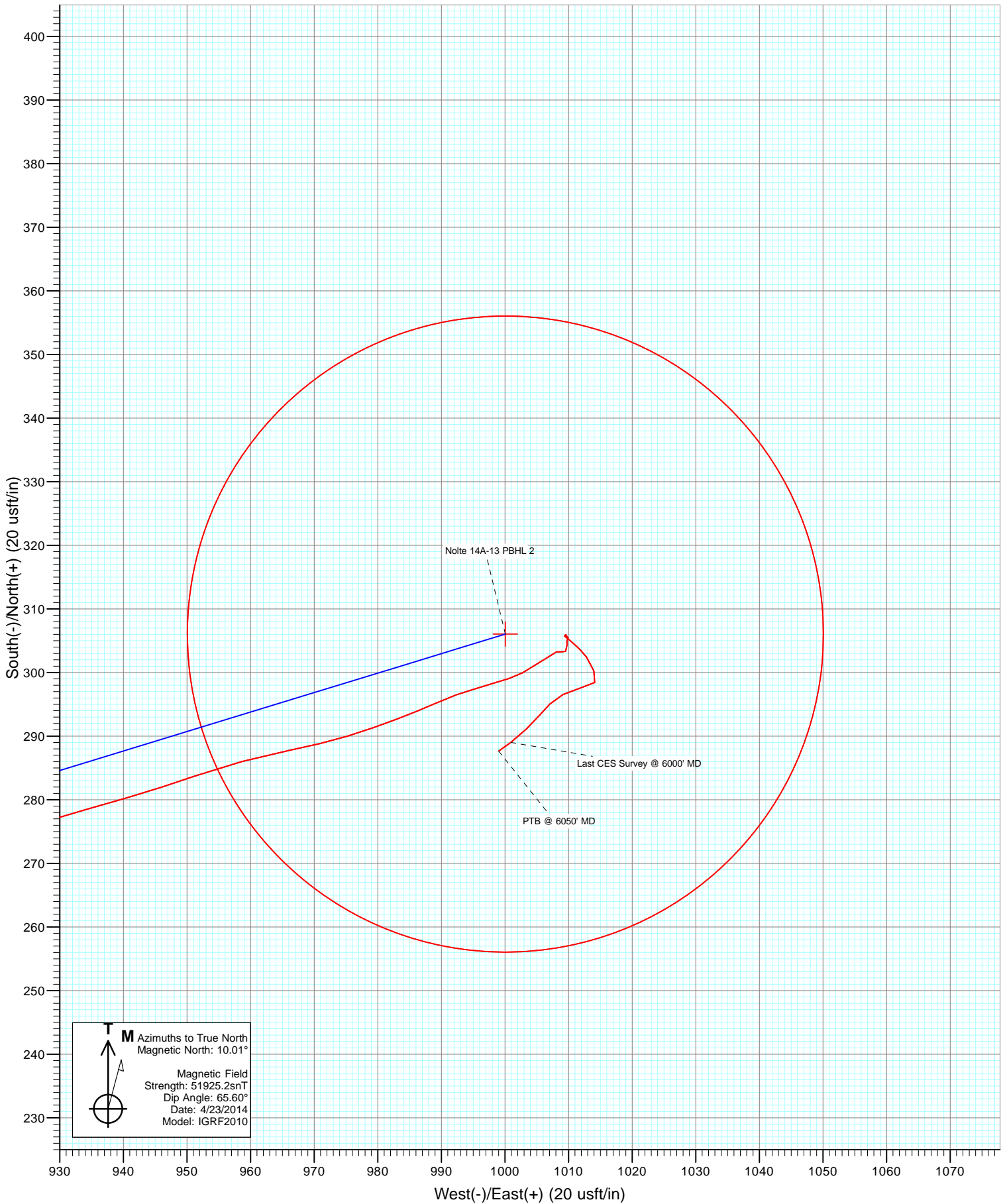




Project: Garfield County, CO
Site: S14-T7S-R96W
Well: Nolte 14A-13
Wellbore: DD
Design: FINAL



Cathedral Energy Services

Survey Report

Company: Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference: Well Nolte 14A-13
Project: Garfield County, CO	TVD Reference: WELL @ 5107.5usft
Site: S14-T7S-R96W	MD Reference: WELL @ 5107.5usft
Well: Nolte 14A-13	North Reference: True
Wellbore: DD	Survey Calculation Method: Minimum Curvature
Design: SURVEYS	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 S14-T7S-R96W					
Site Position:		Northing:	592,602.09 usft	Latitude:	39.432320
From:	Lat/Long	Easting:	1,274,369.93 usft	Longitude:	-108.069280
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	-1.62 °

Well Nolte 14A-13						
Well Position	+N/-S	0.0 usft	Northing:	592,636.18 usft	Latitude:	39.432429
	+E/-W	0.0 usft	Easting:	1,274,575.34 usft	Longitude:	-108.068557
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	5,090.5 usft

Wellbore DD					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/23/2014	10.01	65.60	51,925

Design SURVEYS					
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	73.15

Survey Program Date 4/27/2014					
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
145.0	6,050.0	Survey #1 (DD)	MWD	Geolink MWD	

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	
145.0	0.30	194.90	145.0	-0.4	-0.1	-0.2	0.21	0.21	
237.0	0.50	237.30	237.0	-0.8	-0.5	-0.7	0.37	0.22	
329.0	0.50	128.80	329.0	-1.3	-0.5	-0.9	0.88	0.00	
421.0	1.80	102.30	421.0	-1.8	1.2	0.6	1.49	1.41	
481.0	3.70	77.30	480.9	-1.6	4.0	3.4	3.67	3.17	
543.0	6.00	71.60	542.7	-0.2	9.0	8.6	3.79	3.71	
604.0	8.10	73.30	603.2	2.1	16.2	16.1	3.46	3.44	
695.0	11.70	72.00	692.8	6.8	31.1	31.7	3.96	3.96	
787.0	13.50	70.70	782.6	13.2	50.1	51.8	1.98	1.96	
877.0	15.40	71.60	869.8	20.5	71.4	74.2	2.13	2.11	
970.0	18.70	73.80	958.7	28.5	97.4	101.5	3.61	3.55	
980.0	18.90	74.10	968.1	29.4	100.5	104.7	2.22	2.00	

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well Nolte 14A-13
Project:	Garfield County, CO	TVD Reference:	WELL @ 5107.5usft
Site:	S14-T75-R96W	MD Reference:	WELL @ 5107.5usft
Well:	Nolte 14A-13	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	SURVEYS	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
1,075.0	19.50	73.70	1,057.9	38.1	130.5	136.0	0.65	0.63	
1,170.0	20.70	74.40	1,147.1	47.0	161.9	168.6	1.29	1.26	
1,265.0	21.50	76.10	1,235.7	55.7	195.0	202.8	1.06	0.84	
1,360.0	21.10	71.00	1,324.2	65.5	228.1	237.2	1.99	-0.42	
1,455.0	20.60	69.20	1,413.0	77.0	259.8	271.0	0.86	-0.53	
1,550.0	21.50	75.80	1,501.7	87.2	292.3	305.1	2.67	0.95	
1,645.0	22.90	72.20	1,589.6	97.1	326.8	340.9	2.05	1.47	
1,740.0	22.50	75.90	1,677.3	107.2	362.1	377.6	1.56	-0.42	
1,835.0	24.00	70.10	1,764.6	118.2	397.9	415.0	2.88	1.58	
1,930.0	23.60	70.00	1,851.5	131.3	433.9	453.3	0.42	-0.42	
2,025.0	22.90	73.80	1,938.8	142.9	469.5	490.8	1.74	-0.74	
2,120.0	21.80	71.50	2,026.6	153.7	504.0	526.9	1.48	-1.16	
2,215.0	23.60	77.00	2,114.3	163.6	539.3	563.5	2.93	1.89	
2,310.0	24.40	75.40	2,201.1	172.8	576.8	602.1	1.09	0.84	
2,405.0	23.00	73.40	2,288.1	183.0	613.6	640.3	1.70	-1.47	
2,500.0	22.50	73.70	2,375.7	193.5	648.8	677.0	0.54	-0.53	
2,595.0	22.90	70.60	2,463.3	204.7	683.7	713.7	1.33	0.42	
2,690.0	22.90	74.70	2,550.8	215.7	718.9	750.6	1.68	0.00	
2,785.0	21.80	75.00	2,638.7	225.2	753.8	786.7	1.16	-1.16	
2,880.0	20.10	72.10	2,727.4	234.7	786.4	820.7	2.10	-1.79	
2,975.0	18.70	75.60	2,817.0	243.5	816.7	852.2	1.91	-1.47	
3,070.0	16.70	75.00	2,907.5	250.9	844.6	881.1	2.11	-2.11	
3,165.0	16.30	71.00	2,998.6	258.7	870.4	908.0	1.27	-0.42	
3,261.0	14.10	74.30	3,091.2	266.3	894.4	933.2	2.46	-2.29	
3,356.0	12.50	71.40	3,183.7	272.7	915.3	955.0	1.82	-1.68	
3,451.0	11.70	74.60	3,276.6	278.5	934.3	974.9	1.10	-0.84	
3,546.0	9.70	71.00	3,369.9	283.7	951.2	992.6	2.22	-2.11	
3,641.0	9.10	78.70	3,463.7	287.8	966.1	1,008.0	1.47	-0.63	
3,736.0	7.50	70.30	3,557.7	291.3	979.3	1,021.7	2.11	-1.68	
3,830.0	5.00	66.10	3,651.1	295.1	988.8	1,031.9	2.70	-2.66	
3,925.0	3.50	75.00	3,745.8	297.5	995.4	1,038.9	1.72	-1.58	
4,020.0	3.10	70.90	3,840.7	299.1	1,000.6	1,044.4	0.49	-0.42	
4,115.0	1.90	51.50	3,935.6	300.9	1,004.3	1,048.4	1.53	-1.26	
4,210.0	1.30	68.10	4,030.5	302.3	1,006.5	1,050.9	0.79	-0.63	
4,305.0	1.00	45.20	4,125.5	303.3	1,008.1	1,052.8	0.57	-0.32	
4,400.0	0.80	149.10	4,220.5	303.3	1,009.1	1,053.6	1.50	-0.21	
4,495.0	0.80	13.30	4,315.5	303.4	1,009.5	1,054.1	1.56	0.00	
4,590.0	0.50	11.20	4,410.5	304.4	1,009.8	1,054.7	0.32	-0.32	
4,685.0	0.20	310.80	4,505.5	304.9	1,009.7	1,054.8	0.46	-0.32	
4,780.0	0.60	37.70	4,600.5	305.4	1,009.9	1,055.1	0.65	0.42	
4,875.0	0.80	283.80	4,695.5	306.0	1,009.6	1,054.9	1.24	0.21	
4,970.0	0.70	130.10	4,790.5	305.8	1,009.4	1,054.7	1.54	-0.11	
5,065.0	1.10	130.20	4,885.5	304.8	1,010.5	1,055.5	0.42	0.42	
5,161.0	0.90	135.30	4,981.5	303.7	1,011.8	1,056.3	0.23	-0.21	
5,255.0	1.10	141.10	5,075.5	302.5	1,012.8	1,057.0	0.24	0.21	
5,350.0	1.90	158.40	5,170.4	300.3	1,014.0	1,057.5	0.96	0.84	
5,445.0	0.70	231.60	5,265.4	298.5	1,014.1	1,057.1	1.92	-1.26	
5,540.0	1.90	255.10	5,360.4	297.7	1,012.1	1,055.0	1.36	1.26	
5,634.0	2.00	243.90	5,454.3	296.6	1,009.2	1,051.8	0.42	0.11	
5,729.0	1.20	217.80	5,549.3	295.1	1,007.1	1,049.3	1.12	-0.84	
5,824.0	1.70	226.00	5,644.3	293.3	1,005.4	1,047.3	0.57	0.53	
5,919.0	1.90	221.70	5,739.2	291.1	1,003.4	1,044.7	0.25	0.21	
6,000.0	2.70	234.70	5,820.2	289.0	1,000.9	1,041.7	1.17	0.99	Last CES Survey @ 6000' MD

Cathedral Energy Services

Survey Report

Company: Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference: Well Nolte 14A-13
Project: Garfield County, CO	TVD Reference: WELL @ 5107.5usft
Site: S14-T7S-R96W	MD Reference: WELL @ 5107.5usft
Well: Nolte 14A-13	North Reference: True
Wellbore: DD	Survey Calculation Method: Minimum Curvature
Design: SURVEYS	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
6,050.0	2.70	234.70	5,870.1	287.7	999.0	1,039.5	0.00	0.00	PTB @ 6050' MD

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Nolte 14A-13 PBHL	0.00	0.00	5,859.7	305.8	1,009.3	592,913.28	1,275,592.87	39.433269	-108.064983
- survey misses target center by 20.3usft at 6038.7usft MD (5858.8 TVD, 288.0 N, 999.4 E)									
- Circle (radius 50.0)									
Nolte 14A-13 PBHL 2	0.00	0.00	5,859.7	306.1	1,000.1	592,913.85	1,275,583.67	39.433270	-108.065016
- survey misses target center by 18.1usft at 6039.1usft MD (5859.2 TVD, 288.0 N, 999.4 E)									
- Circle (radius 50.0)									

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment	
6,000.0	5,820.2	289.0	1,000.9	Last CES Survey @ 6000' MD	
6,050.0	5,870.1	287.7	999.0	PTB @ 6050' MD	

Checked By: _____ Approved By: _____ Date: _____