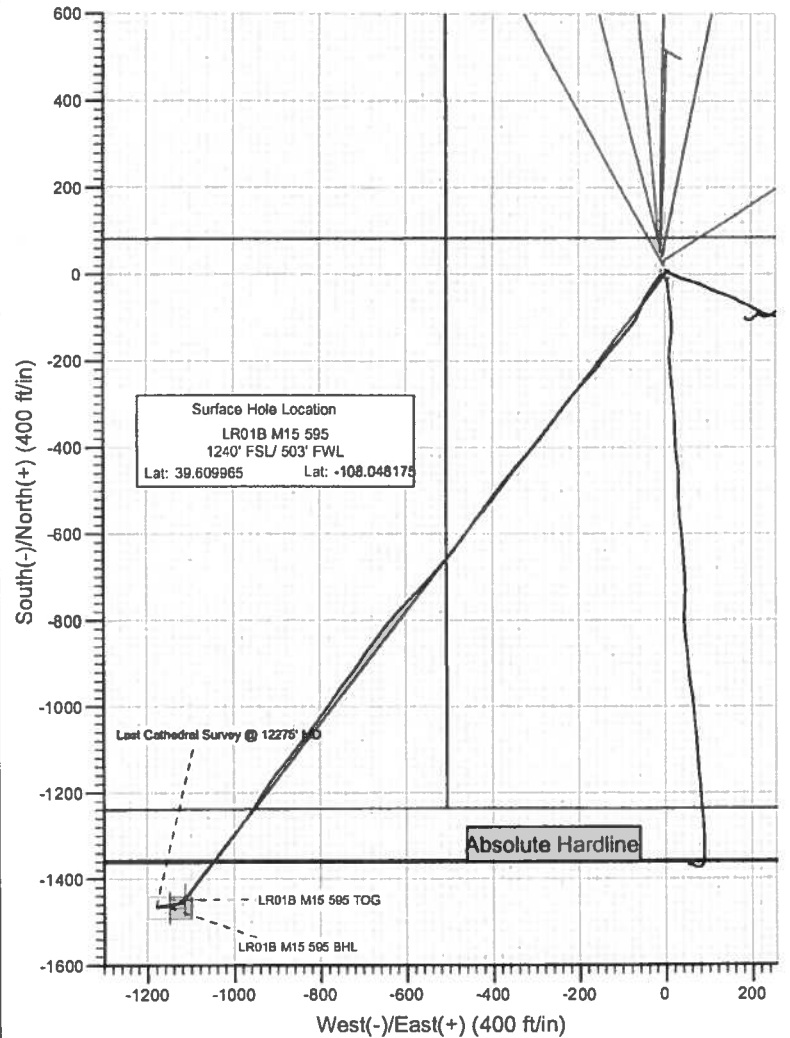
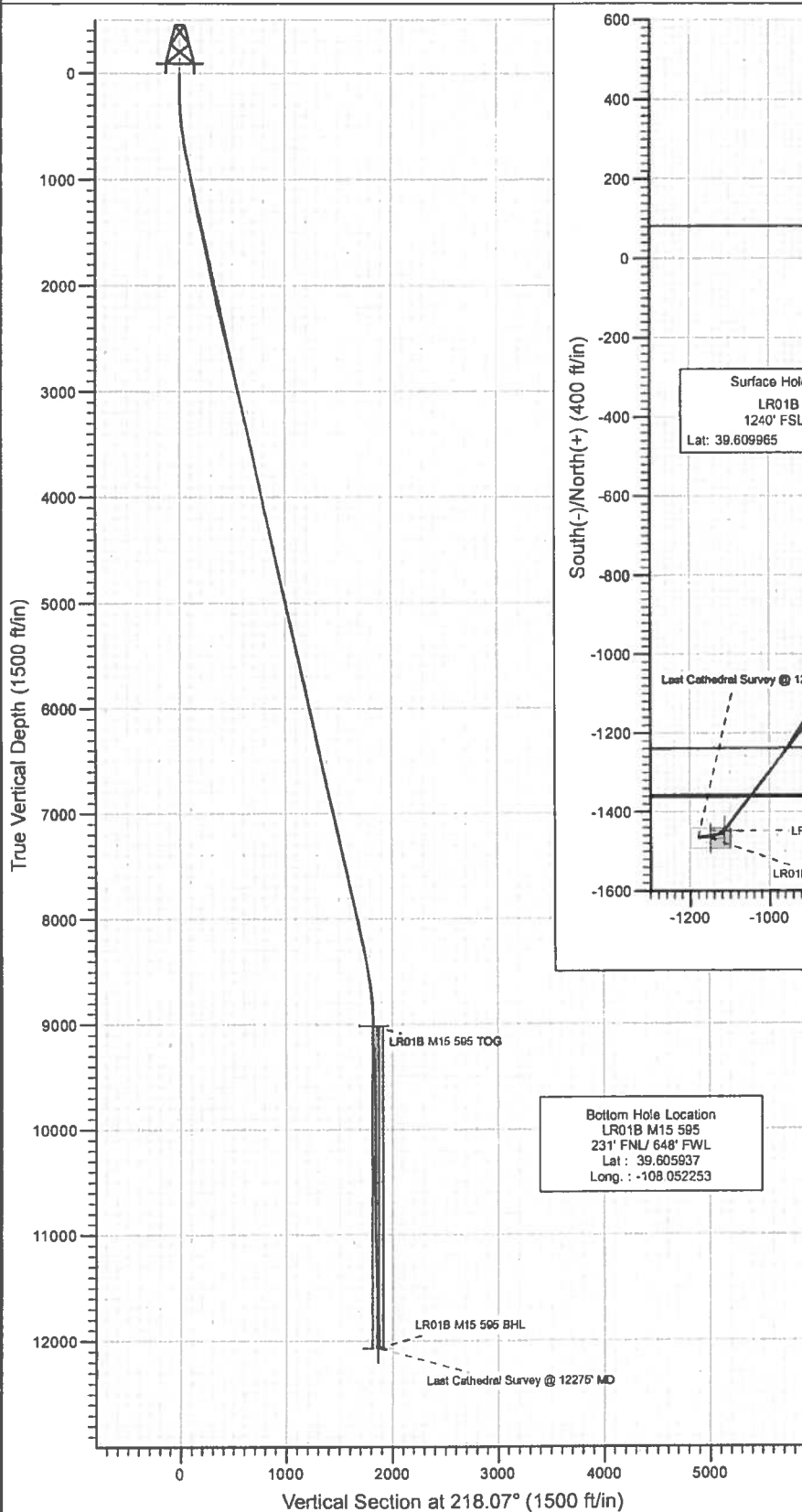




Project: Garfield County
 Site: M15 595
 Well: LR01B M15 595
 Wellbore: DD
 Design: Final Survey



Bottom Hole Location
 LR01B M15 595
 231' FNL/ 648' FWL
 Lat: 39.605937
 Long.: -108.052253



Azimuths to True North
 Magnetic North: 10.50°

Magnetic Field
 Strength: 52370.9snT
 Dip Angle: 65.85°
 Date: 8/13/2010
 Model: IGRF2010

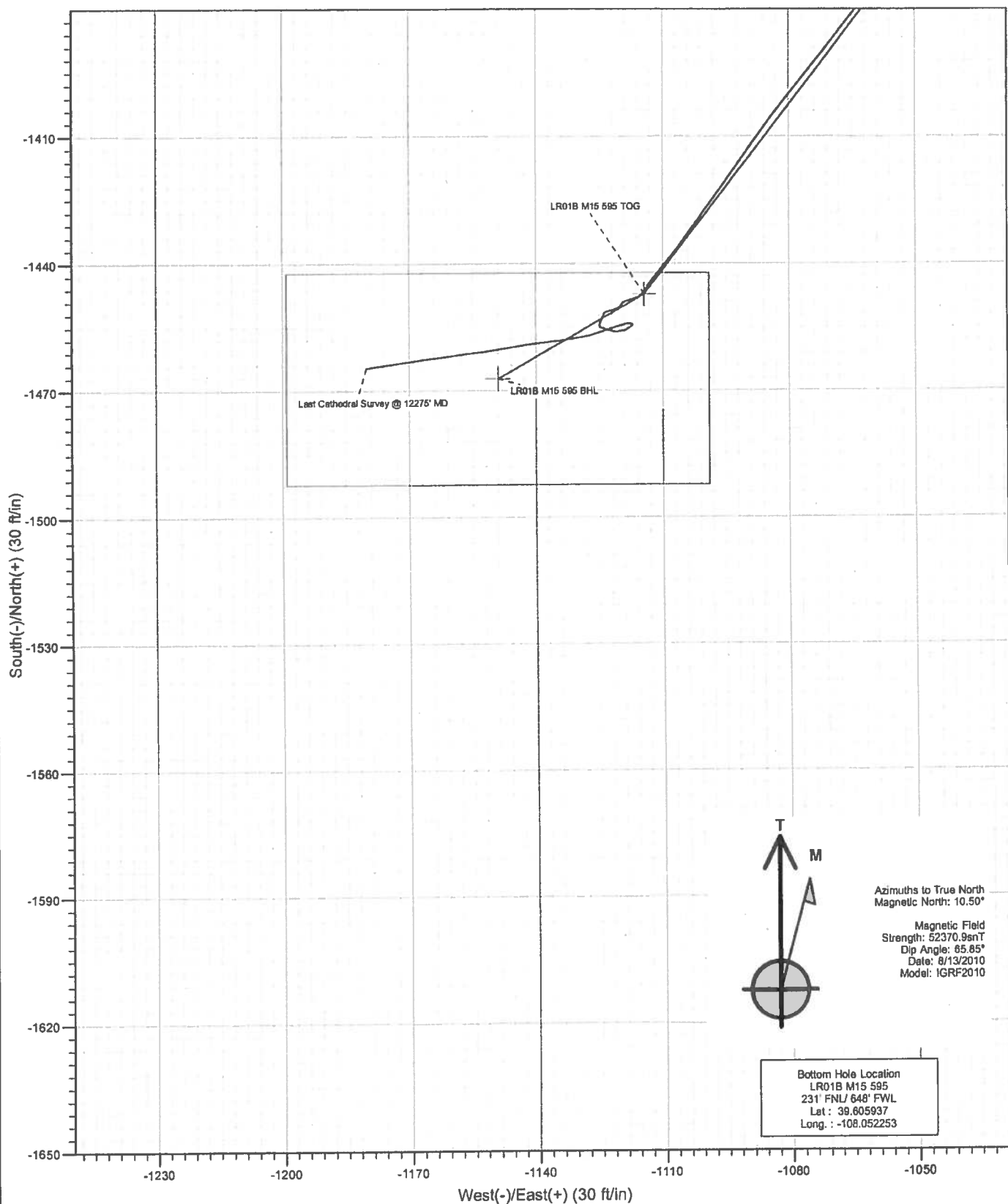
DESIGN DETAILS: DD

105340; BH
 KBE @ 6362.0ft (Patterson 302)

Target	Azimuth	Origin	N/S	E/W From TVD
LR01B M15 595 BHL	218.07	Slot	0.0	0.0



Project: Garfield County
Site: M15 595
Well: LR01B M15 595
Wellbore: DD
Design: DD



Cathedral Energy Services

Survey Report

Company: Berry Petroleum Company (NAD 83)
Project: Garfield County
Site: M15 595
Well: LR01B M15 595
Wellbore: DD
Design: DD

Local Co-ordinate Reference: Well LR01B M15 595
TVD Reference: KBE @ 8362.0ft (Patterson 302)
MD Reference: KBE @ 8362.0ft (Patterson 302)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 US Multi Users DB

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

Site	M15 595			
Site Position:		Northing:	1,657,208.58 ft	Latitude: 39.610181
From:	Lat/Long	Easting:	2,282,155.00 ft	Longitude: -108.048225
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence: -1.61 °

Well	LR01B M15 595			
Well Position	+N/-S	0.0 ft	Northing: 1,657,129.53 ft	Latitude: 39.609965
	+E/-W	0.0 ft	Easting: 2,282,166.88 ft	Longitude: -108.048175
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level: 8,347.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/13/2010	10.50	65.85	52,371

Design	DD				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	218.07	

Survey Program	Date 8/31/2010				
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
154.0	12,275.0	Survey #1 (DD)	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	
154.0	1.00	333.70	154.0	1.2	-0.6	-0.6	0.65	0.65	
227.0	1.50	270.80	227.0	1.8	-1.8	-0.3	1.88	0.68	
319.0	3.80	241.10	318.9	0.3	-5.7	3.3	2.83	2.50	
410.0	6.20	224.00	409.5	-4.7	-11.8	10.9	3.08	2.64	
501.0	7.00	219.70	499.9	-12.5	-18.7	21.4	1.03	0.88	
591.0	8.30	214.30	589.1	-22.0	-25.9	33.3	1.65	1.44	
681.0	9.40	210.80	678.1	-33.7	-33.3	47.1	1.36	1.22	
773.0	9.20	217.80	768.8	-46.0	-41.7	61.9	1.25	-0.22	
865.0	12.70	203.90	859.2	-61.1	-50.3	79.1	4.74	3.80	
961.0	11.30	199.60	953.1	-79.6	-57.7	98.2	1.73	-1.46	
1,056.0	10.30	203.40	1,048.4	-96.1	-64.2	115.3	1.29	-1.05	
1,151.0	9.50	216.20	1,140.0	-110.3	-72.2	131.3	2.48	-0.84	

Cathedral Energy Services

Survey Report

Company: Berry Petroleum Company (NAD 83)
Project: Garfield County
Site: M15 595
Well: LR01B M15 595
Wellbore: DD
Design: DD

Local Co-ordinate Reference: Well LR01B M15 595
TVD Reference: KBE @ 8362.0ft (Patterson 302)
MD Reference: KBE @ 8362.0ft (Patterson 302)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 US 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
1,245.0	10.80	219.00	1,232.5	-123.4	-82.3	147.9	1.48	1.38	
1,340.0	12.00	217.70	1,325.6	-138.1	-94.0	166.7	1.29	1.26	
1,435.0	13.10	221.20	1,418.4	-154.0	-107.1	187.3	1.41	1.16	
1,469.0	13.70	221.50	1,451.4	-159.9	-112.3	195.1	1.78	1.76	
1,531.0	13.20	221.90	1,511.7	-170.7	-121.9	209.5	0.82	-0.81	
1,593.0	12.30	220.70	1,572.2	-181.0	-130.9	223.2	1.51	-1.45	
1,657.0	12.00	218.40	1,634.8	-191.3	-139.5	236.7	0.89	-0.47	
1,720.0	11.50	218.00	1,696.5	-201.4	-147.4	249.5	0.80	-0.79	
1,783.0	11.20	217.00	1,758.2	-211.3	-155.0	261.9	0.57	-0.48	
1,847.0	11.00	220.80	1,821.0	-220.8	-162.7	274.2	1.18	-0.31	
1,910.0	11.40	222.50	1,882.8	-230.0	-170.8	286.4	0.82	0.63	
1,974.0	12.00	222.70	1,945.5	-239.5	-179.6	299.4	0.94	0.94	
2,037.0	12.00	223.10	2,007.1	-249.1	-188.6	312.4	0.13	0.00	
2,100.0	12.00	223.50	2,068.7	-258.7	-197.5	325.4	0.13	0.00	
2,163.0	12.70	221.00	2,130.3	-268.6	-206.6	338.9	1.40	1.11	
2,226.0	13.20	217.00	2,191.7	-279.6	-215.5	353.0	1.63	0.79	
2,290.0	13.20	216.00	2,254.0	-291.4	-224.2	367.6	0.36	0.00	
2,353.0	13.30	216.30	2,315.3	-303.0	-232.7	382.0	0.19	0.16	
2,415.0	14.10	216.30	2,375.6	-314.9	-241.4	396.7	1.29	1.29	
2,478.0	13.70	216.30	2,436.7	-327.1	-250.3	411.8	0.63	-0.63	
2,541.0	13.00	216.10	2,498.0	-338.8	-258.9	426.4	1.11	-1.11	
2,604.0	13.60	217.10	2,559.3	-350.4	-267.6	440.9	1.02	0.95	
2,668.0	14.00	218.40	2,621.5	-362.5	-276.9	456.1	0.79	0.62	
2,731.0	14.10	217.90	2,682.6	-374.5	-286.4	471.4	0.25	0.16	
2,794.0	14.60	217.70	2,743.6	-386.9	-295.9	487.0	0.80	0.79	
2,857.0	14.10	218.90	2,804.7	-399.1	-305.6	502.6	0.92	-0.79	
2,920.0	14.60	221.40	2,865.7	-411.0	-315.7	518.2	1.26	0.79	
2,982.0	14.50	222.10	2,925.7	-422.7	-326.0	533.8	0.33	-0.16	
3,155.0	12.10	217.60	3,094.1	-453.1	-351.6	573.5	1.51	-1.39	
3,249.0	13.20	219.90	3,185.8	-469.1	-364.5	594.1	1.29	1.17	
3,344.0	13.70	221.80	3,278.2	-485.9	-379.0	616.2	0.70	0.53	
3,438.0	13.60	215.50	3,369.5	-503.3	-392.9	638.5	1.60	0.11	
3,533.0	14.30	216.10	3,461.6	-521.7	-406.7	661.5	0.85	0.53	
3,628.0	12.80	213.80	3,554.0	-539.7	-419.8	683.8	1.90	-1.58	
3,723.0	12.00	214.80	3,646.8	-556.6	-431.3	704.1	0.87	-0.84	
3,818.0	11.00	213.00	3,739.9	-572.3	-441.9	723.0	1.12	-1.05	
3,913.0	12.30	217.10	3,832.9	-588.0	-452.9	742.2	1.62	1.37	
4,008.0	11.70	214.80	3,925.8	-603.9	-464.5	761.9	0.81	-0.63	
4,103.0	12.10	216.70	4,018.8	-619.8	-476.0	781.5	0.59	0.42	
4,198.0	13.80	219.00	4,111.4	-636.6	-489.1	802.8	1.87	1.79	
4,293.0	13.10	220.20	4,203.8	-653.6	-503.1	824.8	0.79	-0.74	
4,388.0	12.80	222.70	4,296.4	-669.6	-517.2	846.1	0.67	-0.32	
4,482.0	12.30	220.00	4,388.1	-684.9	-530.7	866.5	0.82	-0.53	
4,576.0	13.10	220.30	4,479.8	-700.7	-544.1	887.1	0.85	0.85	
4,671.0	12.50	223.50	4,572.4	-716.4	-558.1	908.1	0.98	-0.63	
4,766.0	13.80	223.50	4,665.0	-732.1	-573.0	929.6	1.37	1.37	
4,861.0	13.00	225.30	4,757.4	-747.8	-588.4	951.5	0.95	-0.84	
4,954.0	12.70	225.00	4,848.0	-762.4	-603.0	972.0	0.33	-0.32	
5,049.0	13.40	220.10	4,940.6	-778.2	-617.5	993.4	1.38	0.74	
5,143.0	12.50	221.70	5,032.2	-794.1	-631.3	1,014.4	1.03	-0.96	
5,239.0	12.90	219.60	5,125.8	-810.1	-645.0	1,035.5	0.64	0.42	
5,333.0	12.90	215.70	5,217.5	-826.7	-657.8	1,056.5	0.93	0.00	
5,428.0	12.50	214.30	5,310.1	-843.8	-669.8	1,077.4	0.53	-0.42	

Cathedral Energy Services

Survey Report

Company: Berry Petroleum Company (NAD 83)
Project: Garfield County
Site: M15 595
Well: LR01B M15 595
Wellbore: DD
Design: DD

Local Co-ordinate Reference: Well LR01B M15 595
TVD Reference: KBE @ 8362.0ft (Patterson 302)
MD Reference: KBE @ 8362.0ft (Patterson 302)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 US 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
5,522.0	12.80	220.00	5,401.9	-860.2	-682.2	1,097.9	1.37	0.32	
5,617.0	13.20	214.30	5,494.4	-877.2	-695.1	1,119.3	1.41	0.42	
5,712.0	12.00	211.50	5,587.2	-894.6	-706.4	1,139.9	1.42	-1.26	
5,808.0	13.10	217.70	5,678.9	-911.4	-718.0	1,160.2	1.85	1.17	
5,900.0	11.60	219.10	5,770.7	-927.2	-730.5	1,180.4	1.63	-1.60	
5,994.0	12.70	217.70	5,862.6	-942.7	-742.8	1,200.1	1.21	1.17	
6,089.0	13.60	213.40	5,955.1	-960.3	-755.3	1,221.7	1.40	0.95	
6,184.0	12.90	213.40	6,047.6	-978.4	-767.3	1,243.4	0.74	-0.74	
6,278.0	12.10	215.00	6,139.4	-995.3	-778.7	1,263.7	0.93	-0.85	
6,373.0	13.30	214.40	6,232.0	-1,012.4	-790.6	1,284.6	1.27	1.26	
6,467.0	12.70	216.70	6,323.6	-1,029.8	-802.9	1,305.7	0.84	-0.84	
6,562.0	11.70	216.50	6,416.5	-1,045.8	-814.9	1,325.7	1.05	-1.05	
6,658.0	11.70	217.70	6,510.5	-1,061.3	-828.6	1,345.2	0.25	0.00	
6,753.0	12.00	220.10	6,603.5	-1,076.5	-838.9	1,364.7	0.61	0.32	
6,849.0	12.40	215.20	6,697.3	-1,092.5	-851.2	1,385.0	1.16	0.42	
6,943.0	13.70	218.60	6,788.9	-1,109.5	-864.0	1,406.2	1.61	1.38	
7,038.0	12.80	217.40	6,881.4	-1,126.6	-877.4	1,428.0	0.99	-0.95	
7,133.0	12.70	219.90	6,974.0	-1,143.0	-890.5	1,448.9	0.59	-0.11	
7,228.0	12.50	220.80	7,066.7	-1,158.8	-903.9	1,469.6	0.30	-0.21	
7,324.0	12.70	213.60	7,160.4	-1,175.4	-916.5	1,490.5	1.65	0.21	
7,419.0	11.40	211.90	7,253.3	-1,192.1	-927.3	1,510.3	1.42	-1.37	
7,514.0	13.00	213.60	7,346.2	-1,209.0	-938.2	1,530.3	1.73	1.68	
7,609.0	12.70	211.90	7,438.8	-1,228.7	-949.6	1,551.3	0.51	-0.32	
7,704.0	12.00	211.30	7,531.6	-1,244.0	-960.2	1,571.5	0.75	-0.74	
7,799.0	12.50	214.70	7,624.4	-1,260.9	-971.2	1,591.6	0.92	0.53	
7,894.0	13.60	219.60	7,717.0	-1,278.0	-984.2	1,613.0	1.64	1.16	
7,989.0	13.10	218.20	7,809.4	-1,295.1	-998.0	1,634.9	0.63	-0.53	
8,084.0	12.40	218.80	7,902.1	-1,311.5	-1,011.0	1,655.9	0.75	-0.74	
8,179.0	12.60	218.30	7,994.8	-1,327.6	-1,023.8	1,676.4	0.24	0.21	
8,273.0	12.20	217.00	8,086.6	-1,343.5	-1,036.2	1,696.6	0.52	-0.43	
8,369.0	12.00	217.50	8,180.5	-1,359.6	-1,048.3	1,716.8	0.24	-0.21	
8,464.0	11.10	217.70	8,273.6	-1,374.8	-1,059.9	1,735.8	0.95	-0.95	
8,559.0	9.30	218.50	8,367.1	-1,387.9	-1,070.3	1,752.6	1.90	-1.89	
8,653.0	9.10	219.00	8,459.9	-1,399.6	-1,079.7	1,767.6	0.23	-0.21	
8,748.0	7.90	215.00	8,553.8	-1,410.8	-1,088.2	1,781.7	1.41	-1.26	
8,843.0	7.30	215.60	8,648.0	-1,421.0	-1,095.5	1,794.2	0.64	-0.63	
8,938.0	5.70	216.00	8,742.4	-1,429.8	-1,101.7	1,804.9	1.68	-1.68	
9,032.0	4.50	216.00	8,836.0	-1,436.5	-1,106.7	1,813.3	1.28	-1.28	
9,127.0	3.60	221.80	8,930.7	-1,441.8	-1,110.8	1,820.0	1.04	-0.95	
9,221.0	2.40	209.50	9,024.6	-1,445.7	-1,113.8	1,824.9	1.44	-1.28	
9,318.0	1.30	243.30	9,121.6	-1,447.9	-1,115.7	1,827.9	1.55	-1.13	
9,411.0	1.80	259.90	9,214.5	-1,448.7	-1,118.1	1,829.9	0.72	0.54	
9,505.0	0.80	192.60	9,308.5	-1,449.6	-1,119.7	1,831.6	1.77	-1.06	
9,599.0	1.40	247.20	9,402.5	-1,450.6	-1,120.9	1,833.2	1.21	0.64	
9,693.0	1.30	258.60	9,496.5	-1,451.3	-1,123.0	1,835.0	0.30	-0.11	
9,788.0	1.00	183.20	9,591.5	-1,452.3	-1,124.1	1,836.5	1.50	-0.32	
9,882.0	1.30	220.60	9,685.4	-1,454.0	-1,124.9	1,838.3	0.84	0.32	
9,976.0	0.80	104.90	9,779.4	-1,455.0	-1,124.9	1,839.0	1.99	-0.43	
10,072.0	1.50	112.90	9,875.4	-1,455.7	-1,123.0	1,838.4	0.65	0.62	
10,166.0	0.90	82.40	9,969.4	-1,456.0	-1,121.1	1,837.6	0.91	-0.64	
10,261.0	0.70	77.20	10,064.4	-1,455.8	-1,119.8	1,836.6	0.22	-0.21	
10,356.0	0.40	92.30	10,159.4	-1,455.7	-1,118.9	1,835.9	0.35	-0.32	
10,451.0	0.70	41.30	10,254.4	-1,455.3	-1,118.2	1,835.2	0.57	0.32	

Cathedral Energy Services

Survey Report

Company: Berry Petroleum Company (NAD 83)
Project: Garfield County
Site: M15 595
Well: LR01B M15 595
Wellbore: DD
Design: DD

Local Co-ordinate Reference: Well LR01B M15 595
TVD Reference: KBE @ 8362.0ft (Patterson 302)
MD Reference: KBE @ 8362.0ft (Patterson 302)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 US 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
10,546.0	0.40	80.30	10,349.4	-1,454.8	-1,117.5	1,834.3	0.49	-0.32	
10,641.0	0.30	9.60	10,444.4	-1,454.5	-1,117.1	1,833.9	0.43	-0.11	
10,736.0	0.30	270.10	10,539.4	-1,454.2	-1,117.3	1,833.8	0.48	0.00	
10,830.0	0.40	289.60	10,633.4	-1,454.1	-1,117.9	1,834.1	0.16	0.11	
10,926.0	0.80	251.80	10,729.4	-1,454.2	-1,118.8	1,834.7	0.57	0.42	
11,021.0	1.50	256.60	10,824.3	-1,454.7	-1,120.7	1,836.3	0.74	0.74	
11,118.0	1.70	246.30	10,921.3	-1,455.6	-1,123.2	1,838.5	0.36	0.21	
11,401.0	2.50	263.60	11,204.1	-1,458.0	-1,133.2	1,846.5	0.36	0.28	
11,591.0	2.90	262.30	11,393.9	-1,459.1	-1,142.1	1,852.9	0.21	0.21	
11,686.0	2.70	258.50	11,488.8	-1,459.8	-1,146.6	1,856.3	0.29	-0.21	
11,781.0	2.80	263.50	11,583.7	-1,460.5	-1,151.1	1,859.6	0.27	0.11	
11,971.0	3.60	262.20	11,773.4	-1,461.9	-1,161.7	1,867.2	0.42	0.42	
12,066.0	3.70	261.70	11,868.2	-1,462.7	-1,167.7	1,871.5	0.11	0.11	
12,160.0	3.40	261.60	11,962.0	-1,463.6	-1,173.4	1,875.8	0.32	-0.32	
12,275.0	3.40	261.60	12,076.8	-1,464.6	-1,180.2	1,880.7	0.00	0.00	Last Cathedral Survey @ 12275' MD

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
LR01B M15 595 BHL - survey misses target center by 30.8ft at 12266.4ft MD (12068.2 TVD, -1464.5 N, -1179.7 E) - Rectangle (sides W50.0 H100.0 D0.0)	0.00	0.00	12,070.0	-1,467.2	-1,149.0	1,655,695.15	2,280,977.16	39.605937	-108.052253
LR01B M15 595 TOG - survey misses target center by 1.8ft at 9216.5ft MD (9020.1 TVD, -1445.5 N, -1113.7 E) - Point	0.00	0.00	9,020.0	-1,447.2	-1,114.4	1,655,714.15	2,281,012.34	39.605992	-108.052130

Survey Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
12,275.0	12,076.8	-1,464.6	-1,180.2	Last Cathedral Survey @ 12275' MD

Checked By: _____ Approved By: _____ Date: _____