



MORNING GUN EXPLORATION

WELD COUNTY, COLORADO (NAD 83)

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

CASTOR 7-59 11-2-11

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 11-2-11
ORIGINAL WELLBORE
PROPOSAL #2

ANNOTATIONS									
TVD	MD	Inc	Azi	+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 & 676ft FWL of Sec 11	
200.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (6"/100ft BUR)	
798.31	846.60	38.80	97.67	-28.13	208.79	47.45	210.67	EOB TO 38.8° INC	
4791.74	5970.42	38.80	97.67	-456.74	3390.36	770.58	3420.98	END OF TANGENT	
5390.04	6617.01	0.00	97.67	-484.86	3599.14	818.03	3631.65	EOD TO VERTICAL	
5560.04	6787.01	0.00	0.00	-484.86	3599.14	818.03	3631.65	KOP (10"/100ft BUR)	
6133.00	7687.01	90.00	0.48	88.07	3603.98	1355.72	4204.61	BPI: 600ft FSL & 982ft FEL of Sec 11	
6133.00	17057.42	90.00	0.48	9458.15	3683.13	10149.44	13575.02	EPI: 600ft FNL & 1115ft FEL of Sec 2	
6133.00	17059.54	90.00	0.42	9460.27	3683.14	10151.43	13577.14	EOT TO 0.42° AZ	
6133.00	17357.26	90.00	0.41	9757.98	3685.30	10430.70	13874.86	BHL: 300ft FNL & 1119ft FEL of Sec 2	

PROPOSED LOCAL COORDINATES:

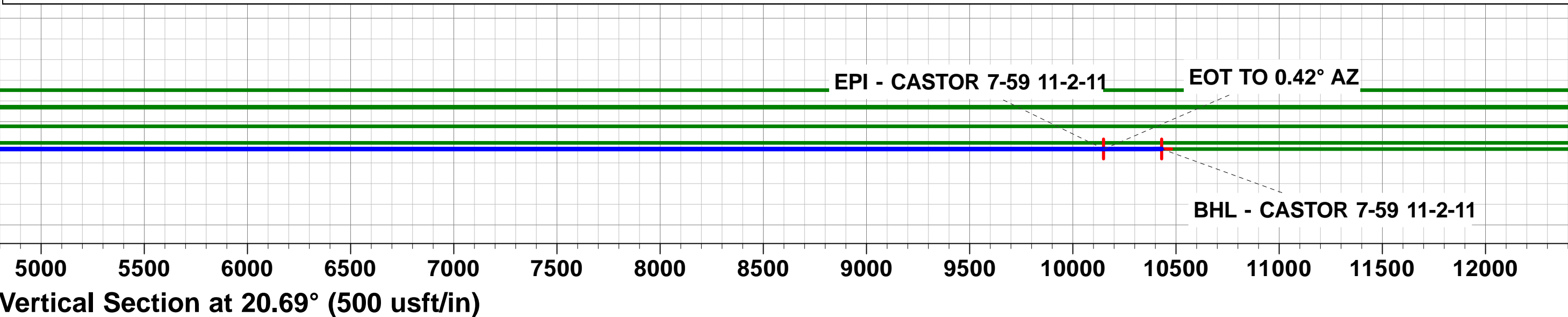
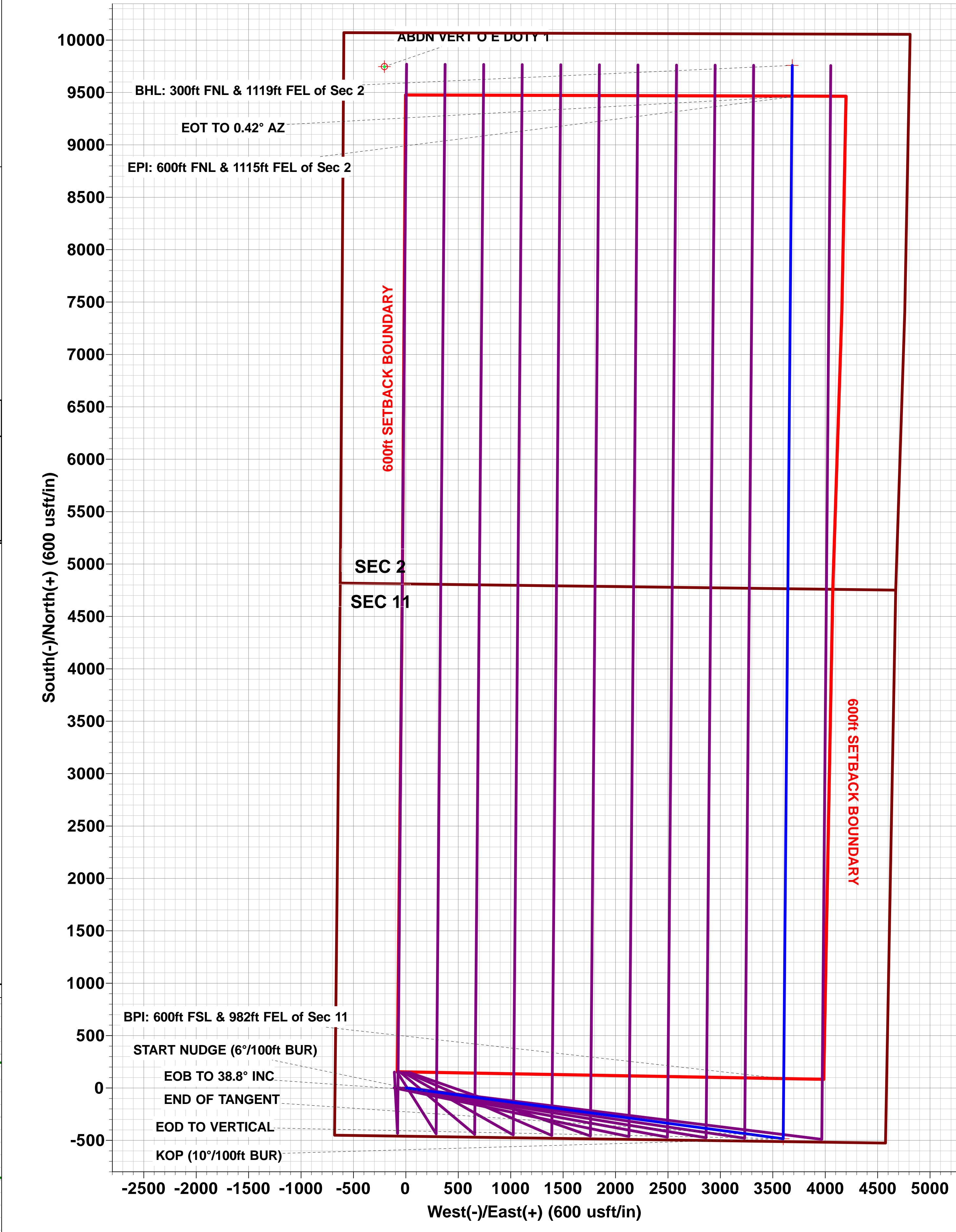
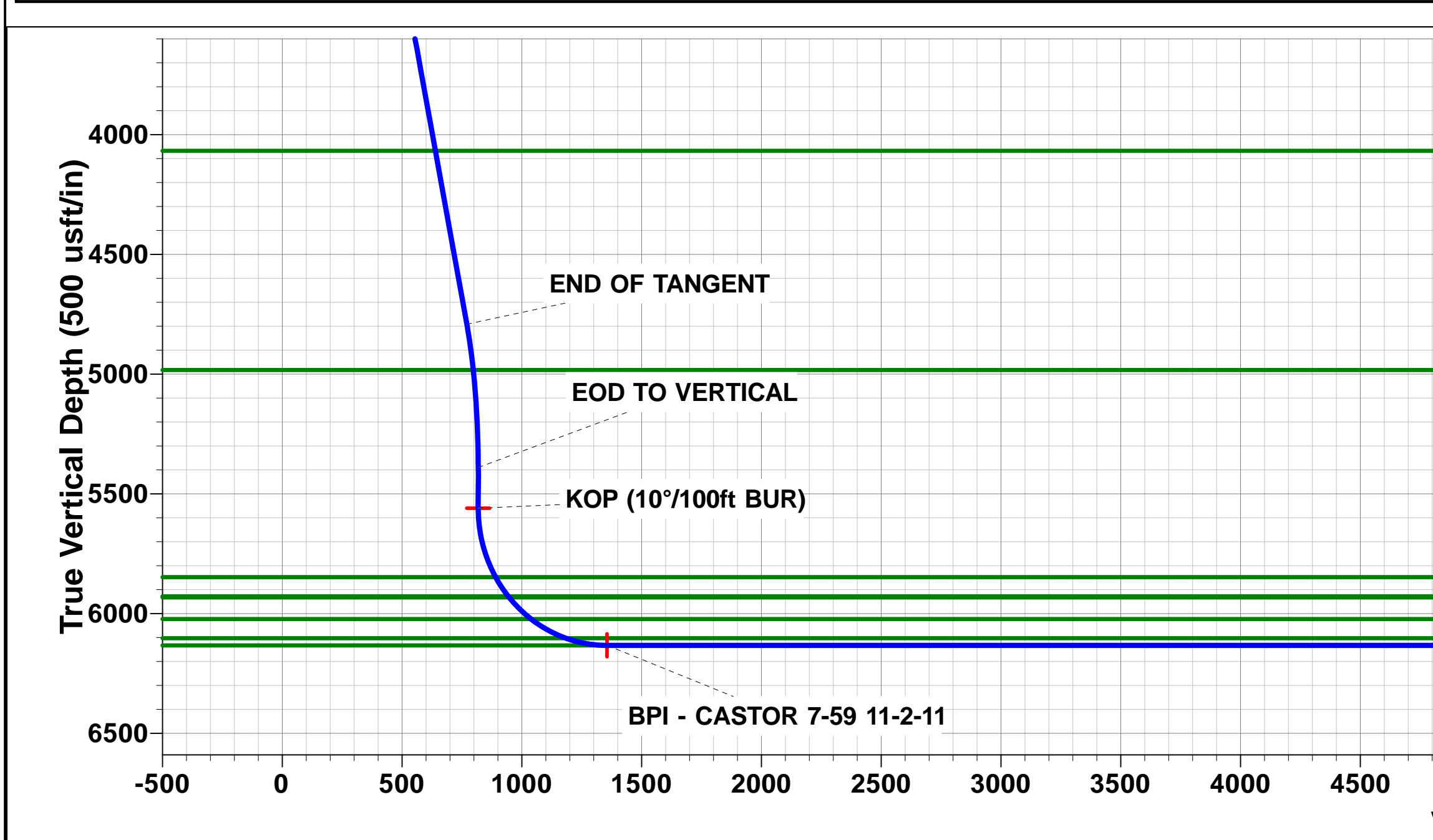
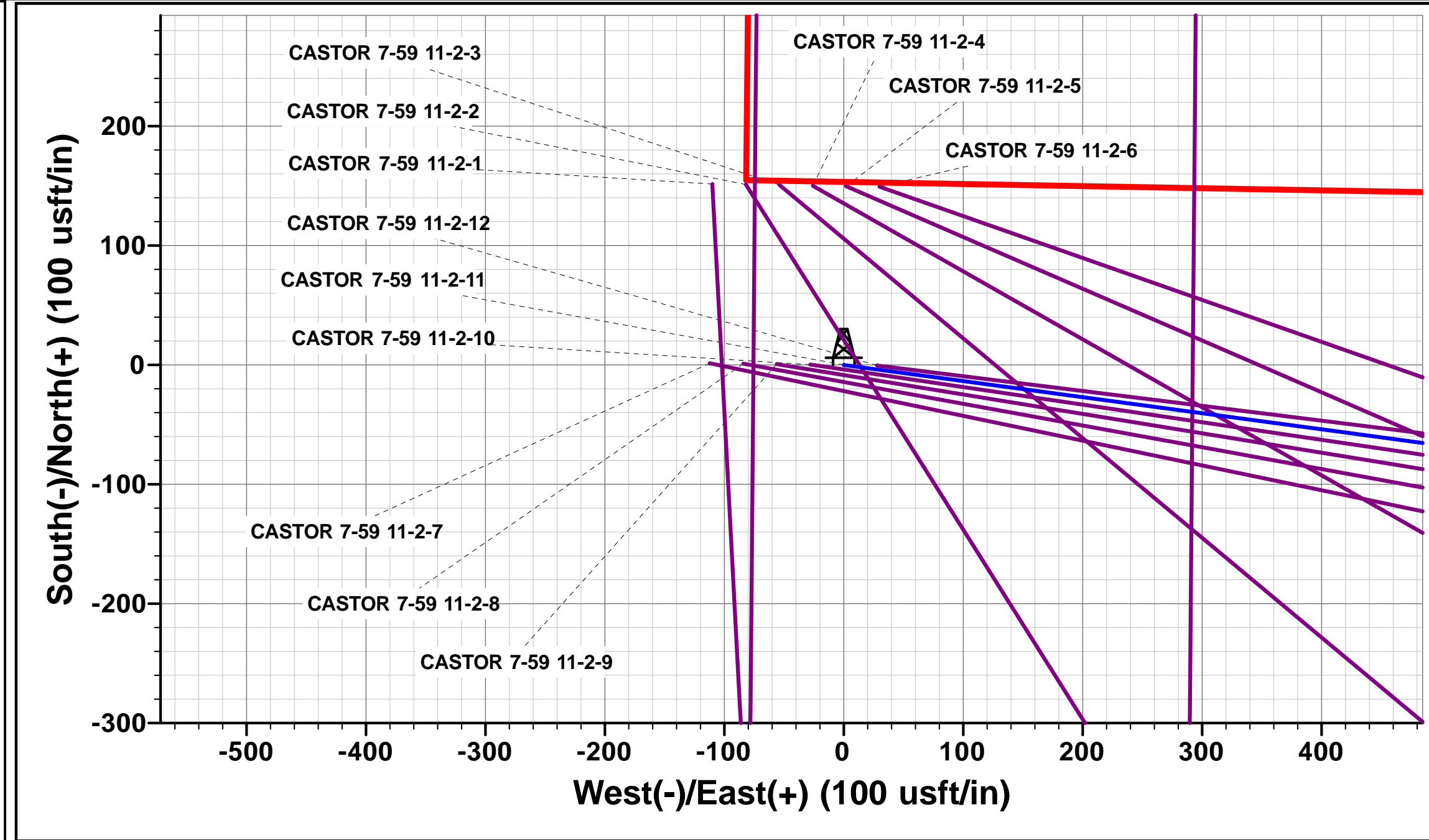
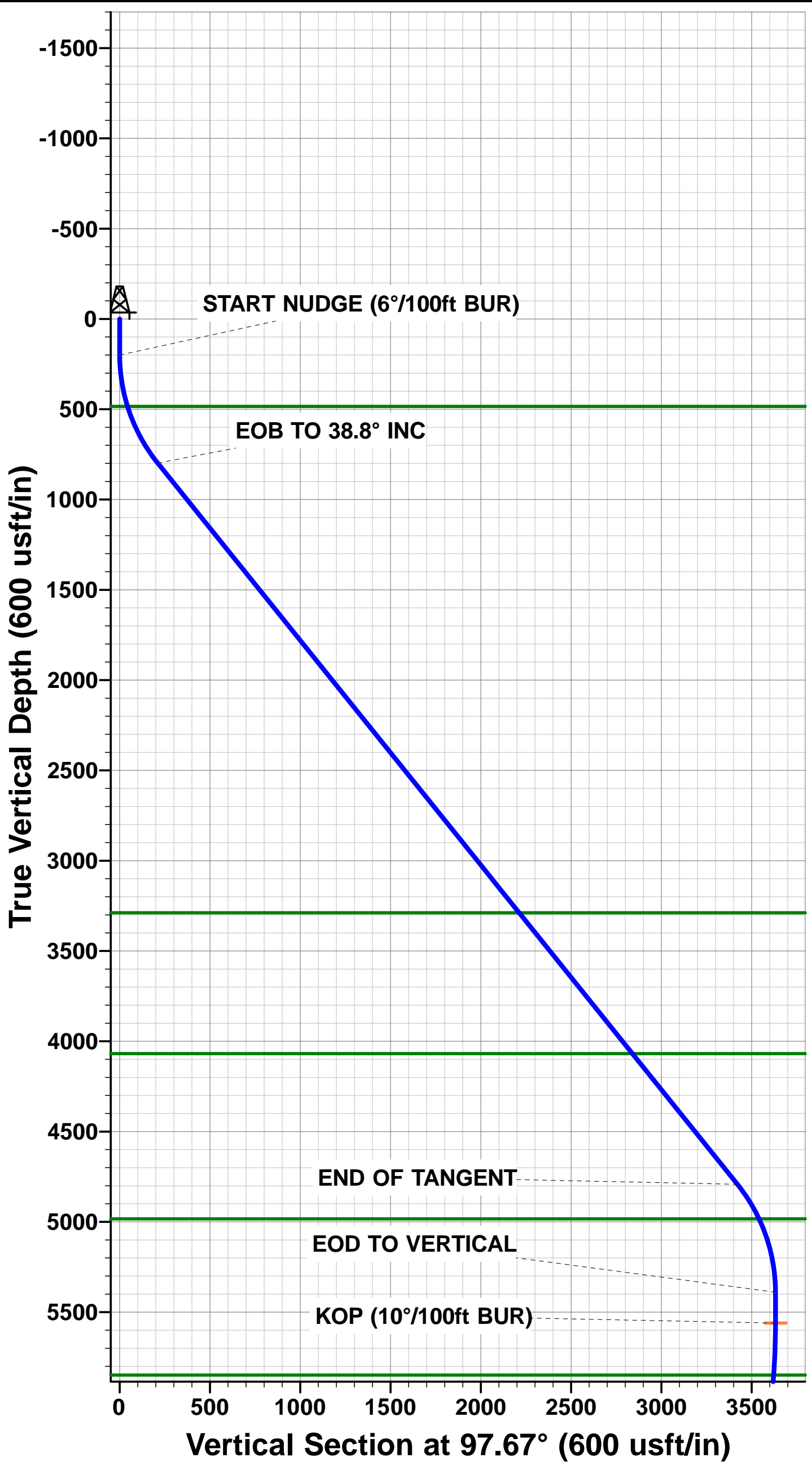
SHL: 460ft FSL & 676ft FWL Sec 11

BPI: 600ft FSL & 982ft FEL Sec 11

EPI: 600ft FNL & 1115ft FEL Sec 2

BHL: 300ft FNL & 1119ft FEL of Sec 2

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - CASTOR 7-59 11-2-11	5560.04	-484.86	3599.14	40.582076	-103.938818
BPI - CASTOR 7-59 11-2-11	6133.00	88.07	3603.98	40.583649	-103.938800
EPI - CASTOR 7-59 11-2-11	6133.00	9458.14	3683.13	40.609368	-103.938510
BHL - CASTOR 7-59 11-2-11	6133.00	9757.98	3685.30	40.610191	-103.938502



Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CASTOR 7-59 11-2-11
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 11-2-11	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 11-2-11		
Well Position	+N/-S	-12.26 usft	Northing:
	+E/-W	-2,595.15 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	10/09/2018	7.65	67.09	52,428

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 (°)
	6,133.00	0.00	0.00	20.69

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	
200.00	0.00	0.00	200.00	-4,773.00	0.00	0.00	0.00	0.00	0.00	0.00	
846.60	38.80	97.67	798.31	-4,174.69	-28.13	208.79	6.00	6.00	0.00	97.67	
5,970.42	38.80	97.67	4,791.73	-181.27	-456.74	3,390.35	0.00	0.00	0.00	0.00	
6,617.01	0.00	0.00	5,390.04	417.04	-484.86	3,599.14	6.00	-6.00	0.00	180.00	
6,787.01	0.00	0.00	5,560.04	587.04	-484.86	3,599.14	0.00	0.00	0.00	0.00	KOP - CASTOR 7-59
7,687.01	90.00	0.48	6,133.00	1,160.00	88.07	3,603.98	10.00	10.00	0.05	0.48	BPI - CASTOR 7-59
17,057.42	90.00	0.48	6,133.00	1,160.00	9,458.14	3,683.13	0.00	0.00	0.00	0.00	EPI - CASTOR 7-59
17,059.54	90.00	0.42	6,133.00	1,160.00	9,460.26	3,683.14	3.00	0.00	-3.00	-90.00	
17,357.26	90.00	0.41	6,133.00	1,160.00	9,757.98	3,685.30	0.00	0.00	0.00	-88.16	BHL - CASTOR 7-59

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 11-2-11	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 & 676ft 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
START NUDGE (6°/100ft BUR)										
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	6.00	97.67	299.82	4,673.18	-0.70	5.18	1.18	6.00	6.00	0.00
400.00	12.00	97.67	398.54	4,574.46	-2.79	20.68	4.70	6.00	6.00	0.00
PIERRE SHALE (BASE OF FOX HILLS)										
488.36	17.30	97.67	484.00	4,489.00	-5.77	42.82	9.73	6.00	6.00	0.00
500.00	18.00	97.67	495.09	4,477.91	-6.24	46.32	10.53	6.00	6.00	0.00
600.00	24.00	97.67	588.40	4,384.60	-11.02	81.82	18.60	6.00	6.00	0.00
700.00	30.00	97.67	677.46	4,295.54	-17.08	126.79	28.82	6.00	6.00	0.00
800.00	36.00	97.67	761.29	4,211.71	-24.35	180.74	41.08	6.00	6.00	0.00
EOB TO 38.8° INC										
846.60	38.80	97.67	798.31	4,174.69	-28.13	208.79	47.45	6.00	6.00	0.00
900.00	38.80	97.67	839.93	4,133.07	-32.59	241.95	54.99	0.00	0.00	0.00
1,000.00	38.80	97.67	917.87	4,055.13	-40.96	304.04	69.10	0.00	0.00	0.00
1,100.00	38.80	97.67	995.81	3,977.19	-49.32	366.13	83.22	0.00	0.00	0.00
1,200.00	38.80	97.67	1,073.75	3,899.25	-57.69	428.23	97.33	0.00	0.00	0.00
1,300.00	38.80	97.67	1,151.68	3,821.32	-66.05	490.32	111.44	0.00	0.00	0.00
1,400.00	38.80	97.67	1,229.62	3,743.38	-74.42	552.42	125.56	0.00	0.00	0.00
1,500.00	38.80	97.67	1,307.56	3,665.44	-82.78	614.51	139.67	0.00	0.00	0.00
1,600.00	38.80	97.67	1,385.50	3,587.50	-91.15	676.60	153.78	0.00	0.00	0.00
1,700.00	38.80	97.67	1,463.44	3,509.56	-99.51	738.70	167.89	0.00	0.00	0.00
1,800.00	38.80	97.67	1,541.38	3,431.62	-107.88	800.79	182.01	0.00	0.00	0.00
1,900.00	38.80	97.67	1,619.31	3,353.69	-116.24	862.88	196.12	0.00	0.00	0.00
2,000.00	38.80	97.67	1,697.25	3,275.75	-124.61	924.98	210.23	0.00	0.00	0.00
2,100.00	38.80	97.67	1,775.19	3,197.81	-132.98	987.07	224.35	0.00	0.00	0.00
2,200.00	38.80	97.67	1,853.13	3,119.87	-141.34	1,049.16	238.46	0.00	0.00	0.00
2,300.00	38.80	97.67	1,931.07	3,041.93	-149.71	1,111.26	252.57	0.00	0.00	0.00
2,400.00	38.80	97.67	2,009.01	2,963.99	-158.07	1,173.35	266.68	0.00	0.00	0.00
2,500.00	38.80	97.67	2,086.94	2,886.06	-166.44	1,235.45	280.80	0.00	0.00	0.00
2,600.00	38.80	97.67	2,164.88	2,808.12	-174.80	1,297.54	294.91	0.00	0.00	0.00
2,700.00	38.80	97.67	2,242.82	2,730.18	-183.17	1,359.63	309.02	0.00	0.00	0.00
2,800.00	38.80	97.67	2,320.76	2,652.24	-191.53	1,421.73	323.14	0.00	0.00	0.00
2,900.00	38.80	97.67	2,398.70	2,574.30	-199.90	1,483.82	337.25	0.00	0.00	0.00
3,000.00	38.80	97.67	2,476.64	2,496.36	-208.26	1,545.91	351.36	0.00	0.00	0.00
3,100.00	38.80	97.67	2,554.58	2,418.42	-216.63	1,608.01	365.48	0.00	0.00	0.00
3,200.00	38.80	97.67	2,632.51	2,340.49	-224.99	1,670.10	379.59	0.00	0.00	0.00
3,300.00	38.80	97.67	2,710.45	2,262.55	-233.36	1,732.20	393.70	0.00	0.00	0.00
3,400.00	38.80	97.67	2,788.39	2,184.61	-241.72	1,794.29	407.81	0.00	0.00	0.00
3,500.00	38.80	97.67	2,866.33	2,106.67	-250.09	1,856.38	421.93	0.00	0.00	0.00
3,600.00	38.80	97.67	2,944.27	2,028.73	-258.45	1,918.48	436.04	0.00	0.00	0.00
3,700.00	38.80	97.67	3,022.21	1,950.79	-266.82	1,980.57	450.15	0.00	0.00	0.00
3,800.00	38.80	97.67	3,100.14	1,872.86	-275.18	2,042.66	464.27	0.00	0.00	0.00
3,900.00	38.80	97.67	3,178.08	1,794.92	-283.55	2,104.76	478.38	0.00	0.00	0.00
4,000.00	38.80	97.67	3,256.02	1,716.98	-291.91	2,166.85	492.49	0.00	0.00	0.00
PARKMAN										
4,041.03	38.80	97.67	3,288.00	1,685.00	-295.34	2,192.33	498.28	0.00	0.00	0.00
4,100.00	38.80	97.67	3,333.96	1,639.04	-300.28	2,228.94	506.60	0.00	0.00	0.00
4,200.00	38.80	97.67	3,411.90	1,561.10	-308.64	2,291.04	520.72	0.00	0.00	0.00
4,300.00	38.80	97.67	3,489.84	1,483.16	-317.01	2,353.13	534.83	0.00	0.00	0.00
4,400.00	38.80	97.67	3,567.78	1,405.22	-325.37	2,415.23	548.94	0.00	0.00	0.00
4,500.00	38.80	97.67	3,645.71	1,327.29	-333.74	2,477.32	563.06	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 11-2-11	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)
4,600.00	38.80	97.67	3,723.65	1,249.35	-342.10	2,539.41	577.17	0.00	0.00	0.00
4,700.00	38.80	97.67	3,801.59	1,171.41	-350.47	2,601.51	591.28	0.00	0.00	0.00
4,800.00	38.80	97.67	3,879.53	1,093.47	-358.83	2,663.60	605.40	0.00	0.00	0.00
4,900.00	38.80	97.67	3,957.47	1,015.53	-367.20	2,725.69	619.51	0.00	0.00	0.00
5,000.00	38.80	97.67	4,035.41	937.59	-375.56	2,787.79	633.62	0.00	0.00	0.00
SUSSEX										
5,041.82	38.80	97.67	4,068.00	905.00	-379.06	2,813.76	639.52	0.00	0.00	0.00
5,100.00	38.80	97.67	4,113.34	859.66	-383.93	2,849.88	647.73	0.00	0.00	0.00
5,200.00	38.80	97.67	4,191.28	781.72	-392.29	2,911.98	661.85	0.00	0.00	0.00
5,300.00	38.80	97.67	4,269.22	703.78	-400.66	2,974.07	675.96	0.00	0.00	0.00
5,400.00	38.80	97.67	4,347.16	625.84	-409.02	3,036.16	690.07	0.00	0.00	0.00
5,500.00	38.80	97.67	4,425.10	547.90	-417.39	3,098.26	704.19	0.00	0.00	0.00
5,600.00	38.80	97.67	4,503.04	469.96	-425.75	3,160.35	718.30	0.00	0.00	0.00
5,700.00	38.80	97.67	4,580.97	392.03	-434.12	3,222.44	732.41	0.00	0.00	0.00
5,800.00	38.80	97.67	4,658.91	314.09	-442.48	3,284.54	746.52	0.00	0.00	0.00
5,900.00	38.80	97.67	4,736.85	236.15	-450.85	3,346.63	760.64	0.00	0.00	0.00
END OF TANGENT										
5,970.42	38.80	97.67	4,791.74	181.26	-456.74	3,390.36	770.58	0.00	0.00	0.00
6,000.00	37.02	97.67	4,815.07	157.93	-459.16	3,408.37	774.67	6.00	-6.00	0.00
6,100.00	31.02	97.67	4,897.92	75.08	-466.63	3,463.79	787.27	6.00	-6.00	0.00
SHANNON										
6,196.51	25.23	97.67	4,983.00	-10.00	-472.70	3,508.86	797.51	6.00	-6.00	0.00
6,200.00	25.02	97.67	4,986.16	-13.16	-472.90	3,510.33	797.84	6.00	-6.00	0.00
6,300.00	19.02	97.67	5,078.82	-105.82	-477.90	3,547.47	806.29	6.00	-6.00	0.00
6,400.00	13.02	97.67	5,174.89	-201.89	-481.59	3,574.81	812.50	6.00	-6.00	0.00
6,500.00	7.02	97.67	5,273.32	-300.32	-483.91	3,592.04	816.42	6.00	-6.00	0.00
6,600.00	1.02	97.67	5,373.03	-400.03	-484.84	3,598.99	818.00	6.00	-6.00	0.00
EOD TO VERTICAL										
6,617.01	0.00	97.67	5,390.04	-417.04	-484.86	3,599.14	818.03	6.00	-6.00	0.00
6,700.00	0.00	0.00	5,473.03	-500.03	-484.86	3,599.14	818.03	0.00	0.00	0.00
KOP (10°/100ft BUR)										
6,787.01	0.00	0.00	5,560.04	-587.04	-484.86	3,599.14	818.03	0.00	0.00	0.00
6,800.00	1.30	0.48	5,573.03	-600.03	-484.72	3,599.14	818.17	10.00	10.00	0.00
6,900.00	11.30	0.48	5,672.30	-699.30	-473.76	3,599.23	828.45	10.00	10.00	0.00
7,000.00	21.30	0.48	5,768.16	-795.16	-445.73	3,599.47	854.75	10.00	10.00	0.00
SHARON SPRINGS SHALE										
7,088.72	30.17	0.48	5,848.00	-875.00	-407.25	3,599.80	890.87	10.00	10.00	0.00
7,100.00	31.30	0.48	5,857.69	-884.69	-401.48	3,599.84	896.28	10.00	10.00	0.00
NIOBRARA FORMATION										
7,186.58	39.96	0.48	5,928.00	-955.00	-351.10	3,600.27	943.57	10.00	10.00	0.00
NIOBRARA A CHALK										
7,193.13	40.61	0.48	5,933.00	-960.00	-346.86	3,600.31	947.54	10.00	10.00	0.00
7,200.00	41.30	0.48	5,938.18	-965.18	-342.36	3,600.34	951.77	10.00	10.00	0.00
7,300.00	51.30	0.48	6,007.19	-1,034.19	-270.16	3,600.95	1,019.53	10.00	10.00	0.00
NIOBRARA B CHALK										
7,326.04	53.90	0.48	6,023.00	-1,050.00	-249.48	3,601.13	1,038.94	10.00	10.00	0.00
7,400.00	61.30	0.48	6,062.60	-1,089.60	-187.08	3,601.65	1,097.50	10.00	10.00	0.00
7,500.00	71.30	0.48	6,102.75	-1,129.75	-95.63	3,602.43	1,183.32	10.00	10.00	0.00
NIOBRARA C CHALK										
7,500.78	71.38	0.48	6,103.00	-1,130.00	-94.89	3,602.43	1,184.02	10.00	10.00	0.00
7,600.00	81.30	0.48	6,126.41	-1,153.41	1.40	3,603.25	1,274.38	10.00	10.00	0.00
BPI: 600ft FSL & 982ft FEL of Sec 11 - NIOBRARA C LP										

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CASTOR 7-59 11-2-11
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 11-2-11	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)
7,687.01	90.00	0.48	6,133.00	-1,160.00	88.07	3,603.98	1,355.72	10.00	10.00	0.00
7,700.00	90.00	0.48	6,133.00	-1,160.00	101.06	3,604.09	1,367.91	0.00	0.00	0.00
7,800.00	90.00	0.48	6,133.00	-1,160.00	201.06	3,604.93	1,461.76	0.00	0.00	0.00
7,900.00	90.00	0.48	6,133.00	-1,160.00	301.05	3,605.78	1,555.60	0.00	0.00	0.00
8,000.00	90.00	0.48	6,133.00	-1,160.00	401.05	3,606.62	1,649.45	0.00	0.00	0.00
8,100.00	90.00	0.48	6,133.00	-1,160.00	501.05	3,607.46	1,743.29	0.00	0.00	0.00
8,200.00	90.00	0.48	6,133.00	-1,160.00	601.04	3,608.31	1,837.14	0.00	0.00	0.00
8,300.00	90.00	0.48	6,133.00	-1,160.00	701.04	3,609.15	1,930.98	0.00	0.00	0.00
8,400.00	90.00	0.48	6,133.00	-1,160.00	801.03	3,610.00	2,024.83	0.00	0.00	0.00
8,500.00	90.00	0.48	6,133.00	-1,160.00	901.03	3,610.84	2,118.68	0.00	0.00	0.00
8,600.00	90.00	0.48	6,133.00	-1,160.00	1,001.03	3,611.68	2,212.52	0.00	0.00	0.00
8,700.00	90.00	0.48	6,133.00	-1,160.00	1,101.02	3,612.53	2,306.37	0.00	0.00	0.00
8,800.00	90.00	0.48	6,133.00	-1,160.00	1,201.02	3,613.37	2,400.21	0.00	0.00	0.00
8,900.00	90.00	0.48	6,133.00	-1,160.00	1,301.02	3,614.22	2,494.06	0.00	0.00	0.00
9,000.00	90.00	0.48	6,133.00	-1,160.00	1,401.01	3,615.06	2,587.90	0.00	0.00	0.00
9,100.00	90.00	0.48	6,133.00	-1,160.00	1,501.01	3,615.90	2,681.75	0.00	0.00	0.00
9,200.00	90.00	0.48	6,133.00	-1,160.00	1,601.01	3,616.75	2,775.59	0.00	0.00	0.00
9,300.00	90.00	0.48	6,133.00	-1,160.00	1,701.00	3,617.59	2,869.44	0.00	0.00	0.00
9,400.00	90.00	0.48	6,133.00	-1,160.00	1,801.00	3,618.44	2,963.28	0.00	0.00	0.00
9,500.00	90.00	0.48	6,133.00	-1,160.00	1,901.00	3,619.28	3,057.13	0.00	0.00	0.00
9,600.00	90.00	0.48	6,133.00	-1,160.00	2,000.99	3,620.13	3,150.98	0.00	0.00	0.00
9,700.00	90.00	0.48	6,133.00	-1,160.00	2,100.99	3,620.97	3,244.82	0.00	0.00	0.00
9,800.00	90.00	0.48	6,133.01	-1,160.01	2,200.98	3,621.81	3,338.67	0.00	0.00	0.00
9,900.00	90.00	0.48	6,133.01	-1,160.01	2,300.98	3,622.66	3,432.51	0.00	0.00	0.00
10,000.00	90.00	0.48	6,133.01	-1,160.01	2,400.98	3,623.50	3,526.36	0.00	0.00	0.00
10,100.00	90.00	0.48	6,133.01	-1,160.01	2,500.97	3,624.35	3,620.20	0.00	0.00	0.00
10,200.00	90.00	0.48	6,133.01	-1,160.01	2,600.97	3,625.19	3,714.05	0.00	0.00	0.00
10,300.00	90.00	0.48	6,133.01	-1,160.01	2,700.97	3,626.03	3,807.89	0.00	0.00	0.00
10,400.00	90.00	0.48	6,133.01	-1,160.01	2,800.96	3,626.88	3,901.74	0.00	0.00	0.00
10,500.00	90.00	0.48	6,133.01	-1,160.01	2,900.96	3,627.72	3,995.58	0.00	0.00	0.00
10,600.00	90.00	0.48	6,133.01	-1,160.01	3,000.96	3,628.57	4,089.43	0.00	0.00	0.00
10,700.00	90.00	0.48	6,133.01	-1,160.01	3,100.95	3,629.41	4,183.27	0.00	0.00	0.00
10,800.00	90.00	0.48	6,133.01	-1,160.01	3,200.95	3,630.26	4,277.12	0.00	0.00	0.00
10,900.00	90.00	0.48	6,133.01	-1,160.01	3,300.95	3,631.10	4,370.97	0.00	0.00	0.00
11,000.00	90.00	0.48	6,133.01	-1,160.01	3,400.94	3,631.94	4,464.81	0.00	0.00	0.00
11,100.00	90.00	0.48	6,133.01	-1,160.01	3,500.94	3,632.79	4,558.66	0.00	0.00	0.00
11,200.00	90.00	0.48	6,133.01	-1,160.01	3,600.93	3,633.63	4,652.50	0.00	0.00	0.00
11,300.00	90.00	0.48	6,133.01	-1,160.01	3,700.93	3,634.48	4,746.35	0.00	0.00	0.00
11,400.00	90.00	0.48	6,133.01	-1,160.01	3,800.93	3,635.32	4,840.19	0.00	0.00	0.00
11,500.00	90.00	0.48	6,133.01	-1,160.01	3,900.92	3,636.16	4,934.04	0.00	0.00	0.00
11,600.00	90.00	0.48	6,133.01	-1,160.01	4,000.92	3,637.01	5,027.88	0.00	0.00	0.00
11,700.00	90.00	0.48	6,133.01	-1,160.01	4,100.92	3,637.85	5,121.73	0.00	0.00	0.00
11,800.00	90.00	0.48	6,133.01	-1,160.01	4,200.91	3,638.70	5,215.57	0.00	0.00	0.00
11,900.00	90.00	0.48	6,133.01	-1,160.01	4,300.91	3,639.54	5,309.42	0.00	0.00	0.00
12,000.00	90.00	0.48	6,133.01	-1,160.01	4,400.91	3,640.38	5,403.27	0.00	0.00	0.00
12,100.00	90.00	0.48	6,133.01	-1,160.01	4,500.90	3,641.23	5,497.11	0.00	0.00	0.00
12,200.00	90.00	0.48	6,133.01	-1,160.01	4,600.90	3,642.07	5,590.96	0.00	0.00	0.00
12,300.00	90.00	0.48	6,133.01	-1,160.01	4,700.90	3,642.92	5,684.80	0.00	0.00	0.00
12,400.00	90.00	0.48	6,133.01	-1,160.01	4,800.89	3,643.76	5,778.65	0.00	0.00	0.00
12,500.00	90.00	0.48	6,133.01	-1,160.01	4,900.89	3,644.61	5,872.49	0.00	0.00	0.00
12,600.00	90.00	0.48	6,133.01	-1,160.01	5,000.89	3,645.45	5,966.34	0.00	0.00	0.00
12,700.00	90.00	0.48	6,133.01	-1,160.01	5,100.88	3,646.29	6,060.18	0.00	0.00	0.00
12,800.00	90.00	0.48	6,133.01	-1,160.01	5,200.88	3,647.14	6,154.03	0.00	0.00	0.00
12,900.00	90.00	0.48	6,133.01	-1,160.01	5,300.87	3,647.98	6,247.87	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CASTOR 7-59 11-2-11
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 11-2-11	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)
13,000.00	90.00	0.48	6,133.01	-1,160.01	5,400.87	3,648.83	6,341.72	0.00	0.00	0.00
13,100.00	90.00	0.48	6,133.01	-1,160.01	5,500.87	3,649.67	6,435.57	0.00	0.00	0.00
13,200.00	90.00	0.48	6,133.01	-1,160.01	5,600.86	3,650.51	6,529.41	0.00	0.00	0.00
13,300.00	90.00	0.48	6,133.01	-1,160.01	5,700.86	3,651.36	6,623.26	0.00	0.00	0.00
13,400.00	90.00	0.48	6,133.01	-1,160.01	5,800.86	3,652.20	6,717.10	0.00	0.00	0.00
13,500.00	90.00	0.48	6,133.01	-1,160.01	5,900.85	3,653.05	6,810.95	0.00	0.00	0.00
13,600.00	90.00	0.48	6,133.01	-1,160.01	6,000.85	3,653.89	6,904.79	0.00	0.00	0.00
13,700.00	90.00	0.48	6,133.01	-1,160.01	6,100.85	3,654.73	6,998.64	0.00	0.00	0.00
13,800.00	90.00	0.48	6,133.01	-1,160.01	6,200.84	3,655.58	7,092.48	0.00	0.00	0.00
13,900.00	90.00	0.48	6,133.02	-1,160.02	6,300.84	3,656.42	7,186.33	0.00	0.00	0.00
14,000.00	90.00	0.48	6,133.02	-1,160.02	6,400.84	3,657.27	7,280.17	0.00	0.00	0.00
14,100.00	90.00	0.48	6,133.02	-1,160.02	6,500.83	3,658.11	7,374.02	0.00	0.00	0.00
14,200.00	90.00	0.48	6,133.02	-1,160.02	6,600.83	3,658.96	7,467.87	0.00	0.00	0.00
14,300.00	90.00	0.48	6,133.02	-1,160.02	6,700.82	3,659.80	7,561.71	0.00	0.00	0.00
14,400.00	90.00	0.48	6,133.02	-1,160.02	6,800.82	3,660.64	7,655.56	0.00	0.00	0.00
14,500.00	90.00	0.48	6,133.02	-1,160.02	6,900.82	3,661.49	7,749.40	0.00	0.00	0.00
14,600.00	90.00	0.48	6,133.02	-1,160.02	7,000.81	3,662.33	7,843.25	0.00	0.00	0.00
14,700.00	90.00	0.48	6,133.02	-1,160.02	7,100.81	3,663.18	7,937.09	0.00	0.00	0.00
14,800.00	90.00	0.48	6,133.02	-1,160.02	7,200.81	3,664.02	8,030.94	0.00	0.00	0.00
14,900.00	90.00	0.48	6,133.02	-1,160.02	7,300.80	3,664.86	8,124.78	0.00	0.00	0.00
15,000.00	90.00	0.48	6,133.02	-1,160.02	7,400.80	3,665.71	8,218.63	0.00	0.00	0.00
15,100.00	90.00	0.48	6,133.02	-1,160.02	7,500.80	3,666.55	8,312.47	0.00	0.00	0.00
15,200.00	90.00	0.48	6,133.02	-1,160.02	7,600.79	3,667.40	8,406.32	0.00	0.00	0.00
15,300.00	90.00	0.48	6,133.02	-1,160.02	7,700.79	3,668.24	8,500.16	0.00	0.00	0.00
15,400.00	90.00	0.48	6,133.02	-1,160.02	7,800.79	3,669.09	8,594.01	0.00	0.00	0.00
15,500.00	90.00	0.48	6,133.02	-1,160.02	7,900.78	3,669.93	8,687.86	0.00	0.00	0.00
15,600.00	90.00	0.48	6,133.02	-1,160.02	8,000.78	3,670.77	8,781.70	0.00	0.00	0.00
15,700.00	90.00	0.48	6,133.02	-1,160.02	8,100.77	3,671.62	8,875.55	0.00	0.00	0.00
15,800.00	90.00	0.48	6,133.02	-1,160.02	8,200.77	3,672.46	8,969.39	0.00	0.00	0.00
15,900.00	90.00	0.48	6,133.02	-1,160.02	8,300.77	3,673.31	9,063.24	0.00	0.00	0.00
16,000.00	90.00	0.48	6,133.02	-1,160.02	8,400.76	3,674.15	9,157.08	0.00	0.00	0.00
16,100.00	90.00	0.48	6,133.02	-1,160.02	8,500.76	3,674.99	9,250.93	0.00	0.00	0.00
16,200.00	90.00	0.48	6,133.02	-1,160.02	8,600.76	3,675.84	9,344.77	0.00	0.00	0.00
16,300.00	90.00	0.48	6,133.02	-1,160.02	8,700.75	3,676.68	9,438.62	0.00	0.00	0.00
16,400.00	90.00	0.48	6,133.02	-1,160.02	8,800.75	3,677.53	9,532.46	0.00	0.00	0.00
16,500.00	90.00	0.48	6,133.02	-1,160.02	8,900.75	3,678.37	9,626.31	0.00	0.00	0.00
16,600.00	90.00	0.48	6,133.02	-1,160.02	9,000.74	3,679.21	9,720.16	0.00	0.00	0.00
16,700.00	90.00	0.48	6,133.02	-1,160.02	9,100.74	3,680.06	9,814.00	0.00	0.00	0.00
16,800.00	90.00	0.48	6,133.02	-1,160.02	9,200.74	3,680.90	9,907.85	0.00	0.00	0.00
16,900.00	90.00	0.48	6,133.02	-1,160.02	9,300.73	3,681.75	10,001.69	0.00	0.00	0.00
17,000.00	90.00	0.48	6,133.02	-1,160.02	9,400.73	3,682.59	10,095.54	0.00	0.00	0.00
EPI: 600ft FNL & 1115ft FEL of Sec 2										
17,057.42	90.00	0.48	6,133.00	-1,160.00	9,458.15	3,683.13	10,149.44	0.00	0.00	0.00
EOT TO 0.42° AZ										
17,059.54	90.00	0.42	6,133.00	-1,160.00	9,460.27	3,683.14	10,151.43	3.00	0.00	-3.00
17,100.00	90.00	0.42	6,133.00	-1,160.00	9,500.72	3,683.44	10,189.38	0.00	0.00	0.00
17,200.00	90.00	0.42	6,133.00	-1,160.00	9,600.72	3,684.17	10,283.19	0.00	0.00	0.00
17,300.00	90.00	0.41	6,133.00	-1,160.00	9,700.72	3,684.89	10,376.99	0.00	0.00	0.00
BHL: 300ft FNL & 1119ft FEL of Sec 2										
17,357.26	90.00	0.41	6,133.00	-1,160.00	9,757.98	3,685.30	10,430.70	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CASTOR 7-59 11-2-11
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 11-2-11	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Formations					
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
488.36	484.00	PIERRE SHALE (BASE OF FOX HI			
4,041.03	3,288.00	PARKMAN			
5,041.82	4,068.00	SUSSEX			
6,196.51	4,983.00	SHANNON			
7,088.72	5,848.00	SHARON SPRINGS SHALE			
7,186.58	5,928.00	NIOBRARA FORMATION			
7,193.13	5,933.00	NIOBRARA A CHALK			
7,326.04	6,023.00	NIOBRARA B CHALK			
7,500.78	6,103.00	NIOBRARA C CHALK			
7,687.01	6,133.00	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 & 676ft FWL of Sec 11
200.00	200.00	0.00	0.00	START NUDGE (6°/100ft BUR)
846.60	798.31	-28.13	208.79	EOB TO 38.8° INC
5,970.42	4,791.74	-456.74	3,390.36	END OF TANGENT
6,617.01	5,390.04	-484.86	3,599.14	EOD TO VERTICAL
6,787.01	5,560.04	-484.86	3,599.14	KOP (10°/100ft BUR)
7,687.01	6,133.00	88.07	3,603.98	BPI: 600ft FSL & 982ft FEL of Sec 11
17,057.42	6,133.00	9,458.15	3,683.13	EPI: 600ft FNL & 1115ft FEL of Sec 2
17,059.54	6,133.00	9,460.27	3,683.14	EOT TO 0.42° AZ
17,357.26	6,133.00	9,757.98	3,685.30	BHL: 300ft FNL & 1119ft FEL of Sec 2