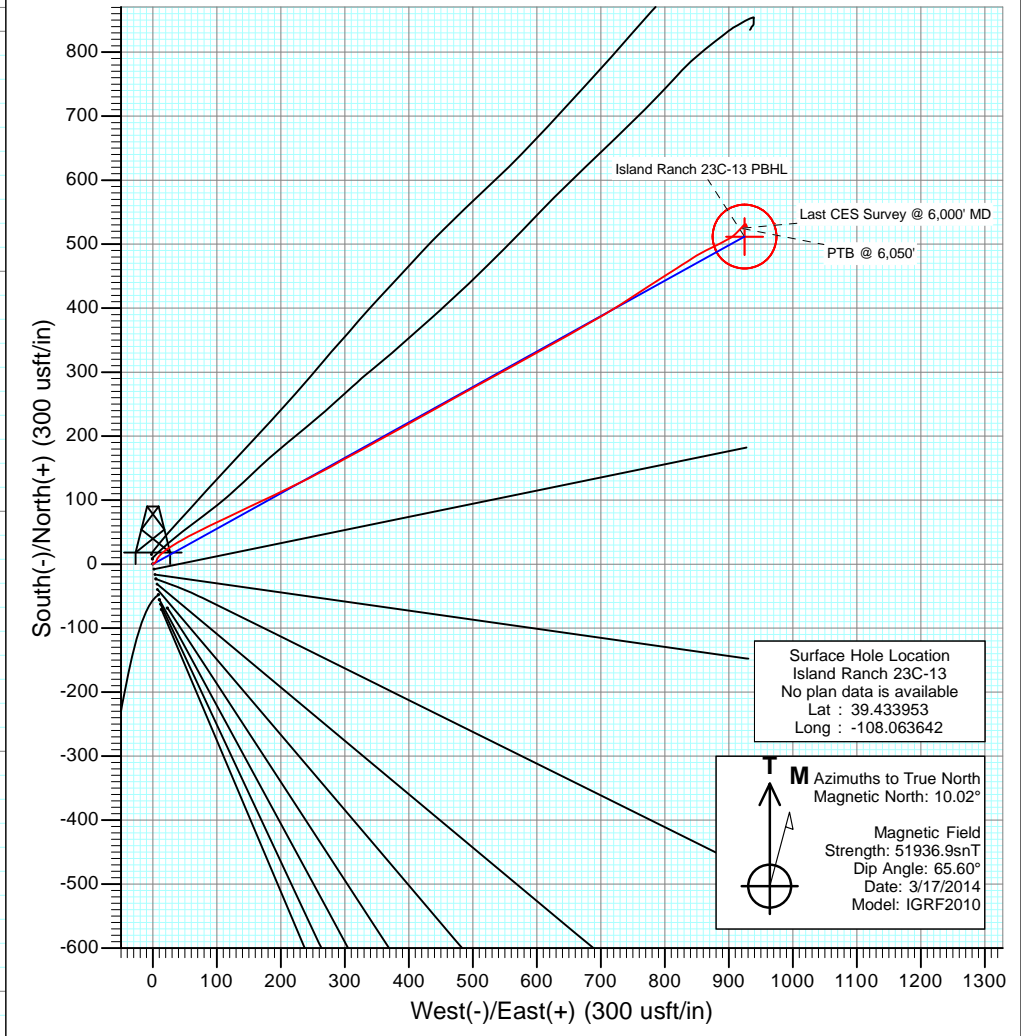


FINAL  
 Island Ranch 23C-13  
 KB=20' @ 5100.0usft  
 Ground Elevation @ 5080.0  
 NAD 1927 (NADCON CONUS)  
 Well Island Ranch 23C-13, True North



Surface Hole Location  
 Island Ranch 23C-13  
 No plan data is available  
 Lat : 39.433953  
 Long : -108.063642

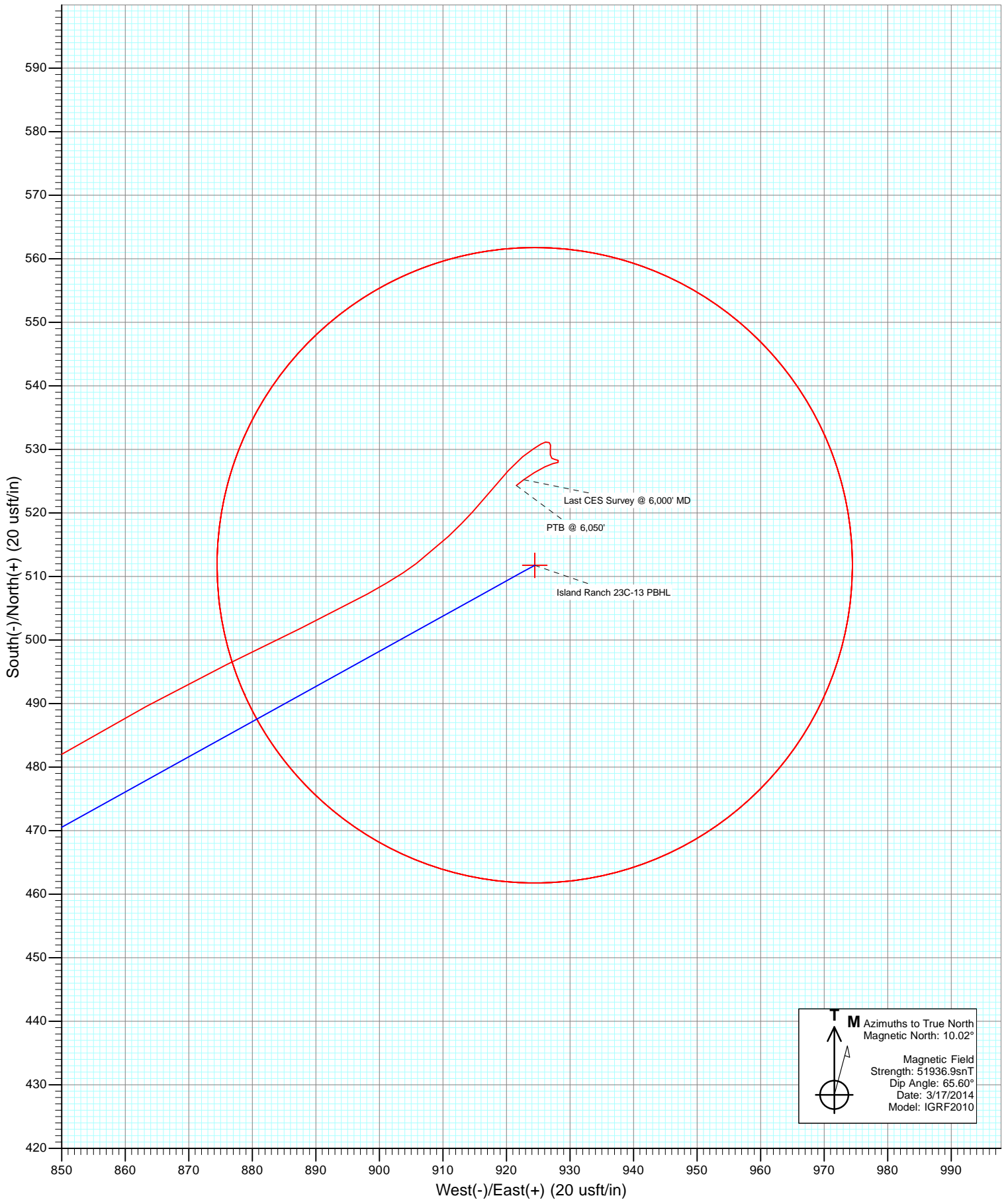
**M** Azimuths to True North  
 Magnetic North: 10.02°  
 Magnetic Field  
 Strength: 51936.9snT  
 Dip Angle: 65.60°  
 Date: 3/17/2014  
 Model: IGRF2010

**DESIGN TARGET DETAILS**

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Island Ranch 23C-13 TOG	511.8	924.5	593637.12	1276917.14	39.435358	-108.060369
Island Ranch 23C-13 PBHL	511.8	924.5	593637.12	1276917.14	39.435358	-108.060369

Island Ranch 23C-13 TOG  
 Island Ranch 23C-13 PBHL  
 Last CES Survey @ 6,000' MD  
 PTB @ 6,050'

Vertical Section at 61.03° (800 usft/in)



# Cathedral Energy Services

## Survey Report

<b>Company:</b> Caerus Oil & Gas (NAD 27)	<b>Local Co-ordinate Reference:</b> Well Island Ranch 23C-13
<b>Project:</b> Garfield County, CO	<b>TVD Reference:</b> KB=20' @ 5100.0usft
<b>Site:</b> S13-T7S-R96W (Island Ranch)	<b>MD Reference:</b> KB=20' @ 5100.0usft
<b>Well:</b> Island Ranch 23C-13	<b>North Reference:</b> True
<b>Wellbore:</b> DD	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> FINAL	<b>Database:</b> USA EDM 5000 Multi Users DB

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

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

<b>Well</b> Island Ranch 23C-13				
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	593,151.63 usft
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,275,978.61 usft
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	usft
			<b>Latitude:</b>	39.433953
			<b>Longitude:</b>	-108.063642
			<b>Ground Level:</b>	5,080.0 usft

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

<b>Design</b> FINAL				
<b>Audit Notes:</b>				
<b>Version:</b> 1.0	<b>Phase:</b> ACTUAL	<b>Tie On Depth:</b> 0.0		
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	61.03

<b>Survey Program</b>		<b>Date</b> 5/29/2014
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>
145.0	6,050.0	Survey #1 (DD)
		<b>Tool Name</b> ISCWSA MWD
		<b>Description</b> MWD - Standard

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	
145.0	0.10	343.90	145.0	0.1	0.0	0.0	0.07	0.07	
205.0	0.40	27.80	205.0	0.4	0.0	0.2	0.56	0.50	
267.0	0.70	69.20	267.0	0.7	0.5	0.8	0.77	0.48	
328.0	1.20	66.30	328.0	1.1	1.4	1.8	0.82	0.82	
420.0	2.10	48.50	419.9	2.6	3.6	4.4	1.11	0.98	
512.0	4.20	23.20	511.8	6.8	6.2	8.7	2.68	2.28	
604.0	7.30	42.60	603.3	14.2	11.5	16.9	3.93	3.37	
695.0	11.00	55.00	693.2	23.4	22.5	31.0	4.58	4.07	
787.0	14.50	59.90	782.9	34.2	39.6	51.3	3.98	3.80	
875.0	17.80	62.10	867.4	46.1	61.1	75.7	3.81	3.75	
970.0	19.90	64.80	957.3	59.7	88.5	106.4	2.39	2.21	
1,073.0	19.90	64.20	1,054.2	74.8	120.2	141.4	0.20	0.00	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Caerus Oil & Gas (NAD 27)	<b>Local Co-ordinate Reference:</b>	Well Island Ranch 23C-13
<b>Project:</b>	Garfield County, CO	<b>TD Reference:</b>	KB=20' @ 5100.0usft
<b>Site:</b>	S13-T7S-R96W (Island Ranch)	<b>MD Reference:</b>	KB=20' @ 5100.0usft
<b>Well:</b>	Island Ranch 23C-13	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
1,168.0	19.00	64.30	1,143.7	88.6	148.7	173.0	0.95	-0.95	
1,264.0	21.00	65.20	1,233.9	102.6	178.4	205.7	2.11	2.08	
1,359.0	20.90	64.30	1,322.7	117.1	209.1	239.6	0.35	-0.11	
1,454.0	20.50	63.40	1,411.5	131.9	239.2	273.2	0.54	-0.42	
1,549.0	19.60	61.20	1,500.8	147.0	268.1	305.7	1.24	-0.95	
1,644.0	20.50	61.40	1,590.0	162.6	296.6	338.3	0.95	0.95	
1,739.0	20.20	61.20	1,679.1	178.5	325.6	371.3	0.32	-0.32	
1,834.0	19.50	61.50	1,768.4	194.0	353.9	403.6	0.74	-0.74	
1,929.0	21.10	60.70	1,857.5	209.9	382.8	436.5	1.71	1.68	
2,024.0	21.00	60.80	1,946.2	226.6	412.5	470.7	0.11	-0.11	
2,119.0	20.80	60.50	2,035.0	243.2	442.1	504.6	0.24	-0.21	
2,214.0	20.00	61.20	2,124.0	259.3	471.0	537.7	0.88	-0.84	
2,310.0	21.00	60.90	2,213.9	275.6	500.4	571.3	1.05	1.04	
2,404.0	20.60	61.50	2,301.8	291.7	529.7	604.7	0.48	-0.43	
2,499.0	20.10	61.40	2,390.9	307.5	558.7	637.7	0.53	-0.53	
2,595.0	22.60	61.00	2,480.3	324.3	589.3	672.7	2.61	2.60	
2,690.0	21.80	60.80	2,568.2	341.8	620.7	708.5	0.85	-0.84	
2,785.0	20.80	60.10	2,656.7	358.8	650.7	743.1	1.09	-1.05	
2,880.0	19.40	60.20	2,745.9	375.0	679.0	775.7	1.47	-1.47	
2,975.0	17.70	60.50	2,836.0	390.0	705.3	805.9	1.79	-1.79	
3,070.0	18.90	56.40	2,926.2	405.6	730.7	835.7	1.85	1.26	
3,165.0	17.40	57.60	3,016.5	421.7	755.5	865.2	1.63	-1.58	
3,260.0	16.00	56.80	3,107.5	436.5	778.4	892.4	1.49	-1.47	
3,355.0	14.40	57.20	3,199.1	450.1	799.3	917.3	1.69	-1.68	
3,450.0	12.90	58.10	3,291.4	462.1	818.2	939.7	1.59	-1.58	
3,545.0	11.00	56.70	3,384.4	472.7	834.8	959.3	2.02	-2.00	
3,641.0	9.90	59.90	3,478.8	481.8	849.6	976.7	1.30	-1.15	
3,736.0	9.10	61.30	3,572.5	489.5	863.3	992.4	0.88	-0.84	
3,831.0	8.30	63.70	3,666.4	496.2	876.0	1,006.7	0.92	-0.84	
3,926.0	7.40	64.20	3,760.5	501.9	887.7	1,019.7	0.95	-0.95	
4,021.0	6.80	61.20	3,854.8	507.3	898.1	1,031.4	0.74	-0.63	
4,116.0	4.20	53.20	3,949.3	512.0	905.8	1,040.5	2.85	-2.74	
4,211.0	3.80	46.10	4,044.1	516.3	910.9	1,047.0	0.67	-0.42	
4,306.0	2.80	42.70	4,138.9	520.2	914.7	1,052.2	1.07	-1.05	
4,401.0	2.60	38.50	4,233.8	523.6	917.6	1,056.4	0.30	-0.21	
4,496.0	2.30	43.70	4,328.8	526.7	920.3	1,060.2	0.39	-0.32	
4,591.0	1.50	49.10	4,423.7	528.8	922.5	1,063.3	0.86	-0.84	
4,686.0	1.10	61.10	4,518.7	530.1	924.3	1,065.4	0.51	-0.42	
4,781.0	0.60	50.00	4,613.7	530.9	925.5	1,066.8	0.55	-0.53	
4,876.0	0.40	91.30	4,708.7	531.2	926.2	1,067.6	0.42	-0.21	
4,971.0	0.30	109.80	4,803.7	531.1	926.7	1,068.0	0.16	-0.11	
5,066.0	0.40	184.60	4,898.7	530.7	926.9	1,068.0	0.46	0.11	
5,161.0	0.50	180.80	4,993.7	529.9	926.9	1,067.6	0.11	0.11	
5,256.0	0.40	179.20	5,088.7	529.2	926.9	1,067.2	0.11	-0.11	
5,351.0	0.40	134.50	5,183.6	528.6	927.2	1,067.2	0.32	0.00	
5,446.0	0.30	79.30	5,278.6	528.4	927.6	1,067.5	0.35	-0.11	
5,541.0	0.40	124.20	5,373.6	528.3	928.2	1,067.9	0.30	0.11	
5,636.0	0.40	246.30	5,468.6	528.0	928.1	1,067.7	0.74	0.00	
5,731.0	0.60	265.40	5,563.6	527.8	927.3	1,066.9	0.27	0.21	
5,826.0	1.10	238.30	5,658.6	527.3	926.1	1,065.6	0.66	0.53	
5,921.0	1.20	242.70	5,753.6	526.3	924.4	1,063.7	0.14	0.11	
6,000.0	1.70	232.20	5,832.6	525.2	922.7	1,061.7	0.71	0.63	Last CES Survey @ 6,000' MD
6,050.0	1.70	232.20	5,882.6	524.3	921.6	1,060.2	0.00	0.00	PTB @ 6,050'

# Cathedral Energy Services

## Survey Report

<b>Company:</b> Caerus Oil & Gas (NAD 27)	<b>Local Co-ordinate Reference:</b> Well Island Ranch 23C-13
<b>Project:</b> Garfield County, CO	<b>TVD Reference:</b> KB=20' @ 5100.0usft
<b>Site:</b> S13-T7S-R96W (Island Ranch)	<b>MD Reference:</b> KB=20' @ 5100.0usft
<b>Well:</b> Island Ranch 23C-13	<b>North Reference:</b> True
<b>Wellbore:</b> DD	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> FINAL	<b>Database:</b> 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

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Island Ranch 23C-13 PE - hit/miss target - Shape	0.00	0.00	5,818.0	511.8	924.5	593,637.12	1,276,917.14	39.435358	-108.060369
- actual wellpath misses target center by 13.8usft at 5985.6usft MD (5818.2 TVD, 525.5 N, 923.1 E)									
- Circle (radius 50.0)									
Island Ranch 23C-13 TC - hit/miss target - Shape	0.00	0.00	3,930.0	511.8	924.5	593,637.12	1,276,917.14	39.435358	-108.060369
- actual wellpath misses target center by 19.8usft at 4098.3usft MD (3931.6 TVD, 511.2 N, 904.7 E)									
- Circle (radius 50.0)									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
6,000.0	5,832.6	525.2	922.7	Last CES Survey @ 6,000' MD	
6,050.0	5,882.6	524.3	921.6	PTB @ 6,050'	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_