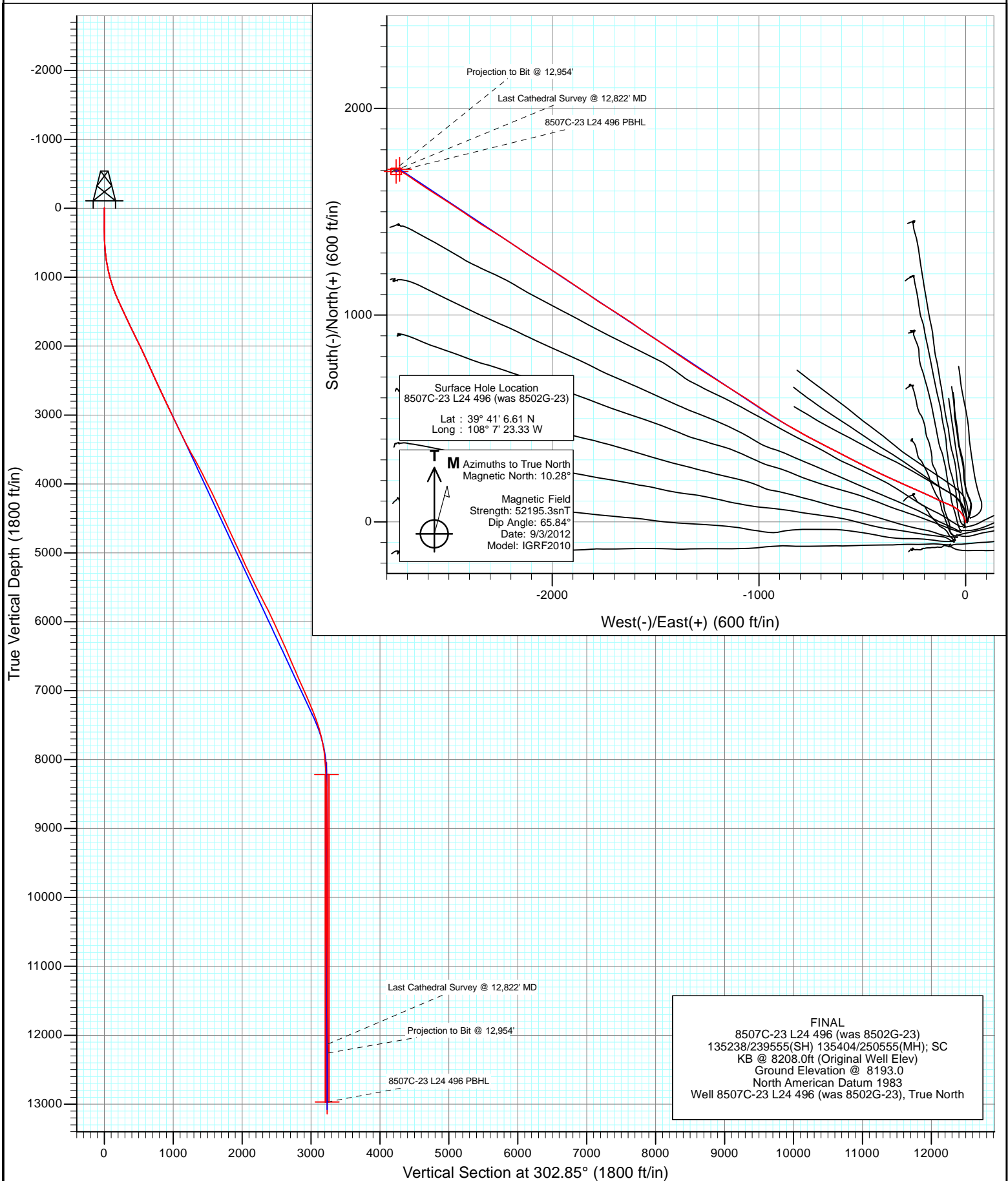


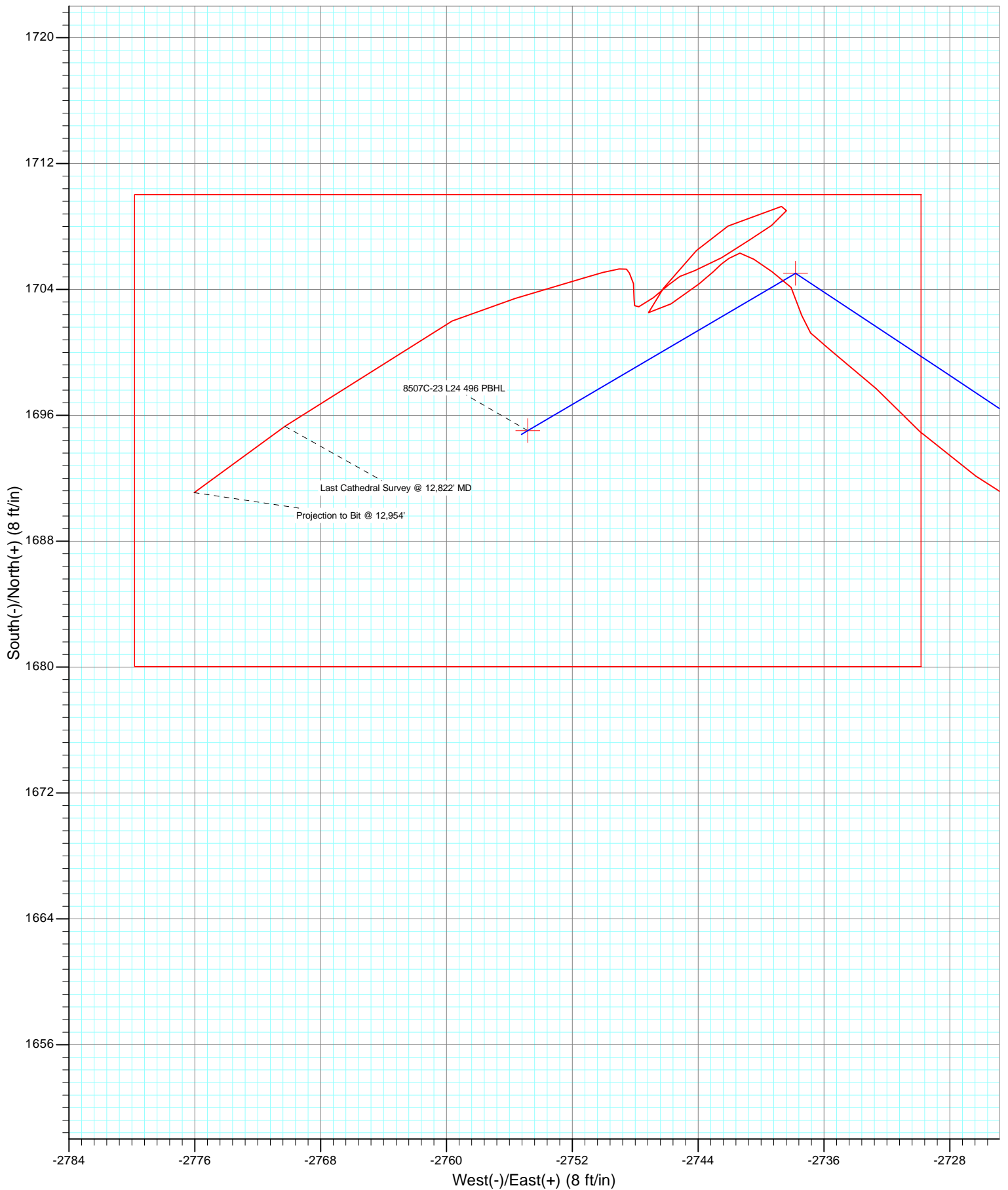


Project: Story Gulch
Site: L24 496
Well: 8507C-23 L24 496 (was 8502G-23)
Wellbore: DD
Design: FINAL





Project: Story Gulch
Site: L24 496
Well: 8507C-23 L24 496 (was 8502G-23)
Wellbore: DD
Design: FINAL



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8507C-23 L24 496 (was 8502G-23)
Project:	Story Gulch	TVD Reference:	KB @ 8208.0ft (Original Well Elev)
Site:	L24 496	MD Reference:	KB @ 8208.0ft (Original Well Elev)
Well:	8507C-23 L24 496 (was 8502G-23)	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 Multi Users DB

Project	Story Gulch		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site	L24 496			
Site Position:		Northing:	1,685,024.52 ft	Latitude: 39° 41' 5.72 N
From:	Lat/Long	Easting:	2,261,789.15 ft	Longitude: 108° 7' 23.99 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence: -1.65 °

Well	8507C-23 L24 496 (was 8502G-23)			
Well Position	+N/-S	0.0 ft	Northing:	1,685,113.01 ft
	+E/-W	0.0 ft	Easting:	2,261,843.33 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level: 8,193.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/3/2012	10.28	65.84	52,195

Design	DD			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 3,165.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	302.85

Survey Program	Date	9/11/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
85.0	3,165.0	Survey #1 (GYRO)	Gyro	Gyro
3,165.0	12,954.0	Survey #2 (DD)	Geolink MWD	Geolink MWD

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
85.0	0.89	226.43	85.0	-0.5	-0.5	0.2	1.05	1.05	
185.0	0.50	260.56	185.0	-1.1	-1.5	0.7	0.56	-0.40	
285.0	0.48	258.45	285.0	-1.2	-2.3	1.3	0.02	-0.01	
385.0	1.41	13.64	385.0	-0.1	-2.4	2.0	1.67	0.92	
485.0	3.41	358.73	484.9	4.1	-2.2	4.1	2.08	2.00	
585.0	5.60	336.32	584.6	11.5	-4.2	9.8	2.77	2.19	
685.0	8.63	335.81	683.8	22.8	-9.3	20.2	3.03	3.03	
785.0	10.57	326.08	782.4	37.3	-17.5	34.9	2.53	1.95	
885.0	11.72	315.97	880.5	52.2	-29.6	53.2	2.26	1.14	
985.0	14.15	302.28	978.0	66.0	-47.0	75.3	3.90	2.44	
1,085.0	17.34	295.35	1,074.2	78.9	-70.9	102.3	3.70	3.19	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8507C-23 L24 496 (was 8502G-23)
Project:	Story Gulch	TVD Reference:	KB @ 8208.0ft (Original Well Elev)
Site:	L24 496	MD Reference:	KB @ 8208.0ft (Original Well Elev)
Well:	8507C-23 L24 496 (was 8502G-23)	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
1,185.0	20.36	291.40	1,168.9	91.7	-100.5	134.2	3.27	3.01	
1,285.0	22.88	296.08	1,261.8	106.6	-134.2	170.5	3.05	2.52	
1,385.0	24.47	295.13	1,353.4	123.9	-170.4	210.4	1.63	1.59	
1,485.0	25.52	294.83	1,444.1	141.7	-208.7	252.2	1.06	1.06	
1,585.0	25.22	293.19	1,534.4	159.2	-247.8	294.6	0.76	-0.30	
1,685.0	24.78	293.48	1,625.0	175.9	-286.6	336.2	0.46	-0.45	
1,785.0	26.12	293.67	1,715.3	193.1	-326.0	378.6	1.35	1.35	
1,885.0	26.82	295.41	1,804.8	211.6	-366.6	422.8	1.04	0.70	
1,985.0	26.78	295.42	1,894.1	231.0	-407.3	467.5	0.05	-0.04	
2,085.0	26.01	295.65	1,983.7	250.1	-447.4	511.5	0.78	-0.77	
2,185.0	24.88	297.12	2,074.0	269.2	-485.9	554.2	1.29	-1.12	
2,285.0	24.96	296.43	2,164.7	288.2	-523.5	596.1	0.30	0.07	
2,385.0	24.64	297.26	2,255.4	307.1	-560.9	637.8	0.47	-0.31	
2,485.0	25.02	297.40	2,346.2	326.4	-598.3	679.6	0.38	0.37	
2,585.0	23.97	297.43	2,437.2	345.5	-635.1	720.9	1.04	-1.04	
2,685.0	24.23	296.36	2,528.5	364.0	-671.5	761.5	0.51	0.26	
2,785.0	24.68	298.03	2,619.5	382.9	-708.3	802.7	0.83	0.45	
2,885.0	24.99	297.30	2,710.3	402.4	-745.5	844.6	0.43	0.30	
2,985.0	25.74	299.50	2,800.6	422.8	-783.2	887.3	1.20	0.75	
3,085.0	26.78	300.27	2,890.3	444.8	-821.5	931.4	1.10	1.05	
3,165.0	26.04	299.60	2,962.0	462.6	-852.4	967.0	1.01	-0.93	Last Gyro Survey @ 3,180' MD
3,372.0	23.80	302.70	3,149.7	507.6	-927.0	1,054.1	1.25	-1.08	
3,454.0	26.20	303.40	3,224.0	526.5	-956.1	1,088.8	2.95	2.93	
3,546.0	27.70	304.20	3,306.0	549.7	-990.7	1,130.5	1.68	1.63	
3,638.0	27.00	303.20	3,387.7	573.1	-1,025.9	1,172.7	0.91	-0.76	
3,730.0	28.70	303.30	3,469.1	596.7	-1,061.8	1,215.7	1.85	1.85	
3,821.0	28.60	301.00	3,548.9	619.9	-1,098.7	1,259.3	1.22	-0.11	
3,913.0	29.60	303.00	3,629.3	643.6	-1,136.7	1,304.0	1.52	1.09	
4,005.0	27.70	301.10	3,710.0	667.1	-1,174.0	1,348.1	2.29	-2.07	
4,097.0	28.10	303.40	3,791.4	690.0	-1,210.4	1,391.2	1.25	0.43	
4,189.0	27.00	301.60	3,872.9	712.9	-1,246.3	1,433.7	1.50	-1.20	
4,281.0	26.70	304.80	3,955.0	735.6	-1,281.1	1,475.3	1.60	-0.33	
4,373.0	26.10	302.30	4,037.4	758.3	-1,315.2	1,516.2	1.37	-0.65	
4,465.0	26.10	304.60	4,120.0	780.6	-1,348.9	1,556.6	1.10	0.00	
4,557.0	25.70	303.30	4,202.8	803.0	-1,382.2	1,596.8	0.75	-0.43	
4,648.0	25.20	305.60	4,285.0	825.1	-1,414.5	1,635.9	1.22	-0.55	
4,740.0	24.70	304.10	4,368.4	847.3	-1,446.3	1,674.7	0.88	-0.54	
4,832.0	24.40	303.40	4,452.1	868.5	-1,478.1	1,712.9	0.45	-0.33	
4,924.0	25.40	304.20	4,535.5	890.1	-1,510.3	1,751.6	1.15	1.09	
5,016.0	24.40	303.20	4,619.0	911.6	-1,542.5	1,790.3	1.18	-1.09	
5,108.0	24.00	305.70	4,702.9	932.9	-1,573.6	1,828.0	1.20	-0.43	
5,200.0	25.90	305.30	4,786.3	955.4	-1,605.2	1,866.8	2.07	2.07	
5,292.0	25.20	303.40	4,869.3	977.8	-1,638.0	1,906.5	1.17	-0.76	
5,383.0	24.60	302.30	4,951.8	998.6	-1,670.2	1,944.8	0.83	-0.66	
5,475.0	24.80	303.30	5,035.4	1,019.4	-1,702.5	1,983.2	0.50	0.22	
5,567.0	24.00	300.70	5,119.2	1,039.6	-1,734.7	2,021.2	1.46	-0.87	
5,659.0	25.10	303.10	5,202.9	1,059.8	-1,767.1	2,059.4	1.61	1.20	
5,751.0	26.60	306.00	5,285.7	1,082.6	-1,800.1	2,099.5	2.13	1.63	
5,843.0	25.70	304.10	5,368.3	1,105.9	-1,833.3	2,140.0	1.34	-0.98	
5,935.0	26.70	304.40	5,450.8	1,128.7	-1,866.9	2,180.6	1.10	1.09	
6,026.0	26.50	302.70	5,532.2	1,151.2	-1,900.8	2,221.4	0.86	-0.22	
6,118.0	27.80	304.60	5,614.0	1,174.5	-1,935.8	2,263.3	1.70	1.41	
6,210.0	27.40	303.70	5,695.6	1,198.4	-1,971.0	2,305.9	0.63	-0.43	

Cathedral Energy Services

Survey Report

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Project:	Story Gulch	TVD Reference:	KB @ 8208.0ft (Original Well Elev)
Site:	L24 496	MD Reference:	KB @ 8208.0ft (Original Well Elev)
Well:	8507C-23 L24 496 (was 8502G-23)	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
6,302.0	27.40	302.20	5,777.3	1,221.5	-2,006.6	2,348.3	0.75	0.00	
6,393.0	26.10	303.10	5,858.5	1,243.5	-2,041.1	2,389.2	1.50	-1.43	
6,485.0	25.40	302.70	5,941.4	1,265.3	-2,074.6	2,429.2	0.78	-0.76	
6,577.0	24.80	302.20	6,024.7	1,286.2	-2,107.5	2,468.2	0.69	-0.65	
6,669.0	24.60	305.10	6,108.3	1,307.5	-2,139.5	2,506.7	1.33	-0.22	
6,760.0	24.40	304.30	6,191.1	1,329.0	-2,170.6	2,544.4	0.43	-0.22	
6,852.0	23.90	304.00	6,275.0	1,350.1	-2,201.7	2,582.0	0.56	-0.54	
6,944.0	23.70	302.90	6,359.2	1,370.6	-2,232.7	2,619.1	0.53	-0.22	
7,036.0	23.30	300.70	6,443.6	1,389.9	-2,263.9	2,655.8	1.05	-0.43	
7,128.0	23.40	303.20	6,528.1	1,409.2	-2,294.8	2,692.2	1.08	0.11	
7,220.0	22.60	301.00	6,612.7	1,428.3	-2,325.2	2,728.2	1.28	-0.87	
7,312.0	24.30	302.90	6,697.1	1,447.7	-2,356.3	2,764.8	2.02	1.85	
7,404.0	24.10	304.70	6,781.1	1,468.7	-2,387.6	2,802.5	0.83	-0.22	
7,496.0	23.60	303.90	6,865.2	1,489.6	-2,418.3	2,839.7	0.65	-0.54	
7,587.0	23.50	304.30	6,948.6	1,510.0	-2,448.5	2,876.0	0.21	-0.11	
7,679.0	23.50	303.40	7,033.0	1,530.5	-2,478.9	2,912.7	0.39	0.00	
7,771.0	23.60	303.20	7,117.3	1,550.6	-2,509.6	2,949.5	0.14	0.11	
7,863.0	23.50	302.80	7,201.7	1,570.7	-2,540.5	2,986.2	0.20	-0.11	
7,955.0	22.80	304.10	7,286.3	1,590.6	-2,570.7	3,022.4	0.94	-0.76	
8,047.0	21.00	302.30	7,371.6	1,609.4	-2,599.3	3,056.7	2.09	-1.96	
8,138.0	18.40	301.40	7,457.3	1,625.6	-2,625.4	3,087.4	2.88	-2.86	
8,230.0	16.20	303.30	7,545.1	1,640.2	-2,648.5	3,114.7	2.47	-2.39	
8,322.0	14.30	306.50	7,633.9	1,654.0	-2,668.4	3,138.9	2.26	-2.07	
8,414.0	12.50	305.10	7,723.4	1,666.5	-2,685.7	3,160.2	1.99	-1.96	
8,506.0	9.80	303.20	7,813.6	1,676.5	-2,700.4	3,178.0	2.96	-2.93	
8,598.0	7.30	301.20	7,904.6	1,683.8	-2,711.9	3,191.6	2.74	-2.72	
8,690.0	5.10	297.40	7,996.1	1,688.7	-2,720.5	3,201.5	2.43	-2.39	
8,782.0	3.30	304.90	8,087.8	1,692.1	-2,726.3	3,208.3	2.04	-1.96	
8,874.0	2.40	313.60	8,179.7	1,695.0	-2,729.9	3,212.8	1.08	-0.98	
8,966.0	2.40	315.50	8,271.6	1,697.7	-2,732.7	3,216.6	0.09	0.00	
9,058.0	2.40	304.40	8,363.5	1,700.1	-2,735.6	3,220.4	0.50	0.00	
9,150.0	1.40	349.10	8,455.5	1,702.3	-2,737.4	3,223.1	1.86	-1.09	
9,333.0	1.00	292.00	8,638.4	1,705.1	-2,739.3	3,226.2	0.66	-0.22	
9,425.0	0.80	320.20	8,730.4	1,705.9	-2,740.5	3,227.6	0.52	-0.22	
9,517.0	0.60	256.60	8,822.4	1,706.3	-2,741.3	3,228.5	0.82	-0.22	
9,609.0	0.40	226.40	8,914.4	1,706.0	-2,742.0	3,229.0	0.35	-0.22	
9,701.0	0.40	239.60	9,006.4	1,705.6	-2,742.5	3,229.2	0.10	0.00	
9,793.0	0.50	216.10	9,098.4	1,705.1	-2,743.1	3,229.3	0.23	0.11	
9,884.0	1.00	236.40	9,189.4	1,704.3	-2,744.0	3,229.7	0.61	0.55	
9,976.0	1.70	233.30	9,281.4	1,703.1	-2,745.7	3,230.5	0.76	0.76	
10,071.0	0.50	314.50	9,376.4	1,702.5	-2,747.1	3,231.4	1.79	-1.26	
10,162.0	2.20	44.20	9,467.3	1,704.1	-2,746.2	3,231.4	2.48	1.87	
10,254.0	1.80	37.50	9,559.3	1,706.5	-2,744.1	3,231.0	0.50	-0.43	
10,346.0	1.50	70.30	9,651.3	1,708.0	-2,742.1	3,230.1	1.06	-0.33	
10,438.0	1.10	69.20	9,743.2	1,708.7	-2,740.1	3,228.9	0.44	-0.43	
10,530.0	0.80	70.20	9,835.2	1,709.3	-2,738.7	3,227.9	0.33	-0.33	
10,621.0	0.70	210.40	9,926.2	1,709.0	-2,738.4	3,227.5	1.55	-0.11	
10,713.0	1.00	234.90	10,018.2	1,708.1	-2,739.3	3,227.8	0.51	0.33	
10,805.0	1.10	238.10	10,110.2	1,707.1	-2,740.7	3,228.5	0.13	0.11	
10,897.0	1.50	237.30	10,202.2	1,706.0	-2,742.5	3,229.4	0.44	0.43	
10,989.0	0.90	256.30	10,294.1	1,705.2	-2,744.2	3,230.4	0.77	-0.65	
11,081.0	0.40	230.80	10,386.1	1,704.8	-2,745.2	3,231.0	0.62	-0.54	
11,172.0	0.70	234.10	10,477.1	1,704.3	-2,745.9	3,231.3	0.33	0.33	

Cathedral Energy Services

Survey Report

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Project:	Story Gulch	TVD Reference:	KB @ 8208.0ft (Original Well Elev)
Site:	L24 496	MD Reference:	KB @ 8208.0ft (Original Well Elev)
Well:	8507C-23 L24 496 (was 8502G-23)	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
11,264.0	0.90	227.20	10,569.1	1,703.5	-2,746.8	3,231.6	0.24	0.22	
11,356.0	0.50	257.40	10,661.1	1,702.9	-2,747.8	3,232.1	0.58	-0.43	
11,448.0	0.70	9.30	10,753.1	1,703.4	-2,748.1	3,232.6	1.09	0.22	
11,539.0	0.60	344.10	10,844.1	1,704.4	-2,748.1	3,233.2	0.33	-0.11	
11,631.0	0.30	328.50	10,936.1	1,705.0	-2,748.4	3,233.8	0.35	-0.33	
11,723.0	0.10	302.60	11,028.1	1,705.3	-2,748.6	3,234.1	0.23	-0.22	
11,815.0	0.50	264.90	11,120.1	1,705.3	-2,749.0	3,234.5	0.46	0.43	
11,907.0	0.80	254.00	11,212.1	1,705.1	-2,750.0	3,235.2	0.35	0.33	
11,998.0	0.80	254.00	11,303.1	1,704.7	-2,751.3	3,236.0	0.00	0.00	
12,273.0	1.10	252.90	11,578.0	1,703.4	-2,755.6	3,239.0	0.11	0.11	
12,485.0	1.20	247.90	11,790.0	1,702.0	-2,759.6	3,241.6	0.07	0.05	
12,822.0	3.10	233.90	12,126.7	1,695.3	-2,770.3	3,246.9	0.58	0.56	Last Cathedral Survey @ 12,822' MD
12,954.0	3.10	233.90	12,258.5	1,691.1	-2,776.0	3,249.4	0.00	0.00	Projection to Bit @ 12,954'

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
8507C-23 L24 496 PBHI	0.00	0.00	12,968.0	1,695.0	-2,754.8	1,686,886.86	2,259,138.59	39° 41' 23.36 N	108° 7' 58.57 W
- actual wellpath misses target center by 709.8ft at 12954.0ft MD (12258.5 TVD, 1691.1 N, -2776.0 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									
8507C-23 L24 496 TGT	0.00	0.00	8,216.0	1,705.0	-2,737.8	1,686,896.37	2,259,155.89	39° 41' 23.46 N	108° 7' 58.35 W
- actual wellpath misses target center by 11.3ft at 8910.8ft MD (8216.5 TVD, 1696.0 N, -2731.0 E)									
- Point									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
3,165.0	2,962.0	462.6	-852.4	Last Gyro Survey @ 3,180' MD
12,822.0	12,126.7	1,695.3	-2,770.3	Last Cathedral Survey @ 12,822' MD
12,954.0	12,258.5	1,691.1	-2,776.0	Projection to Bit @ 12,954'

Checked By: _____ Approved By: _____ Date: _____