









# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Coachman Energy Federal 14/15-7-21
<b>Company:</b>	Coachman Energy Operating Company, LLC	<b>TVD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Project:</b>	Garfield County, CO	<b>MD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Site:</b>	S21 T6S R91W (21B Pad)	<b>North Reference:</b>	True
<b>Well:</b>	Coachman Energy Federal 14/15-7-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #6		

<b>Project</b>	Garfield County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site		S21 T6S R91W (21B Pad)			
Site Position:		Northing:	1,072,631.30 usft	Latitude:	39.514322
From:	Lat/Long	Easting:	2,420,925.95 usft	Longitude:	-107.552555
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.33 °

Well	Coachman Energy Federal 14/15-7-21					
Well Position	+N/-S	0.0 usft	Northing:	1,072,660.09 usft	Latitude:	39.514404
	+E/-W	0.0 usft	Easting:	2,420,971.49 usft	Longitude:	-107.552396
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	6,932.0 usft

<b>Wellbore</b>	DD				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	12/4/2014	9.70	65.74	51,958

<b>Design</b>	Plan #6				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0	
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	6.46	

<b>Plan Sections</b>										
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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,299.9	10.00	6.46	1,297.3	43.2	4.9	2.00	2.00	0.00	6.46	
2,729.6	10.00	6.46	2,705.3	289.8	32.8	0.00	0.00	0.00	0.00	
3,729.3	0.00	0.00	3,700.0	376.3	42.6	1.00	-1.00	0.00	180.00	
13,029.3	0.00	0.00	13,000.0	376.3	42.6	0.00	0.00	0.00	0.00	Coachman Federal 14

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<b>Project:</b>	Garfield County, CO	<b>MD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Site:</b>	S21 T6S R91W (21B Pad)	<b>North Reference:</b>	True
<b>Well:</b>	Coachman Energy Federal 14/15-7-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #6		

### 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	KOP @ 800'
900.0	2.00	6.46	900.0	1.7	0.2	1.7	2.00	2.00	
1,000.0	4.00	6.46	999.8	6.9	0.8	7.0	2.00	2.00	
1,100.0	6.00	6.46	1,099.5	15.6	1.8	15.7	2.00	2.00	
1,200.0	8.00	6.46	1,198.7	27.7	3.1	27.9	2.00	2.00	
1,299.9	10.00	6.46	1,297.4	43.2	4.9	43.5	2.00	2.00	EOB @ 10° INC
1,400.0	10.00	6.46	1,395.9	60.5	6.8	60.9	0.00	0.00	
1,500.0	10.00	6.46	1,494.4	77.7	8.8	78.2	0.00	0.00	
1,600.0	10.00	6.46	1,592.9	95.0	10.8	95.6	0.00	0.00	
1,700.0	10.00	6.46	1,691.4	112.2	12.7	113.0	0.00	0.00	
1,800.0	10.00	6.46	1,789.9	129.5	14.7	130.3	0.00	0.00	
1,900.0	10.00	6.46	1,888.4	146.7	16.6	147.7	0.00	0.00	
2,000.0	10.00	6.46	1,986.8	164.0	18.6	165.0	0.00	0.00	
2,100.0	10.00	6.46	2,085.3	181.2	20.5	182.4	0.00	0.00	
2,200.0	10.00	6.46	2,183.8	198.5	22.5	199.8	0.00	0.00	
2,300.0	10.00	6.46	2,282.3	215.8	24.4	217.1	0.00	0.00	
2,400.0	10.00	6.46	2,380.8	233.0	26.4	234.5	0.00	0.00	
2,500.0	10.00	6.46	2,479.2	250.3	28.3	251.8	0.00	0.00	
2,600.0	10.00	6.46	2,577.7	267.5	30.3	269.2	0.00	0.00	
2,700.0	10.00	6.46	2,676.2	284.8	32.2	286.6	0.00	0.00	
2,729.6	10.00	6.46	2,705.4	289.9	32.8	291.7	0.00	0.00	Start 1° Drop
2,800.0	9.29	6.46	2,774.8	301.6	34.1	303.5	1.00	-1.00	
2,900.0	8.29	6.46	2,873.6	316.8	35.9	318.8	1.00	-1.00	
3,000.0	7.29	6.46	2,972.7	330.2	37.4	332.4	1.00	-1.00	
3,100.0	6.29	6.46	3,072.0	342.0	38.7	344.2	1.00	-1.00	
3,200.0	5.29	6.46	3,171.4	352.0	39.9	354.3	1.00	-1.00	
3,300.0	4.29	6.46	3,271.1	360.3	40.8	362.6	1.00	-1.00	
3,400.0	3.29	6.46	3,370.9	366.9	41.5	369.2	1.00	-1.00	
3,500.0	2.29	6.46	3,470.8	371.7	42.1	374.1	1.00	-1.00	
3,600.0	1.29	6.46	3,570.7	374.9	42.4	377.2	1.00	-1.00	
3,700.0	0.29	6.46	3,670.7	376.2	42.6	378.6	1.00	-1.00	
3,729.3	0.00	6.46	3,700.0	376.3	42.6	378.7	1.00	-1.00	EOD @ 0° INC
3,800.0	0.00	0.00	3,770.7	376.3	42.6	378.7	0.00	0.00	
3,900.0	0.00	0.00	3,870.7	376.3	42.6	378.7	0.00	0.00	
4,000.0	0.00	0.00	3,970.7	376.3	42.6	378.7	0.00	0.00	
4,100.0	0.00	0.00	4,070.7	376.3	42.6	378.7	0.00	0.00	
4,200.0	0.00	0.00	4,170.7	376.3	42.6	378.7	0.00	0.00	
4,300.0	0.00	0.00	4,270.7	376.3	42.6	378.7	0.00	0.00	
4,400.0	0.00	0.00	4,370.7	376.3	42.6	378.7	0.00	0.00	
4,500.0	0.00	0.00	4,470.7	376.3	42.6	378.7	0.00	0.00	
4,600.0	0.00	0.00	4,570.7	376.3	42.6	378.7	0.00	0.00	
4,629.3	0.00	0.00	4,600.0	376.3	42.6	378.7	0.00	0.00	Williams Fork
4,700.0	0.00	0.00	4,670.7	376.3	42.6	378.7	0.00	0.00	
4,800.0	0.00	0.00	4,770.7	376.3	42.6	378.7	0.00	0.00	

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<b>Site:</b>	S21 T6S R91W (21B Pad)	<b>North Reference:</b>	True
<b>Well:</b>	Coachman Energy Federal 14/15-7-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #6		

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
4,900.0	0.00	0.00	4,870.7	376.3	42.6	378.7	0.00	0.00	
5,000.0	0.00	0.00	4,970.7	376.3	42.6	378.7	0.00	0.00	
5,100.0	0.00	0.00	5,070.7	376.3	42.6	378.7	0.00	0.00	
5,200.0	0.00	0.00	5,170.7	376.3	42.6	378.7	0.00	0.00	
5,300.0	0.00	0.00	5,270.7	376.3	42.6	378.7	0.00	0.00	
5,400.0	0.00	0.00	5,370.7	376.3	42.6	378.7	0.00	0.00	
5,500.0	0.00	0.00	5,470.7	376.3	42.6	378.7	0.00	0.00	
5,600.0	0.00	0.00	5,570.7	376.3	42.6	378.7	0.00	0.00	
5,700.0	0.00	0.00	5,670.7	376.3	42.6	378.7	0.00	0.00	
5,800.0	0.00	0.00	5,770.7	376.3	42.6	378.7	0.00	0.00	
5,900.0	0.00	0.00	5,870.7	376.3	42.6	378.7	0.00	0.00	
6,000.0	0.00	0.00	5,970.7	376.3	42.6	378.7	0.00	0.00	
6,100.0	0.00	0.00	6,070.7	376.3	42.6	378.7	0.00	0.00	
6,200.0	0.00	0.00	6,170.7	376.3	42.6	378.7	0.00	0.00	
6,300.0	0.00	0.00	6,270.7	376.3	42.6	378.7	0.00	0.00	
6,400.0	0.00	0.00	6,370.7	376.3	42.6	378.7	0.00	0.00	
6,500.0	0.00	0.00	6,470.7	376.3	42.6	378.7	0.00	0.00	
6,600.0	0.00	0.00	6,570.7	376.3	42.6	378.7	0.00	0.00	
6,700.0	0.00	0.00	6,670.7	376.3	42.6	378.7	0.00	0.00	
6,800.0	0.00	0.00	6,770.7	376.3	42.6	378.7	0.00	0.00	
6,900.0	0.00	0.00	6,870.7	376.3	42.6	378.7	0.00	0.00	
7,000.0	0.00	0.00	6,970.7	376.3	42.6	378.7	0.00	0.00	
7,100.0	0.00	0.00	7,070.7	376.3	42.6	378.7	0.00	0.00	
7,200.0	0.00	0.00	7,170.7	376.3	42.6	378.7	0.00	0.00	
7,300.0	0.00	0.00	7,270.7	376.3	42.6	378.7	0.00	0.00	
7,400.0	0.00	0.00	7,370.7	376.3	42.6	378.7	0.00	0.00	
7,500.0	0.00	0.00	7,470.7	376.3	42.6	378.7	0.00	0.00	
7,600.0	0.00	0.00	7,570.7	376.3	42.6	378.7	0.00	0.00	
7,700.0	0.00	0.00	7,670.7	376.3	42.6	378.7	0.00	0.00	
7,729.3	0.00	0.00	7,700.0	376.3	42.6	378.7	0.00	0.00	Rollins SS
7,800.0	0.00	0.00	7,770.7	376.3	42.6	378.7	0.00	0.00	
7,900.0	0.00	0.00	7,870.7	376.3	42.6	378.7	0.00	0.00	
8,000.0	0.00	0.00	7,970.7	376.3	42.6	378.7	0.00	0.00	
8,100.0	0.00	0.00	8,070.7	376.3	42.6	378.7	0.00	0.00	
8,200.0	0.00	0.00	8,170.7	376.3	42.6	378.7	0.00	0.00	
8,300.0	0.00	0.00	8,270.7	376.3	42.6	378.7	0.00	0.00	
8,359.3	0.00	0.00	8,330.0	376.3	42.6	378.7	0.00	0.00	Cozzette
8,400.0	0.00	0.00	8,370.7	376.3	42.6	378.7	0.00	0.00	
8,500.0	0.00	0.00	8,470.7	376.3	42.6	378.7	0.00	0.00	
8,579.3	0.00	0.00	8,550.0	376.3	42.6	378.7	0.00	0.00	Corcoran
8,600.0	0.00	0.00	8,570.7	376.3	42.6	378.7	0.00	0.00	
8,700.0	0.00	0.00	8,670.7	376.3	42.6	378.7	0.00	0.00	
8,800.0	0.00	0.00	8,770.7	376.3	42.6	378.7	0.00	0.00	
8,900.0	0.00	0.00	8,870.7	376.3	42.6	378.7	0.00	0.00	
8,979.3	0.00	0.00	8,950.0	376.3	42.6	378.7	0.00	0.00	7" Int. Casing Point
9,000.0	0.00	0.00	8,970.7	376.3	42.6	378.7	0.00	0.00	
9,100.0	0.00	0.00	9,070.7	376.3	42.6	378.7	0.00	0.00	
9,129.3	0.00	0.00	9,100.0	376.3	42.6	378.7	0.00	0.00	Niobrara
9,200.0	0.00	0.00	9,170.7	376.3	42.6	378.7	0.00	0.00	
9,300.0	0.00	0.00	9,270.7	376.3	42.6	378.7	0.00	0.00	
9,400.0	0.00	0.00	9,370.7	376.3	42.6	378.7	0.00	0.00	
9,500.0	0.00	0.00	9,470.7	376.3	42.6	378.7	0.00	0.00	

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<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #6		

### 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
9,529.3	0.00	0.00	9,500.0	376.3	42.6	378.7	0.00	0.00	Mancos Top
9,600.0	0.00	0.00	9,570.7	376.3	42.6	378.7	0.00	0.00	
9,700.0	0.00	0.00	9,670.7	376.3	42.6	378.7	0.00	0.00	
9,800.0	0.00	0.00	9,770.7	376.3	42.6	378.7	0.00	0.00	
9,900.0	0.00	0.00	9,870.7	376.3	42.6	378.7	0.00	0.00	
10,000.0	0.00	0.00	9,970.7	376.3	42.6	378.7	0.00	0.00	
10,100.0	0.00	0.00	10,070.7	376.3	42.6	378.7	0.00	0.00	
10,200.0	0.00	0.00	10,170.7	376.3	42.6	378.7	0.00	0.00	
10,300.0	0.00	0.00	10,270.7	376.3	42.6	378.7	0.00	0.00	
10,400.0	0.00	0.00	10,370.7	376.3	42.6	378.7	0.00	0.00	
10,500.0	0.00	0.00	10,470.7	376.3	42.6	378.7	0.00	0.00	
10,600.0	0.00	0.00	10,570.7	376.3	42.6	378.7	0.00	0.00	
10,700.0	0.00	0.00	10,670.7	376.3	42.6	378.7	0.00	0.00	
10,800.0	0.00	0.00	10,770.7	376.3	42.6	378.7	0.00	0.00	
10,900.0	0.00	0.00	10,870.7	376.3	42.6	378.7	0.00	0.00	
11,000.0	0.00	0.00	10,970.7	376.3	42.6	378.7	0.00	0.00	
11,100.0	0.00	0.00	11,070.7	376.3	42.6	378.7	0.00	0.00	
11,200.0	0.00	0.00	11,170.7	376.3	42.6	378.7	0.00	0.00	
11,300.0	0.00	0.00	11,270.7	376.3	42.6	378.7	0.00	0.00	
11,400.0	0.00	0.00	11,370.7	376.3	42.6	378.7	0.00	0.00	
11,500.0	0.00	0.00	11,470.7	376.3	42.6	378.7	0.00	0.00	
11,600.0	0.00	0.00	11,570.7	376.3	42.6	378.7	0.00	0.00	
11,700.0	0.00	0.00	11,670.7	376.3	42.6	378.7	0.00	0.00	
11,800.0	0.00	0.00	11,770.7	376.3	42.6	378.7	0.00	0.00	
11,900.0	0.00	0.00	11,870.7	376.3	42.6	378.7	0.00	0.00	
12,000.0	0.00	0.00	11,970.7	376.3	42.6	378.7	0.00	0.00	
12,100.0	0.00	0.00	12,070.7	376.3	42.6	378.7	0.00	0.00	
12,200.0	0.00	0.00	12,170.7	376.3	42.6	378.7	0.00	0.00	
12,300.0	0.00	0.00	12,270.7	376.3	42.6	378.7	0.00	0.00	
12,400.0	0.00	0.00	12,370.7	376.3	42.6	378.7	0.00	0.00	
12,500.0	0.00	0.00	12,470.7	376.3	42.6	378.7	0.00	0.00	
12,600.0	0.00	0.00	12,570.7	376.3	42.6	378.7	0.00	0.00	
12,700.0	0.00	0.00	12,670.7	376.3	42.6	378.7	0.00	0.00	
12,800.0	0.00	0.00	12,770.7	376.3	42.6	378.7	0.00	0.00	
12,900.0	0.00	0.00	12,870.7	376.3	42.6	378.7	0.00	0.00	
13,000.0	0.00	0.00	12,970.7	376.3	42.6	378.7	0.00	0.00	
13,029.3	0.00	0.00	13,000.0	376.3	42.6	378.7	0.00	0.00	TD @ 13,029.3' 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									
Coachman Federal 14/1	0.00	0.00	13,000.0	376.3	42.6	1,073,035.31	2,421,022.79	39.515437	-107.552245
- plan hits target center									
- Rectangle (sides W115.0 H133.0 D0.0)									



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Coachman Energy Federal 14/15-7-21
<b>Company:</b>	Coachman Energy Operating Company, LLC	<b>TVD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Project:</b>	Garfield County, CO	<b>MD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Site:</b>	S21 T6S R91W (21B Pad)	<b>North Reference:</b>	True
<b>Well:</b>	Coachman Energy Federal 14/15-7-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #6		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,629.3	4,600.0	Williams Fork		0.00		
7,729.3	7,700.0	Rollins SS				
8,359.3	8,330.0	Cozzette				
8,579.3	8,550.0	Corcoran				
8,979.3	8,950.0	7" Int. Casing Point				
9,129.3	9,100.0	Niobrara				
9,529.3	9,500.0	Mancos Top				
13,029.3	13,000.0	Mancos Bottom				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
800.0	800.0	0.0	0.0	KOP @ 800'	
1,299.9	1,297.4	43.2	4.9	EOB @ 10° INC	
2,729.6	2,705.4	289.9	32.8	Start 1° Drop	
3,729.3	3,700.0	376.3	42.6	EOD @ 0° INC	
13,029.3	13,000.0	376.3	42.6	TD @ 13,029.3' MD	

# **Coachman Energy Operating Company, LLC**

**Garfield County, CO**

**S21 T6S R91W (21B Pad)**

**Coachman Energy Federal 14/15-7-21**

**DD**

**Plan #6**

## **Anticollision Report**

**04 December, 2014**

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Coachman Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Coachman Energy Federal 14/15-7-21
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Reference Site:</b>	S21 T6S R91W (21B Pad)	<b>MD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Coachman Energy Federal 14/15-7-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #6	<b>Offset TVD Reference:</b>	Offset Datum

Reference	Plan #6		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 200.0usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	12/4/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	13,028.7	Plan #6 (DD)	Geolink MWD	Geolink MWD	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S21 T6S R91W (21B Pad)						
Coachman Energy Federal 14/15-1-21 - DD - FINAL	290.3	290.3	46.4	45.5	49.659	CC
Coachman Energy Federal 14/15-1-21 - DD - FINAL	300.0	300.0	46.4	45.5	47.942	ES
Coachman Energy Federal 14/15-1-21 - DD - FINAL	600.0	596.7	53.0	50.9	25.644	SF
Coachman Energy Federal 14/15-2-21 - DD - FINAL	543.7	543.9	37.5	35.7	20.238	CC, ES
Coachman Energy Federal 14/15-2-21 - DD - FINAL	700.0	696.3	45.1	42.5	17.797	SF
Coachman Energy Federal 14/15-3-21 - DD - FINAL	562.6	562.6	30.2	28.8	21.339	CC
Coachman Energy Federal 14/15-3-21 - DD - FINAL	600.0	599.9	30.3	28.8	19.999	ES
Coachman Energy Federal 14/15-3-21 - DD - FINAL	700.0	699.0	32.5	30.8	18.282	SF
Coachman Energy Federal 14/15-4-21 - DD - FINAL	0.0	0.0	24.1			
Coachman Energy Federal 14/15-4-21 - DD - FINAL	1,400.0	1,396.9	72.5	66.9	12.841	SF
Coachman Energy Federal 14/15-5-21 - DD - FINAL	347.4	347.5	14.3	13.2	12.669	CC, ES
Coachman Energy Federal 14/15-5-21 - DD - FINAL	500.0	499.3	19.6	17.8	10.982	SF
Coachman Energy Federal 14/15-6-21 - DD - Plan #5	600.0	600.0	8.2	6.2	4.071	CC, ES
Coachman Energy Federal 14/15-6-21 - DD - Plan #5	700.0	699.8	9.1	6.7	3.828	SF
Coachman Energy Federal 14/15-6-21 - DD - SURVEYS	377.7	377.7	7.2	6.0	5.836	CC
Coachman Energy Federal 14/15-6-21 - DD - SURVEYS	600.0	600.0	7.4	5.3	3.521	ES, SF
Coachman Energy Federal 14/15-8-21 - DD - Plan #4	400.0	400.0	12.6	11.2	9.547	CC, ES
Coachman Energy Federal 14/15-8-21 - DD - Plan #4	500.0	499.7	13.6	11.9	8.148	SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Coachman Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Coachman Energy Federal 14/15-7-21
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Reference Site:</b>	S21 T6S R91W (21B Pad)	<b>MD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Coachman Energy Federal 14/15-7-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S21 T6S R91W (21B Pad) - Coachman Energy Federal 14/15-1-21 - DD - FINAL													Offset Site Error:	0.0 usft
Survey Program: 176-Geolink MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-75.94	11.7	-46.6	48.0					
100.0	100.0	100.3	100.3	0.1	0.2	-76.33	11.3	-46.3	47.7	47.4	0.29	165.709		
200.0	200.0	200.4	200.4	0.3	0.3	-77.50	10.1	-45.7	46.8	46.2	0.62	75.389		
290.3	290.3	290.3	290.3	0.5	0.5	-78.20	9.5	-45.4	46.4	45.5	0.93	49.659 CC		
300.0	300.0	300.0	300.0	0.5	0.5	-78.11	9.6	-45.4	46.4	45.5	0.97	47.942 ES		
400.0	400.0	399.6	399.6	0.7	0.7	-75.75	11.6	-45.5	47.0	45.7	1.32	35.717		
500.0	500.0	499.1	498.9	0.8	0.8	-68.93	17.4	-45.2	48.4	46.8	1.68	28.892		
600.0	600.0	596.7	595.9	1.0	1.1	-57.66	28.3	-44.6	53.0	50.9	2.07	25.644 SF		
700.0	700.0	693.0	690.6	1.2	1.4	-44.57	45.4	-44.7	64.4	61.9	2.48	25.925		
800.0	800.0	784.0	778.9	1.4	1.8	-33.57	67.4	-44.7	83.6	80.7	2.89	28.935		
900.0	900.0	876.0	866.5	1.5	2.2	-31.62	95.3	-44.4	109.0	105.8	3.20	34.052		
1,000.0	999.8	968.0	952.2	1.7	2.8	-25.84	128.8	-43.5	138.1	134.6	3.56	38.855		
1,100.0	1,099.5	1,048.8	1,025.3	1.9	3.5	-22.04	163.1	-42.1	170.8	166.9	3.88	43.977		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Coachman Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Coachman Energy Federal 14/15-7-21
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Reference Site:</b>	S21 T6S R91W (21B Pad)	<b>MD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Coachman Energy Federal 14/15-7-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S21 T6S R91W (21B Pad) - Coachman Energy Federal 14/15-2-21 - DD - FINAL													Offset Site Error: 0.0 usft	
Survey Program: 176-ISCWSA MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-75.80	9.9	-38.9	40.2					
100.0	100.0	100.3	100.3	0.1	0.1	-76.38	9.4	-38.7	39.8	39.6	0.24	167.935		
200.0	200.0	200.4	200.4	0.3	0.2	-78.12	8.0	-37.9	38.7	38.2	0.54	72.088		
300.0	300.0	300.3	300.2	0.5	0.4	-79.91	6.6	-37.4	37.9	37.0	0.91	41.691		
354.8	354.8	354.8	354.8	0.6	0.5	-80.40	6.3	-37.2	37.8	36.6	1.12	33.758		
400.0	400.0	399.9	399.9	0.7	0.6	-80.31	6.4	-37.3	37.8	36.5	1.29	29.264		
500.0	500.0	500.3	500.2	0.8	0.9	-75.74	9.3	-36.5	37.7	36.0	1.68	22.405		
543.7	543.7	543.9	543.7	0.9	1.0	-71.11	12.1	-35.5	37.5	35.7	1.85	20.238	CC, ES	
600.0	600.0	599.5	599.1	1.0	1.1	-62.93	17.3	-34.0	38.1	36.1	2.08	18.310		
700.0	700.0	696.3	694.8	1.2	1.3	-45.89	31.1	-32.1	45.1	42.5	2.53	17.797	SF	
800.0	800.0	792.4	789.0	1.4	1.7	-32.13	50.0	-31.4	60.0	57.0	3.01	19.909		
900.0	900.0	885.8	879.5	1.5	2.1	-29.39	73.3	-30.4	80.5	77.1	3.45	23.365		
1,000.0	999.8	977.4	966.6	1.7	2.5	-23.88	101.4	-29.7	104.7	100.8	3.89	26.940		
1,100.0	1,099.5	1,067.7	1,051.0	1.9	3.1	-20.58	133.6	-29.5	131.4	127.0	4.34	30.295		
1,200.0	1,198.7	1,157.4	1,133.2	2.1	3.7	-18.40	169.5	-29.4	159.5	154.7	4.81	33.203		
1,300.0	1,297.5	1,247.0	1,213.6	2.4	4.4	-16.80	208.9	-28.9	188.7	183.4	5.29	35.688		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Coachman Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Coachman Energy Federal 14/15-7-21
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Reference Site:</b>	S21 T6S R91W (21B Pad)	<b>MD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Coachman Energy Federal 14/15-7-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S21 T6S R91W (21B Pad) - Coachman Energy Federal 14/15-3-21 - DD - FINAL													Offset Site Error:	0.0 usft
Survey Program: 75-Gyro, 1576-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-75.51	8.0	-31.0	32.1					
100.0	100.0	100.1	100.1	0.1	0.1	-74.71	8.4	-30.9	32.0	31.8	0.20	158.656		
200.0	200.0	200.1	200.1	0.3	0.2	-74.06	8.7	-30.4	31.7	31.2	0.46	68.270		
300.0	300.0	300.1	300.0	0.5	0.2	-74.29	8.5	-30.4	31.6	30.8	0.73	43.517		
400.0	400.0	400.3	400.3	0.7	0.3	-74.84	8.2	-30.2	31.3	30.3	0.99	31.715		
500.0	500.0	500.3	500.3	0.8	0.4	-72.97	8.9	-29.2	30.5	29.3	1.25	24.417		
562.6	562.6	562.6	562.6	0.9	0.5	-68.52	11.1	-28.1	30.2	28.8	1.41	21.339 CC		
600.0	600.0	599.9	599.8	1.0	0.5	-64.97	12.8	-27.4	30.3	28.8	1.51	19.999 ES		
700.0	700.0	699.0	698.8	1.2	0.6	-56.19	18.1	-27.0	32.5	30.8	1.78	18.282 SF		
800.0	800.0	797.9	797.3	1.4	0.7	-46.32	25.9	-27.2	37.6	35.6	2.05	18.356		
900.0	900.0	895.0	893.4	1.5	0.8	-42.03	39.4	-26.9	46.8	44.5	2.32	20.176		
1,000.0	999.8	992.1	988.7	1.7	1.0	-33.68	58.6	-26.2	59.3	56.7	2.59	22.860		
1,100.0	1,099.5	1,088.7	1,082.6	1.9	1.2	-28.28	81.2	-25.2	72.9	70.0	2.87	25.444		
1,200.0	1,198.7	1,183.7	1,173.9	2.1	1.4	-24.91	107.3	-24.6	87.9	84.8	3.14	28.011		
1,300.0	1,297.5	1,277.6	1,262.7	2.4	1.7	-22.45	137.7	-24.0	104.7	101.3	3.42	30.657		
1,400.0	1,395.9	1,370.1	1,348.6	2.7	1.9	-20.44	171.9	-23.3	124.8	121.1	3.69	33.777		
1,500.0	1,494.4	1,460.2	1,430.6	3.0	2.3	-18.73	209.3	-22.8	149.6	145.6	3.97	37.716		
1,600.0	1,592.9	1,551.0	1,511.6	3.3	2.6	-17.10	250.4	-22.0	178.4	173.7	4.69	38.043		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Coachman Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Coachman Energy Federal 14/15-7-21
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Reference Site:</b>	S21 T6S R91W (21B Pad)	<b>MD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Coachman Energy Federal 14/15-7-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S21 T6S R91W (21B Pad) - Coachman Energy Federal 14/15-4-21 - DD - FINAL													Offset Site Error:	0.0 usft
Survey Program: 149-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-76.00	5.8	-23.4	24.1					
100.0	100.0	99.7	99.7	0.1	0.1	-76.06	6.0	-24.0	24.8	24.5	0.24	101.704		
200.0	200.0	199.4	199.3	0.3	0.3	-77.84	5.6	-26.1	26.7	26.1	0.58	46.219		
300.0	300.0	299.8	299.8	0.5	0.5	-84.78	2.5	-27.5	27.7	26.7	0.96	28.863		
400.0	400.0	399.1	398.9	0.7	0.7	-91.83	-1.0	-30.5	30.5	29.1	1.36	22.482		
500.0	500.0	499.0	498.6	0.8	0.9	-97.56	-4.5	-34.0	34.4	32.6	1.75	19.607		
600.0	600.0	599.2	598.8	1.0	1.1	-102.28	-8.1	-37.2	38.1	35.9	2.13	17.840		
700.0	700.0	698.3	697.8	1.2	1.4	-104.71	-10.7	-40.6	42.0	39.5	2.51	16.723		
800.0	800.0	797.1	796.3	1.4	1.6	-101.94	-10.0	-47.3	48.5	45.6	2.90	16.718		
900.0	900.0	898.0	896.6	1.5	1.8	-100.96	-2.8	-55.3	55.8	52.5	3.30	16.913		
1,000.0	999.8	1,000.1	997.5	1.7	2.1	-91.75	11.8	-60.0	61.1	57.4	3.69	16.556		
1,100.0	1,099.5	1,101.6	1,097.3	1.9	2.3	-82.93	30.4	-60.7	64.2	60.1	4.11	15.610		
1,200.0	1,198.7	1,202.8	1,196.0	2.1	2.6	-73.87	52.5	-57.0	65.1	60.5	4.59	14.172		
1,300.0	1,297.5	1,301.2	1,290.6	2.4	2.9	-63.54	78.5	-50.8	66.2	61.1	5.13	12.900		
1,400.0	1,395.9	1,396.9	1,381.0	2.7	3.4	-51.49	109.6	-44.4	72.5	66.9	5.65	12.841 SF		
1,500.0	1,494.4	1,492.5	1,469.5	3.0	3.9	-40.22	144.9	-38.7	85.9	79.8	6.11	14.076		
1,600.0	1,592.9	1,588.0	1,557.5	3.3	4.5	-32.16	182.0	-34.0	104.1	97.5	6.53	15.933		
1,700.0	1,691.4	1,682.7	1,643.9	3.6	5.1	-26.71	220.3	-30.4	125.6	118.6	6.97	18.031		
1,800.0	1,789.9	1,779.0	1,731.4	3.9	5.8	-22.60	260.5	-26.5	149.2	141.8	7.41	20.141		
1,900.0	1,888.4	1,873.7	1,817.1	4.3	6.5	-19.39	300.6	-22.2	174.0	166.1	7.85	22.159		
2,000.0	1,986.8	1,974.0	1,908.0	4.6	7.2	-16.92	342.9	-17.7	198.8	190.5	8.31	23.929		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Coachman Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Coachman Energy Federal 14/15-7-21
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Reference Site:</b>	S21 T6S R91W (21B Pad)	<b>MD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Coachman Energy Federal 14/15-7-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S21 T6S R91W (21B Pad) - Coachman Energy Federal 14/15-5-21 - DD - FINAL													Offset Site Error:	0.0 usft
Survey Program: 149-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-75.51	4.0	-15.5	16.0					
100.0	100.0	100.0	100.0	0.1	0.1	-76.55	3.7	-15.6	16.0	15.8	0.23	69.687		
200.0	200.0	200.1	200.1	0.3	0.2	-78.56	3.1	-15.4	15.8	15.2	0.55	28.394		
300.0	300.0	300.2	300.1	0.5	0.5	-68.93	5.2	-13.6	14.6	13.7	0.94	15.584		
347.4	347.4	347.5	347.4	0.6	0.6	-57.97	7.6	-12.1	14.3	13.2	1.13	12.669 CC, ES		
400.0	400.0	400.0	399.7	0.7	0.7	-42.40	11.0	-10.0	14.9	13.5	1.35	11.054		
500.0	500.0	499.3	498.6	0.8	0.9	-13.77	19.0	-4.7	19.6	17.8	1.79	10.982 SF		
600.0	600.0	598.0	596.5	1.0	1.2	2.34	29.2	1.2	29.4	27.2	2.22	13.250		
700.0	700.0	696.5	694.2	1.2	1.5	8.15	41.4	5.9	42.2	39.6	2.64	16.019		
800.0	800.0	794.7	791.2	1.4	1.8	10.27	55.2	10.0	56.8	53.7	3.05	18.596		
900.0	900.0	892.0	887.3	1.5	2.2	3.61	71.0	12.5	71.5	68.1	3.43	20.868		
1,000.0	999.8	988.2	981.6	1.7	2.5	2.31	89.9	13.6	85.9	82.1	3.83	22.443		
1,100.0	1,099.5	1,084.7	1,075.5	1.9	3.0	0.48	112.0	13.5	100.0	95.8	4.24	23.576		
1,200.0	1,198.7	1,182.1	1,169.8	2.1	3.4	-0.77	136.4	13.9	113.0	108.3	4.68	24.150		
1,300.0	1,297.5	1,280.4	1,264.7	2.4	3.9	-1.63	161.9	14.8	123.4	118.3	5.11	24.145		
1,400.0	1,395.9	1,378.5	1,359.1	2.7	4.4	-2.79	188.7	14.8	133.6	128.1	5.55	24.059		
1,500.0	1,494.4	1,477.9	1,454.6	3.0	4.8	-3.95	216.2	14.5	144.1	138.1	5.99	24.058		
1,600.0	1,592.9	1,574.8	1,547.5	3.3	5.3	-4.93	243.8	14.3	155.6	149.1	6.44	24.171		
1,700.0	1,691.4	1,677.7	1,646.3	3.6	5.8	-5.44	272.6	15.1	166.6	159.7	6.89	24.178		
1,800.0	1,789.9	1,778.0	1,742.9	3.9	6.3	-5.87	299.4	15.8	176.3	169.0	7.33	24.054		
1,900.0	1,888.4	1,877.2	1,838.5	4.3	6.8	-6.28	326.0	16.5	186.0	178.3	7.78	23.914		
2,000.0	1,986.8	1,976.8	1,934.5	4.6	7.3	-6.67	352.6	17.2	195.7	187.4	8.23	23.765		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Coachman Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Coachman Energy Federal 14/15-7-21
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Reference Site:</b>	S21 T6S R91W (21B Pad)	<b>MD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Coachman Energy Federal 14/15-7-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S21 T6S R91W (21B Pad) - Coachman Energy Federal 14/15-6-21 - DD - Plan #5													Offset Site Error:	0.0 usft
Survey Program: O-Geolink MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-74.48	2.2	-7.9	8.2					
100.0	100.0	100.0	100.0	0.1	0.1	-74.48	2.2	-7.9	8.2	7.9	0.27	30.505		
200.0	200.0	200.0	200.0	0.3	0.3	-74.48	2.2	-7.9	8.2	7.6	0.62	13.271		
300.0	300.0	300.0	300.0	0.5	0.5	-74.48	2.2	-7.9	8.2	7.2	0.97	8.480		
400.0	400.0	400.0	400.0	0.7	0.7	-74.48	2.2	-7.9	8.2	6.9	1.32	6.231		
500.0	500.0	500.0	500.0	0.8	0.8	-74.48	2.2	-7.9	8.2	6.5	1.67	4.924		
600.0	600.0	600.0	600.0	1.0	1.0	-74.48	2.2	-7.9	8.2	6.2	2.01	4.071 CC, ES		
700.0	700.0	699.8	699.8	1.2	1.2	-58.03	4.8	-7.7	9.1	6.7	2.37	3.828 SF		
800.0	800.0	799.1	798.8	1.4	1.4	-29.29	12.5	-7.0	14.4	11.7	2.72	5.296		
900.0	900.0	897.6	896.4	1.5	1.6	-21.02	25.2	-6.0	24.6	21.5	3.07	8.010		
1,000.0	999.8	996.0	993.3	1.7	1.9	-14.76	42.5	-4.5	36.5	33.1	3.41	10.701		
1,100.0	1,099.5	1,095.6	1,091.1	1.9	2.2	-12.28	60.7	-3.0	46.1	42.3	3.76	12.254		
1,200.0	1,198.7	1,195.4	1,189.3	2.1	2.5	-11.36	78.9	-1.4	52.3	48.2	4.11	12.725		
1,300.0	1,297.5	1,295.3	1,287.5	2.4	2.9	-11.32	97.2	0.1	55.1	50.6	4.46	12.350		
1,400.0	1,395.9	1,395.3	1,385.8	2.7	3.2	-11.65	115.5	1.7	56.1	51.3	4.82	11.639		
1,500.0	1,494.4	1,495.3	1,484.1	3.0	3.6	-11.96	133.7	3.2	57.2	52.0	5.19	11.024		
1,600.0	1,592.9	1,595.3	1,582.4	3.3	3.9	-12.26	152.0	4.8	58.3	52.7	5.56	10.486		
1,700.0	1,691.4	1,695.3	1,680.7	3.6	4.3	-12.55	170.3	6.3	59.4	53.4	5.93	10.012		
1,800.0	1,789.9	1,795.3	1,779.0	3.9	4.6	-12.83	188.6	7.8	60.5	54.1	6.30	9.590		
1,900.0	1,888.4	1,895.3	1,877.3	4.3	5.0	-13.09	206.8	9.4	61.5	54.9	6.68	9.213		
2,000.0	1,986.8	1,995.3	1,975.6	4.6	5.3	-13.35	225.1	10.9	62.6	55.6	7.06	8.874		
2,100.0	2,085.3	2,095.3	2,073.9	4.9	5.7	-13.60	243.4	12.5	63.7	56.3	7.44	8.568		
2,200.0	2,183.8	2,195.3	2,172.2	5.3	6.0	-13.85	261.7	14.0	64.8	57.0	7.82	8.289		
2,300.0	2,282.3	2,295.3	2,270.5	5.6	6.4	-14.08	280.0	15.6	65.9	57.7	8.20	8.034		
2,400.0	2,380.8	2,395.3	2,368.8	5.9	6.8	-14.31	298.2	17.1	67.0	58.4	8.58	7.801		
2,500.0	2,479.2	2,495.3	2,467.1	6.3	7.1	-14.53	316.5	18.7	68.1	59.1	8.97	7.587		
2,600.0	2,577.7	2,595.2	2,565.4	6.6	7.5	-14.74	334.8	20.2	69.2	59.8	9.36	7.389		
2,700.0	2,676.2	2,695.2	2,663.7	7.0	7.8	-14.95	353.1	21.7	70.2	60.5	9.75	7.205		
2,800.0	2,774.8	2,795.2	2,762.0	7.3	8.2	-15.06	371.3	23.3	71.8	61.6	10.14	7.078		
2,900.0	2,873.6	2,895.2	2,860.2	7.6	8.6	-14.84	389.6	24.8	74.9	64.4	10.50	7.130		
3,000.0	2,972.7	2,995.1	2,958.4	7.9	8.9	-14.32	407.9	26.4	79.7	68.9	10.84	7.350		
3,100.0	3,072.0	3,094.8	3,056.5	8.1	9.3	-13.59	426.1	27.9	86.2	75.0	11.16	7.722		
3,200.0	3,171.4	3,194.5	3,154.4	8.4	9.6	-12.73	444.3	29.5	94.4	83.0	11.47	8.232		
3,300.0	3,271.1	3,294.0	3,252.2	8.6	10.0	-11.81	462.5	31.0	104.4	92.6	11.77	8.867		
3,400.0	3,370.9	3,393.3	3,349.9	8.8	10.4	-10.89	480.7	32.5	116.0	104.0	12.07	9.617		
3,500.0	3,470.8	3,492.4	3,447.3	8.9	10.7	-10.01	498.8	34.1	129.4	117.1	12.36	10.472		
3,600.0	3,570.7	3,595.3	3,548.6	9.1	11.1	-9.20	516.8	35.6	143.8	131.2	12.66	11.360		
3,700.0	3,670.7	3,703.0	3,655.4	9.2	11.3	-8.63	530.5	36.7	155.1	142.1	12.98	11.950		
3,800.0	3,770.7	3,811.7	3,763.9	9.3	11.5	-1.85	538.2	37.4	162.1	148.8	13.32	12.167		
3,900.0	3,870.7	3,918.6	3,870.7	9.5	11.6	-1.78	539.9	37.5	163.7	150.0	13.68	11.966		
4,000.0	3,970.7	4,018.6	3,970.7	9.6	11.7	-1.78	539.9	37.5	163.7	149.6	14.02	11.670		
4,100.0	4,070.7	4,118.6	4,070.7	9.7	11.8	-1.78	539.9	37.5	163.7	149.3	14.37	11.389		
4,200.0	4,170.7	4,218.6	4,170.7	9.8	11.9	-1.78	539.9	37.5	163.7	148.9	14.72	11.121		
4,300.0	4,270.7	4,318.6	4,270.7	10.0	12.0	-1.78	539.9	37.5	163.7	148.6	15.06	10.865		
4,400.0	4,370.7	4,418.6	4,370.7	10.1	12.1	-1.78	539.9	37.5	163.7	148.2	15.41	10.620		
4,500.0	4,470.7	4,518.6	4,470.7	10.2	12.3	-1.78	539.9	37.5	163.7	147.9	15.76	10.387		
4,600.0	4,570.7	4,618.6	4,570.7	10.4	12.4	-1.78	539.9	37.5	163.7	147.6	16.10	10.163		
4,700.0	4,670.7	4,718.6	4,670.7	10.5	12.5	-1.78	539.9	37.5	163.7	147.2	16.45	9.948		
4,800.0	4,770.7	4,818.6	4,770.7	10.6	12.6	-1.78	539.9	37.5	163.7	146.9	16.80	9.743		
4,900.0	4,870.7	4,918.6	4,870.7	10.8	12.7	-1.78	539.9	37.5	163.7	146.5	17.15	9.545		
5,000.0	4,970.7	5,018.6	4,970.7	10.9	12.8	-1.78	539.9	37.5	163.7	146.2	17.49	9.356		
5,100.0	5,070.7	5,118.6	5,070.7	11.1	13.0	-1.78	539.9	37.5	163.7	145.8	17.84	9.174		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Coachman Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Coachman Energy Federal 14/15-7-21
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Reference Site:</b>	S21 T6S R91W (21B Pad)	<b>MD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Coachman Energy Federal 14/15-7-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S21 T6S R91W (21B Pad) - Coachman Energy Federal 14/15-6-21 - DD - Plan #5													Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance					Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis			
5,200.0	5,170.7	5,218.6	5,170.7	11.2	13.1	-1.78	539.9	37.5	163.7	145.5	18.19	8.999		
5,300.0	5,270.7	5,318.6	5,270.7	11.3	13.2	-1.78	539.9	37.5	163.7	145.1	18.53	8.830		
5,400.0	5,370.7	5,418.6	5,370.7	11.5	13.3	-1.78	539.9	37.5	163.7	144.8	18.88	8.667		
5,500.0	5,470.7	5,518.6	5,470.7	11.6	13.4	-1.78	539.9	37.5	163.7	144.4	19.23	8.511		
5,600.0	5,570.7	5,618.6	5,570.7	11.8	13.6	-1.78	539.9	37.5	163.7	144.1	19.58	8.359		
5,700.0	5,670.7	5,718.6	5,670.7	11.9	13.7	-1.78	539.9	37.5	163.7	143.7	19.93	8.214		
5,800.0	5,770.7	5,818.6	5,770.7	12.1	13.8	-1.78	539.9	37.5	163.7	143.4	20.27	8.073		
5,900.0	5,870.7	5,918.6	5,870.7	12.2	14.0	-1.78	539.9	37.5	163.7	143.0	20.62	7.937		
6,000.0	5,970.7	6,018.6	5,970.7	12.4	14.1	-1.78	539.9	37.5	163.7	142.7	20.97	7.805		
6,100.0	6,070.7	6,118.6	6,070.7	12.5	14.2	-1.78	539.9	37.5	163.7	142.3	21.32	7.678		
6,200.0	6,170.7	6,218.6	6,170.7	12.6	14.3	-1.78	539.9	37.5	163.7	142.0	21.66	7.554		
6,300.0	6,270.7	6,318.6	6,270.7	12.8	14.5	-1.78	539.9	37.5	163.7	141.6	22.01	7.435		
6,400.0	6,370.7	6,418.6	6,370.7	12.9	14.6	-1.78	539.9	37.5	163.7	141.3	22.36	7.319		
6,500.0	6,470.7	6,518.6	6,470.7	13.1	14.7	-1.78	539.9	37.5	163.7	140.9	22.71	7.207		
6,600.0	6,570.7	6,618.6	6,570.7	13.2	14.9	-1.78	539.9	37.5	163.7	140.6	23.06	7.098		
6,700.0	6,670.7	6,718.6	6,670.7	13.4	15.0	-1.78	539.9	37.5	163.7	140.3	23.40	6.993		
6,800.0	6,770.7	6,818.6	6,770.7	13.6	15.1	-1.78	539.9	37.5	163.7	139.9	23.75	6.890		
6,900.0	6,870.7	6,918.6	6,870.7	13.7	15.3	-1.78	539.9	37.5	163.7	139.6	24.10	6.791		
7,000.0	6,970.7	7,018.6	6,970.7	13.9	15.4	-1.78	539.9	37.5	163.7	139.2	24.45	6.694		
7,100.0	7,070.7	7,118.6	7,070.7	14.0	15.6	-1.78	539.9	37.5	163.7	138.9	24.80	6.600		
7,200.0	7,170.7	7,218.6	7,170.7	14.2	15.7	-1.78	539.9	37.5	163.7	138.5	25.15	6.508		
7,300.0	7,270.7	7,318.6	7,270.7	14.3	15.8	-1.78	539.9	37.5	163.7	138.2	25.49	6.420		
7,400.0	7,370.7	7,418.6	7,370.7	14.5	16.0	-1.78	539.9	37.5	163.7	137.8	25.84	6.333		
7,500.0	7,470.7	7,518.6	7,470.7	14.6	16.1	-1.78	539.9	37.5	163.7	137.5	26.19	6.249		
7,600.0	7,570.7	7,618.6	7,570.7	14.8	16.3	-1.78	539.9	37.5	163.7	137.1	26.54	6.167		
7,700.0	7,670.7	7,718.6	7,670.7	14.9	16.4	-1.78	539.9	37.5	163.7	136.8	26.89	6.087		
7,800.0	7,770.7	7,818.6	7,770.7	15.1	16.5	-1.78	539.9	37.5	163.7	136.4	27.24	6.009		
7,900.0	7,870.7	7,918.6	7,870.7	15.3	16.7	-1.78	539.9	37.5	163.7	136.1	27.58	5.933		
8,000.0	7,970.7	7,947.9	7,900.0	15.4	16.7	-1.78	539.9	37.5	178.3	150.5	27.81	6.411		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Coachman Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Coachman Energy Federal 14/15-7-21
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Reference Site:</b>	S21 T6S R91W (21B Pad)	<b>MD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Coachman Energy Federal 14/15-7-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S21 T6S R91W (21B Pad) - Coachman Energy Federal 14/15-6-21 - DD - SURVEYS													Offset Site Error:	0.0 usft
Survey Program: 149-ISCWSA MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-74.48	2.2	-7.9	8.2					
100.0	100.0	100.0	100.0	0.1	0.1	-77.39	1.7	-7.8	8.0	7.7	0.23	34.468		
200.0	200.0	200.1	200.0	0.3	0.3	-86.06	0.5	-7.4	7.4	6.9	0.56	13.235		
276.8	276.8	276.9	276.8	0.4	0.4	-92.14	-0.3	-7.2	7.2	6.4	0.85	8.514		
300.0	300.0	300.0	300.0	0.5	0.5	-93.16	-0.4	-7.2	7.3	6.3	0.94	7.734		
377.7	377.7	377.7	377.7	0.6	0.6	-93.81	-0.5	-7.2	7.2	6.0	1.23	5.836 CC		
400.0	400.0	400.0	400.0	0.7	0.7	-93.25	-0.4	-7.2	7.2	5.9	1.32	5.463		
500.0	500.0	500.0	500.0	0.8	0.9	-87.97	0.3	-7.4	7.4	5.6	1.71	4.304		
564.4	564.4	564.4	564.4	0.9	1.0	-81.86	1.0	-7.3	7.4	5.4	1.96	3.753		
600.0	600.0	600.0	600.0	1.0	1.1	-74.56	2.0	-7.1	7.4	5.3	2.10	3.521 ES, SF		
700.0	700.0	699.7	699.6	1.2	1.3	-45.18	6.7	-6.7	9.5	7.0	2.50	3.797		
800.0	800.0	799.1	798.6	1.4	1.6	-21.58	14.9	-5.9	16.1	13.2	2.91	5.538		
900.0	900.0	897.2	895.8	1.5	1.8	-15.41	27.8	-4.0	26.8	23.4	3.32	8.065		
1,000.0	999.8	903.0	901.5	1.7	1.8	-14.19	28.8	-3.9	100.8	97.3	3.51	28.752		
1,100.0	1,099.5	903.0	901.5	1.9	1.8	-12.08	28.8	-3.9	198.4	194.8	3.69	53.818		

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<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Coachman Energy Federal 14/15-7-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S21 T6S R91W (21B Pad) - Coachman Energy Federal 14/15-8-21 - DD - Plan #4													Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	105.06	-3.3	12.1	12.6					
100.0	100.0	100.0	100.0	0.1	0.1	105.06	-3.3	12.1	12.6	12.3	0.27	46.745		
200.0	200.0	200.0	200.0	0.3	0.3	105.06	-3.3	12.1	12.6	11.9	0.62	20.335		
300.0	300.0	300.0	300.0	0.5	0.5	105.06	-3.3	12.1	12.6	11.6	0.97	12.994		
400.0	400.0	400.0	400.0	0.7	0.7	105.06	-3.3	12.1	12.6	11.2	1.32	9.547 CC, ES		
500.0	500.0	499.7	499.7	0.8	0.8	111.26	-4.9	12.6	13.6	11.9	1.67	8.148 SF		
600.0	600.0	599.2	599.0	1.0	1.0	124.83	-9.9	14.2	17.3	15.3	2.02	8.569		
700.0	700.0	698.2	697.7	1.2	1.2	137.17	-18.1	16.7	24.7	22.4	2.38	10.417		
800.0	800.0	796.9	795.6	1.4	1.5	145.35	-29.3	20.3	35.9	33.2	2.73	13.159		
900.0	900.0	895.9	893.8	1.5	1.7	144.44	-41.3	24.0	49.6	46.5	3.06	16.191		
1,000.0	999.8	994.3	991.5	1.7	2.0	149.11	-53.2	27.7	66.4	63.0	3.40	19.544		
1,100.0	1,099.5	1,092.1	1,088.5	1.9	2.2	152.89	-65.1	31.4	86.7	82.9	3.74	23.188		
1,200.0	1,198.7	1,189.1	1,184.7	2.1	2.5	155.93	-76.9	35.1	110.2	106.1	4.07	27.060		
1,300.0	1,297.5	1,285.3	1,280.1	2.4	2.8	158.38	-88.5	38.7	137.1	132.7	4.41	31.114		
1,400.0	1,395.9	1,383.5	1,377.5	2.7	3.0	160.43	-100.1	42.3	165.5	160.7	4.76	34.761		
1,500.0	1,494.4	1,486.4	1,480.0	3.0	3.2	162.04	-109.3	45.2	191.1	186.0	5.12	37.307		

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Reference Depths are relative to KB=23' @ 6955.0usft (Frontier # 28)  
 Offset Depths are relative to Offset Datum  
 Central Meridian is -105.500000 °

Coordinates are relative to: Coachman Energy Federal 14/15-7-21  
 Coordinate System is US State Plane 1983, Colorado Northern Zone  
 Grid Convergence at Surface is: -1.33°

