



MORNING GUN EXPLORATION

WELD COUNTY, COLORADO (NAD 83)

SW SW SEC. 11 T7N R59W 6th P.M.

CASTOR 7-59 11-2-1

ORIGINAL WELLBORE

03 January, 2019

Plan: PROPOSAL #2



WELD COUNTY, COLORADO (NAD 83)
SW SW SEC. 11 T7N R59W 6th P.M.
CASTOR 7-59 11-2-1
ORIGINAL WELLBORE
PROPOSAL #2

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: 610ft FSL & 564ft FWL of Sec 11	
1300.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2"/100ft BUR)	
1895.62	1900.00	12.00	176.99	-62.52	3.29	-62.47	62.60	EOB TO 12° INC	
4055.54	4108.17	12.00	176.99	-520.99	27.42	-520.62	521.71	END OF TANGENT	
4651.16	4708.17	0.00	176.99	-583.50	30.71	-583.09	584.31	EOD TO VERTICAL	
5480.04	5537.05	0.00	0.00	-583.50	30.71	-583.09	584.31	KOP (10"/100ft BUR)	
6053.00	6437.06	90.00	0.48	-10.55	35.55	-10.12	1157.28	BPI: 600ft FSL & 600ft FWL of Sec 11	
6053.00	15765.55	90.00	0.48	9317.60	114.39	9318.30	10485.77	EPI: 600ft FNL & 600ft FWL of Sec 2	
6053.00	15769.34	90.00	0.37	9321.39	114.42	9322.09	10489.56	EOT TO 0.37° AZ	
6053.00	16065.40	90.00	0.37	9617.44	116.34	9618.15	10785.61	BHL: 300ft FNL & 600ft FWL of Sec 2	

PROPOSED LOCAL COORDINATES:

SHL: 610ft FSL & 564ft FWL Sec 11

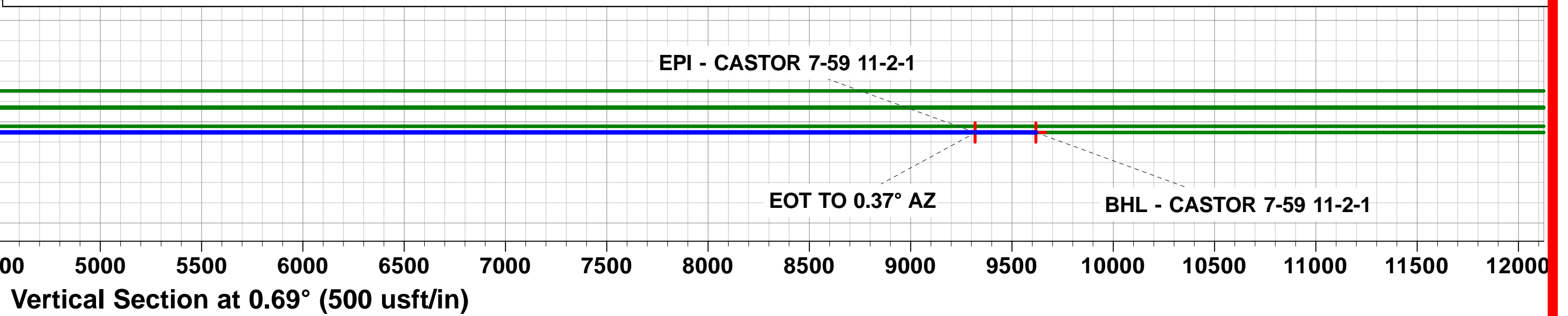
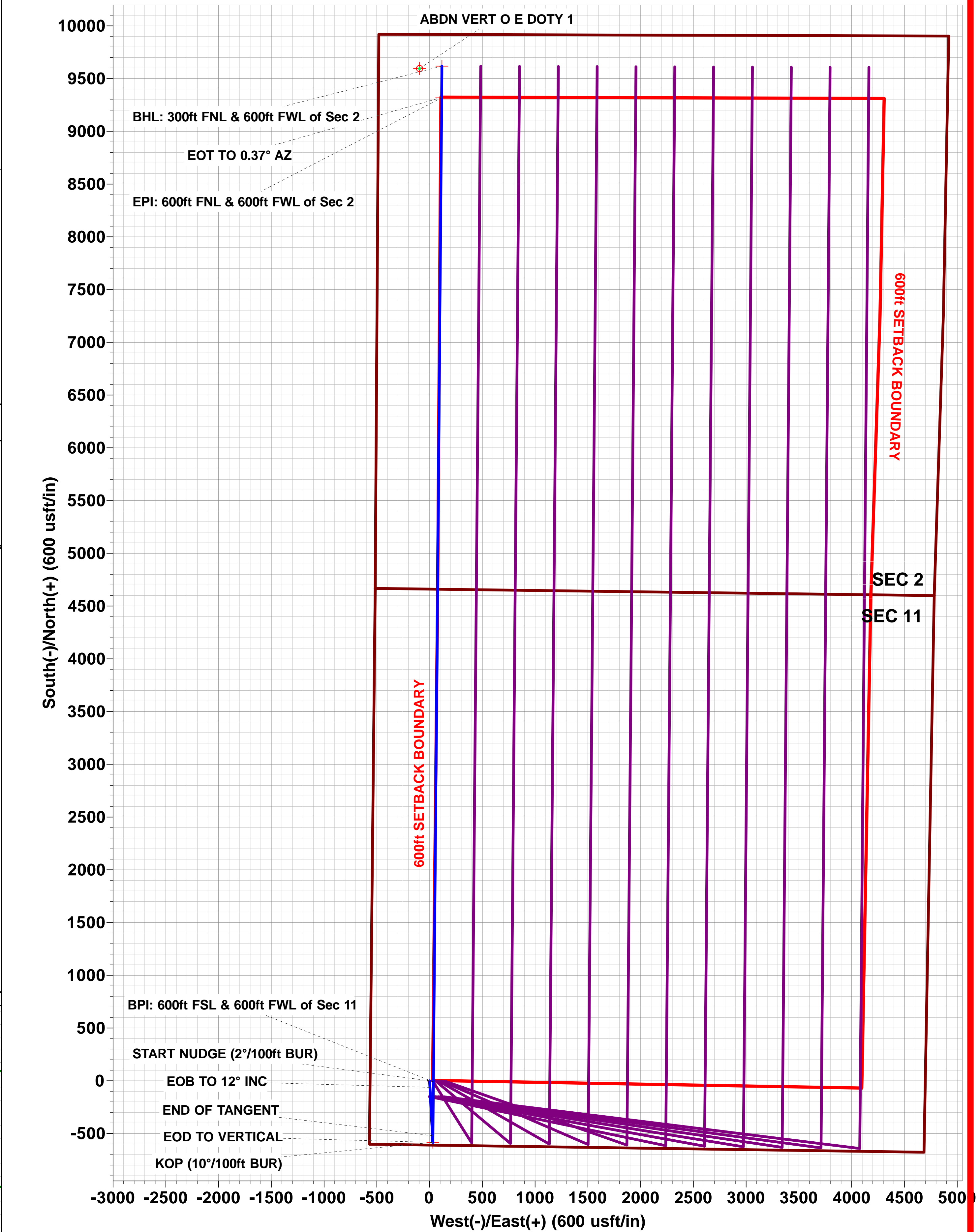
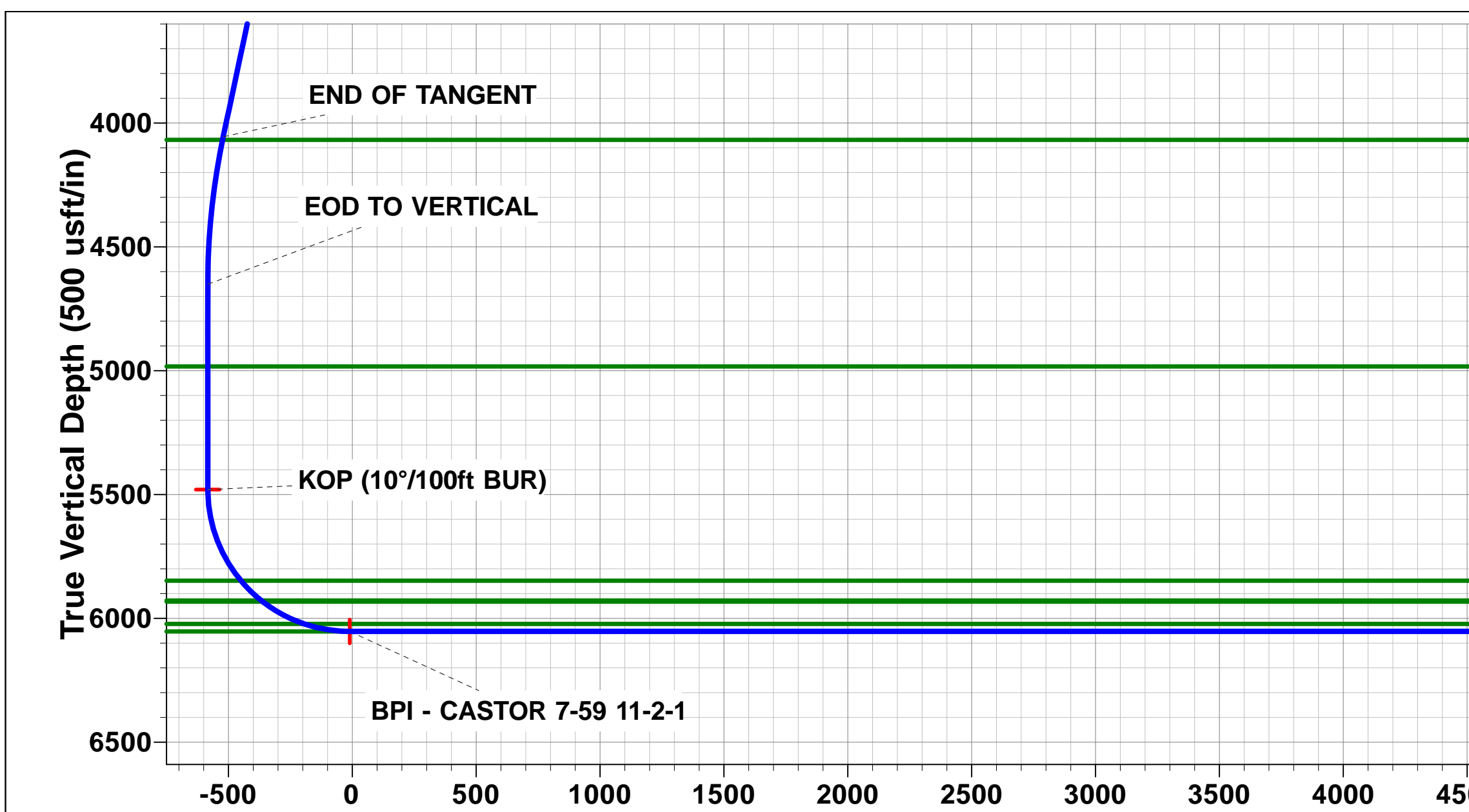
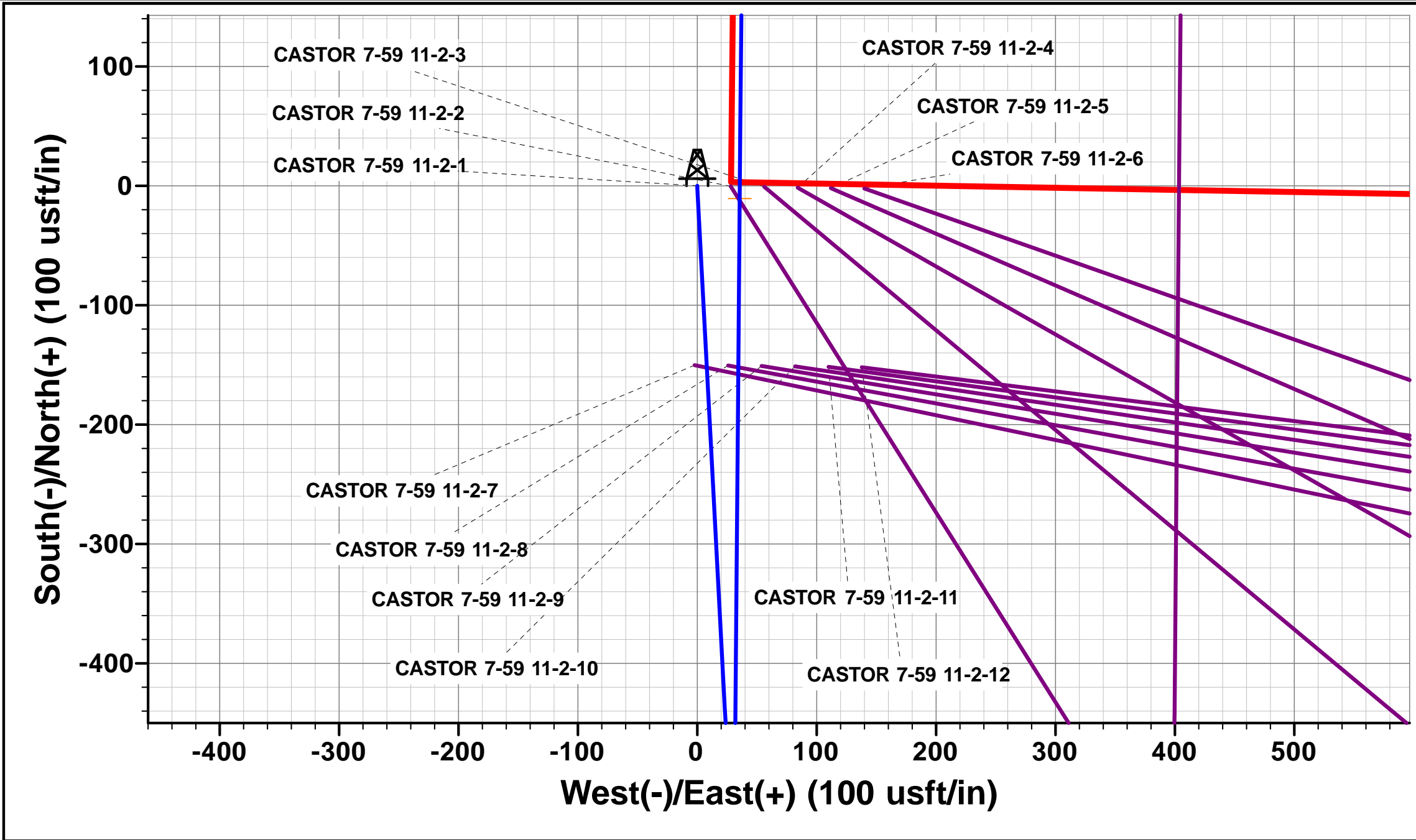
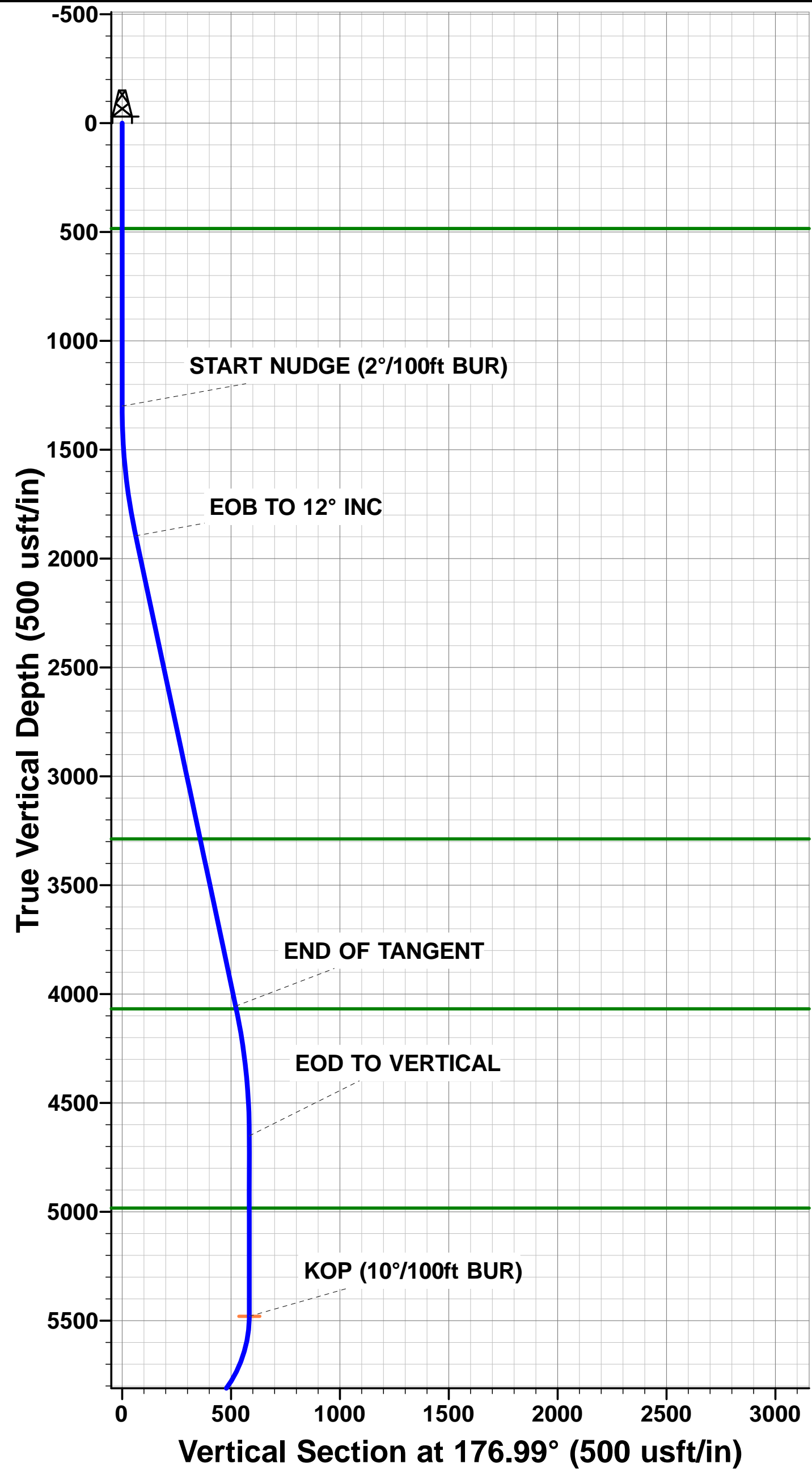
BPI: 600ft FSL & 600ft FWL Sec 11

EPI: 600ft FNL & 600ft FWL Sec 2

BHL: 300ft FNL & 600ft FWL of Sec 2

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - CASTOR 7-59 11-2-1	5480.04	-583.50	30.71	40.582222	-103.952060
BPI - CASTOR 7-59 11-2-1	6053.00	-10.56	35.55	40.583795	-103.952043
EPI - CASTOR 7-59 11-2-1	6053.00	9317.60	114.39	40.609399	-103.951759
BHL - CASTOR 7-59 11-2-1	6053.00	9617.44	116.34	40.610222	-103.951752



Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CASTOR 7-59 11-2-1
Company:	MORNING GUN EXPLORATION	TVD Reference:	KB-EST @ 4973.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4973.00usft
Site:	SW SW SEC. 11 T7N R59W 6th P.M.	North Reference:	True
Well:	CASTOR 7-59 11-2-1	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 T7N R59W 6th P.M.		
Site Position:		Northing:	1,459,188.61 usft
From:	Lat/Long	Easting:	3,432,602.73 usft
Position Uncertainty:	0.00 usft	Slot Radius:	1.10000ft
		Latitude:	40.583442
		Longitude:	-103.942432
		Grid Convergence:	1.01 °

Well	CASTOR 7-59 11-2-1		
Well Position	+N/-S	139.31 usft	Northing:
	+E/-W	-2,705.13 usft	Easting:
Position Uncertainty	0.00 usft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	03/01/2019	7.62	67.08	52,392

Design	PROPOSAL #2			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	29.00	0.00	0.00	0.70

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	-4,973.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,300.00	0.00	0.00	1,300.00	-3,673.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,900.00	12.00	176.99	1,895.62	-3,077.38	-62.52	3.29	2.00	2.00	0.00	176.99	
4,108.17	12.00	176.99	4,055.54	-917.46	-520.99	27.42	0.00	0.00	0.00	0.00	
4,708.17	0.00	0.00	4,651.17	-321.83	-583.50	30.71	2.00	-2.00	0.00	180.00	
5,537.05	0.00	0.00	5,480.04	507.04	-583.50	30.71	0.00	0.00	0.00	0.00	KOP - CASTOR 7-59
6,437.06	90.00	0.48	6,053.00	1,080.00	-10.56	35.55	10.00	10.00	0.05	0.48	BPI - CASTOR 7-59
15,765.55	90.00	0.48	6,053.00	1,080.00	9,317.60	114.39	0.00	0.00	0.00	0.00	EPI - CASTOR 7-59
15,769.34	90.00	0.37	6,053.00	1,080.00	9,321.39	114.42	3.00	-0.02	-3.00	-90.29	
16,065.40	90.00	0.37	6,053.00	1,080.00	9,617.44	116.34	0.00	0.00	0.00	0.00	BHL - CASTOR 7-59

Planning Report

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Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4973.00usft
Site:	SW SW SEC. 11 T7N R59W 6th P.M.	North Reference:	True
Well:	CASTOR 7-59 11-2-1	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: 610ft FSL & 564ft FWL of Sec 11										
0.00	0.00	0.00	0.00	4,973.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,873.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	4,773.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	4,673.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	4,573.00	0.00	0.00	0.00	0.00	0.00	0.00
PIERRE SHALE (BASE OF FOX HILLS)										
484.00	0.00	0.00	484.00	4,489.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	4,473.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	4,373.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	4,273.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	4,173.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	4,073.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	3,973.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	3,873.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	3,773.00	0.00	0.00	0.00	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
1,300.00	0.00	0.00	1,300.00	3,673.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	2.00	176.99	1,399.98	3,573.02	-1.74	0.09	-1.74	2.00	2.00	0.00
1,500.00	4.00	176.99	1,499.84	3,473.16	-6.97	0.37	-6.96	2.00	2.00	0.00
1,600.00	6.00	176.99	1,599.45	3,373.55	-15.67	0.82	-15.66	2.00	2.00	0.00
1,700.00	8.00	176.99	1,698.70	3,274.30	-27.84	1.47	-27.82	2.00	2.00	0.00
1,800.00	10.00	176.99	1,797.47	3,175.53	-43.46	2.29	-43.43	2.00	2.00	0.00
EOB TO 12° INC										
1,900.00	12.00	176.99	1,895.62	3,077.38	-62.52	3.29	-62.47	2.00	2.00	0.00
2,000.00	12.00	176.99	1,993.44	2,979.56	-83.28	4.38	-83.22	0.00	0.00	0.00
2,100.00	12.00	176.99	2,091.25	2,881.75	-104.04	5.48	-103.97	0.00	0.00	0.00
2,200.00	12.00	176.99	2,189.07	2,783.93	-124.80	6.57	-124.71	0.00	0.00	0.00
2,300.00	12.00	176.99	2,286.88	2,686.12	-145.57	7.66	-145.46	0.00	0.00	0.00
2,400.00	12.00	176.99	2,384.70	2,588.30	-166.33	8.75	-166.21	0.00	0.00	0.00
2,500.00	12.00	176.99	2,482.51	2,490.49	-187.09	9.85	-186.96	0.00	0.00	0.00
2,600.00	12.00	176.99	2,580.33	2,392.67	-207.85	10.94	-207.70	0.00	0.00	0.00
2,700.00	12.00	176.99	2,678.14	2,294.86	-228.62	12.03	-228.45	0.00	0.00	0.00
2,800.00	12.00	176.99	2,775.96	2,197.04	-249.38	13.13	-249.20	0.00	0.00	0.00
2,900.00	12.00	176.99	2,873.77	2,099.23	-270.14	14.22	-269.95	0.00	0.00	0.00
3,000.00	12.00	176.99	2,971.59	2,001.41	-290.90	15.31	-290.69	0.00	0.00	0.00
3,100.00	12.00	176.99	3,069.40	1,903.60	-311.67	16.40	-311.44	0.00	0.00	0.00
3,200.00	12.00	176.99	3,167.22	1,805.78	-332.43	17.50	-332.19	0.00	0.00	0.00
3,300.00	12.00	176.99	3,265.03	1,707.97	-353.19	18.59	-352.94	0.00	0.00	0.00
PARKMAN										
3,323.48	12.00	176.99	3,288.00	1,685.00	-358.07	18.85	-357.81	0.00	0.00	0.00
3,400.00	12.00	176.99	3,362.84	1,610.16	-373.95	19.68	-373.68	0.00	0.00	0.00
3,500.00	12.00	176.99	3,460.66	1,512.34	-394.71	20.78	-394.43	0.00	0.00	0.00
3,600.00	12.00	176.99	3,558.47	1,414.53	-415.48	21.87	-415.18	0.00	0.00	0.00
3,700.00	12.00	176.99	3,656.29	1,316.71	-436.24	22.96	-435.93	0.00	0.00	0.00
3,800.00	12.00	176.99	3,754.10	1,218.90	-457.00	24.05	-456.67	0.00	0.00	0.00
3,900.00	12.00	176.99	3,851.92	1,121.08	-477.76	25.15	-477.42	0.00	0.00	0.00
4,000.00	12.00	176.99	3,949.73	1,023.27	-498.53	26.24	-498.17	0.00	0.00	0.00
4,100.00	12.00	176.99	4,047.55	925.45	-519.29	27.33	-518.92	0.00	0.00	0.00
END OF TANGENT										
4,108.17	12.00	176.99	4,055.54	917.46	-520.99	27.42	-520.61	0.00	0.00	0.00
SUSSEX										
4,120.90	11.75	176.99	4,068.00	905.00	-523.60	27.56	-523.23	2.00	-2.00	0.00

Planning Report

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Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4973.00usft
Site:	SW SW SEC. 11 T7N R59W 6th P.M.	North Reference:	True
Well:	CASTOR 7-59 11-2-1	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)
4,200.00	10.16	176.99	4,145.65	827.35	-538.61	28.35	-538.23	2.00	-2.00	0.00
4,300.00	8.16	176.99	4,244.37	728.63	-554.51	29.19	-554.12	2.00	-2.00	0.00
4,400.00	6.16	176.99	4,343.59	629.41	-566.97	29.84	-566.56	2.00	-2.00	0.00
4,500.00	4.16	176.99	4,443.18	529.82	-575.95	30.32	-575.54	2.00	-2.00	0.00
4,600.00	2.16	176.99	4,543.02	429.98	-581.46	30.61	-581.05	2.00	-2.00	0.00
4,700.00	0.16	176.99	4,642.99	330.01	-583.49	30.71	-583.07	2.00	-2.00	0.00
EOD TO VERTICAL										
4,708.17	0.00	176.99	4,651.16	321.84	-583.50	30.71	-583.08	2.00	-2.00	0.00
4,800.00	0.00	0.00	4,742.99	230.01	-583.50	30.71	-583.08	0.00	0.00	0.00
4,900.00	0.00	0.00	4,842.99	130.01	-583.50	30.71	-583.08	0.00	0.00	0.00
5,000.00	0.00	0.00	4,942.99	30.01	-583.50	30.71	-583.08	0.00	0.00	0.00
SHANNON										
5,040.01	0.00	0.00	4,983.00	-10.00	-583.50	30.71	-583.08	0.00	0.00	0.00
5,100.00	0.00	0.00	5,042.99	-69.99	-583.50	30.71	-583.08	0.00	0.00	0.00
5,200.00	0.00	0.00	5,142.99	-169.99	-583.50	30.71	-583.08	0.00	0.00	0.00
5,300.00	0.00	0.00	5,242.99	-269.99	-583.50	30.71	-583.08	0.00	0.00	0.00
5,400.00	0.00	0.00	5,342.99	-369.99	-583.50	30.71	-583.08	0.00	0.00	0.00
5,500.00	0.00	0.00	5,442.99	-469.99	-583.50	30.71	-583.08	0.00	0.00	0.00
KOP (10°/100ft BUR)										
5,537.05	0.00	0.00	5,480.04	-507.04	-583.50	30.71	-583.08	0.00	0.00	0.00
5,600.00	6.30	0.48	5,542.87	-569.87	-580.05	30.74	-579.63	10.00	10.00	0.00
5,700.00	16.30	0.48	5,640.80	-667.80	-560.49	30.91	-560.07	10.00	10.00	0.00
5,800.00	26.30	0.48	5,733.86	-760.86	-524.22	31.21	-523.80	10.00	10.00	0.00
5,900.00	36.30	0.48	5,819.20	-846.20	-472.34	31.65	-471.92	10.00	10.00	0.00
SHARON SPRINGS SHALE										
5,936.62	39.96	0.48	5,848.00	-875.00	-449.74	31.84	-449.32	10.00	10.00	0.00
6,000.00	46.30	0.48	5,894.24	-921.24	-406.43	32.21	-406.01	10.00	10.00	0.00
NIOBRARA FORMATION										
6,051.34	51.43	0.48	5,928.00	-955.00	-367.78	32.54	-367.36	10.00	10.00	0.00
NIOBRARA A CHALK										
6,059.43	52.24	0.48	5,933.00	-960.00	-361.42	32.59	-361.00	10.00	10.00	0.00
6,100.00	56.30	0.48	5,956.69	-983.69	-328.50	32.87	-328.07	10.00	10.00	0.00
6,200.00	66.29	0.48	6,004.66	-1,031.66	-240.90	33.61	-240.47	10.00	10.00	0.00
NIOBRARA B CHALK										
6,250.82	71.38	0.48	6,023.00	-1,050.00	-193.53	34.01	-193.10	10.00	10.00	0.00
6,300.00	76.29	0.48	6,036.69	-1,063.69	-146.31	34.41	-145.88	10.00	10.00	0.00
6,400.00	86.29	0.48	6,051.80	-1,078.80	-47.59	35.24	-47.15	10.00	10.00	0.00
NIOBRARA B LP										
6,437.05	90.00	0.48	6,053.00	-1,080.00	-10.57	35.55	-10.13	10.00	10.00	0.00
BPI: 600ft FSL & 600ft FWL of Sec 11										
6,437.06	90.00	0.48	6,053.00	-1,080.00	-10.55	35.55	-10.12	7.80	7.80	0.00
6,500.00	90.00	0.48	6,053.00	-1,080.00	52.38	36.09	52.82	0.00	0.00	0.00
6,600.00	90.00	0.48	6,053.00	-1,080.00	152.38	36.93	152.82	0.00	0.00	0.00
6,700.00	90.00	0.48	6,053.00	-1,080.00	252.38	37.78	252.82	0.00	0.00	0.00
6,800.00	90.00	0.48	6,053.00	-1,080.00	352.37	38.62	352.82	0.00	0.00	0.00
6,900.00	90.00	0.48	6,053.00	-1,080.00	452.37	39.46	452.82	0.00	0.00	0.00
7,000.00	90.00	0.48	6,052.99	-1,079.99	552.37	40.31	552.82	0.00	0.00	0.00
7,100.00	90.00	0.48	6,052.99	-1,079.99	652.36	41.15	652.82	0.00	0.00	0.00
7,200.00	90.00	0.48	6,052.99	-1,079.99	752.36	42.00	752.82	0.00	0.00	0.00
7,300.00	90.00	0.48	6,052.99	-1,079.99	852.36	42.84	852.81	0.00	0.00	0.00
7,400.00	90.00	0.48	6,052.99	-1,079.99	952.35	43.69	952.81	0.00	0.00	0.00
7,500.00	90.00	0.48	6,052.99	-1,079.99	1,052.35	44.53	1,052.81	0.00	0.00	0.00
7,600.00	90.00	0.48	6,052.99	-1,079.99	1,152.34	45.38	1,152.81	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CASTOR 7-59 11-2-1
Company:	MORNING GUN EXPLORATION	TVD Reference:	KB-EST @ 4973.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4973.00usft
Site:	SW SW SEC. 11 T7N R59W 6th P.M.	North Reference:	True
Well:	CASTOR 7-59 11-2-1	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)
7,700.00	90.00	0.48	6,052.99	-1,079.99	1,252.34	46.22	1,252.81	0.00	0.00	0.00
7,800.00	90.00	0.48	6,052.99	-1,079.99	1,352.34	47.07	1,352.81	0.00	0.00	0.00
7,900.00	90.00	0.48	6,052.99	-1,079.99	1,452.33	47.91	1,452.81	0.00	0.00	0.00
8,000.00	90.00	0.48	6,052.98	-1,079.98	1,552.33	48.76	1,552.81	0.00	0.00	0.00
8,100.00	90.00	0.48	6,052.98	-1,079.98	1,652.33	49.60	1,652.81	0.00	0.00	0.00
8,200.00	90.00	0.48	6,052.98	-1,079.98	1,752.32	50.45	1,752.81	0.00	0.00	0.00
8,300.00	90.00	0.48	6,052.98	-1,079.98	1,852.32	51.29	1,852.81	0.00	0.00	0.00
8,400.00	90.00	0.48	6,052.98	-1,079.98	1,952.32	52.14	1,952.81	0.00	0.00	0.00
8,500.00	90.00	0.48	6,052.98	-1,079.98	2,052.31	52.98	2,052.81	0.00	0.00	0.00
8,600.00	90.00	0.48	6,052.98	-1,079.98	2,152.31	53.83	2,152.81	0.00	0.00	0.00
8,700.00	90.00	0.48	6,052.98	-1,079.98	2,252.31	54.67	2,252.80	0.00	0.00	0.00
8,800.00	90.00	0.48	6,052.98	-1,079.98	2,352.30	55.52	2,352.80	0.00	0.00	0.00
8,900.00	90.00	0.48	6,052.98	-1,079.98	2,452.30	56.36	2,452.80	0.00	0.00	0.00
9,000.00	90.00	0.48	6,052.97	-1,079.97	2,552.29	57.21	2,552.80	0.00	0.00	0.00
9,100.00	90.00	0.48	6,052.97	-1,079.97	2,652.29	58.05	2,652.80	0.00	0.00	0.00
9,200.00	90.00	0.48	6,052.97	-1,079.97	2,752.29	58.90	2,752.80	0.00	0.00	0.00
9,300.00	90.00	0.48	6,052.97	-1,079.97	2,852.28	59.74	2,852.80	0.00	0.00	0.00
9,400.00	90.00	0.48	6,052.97	-1,079.97	2,952.28	60.59	2,952.80	0.00	0.00	0.00
9,500.00	90.00	0.48	6,052.97	-1,079.97	3,052.28	61.43	3,052.80	0.00	0.00	0.00
9,600.00	90.00	0.48	6,052.97	-1,079.97	3,152.27	62.28	3,152.80	0.00	0.00	0.00
9,700.00	90.00	0.48	6,052.97	-1,079.97	3,252.27	63.12	3,252.80	0.00	0.00	0.00
9,800.00	90.00	0.48	6,052.97	-1,079.97	3,352.27	63.97	3,352.80	0.00	0.00	0.00
9,900.00	90.00	0.48	6,052.97	-1,079.97	3,452.26	64.81	3,452.80	0.00	0.00	0.00
10,000.00	90.00	0.48	6,052.96	-1,079.96	3,552.26	65.66	3,552.80	0.00	0.00	0.00
10,100.00	90.00	0.48	6,052.96	-1,079.96	3,652.26	66.50	3,652.79	0.00	0.00	0.00
10,200.00	90.00	0.48	6,052.96	-1,079.96	3,752.25	67.35	3,752.79	0.00	0.00	0.00
10,300.00	90.00	0.48	6,052.96	-1,079.96	3,852.25	68.19	3,852.79	0.00	0.00	0.00
10,400.00	90.00	0.48	6,052.96	-1,079.96	3,952.24	69.04	3,952.79	0.00	0.00	0.00
10,500.00	90.00	0.48	6,052.96	-1,079.96	4,052.24	69.88	4,052.79	0.00	0.00	0.00
10,600.00	90.00	0.48	6,052.96	-1,079.96	4,152.24	70.73	4,152.79	0.00	0.00	0.00
10,700.00	90.00	0.48	6,052.96	-1,079.96	4,252.23	71.57	4,252.79	0.00	0.00	0.00
10,800.00	90.00	0.48	6,052.96	-1,079.96	4,352.23	72.42	4,352.79	0.00	0.00	0.00
10,900.00	90.00	0.48	6,052.96	-1,079.96	4,452.23	73.26	4,452.79	0.00	0.00	0.00
11,000.00	90.00	0.48	6,052.95	-1,079.95	4,552.22	74.11	4,552.79	0.00	0.00	0.00
11,100.00	90.00	0.48	6,052.95	-1,079.95	4,652.22	74.95	4,652.79	0.00	0.00	0.00
11,200.00	90.00	0.48	6,052.95	-1,079.95	4,752.22	75.80	4,752.79	0.00	0.00	0.00
11,300.00	90.00	0.48	6,052.95	-1,079.95	4,852.21	76.64	4,852.79	0.00	0.00	0.00
11,400.00	90.00	0.48	6,052.95	-1,079.95	4,952.21	77.48	4,952.79	0.00	0.00	0.00
11,500.00	90.00	0.48	6,052.95	-1,079.95	5,052.21	78.33	5,052.78	0.00	0.00	0.00
11,600.00	90.00	0.48	6,052.95	-1,079.95	5,152.20	79.17	5,152.78	0.00	0.00	0.00
11,700.00	90.00	0.48	6,052.95	-1,079.95	5,252.20	80.02	5,252.78	0.00	0.00	0.00
11,800.00	90.00	0.48	6,052.95	-1,079.95	5,352.19	80.86	5,352.78	0.00	0.00	0.00
11,900.00	90.00	0.48	6,052.95	-1,079.95	5,452.19	81.71	5,452.78	0.00	0.00	0.00
12,000.00	90.00	0.48	6,052.94	-1,079.94	5,552.19	82.55	5,552.78	0.00	0.00	0.00
12,100.00	90.00	0.48	6,052.94	-1,079.94	5,652.18	83.40	5,652.78	0.00	0.00	0.00
12,200.00	90.00	0.48	6,052.94	-1,079.94	5,752.18	84.24	5,752.78	0.00	0.00	0.00
12,300.00	90.00	0.48	6,052.94	-1,079.94	5,852.18	85.09	5,852.78	0.00	0.00	0.00
12,400.00	90.00	0.48	6,052.94	-1,079.94	5,952.17	85.93	5,952.78	0.00	0.00	0.00
12,500.00	90.00	0.48	6,052.94	-1,079.94	6,052.17	86.78	6,052.78	0.00	0.00	0.00
12,600.00	90.00	0.48	6,052.94	-1,079.94	6,152.17	87.62	6,152.78	0.00	0.00	0.00
12,700.00	90.00	0.48	6,052.94	-1,079.94	6,252.16	88.47	6,252.78	0.00	0.00	0.00
12,800.00	90.00	0.48	6,052.94	-1,079.94	6,352.16	89.31	6,352.78	0.00	0.00	0.00
12,900.00	90.00	0.48	6,052.94	-1,079.94	6,452.16	90.16	6,452.78	0.00	0.00	0.00
13,000.00	90.00	0.48	6,052.94	-1,079.94	6,552.15	91.00	6,552.77	0.00	0.00	0.00

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Company:	MORNING GUN EXPLORATION	TVD Reference:	KB-EST @ 4973.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4973.00usft
Site:	SW SW SEC. 11 T7N R59W 6th P.M.	North Reference:	True
Well:	CASTOR 7-59 11-2-1	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)
13,100.00	90.00	0.48	6,052.93	-1,079.93	6,652.15	91.85	6,652.77	0.00	0.00	0.00
13,200.00	90.00	0.48	6,052.93	-1,079.93	6,752.14	92.69	6,752.77	0.00	0.00	0.00
13,300.00	90.00	0.48	6,052.93	-1,079.93	6,852.14	93.54	6,852.77	0.00	0.00	0.00
13,400.00	90.00	0.48	6,052.93	-1,079.93	6,952.14	94.38	6,952.77	0.00	0.00	0.00
13,500.00	90.00	0.48	6,052.93	-1,079.93	7,052.13	95.23	7,052.77	0.00	0.00	0.00
13,600.00	90.00	0.48	6,052.93	-1,079.93	7,152.13	96.07	7,152.77	0.00	0.00	0.00
13,700.00	90.00	0.48	6,052.93	-1,079.93	7,252.13	96.92	7,252.77	0.00	0.00	0.00
13,800.00	90.00	0.48	6,052.93	-1,079.93	7,352.12	97.76	7,352.77	0.00	0.00	0.00
13,900.00	90.00	0.48	6,052.93	-1,079.93	7,452.12	98.61	7,452.77	0.00	0.00	0.00
14,000.00	90.00	0.48	6,052.93	-1,079.93	7,552.12	99.45	7,552.77	0.00	0.00	0.00
14,100.00	90.00	0.48	6,052.92	-1,079.92	7,652.11	100.30	7,652.77	0.00	0.00	0.00
14,200.00	90.00	0.48	6,052.92	-1,079.92	7,752.11	101.14	7,752.77	0.00	0.00	0.00
14,300.00	90.00	0.48	6,052.92	-1,079.92	7,852.11	101.99	7,852.77	0.00	0.00	0.00
14,400.00	90.00	0.48	6,052.92	-1,079.92	7,952.10	102.83	7,952.76	0.00	0.00	0.00
14,500.00	90.00	0.48	6,052.92	-1,079.92	8,052.10	103.68	8,052.76	0.00	0.00	0.00
14,600.00	90.00	0.48	6,052.92	-1,079.92	8,152.09	104.52	8,152.76	0.00	0.00	0.00
14,700.00	90.00	0.48	6,052.92	-1,079.92	8,252.09	105.37	8,252.76	0.00	0.00	0.00
14,800.00	90.00	0.48	6,052.92	-1,079.92	8,352.09	106.21	8,352.76	0.00	0.00	0.00
14,900.00	90.00	0.48	6,052.92	-1,079.92	8,452.08	107.06	8,452.76	0.00	0.00	0.00
15,000.00	90.00	0.48	6,052.92	-1,079.92	8,552.08	107.90	8,552.76	0.00	0.00	0.00
15,100.00	90.00	0.48	6,052.91	-1,079.91	8,652.08	108.75	8,652.76	0.00	0.00	0.00
15,200.00	90.00	0.48	6,052.91	-1,079.91	8,752.07	109.59	8,752.76	0.00	0.00	0.00
15,300.00	90.00	0.48	6,052.91	-1,079.91	8,852.07	110.44	8,852.76	0.00	0.00	0.00
15,400.00	90.00	0.48	6,052.91	-1,079.91	8,952.07	111.28	8,952.76	0.00	0.00	0.00
15,500.00	90.00	0.48	6,052.91	-1,079.91	9,052.06	112.13	9,052.76	0.00	0.00	0.00
15,600.00	90.00	0.48	6,052.91	-1,079.91	9,152.06	112.97	9,152.76	0.00	0.00	0.00
15,700.00	90.00	0.48	6,052.91	-1,079.91	9,252.06	113.82	9,252.76	0.00	0.00	0.00
EPI: 600ft FNL & 600ft FWL of Sec 2										
15,765.55	90.00	0.48	6,053.00	-1,080.00	9,317.60	114.39	9,318.30	0.00	0.00	0.00
EOT TO 0.37° AZ										
15,769.34	90.00	0.37	6,053.00	-1,080.00	9,321.39	114.42	9,322.09	3.00	-0.02	-3.00
15,800.00	90.00	0.37	6,053.00	-1,080.00	9,352.05	114.62	9,352.75	0.00	0.00	0.00
15,900.00	90.00	0.37	6,053.00	-1,080.00	9,452.05	115.27	9,452.75	0.00	0.00	0.00
16,000.00	90.00	0.37	6,053.00	-1,080.00	9,552.05	115.91	9,552.75	0.00	0.00	0.00
BHL: 300ft FNL & 600ft FWL of Sec 2										
16,065.40	90.00	0.37	6,053.00	-1,080.00	9,617.44	116.34	9,618.15	0.00	0.00	0.00

Planning Report

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Company:	MORNING GUN EXPLORATION	TVD Reference:	KB-EST @ 4973.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4973.00usft
Site:	SW SW SEC. 11 T7N R59W 6th P.M.	North Reference:	True
Well:	CASTOR 7-59 11-2-1	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Formations					
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
484.00	484.00	PIERRE SHALE (BASE OF FOX HI			
3,323.48	3,288.00	PARKMAN			
4,120.90	4,068.00	SUSSEX			
5,040.01	4,983.00	SHANNON			
5,936.62	5,848.00	SHARON SPRINGS SHALE			
6,051.34	5,928.00	NIOBRARA FORMATION			
6,059.43	5,933.00	NIOBRARA A CHALK			
6,250.82	6,023.00	NIOBRARA B CHALK			
6,437.05	6,053.00	NIOBRARA B 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: 610ft FSL & 564ft FWL of Sec 11
1,300.00	1,300.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1,900.00	1,895.62	-62.52	3.29	EOB TO 12° INC
4,108.17	4,055.54	-520.99	27.42	END OF TANGENT
4,708.17	4,651.16	-583.50	30.71	EOD TO VERTICAL
5,537.05	5,480.04	-583.50	30.71	KOP (10°/100ft BUR)
6,437.06	6,053.00	-10.55	35.55	BPI: 600ft FSL & 600ft FWL of Sec 11
15,765.55	6,053.00	9,317.60	114.39	EPI: 600ft FNL & 600ft FWL of Sec 2
15,769.34	6,053.00	9,321.39	114.42	EOT TO 0.37° AZ
16,065.40	6,053.00	9,617.44	116.34	BHL: 300ft FNL & 600ft FWL of Sec 2