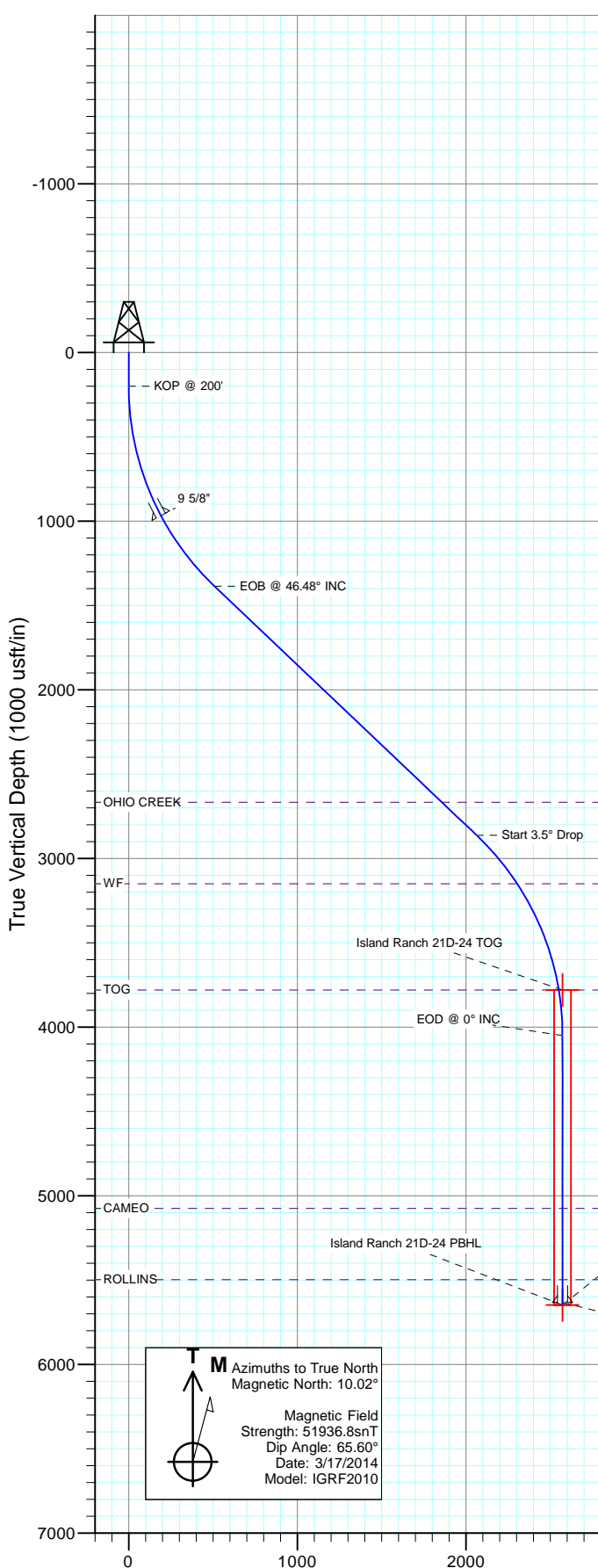
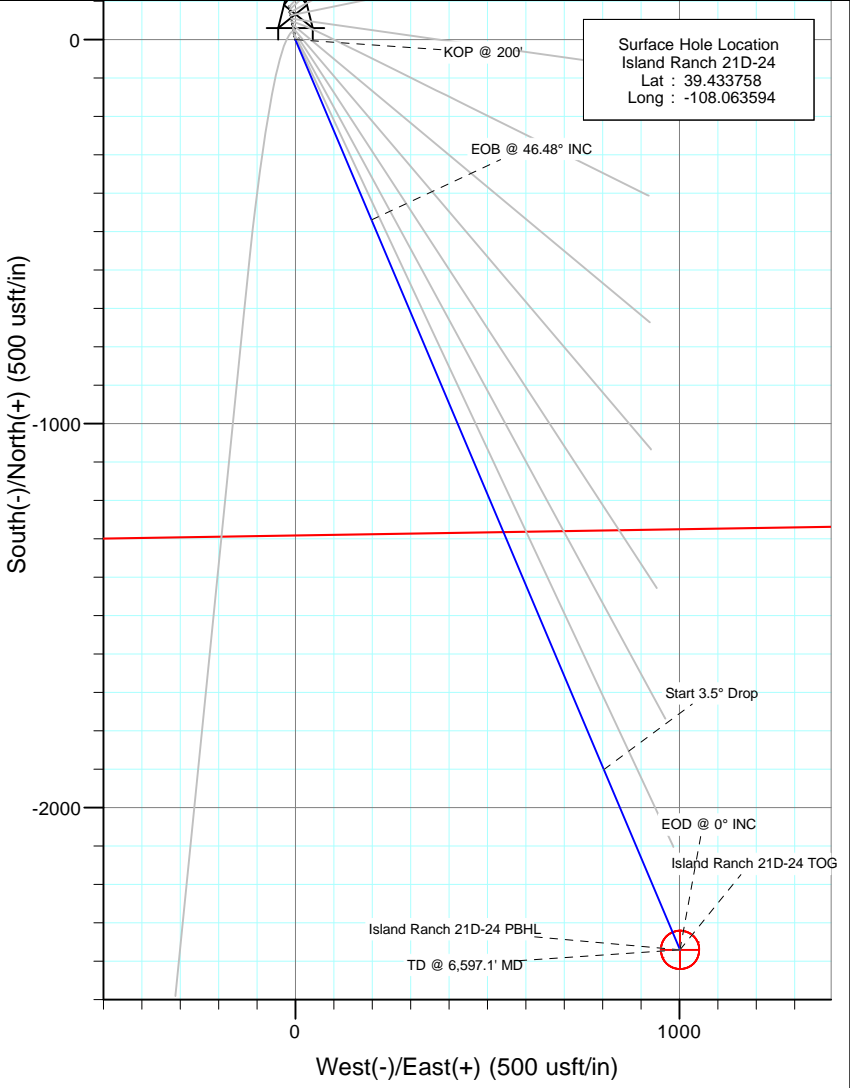




Project: Garfield County, CO
 Site: S13-T7S-R96W (Island Ranch)
 Well: Island Ranch 21D-24
 Wellbore: DD
 Design: Plan #3



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	1527.9	46.48	157.09	1387.0	-469.4	198.4	3.50	157.09	509.7	
4	3671.2	46.48	157.09	2863.0	-1900.9	803.5	0.00	0.00	2063.8	
5	4999.1	0.00	0.00	4050.0	-2370.4	1002.0	3.50	180.00	2573.4	
6	6597.1	0.00	0.00	5648.0	-2370.4	1002.0	0.00	0.00	2573.4	Island Ranch 21D-24 PBHL

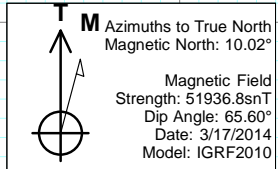


DESIGN TARGET DETAILS						
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Island Ranch 21D-24 TOG	-2370.4	1002.0	590682.59	1276924.85	39.427250	-108.060047
Island Ranch 21D-24 PBHL	-2370.4	1002.0	590682.59	1276924.85	39.427250	-108.060047

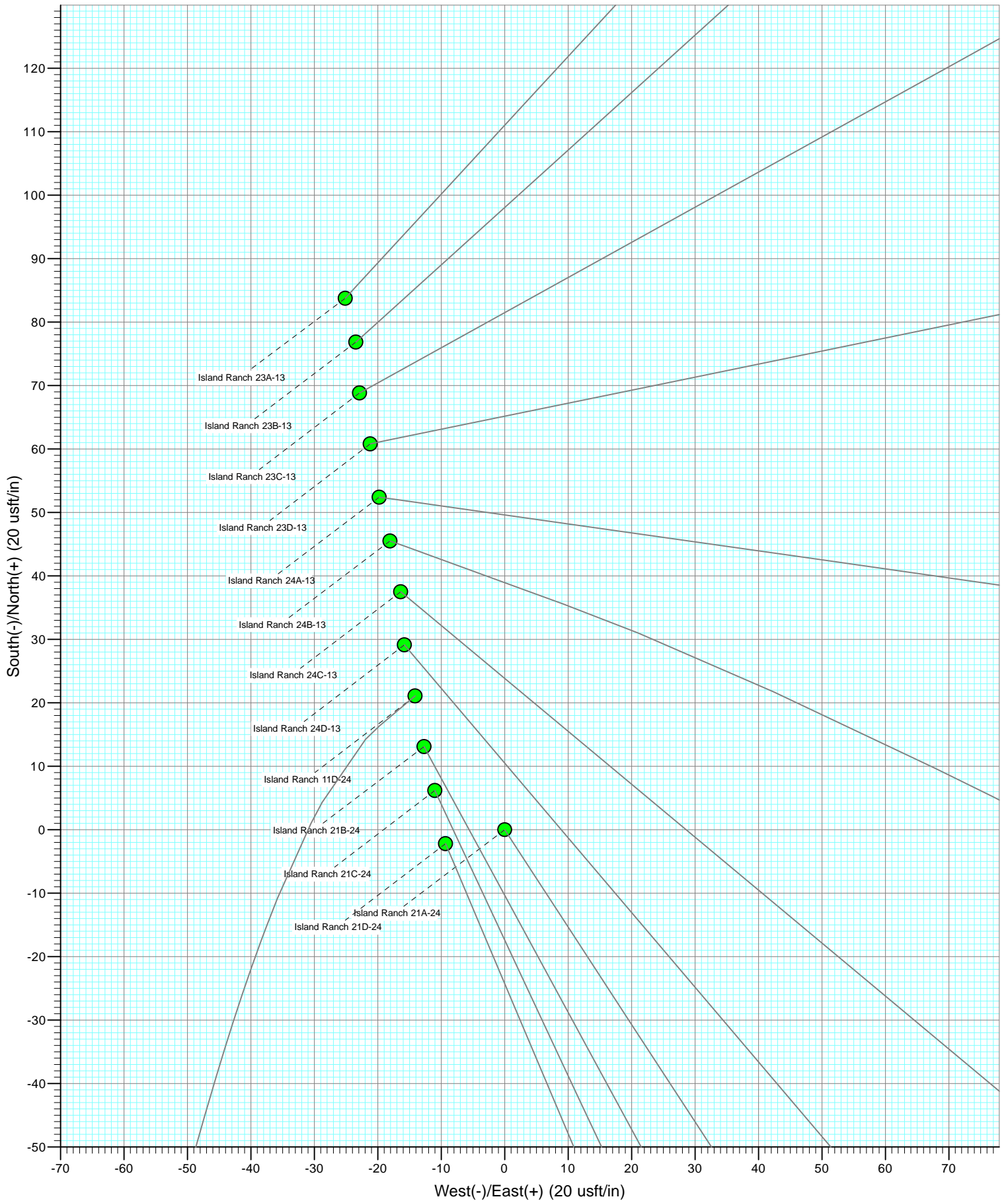
FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
2667.0	3386.6	OHIO CREEK
3150.0	4046.2	WF
3780.0	4727.9	TOG
5075.0	6024.1	CAMEO
5498.0	6447.1	ROLLINS

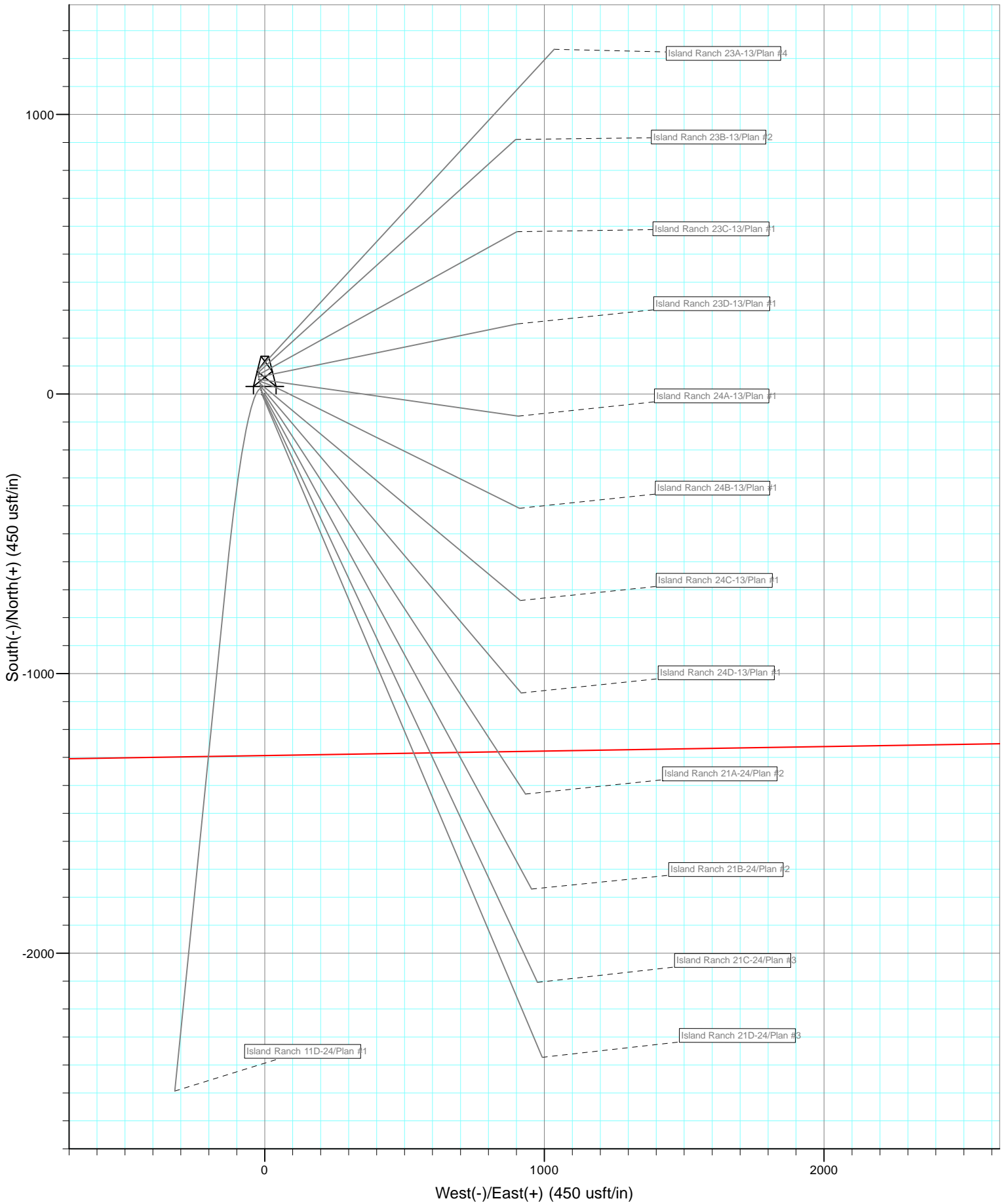
CASING DETAILS		
TVD	MD	Name
968.5	1000.0	9 5/8"
5633.1	6582.2	4 1/2"

Plan #3
 Island Ranch 21D-24
 KB=20' @ 5100.0usft (Patterson #303)
 Ground Elevation @ 5080.0
 NAD 1927 (NADCON CONUS)
 Well Island Ranch 21D-24, True North



Vertical Section at 157.09° (1000 usft/in)





Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Island Ranch 21D-24
Company:	Caerus Oil & Gas (NAD 27)	TVD Reference:	KB=20' @ 5100.0usft (Patterson #303)
Project:	Garfield County, CO	MD Reference:	KB=20' @ 5100.0usft (Patterson #303)
Site:	S13-T7S-R96W (Island Ranch)	North Reference:	True
Well:	Island Ranch 21D-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #3		

Project	Garfield County, CO		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Colorado Central 502		

Site	S13-T7S-R96W (Island Ranch)				
Site Position:		Northing:	593,103.71 usft	Latitude:	39.433822
From:	Lat/Long	Easting:	1,275,986.01 usft	Longitude:	-108.063611
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	-1.62 °

Well	Island Ranch 21D-24					
Well Position	+N/-S	0.0 usft	Northing:	593,080.27 usft	Latitude:	39.433758
	+E/-W	0.0 usft	Easting:	1,275,990.16 usft	Longitude:	-108.063594
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	5,080.0 usft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010	3/17/2014	(°)	(°)	(nT)
			10.02	65.60	51,937

Design	Plan #3				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	157.09	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,527.9	46.48	157.09	1,387.0	-469.4	198.4	3.50	3.50	0.00	157.09	
3,671.2	46.48	157.09	2,863.0	-1,900.9	803.5	0.00	0.00	0.00	0.00	
4,999.1	0.00	0.00	4,050.0	-2,370.4	1,002.0	3.50	-3.50	0.00	180.00	
6,597.1	0.00	0.00	5,648.0	-2,370.4	1,002.0	0.00	0.00	0.00	0.00	Island Ranch 21D-24

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Island Ranch 21D-24
Company:	Caerus Oil & Gas (NAD 27)	TVD Reference:	KB=20' @ 5100.0usft (Patterson #303)
Project:	Garfield County, CO	MD Reference:	KB=20' @ 5100.0usft (Patterson #303)
Site:	S13-T7S-R96W (Island Ranch)	North Reference:	True
Well:	Island Ranch 21D-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #3		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200'
300.0	3.50	157.09	299.9	-2.8	1.2	3.1	3.50	3.50	
400.0	7.00	157.09	399.5	-11.2	4.8	12.2	3.50	3.50	
500.0	10.50	157.09	498.3	-25.2	10.7	27.4	3.50	3.50	
600.0	14.00	157.09	596.0	-44.8	18.9	48.6	3.50	3.50	
700.0	17.50	157.09	692.3	-69.8	29.5	75.8	3.50	3.50	
800.0	21.00	157.09	786.7	-100.2	42.3	108.7	3.50	3.50	
900.0	24.50	157.09	878.9	-135.8	57.4	147.4	3.50	3.50	
1,000.0	28.00	157.09	968.5	-176.5	74.6	191.6	3.50	3.50	9 5/8"
1,100.0	31.50	157.09	1,055.3	-222.2	93.9	241.2	3.50	3.50	
1,200.0	35.00	157.09	1,139.0	-272.7	115.3	296.1	3.50	3.50	
1,300.0	38.50	157.09	1,219.1	-327.8	138.6	355.9	3.50	3.50	
1,400.0	42.00	157.09	1,295.4	-387.3	163.7	420.5	3.50	3.50	
1,500.0	45.50	157.09	1,367.6	-451.0	190.6	489.6	3.50	3.50	
1,527.9	46.48	157.09	1,387.0	-469.4	198.4	509.7	3.50	3.50	EOB @ 46.48° INC
1,600.0	46.48	157.09	1,436.6	-517.6	218.8	562.0	0.00	0.00	
1,700.0	46.48	157.09	1,505.5	-584.4	247.0	634.5	0.00	0.00	
1,800.0	46.48	157.09	1,574.4	-651.2	275.3	707.0	0.00	0.00	
1,900.0	46.48	157.09	1,643.2	-718.0	303.5	779.5	0.00	0.00	
2,000.0	46.48	157.09	1,712.1	-784.8	331.7	852.0	0.00	0.00	
2,100.0	46.48	157.09	1,781.0	-851.5	360.0	924.5	0.00	0.00	
2,200.0	46.48	157.09	1,849.8	-918.3	388.2	997.0	0.00	0.00	
2,300.0	46.48	157.09	1,918.7	-985.1	416.4	1,069.5	0.00	0.00	
2,400.0	46.48	157.09	1,987.6	-1,051.9	444.6	1,142.0	0.00	0.00	
2,500.0	46.48	157.09	2,056.4	-1,118.7	472.9	1,214.5	0.00	0.00	
2,600.0	46.48	157.09	2,125.3	-1,185.5	501.1	1,287.0	0.00	0.00	
2,700.0	46.48	157.09	2,194.2	-1,252.3	529.3	1,359.5	0.00	0.00	
2,800.0	46.48	157.09	2,263.0	-1,319.1	557.6	1,432.1	0.00	0.00	
2,900.0	46.48	157.09	2,331.9	-1,385.8	585.8	1,504.6	0.00	0.00	
3,000.0	46.48	157.09	2,400.8	-1,452.6	614.0	1,577.1	0.00	0.00	
3,100.0	46.48	157.09	2,469.6	-1,519.4	642.3	1,649.6	0.00	0.00	
3,200.0	46.48	157.09	2,538.5	-1,586.2	670.5	1,722.1	0.00	0.00	
3,300.0	46.48	157.09	2,607.4	-1,653.0	698.7	1,794.6	0.00	0.00	
3,386.6	46.48	157.09	2,667.0	-1,710.8	723.2	1,857.4	0.00	0.00	OHIO CREEK
3,400.0	46.48	157.09	2,676.2	-1,719.8	727.0	1,867.1	0.00	0.00	
3,500.0	46.48	157.09	2,745.1	-1,786.6	755.2	1,939.6	0.00	0.00	
3,600.0	46.48	157.09	2,814.0	-1,853.3	783.4	2,012.1	0.00	0.00	
3,671.2	46.48	157.09	2,863.0	-1,900.9	803.5	2,063.8	0.00	0.00	Start 3.5° Drop
3,700.0	45.47	157.09	2,883.0	-1,920.0	811.6	2,084.5	3.50	-3.50	
3,800.0	41.97	157.09	2,955.3	-1,983.6	838.5	2,153.6	3.50	-3.50	
3,900.0	38.47	157.09	3,031.6	-2,043.1	863.6	2,218.1	3.50	-3.50	
4,000.0	34.97	157.09	3,111.8	-2,098.1	886.9	2,277.9	3.50	-3.50	
4,046.2	33.35	157.09	3,150.0	-2,122.0	897.0	2,303.8	3.50	-3.50	WF
4,100.0	31.47	157.09	3,195.4	-2,148.6	908.2	2,332.7	3.50	-3.50	
4,200.0	27.97	157.09	3,282.3	-2,194.2	927.5	2,382.2	3.50	-3.50	
4,300.0	24.47	157.09	3,372.0	-2,234.9	944.7	2,426.4	3.50	-3.50	
4,400.0	20.97	157.09	3,464.2	-2,270.5	959.8	2,465.0	3.50	-3.50	
4,500.0	17.47	157.09	3,558.6	-2,300.8	972.6	2,497.9	3.50	-3.50	
4,600.0	13.97	157.09	3,654.8	-2,325.8	983.1	2,525.0	3.50	-3.50	
4,700.0	10.47	157.09	3,752.6	-2,345.3	991.4	2,546.2	3.50	-3.50	

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: Caerus Oil & Gas (NAD 27)
Project: Garfield County, CO
Site: S13-T7S-R96W (Island Ranch)
Well: Island Ranch 21D-24
Wellbore: DD
Design: Plan #3

Local Co-ordinate Reference: Well Island Ranch 21D-24
TVD Reference: KB=20' @ 5100.0usft (Patterson #303)
MD Reference: KB=20' @ 5100.0usft (Patterson #303)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
4,727.9	9.49	157.09	3,780.0	-2,349.7	993.2	2,551.0	3.50	-3.50	TOG
4,800.0	6.97	157.09	3,851.4	-2,359.2	997.3	2,561.3	3.50	-3.50	
4,900.0	3.47	157.09	3,951.0	-2,367.6	1,000.8	2,570.4	3.50	-3.50	
4,999.1	0.00	0.00	4,050.0	-2,370.4	1,002.0	2,573.4	3.50	-3.50	EOD @ 0° INC
5,100.0	0.00	0.00	4,150.9	-2,370.4	1,002.0	2,573.4	0.00	0.00	
5,200.0	0.00	0.00	4,250.9	-2,370.4	1,002.0	2,573.4	0.00	0.00	
5,300.0	0.00	0.00	4,350.9	-2,370.4	1,002.0	2,573.4	0.00	0.00	
5,400.0	0.00	0.00	4,450.9	-2,370.4	1,002.0	2,573.4	0.00	0.00	
5,500.0	0.00	0.00	4,550.9	-2,370.4	1,002.0	2,573.4	0.00	0.00	
5,600.0	0.00	0.00	4,650.9	-2,370.4	1,002.0	2,573.4	0.00	0.00	
5,700.0	0.00	0.00	4,750.9	-2,370.4	1,002.0	2,573.4	0.00	0.00	
5,800.0	0.00	0.00	4,850.9	-2,370.4	1,002.0	2,573.4	0.00	0.00	
5,900.0	0.00	0.00	4,950.9	-2,370.4	1,002.0	2,573.4	0.00	0.00	
6,000.0	0.00	0.00	5,050.9	-2,370.4	1,002.0	2,573.4	0.00	0.00	
6,024.1	0.00	0.00	5,075.0	-2,370.4	1,002.0	2,573.4	0.00	0.00	CAMEO
6,100.0	0.00	0.00	5,150.9	-2,370.4	1,002.0	2,573.4	0.00	0.00	
6,200.0	0.00	0.00	5,250.9	-2,370.4	1,002.0	2,573.4	0.00	0.00	
6,300.0	0.00	0.00	5,350.9	-2,370.4	1,002.0	2,573.4	0.00	0.00	
6,400.0	0.00	0.00	5,450.9	-2,370.4	1,002.0	2,573.4	0.00	0.00	
6,447.1	0.00	0.00	5,498.0	-2,370.4	1,002.0	2,573.4	0.00	0.00	ROLLINS
6,500.0	0.00	0.00	5,550.9	-2,370.4	1,002.0	2,573.4	0.00	0.00	
6,582.2	0.00	0.00	5,633.1	-2,370.4	1,002.0	2,573.4	0.00	0.00	4 1/2"
6,597.1	0.00	0.00	5,648.0	-2,370.4	1,002.0	2,573.4	0.00	0.00	TD @ 6,597.1' MD

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Island Ranch 21D-24 TC - hit/miss target - Shape	0.00	0.00	3,780.0	-2,370.4	1,002.0	590,682.59	1,276,924.85	39.427250	-108.060047
- plan misses target center by 22.1usft at 4731.1usft MD (3783.2 TVD, -2350.2 N, 993.4 E) - Circle (radius 50.0)									
Island Ranch 21D-24 PE - plan hits target center - Circle (radius 50.0)	0.00	0.00	5,648.0	-2,370.4	1,002.0	590,682.59	1,276,924.85	39.427250	-108.060047

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,000.0	968.5	9 5/8"	0	0
6,582.2	5,633.1	4 1/2"	0	0

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Island Ranch 21D-24
Company:	Caerus Oil & Gas (NAD 27)	TVD Reference:	KB=20' @ 5100.0usft (Patterson #303)
Project:	Garfield County, CO	MD Reference:	KB=20' @ 5100.0usft (Patterson #303)
Site:	S13-T7S-R96W (Island Ranch)	North Reference:	True
Well:	Island Ranch 21D-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #3		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,386.6	2,667.0	OHIO CREEK		0.00	
4,046.2	3,150.0	WF		0.00	
4,727.9	3,780.0	TOG		0.00	
6,024.1	5,075.0	CAMEO		0.00	
6,447.1	5,498.0	ROLLINS		0.00	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
200.0	200.0	0.0	0.0	KOP @ 200'	
1,527.9	1,387.0	-469.4	198.4	EOB @ 46.48° INC	
3,671.2	2,863.0	-1,900.9	803.5	Start 3.5° Drop	
4,999.1	4,050.0	-2,370.4	1,002.0	EOD @ 0° INC	
6,597.1	5,648.0	-2,370.4	1,002.0	TD @ 6,597.1' MD	