





Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Genesis 9-2
Company:	K. P. Kauffman Company, Inc.	TVD Reference:	WELL @ 4900.4usft (Original Well Elev)
Project:	Wattenberg	MD Reference:	WELL @ 4900.4usft (Original Well Elev)
Site:	Genesis 9-2	North Reference:	True
Well:	Genesis 9-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

Project	Wattenberg		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		Genesis 9-2			
Site Position:		Northing:	1,397,750.36 usft	Latitude:	40.423320
From:	Lat/Long	Easting:	3,185,185.70 usft	Longitude:	-104.834850
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.43 °

Well	Genesis 9-2					
Well Position	+N/-S	0.0 usft	Northing:	1,397,750.36 usft	Latitude:	40.423320
	+E/-W	0.0 usft	Easting:	3,185,185.70 usft	Longitude:	-104.834850
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	4,880.4 usft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	11/20/2012	8.66	67.02	53,010

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	318.19

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,028.2	32.56	318.19	4,942.0	335.7	-300.2	2.00	2.00	0.00	318.19	
6,714.4	32.56	318.19	6,363.0	1,012.2	-905.2	0.00	0.00	0.00	0.00	
8,342.6	0.00	0.00	7,905.0	1,347.9	-1,205.5	2.00	-2.00	0.00	180.00	
8,442.6	0.00	0.00	8,005.0	1,347.9	-1,205.5	0.00	0.00	0.00	0.00	Genesis 9-2 BHL

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Site:	Genesis 9-2	North Reference:	True
Well:	Genesis 9-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	KOP @ 3400' MD
3,500.0	2.00	318.19	3,500.0	1.3	-1.2	1.7	2.00	2.00	
3,600.0	4.00	318.19	3,599.8	5.2	-4.7	7.0	2.00	2.00	
3,700.0	6.00	318.19	3,699.5	11.7	-10.5	15.7	2.00	2.00	
3,800.0	8.00	318.19	3,798.7	20.8	-18.6	27.9	2.00	2.00	
3,900.0	10.00	318.19	3,897.5	32.4	-29.0	43.5	2.00	2.00	
4,000.0	12.00	318.19	3,995.6	46.7	-41.7	62.6	2.00	2.00	
4,100.0	14.00	318.19	4,093.1	63.4	-56.7	85.1	2.00	2.00	
4,200.0	16.00	318.19	4,189.6	82.7	-74.0	111.0	2.00	2.00	
4,300.0	18.00	318.19	4,285.3	104.5	-93.5	140.2	2.00	2.00	
4,400.0	20.00	318.19	4,379.8	128.8	-115.2	172.8	2.00	2.00	
4,500.0	22.00	318.19	4,473.2	155.5	-139.1	208.6	2.00	2.00	
4,600.0	24.00	318.19	4,565.2	184.6	-165.1	247.7	2.00	2.00	
4,700.0	26.00	318.19	4,655.8	216.1	-193.3	289.9	2.00	2.00	
4,800.0	28.00	318.19	4,744.9	250.0	-223.5	335.3	2.00	2.00	
4,900.0	30.00	318.19	4,832.4	286.1	-255.9	383.8	2.00	2.00	
5,000.0	32.00	318.19	4,918.1	324.5	-290.2	435.3	2.00	2.00	
5,028.2	32.56	318.19	4,942.0	335.7	-300.2	450.4	2.00	2.00	EOB; Inc = 32.56°

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Project:	Wattenberg	MD Reference:	WELL @ 4900.4usft (Original Well Elev)
Site:	Genesis 9-2	North Reference:	True
Well:	Genesis 9-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
5,100.0	32.56	318.19	5,002.5	364.5	-326.0	489.0	0.00	0.00	
5,200.0	32.56	318.19	5,086.7	404.6	-361.9	542.8	0.00	0.00	
5,300.0	32.56	318.19	5,171.0	444.8	-397.7	596.7	0.00	0.00	
5,400.0	32.56	318.19	5,255.3	484.9	-433.6	650.5	0.00	0.00	
5,500.0	32.56	318.19	5,339.6	525.0	-469.5	704.3	0.00	0.00	
5,600.0	32.56	318.19	5,423.9	565.1	-505.4	758.1	0.00	0.00	
5,700.0	32.56	318.19	5,508.1	605.2	-541.3	812.0	0.00	0.00	
5,800.0	32.56	318.19	5,592.4	645.4	-577.2	865.8	0.00	0.00	
5,900.0	32.56	318.19	5,676.7	685.5	-613.0	919.6	0.00	0.00	
6,000.0	32.56	318.19	5,761.0	725.6	-648.9	973.4	0.00	0.00	
6,100.0	32.56	318.19	5,845.2	765.7	-684.8	1,027.3	0.00	0.00	
6,200.0	32.56	318.19	5,929.5	805.8	-720.7	1,081.1	0.00	0.00	
6,300.0	32.56	318.19	6,013.8	846.0	-756.6	1,134.9	0.00	0.00	
6,400.0	32.56	318.19	6,098.1	886.1	-792.4	1,188.7	0.00	0.00	
6,500.0	32.56	318.19	6,182.4	926.2	-828.3	1,242.6	0.00	0.00	
6,600.0	32.56	318.19	6,266.6	966.3	-864.2	1,296.4	0.00	0.00	
6,700.0	32.56	318.19	6,350.9	1,006.5	-900.1	1,350.2	0.00	0.00	
6,714.4	32.56	318.19	6,363.0	1,012.2	-905.2	1,358.0	0.00	0.00	Start 2° Drop
6,800.0	30.85	318.19	6,435.9	1,045.8	-935.2	1,403.0	2.00	-2.00	
6,900.0	28.85	318.19	6,522.6	1,082.9	-968.4	1,452.7	2.00	-2.00	
7,000.0	26.85	318.19	6,611.0	1,117.7	-999.6	1,499.4	2.00	-2.00	
7,100.0	24.85	318.19	6,701.0	1,150.2	-1,028.6	1,543.1	2.00	-2.00	
7,200.0	22.85	318.19	6,792.5	1,180.3	-1,055.6	1,583.5	2.00	-2.00	
7,300.0	20.85	318.19	6,885.3	1,208.1	-1,080.4	1,620.7	2.00	-2.00	
7,400.0	18.85	318.19	6,979.3	1,233.4	-1,103.0	1,654.7	2.00	-2.00	
7,500.0	16.85	318.19	7,074.5	1,256.2	-1,123.5	1,685.3	2.00	-2.00	
7,600.0	14.85	318.19	7,170.7	1,276.6	-1,141.7	1,712.6	2.00	-2.00	
7,700.0	12.85	318.19	7,267.8	1,294.4	-1,157.6	1,736.6	2.00	-2.00	
7,800.0	10.85	318.19	7,365.6	1,309.8	-1,171.3	1,757.1	2.00	-2.00	
7,900.0	8.85	318.19	7,464.2	1,322.5	-1,182.7	1,774.2	2.00	-2.00	
8,000.0	6.85	318.19	7,563.2	1,332.7	-1,191.8	1,787.9	2.00	-2.00	
8,100.0	4.85	318.19	7,662.7	1,340.3	-1,198.6	1,798.1	2.00	-2.00	
8,200.0	2.85	318.19	7,762.5	1,345.3	-1,203.1	1,804.8	2.00	-2.00	
8,300.0	0.85	318.19	7,862.4	1,347.7	-1,205.3	1,808.0	2.00	-2.00	
8,342.6	0.00	0.00	7,905.0	1,347.9	-1,205.5	1,808.3	2.00	-2.00	EOD; Inc = 0°
8,400.0	0.00	0.00	7,962.4	1,347.9	-1,205.5	1,808.3	0.00	0.00	
8,442.6	0.00	0.00	8,005.0	1,347.9	-1,205.5	1,808.3	0.00	0.00	PBHL @ 8442' MD

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Genesis 9-2 BHL	0.00	0.00	8,005.0	1,347.9	-1,205.5	1,399,089.21	3,183,970.16	40.427020	-104.839180
- plan hits target center									
- Circle (radius 50.0)									

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: K. P. Kauffman Company, Inc.
Project: Wattenberg
Site: Genesis 9-2
Well: Genesis 9-2
Wellbore: DD
Design: Plan #2

Local Co-ordinate Reference: Well Genesis 9-2
TVD Reference: WELL @ 4900.4usft (Original Well Elev)
MD Reference: WELL @ 4900.4usft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,400.0	3,400.0	0.0	0.0	KOP @ 3400' MD
5,028.2	4,942.0	335.7	-300.2	EOB; Inc = 32.56°
6,714.4	6,363.0	1,012.2	-905.2	Start 2° Drop
8,342.6	7,905.0	1,347.9	-1,205.5	EOD; Inc = 0°
8,442.6	8,005.0	1,347.9	-1,205.5	PBHL @ 8442' MD