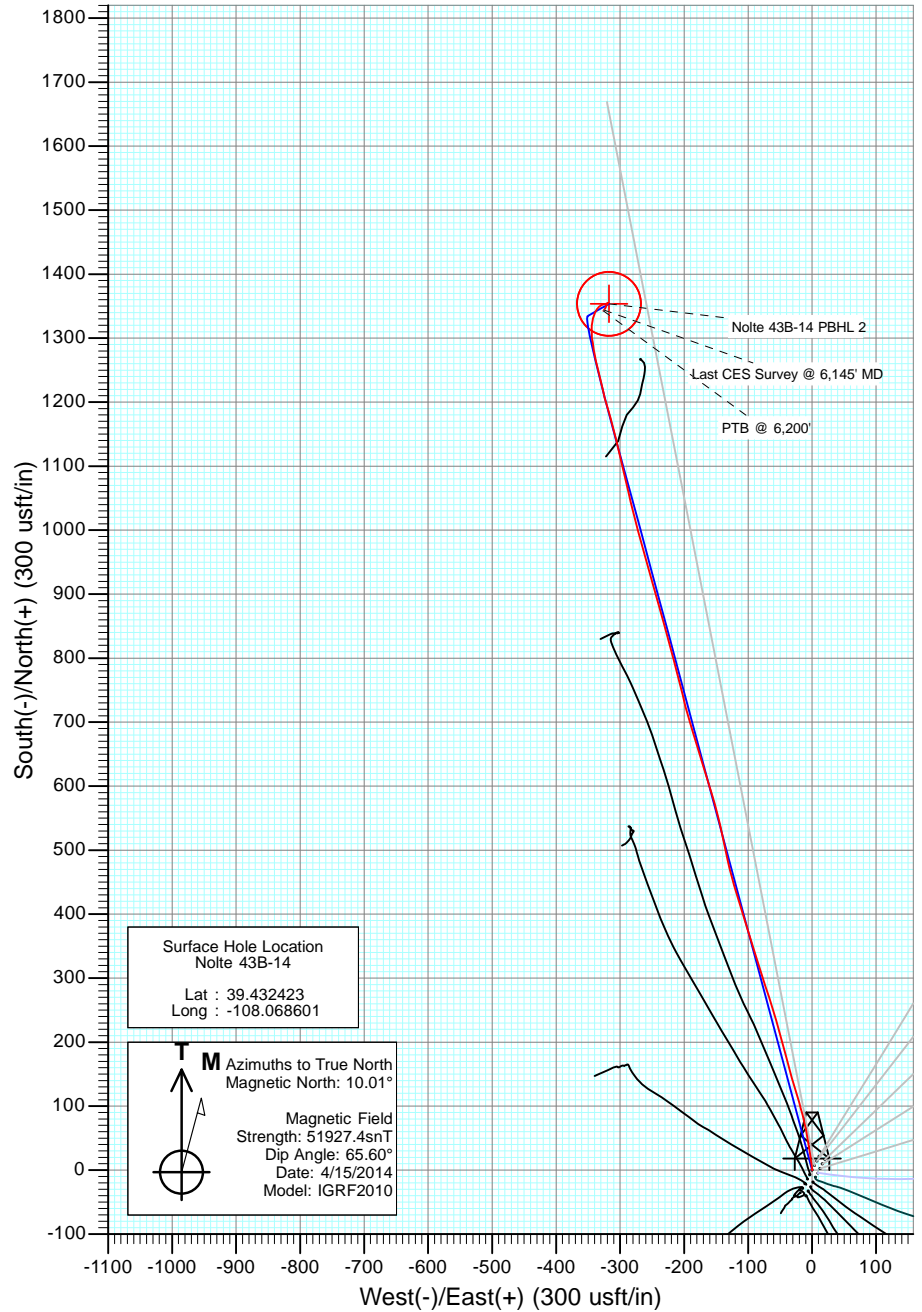
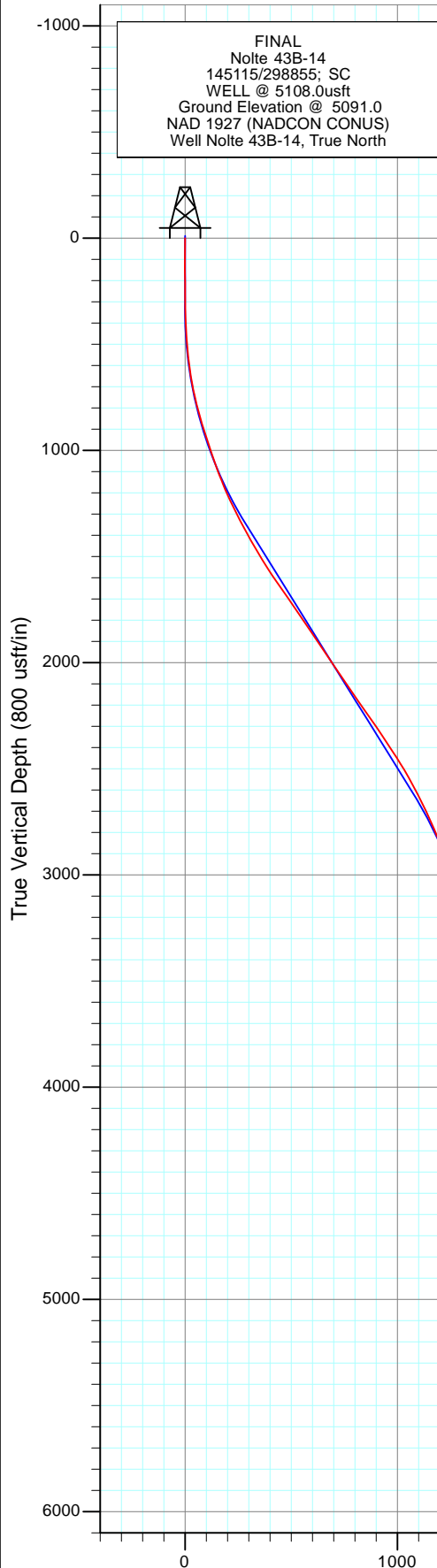




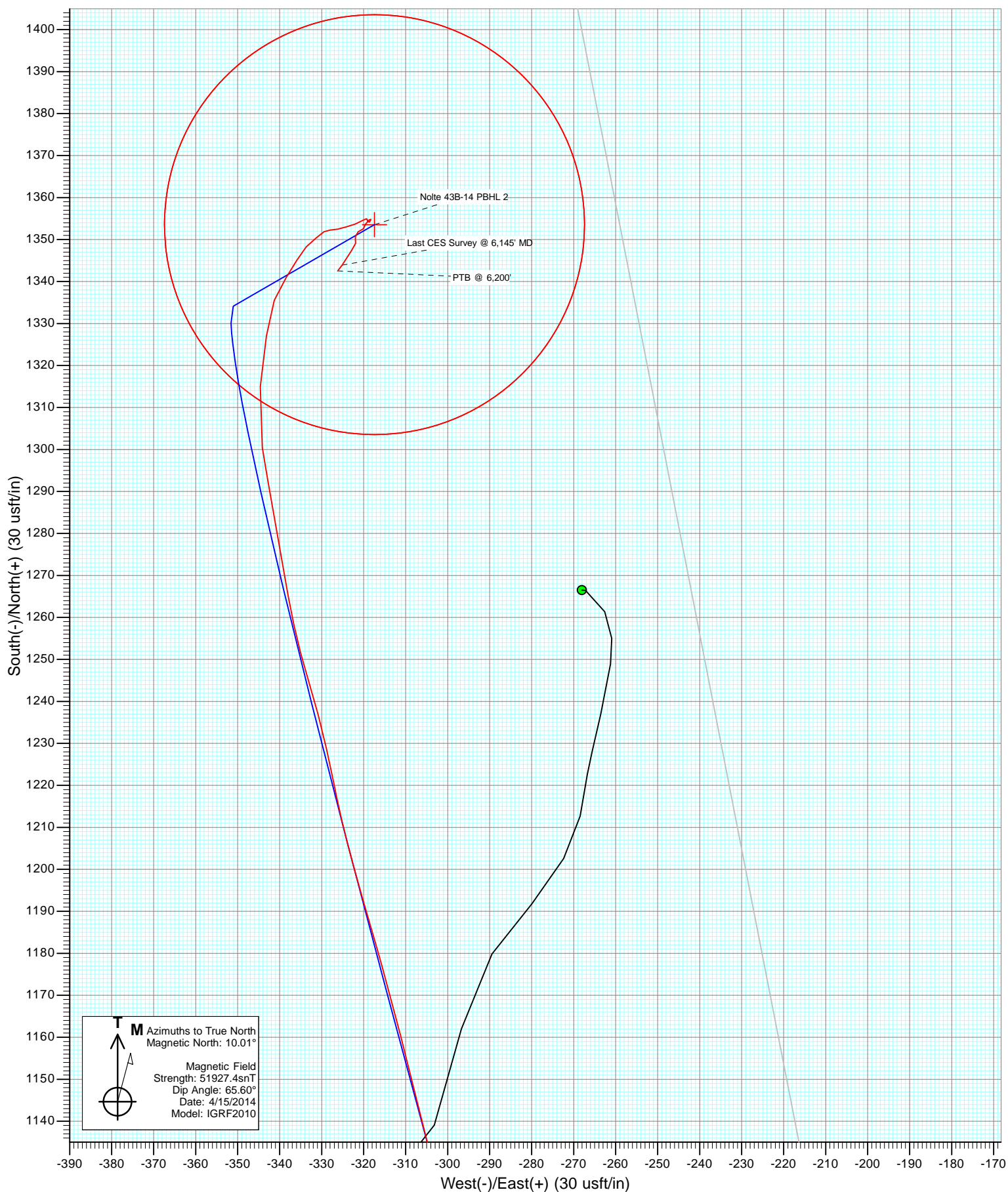
Project: Garfield County, CO
 Site: S14-T7S-R96W
 Well: Nolte 43B-14
 Wellbore: DD
 Design: FINAL



DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Nolte 43B-14 PBHL 2	1353.5	-317.4	593996.05	1274283.68	39.436139	-108.069725

Vertical Section at 349.19° (800 usft/in)



Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well Nolte 43B-14
Project:	Garfield County, CO	TVD Reference:	WELL @ 5108.0usft
Site:	S14-T7S-R96W	MD Reference:	WELL @ 5108.0usft
Well:	Nolte 43B-14	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		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 43B-14					
Well Position	+N/-S	0.0 usft	Northing:	592,634.07 usft	Latitude:	39.432423
	+E/-W	0.0 usft	Easting:	1,274,562.71 usft	Longitude:	-108.068601
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	5,091.0 usft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/15/2014	10.01	65.60	51,927

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	349.19	

Survey Program	Date	4/20/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
145.0	6,200.0	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	0.20	98.80	145.0	0.0	0.3	-0.1	0.14	0.14		
206.0	0.40	357.10	206.0	0.2	0.3	0.1	0.79	0.33		
267.0	0.40	354.50	267.0	0.6	0.3	0.5	0.03	0.00		
329.0	1.20	353.90	329.0	1.4	0.2	1.4	1.29	1.29		
391.0	2.10	345.70	391.0	3.2	-0.1	3.2	1.50	1.45		
451.0	3.60	346.40	450.9	6.1	-0.8	6.1	2.50	2.50		
512.0	4.80	353.10	511.7	10.5	-1.6	10.6	2.12	1.97		
604.0	7.70	354.40	603.2	20.4	-2.7	20.6	3.16	3.15		
696.0	10.80	351.40	694.0	35.1	-4.6	35.3	3.41	3.37		
788.0	14.00	348.60	783.8	54.5	-8.0	55.1	3.54	3.48		
879.0	16.30	347.50	871.6	77.8	-13.0	78.9	2.55	2.53		
970.0	19.20	343.60	958.3	104.6	-20.0	106.5	3.44	3.19		

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well Nolte 43B-14
Project:	Garfield County, CO	TVD Reference:	WELL @ 5108.0usft
Site:	S14-T7S-R96W	MD Reference:	WELL @ 5108.0usft
Well:	Nolte 43B-14	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
1,071.0	18.80	342.90	1,053.8	136.1	-29.4	139.2	0.46	-0.40	
1,166.0	21.80	345.80	1,142.9	167.9	-38.3	172.1	3.33	3.16	
1,261.0	24.90	345.00	1,230.1	204.3	-47.8	209.6	3.28	3.26	
1,356.0	27.50	342.10	1,315.3	244.5	-59.7	251.3	3.05	2.74	
1,451.0	29.20	343.00	1,398.9	287.5	-73.2	296.1	1.85	1.79	
1,546.0	30.50	342.50	1,481.3	332.7	-87.2	343.1	1.39	1.37	
1,642.0	33.20	343.00	1,562.9	381.0	-102.3	393.5	2.83	2.81	
1,737.0	35.60	342.50	1,641.2	432.3	-118.2	446.8	2.54	2.53	
1,832.0	34.30	348.30	1,719.1	484.9	-131.9	501.0	3.75	-1.37	
1,926.0	34.20	347.10	1,796.8	536.6	-143.2	553.9	0.73	-0.11	
2,021.0	34.30	343.30	1,875.4	588.3	-156.9	607.2	2.25	0.11	
2,116.0	34.10	342.80	1,953.9	639.3	-172.4	660.3	0.36	-0.21	
2,211.0	34.30	342.80	2,032.5	690.3	-188.2	713.4	0.21	0.21	
2,306.0	34.50	346.80	2,110.9	742.1	-202.3	766.9	2.39	0.21	
2,401.0	35.40	344.40	2,188.8	794.8	-215.8	821.2	1.73	0.95	
2,496.0	34.90	345.00	2,266.5	847.6	-230.2	875.7	0.64	-0.53	
2,591.0	33.50	345.00	2,345.0	899.1	-244.1	929.0	1.47	-1.47	
2,686.0	33.50	343.10	2,424.2	949.6	-258.5	981.2	1.10	0.00	
2,782.0	31.00	346.20	2,505.4	998.9	-272.1	1,032.2	3.12	-2.60	
2,877.0	28.20	345.80	2,588.0	1,044.4	-283.4	1,079.1	2.95	-2.95	
2,972.0	25.90	347.50	2,672.6	1,086.5	-293.4	1,122.2	2.55	-2.42	
3,067.0	23.90	346.30	2,758.8	1,125.4	-302.5	1,162.2	2.17	-2.11	
3,162.0	20.80	345.60	2,846.7	1,160.5	-311.2	1,198.2	3.28	-3.26	
3,257.0	19.30	343.40	2,935.9	1,191.9	-319.9	1,230.7	1.77	-1.58	
3,352.0	16.50	348.80	3,026.3	1,220.1	-327.0	1,259.8	3.42	-2.95	
3,447.0	14.00	343.10	3,117.9	1,244.4	-333.0	1,284.7	3.07	-2.63	
3,542.0	12.20	350.40	3,210.5	1,265.3	-338.0	1,306.2	2.57	-1.89	
3,637.0	10.90	349.60	3,303.6	1,284.0	-341.3	1,325.2	1.38	-1.37	
3,732.0	9.30	351.00	3,397.1	1,300.4	-344.1	1,341.9	1.70	-1.68	
3,827.0	8.50	5.80	3,490.9	1,315.0	-344.6	1,356.3	2.54	-0.84	
3,921.0	6.30	8.10	3,584.2	1,327.0	-343.2	1,367.8	2.36	-2.34	
4,016.0	4.30	19.20	3,678.7	1,335.5	-341.3	1,375.8	2.36	-2.11	
4,111.0	3.20	39.00	3,773.5	1,341.0	-338.4	1,380.6	1.77	-1.16	
4,206.0	2.60	22.70	3,868.4	1,345.0	-335.9	1,384.1	1.07	-0.63	
4,301.0	2.30	48.60	3,963.3	1,348.3	-333.7	1,386.9	1.20	-0.32	
4,396.0	1.60	47.20	4,058.3	1,350.4	-331.3	1,388.6	0.74	-0.74	
4,491.0	1.20	56.80	4,153.3	1,351.9	-329.5	1,389.7	0.49	-0.42	
4,586.0	0.80	104.30	4,248.2	1,352.2	-328.0	1,389.8	0.93	-0.42	
4,681.0	1.50	71.00	4,343.2	1,352.5	-326.2	1,389.7	0.99	0.74	
4,776.0	1.00	82.40	4,438.2	1,353.0	-324.2	1,389.8	0.59	-0.53	
4,872.0	1.70	66.30	4,534.2	1,353.7	-322.0	1,390.1	0.82	0.73	
4,967.0	0.90	60.50	4,629.2	1,354.6	-320.1	1,390.6	0.85	-0.84	
5,062.0	0.20	108.40	4,724.1	1,354.9	-319.3	1,390.8	0.82	-0.74	
5,157.0	0.80	163.10	4,819.1	1,354.2	-318.9	1,390.0	0.74	0.63	
5,252.0	0.70	16.20	4,914.1	1,354.2	-318.6	1,389.9	1.51	-0.11	
5,346.0	0.20	61.50	5,008.1	1,354.8	-318.3	1,390.4	0.61	-0.53	
5,441.0	0.80	249.50	5,103.1	1,354.6	-318.7	1,390.4	1.05	0.63	
5,536.0	1.00	195.30	5,198.1	1,353.6	-319.6	1,389.5	0.88	0.21	
5,631.0	0.40	226.90	5,293.1	1,352.6	-320.0	1,388.6	0.73	-0.63	
5,726.0	1.40	242.70	5,388.1	1,351.8	-321.3	1,388.1	1.07	1.05	
5,820.0	0.90	150.50	5,482.1	1,350.7	-322.0	1,387.1	1.80	-0.53	
5,915.0	1.20	198.70	5,577.1	1,349.1	-321.9	1,385.5	0.95	0.32	
6,010.0	1.30	219.70	5,672.1	1,347.3	-322.9	1,384.0	0.49	0.11	

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well Nolte 43B-14
Project:	Garfield County, CO	TVD Reference:	WELL @ 5108.0usft
Site:	S14-T7S-R96W	MD Reference:	WELL @ 5108.0usft
Well:	Nolte 43B-14	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
6,105.0	2.00	208.60	5,767.0	1,345.0	-324.4	1,382.0	0.81	0.74	
6,145.0	1.80	216.90	5,807.0	1,343.9	-325.1	1,381.0	0.85	-0.50	Last CES Survey @ 6,145' MD
6,200.0	1.80	216.90	5,862.0	1,342.5	-326.2	1,379.9	0.00	0.00	PTB @ 6,200'

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
Nolte 43B-14 PBHL 2 - actual wellpath misses target center by 23.0usft at 6200.0usft MD (5862.0 TVD, 1342.5 N, -326.2 E) - Circle (radius 50.0)	0.00	0.00	5,880.2	1,353.5	-317.4	593,996.05	1,274,283.68	39.436139	-108.069725

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
6,145.0	5,807.0	1,343.9	-325.1	Last CES Survey @ 6,145' MD
6,200.0	5,862.0	1,342.5	-326.2	PTB @ 6,200'

Checked By: _____ Approved By: _____ Date: _____