

GMT EXPLORATION COMPANY LLC

ELBERT COUNTY, COLORADO (NAD 83)

SE NW SEC. 10 T6S R64W 6th P.M.

VULCAN 6-64 10-8 8HN

ORIGINAL WELLBORE

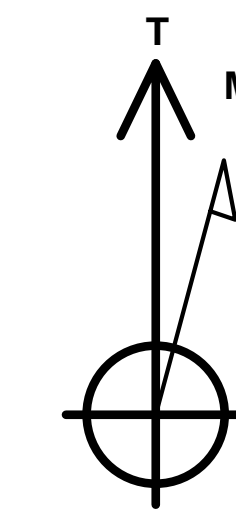
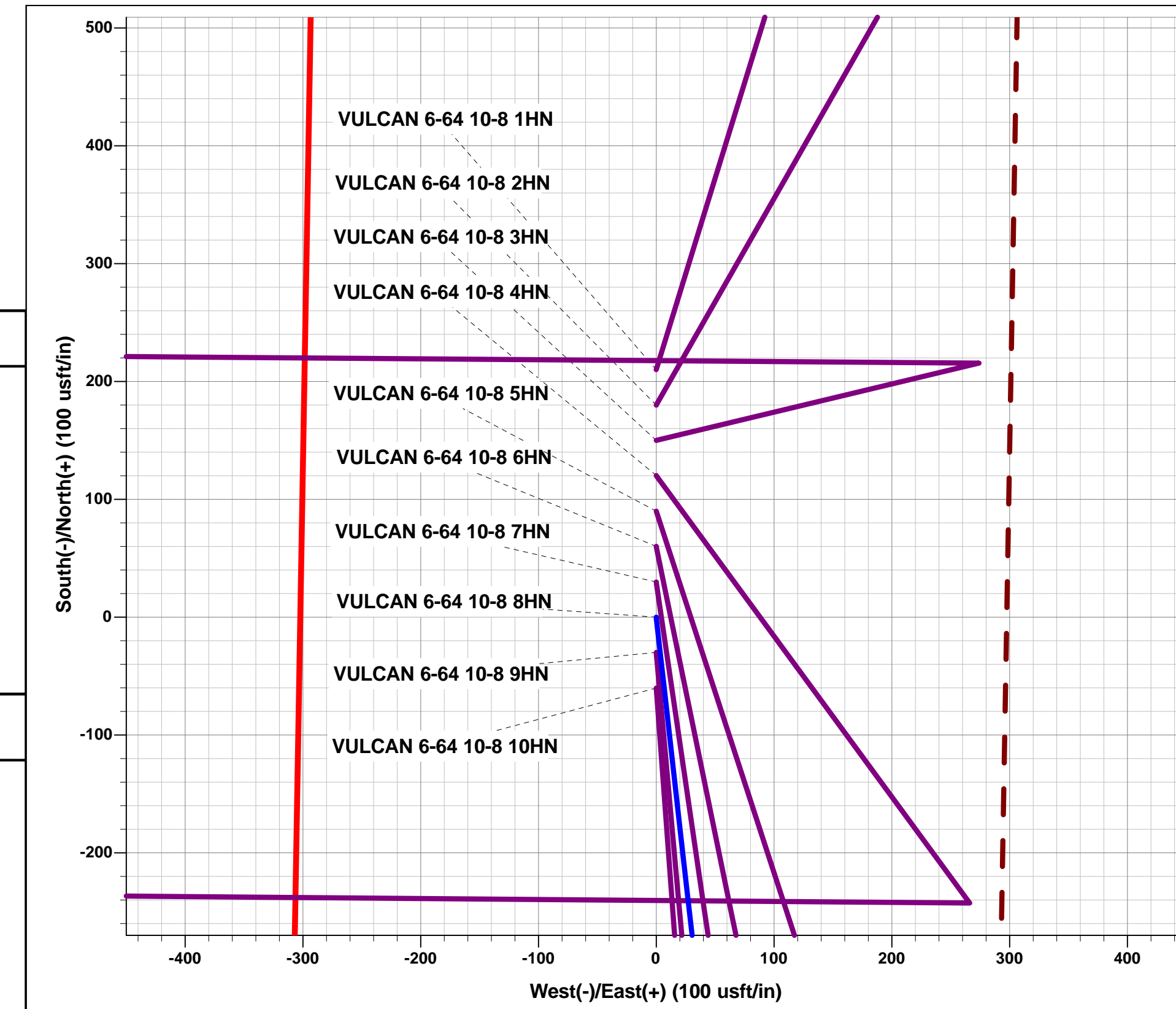
10 April, 2019

Plan: PROPOSAL #2





Project: ELBERT COUNTY, COLORADO (NAD 83)
 Site: SE NW SEC. 10 T6S R64W 6th P.M.
 Well: VULCAN 6-64 10-8 8HN
 Wellbore: ORIGINAL WELLBORE
 Design: PROPOSAL #2



Azimuths to True North
 Magnetic North: 7.88°
 Magnetic Field
 Strength: 51808.1snT
 Dip Angle: 66.17°
 Date: 12/10/2018
 Model: IGRF2015

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: 1740ft FNL & 2260ft FWL of Sec 10
500.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDDGE (2°/100ft BUR)
1526.56	1549.91	21.00	173.57	-189.05	21.29	8.26	190.24	EOB TO 21° INC
5980.48	6320.64	21.00	173.57	-1887.84	212.63	82.45	1899.78	END OF TANGENT
7007.04	7370.54	0.00	0.00	-2076.89	233.92	90.70	2090.02	EOD TO VERTICAL
7207.04	7570.54	0.00	0.00	-2076.89	233.92	90.70	2090.02	KOP (10°/100ft BUR)
7780.00	8470.55	90.00	270.61	-2070.79	-339.01	655.76	2662.98	HZ LP: 1514ft FSL & 1981ft FWL of Sec 10
7780.00	20467.84	90.00	270.62	-1942.16	-12335.61	12487.56	14660.27	LTP: 1539ft FSL & 600ft FWL of Sec 8
7780.00	20506.74	90.00	268.97	-1942.30	-12374.51	12526.01	14699.18	EOT TO 268.97° AZ
7780.00	20517.76	90.00	268.97	-1942.50	-12385.53	12536.93	14710.19	BHL: 1539ft FSL & 550ft FWL of Sec 8

FORMATION TOP DETAILS

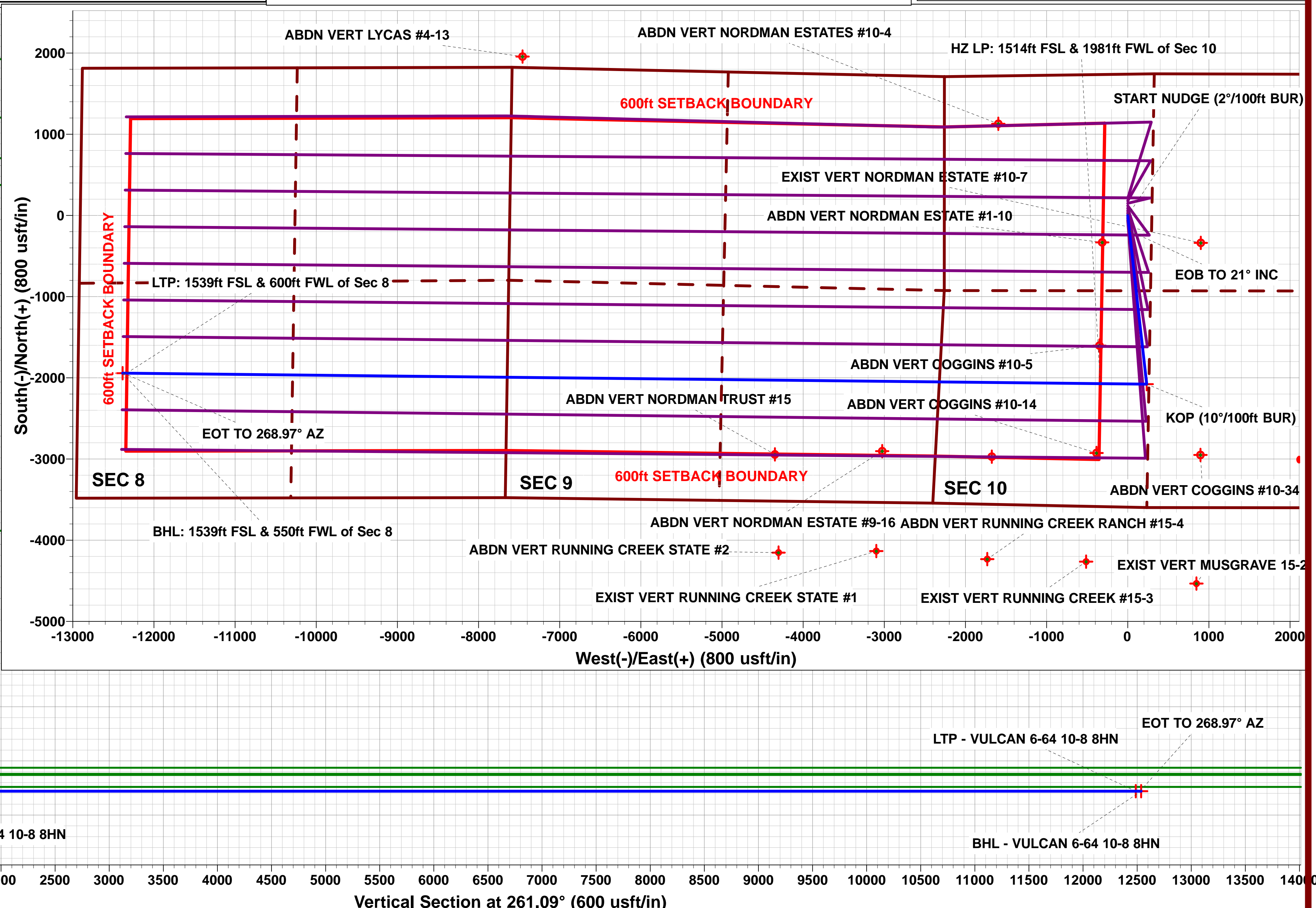
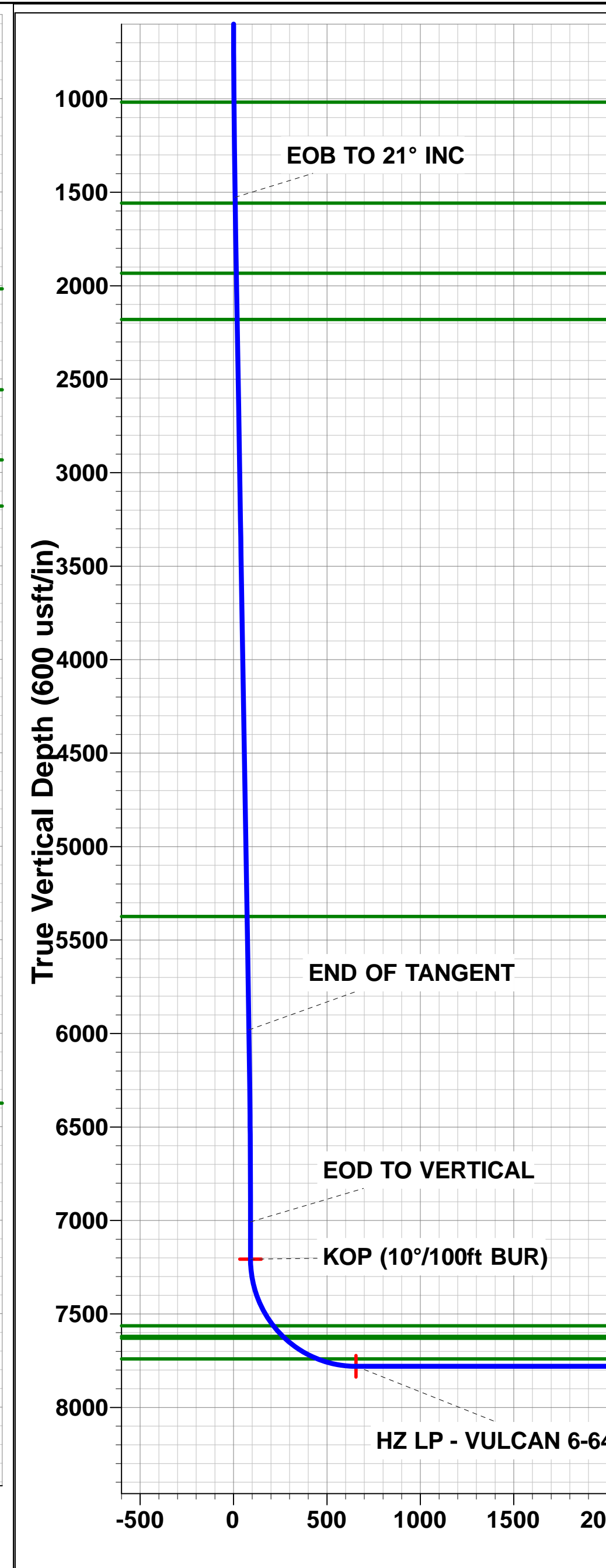
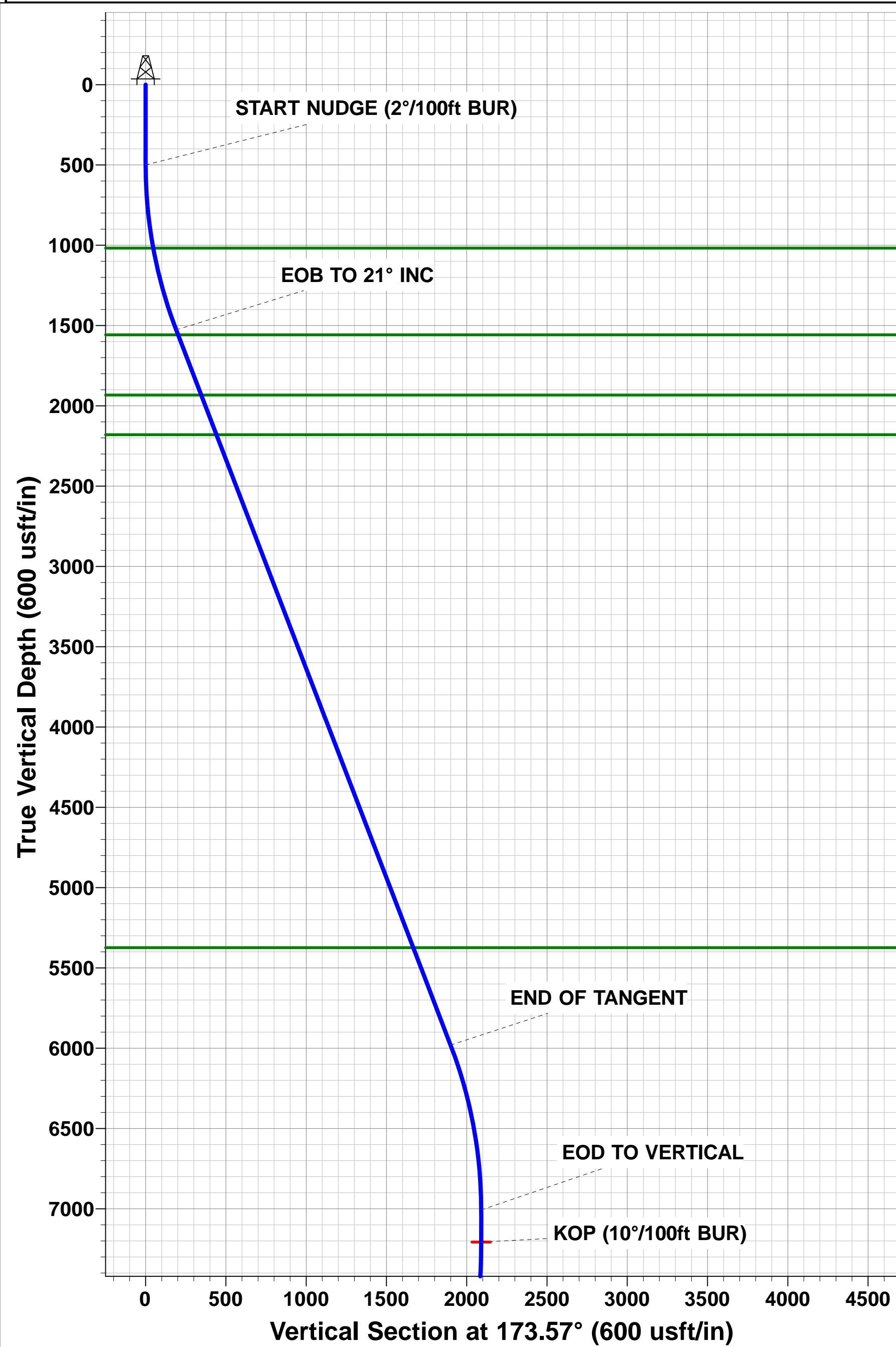
TVDPath	MDPath	Formation
1018.00	1020.86	DENVER
1558.00	1583.58	UPPER ARAPAHOE
1933.00	1985.26	LARAMIE - FOX HILLS
2180.00	2249.83	PIERRE SHALE
5374.00	5671.02	SUSSEX SANDSTONE
7563.00	7954.63	SHARON SPRINGS
7620.00	8031.71	NIOBRARA
7630.00	8046.33	NIOBRARA A
7740.00	8255.19	NIOBRARA B TOP

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - VULCAN 6-64 10-8 8HN	7207.04	-2076.89	233.92	39.539534	-104.541404
HZ LP - VULCAN 6-64 10-8 8HN	7780.00	-2070.79	-339.01	39.539551	-104.543435
LTP - VULCAN 6-64 10-8 8HN	7780.00	-1942.16	-12335.61	39.539896	-104.585971
BHL - VULCAN 6-64 10-8 8HN	7780.00	-1942.50	-12385.53	39.539895	-104.586148

PROPOSED LOCAL COORDINATES:

SHL: 1740ft FNL & 2260ft FWL of Sec 10
 HZ LP: 1514ft FSL & 1981ft FWL of Sec 10
 LTP: 1539ft FSL & 600ft FWL of Sec 8
 BHL: 1539ft FSL & 550ft FWL of Sec 8



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VULCAN 6-64 10-8 8HN
Company:	GMT EXPLORATION COMPANY LLC	TVD Reference:	KB 20' @ 6093.00usft (Original Well Elev)
Project:	ELBERT COUNTY, COLORADO (NAD 83)	MD Reference:	KB 20' @ 6093.00usft (Original Well Elev)
Site:	SE NW SEC. 10 T6S R64W 6th P.M.	North Reference:	True
Well:	VULCAN 6-64 10-8 8HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Project ELBERT COUNTY, COLORADO (NAD 83)			
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		Using geodetic scale factor

Site SE NW SEC. 10 T6S R64W 6th P.M.			
Site Position:		Northing:	1,625,114.58 usft
From:	Lat/Long	Easting:	3,270,086.01 usft
Position Uncertainty:	0.00 usft	Slot Radius:	1.10000ft
		Latitude:	39.545813
		Longitude:	-104.542233
		Grid Convergence:	0.60 °

Well VULCAN 6-64 10-8 8HN			
Well Position	+N-S	-210.19 usft	Northing: 1,624,904.41 usft
	+E-W	0.00 usft	Easting: 3,270,088.22 usft
Position Uncertainty		0.00 usft	Wellhead Elevation: usft
			Latitude: 39.545236
			Longitude: -104.542233
			Ground Level: 6,073.00 usft

Wellbore ORIGINAL WELLBORE					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	12/10/2018	7.88	66.17	51,808

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 (°)
	0.00	0.00	0.00	261.09

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	-6,093.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	-5,593.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,549.91	21.00	173.57	1,526.56	-4,566.44	-189.05	21.29	2.00	2.00	0.00	173.57	
6,320.64	21.00	173.57	5,980.48	-112.52	-1,887.84	212.63	0.00	0.00	0.00	0.00	
7,370.54	0.00	0.00	7,007.04	914.04	-2,076.89	233.92	2.00	-2.00	0.00	180.00	
7,570.54	0.00	0.00	7,207.04	1,114.04	-2,076.89	233.92	0.00	0.00	0.00	0.00	KOP - VULCAN 6-6
8,470.55	90.00	270.61	7,780.00	1,687.00	-2,070.79	-339.01	10.00	10.00	-9.93	270.61	HZ LP - VULCAN 6
20,467.84	90.00	270.62	7,780.00	1,687.00	-1,942.16	-12,335.61	0.00	0.00	0.00	88.84	LTP - VULCAN 6-6
20,506.74	90.00	268.97	7,780.00	1,687.00	-1,942.30	-12,374.51	4.25	0.00	-4.25	-90.01	
20,517.76	90.00	268.97	7,780.00	1,687.00	-1,942.50	-12,385.53	0.00	0.00	0.00	0.00	BHL - VULCAN 6-6

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Site:	SE NW SEC. 10 T6S R64W 6th P.M.	North Reference:	True
Well:	VULCAN 6-64 10-8 8HN	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: 1740ft FNL & 2260ft FWL of Sec 10										
0.00	0.00	0.00	0.00	6,093.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	5,993.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	5,893.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	5,793.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	5,693.00	0.00	0.00	0.00	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
500.00	0.00	0.00	500.00	5,593.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	2.00	173.57	599.98	5,493.02	-1.73	0.20	0.08	2.00	2.00	0.00
700.00	4.00	173.57	699.84	5,393.16	-6.93	0.78	0.30	2.00	2.00	0.00
800.00	6.00	173.57	799.45	5,293.55	-15.60	1.76	0.68	2.00	2.00	0.00
900.00	8.00	173.57	898.70	5,194.30	-27.70	3.12	1.21	2.00	2.00	0.00
1,000.00	10.00	173.57	997.47	5,095.53	-43.25	4.87	1.89	2.00	2.00	0.00
DENVER										
1,020.86	10.42	173.57	1,018.00	5,075.00	-46.92	5.29	2.05	2.00	2.00	0.00
1,100.00	12.00	173.57	1,095.62	4,997.38	-62.21	7.01	2.72	2.00	2.00	0.00
1,200.00	14.00	173.57	1,193.06	4,899.94	-84.56	9.52	3.69	2.00	2.00	0.00
1,300.00	16.00	173.57	1,289.64	4,803.36	-110.28	12.42	4.82	2.00	2.00	0.00
1,400.00	18.00	173.57	1,385.27	4,707.73	-139.33	15.69	6.08	2.00	2.00	0.00
1,500.00	20.00	173.57	1,479.82	4,613.18	-171.68	19.34	7.50	2.00	2.00	0.00
EOB TO 21° INC										
1,549.91	21.00	173.57	1,526.56	4,566.44	-189.05	21.29	8.26	2.00	2.00	0.00
UPPER ARAPAHOE										
1,583.58	21.00	173.57	1,558.00	4,535.00	-201.04	22.64	8.78	0.00	0.00	0.00
1,600.00	21.00	173.57	1,573.33	4,519.67	-206.89	23.30	9.04	0.00	0.00	0.00
1,700.00	21.00	173.57	1,666.69	4,426.31	-242.50	27.31	10.59	0.00	0.00	0.00
1,800.00	21.00	173.57	1,760.05	4,332.95	-278.10	31.32	12.15	0.00	0.00	0.00
1,900.00	21.00	173.57	1,853.41	4,239.59	-313.71	35.33	13.70	0.00	0.00	0.00
LARAMIE - FOX HILLS										
1,985.26	21.00	173.57	1,933.00	4,160.00	-344.07	38.75	15.03	0.00	0.00	0.00
2,000.00	21.00	173.57	1,946.76	4,146.24	-349.32	39.34	15.26	0.00	0.00	0.00
2,100.00	21.00	173.57	2,040.12	4,052.88	-384.93	43.35	16.81	0.00	0.00	0.00
2,200.00	21.00	173.57	2,133.48	3,959.52	-420.54	47.37	18.37	0.00	0.00	0.00
PIERRE SHALE (BASE OF FOX HILLS)										
2,249.83	21.00	173.57	2,180.00	3,913.00	-438.28	49.36	19.14	0.00	0.00	0.00
2,300.00	21.00	173.57	2,226.84	3,866.16	-456.15	51.38	19.92	0.00	0.00	0.00
2,400.00	21.00	173.57	2,320.20	3,772.80	-491.76	55.39	21.48	0.00	0.00	0.00
2,500.00	21.00	173.57	2,413.56	3,679.44	-527.36	59.40	23.03	0.00	0.00	0.00
2,600.00	21.00	173.57	2,506.92	3,586.08	-562.97	63.41	24.59	0.00	0.00	0.00
2,700.00	21.00	173.57	2,600.28	3,492.72	-598.58	67.42	26.14	0.00	0.00	0.00
2,800.00	21.00	173.57	2,693.64	3,399.36	-634.19	71.43	27.70	0.00	0.00	0.00
2,900.00	21.00	173.57	2,787.00	3,306.00	-669.80	75.44	29.25	0.00	0.00	0.00
3,000.00	21.00	173.57	2,880.36	3,212.64	-705.41	79.45	30.81	0.00	0.00	0.00
3,100.00	21.00	173.57	2,973.72	3,119.28	-741.02	83.46	32.36	0.00	0.00	0.00
3,200.00	21.00	173.57	3,067.08	3,025.92	-776.62	87.47	33.92	0.00	0.00	0.00
3,300.00	21.00	173.57	3,160.43	2,932.57	-812.23	91.48	35.47	0.00	0.00	0.00
3,400.00	21.00	173.57	3,253.79	2,839.21	-847.84	95.49	37.03	0.00	0.00	0.00
3,500.00	21.00	173.57	3,347.15	2,745.85	-883.45	99.50	38.58	0.00	0.00	0.00
3,600.00	21.00	173.57	3,440.51	2,652.49	-919.06	103.51	40.14	0.00	0.00	0.00
3,700.00	21.00	173.57	3,533.87	2,559.13	-954.67	107.52	41.69	0.00	0.00	0.00
3,800.00	21.00	173.57	3,627.23	2,465.77	-990.28	111.53	43.25	0.00	0.00	0.00
3,900.00	21.00	173.57	3,720.59	2,372.41	-1,025.88	115.55	44.80	0.00	0.00	0.00
4,000.00	21.00	173.57	3,813.95	2,279.05	-1,061.49	119.56	46.36	0.00	0.00	0.00

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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)
4,100.00	21.00	173.57	3,907.31	2,185.69	-1,097.10	123.57	47.91	0.00	0.00	0.00
4,200.00	21.00	173.57	4,000.67	2,092.33	-1,132.71	127.58	49.47	0.00	0.00	0.00
4,300.00	21.00	173.57	4,094.03	1,998.97	-1,168.32	131.59	51.02	0.00	0.00	0.00
4,400.00	21.00	173.57	4,187.39	1,905.61	-1,203.93	135.60	52.58	0.00	0.00	0.00
4,500.00	21.00	173.57	4,280.75	1,812.25	-1,239.54	139.61	54.13	0.00	0.00	0.00
4,600.00	21.00	173.57	4,374.10	1,718.90	-1,275.15	143.62	55.69	0.00	0.00	0.00
4,700.00	21.00	173.57	4,467.46	1,625.54	-1,310.75	147.63	57.24	0.00	0.00	0.00
4,800.00	21.00	173.57	4,560.82	1,532.18	-1,346.36	151.64	58.80	0.00	0.00	0.00
4,900.00	21.00	173.57	4,654.18	1,438.82	-1,381.97	155.65	60.35	0.00	0.00	0.00
5,000.00	21.00	173.57	4,747.54	1,345.46	-1,417.58	159.66	61.91	0.00	0.00	0.00
5,100.00	21.00	173.57	4,840.90	1,252.10	-1,453.19	163.67	63.46	0.00	0.00	0.00
5,200.00	21.00	173.57	4,934.26	1,158.74	-1,488.80	167.68	65.02	0.00	0.00	0.00
5,300.00	21.00	173.57	5,027.62	1,065.38	-1,524.41	171.69	66.57	0.00	0.00	0.00
5,400.00	21.00	173.57	5,120.98	972.02	-1,560.01	175.70	68.13	0.00	0.00	0.00
5,500.00	21.00	173.57	5,214.34	878.66	-1,595.62	179.71	69.68	0.00	0.00	0.00
5,600.00	21.00	173.57	5,307.70	785.30	-1,631.23	183.73	71.24	0.00	0.00	0.00
SUSSEX SANDSTONE										
5,671.02	21.00	173.57	5,374.00	719.00	-1,656.52	186.57	72.34	0.00	0.00	0.00
5,700.00	21.00	173.57	5,401.06	691.94	-1,666.84	187.74	72.79	0.00	0.00	0.00
5,800.00	21.00	173.57	5,494.41	598.59	-1,702.45	191.75	74.35	0.00	0.00	0.00
5,900.00	21.00	173.57	5,587.77	505.23	-1,738.06	195.76	75.90	0.00	0.00	0.00
6,000.00	21.00	173.57	5,681.13	411.87	-1,773.67	199.77	77.46	0.00	0.00	0.00
6,100.00	21.00	173.57	5,774.49	318.51	-1,809.27	203.78	79.01	0.00	0.00	0.00
6,200.00	21.00	173.57	5,867.85	225.15	-1,844.88	207.79	80.57	0.00	0.00	0.00
6,300.00	21.00	173.57	5,961.21	131.79	-1,880.49	211.80	82.13	0.00	0.00	0.00
END OF TANGENT										
6,320.64	21.00	173.57	5,980.48	112.52	-1,887.84	212.63	82.45	0.00	0.00	0.00
6,400.00	19.41	173.57	6,054.95	38.05	-1,915.08	215.70	83.64	2.00	-2.00	0.00
6,500.00	17.41	173.57	6,149.83	-56.83	-1,946.46	219.23	85.01	2.00	-2.00	0.00
6,600.00	15.41	173.57	6,245.75	-152.75	-1,974.53	222.39	86.23	2.00	-2.00	0.00
6,700.00	13.41	173.57	6,342.60	-249.60	-1,999.26	225.18	87.31	2.00	-2.00	0.00
6,800.00	11.41	173.57	6,440.26	-347.26	-2,020.62	227.58	88.24	2.00	-2.00	0.00
6,900.00	9.41	173.57	6,538.61	-445.61	-2,038.58	229.60	89.03	2.00	-2.00	0.00
7,000.00	7.41	173.57	6,637.53	-544.53	-2,053.11	231.24	89.66	2.00	-2.00	0.00
7,100.00	5.41	173.57	6,736.90	-643.90	-2,064.20	232.49	90.15	2.00	-2.00	0.00
7,200.00	3.41	173.57	6,836.60	-743.60	-2,071.85	233.35	90.48	2.00	-2.00	0.00
7,300.00	1.41	173.57	6,936.50	-843.50	-2,076.03	233.82	90.66	2.00	-2.00	0.00
EOD TO VERTICAL										
7,370.54	0.00	0.00	7,007.04	-914.04	-2,076.89	233.92	90.70	2.00	-2.00	0.00
7,400.00	0.00	0.00	7,036.50	-943.50	-2,076.89	233.92	90.70	0.00	0.00	0.00
7,500.00	0.00	0.00	7,136.50	-1,043.50	-2,076.89	233.92	90.70	0.00	0.00	0.00
KOP (10°/100ft BUR)										
7,570.54	0.00	0.00	7,207.04	-1,114.04	-2,076.89	233.92	90.70	0.00	0.00	0.00
7,600.00	2.95	270.61	7,236.48	-1,143.48	-2,076.88	233.16	91.45	10.00	10.00	0.00
7,700.00	12.95	270.61	7,335.40	-1,242.40	-2,076.73	219.36	105.06	10.00	10.00	0.00
7,800.00	22.95	270.61	7,430.41	-1,337.41	-2,076.41	188.59	135.41	10.00	10.00	0.00
7,900.00	32.95	270.61	7,518.64	-1,425.64	-2,075.91	141.79	181.57	10.00	10.00	0.00
SHARON SPRINGS										
7,954.63	38.41	270.61	7,563.00	-1,470.00	-2,075.57	109.94	212.98	10.00	10.00	0.00
8,000.00	42.95	270.61	7,597.40	-1,504.40	-2,075.26	80.38	242.14	10.00	10.00	0.00
NIORARA										
8,031.71	46.12	270.61	7,620.00	-1,527.00	-2,075.02	58.14	264.07	10.00	10.00	0.00
NIORARA A										

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VULCAN 6-64 10-8 8HN
Company:	GMT EXPLORATION COMPANY LLC	TVD Reference:	KB 20' @ 6093.00usft (Original Well Elev)
Project:	ELBERT COUNTY, COLORADO (NAD 83)	MD Reference:	KB 20' @ 6093.00usft (Original Well Elev)
Site:	SE NW SEC. 10 T6S R64W 6th P.M.	North Reference:	True
Well:	VULCAN 6-64 10-8 8HN	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)
8,046.33	47.58	270.61	7,630.00	-1,537.00	-2,074.91	47.48	274.59	10.00	10.00	0.00
8,100.00	52.95	270.61	7,664.30	-1,571.30	-2,074.47	6.23	315.27	10.00	10.00	0.00
8,200.00	62.95	270.61	7,717.30	-1,624.30	-2,073.57	-78.42	398.75	10.00	10.00	0.00
NIобрARA B TOP										
8,255.19	68.46	270.61	7,740.00	-1,647.00	-2,073.03	-128.69	448.34	10.00	10.00	0.00
8,300.00	72.95	270.61	7,754.80	-1,661.80	-2,072.58	-170.98	490.04	10.00	10.00	0.00
8,400.00	82.95	270.61	7,775.66	-1,682.66	-2,071.54	-268.64	586.37	10.00	10.00	0.00
HZ LP: 1514ft FSL & 1981ft FWL of Sec 10										
8,470.55	90.00	270.61	7,780.00	-1,687.00	-2,070.79	-339.01	655.76	10.00	10.00	0.00
8,500.00	90.00	270.61	7,780.00	-1,687.00	-2,070.48	-368.46	684.81	0.00	0.00	0.00
8,600.00	90.00	270.61	7,780.00	-1,687.00	-2,069.41	-468.45	783.43	0.00	0.00	0.00
8,700.00	90.00	270.61	7,780.00	-1,687.00	-2,068.35	-568.45	882.06	0.00	0.00	0.00
8,800.00	90.00	270.61	7,780.00	-1,687.00	-2,067.28	-668.44	980.68	0.00	0.00	0.00
8,900.00	90.00	270.61	7,780.00	-1,687.00	-2,066.22	-768.43	1,079.30	0.00	0.00	0.00
9,000.00	90.00	270.61	7,780.00	-1,687.00	-2,065.15	-868.43	1,177.92	0.00	0.00	0.00
9,100.00	90.00	270.61	7,780.00	-1,687.00	-2,064.09	-968.42	1,276.54	0.00	0.00	0.00
9,200.00	90.00	270.61	7,780.00	-1,687.00	-2,063.02	-1,068.42	1,375.16	0.00	0.00	0.00
9,300.00	90.00	270.61	7,780.00	-1,687.00	-2,061.96	-1,168.41	1,473.79	0.00	0.00	0.00
9,400.00	90.00	270.61	7,780.00	-1,687.00	-2,060.89	-1,268.41	1,572.41	0.00	0.00	0.00
9,500.00	90.00	270.61	7,780.00	-1,687.00	-2,059.83	-1,368.40	1,671.03	0.00	0.00	0.00
9,600.00	90.00	270.61	7,780.00	-1,687.00	-2,058.76	-1,468.40	1,769.65	0.00	0.00	0.00
9,700.00	90.00	270.61	7,780.00	-1,687.00	-2,057.69	-1,568.39	1,868.27	0.00	0.00	0.00
9,800.00	90.00	270.61	7,780.00	-1,687.00	-2,056.63	-1,668.38	1,966.89	0.00	0.00	0.00
9,900.00	90.00	270.61	7,780.00	-1,687.00	-2,055.56	-1,768.38	2,065.52	0.00	0.00	0.00
10,000.00	90.00	270.61	7,780.00	-1,687.00	-2,054.50	-1,868.37	2,164.14	0.00	0.00	0.00
10,100.00	90.00	270.61	7,780.00	-1,687.00	-2,053.43	-1,968.37	2,262.76	0.00	0.00	0.00
10,200.00	90.00	270.61	7,780.00	-1,687.00	-2,052.36	-2,068.36	2,361.38	0.00	0.00	0.00
10,300.00	90.00	270.61	7,780.00	-1,687.00	-2,051.30	-2,168.36	2,460.00	0.00	0.00	0.00
10,400.00	90.00	270.61	7,780.00	-1,687.00	-2,050.23	-2,268.35	2,558.62	0.00	0.00	0.00
10,500.00	90.00	270.61	7,780.00	-1,687.00	-2,049.16	-2,368.34	2,657.24	0.00	0.00	0.00
10,600.00	90.00	270.61	7,780.00	-1,687.00	-2,048.09	-2,468.34	2,755.87	0.00	0.00	0.00
10,700.00	90.00	270.61	7,780.00	-1,687.00	-2,047.03	-2,568.33	2,854.49	0.00	0.00	0.00
10,800.00	90.00	270.61	7,780.00	-1,687.00	-2,045.96	-2,668.33	2,953.11	0.00	0.00	0.00
10,900.00	90.00	270.61	7,780.00	-1,687.00	-2,044.89	-2,768.32	3,051.73	0.00	0.00	0.00
11,000.00	90.00	270.61	7,780.00	-1,687.00	-2,043.82	-2,868.32	3,150.35	0.00	0.00	0.00
11,100.00	90.00	270.61	7,780.00	-1,687.00	-2,042.76	-2,968.31	3,248.97	0.00	0.00	0.00
11,200.00	90.00	270.61	7,780.00	-1,687.00	-2,041.69	-3,068.30	3,347.59	0.00	0.00	0.00
11,300.00	90.00	270.61	7,780.00	-1,687.00	-2,040.62	-3,168.30	3,446.21	0.00	0.00	0.00
11,400.00	90.00	270.61	7,780.00	-1,687.00	-2,039.55	-3,268.29	3,544.84	0.00	0.00	0.00
11,500.00	90.00	270.61	7,780.00	-1,687.00	-2,038.48	-3,368.29	3,643.46	0.00	0.00	0.00
11,600.00	90.00	270.61	7,780.00	-1,687.00	-2,037.42	-3,468.28	3,742.08	0.00	0.00	0.00
11,700.00	90.00	270.61	7,780.00	-1,687.00	-2,036.35	-3,568.28	3,840.70	0.00	0.00	0.00
11,800.00	90.00	270.61	7,780.00	-1,687.00	-2,035.28	-3,668.27	3,939.32	0.00	0.00	0.00
11,900.00	90.00	270.61	7,780.00	-1,687.00	-2,034.21	-3,768.26	4,037.94	0.00	0.00	0.00
12,000.00	90.00	270.61	7,780.00	-1,687.00	-2,033.14	-3,868.26	4,136.56	0.00	0.00	0.00
12,100.00	90.00	270.61	7,780.00	-1,687.00	-2,032.07	-3,968.25	4,235.18	0.00	0.00	0.00
12,200.00	90.00	270.61	7,780.00	-1,687.00	-2,031.00	-4,068.25	4,333.80	0.00	0.00	0.00
12,300.00	90.00	270.61	7,780.00	-1,687.00	-2,029.93	-4,168.24	4,432.43	0.00	0.00	0.00
12,400.00	90.00	270.61	7,780.00	-1,687.00	-2,028.86	-4,268.24	4,531.05	0.00	0.00	0.00
12,500.00	90.00	270.61	7,780.00	-1,687.00	-2,027.79	-4,368.23	4,629.67	0.00	0.00	0.00
12,600.00	90.00	270.61	7,780.00	-1,687.00	-2,026.72	-4,468.22	4,728.29	0.00	0.00	0.00
12,700.00	90.00	270.61	7,780.00	-1,687.00	-2,025.65	-4,568.22	4,826.91	0.00	0.00	0.00
12,800.00	90.00	270.61	7,780.00	-1,687.00	-2,024.58	-4,668.21	4,925.53	0.00	0.00	0.00
12,900.00	90.00	270.61	7,780.00	-1,687.00	-2,023.51	-4,768.21	5,024.15	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VULCAN 6-64 10-8 8HN
Company:	GMT EXPLORATION COMPANY LLC	TVD Reference:	KB 20' @ 6093.00usft (Original Well Elev)
Project:	ELBERT COUNTY, COLORADO (NAD 83)	MD Reference:	KB 20' @ 6093.00usft (Original Well Elev)
Site:	SE NW SEC. 10 T6S R64W 6th P.M.	North Reference:	True
Well:	VULCAN 6-64 10-8 8HN	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	270.61	7,780.00	-1,687.00	-2,022.44	-4,868.20	5,122.77	0.00	0.00	0.00
13,100.00	90.00	270.61	7,780.00	-1,687.00	-2,021.37	-4,968.20	5,221.39	0.00	0.00	0.00
13,200.00	90.00	270.61	7,780.00	-1,687.00	-2,020.30	-5,068.19	5,320.01	0.00	0.00	0.00
13,300.00	90.00	270.61	7,780.00	-1,687.00	-2,019.23	-5,168.18	5,418.63	0.00	0.00	0.00
13,400.00	90.00	270.61	7,780.00	-1,687.00	-2,018.16	-5,268.18	5,517.26	0.00	0.00	0.00
13,500.00	90.00	270.61	7,780.00	-1,687.00	-2,017.09	-5,368.17	5,615.88	0.00	0.00	0.00
13,600.00	90.00	270.61	7,780.00	-1,687.00	-2,016.02	-5,468.17	5,714.50	0.00	0.00	0.00
13,700.00	90.00	270.61	7,780.00	-1,687.00	-2,014.95	-5,568.16	5,813.12	0.00	0.00	0.00
13,800.00	90.00	270.61	7,780.00	-1,687.00	-2,013.88	-5,668.16	5,911.74	0.00	0.00	0.00
13,900.00	90.00	270.61	7,780.00	-1,687.00	-2,012.81	-5,768.15	6,010.36	0.00	0.00	0.00
14,000.00	90.00	270.61	7,780.00	-1,687.00	-2,011.73	-5,868.14	6,108.98	0.00	0.00	0.00
14,100.00	90.00	270.61	7,780.00	-1,687.00	-2,010.66	-5,968.14	6,207.60	0.00	0.00	0.00
14,200.00	90.00	270.61	7,780.00	-1,687.00	-2,009.59	-6,068.13	6,306.22	0.00	0.00	0.00
14,300.00	90.00	270.61	7,780.00	-1,687.00	-2,008.52	-6,168.13	6,404.84	0.00	0.00	0.00
14,400.00	90.00	270.61	7,780.00	-1,687.00	-2,007.45	-6,268.12	6,503.46	0.00	0.00	0.00
14,500.00	90.00	270.61	7,780.00	-1,687.00	-2,006.38	-6,368.12	6,602.08	0.00	0.00	0.00
14,600.00	90.00	270.61	7,780.00	-1,687.00	-2,005.30	-6,468.11	6,700.70	0.00	0.00	0.00
14,700.00	90.00	270.61	7,780.00	-1,687.00	-2,004.23	-6,568.10	6,799.32	0.00	0.00	0.00
14,800.00	90.00	270.61	7,780.00	-1,687.00	-2,003.16	-6,668.10	6,897.94	0.00	0.00	0.00
14,900.00	90.00	270.61	7,780.00	-1,687.00	-2,002.08	-6,768.09	6,996.56	0.00	0.00	0.00
15,000.00	90.00	270.61	7,780.00	-1,687.00	-2,001.01	-6,868.09	7,095.19	0.00	0.00	0.00
15,100.00	90.00	270.61	7,780.00	-1,687.00	-1,999.94	-6,968.08	7,193.81	0.00	0.00	0.00
15,200.00	90.00	270.61	7,780.00	-1,687.00	-1,998.87	-7,068.07	7,292.43	0.00	0.00	0.00
15,300.00	90.00	270.61	7,780.00	-1,687.00	-1,997.79	-7,168.07	7,391.05	0.00	0.00	0.00
15,400.00	90.00	270.62	7,780.00	-1,687.00	-1,996.72	-7,268.06	7,489.67	0.00	0.00	0.00
15,500.00	90.00	270.62	7,780.00	-1,687.00	-1,995.65	-7,368.06	7,588.29	0.00	0.00	0.00
15,600.00	90.00	270.62	7,780.00	-1,687.00	-1,994.57	-7,468.05	7,686.91	0.00	0.00	0.00
15,700.00	90.00	270.62	7,780.00	-1,687.00	-1,993.50	-7,568.05	7,785.53	0.00	0.00	0.00
15,800.00	90.00	270.62	7,780.00	-1,687.00	-1,992.42	-7,668.04	7,884.15	0.00	0.00	0.00
15,900.00	90.00	270.62	7,780.00	-1,687.00	-1,991.35	-7,768.03	7,982.77	0.00	0.00	0.00
16,000.00	90.00	270.62	7,780.00	-1,687.00	-1,990.28	-7,868.03	8,081.39	0.00	0.00	0.00
16,100.00	90.00	270.62	7,780.00	-1,687.00	-1,989.20	-7,968.02	8,180.01	0.00	0.00	0.00
16,200.00	90.00	270.62	7,780.00	-1,687.00	-1,988.13	-8,068.02	8,278.63	0.00	0.00	0.00
16,300.00	90.00	270.62	7,780.00	-1,687.00	-1,987.05	-8,168.01	8,377.25	0.00	0.00	0.00
16,400.00	90.00	270.62	7,780.00	-1,687.00	-1,985.98	-8,268.01	8,475.87	0.00	0.00	0.00
16,500.00	90.00	270.62	7,780.00	-1,687.00	-1,984.90	-8,368.00	8,574.49	0.00	0.00	0.00
16,600.00	90.00	270.62	7,780.00	-1,687.00	-1,983.83	-8,467.99	8,673.11	0.00	0.00	0.00
16,700.00	90.00	270.62	7,780.00	-1,687.00	-1,982.75	-8,567.99	8,771.73	0.00	0.00	0.00
16,800.00	90.00	270.62	7,780.00	-1,687.00	-1,981.68	-8,667.98	8,870.35	0.00	0.00	0.00
16,900.00	90.00	270.62	7,780.00	-1,687.00	-1,980.60	-8,767.98	8,968.97	0.00	0.00	0.00
17,000.00	90.00	270.62	7,780.00	-1,687.00	-1,979.53	-8,867.97	9,067.59	0.00	0.00	0.00
17,100.00	90.00	270.62	7,780.00	-1,687.00	-1,978.45	-8,967.97	9,166.21	0.00	0.00	0.00
17,200.00	90.00	270.62	7,780.00	-1,687.00	-1,977.38	-9,067.96	9,264.83	0.00	0.00	0.00
17,300.00	90.00	270.62	7,780.00	-1,687.00	-1,976.30	-9,167.95	9,363.45	0.00	0.00	0.00
17,400.00	90.00	270.62	7,780.00	-1,687.00	-1,975.23	-9,267.95	9,462.07	0.00	0.00	0.00
17,500.00	90.00	270.62	7,780.00	-1,687.00	-1,974.15	-9,367.94	9,560.69	0.00	0.00	0.00
17,600.00	90.00	270.62	7,780.00	-1,687.00	-1,973.07	-9,467.94	9,659.31	0.00	0.00	0.00
17,700.00	90.00	270.62	7,780.00	-1,687.00	-1,972.00	-9,567.93	9,757.93	0.00	0.00	0.00
17,800.00	90.00	270.62	7,780.00	-1,687.00	-1,970.92	-9,667.92	9,856.55	0.00	0.00	0.00
17,900.00	90.00	270.62	7,780.00	-1,687.00	-1,969.84	-9,767.92	9,955.17	0.00	0.00	0.00
18,000.00	90.00	270.62	7,780.00	-1,687.00	-1,968.77	-9,867.91	10,053.79	0.00	0.00	0.00
18,100.00	90.00	270.62	7,780.00	-1,687.00	-1,967.69	-9,967.91	10,152.41	0.00	0.00	0.00
18,200.00	90.00	270.62	7,780.00	-1,687.00	-1,966.61	-10,067.90	10,251.03	0.00	0.00	0.00
18,300.00	90.00	270.62	7,780.00	-1,687.00	-1,965.54	-10,167.90	10,349.65	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VULCAN 6-64 10-8 8HN
Company:	GMT EXPLORATION COMPANY LLC	TVD Reference:	KB 20' @ 6093.00usft (Original Well Elev)
Project:	ELBERT COUNTY, COLORADO (NAD 83)	MD Reference:	KB 20' @ 6093.00usft (Original Well Elev)
Site:	SE NW SEC. 10 T6S R64W 6th P.M.	North Reference:	True
Well:	VULCAN 6-64 10-8 8HN	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)
18,400.00	90.00	270.62	7,780.00	-1,687.00	-1,964.46	-10,267.89	10,448.27	0.00	0.00	0.00
18,500.00	90.00	270.62	7,780.00	-1,687.00	-1,963.38	-10,367.88	10,546.89	0.00	0.00	0.00
18,600.00	90.00	270.62	7,780.00	-1,687.00	-1,962.30	-10,467.88	10,645.51	0.00	0.00	0.00
18,700.00	90.00	270.62	7,780.00	-1,687.00	-1,961.23	-10,567.87	10,744.13	0.00	0.00	0.00
18,800.00	90.00	270.62	7,780.00	-1,687.00	-1,960.15	-10,667.87	10,842.75	0.00	0.00	0.00
18,900.00	90.00	270.62	7,780.00	-1,687.00	-1,959.07	-10,767.86	10,941.37	0.00	0.00	0.00
19,000.00	90.00	270.62	7,780.00	-1,687.00	-1,957.99	-10,867.86	11,039.99	0.00	0.00	0.00
19,100.00	90.00	270.62	7,780.00	-1,687.00	-1,956.92	-10,967.85	11,138.61	0.00	0.00	0.00
19,200.00	90.00	270.62	7,780.00	-1,687.00	-1,955.84	-11,067.84	11,237.22	0.00	0.00	0.00
19,300.00	90.00	270.62	7,780.00	-1,687.00	-1,954.76	-11,167.84	11,335.84	0.00	0.00	0.00
19,400.00	90.00	270.62	7,780.00	-1,687.00	-1,953.68	-11,267.83	11,434.46	0.00	0.00	0.00
19,500.00	90.00	270.62	7,780.00	-1,687.00	-1,952.60	-11,367.83	11,533.08	0.00	0.00	0.00
19,600.00	90.00	270.62	7,780.00	-1,687.00	-1,951.52	-11,467.82	11,631.70	0.00	0.00	0.00
19,700.00	90.00	270.62	7,780.00	-1,687.00	-1,950.44	-11,567.81	11,730.32	0.00	0.00	0.00
19,800.00	90.00	270.62	7,780.00	-1,687.00	-1,949.36	-11,667.81	11,828.94	0.00	0.00	0.00
19,900.00	90.00	270.62	7,780.00	-1,687.00	-1,948.29	-11,767.80	11,927.56	0.00	0.00	0.00
20,000.00	90.00	270.62	7,780.00	-1,687.00	-1,947.21	-11,867.80	12,026.18	0.00	0.00	0.00
20,100.00	90.00	270.62	7,780.00	-1,687.00	-1,946.13	-11,967.79	12,124.80	0.00	0.00	0.00
20,200.00	90.00	270.62	7,780.00	-1,687.00	-1,945.05	-12,067.79	12,223.42	0.00	0.00	0.00
20,300.00	90.00	270.62	7,780.00	-1,687.00	-1,943.97	-12,167.78	12,322.04	0.00	0.00	0.00
20,400.00	90.00	270.62	7,780.00	-1,687.00	-1,942.89	-12,267.77	12,420.66	0.00	0.00	0.00
LTP: 1539ft FSL & 600ft FWL of Sec 8										
20,467.84	90.00	270.62	7,780.00	-1,687.00	-1,942.16	-12,335.61	12,487.56	0.00	0.00	0.00
20,500.00	90.00	269.25	7,780.00	-1,687.00	-1,942.19	-12,367.77	12,519.34	4.25	0.00	-4.25
EOT TO 268.97° AZ										
20,506.74	90.00	268.97	7,780.00	-1,687.00	-1,942.30	-12,374.51	12,526.01	4.25	0.00	-4.25
BHL: 1539ft FSL & 550ft FWL of Sec 8										
20,517.76	90.00	268.97	7,780.00	-1,687.00	-1,942.50	-12,385.53	12,536.93	0.00	0.00	0.00

Formations

MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,020.86	1,018.00	DENVER		0.00	
1,583.58	1,558.00	UPPER ARAPAHOE		0.00	
1,985.26	1,933.00	LARAMIE - FOX HILLS		0.00	
2,249.83	2,180.00	PIERRE SHALE (BASE OF FOX HI		0.00	
5,671.02	5,374.00	SUSSEX SANDSTONE		0.00	
7,954.63	7,563.00	SHARON SPRINGS		0.00	
8,031.71	7,620.00	NIOBRARA		0.00	
8,046.33	7,630.00	NIOBRARA A		0.00	
8,255.19	7,740.00	NIOBRARA B TOP		0.00	

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VULCAN 6-64 10-8 8HN
Company:	GMT EXPLORATION COMPANY LLC	TVD Reference:	KB 20' @ 6093.00usft (Original Well Elev)
Project:	ELBERT COUNTY, COLORADO (NAD 83)	MD Reference:	KB 20' @ 6093.00usft (Original Well Elev)
Site:	SE NW SEC. 10 T6S R64W 6th P.M.	North Reference:	True
Well:	VULCAN 6-64 10-8 8HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Plan Annotations

MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
0.00	0.00	0.00	0.00	SHL: 1740ft FNL & 2260ft FWL of Sec 10
500.00	500.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1,549.91	1,526.56	-189.05	21.29	EOB TO 21° INC
6,320.64	5,980.48	-1,887.84	212.63	END OF TANGENT
7,370.54	7,007.04	-2,076.89	233.92	EOD TO VERTICAL
7,570.54	7,207.04	-2,076.89	233.92	KOP (10°/100ft BUR)
8,470.55	7,780.00	-2,070.79	-339.01	HZ LP: 1514ft FSL & 1981ft FWL of Sec 10
20,467.84	7,780.00	-1,942.16	-12,335.61	LTP: 1539ft FSL & 600ft FWL of Sec 8
20,506.74	7,780.00	-1,942.30	-12,374.51	EOT TO 268.97° AZ
20,517.76	7,780.00	-1,942.50	-12,385.53	BHL: 1539ft FSL & 550ft FWL of Sec 8