.08	3,293.04	0.00	0.00	0.00
9,900.00	90.00	0.30	6,130.70	-1,400.00	3,385.11	293.59	3,393.00	0.00	0.00	0.00
10,000.00	90.00	0.30	6,130.70	-1,400.00	3,485.11	294.11	3,492.96	0.00	0.00	0.00
10,100.00	90.00	0.30	6,130.70	-1,400.00	3,585.11	294.63	3,592.92	0.00	0.00	0.00
10,200.00	90.00	0.30	6,130.70	-1,400.00	3,685.10	295.14	3,692.89	0.00	0.00	0.00
10,300.00	90.00	0.30	6,130.70	-1,400.00	3,785.10	295.66	3,792.85	0.00	0.00	0.00
10,400.00	90.00	0.30	6,130.70	-1,400.00	3,885.10	296.18	3,892.81	0.00	0.00	0.00
10,500.00	90.00	0.30	6,130.70	-1,400.00	3,985.10	296.69	3,992.77	0.00	0.00	0.00
10,600.00	90.00	0.30	6,130.70	-1,400.00	4,085.10	297.21	4,092.73	0.00	0.00	0.00
10,700.00	90.00	0.30	6,130.70	-1,400.00	4,185.10	297.73	4,192.69	0.00	0.00	0.00
10,800.00	90.00	0.30	6,130.70	-1,400.00	4,285.10	298.24	4,292.65	0.00	0.00	0.00
10,900.00	90.00	0.30	6,130.70	-1,400.00	4,385.10	298.76	4,392.61	0.00	0.00	0.00
11,000.00	90.00	0.30	6,130.70	-1,400.00	4,485.09	299.28	4,492.57	0.00	0.00	0.00
11,100.00	90.00	0.30	6,130.70	-1,400.00	4,585.09	299.79	4,592.53	0.00	0.00	0.00
11,200.00	90.00	0.30	6,130.70	-1,400.00	4,685.09	300.31	4,692.49	0.00	0.00	0.00
11,300.00	90.00	0.30	6,130.70	-1,400.00	4,785.09	300.83	4,792.45	0.00	0.00	0.00
11,400.00	90.00	0.30	6,130.70	-1,400.00	4,885.09	301.34	4,892.41	0.00	0.00	0.00
11,500.00	90.00	0.30	6,130.70	-1,400.00	4,985.09	301.86	4,992.37	0.00	0.00	0.00
11,600.00	90.00	0.30	6,130.70	-1,400.00	5,085.09	302.38	5,092.33	0.00	0.00	0.00
11,700.00	90.00	0.30	6,130.70	-1,400.00	5,185.08	302.89	5,192.29	0.00	0.00	0.00
11,800.00	90.00	0.30	6,130.70	-1,400.00	5,285.08	303.41	5,292.25	0.00	0.00	0.00
11,900.00	90.00	0.30	6,130.70	-1,400.00	5,385.08	303.93	5,392.21	0.00	0.00	0.00
12,000.00	90.00	0.30	6,130.70	-1,400.00	5,485.08	304.44	5,492.17	0.00	0.00	0.00
12,100.00	90.00	0.30	6,130.70	-1,400.00	5,585.08	304.96	5,592.13	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.15.1	Local Co-ordinate Reference:	Well GROTHEER 5-61 11A-2-3
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KBE 24ft @ 4730.70usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KBE 24ft @ 4730.70usft
Site:	SW SW SEC. 11 T5N R61W 6th P.M.	North Reference:	True
Well:	GROTHEER 5-61 11A-2-3	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

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)
12,200.00	90.00	0.30	6,130.70	-1,400.00	5,685.08	305.47	5,692.09	0.00	0.00	0.00
12,300.00	90.00	0.30	6,130.70	-1,400.00	5,785.08	305.99	5,792.06	0.00	0.00	0.00
12,400.00	90.00	0.30	6,130.70	-1,400.00	5,885.08	306.51	5,892.02	0.00	0.00	0.00
12,500.00	90.00	0.30	6,130.70	-1,400.00	5,985.07	307.02	5,991.98	0.00	0.00	0.00
12,600.00	90.00	0.30	6,130.70	-1,400.00	6,085.07	307.54	6,091.94	0.00	0.00	0.00
12,700.00	90.00	0.30	6,130.70	-1,400.00	6,185.07	308.06	6,191.90	0.00	0.00	0.00
12,800.00	90.00	0.30	6,130.70	-1,400.00	6,285.07	308.57	6,291.86	0.00	0.00	0.00
12,900.00	90.00	0.30	6,130.70	-1,400.00	6,385.07	309.09	6,391.82	0.00	0.00	0.00
13,000.00	90.00	0.30	6,130.70	-1,400.00	6,485.07	309.61	6,491.78	0.00	0.00	0.00
13,100.00	90.00	0.30	6,130.70	-1,400.00	6,585.07	310.12	6,591.74	0.00	0.00	0.00
13,200.00	90.00	0.30	6,130.70	-1,400.00	6,685.06	310.64	6,691.70	0.00	0.00	0.00
13,300.00	90.00	0.30	6,130.70	-1,400.00	6,785.06	311.16	6,791.66	0.00	0.00	0.00
13,400.00	90.00	0.30	6,130.70	-1,400.00	6,885.06	311.67	6,891.62	0.00	0.00	0.00
13,500.00	90.00	0.30	6,130.70	-1,400.00	6,985.06	312.19	6,991.58	0.00	0.00	0.00
13,600.00	90.00	0.30	6,130.70	-1,400.00	7,085.06	312.71	7,091.54	0.00	0.00	0.00
13,700.00	90.00	0.30	6,130.70	-1,400.00	7,185.06	313.22	7,191.50	0.00	0.00	0.00
13,800.00	90.00	0.30	6,130.70	-1,400.00	7,285.06	313.74	7,291.46	0.00	0.00	0.00
13,900.00	90.00	0.30	6,130.70	-1,400.00	7,385.06	314.26	7,391.42	0.00	0.00	0.00
14,000.00	90.00	0.30	6,130.70	-1,400.00	7,485.05	314.77	7,491.38	0.00	0.00	0.00
14,100.00	90.00	0.30	6,130.70	-1,400.00	7,585.05	315.29	7,591.34	0.00	0.00	0.00
14,200.00	90.00	0.30	6,130.70	-1,400.00	7,685.05	315.81	7,691.30	0.00	0.00	0.00
14,300.00	90.00	0.30	6,130.70	-1,400.00	7,785.05	316.32	7,791.26	0.00	0.00	0.00
14,400.00	90.00	0.30	6,130.70	-1,400.00	7,885.05	316.84	7,891.23	0.00	0.00	0.00
14,500.00	90.00	0.30	6,130.70	-1,400.00	7,985.05	317.36	7,991.19	0.00	0.00	0.00
14,600.00	90.00	0.30	6,130.70	-1,400.00	8,085.05	317.87	8,091.15	0.00	0.00	0.00
14,700.00	90.00	0.30	6,130.70	-1,400.00	8,185.04	318.39	8,191.11	0.00	0.00	0.00
14,800.00	90.00	0.30	6,130.70	-1,400.00	8,285.04	318.91	8,291.07	0.00	0.00	0.00
14,900.00	90.00	0.30	6,130.70	-1,400.00	8,385.04	319.42	8,391.03	0.00	0.00	0.00
15,000.00	90.00	0.30	6,130.70	-1,400.00	8,485.04	319.94	8,490.99	0.00	0.00	0.00
15,100.00	90.00	0.30	6,130.70	-1,400.00	8,585.04	320.46	8,590.95	0.00	0.00	0.00
15,200.00	90.00	0.30	6,130.70	-1,400.00	8,685.04	320.97	8,690.91	0.00	0.00	0.00
15,300.00	90.00	0.30	6,130.70	-1,400.00	8,785.04	321.49	8,790.87	0.00	0.00	0.00
15,400.00	90.00	0.30	6,130.70	-1,400.00	8,885.04	322.00	8,890.83	0.00	0.00	0.00
15,500.00	90.00	0.30	6,130.70	-1,400.00	8,985.03	322.52	8,990.79	0.00	0.00	0.00
15,600.00	90.00	0.30	6,130.70	-1,400.00	9,085.03	323.04	9,090.75	0.00	0.00	0.00
15,700.00	90.00	0.30	6,130.70	-1,400.00	9,185.03	323.55	9,190.71	0.00	0.00	0.00
15,800.00	90.00	0.30	6,130.70	-1,400.00	9,285.03	324.07	9,290.67	0.00	0.00	0.00
15,900.00	90.00	0.30	6,130.70	-1,400.00	9,385.03	324.59	9,390.63	0.00	0.00	0.00
16,000.00	90.00	0.30	6,130.70	-1,400.00	9,485.03	325.10	9,490.59	0.00	0.00	0.00
16,100.00	90.00	0.30	6,130.70	-1,400.00	9,585.03	325.62	9,590.55	0.00	0.00	0.00
16,200.00	90.00	0.30	6,130.70	-1,400.00	9,685.02	326.14	9,690.51	0.00	0.00	0.00
EPI: 460ft FNL & 1428ft FWL of Sec 2										
16,222.11	90.00	0.30	6,130.70	-1,400.00	9,707.13	326.25	9,712.61	0.00	0.00	0.00
EOT TO 0.16° AZ										
16,226.80	90.00	0.16	6,130.70	-1,400.00	9,711.82	326.27	9,717.30	3.00	0.00	-3.00
16,300.00	90.00	0.16	6,130.70	-1,400.00	9,785.02	326.47	9,790.47	0.00	0.00	0.00
BHL: 360ft FNL & 1428ft FWL of Sec 2										
16,322.29	90.00	0.16	6,130.70	-1,400.00	9,807.31	326.53	9,812.75	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.15.1	Local Co-ordinate Reference:	Well GROTHEER 5-61 11A-2-3
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KBE 24ft @ 4730.70usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KBE 24ft @ 4730.70usft
Site:	SW SW SEC. 11 T5N R61W 6th P.M.	North Reference:	True
Well:	GROTHEER 5-61 11A-2-3	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Formations					
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
41.70	41.70	Laramie-Fox Hills Formation			
330.70	330.70	Pierre Formation			
490.70	490.70	Upper Pierre aquifer			
1,458.54	1,450.70	Base of Upper Pierre aquifer			
3,319.20	3,270.70	Larimer ("Parkman") sandstone			
3,583.91	3,530.70	Pierre Formation			
3,995.40	3,940.70	Terry ("Sussex") sandstone			
4,095.40	4,040.70	Pierre Formation			
4,535.40	4,480.70	Hygiene ("Shannon") sandstone			
4,605.40	4,550.70	Pierre Formation			
6,059.36	5,960.70	Sharon Springs Member			
6,196.35	6,045.70	Niobrara Formation			

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 & 1153ft FWL of Sec 11
700.00	700.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1,300.00	1,295.62	-61.79	10.03	EOB TO 12° INC
3,402.45	3,352.13	-493.27	80.09	END OF TANGENT
4,002.45	3,947.75	-555.06	90.13	EOD TO VERTICAL
5,612.44	5,557.74	-555.06	90.13	KOP (10°/100ft BUR)
6,512.44	6,130.70	1.83	224.86	BPI: 460ft FSL & 1378ft FWL of Sec 11
6,955.92	6,130.70	441.07	278.39	EOT TO 0.3° AZ
16,222.11	6,130.70	9,707.13	326.25	EPI: 460ft FNL & 1428ft FWL of Sec 2
16,226.80	6,130.70	9,711.82	326.27	EOT TO 0.16° AZ
16,322.29	6,130.70	9,807.31	326.53	BHL: 360ft FNL & 1428ft FWL of Sec 2