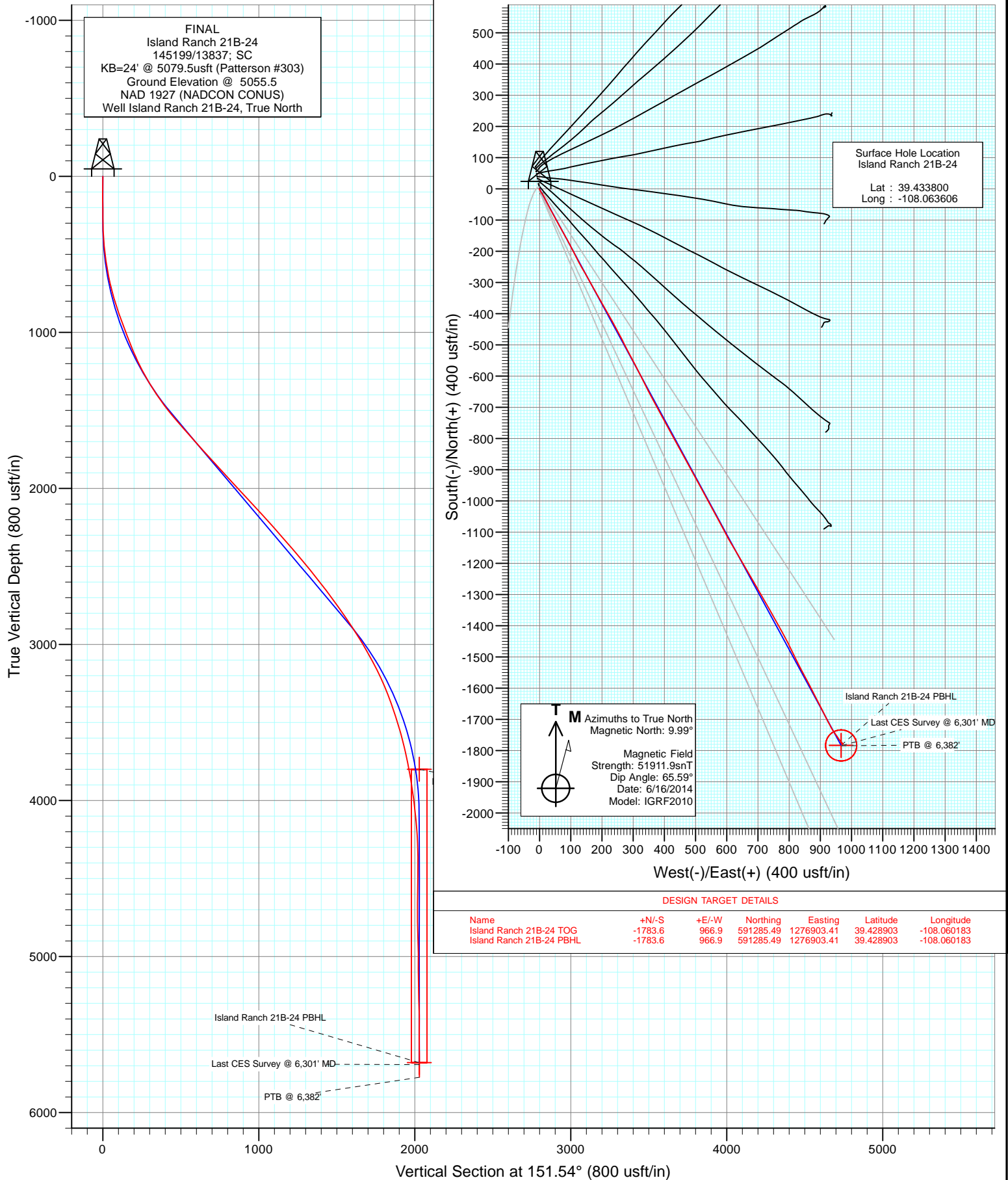


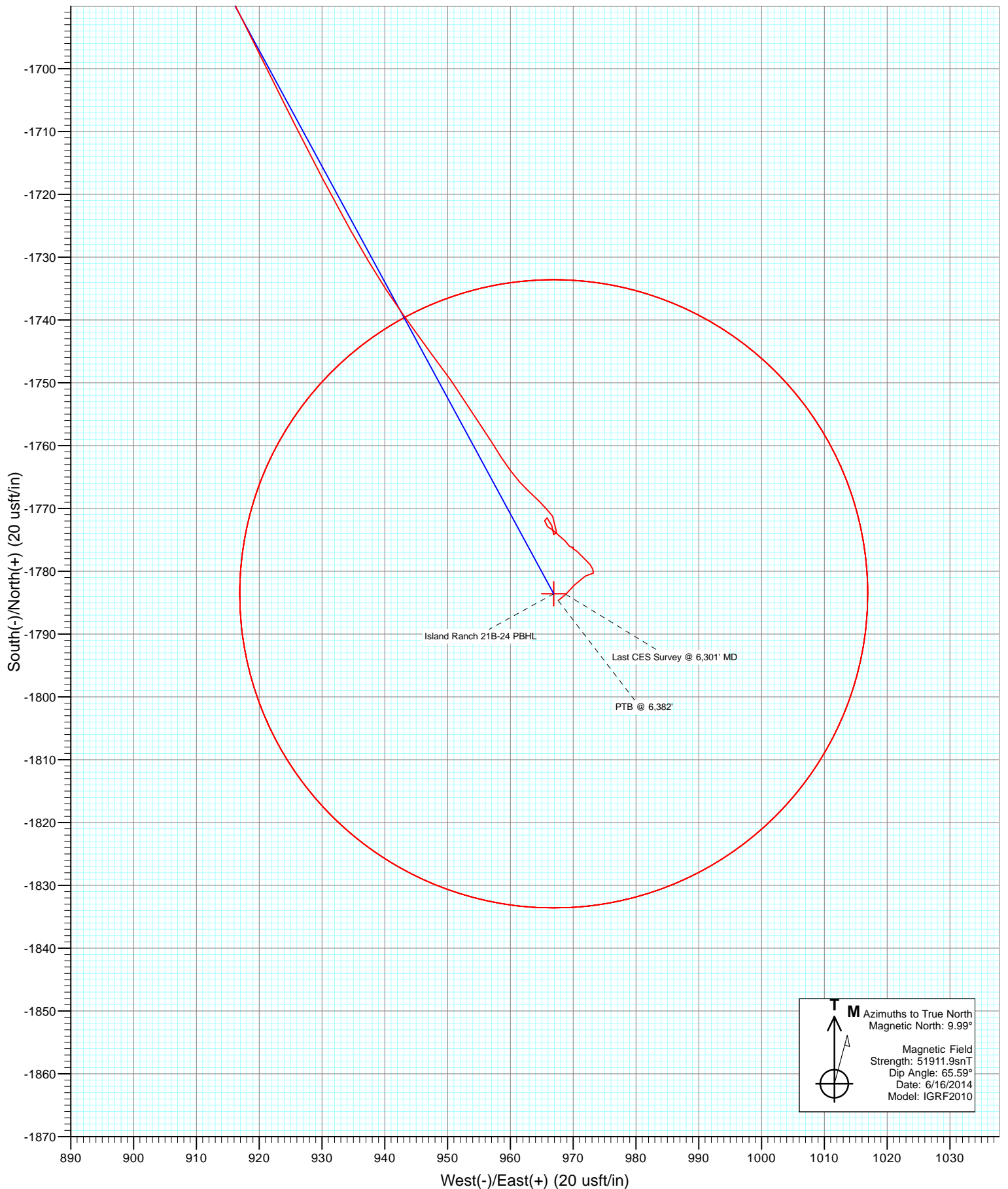


Project: Garfield County, CO
 Site: S13-T7S-R96W (Island Ranch)
 Well: Island Ranch 21B-24
 Wellbore: DD
 Design: FINAL





Project: Garfield County, CO
Site: S13-T7S-R96W (Island Ranch)
Well: Island Ranch 21B-24
Wellbore: DD
Design: FINAL



Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well Island Ranch 21B-24
Project:	Garfield County, CO	TVD Reference:	KB=24' @ 5079.5usft (Patterson #303)
Site:	S13-T7S-R96W (Island Ranch)	MD Reference:	KB=24' @ 5079.5usft (Patterson #303)
Well:	Island Ranch 21B-24	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

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:	1,019,013.23 usft	Latitude:	40.624725
From:	Lat/Long	Easting:	2,338,017.18 usft	Longitude:	-104.282679
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.77 °

Well		Island Ranch 21B-24				
Well Position	+N/-S	0.0 usft	Northing:	593,095.64 usft	Latitude:	39.433800
	+E/-W	0.0 usft	Easting:	1,275,987.20 usft	Longitude:	-108.063606
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	5,055.5 usft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/16/2014	9.99	65.59	51,912

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	151.54	

Survey Program	Date	6/21/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
142.0	6,382.0	Survey #1 (DD)	ISCWSA MWD	MWD - Standard	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
142.0	0.20	250.90	142.0	-0.1	-0.2	0.0	0.14	0.14		
204.0	0.30	155.20	204.0	-0.3	-0.3	0.1	0.61	0.16		
265.0	0.40	173.10	265.0	-0.6	-0.2	0.5	0.24	0.16		
326.0	1.80	149.40	326.0	-1.7	0.3	1.6	2.37	2.30		
387.0	3.70	154.30	386.9	-4.3	1.7	4.5	3.14	3.11		
448.0	5.40	147.40	447.7	-8.4	4.1	9.4	2.92	2.79		
508.0	7.00	147.00	507.4	-13.9	7.6	15.8	2.67	2.67		
600.0	10.20	151.20	598.3	-25.7	14.6	29.6	3.54	3.48		
692.0	12.90	154.10	688.4	-42.1	23.0	48.0	3.00	2.93		
783.0	15.90	151.70	776.6	-62.2	33.3	70.6	3.36	3.30		
875.0	18.50	151.90	864.5	-86.2	46.2	97.8	2.83	2.83		
965.0	21.60	150.40	949.0	-113.2	61.1	128.6	3.49	3.44		

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well Island Ranch 21B-24
Project:	Garfield County, CO	TVD Reference:	KB=24' @ 5079.5usft (Patterson #303)
Site:	S13-T7S-R96W (Island Ranch)	MD Reference:	KB=24' @ 5079.5usft (Patterson #303)
Well:	Island Ranch 21B-24	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
1,073.0	20.10	151.00	1,049.9	-146.7	79.9	167.1	1.40	-1.39	
1,168.0	23.70	152.00	1,138.1	-177.9	96.8	202.5	3.81	3.79	
1,264.0	26.80	153.90	1,224.9	-214.4	115.4	243.4	3.34	3.23	
1,359.0	30.20	149.90	1,308.4	-254.3	136.8	288.7	4.10	3.58	
1,454.0	33.80	151.10	1,388.9	-298.1	161.6	339.1	3.85	3.79	
1,549.0	36.50	149.80	1,466.6	-345.7	188.5	393.7	2.95	2.84	
1,644.0	39.60	150.40	1,541.4	-396.4	217.7	452.3	3.29	3.26	
1,739.0	42.60	152.50	1,613.0	-451.3	247.5	514.7	3.48	3.16	
1,834.0	41.60	152.60	1,683.4	-507.8	276.9	578.4	1.05	-1.05	
1,929.0	41.00	151.70	1,754.8	-563.2	306.2	641.1	0.89	-0.63	
2,024.0	42.80	154.00	1,825.5	-619.7	335.1	704.5	2.49	1.89	
2,119.0	42.60	151.90	1,895.3	-677.1	364.4	768.9	1.51	-0.21	
2,214.0	42.70	151.50	1,965.2	-733.7	394.9	833.2	0.30	0.11	
2,310.0	42.90	151.20	2,035.7	-791.0	426.2	898.5	0.30	0.21	
2,404.0	42.80	151.40	2,104.6	-847.0	456.9	962.4	0.18	-0.11	
2,500.0	42.80	151.00	2,175.0	-904.2	488.3	1,027.6	0.28	0.00	
2,595.0	41.60	151.80	2,245.4	-960.2	518.9	1,091.4	1.38	-1.26	
2,690.0	40.70	151.10	2,316.9	-1,015.1	548.7	1,153.9	1.06	-0.95	
2,785.0	41.00	152.50	2,388.8	-1,069.9	578.1	1,216.1	1.01	0.32	
2,880.0	40.10	150.40	2,461.0	-1,124.1	607.6	1,277.8	1.72	-0.95	
2,975.0	39.30	148.90	2,534.1	-1,176.5	638.2	1,338.5	1.31	-0.84	
3,070.0	37.40	150.50	2,608.6	-1,227.4	668.0	1,397.4	2.26	-2.00	
3,165.0	36.20	149.80	2,684.6	-1,276.7	696.3	1,454.3	1.34	-1.26	
3,260.0	35.60	150.50	2,761.6	-1,325.1	724.0	1,510.0	0.77	-0.63	
3,355.0	34.70	150.10	2,839.3	-1,372.6	751.1	1,564.6	0.98	-0.95	
3,450.0	33.20	151.10	2,918.1	-1,418.8	777.2	1,617.7	1.68	-1.58	
3,545.0	30.10	154.20	2,998.9	-1,463.0	800.1	1,667.5	3.68	-3.26	
3,641.0	28.60	153.30	3,082.6	-1,505.2	820.9	1,714.5	1.63	-1.56	
3,736.0	26.90	152.20	3,166.7	-1,544.5	841.2	1,758.7	1.87	-1.79	
3,831.0	24.00	151.70	3,252.5	-1,580.6	860.4	1,799.6	3.06	-3.05	
3,926.0	20.00	152.90	3,340.5	-1,612.1	876.9	1,835.1	4.24	-4.21	
4,021.0	18.70	153.30	3,430.1	-1,640.1	891.2	1,866.6	1.38	-1.37	
4,116.0	16.90	153.30	3,520.6	-1,666.1	904.2	1,895.6	1.89	-1.89	
4,211.0	14.20	153.40	3,612.1	-1,688.8	915.6	1,921.1	2.84	-2.84	
4,306.0	12.70	153.40	3,704.5	-1,708.6	925.5	1,943.2	1.58	-1.58	
4,401.0	10.80	150.80	3,797.5	-1,725.7	934.6	1,962.5	2.08	-2.00	
4,496.0	8.70	144.50	3,891.1	-1,739.3	943.1	1,978.5	2.48	-2.21	
4,591.0	6.90	143.40	3,985.3	-1,749.7	950.6	1,991.3	1.90	-1.89	
4,686.0	7.20	149.60	4,079.5	-1,759.5	957.1	2,002.9	0.86	0.32	
4,781.0	4.70	132.90	4,174.0	-1,767.2	962.9	2,012.6	3.17	-2.63	
4,876.0	2.00	144.60	4,268.9	-1,771.3	966.7	2,017.9	2.92	-2.84	
4,971.0	1.50	195.50	4,363.8	-1,773.8	967.4	2,020.4	1.65	-0.53	
5,066.0	1.00	351.80	4,458.8	-1,774.2	966.9	2,020.5	2.58	-0.53	
5,161.0	0.80	343.70	4,553.8	-1,772.7	966.6	2,019.1	0.25	-0.21	
5,256.0	1.00	316.40	4,648.8	-1,771.5	965.9	2,017.7	0.49	0.21	
5,351.0	1.30	169.60	4,743.8	-1,771.9	965.5	2,017.9	2.32	0.32	
5,446.0	1.50	113.30	4,838.7	-1,773.5	966.8	2,019.9	1.40	0.21	
5,541.0	1.70	147.00	4,933.7	-1,775.2	968.7	2,022.3	1.00	0.21	
5,636.0	0.70	83.00	5,028.7	-1,776.3	970.1	2,023.9	1.61	-1.05	
5,731.0	0.70	272.80	5,123.7	-1,776.2	970.1	2,023.8	1.47	0.00	
5,826.0	1.60	119.80	5,218.7	-1,776.8	970.6	2,024.6	2.36	0.95	
5,921.0	2.00	147.50	5,313.6	-1,778.9	972.7	2,027.4	0.99	0.42	
6,016.0	0.40	266.60	5,408.6	-1,780.3	973.2	2,028.9	2.34	-1.68	

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well Island Ranch 21B-24
Project:	Garfield County, CO	TVD Reference:	KB=24' @ 5079.5usft (Patterson #303)
Site:	S13-T7S-R96W (Island Ranch)	MD Reference:	KB=24' @ 5079.5usft (Patterson #303)
Well:	Island Ranch 21B-24	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
6,111.0	1.30	244.00	5,503.6	-1,780.8	971.9	2,028.7	0.99	0.95	
6,206.0	1.40	218.60	5,598.6	-1,782.2	970.2	2,029.2	0.63	0.11	
6,301.0	1.10	230.20	5,693.6	-1,783.6	968.8	2,029.8	0.41	-0.32	Last CES Survey @ 6,301' MD
6,382.0	1.10	230.20	5,774.5	-1,784.6	967.6	2,030.1	0.00	0.00	PTB @ 6,382'

Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Island Ranch 21B-24 PE - actual wellpath misses target center by 2.1usft at 6287.5usft MD (5680.0 TVD, -1783.5 N, 969.0 E) - Circle (radius 50.0)	0.00	0.00	5,680.0	-1,783.6	966.9	591,285.49	1,276,903.41	39.428903	-108.060183
Island Ranch 21B-24 TC - actual wellpath misses target center by 64.7usft at 4414.7usft MD (3810.9 TVD, -1727.9 N, 935.8 E) - Circle (radius 50.0)	0.00	0.00	3,800.0	-1,783.6	966.9	591,285.49	1,276,903.41	39.428903	-108.060183

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,301.0	5,693.6	-1,783.6	968.8	Last CES Survey @ 6,301' MD
6,382.0	5,774.5	-1,784.6	967.6	PTB @ 6,382'

Checked By: _____ Approved By: _____ Date: _____