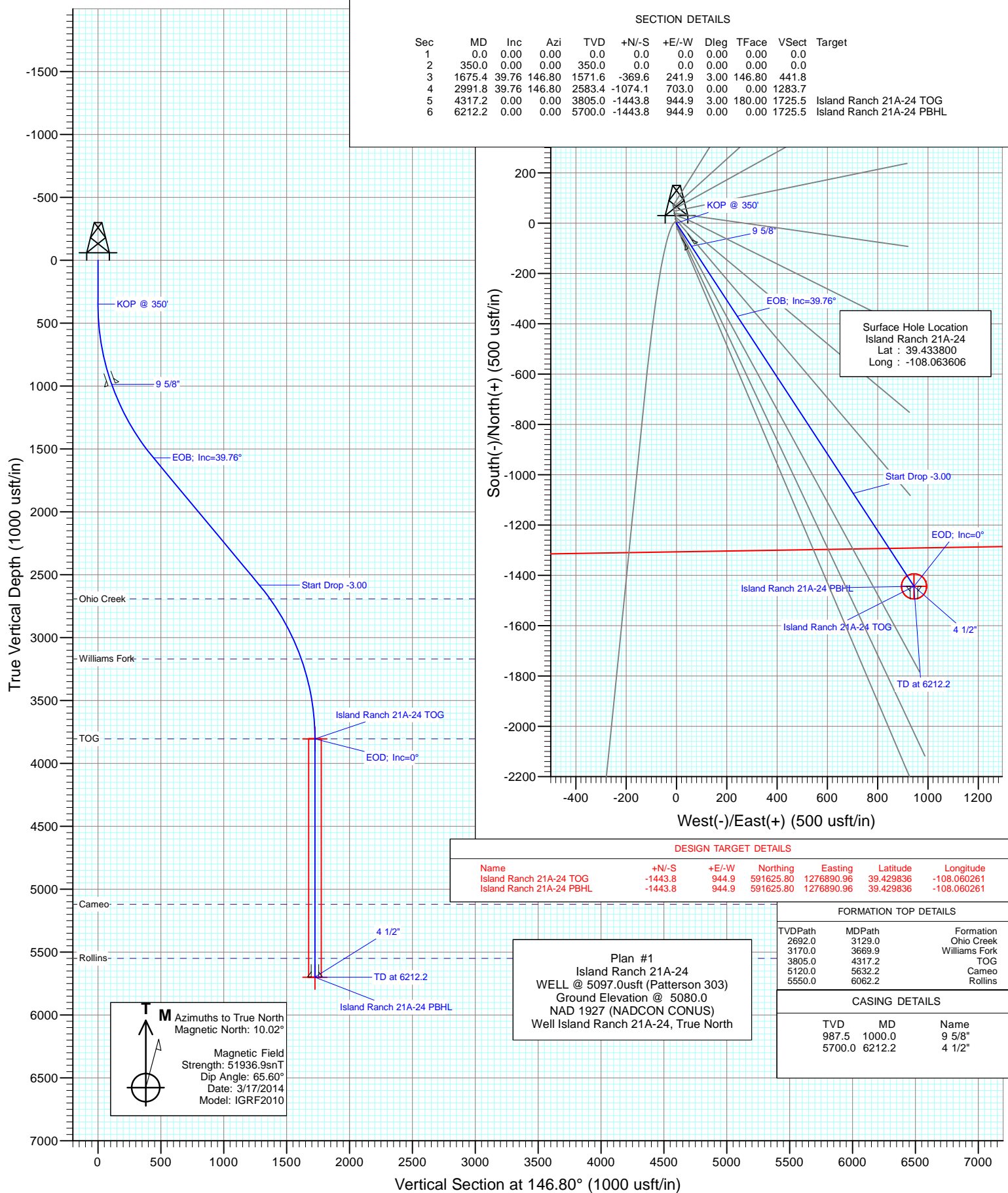




Project: Garfield County, CO
 Site: S13-T7S-R96W
 Well: Island Ranch 21A-24
 Wellbore: DD
 Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Island Ranch 21A-24
Company:	Caerus Oil & Gas (NAD 27)	TVD Reference:	WELL @ 5097.0usft (Patterson 303)
Project:	Garfield County, CO	MD Reference:	WELL @ 5097.0usft (Patterson 303)
Site:	S13-T7S-R96W	North Reference:	True
Well:	Island Ranch 21A-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

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

Well	Island Ranch 21A-24		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	39.433800
		Longitude:	-108.063606
		Ground Level:	5,080.0 usft

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

Design	Plan #1			
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	146.80

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)	(°)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
350.0	0.00	0.00	350.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,675.4	39.76	146.80	1,571.6	-369.6	241.9	3.00	3.00	0.00	146.80	
2,991.8	39.76	146.80	2,583.4	-1,074.1	703.0	0.00	0.00	0.00	0.00	
4,317.2	0.00	0.00	3,805.0	-1,443.8	944.9	3.00	-3.00	0.00	180.00	Island Ranch 21A-24
6,212.2	0.00	0.00	5,700.0	-1,443.8	944.9	0.00	0.00	0.00	0.00	Island Ranch 21A-24

Cathedral Energy Services

Planning Report

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Company:	Caerus Oil & Gas (NAD 27)	TVD Reference:	WELL @ 5097.0usft (Patterson 303)
Project:	Garfield County, CO	MD Reference:	WELL @ 5097.0usft (Patterson 303)
Site:	S13-T7S-R96W	North Reference:	True
Well:	Island Ranch 21A-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

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	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
350.0	0.00	0.00	350.0	0.0	0.0	0.0	0.00	0.00	KOP @ 350'
400.0	1.50	146.80	400.0	-0.5	0.4	0.7	3.00	3.00	
500.0	4.50	146.80	499.8	-4.9	3.2	5.9	3.00	3.00	
600.0	7.50	146.80	599.3	-13.7	8.9	16.3	3.00	3.00	
700.0	10.50	146.80	698.0	-26.8	17.5	32.0	3.00	3.00	
800.0	13.50	146.80	795.8	-44.2	28.9	52.8	3.00	3.00	
900.0	16.50	146.80	892.4	-65.8	43.1	78.6	3.00	3.00	
1,000.0	19.50	146.80	987.5	-91.7	60.0	109.5	3.00	3.00	9 5/8"
1,100.0	22.50	146.80	1,080.9	-121.6	79.6	145.4	3.00	3.00	
1,200.0	25.50	146.80	1,172.2	-155.7	101.9	186.0	3.00	3.00	
1,300.0	28.50	146.80	1,261.3	-193.7	126.7	231.4	3.00	3.00	
1,400.0	31.50	146.80	1,347.9	-235.5	154.1	281.4	3.00	3.00	
1,500.0	34.50	146.80	1,431.8	-281.1	183.9	335.9	3.00	3.00	
1,600.0	37.50	146.80	1,512.6	-330.2	216.1	394.7	3.00	3.00	
1,675.4	39.76	146.80	1,571.6	-369.6	241.9	441.8	3.00	3.00	EOB; Inc=39.76°
1,700.0	39.76	146.80	1,590.5	-382.8	250.5	457.5	0.00	0.00	
1,800.0	39.76	146.80	1,667.3	-436.3	285.5	521.4	0.00	0.00	
1,900.0	39.76	146.80	1,744.2	-489.8	320.6	585.4	0.00	0.00	
2,000.0	39.76	146.80	1,821.1	-543.3	355.6	649.4	0.00	0.00	
2,100.0	39.76	146.80	1,897.9	-596.9	390.6	713.3	0.00	0.00	
2,200.0	39.76	146.80	1,974.8	-650.4	425.6	777.3	0.00	0.00	
2,300.0	39.76	146.80	2,051.7	-703.9	460.7	841.2	0.00	0.00	
2,400.0	39.76	146.80	2,128.5	-757.4	495.7	905.2	0.00	0.00	
2,500.0	39.76	146.80	2,205.4	-810.9	530.7	969.2	0.00	0.00	
2,600.0	39.76	146.80	2,282.3	-864.5	565.7	1,033.1	0.00	0.00	
2,700.0	39.76	146.80	2,359.1	-918.0	600.8	1,097.1	0.00	0.00	
2,800.0	39.76	146.80	2,436.0	-971.5	635.8	1,161.0	0.00	0.00	
2,900.0	39.76	146.80	2,512.9	-1,025.0	670.8	1,225.0	0.00	0.00	
2,991.8	39.76	146.80	2,583.4	-1,074.1	703.0	1,283.7	0.00	0.00	Start Drop -3.00
3,000.0	39.52	146.80	2,589.8	-1,078.5	705.8	1,289.0	3.00	-3.00	
3,100.0	36.52	146.80	2,668.5	-1,130.0	739.6	1,350.5	3.00	-3.00	
3,129.0	35.65	146.80	2,692.0	-1,144.4	748.9	1,367.6	3.00	-3.00	Ohio Creek
3,200.0	33.52	146.80	2,750.4	-1,178.1	771.0	1,407.9	3.00	-3.00	
3,300.0	30.52	146.80	2,835.2	-1,222.4	800.0	1,460.9	3.00	-3.00	
3,400.0	27.52	146.80	2,922.6	-1,263.0	826.6	1,509.4	3.00	-3.00	
3,500.0	24.52	146.80	3,012.5	-1,299.7	850.6	1,553.3	3.00	-3.00	
3,600.0	21.52	146.80	3,104.5	-1,332.4	872.0	1,592.4	3.00	-3.00	
3,669.9	19.42	146.80	3,170.0	-1,352.8	885.4	1,616.8	3.00	-3.00	Williams Fork
3,700.0	18.52	146.80	3,198.5	-1,361.0	890.7	1,626.6	3.00	-3.00	
3,800.0	15.52	146.80	3,294.1	-1,385.5	906.8	1,655.9	3.00	-3.00	
3,900.0	12.52	146.80	3,391.1	-1,405.8	920.0	1,680.1	3.00	-3.00	
4,000.0	9.52	146.80	3,489.2	-1,421.8	930.5	1,699.2	3.00	-3.00	
4,100.0	6.52	146.80	3,588.3	-1,433.4	938.1	1,713.1	3.00	-3.00	
4,200.0	3.52	146.80	3,687.9	-1,440.8	942.9	1,721.9	3.00	-3.00	
4,300.0	0.52	146.80	3,787.8	-1,443.7	944.8	1,725.4	3.00	-3.00	
4,317.2	0.00	0.00	3,805.0	-1,443.8	944.9	1,725.5	3.00	-3.00	EOD; Inc=0° - TOG
4,400.0	0.00	0.00	3,887.8	-1,443.8	944.9	1,725.5	0.00	0.00	
4,500.0	0.00	0.00	3,987.8	-1,443.8	944.9	1,725.5	0.00	0.00	

Cathedral Energy Services

Planning Report

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Company:	Caerus Oil & Gas (NAD 27)	TVD Reference:	WELL @ 5097.0usft (Patterson 303)
Project:	Garfield County, CO	MD Reference:	WELL @ 5097.0usft (Patterson 303)
Site:	S13-T7S-R96W	North Reference:	True
Well:	Island Ranch 21A-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

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
4,600.0	0.00	0.00	4,087.8	-1,443.8	944.9	1,725.5	0.00	0.00	
4,700.0	0.00	0.00	4,187.8	-1,443.8	944.9	1,725.5	0.00	0.00	
4,800.0	0.00	0.00	4,287.8	-1,443.8	944.9	1,725.5	0.00	0.00	
4,900.0	0.00	0.00	4,387.8	-1,443.8	944.9	1,725.5	0.00	0.00	
5,000.0	0.00	0.00	4,487.8	-1,443.8	944.9	1,725.5	0.00	0.00	
5,100.0	0.00	0.00	4,587.8	-1,443.8	944.9	1,725.5	0.00	0.00	
5,200.0	0.00	0.00	4,687.8	-1,443.8	944.9	1,725.5	0.00	0.00	
5,300.0	0.00	0.00	4,787.8	-1,443.8	944.9	1,725.5	0.00	0.00	
5,400.0	0.00	0.00	4,887.8	-1,443.8	944.9	1,725.5	0.00	0.00	
5,500.0	0.00	0.00	4,987.8	-1,443.8	944.9	1,725.5	0.00	0.00	
5,600.0	0.00	0.00	5,087.8	-1,443.8	944.9	1,725.5	0.00	0.00	
5,632.2	0.00	0.00	5,120.0	-1,443.8	944.9	1,725.5	0.00	0.00	Cameo
5,700.0	0.00	0.00	5,187.8	-1,443.8	944.9	1,725.5	0.00	0.00	
5,800.0	0.00	0.00	5,287.8	-1,443.8	944.9	1,725.5	0.00	0.00	
5,900.0	0.00	0.00	5,387.8	-1,443.8	944.9	1,725.5	0.00	0.00	
6,000.0	0.00	0.00	5,487.8	-1,443.8	944.9	1,725.5	0.00	0.00	
6,062.2	0.00	0.00	5,550.0	-1,443.8	944.9	1,725.5	0.00	0.00	Rollins
6,100.0	0.00	0.00	5,587.8	-1,443.8	944.9	1,725.5	0.00	0.00	
6,200.0	0.00	0.00	5,687.8	-1,443.8	944.9	1,725.5	0.00	0.00	
6,212.2	0.00	0.00	5,700.0	-1,443.8	944.9	1,725.5	0.00	0.00	TD at 6212.2 - 4 1/2"

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Island Ranch 21A-24 TC	0.00	0.00	3,805.0	-1,443.8	944.9	591,625.80	1,276,890.96	39.429836	-108.060261
- plan hits target center									
- Circle (radius 50.0)									
Island Ranch 21A-24 PE	0.00	0.00	5,700.0	-1,443.8	944.9	591,625.80	1,276,890.96	39.429836	-108.060261
- plan hits target center									
- Circle (radius 50.0)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,000.0	987.5	9 5/8"	0	0	
6,212.2	5,700.0	4 1/2"	0	0	

Cathedral Energy Services

Planning Report

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Company:	Caerus Oil & Gas (NAD 27)	TVD Reference:	WELL @ 5097.0usft (Patterson 303)
Project:	Garfield County, CO	MD Reference:	WELL @ 5097.0usft (Patterson 303)
Site:	S13-T7S-R96W	North Reference:	True
Well:	Island Ranch 21A-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,129.0	2,692.0	Ohio Creek		0.00		
3,669.9	3,170.0	Williams Fork		0.00		
4,317.2	3,805.0	TOG		0.00		
5,632.2	5,120.0	Cameo		0.00		
6,062.2	5,550.0	Rollins		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
350.0	350.0	0.0	0.0	KOP @ 350'	
1,675.4	1,571.6	-369.6	241.9	EOB; Inc=39.76°	
2,991.8	2,583.4	-1,074.1	703.0	Start Drop -3.00	
4,317.2	3,805.0	-1,443.8	944.9	EOD; Inc=0°	
6,212.2	5,700.0	-1,443.8	944.9	TD at 6212.2	