

BISON OIL & GAS II, LLC

WELD COUNTY, COLORADO (NAD 83)

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

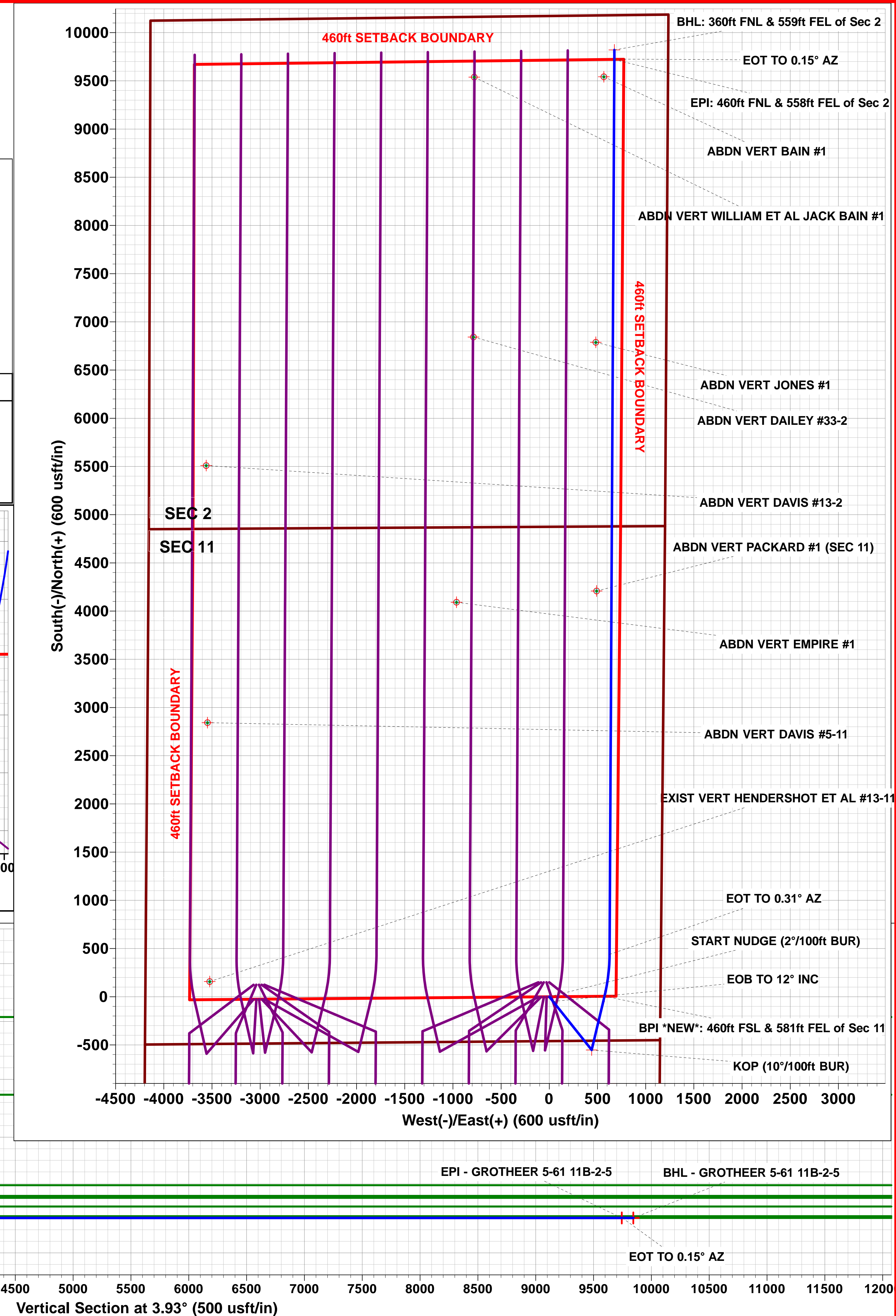
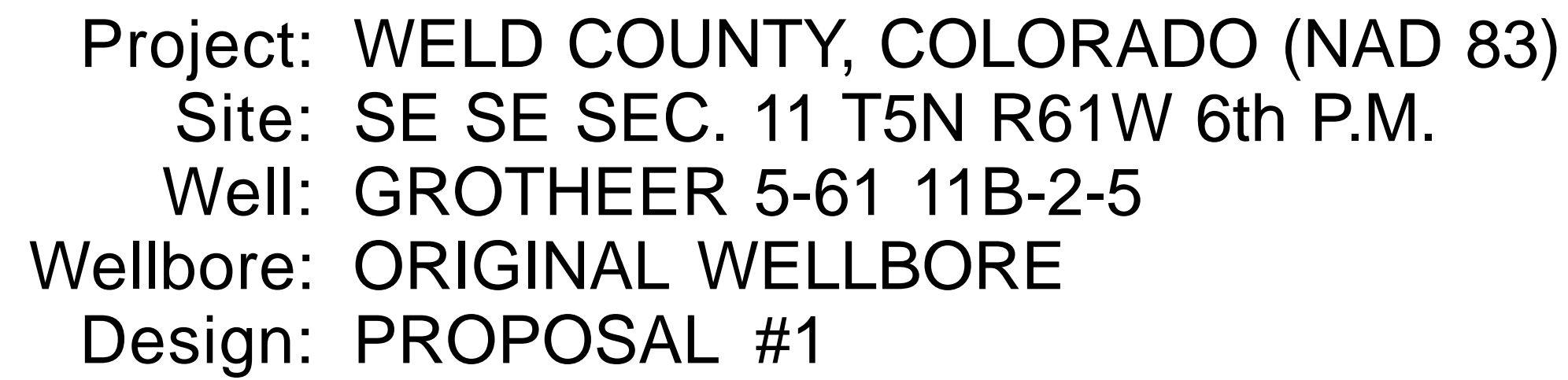
GROTHER 5-61 11B-2-5

ORIGINAL WELLBORE

26 February, 2019

Plan: PROPOSAL #1





Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well GROTHEER 5-61 11B-2-5
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4711.40usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4711.40usft (Original Well Elev)
Site:	SE SE SEC. 11 T5N R61W 6th P.M.	North Reference:	True
Well:	GROTHEER 5-61 11B-2-5	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	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-2-5				
Well Position	+N-S	-149.01 usft	Northing:	1,394,923.79 usft	Latitude:	40.409845
	+E-W	113.34 usft	Easting:	3,370,316.01 usft	Longitude:	-104.170126
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,686.40 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 (°)
	0.00	0.00	0.00	3.93

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	-4,711.40	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	-4,611.40	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	12.00	141.47	695.62	-4,015.78	-48.97	39.00	2.00	2.00	0.00	141.47	
3,492.54	12.00	141.47	3,427.14	-1,284.26	-503.15	400.69	0.00	0.00	0.00	0.00	
4,092.54	0.00	0.00	4,022.76	-688.64	-552.12	439.69	2.00	-2.00	0.00	180.00	
5,695.22	0.00	0.00	5,625.44	914.04	-552.12	439.69	0.00	0.00	0.00	0.00	KOP - GROTHEER
6,595.21	90.00	13.45	6,198.40	1,487.00	5.12	572.96	10.00	10.00	1.49	13.45	BPI *NEW*- GROTI
7,033.32	90.00	0.31	6,198.40	1,487.00	439.12	625.32	3.00	0.00	-3.00	-90.00	
16,314.96	90.00	0.31	6,198.40	1,487.00	9,720.62	675.05	0.00	0.00	0.00	0.00	EPI - GROTHEER !
16,320.04	90.00	0.15	6,198.40	1,487.00	9,725.71	675.07	3.00	0.00	-3.00	-90.01	
16,414.78	90.00	0.15	6,198.40	1,487.00	9,820.44	675.33	0.00	0.00	0.00	0.00	BHL - GROTHEER

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Site:	SE SE SEC. 11 T5N R61W 6th P.M.	North Reference:	True
Well:	GROTHEER 5-61 11B-2-5	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 & 1154ft FEL of Sec 11										
0.00	0.00	0.00	0.00	4,711.40	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	4,611.40	0.00	0.00	0.00	0.00	0.00	0.00
200.00	2.00	141.47	199.98	4,511.42	-1.37	1.09	-1.29	2.00	2.00	0.00
300.00	4.00	141.47	299.84	4,411.56	-5.46	4.35	-5.15	2.00	2.00	0.00
400.00	6.00	141.47	399.45	4,311.95	-12.28	9.78	-11.58	2.00	2.00	0.00
500.00	8.00	141.47	498.70	4,212.70	-21.81	17.37	-20.57	2.00	2.00	0.00
600.00	10.00	141.47	597.47	4,113.93	-34.05	27.11	-32.11	2.00	2.00	0.00
EOB TO 12° INC										
700.00	12.00	141.47	695.62	4,015.78	-48.97	39.00	-46.18	2.00	2.00	0.00
PIERRE SHALE (BASE FOX HILLS)										
700.79	12.00	141.47	696.40	4,015.00	-49.10	39.10	-46.30	0.00	0.00	0.00
800.00	12.00	141.47	793.44	3,917.96	-65.23	51.95	-61.52	0.00	0.00	0.00
900.00	12.00	141.47	891.25	3,820.15	-81.50	64.90	-76.85	0.00	0.00	0.00
1,000.00	12.00	141.47	989.07	3,722.33	-97.76	77.86	-92.19	0.00	0.00	0.00
1,100.00	12.00	141.47	1,086.88	3,624.52	-114.03	90.81	-107.53	0.00	0.00	0.00
1,200.00	12.00	141.47	1,184.70	3,526.70	-130.29	103.76	-122.87	0.00	0.00	0.00
1,300.00	12.00	141.47	1,282.51	3,428.89	-146.55	116.71	-138.20	0.00	0.00	0.00
1,400.00	12.00	141.47	1,380.33	3,331.07	-162.82	129.66	-153.54	0.00	0.00	0.00
1,500.00	12.00	141.47	1,478.14	3,233.26	-179.08	142.62	-168.88	0.00	0.00	0.00
1,600.00	12.00	141.47	1,575.96	3,135.44	-195.35	155.57	-184.21	0.00	0.00	0.00
1,700.00	12.00	141.47	1,673.77	3,037.63	-211.61	168.52	-199.55	0.00	0.00	0.00
1,800.00	12.00	141.47	1,771.59	2,939.81	-227.87	181.47	-214.89	0.00	0.00	0.00
1,900.00	12.00	141.47	1,869.40	2,842.00	-244.14	194.42	-230.22	0.00	0.00	0.00
2,000.00	12.00	141.47	1,967.22	2,744.18	-260.40	207.38	-245.56	0.00	0.00	0.00
2,100.00	12.00	141.47	2,065.03	2,646.37	-276.67	220.33	-260.90	0.00	0.00	0.00
2,200.00	12.00	141.47	2,162.84	2,548.56	-292.93	233.28	-276.24	0.00	0.00	0.00
2,300.00	12.00	141.47	2,260.66	2,450.74	-309.19	246.23	-291.57	0.00	0.00	0.00
2,400.00	12.00	141.47	2,358.47	2,352.93	-325.46	259.18	-306.91	0.00	0.00	0.00
2,500.00	12.00	141.47	2,456.29	2,255.11	-341.72	272.14	-322.25	0.00	0.00	0.00
2,600.00	12.00	141.47	2,554.10	2,157.30	-357.99	285.09	-337.58	0.00	0.00	0.00
2,700.00	12.00	141.47	2,651.92	2,059.48	-374.25	298.04	-352.92	0.00	0.00	0.00
2,800.00	12.00	141.47	2,749.73	1,961.67	-390.51	310.99	-368.26	0.00	0.00	0.00
2,900.00	12.00	141.47	2,847.55	1,863.85	-406.78	323.94	-383.60	0.00	0.00	0.00
3,000.00	12.00	141.47	2,945.36	1,766.04	-423.04	336.90	-398.93	0.00	0.00	0.00
3,100.00	12.00	141.47	3,043.18	1,668.22	-439.31	349.85	-414.27	0.00	0.00	0.00
3,200.00	12.00	141.47	3,140.99	1,570.41	-455.57	362.80	-429.61	0.00	0.00	0.00
3,300.00	12.00	141.47	3,238.81	1,472.59	-471.83	375.75	-444.94	0.00	0.00	0.00
PARKMAN										
3,363.99	12.00	141.47	3,301.40	1,410.00	-482.24	384.04	-454.76	0.00	0.00	0.00
3,400.00	12.00	141.47	3,336.62	1,374.78	-488.10	388.70	-460.28	0.00	0.00	0.00
END OF TANGENT										
3,492.54	12.00	141.47	3,427.14	1,284.26	-503.15	400.69	-474.47	0.00	0.00	0.00
3,500.00	11.85	141.47	3,434.44	1,276.96	-504.35	401.65	-475.61	2.00	-2.00	0.00
3,600.00	9.85	141.47	3,532.65	1,178.75	-519.08	413.38	-489.50	2.00	-2.00	0.00
3,700.00	7.85	141.47	3,631.45	1,079.95	-531.12	422.96	-500.85	2.00	-2.00	0.00
3,800.00	5.85	141.47	3,730.73	980.67	-540.45	430.39	-509.65	2.00	-2.00	0.00
3,900.00	3.85	141.47	3,830.37	881.03	-547.06	435.66	-515.88	2.00	-2.00	0.00
4,000.00	1.85	141.47	3,930.24	781.16	-550.95	438.76	-519.55	2.00	-2.00	0.00
EOD TO VERTICAL										
4,092.54	0.00	0.00	4,022.76	688.64	-552.12	439.69	-520.65	2.00	-2.00	0.00
4,100.00	0.00	0.00	4,030.22	681.18	-552.12	439.69	-520.65	0.00	0.00	0.00

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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)
4,200.00	0.00	0.00	4,130.22	581.18	-552.12	439.69	-520.65	0.00	0.00	0.00
4,300.00	0.00	0.00	4,230.22	481.18	-552.12	439.69	-520.65	0.00	0.00	0.00
4,400.00	0.00	0.00	4,330.22	381.18	-552.12	439.69	-520.65	0.00	0.00	0.00
4,500.00	0.00	0.00	4,430.22	281.18	-552.12	439.69	-520.65	0.00	0.00	0.00
SUSSEX										
4,531.18	0.00	0.00	4,461.40	250.00	-552.12	439.69	-520.65	0.00	0.00	0.00
4,600.00	0.00	0.00	4,530.22	181.18	-552.12	439.69	-520.65	0.00	0.00	0.00
4,700.00	0.00	0.00	4,630.22	81.18	-552.12	439.69	-520.65	0.00	0.00	0.00
4,800.00	0.00	0.00	4,730.22	-18.82	-552.12	439.69	-520.65	0.00	0.00	0.00
4,900.00	0.00	0.00	4,830.22	-118.82	-552.12	439.69	-520.65	0.00	0.00	0.00
5,000.00	0.00	0.00	4,930.22	-218.82	-552.12	439.69	-520.65	0.00	0.00	0.00
5,100.00	0.00	0.00	5,030.22	-318.82	-552.12	439.69	-520.65	0.00	0.00	0.00
5,200.00	0.00	0.00	5,130.22	-418.82	-552.12	439.69	-520.65	0.00	0.00	0.00
SHANNON										
5,203.18	0.00	0.00	5,133.40	-422.00	-552.12	439.69	-520.65	0.00	0.00	0.00
5,300.00	0.00	0.00	5,230.22	-518.82	-552.12	439.69	-520.65	0.00	0.00	0.00
5,400.00	0.00	0.00	5,330.22	-618.82	-552.12	439.69	-520.65	0.00	0.00	0.00
5,500.00	0.00	0.00	5,430.22	-718.82	-552.12	439.69	-520.65	0.00	0.00	0.00
5,600.00	0.00	0.00	5,530.22	-818.82	-552.12	439.69	-520.65	0.00	0.00	0.00
KOP (10°/100ft BUR)										
5,695.22	0.00	0.00	5,625.44	-914.04	-552.12	439.69	-520.65	0.00	0.00	0.00
5,700.00	0.48	13.45	5,630.22	-918.82	-552.10	439.69	-520.63	10.00	10.00	0.00
5,800.00	10.48	13.45	5,729.64	-1,018.24	-542.83	441.91	-511.23	10.00	10.00	0.00
5,900.00	20.48	13.45	5,825.89	-1,114.49	-516.91	448.11	-484.94	10.00	10.00	0.00
SHARON SPRINGS SHALE										
5,999.25	30.40	13.45	5,915.40	-1,204.00	-475.49	458.02	-442.95	10.00	10.00	0.00
6,000.00	30.48	13.45	5,916.05	-1,204.65	-475.12	458.11	-442.57	10.00	10.00	0.00
6,100.00	40.48	13.45	5,997.38	-1,285.98	-418.75	471.59	-385.41	10.00	10.00	0.00
NIOBRARA FORMATION										
6,114.65	41.94	13.45	6,008.40	-1,297.00	-409.36	473.83	-375.89	10.00	10.00	0.00
NIOBRARA A CHALK										
6,136.54	44.13	13.45	6,024.40	-1,313.00	-394.83	477.31	-361.15	10.00	10.00	0.00
6,200.00	50.48	13.45	6,067.41	-1,356.01	-349.49	488.15	-315.18	10.00	10.00	0.00
NIOBRARA B CHALK										
6,253.35	55.81	13.45	6,099.40	-1,388.00	-307.98	498.08	-273.09	10.00	10.00	0.00
6,300.00	60.48	13.45	6,124.01	-1,412.61	-269.46	507.29	-234.02	10.00	10.00	0.00
6,400.00	70.48	13.45	6,165.46	-1,454.06	-181.09	528.43	-144.41	10.00	10.00	0.00
NIOBRARA C CHALK										
6,463.83	76.86	13.45	6,183.40	-1,472.00	-121.55	542.67	-84.03	10.00	10.00	0.00
6,500.00	80.48	13.45	6,190.51	-1,479.11	-87.06	550.92	-49.06	10.00	10.00	0.00
BPI *NEW*: 460ft FSL & 581ft FEL of Sec 11 - NIOBRARA C LP										
6,595.21	90.00	13.45	6,198.40	-1,487.00	5.12	572.96	44.41	10.00	10.00	0.00
6,600.00	90.00	13.31	6,198.40	-1,487.00	9.77	574.07	49.14	3.00	0.00	-3.00
6,700.00	90.00	10.31	6,198.40	-1,487.00	107.65	594.53	148.18	3.00	0.00	-3.00
6,800.00	90.00	7.31	6,198.40	-1,487.00	206.46	609.83	247.81	3.00	0.00	-3.00
6,900.00	90.00	4.31	6,198.40	-1,487.00	305.93	619.95	347.74	3.00	0.00	-3.00
7,000.00	90.00	1.31	6,198.40	-1,487.00	405.80	624.85	447.71	3.00	0.00	-3.00
EOT TO 0.31° AZ										
7,033.32	90.00	0.31	6,198.40	-1,487.00	439.12	625.32	480.99	3.00	0.00	-3.00
7,100.00	90.00	0.31	6,198.40	-1,487.00	505.80	625.67	547.53	0.00	0.00	0.00
7,200.00	90.00	0.31	6,198.40	-1,487.00	605.80	626.21	647.33	0.00	0.00	0.00
7,300.00	90.00	0.31	6,198.40	-1,487.00	705.79	626.75	747.13	0.00	0.00	0.00
7,400.00	90.00	0.31	6,198.40	-1,487.00	805.79	627.28	846.93	0.00	0.00	0.00

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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)
7,500.00	90.00	0.31	6,198.40	-1,487.00	905.79	627.82	946.73	0.00	0.00	0.00
7,600.00	90.00	0.31	6,198.40	-1,487.00	1,005.79	628.35	1,046.53	0.00	0.00	0.00
7,700.00	90.00	0.31	6,198.40	-1,487.00	1,105.79	628.89	1,146.33	0.00	0.00	0.00
7,800.00	90.00	0.31	6,198.40	-1,487.00	1,205.79	629.42	1,246.13	0.00	0.00	0.00
7,900.00	90.00	0.31	6,198.40	-1,487.00	1,305.79	629.96	1,345.93	0.00	0.00	0.00
8,000.00	90.00	0.31	6,198.40	-1,487.00	1,405.78	630.50	1,445.73	0.00	0.00	0.00
8,100.00	90.00	0.31	6,198.40	-1,487.00	1,505.78	631.03	1,545.53	0.00	0.00	0.00
8,200.00	90.00	0.31	6,198.40	-1,487.00	1,605.78	631.57	1,645.33	0.00	0.00	0.00
8,300.00	90.00	0.31	6,198.40	-1,487.00	1,705.78	632.10	1,745.13	0.00	0.00	0.00
8,400.00	90.00	0.31	6,198.40	-1,487.00	1,805.78	632.64	1,844.93	0.00	0.00	0.00
8,500.00	90.00	0.31	6,198.40	-1,487.00	1,905.78	633.18	1,944.73	0.00	0.00	0.00
8,600.00	90.00	0.31	6,198.40	-1,487.00	2,005.77	633.71	2,044.53	0.00	0.00	0.00
8,700.00	90.00	0.31	6,198.40	-1,487.00	2,105.77	634.25	2,144.32	0.00	0.00	0.00
8,800.00	90.00	0.31	6,198.40	-1,487.00	2,205.77	634.78	2,244.12	0.00	0.00	0.00
8,900.00	90.00	0.31	6,198.40	-1,487.00	2,305.77	635.32	2,343.92	0.00	0.00	0.00
9,000.00	90.00	0.31	6,198.40	-1,487.00	2,405.77	635.85	2,443.72	0.00	0.00	0.00
9,100.00	90.00	0.31	6,198.40	-1,487.00	2,505.77	636.39	2,543.52	0.00	0.00	0.00
9,200.00	90.00	0.31	6,198.40	-1,487.00	2,605.77	636.93	2,643.32	0.00	0.00	0.00
9,300.00	90.00	0.31	6,198.40	-1,487.00	2,705.76	637.46	2,743.12	0.00	0.00	0.00
9,400.00	90.00	0.31	6,198.40	-1,487.00	2,805.76	638.00	2,842.92	0.00	0.00	0.00
9,500.00	90.00	0.31	6,198.40	-1,487.00	2,905.76	638.53	2,942.72	0.00	0.00	0.00
9,600.00	90.00	0.31	6,198.40	-1,487.00	3,005.76	639.07	3,042.52	0.00	0.00	0.00
9,700.00	90.00	0.31	6,198.40	-1,487.00	3,105.76	639.61	3,142.32	0.00	0.00	0.00
9,800.00	90.00	0.31	6,198.40	-1,487.00	3,205.76	640.14	3,242.12	0.00	0.00	0.00
9,900.00	90.00	0.31	6,198.40	-1,487.00	3,305.76	640.68	3,341.92	0.00	0.00	0.00
10,000.00	90.00	0.31	6,198.40	-1,487.00	3,405.75	641.21	3,441.72	0.00	0.00	0.00
10,100.00	90.00	0.31	6,198.40	-1,487.00	3,505.75	641.75	3,541.52	0.00	0.00	0.00
10,200.00	90.00	0.31	6,198.40	-1,487.00	3,605.75	642.28	3,641.32	0.00	0.00	0.00
10,300.00	90.00	0.31	6,198.40	-1,487.00	3,705.75	642.82	3,741.12	0.00	0.00	0.00
10,400.00	90.00	0.31	6,198.40	-1,487.00	3,805.75	643.36	3,840.92	0.00	0.00	0.00
10,500.00	90.00	0.31	6,198.40	-1,487.00	3,905.75	643.89	3,940.72	0.00	0.00	0.00
10,600.00	90.00	0.31	6,198.40	-1,487.00	4,005.75	644.43	4,040.52	0.00	0.00	0.00
10,700.00	90.00	0.31	6,198.40	-1,487.00	4,105.74	644.96	4,140.32	0.00	0.00	0.00
10,800.00	90.00	0.31	6,198.40	-1,487.00	4,205.74	645.50	4,240.12	0.00	0.00	0.00
10,900.00	90.00	0.31	6,198.40	-1,487.00	4,305.74	646.04	4,339.92	0.00	0.00	0.00
11,000.00	90.00	0.31	6,198.40	-1,487.00	4,405.74	646.57	4,439.72	0.00	0.00	0.00
11,100.00	90.00	0.31	6,198.40	-1,487.00	4,505.74	647.11	4,539.52	0.00	0.00	0.00
11,200.00	90.00	0.31	6,198.40	-1,487.00	4,605.74	647.64	4,639.32	0.00	0.00	0.00
11,300.00	90.00	0.31	6,198.40	-1,487.00	4,705.74	648.18	4,739.12	0.00	0.00	0.00
11,400.00	90.00	0.31	6,198.40	-1,487.00	4,805.73	648.71	4,838.92	0.00	0.00	0.00
11,500.00	90.00	0.31	6,198.40	-1,487.00	4,905.73	649.25	4,938.72	0.00	0.00	0.00
11,600.00	90.00	0.31	6,198.40	-1,487.00	5,005.73	649.79	5,038.52	0.00	0.00	0.00
11,700.00	90.00	0.31	6,198.40	-1,487.00	5,105.73	650.32	5,138.32	0.00	0.00	0.00
11,800.00	90.00	0.31	6,198.40	-1,487.00	5,205.73	650.86	5,238.12	0.00	0.00	0.00
11,900.00	90.00	0.31	6,198.40	-1,487.00	5,305.73	651.39	5,337.92	0.00	0.00	0.00
12,000.00	90.00	0.31	6,198.40	-1,487.00	5,405.73	651.93	5,437.72	0.00	0.00	0.00
12,100.00	90.00	0.31	6,198.40	-1,487.00	5,505.72	652.47	5,537.52	0.00	0.00	0.00
12,200.00	90.00	0.31	6,198.40	-1,487.00	5,605.72	653.00	5,637.31	0.00	0.00	0.00
12,300.00	90.00	0.31	6,198.40	-1,487.00	5,705.72	653.54	5,737.11	0.00	0.00	0.00
12,400.00	90.00	0.31	6,198.40	-1,487.00	5,805.72	654.07	5,836.91	0.00	0.00	0.00
12,500.00	90.00	0.31	6,198.40	-1,487.00	5,905.72	654.61	5,936.71	0.00	0.00	0.00
12,600.00	90.00	0.31	6,198.40	-1,487.00	6,005.72	655.14	6,036.51	0.00	0.00	0.00
12,700.00	90.00	0.31	6,198.40	-1,487.00	6,105.72	655.68	6,136.31	0.00	0.00	0.00
12,800.00	90.00	0.31	6,198.40	-1,487.00	6,205.71	656.22	6,236.11	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well GROTHEER 5-61 11B-2-5
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4711.40usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4711.40usft (Original Well Elev)
Site:	SE SE SEC. 11 T5N R61W 6th P.M.	North Reference:	True
Well:	GROTHEER 5-61 11B-2-5	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)
12,900.00	90.00	0.31	6,198.40	-1,487.00	6,305.71	656.75	6,335.91	0.00	0.00	0.00
13,000.00	90.00	0.31	6,198.40	-1,487.00	6,405.71	657.29	6,435.71	0.00	0.00	0.00
13,100.00	90.00	0.31	6,198.40	-1,487.00	6,505.71	657.82	6,535.51	0.00	0.00	0.00
13,200.00	90.00	0.31	6,198.40	-1,487.00	6,605.71	658.36	6,635.31	0.00	0.00	0.00
13,300.00	90.00	0.31	6,198.40	-1,487.00	6,705.71	658.90	6,735.11	0.00	0.00	0.00
13,400.00	90.00	0.31	6,198.40	-1,487.00	6,805.71	659.43	6,834.91	0.00	0.00	0.00
13,500.00	90.00	0.31	6,198.40	-1,487.00	6,905.70	659.97	6,934.71	0.00	0.00	0.00
13,600.00	90.00	0.31	6,198.40	-1,487.00	7,005.70	660.50	7,034.51	0.00	0.00	0.00
13,700.00	90.00	0.31	6,198.40	-1,487.00	7,105.70	661.04	7,134.31	0.00	0.00	0.00
13,800.00	90.00	0.31	6,198.40	-1,487.00	7,205.70	661.57	7,234.11	0.00	0.00	0.00
13,900.00	90.00	0.31	6,198.40	-1,487.00	7,305.70	662.11	7,333.91	0.00	0.00	0.00
14,000.00	90.00	0.31	6,198.40	-1,487.00	7,405.70	662.65	7,433.71	0.00	0.00	0.00
14,100.00	90.00	0.31	6,198.40	-1,487.00	7,505.70	663.18	7,533.51	0.00	0.00	0.00
14,200.00	90.00	0.31	6,198.40	-1,487.00	7,605.69	663.72	7,633.31	0.00	0.00	0.00
14,300.00	90.00	0.31	6,198.40	-1,487.00	7,705.69	664.25	7,733.11	0.00	0.00	0.00
14,400.00	90.00	0.31	6,198.40	-1,487.00	7,805.69	664.79	7,832.91	0.00	0.00	0.00
14,500.00	90.00	0.31	6,198.40	-1,487.00	7,905.69	665.33	7,932.71	0.00	0.00	0.00
14,600.00	90.00	0.31	6,198.40	-1,487.00	8,005.69	665.86	8,032.51	0.00	0.00	0.00
14,700.00	90.00	0.31	6,198.40	-1,487.00	8,105.69	666.40	8,132.31	0.00	0.00	0.00
14,800.00	90.00	0.31	6,198.40	-1,487.00	8,205.69	666.93	8,232.11	0.00	0.00	0.00
14,900.00	90.00	0.31	6,198.40	-1,487.00	8,305.68	667.47	8,331.91	0.00	0.00	0.00
15,000.00	90.00	0.31	6,198.40	-1,487.00	8,405.68	668.00	8,431.71	0.00	0.00	0.00
15,100.00	90.00	0.31	6,198.40	-1,487.00	8,505.68	668.54	8,531.51	0.00	0.00	0.00
15,200.00	90.00	0.31	6,198.40	-1,487.00	8,605.68	669.08	8,631.31	0.00	0.00	0.00
15,300.00	90.00	0.31	6,198.40	-1,487.00	8,705.68	669.61	8,731.11	0.00	0.00	0.00
15,400.00	90.00	0.31	6,198.40	-1,487.00	8,805.68	670.15	8,830.91	0.00	0.00	0.00
15,500.00	90.00	0.31	6,198.40	-1,487.00	8,905.68	670.68	8,930.71	0.00	0.00	0.00
15,600.00	90.00	0.31	6,198.40	-1,487.00	9,005.67	671.22	9,030.51	0.00	0.00	0.00
15,700.00	90.00	0.31	6,198.40	-1,487.00	9,105.67	671.76	9,130.30	0.00	0.00	0.00
15,800.00	90.00	0.31	6,198.40	-1,487.00	9,205.67	672.29	9,230.10	0.00	0.00	0.00
15,900.00	90.00	0.31	6,198.40	-1,487.00	9,305.67	672.83	9,329.90	0.00	0.00	0.00
16,000.00	90.00	0.31	6,198.40	-1,487.00	9,405.67	673.36	9,429.70	0.00	0.00	0.00
16,100.00	90.00	0.31	6,198.40	-1,487.00	9,505.67	673.90	9,529.50	0.00	0.00	0.00
16,200.00	90.00	0.31	6,198.40	-1,487.00	9,605.67	674.43	9,629.30	0.00	0.00	0.00
16,300.00	90.00	0.31	6,198.40	-1,487.00	9,705.66	674.97	9,729.10	0.00	0.00	0.00
EPI: 460ft FNL & 558ft FEL of Sec 2										
16,314.96	90.00	0.31	6,198.40	-1,487.00	9,720.62	675.05	9,744.03	0.00	0.00	0.00
EOT TO 0.15° AZ										
16,320.04	90.00	0.15	6,198.40	-1,487.00	9,725.71	675.07	9,749.11	3.00	0.00	-3.00
16,400.00	90.00	0.15	6,198.40	-1,487.00	9,805.66	675.29	9,828.89	0.00	0.00	0.00
BHL: 360ft FNL & 559ft FEL of Sec 2										
16,414.78	90.00	0.15	6,198.40	-1,487.00	9,820.44	675.33	9,843.63	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well GROTHEER 5-61 11B-2-5
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB 25' @ 4711.40usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4711.40usft (Original Well Elev)
Site:	SE SE SEC. 11 T5N R61W 6th P.M.	North Reference:	True
Well:	GROTHEER 5-61 11B-2-5	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Formations					
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
700.79	696.40	PIERRE SHALE (BASE FOX HILLS			
3,363.99	3,301.40	PARKMAN			
4,531.18	4,461.40	SUSSEX			
5,203.18	5,133.40	SHANNON			
5,999.25	5,915.40	SHARON SPRINGS SHALE			
6,114.65	6,008.40	NIOBRARA FORMATION			
6,136.54	6,024.40	NIOBRARA A CHALK			
6,253.35	6,099.40	NIOBRARA B CHALK			
6,463.83	6,183.40	NIOBRARA C CHALK			
6,595.21	6,198.40	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 & 1154ft FEL of Sec 11
100.00	100.00	0.00	0.00	START NUDGE (2°/100ft BUR)
700.00	695.62	-48.97	39.00	EOB TO 12° INC
3,492.54	3,427.14	-503.15	400.69	END OF TANGENT
4,092.54	4,022.76	-552.12	439.69	EOD TO VERTICAL
5,695.22	5,625.44	-552.12	439.69	KOP (10°/100ft BUR)
6,595.21	6,198.40	5.12	572.96	BPI *NEW*: 460ft FSL & 581ft FEL of Sec 11
7,033.32	6,198.40	439.12	625.32	EOT TO 0.31° AZ
16,314.96	6,198.40	9,720.62	675.05	EPI: 460ft FNL & 558ft FEL of Sec 2
16,320.04	6,198.40	9,725.71	675.07	EOT TO 0.15° AZ
16,414.78	6,198.40	9,820.44	675.33	BHL: 360ft FNL & 559ft FEL of Sec 2