

BISON OIL & GAS II, LLC

WELD COUNTY, COLORADO (NAD 83)

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

GROTHER 5-61 11B-2-1

ORIGINAL WELLBORE

26 February, 2019

Plan: PROPOSAL #1





Project: WELD COUNTY, COLORADO (NAD 83)
Site: SE SE SEC. 11 T5N R61W 6th P.M.
Well: GROTHEER 5-61 11B-2-1
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 & 1266ft FEL of Sec 11
100.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
787.99	794.78	13.90	240.92	-40.75	-73.27	-31.94	83.84	EOB TO 13.9° INC
4843.55	4972.61	13.90	240.92	-528.39	-950.11	-414.22	1087.16	END OF TANGENT
5531.54	5667.39	0.00	0.00	-569.14	-1023.38	-446.16	1170.99	EOD TO VERTICAL
5631.54	5767.39	0.00	0.00	-569.14	-1023.38	-446.16	1170.99	KOP (10°/100ft BUR)
6204.50	6667.39	90.00	347.15	-10.53	-1150.81	123.48	1743.96	BPI *NEW*: 460ft FSL & 2417ft FEL of Sec 11
6204.50	7106.04	90.00	0.31	424.54	-1198.62	561.16	2182.61	EOT TO 0.31° AZ
6204.50	16380.78	90.00	0.31	9699.14	-1148.56	9766.90	11457.34	EPI: 460ft FNL & 2494ft FEL of Sec 2
6204.50	16385.80	90.00	0.16	9704.16	-1148.54	9771.89	11462.36	EOT TO 0.16° AZ
6204.50	16480.60	90.00	0.16	9798.96	-1148.28	9866.01	11557.17	BHL: 360ft FNL & 2495ft FEL of Sec 2

PROPOSED LOCAL COORDINATES:

SHL: 460ft FSL & 1266ft FEL Sec 11

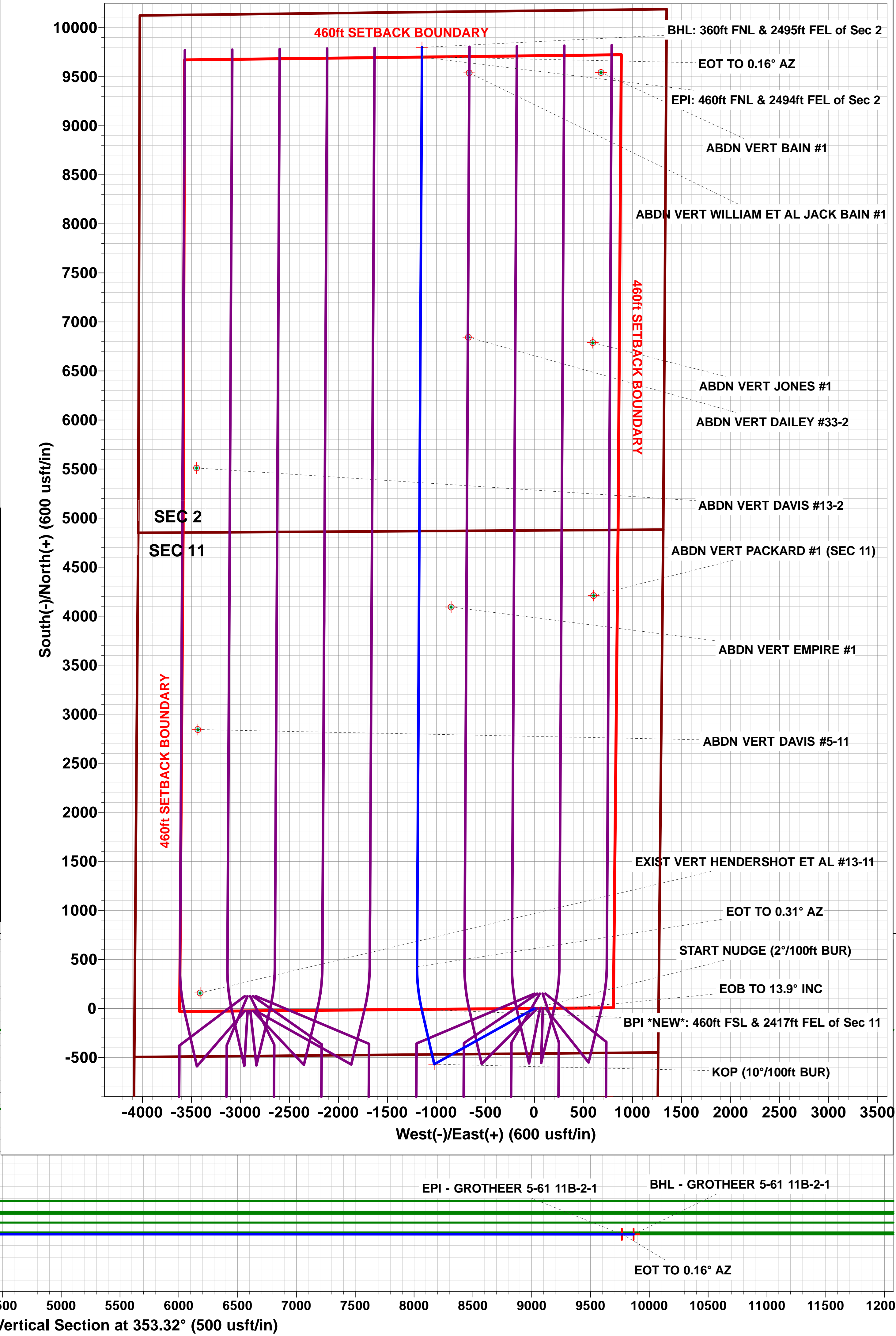
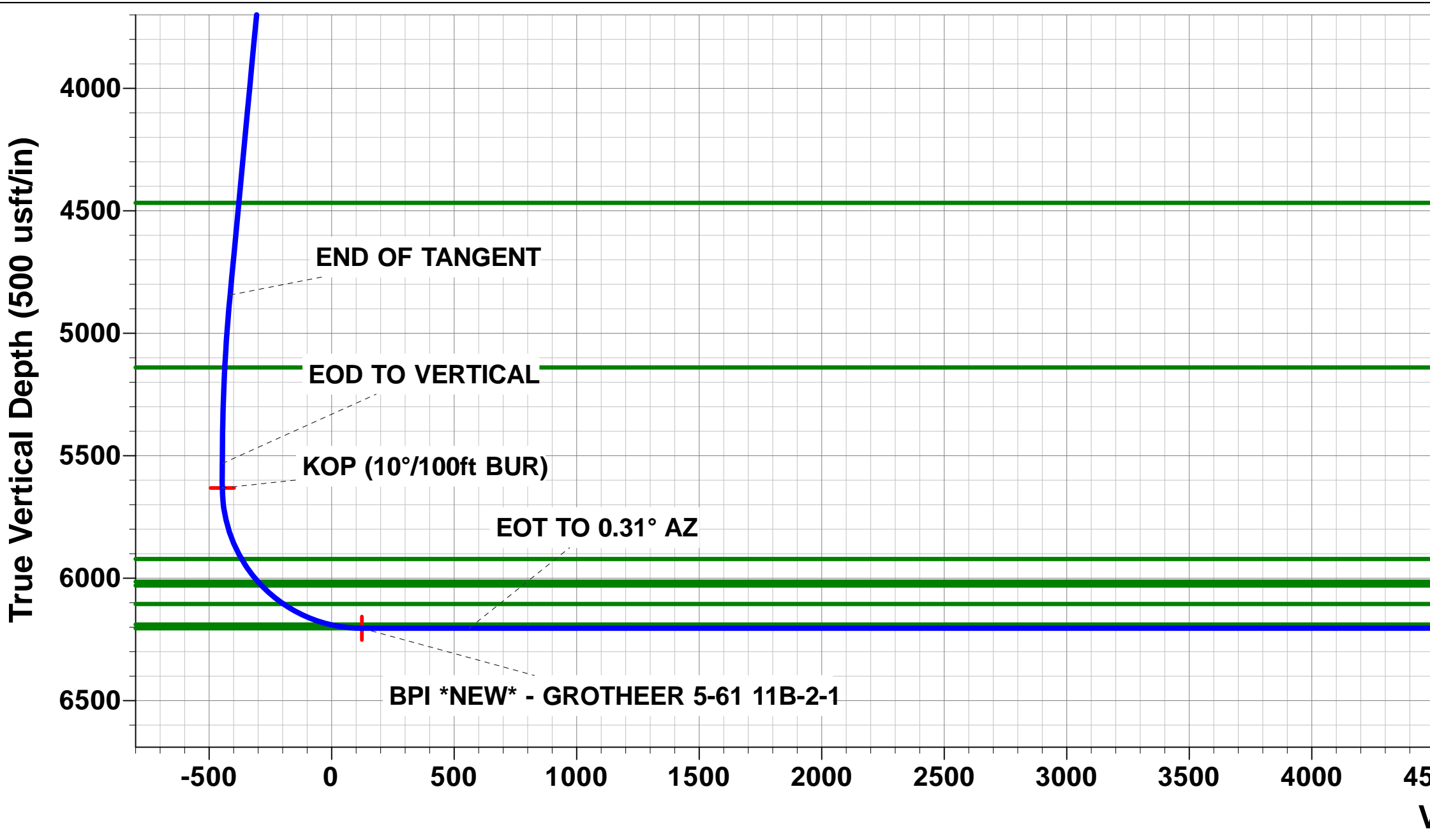
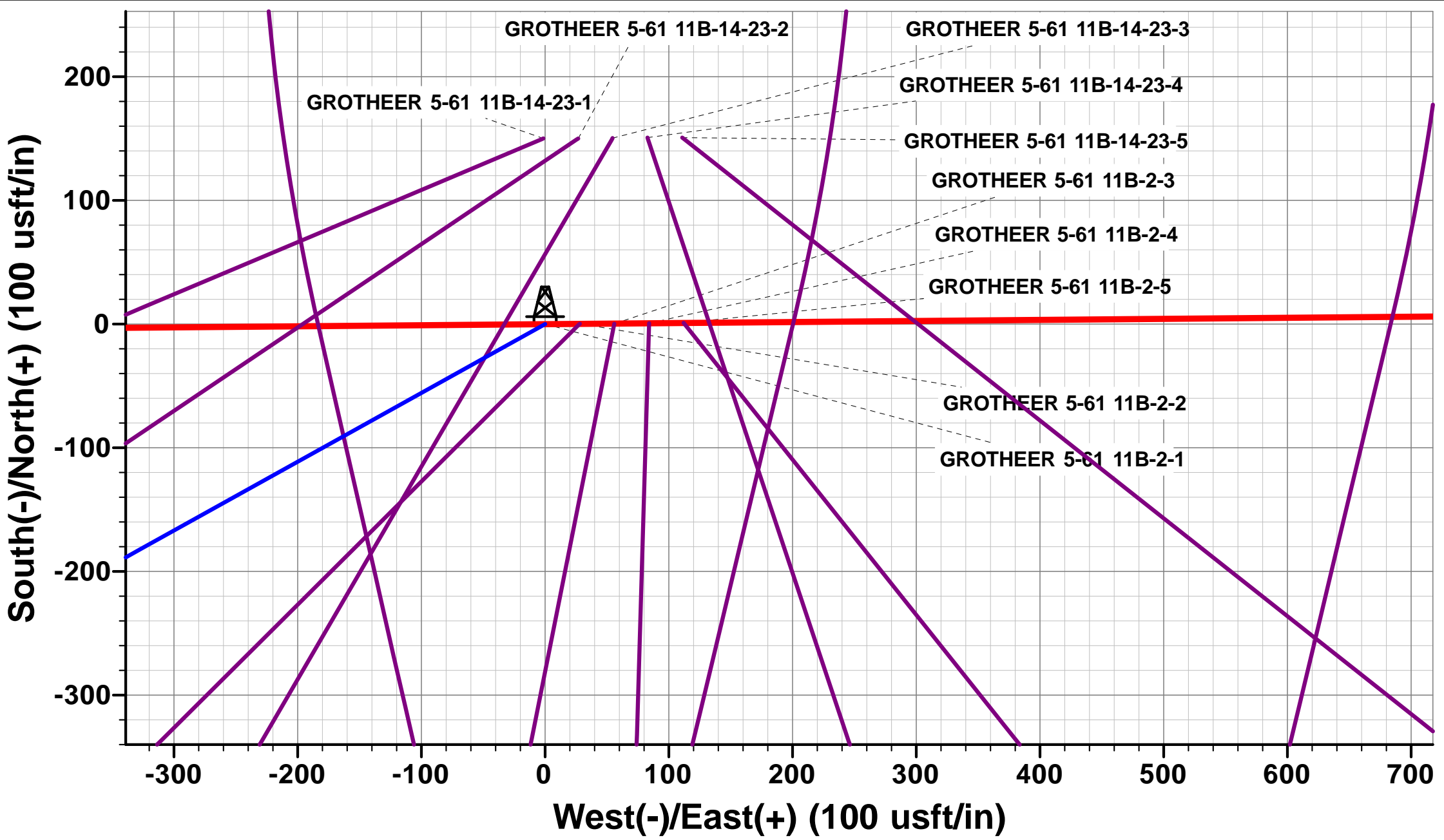
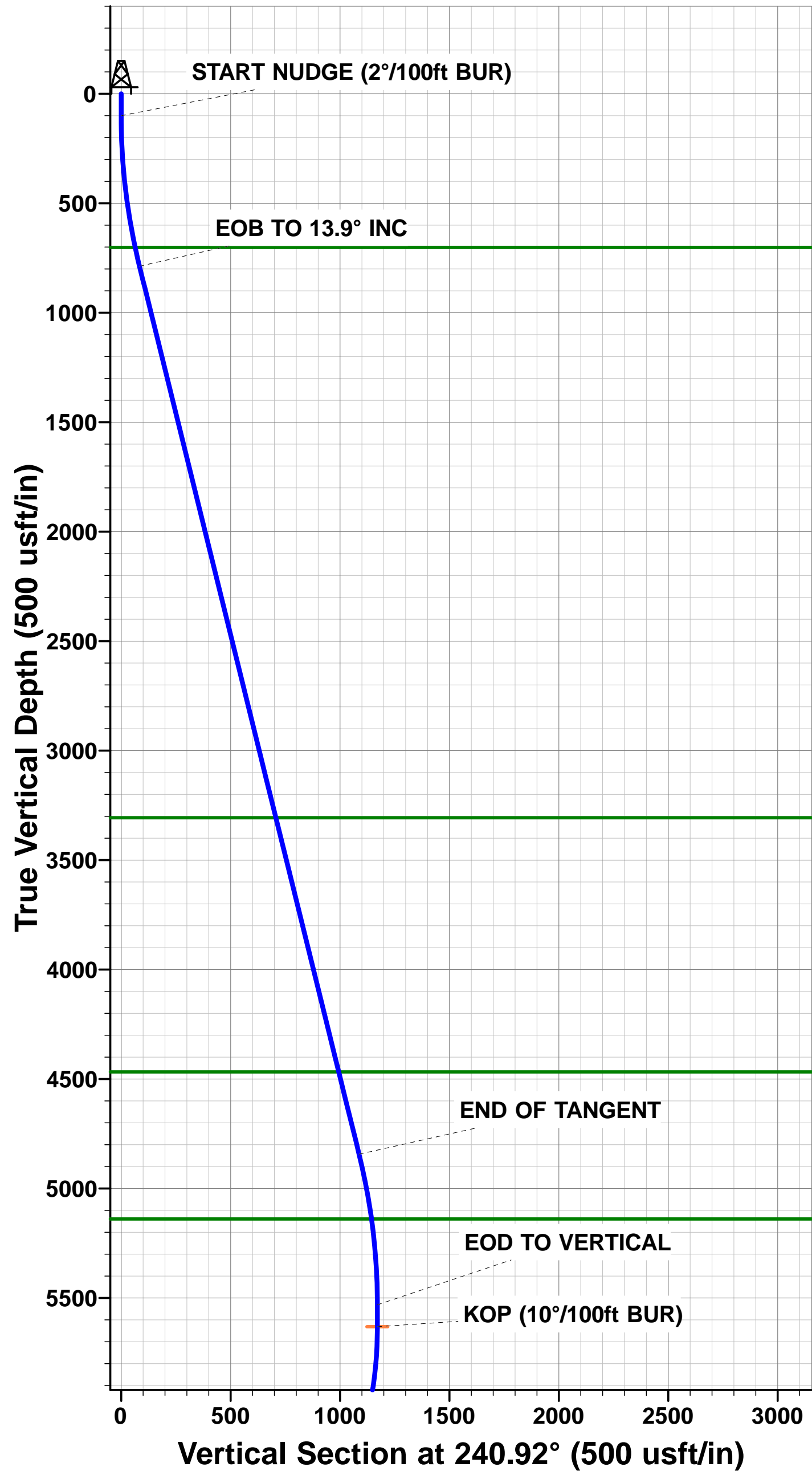
BPI *NEW*: 460ft FSL & 2417ft FEL Sec 11

EPI: 460ft FNL & 2494ft FEL Sec 2

BHL: 360ft FNL & 2495ft FEL of Sec 2

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - GROTHEER 5-61 11B-2-1	5631.54	-569.14	-1023.38	40.408280	-104.174203
BPI *NEW* - GROTHEER 5-61 11B-2-1	6204.50	-10.53	-1150.81	40.409813	-104.174660
EPI - GROTHEER 5-61 11B-2-1	6204.50	9699.14	-1148.56	40.436465	-104.174654
BHL - GROTHEER 5-61 11B-2-1	6204.50	9798.96	-1148.28	40.436739	-104.174653



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well GROTHEER 5-61 11B-2-1
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4717.50usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4717.50usft (Original Well Elev)
Site:	SE SE SEC. 11 T5N R61W 6th P.M.	North Reference:	True
Well:	GROTHEER 5-61 11B-2-1	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	SE SE SEC. 11 T5N R61W 6th P.M.				
Site Position:		Northing:	1,395,071.08 usft	Latitude:	40.410254
From:	Lat/Long	Easting:	3,370,200.45 usft	Longitude:	-104.170533
Position Uncertainty:	0.00 usft	Slot Radius:	1.10000ft	Grid Convergence:	0.86 °

Well	GROTHEER 5-61 11B-2-1					
Well Position	+N/-S	-150.10 usft	Northing:	1,394,921.02 usft	Latitude:	40.409842
	+E/-W	1.39 usft	Easting:	3,370,204.10 usft	Longitude:	-104.170528
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,692.50 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	26/02/2019	7.71	66.91	52,266

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 (°)
	6,204.50	0.00	0.00	353.32

Plan Sections											
MD (usft)	Inc (°)	Azi (°)	Vertical Depth	SS (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	-4,717.50	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	-4,617.50	0.00	0.00	0.00	0.00	0.00	0.00	
794.78	13.90	240.92	787.99	-3,929.51	-40.75	-73.27	2.00	2.00	0.00	240.92	
4,972.61	13.90	240.92	4,843.55	126.05	-528.39	-950.11	0.00	0.00	0.00	0.00	
5,667.39	0.00	0.00	5,531.54	814.04	-569.14	-1,023.38	2.00	-2.00	0.00	180.00	
5,767.39	0.00	0.00	5,631.54	914.04	-569.14	-1,023.38	0.00	0.00	0.00	0.00	KOP - GROTHEER
6,667.39	90.00	347.15	6,204.50	1,487.00	-10.53	-1,150.81	10.00	10.00	-1.43	347.15	BPI *NEW* - GROT
7,106.04	90.00	0.31	6,204.50	1,487.00	424.54	-1,198.62	3.00	0.00	3.00	90.00	
16,380.78	90.00	0.31	6,204.50	1,487.00	9,699.14	-1,148.56	0.00	0.00	0.00	0.00	EPI - GROTHEER !
16,385.80	90.00	0.16	6,204.50	1,487.00	9,704.16	-1,148.54	3.00	0.00	-3.00	-90.00	
16,480.60	90.00	0.16	6,204.50	1,487.00	9,798.96	-1,148.28	0.00	0.00	0.00	0.00	BHL - GROTHEER

Planning Report



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Well:	GROTHEER 5-61 11B-2-1	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 & 1266ft FEL of Sec 11										
0.00	0.00	0.00	0.00	4,717.50	0.00	0.00	0.00	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
100.00	0.00	0.00	100.00	4,617.50	0.00	0.00	0.00	0.00	0.00	0.00
200.00	2.00	240.92	199.98	4,517.52	-0.85	-1.53	-0.66	2.00	2.00	0.00
300.00	4.00	240.92	299.84	4,417.66	-3.39	-6.10	-2.66	2.00	2.00	0.00
400.00	6.00	240.92	399.45	4,318.05	-7.63	-13.72	-5.98	2.00	2.00	0.00
500.00	8.00	240.92	498.70	4,218.80	-13.55	-24.37	-10.62	2.00	2.00	0.00
600.00	10.00	240.92	597.47	4,120.03	-21.15	-38.04	-16.58	2.00	2.00	0.00
700.00	12.00	240.92	695.62	4,021.88	-30.43	-54.71	-23.85	2.00	2.00	0.00
PIERRE SHALE (BASE FOX HILLS)										
707.03	12.14	240.92	702.50	4,015.00	-31.14	-56.00	-24.41	2.00	2.00	0.00
EOB TO 13.9° INC										
794.78	13.90	240.92	787.99	3,929.51	-40.75	-73.27	-31.94	2.00	2.00	0.00
800.00	13.90	240.92	793.06	3,924.44	-41.36	-74.37	-32.42	0.00	0.00	0.00
900.00	13.90	240.92	890.13	3,827.37	-53.03	-95.35	-41.57	0.00	0.00	0.00
1,000.00	13.90	240.92	987.20	3,730.30	-64.70	-116.34	-50.72	0.00	0.00	0.00
1,100.00	13.90	240.92	1,084.28	3,633.22	-76.37	-137.33	-59.87	0.00	0.00	0.00
1,200.00	13.90	240.92	1,181.35	3,536.15	-88.05	-158.32	-69.02	0.00	0.00	0.00
1,300.00	13.90	240.92	1,278.42	3,439.08	-99.72	-179.31	-78.17	0.00	0.00	0.00
1,400.00	13.90	240.92	1,375.50	3,342.00	-111.39	-200.29	-87.32	0.00	0.00	0.00
1,500.00	13.90	240.92	1,472.57	3,244.93	-123.06	-221.28	-96.47	0.00	0.00	0.00
1,600.00	13.90	240.92	1,569.64	3,147.86	-134.73	-242.27	-105.62	0.00	0.00	0.00
1,700.00	13.90	240.92	1,666.72	3,050.78	-146.41	-263.26	-114.77	0.00	0.00	0.00
1,800.00	13.90	240.92	1,763.79	2,953.71	-158.08	-284.24	-123.92	0.00	0.00	0.00
1,900.00	13.90	240.92	1,860.86	2,856.64	-169.75	-305.23	-133.07	0.00	0.00	0.00
2,000.00	13.90	240.92	1,957.94	2,759.56	-181.42	-326.22	-142.22	0.00	0.00	0.00
2,100.00	13.90	240.92	2,055.01	2,662.49	-193.10	-347.21	-151.37	0.00	0.00	0.00
2,200.00	13.90	240.92	2,152.09	2,565.41	-204.77	-368.20	-160.52	0.00	0.00	0.00
2,300.00	13.90	240.92	2,249.16	2,468.34	-216.44	-389.18	-169.67	0.00	0.00	0.00
2,400.00	13.90	240.92	2,346.23	2,371.27	-228.11	-410.17	-178.82	0.00	0.00	0.00
2,500.00	13.90	240.92	2,443.31	2,274.19	-239.78	-431.16	-187.97	0.00	0.00	0.00
2,600.00	13.90	240.92	2,540.38	2,177.12	-251.46	-452.15	-197.12	0.00	0.00	0.00
2,700.00	13.90	240.92	2,637.45	2,080.05	-263.13	-473.14	-206.27	0.00	0.00	0.00
2,800.00	13.90	240.92	2,734.53	1,982.97	-274.80	-494.12	-215.42	0.00	0.00	0.00
2,900.00	13.90	240.92	2,831.60	1,885.90	-286.47	-515.11	-224.57	0.00	0.00	0.00
3,000.00	13.90	240.92	2,928.67	1,788.83	-298.15	-536.10	-233.72	0.00	0.00	0.00
3,100.00	13.90	240.92	3,025.75	1,691.75	-309.82	-557.09	-242.87	0.00	0.00	0.00
3,200.00	13.90	240.92	3,122.82	1,594.68	-321.49	-578.08	-252.02	0.00	0.00	0.00
3,300.00	13.90	240.92	3,219.89	1,497.61	-333.16	-599.06	-261.17	0.00	0.00	0.00
PARKMAN										
3,390.25	13.90	240.92	3,307.50	1,410.00	-343.70	-618.01	-269.43	0.00	0.00	0.00
3,400.00	13.90	240.92	3,316.97	1,400.53	-344.83	-620.05	-270.32	0.00	0.00	0.00
3,500.00	13.90	240.92	3,414.04	1,303.46	-356.51	-641.04	-279.47	0.00	0.00	0.00
3,600.00	13.90	240.92	3,511.11	1,206.39	-368.18	-662.03	-288.62	0.00	0.00	0.00
3,700.00	13.90	240.92	3,608.19	1,109.31	-379.85	-683.02	-297.78	0.00	0.00	0.00
3,800.00	13.90	240.92	3,705.26	1,012.24	-391.52	-704.00	-306.93	0.00	0.00	0.00
3,900.00	13.90	240.92	3,802.33	915.17	-403.20	-724.99	-316.08	0.00	0.00	0.00
4,000.00	13.90	240.92	3,899.41	818.09	-414.87	-745.98	-325.23	0.00	0.00	0.00
4,100.00	13.90	240.92	3,996.48	721.02	-426.54	-766.97	-334.38	0.00	0.00	0.00
4,200.00	13.90	240.92	4,093.56	623.94	-438.21	-787.96	-343.53	0.00	0.00	0.00
4,300.00	13.90	240.92	4,190.63	526.87	-449.88	-808.94	-352.68	0.00	0.00	0.00
4,400.00	13.90	240.92	4,287.70	429.80	-461.56	-829.93	-361.83	0.00	0.00	0.00
4,500.00	13.90	240.92	4,384.78	332.72	-473.23	-850.92	-370.98	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)
SUSSEX										
4,585.22	13.90	240.92	4,467.50	250.00	-483.18	-868.81	-378.77	0.00	0.00	0.00
4,600.00	13.90	240.92	4,481.85	235.65	-484.90	-871.91	-380.13	0.00	0.00	0.00
4,700.00	13.90	240.92	4,578.92	138.58	-496.57	-892.90	-389.28	0.00	0.00	0.00
4,800.00	13.90	240.92	4,676.00	41.50	-508.25	-913.88	-398.43	0.00	0.00	0.00
4,900.00	13.90	240.92	4,773.07	-55.57	-519.92	-934.87	-407.58	0.00	0.00	0.00
END OF TANGENT										
4,972.61	13.90	240.92	4,843.55	-126.05	-528.39	-950.11	-414.22	0.00	0.00	0.00
5,000.00	13.35	240.92	4,870.17	-152.67	-531.53	-955.75	-416.68	2.00	-2.00	0.00
5,100.00	11.35	240.92	4,967.86	-250.36	-541.92	-974.44	-424.83	2.00	-2.00	0.00
5,200.00	9.35	240.92	5,066.22	-348.72	-550.65	-990.13	-431.67	2.00	-2.00	0.00
SHANNON										
5,274.11	7.87	240.92	5,139.50	-422.00	-556.04	-999.83	-435.89	2.00	-2.00	0.00
5,300.00	7.35	240.92	5,165.16	-447.66	-557.71	-1,002.82	-437.20	2.00	-2.00	0.00
5,400.00	5.35	240.92	5,264.54	-547.04	-563.08	-1,012.48	-441.41	2.00	-2.00	0.00
5,500.00	3.35	240.92	5,364.25	-646.75	-566.76	-1,019.11	-444.30	2.00	-2.00	0.00
5,600.00	1.35	240.92	5,464.16	-746.66	-568.75	-1,022.69	-445.86	2.00	-2.00	0.00
EOD TO VERTICAL										
5,667.39	0.00	0.00	5,531.54	-814.04	-569.14	-1,023.38	-446.16	2.00	-2.00	0.00
5,700.00	0.00	0.00	5,564.15	-846.65	-569.14	-1,023.38	-446.16	0.00	0.00	0.00
KOP (10°/100ft BUR)										
5,767.39	0.00	0.00	5,631.54	-914.04	-569.14	-1,023.38	-446.16	0.00	0.00	0.00
5,800.00	3.26	347.15	5,664.14	-946.64	-568.24	-1,023.59	-445.24	10.00	10.00	0.00
5,900.00	13.26	347.15	5,762.97	-1,045.47	-554.24	-1,026.78	-430.97	10.00	10.00	0.00
6,000.00	23.26	347.15	5,857.82	-1,140.32	-523.73	-1,033.74	-399.86	10.00	10.00	0.00
SHARON SPRINGS SHALE										
6,071.41	30.40	347.15	5,921.50	-1,204.00	-492.33	-1,040.90	-367.83	10.00	10.00	0.00
6,100.00	33.26	347.15	5,945.78	-1,228.28	-477.63	-1,044.26	-352.84	10.00	10.00	0.00
NIOBRARA FORMATION										
6,186.82	41.94	347.15	6,014.50	-1,297.00	-426.03	-1,056.03	-300.23	10.00	10.00	0.00
6,200.00	43.26	347.15	6,024.20	-1,306.70	-417.33	-1,058.01	-291.36	10.00	10.00	0.00
NIOBRARA A CHALK										
6,208.71	44.13	347.15	6,030.50	-1,313.00	-411.47	-1,059.35	-285.37	10.00	10.00	0.00
6,300.00	53.26	347.15	6,090.69	-1,373.19	-344.67	-1,074.59	-217.26	10.00	10.00	0.00
NIOBRARA B CHALK										
6,325.52	55.81	347.15	6,105.50	-1,388.00	-324.41	-1,079.21	-196.60	10.00	10.00	0.00
6,400.00	63.26	347.15	6,143.23	-1,425.73	-261.86	-1,093.48	-132.82	10.00	10.00	0.00
6,500.00	73.26	347.15	6,180.22	-1,462.72	-171.42	-1,114.11	-40.58	10.00	10.00	0.00
NIOBRARA C CHALK										
6,536.00	76.86	347.15	6,189.50	-1,472.00	-137.51	-1,121.84	-6.01	10.00	10.00	0.00
6,600.00	83.26	347.15	6,200.54	-1,483.04	-76.08	-1,135.86	56.64	10.00	10.00	0.00
BPI *NEW*: 460ft FSL & 2417ft FEL of Sec 11 - NIOBRARA C LP										
6,667.39	90.00	347.15	6,204.50	-1,487.00	-10.53	-1,150.81	123.48	10.00	10.00	0.00
6,700.00	90.00	348.13	6,204.50	-1,487.00	21.32	-1,157.79	155.93	3.00	0.00	3.00
6,800.00	90.00	351.13	6,204.50	-1,487.00	119.68	-1,175.79	255.71	3.00	0.00	3.00
6,900.00	90.00	354.13	6,204.50	-1,487.00	218.84	-1,188.62	355.69	3.00	0.00	3.00
7,000.00	90.00	357.13	6,204.50	-1,487.00	318.54	-1,196.24	455.60	3.00	0.00	3.00
7,100.00	90.00	0.13	6,204.50	-1,487.00	418.50	-1,198.64	555.16	3.00	0.00	3.00
EOT TO 0.31° AZ										
7,106.04	90.00	0.31	6,204.50	-1,487.00	424.54	-1,198.62	561.16	3.00	0.00	3.00
7,200.00	90.00	0.31	6,204.50	-1,487.00	518.50	-1,198.11	654.42	0.00	0.00	0.00
7,300.00	90.00	0.31	6,204.50	-1,487.00	618.50	-1,197.57	753.67	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well GROTHEER 5-61 11B-2-1
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4717.50usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4717.50usft (Original Well Elev)
Site:	SE SE SEC. 11 T5N R61W 6th P.M.	North Reference:	True
Well:	GROTHEER 5-61 11B-2-1	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)
7,400.00	90.00	0.31	6,204.50	-1,487.00	718.49	-1,197.03	852.93	0.00	0.00	0.00
7,500.00	90.00	0.31	6,204.50	-1,487.00	818.49	-1,196.49	952.19	0.00	0.00	0.00
7,600.00	90.00	0.31	6,204.50	-1,487.00	918.49	-1,195.95	1,051.44	0.00	0.00	0.00
7,700.00	90.00	0.31	6,204.50	-1,487.00	1,018.49	-1,195.41	1,150.70	0.00	0.00	0.00
7,800.00	90.00	0.31	6,204.50	-1,487.00	1,118.49	-1,194.87	1,249.95	0.00	0.00	0.00
7,900.00	90.00	0.31	6,204.50	-1,487.00	1,218.49	-1,194.33	1,349.21	0.00	0.00	0.00
8,000.00	90.00	0.31	6,204.50	-1,487.00	1,318.49	-1,193.79	1,448.47	0.00	0.00	0.00
8,100.00	90.00	0.31	6,204.50	-1,487.00	1,418.48	-1,193.25	1,547.72	0.00	0.00	0.00
8,200.00	90.00	0.31	6,204.50	-1,487.00	1,518.48	-1,192.71	1,646.98	0.00	0.00	0.00
8,300.00	90.00	0.31	6,204.50	-1,487.00	1,618.48	-1,192.17	1,746.24	0.00	0.00	0.00
8,400.00	90.00	0.31	6,204.50	-1,487.00	1,718.48	-1,191.63	1,845.49	0.00	0.00	0.00
8,500.00	90.00	0.31	6,204.50	-1,487.00	1,818.48	-1,191.09	1,944.75	0.00	0.00	0.00
8,600.00	90.00	0.31	6,204.50	-1,487.00	1,918.48	-1,190.55	2,044.00	0.00	0.00	0.00
8,700.00	90.00	0.31	6,204.50	-1,487.00	2,018.48	-1,190.01	2,143.26	0.00	0.00	0.00
8,800.00	90.00	0.31	6,204.50	-1,487.00	2,118.47	-1,189.47	2,242.52	0.00	0.00	0.00
8,900.00	90.00	0.31	6,204.50	-1,487.00	2,218.47	-1,188.93	2,341.77	0.00	0.00	0.00
9,000.00	90.00	0.31	6,204.50	-1,487.00	2,318.47	-1,188.39	2,441.03	0.00	0.00	0.00
9,100.00	90.00	0.31	6,204.50	-1,487.00	2,418.47	-1,187.85	2,540.28	0.00	0.00	0.00
9,200.00	90.00	0.31	6,204.50	-1,487.00	2,518.47	-1,187.32	2,639.54	0.00	0.00	0.00
9,300.00	90.00	0.31	6,204.50	-1,487.00	2,618.47	-1,186.78	2,738.80	0.00	0.00	0.00
9,400.00	90.00	0.31	6,204.50	-1,487.00	2,718.47	-1,186.24	2,838.05	0.00	0.00	0.00
9,500.00	90.00	0.31	6,204.50	-1,487.00	2,818.46	-1,185.70	2,937.31	0.00	0.00	0.00
9,600.00	90.00	0.31	6,204.50	-1,487.00	2,918.46	-1,185.16	3,036.57	0.00	0.00	0.00
9,700.00	90.00	0.31	6,204.50	-1,487.00	3,018.46	-1,184.62	3,135.82	0.00	0.00	0.00
9,800.00	90.00	0.31	6,204.50	-1,487.00	3,118.46	-1,184.08	3,235.08	0.00	0.00	0.00
9,900.00	90.00	0.31	6,204.50	-1,487.00	3,218.46	-1,183.54	3,334.33	0.00	0.00	0.00
10,000.00	90.00	0.31	6,204.50	-1,487.00	3,318.46	-1,183.00	3,433.59	0.00	0.00	0.00
10,100.00	90.00	0.31	6,204.50	-1,487.00	3,418.45	-1,182.46	3,532.85	0.00	0.00	0.00
10,200.00	90.00	0.31	6,204.50	-1,487.00	3,518.45	-1,181.92	3,632.10	0.00	0.00	0.00
10,300.00	90.00	0.31	6,204.50	-1,487.00	3,618.45	-1,181.38	3,731.36	0.00	0.00	0.00
10,400.00	90.00	0.31	6,204.50	-1,487.00	3,718.45	-1,180.84	3,830.61	0.00	0.00	0.00
10,500.00	90.00	0.31	6,204.50	-1,487.00	3,818.45	-1,180.30	3,929.87	0.00	0.00	0.00
10,600.00	90.00	0.31	6,204.50	-1,487.00	3,918.45	-1,179.76	4,029.13	0.00	0.00	0.00
10,700.00	90.00	0.31	6,204.50	-1,487.00	4,018.45	-1,179.22	4,128.38	0.00	0.00	0.00
10,800.00	90.00	0.31	6,204.50	-1,487.00	4,118.44	-1,178.68	4,227.64	0.00	0.00	0.00
10,900.00	90.00	0.31	6,204.50	-1,487.00	4,218.44	-1,178.14	4,326.89	0.00	0.00	0.00
11,000.00	90.00	0.31	6,204.50	-1,487.00	4,318.44	-1,177.60	4,426.15	0.00	0.00	0.00
11,100.00	90.00	0.31	6,204.50	-1,487.00	4,418.44	-1,177.06	4,525.41	0.00	0.00	0.00
11,200.00	90.00	0.31	6,204.50	-1,487.00	4,518.44	-1,176.52	4,624.66	0.00	0.00	0.00
11,300.00	90.00	0.31	6,204.50	-1,487.00	4,618.44	-1,175.98	4,723.92	0.00	0.00	0.00
11,400.00	90.00	0.31	6,204.50	-1,487.00	4,718.44	-1,175.44	4,823.18	0.00	0.00	0.00
11,500.00	90.00	0.31	6,204.50	-1,487.00	4,818.43	-1,174.90	4,922.43	0.00	0.00	0.00
11,600.00	90.00	0.31	6,204.50	-1,487.00	4,918.43	-1,174.36	5,021.69	0.00	0.00	0.00
11,700.00	90.00	0.31	6,204.50	-1,487.00	5,018.43	-1,173.82	5,120.94	0.00	0.00	0.00
11,800.00	90.00	0.31	6,204.50	-1,487.00	5,118.43	-1,173.28	5,220.20	0.00	0.00	0.00
11,900.00	90.00	0.31	6,204.50	-1,487.00	5,218.43	-1,172.74	5,319.46	0.00	0.00	0.00
12,000.00	90.00	0.31	6,204.50	-1,487.00	5,318.43	-1,172.20	5,418.71	0.00	0.00	0.00
12,100.00	90.00	0.31	6,204.50	-1,487.00	5,418.43	-1,171.66	5,517.97	0.00	0.00	0.00
12,200.00	90.00	0.31	6,204.50	-1,487.00	5,518.42	-1,171.12	5,617.22	0.00	0.00	0.00
12,300.00	90.00	0.31	6,204.50	-1,487.00	5,618.42	-1,170.58	5,716.48	0.00	0.00	0.00
12,400.00	90.00	0.31	6,204.50	-1,487.00	5,718.42	-1,170.04	5,815.74	0.00	0.00	0.00
12,500.00	90.00	0.31	6,204.50	-1,487.00	5,818.42	-1,169.51	5,914.99	0.00	0.00	0.00
12,600.00	90.00	0.31	6,204.50	-1,487.00	5,918.42	-1,168.97	6,014.25	0.00	0.00	0.00
12,700.00	90.00	0.31	6,204.50	-1,487.00	6,018.42	-1,168.43	6,113.51	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well GROTHEER 5-61 11B-2-1
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4717.50usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4717.50usft (Original Well Elev)
Site:	SE SE SEC. 11 T5N R61W 6th P.M.	North Reference:	True
Well:	GROTHEER 5-61 11B-2-1	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)
12,800.00	90.00	0.31	6,204.50	-1,487.00	6,118.42	-1,167.89	6,212.76	0.00	0.00	0.00
12,900.00	90.00	0.31	6,204.50	-1,487.00	6,218.41	-1,167.35	6,312.02	0.00	0.00	0.00
13,000.00	90.00	0.31	6,204.50	-1,487.00	6,318.41	-1,166.81	6,411.27	0.00	0.00	0.00
13,100.00	90.00	0.31	6,204.50	-1,487.00	6,418.41	-1,166.27	6,510.53	0.00	0.00	0.00
13,200.00	90.00	0.31	6,204.50	-1,487.00	6,518.41	-1,165.73	6,609.79	0.00	0.00	0.00
13,300.00	90.00	0.31	6,204.50	-1,487.00	6,618.41	-1,165.19	6,709.04	0.00	0.00	0.00
13,400.00	90.00	0.31	6,204.50	-1,487.00	6,718.41	-1,164.65	6,808.30	0.00	0.00	0.00
13,500.00	90.00	0.31	6,204.50	-1,487.00	6,818.41	-1,164.11	6,907.55	0.00	0.00	0.00
13,600.00	90.00	0.31	6,204.50	-1,487.00	6,918.40	-1,163.57	7,006.81	0.00	0.00	0.00
13,700.00	90.00	0.31	6,204.50	-1,487.00	7,018.40	-1,163.03	7,106.07	0.00	0.00	0.00
13,800.00	90.00	0.31	6,204.50	-1,487.00	7,118.40	-1,162.49	7,205.32	0.00	0.00	0.00
13,900.00	90.00	0.31	6,204.50	-1,487.00	7,218.40	-1,161.95	7,304.58	0.00	0.00	0.00
14,000.00	90.00	0.31	6,204.50	-1,487.00	7,318.40	-1,161.41	7,403.83	0.00	0.00	0.00
14,100.00	90.00	0.31	6,204.50	-1,487.00	7,418.40	-1,160.87	7,503.09	0.00	0.00	0.00
14,200.00	90.00	0.31	6,204.50	-1,487.00	7,518.40	-1,160.33	7,602.35	0.00	0.00	0.00
14,300.00	90.00	0.31	6,204.50	-1,487.00	7,618.39	-1,159.79	7,701.60	0.00	0.00	0.00
14,400.00	90.00	0.31	6,204.50	-1,487.00	7,718.39	-1,159.25	7,800.86	0.00	0.00	0.00
14,500.00	90.00	0.31	6,204.50	-1,487.00	7,818.39	-1,158.71	7,900.12	0.00	0.00	0.00
14,600.00	90.00	0.31	6,204.50	-1,487.00	7,918.39	-1,158.17	7,999.37	0.00	0.00	0.00
14,700.00	90.00	0.31	6,204.50	-1,487.00	8,018.39	-1,157.63	8,098.63	0.00	0.00	0.00
14,800.00	90.00	0.31	6,204.50	-1,487.00	8,118.39	-1,157.09	8,197.88	0.00	0.00	0.00
14,900.00	90.00	0.31	6,204.50	-1,487.00	8,218.38	-1,156.55	8,297.14	0.00	0.00	0.00
15,000.00	90.00	0.31	6,204.50	-1,487.00	8,318.38	-1,156.01	8,396.40	0.00	0.00	0.00
15,100.00	90.00	0.31	6,204.50	-1,487.00	8,418.38	-1,155.47	8,495.65	0.00	0.00	0.00
15,200.00	90.00	0.31	6,204.50	-1,487.00	8,518.38	-1,154.93	8,594.91	0.00	0.00	0.00
15,300.00	90.00	0.31	6,204.50	-1,487.00	8,618.38	-1,154.39	8,694.16	0.00	0.00	0.00
15,400.00	90.00	0.31	6,204.50	-1,487.00	8,718.38	-1,153.85	8,793.42	0.00	0.00	0.00
15,500.00	90.00	0.31	6,204.50	-1,487.00	8,818.38	-1,153.31	8,892.68	0.00	0.00	0.00
15,600.00	90.00	0.31	6,204.50	-1,487.00	8,918.37	-1,152.77	8,991.93	0.00	0.00	0.00
15,700.00	90.00	0.31	6,204.50	-1,487.00	9,018.37	-1,152.23	9,091.19	0.00	0.00	0.00
15,800.00	90.00	0.31	6,204.50	-1,487.00	9,118.37	-1,151.70	9,190.45	0.00	0.00	0.00
15,900.00	90.00	0.31	6,204.50	-1,487.00	9,218.37	-1,151.16	9,289.70	0.00	0.00	0.00
16,000.00	90.00	0.31	6,204.50	-1,487.00	9,318.37	-1,150.62	9,388.96	0.00	0.00	0.00
16,100.00	90.00	0.31	6,204.50	-1,487.00	9,418.37	-1,150.08	9,488.21	0.00	0.00	0.00
16,200.00	90.00	0.31	6,204.50	-1,487.00	9,518.37	-1,149.54	9,587.47	0.00	0.00	0.00
16,300.00	90.00	0.31	6,204.50	-1,487.00	9,618.36	-1,149.00	9,686.73	0.00	0.00	0.00
EPI: 460ft FNL & 2494ft FEL of Sec 2										
16,380.78	90.00	0.31	6,204.50	-1,487.00	9,699.14	-1,148.56	9,766.90	0.00	0.00	0.00
EOT TO 0.16° AZ										
16,385.80	90.00	0.16	6,204.50	-1,487.00	9,704.16	-1,148.54	9,771.89	3.00	0.00	-3.00
16,400.00	90.00	0.16	6,204.50	-1,487.00	9,718.36	-1,148.50	9,785.99	0.00	0.00	0.00
BHL: 360ft FNL & 2495ft FEL of Sec 2										
16,480.60	90.00	0.16	6,204.50	-1,487.00	9,798.96	-1,148.28	9,866.01	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well GROTHEER 5-61 11B-2-1
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4717.50usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4717.50usft (Original Well Elev)
Site:	SE SE SEC. 11 T5N R61W 6th P.M.	North Reference:	True
Well:	GROTHEER 5-61 11B-2-1	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Formations					
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
707.03	702.50	PIERRE SHALE (BASE FOX HILLS			
3,390.25	3,307.50	PARKMAN			
4,585.22	4,467.50	SUSSEX			
5,274.11	5,139.50	SHANNON			
6,071.41	5,921.50	SHARON SPRINGS SHALE			
6,186.82	6,014.50	NIOBRARA FORMATION			
6,208.71	6,030.50	NIOBRARA A CHALK			
6,325.52	6,105.50	NIOBRARA B CHALK			
6,536.00	6,189.50	NIOBRARA C CHALK			
6,667.39	6,204.50	NIOBRARA C 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: 460ft FSL & 1266ft FEL of Sec 11
100.00	100.00	0.00	0.00	START NUDGE (2°/100ft BUR)
794.78	787.99	-40.75	-73.27	EOB TO 13.9° INC
4,972.61	4,843.55	-528.39	-950.11	END OF TANGENT
5,667.39	5,531.54	-569.14	-1,023.38	EOD TO VERTICAL
5,767.39	5,631.54	-569.14	-1,023.38	KOP (10°/100ft BUR)
6,667.39	6,204.50	-10.53	-1,150.81	BPI *NEW*: 460ft FSL & 2417ft FEL of Sec 11
7,106.04	6,204.50	424.54	-1,198.62	EOT TO 0.31° AZ
16,380.78	6,204.50	9,699.14	-1,148.56	EPI: 460ft FNL & 2494ft FEL of Sec 2
16,385.80	6,204.50	9,704.16	-1,148.54	EOT TO 0.16° AZ
16,480.60	6,204.50	9,798.96	-1,148.28	BHL: 360ft FNL & 2495ft FEL of Sec 2