





## Survey Report

<b>Company:</b>	Coachman Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Coachman Energy Federal 14/15-4-21
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Site:</b>	S21 T6S R91W (21B Pad)	<b>MD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Well:</b>	Coachman Energy Federal 14/15-4-21	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

<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		

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

<b>Well</b>	Coachman Energy Federal 14/15-4-21			
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	1,072,666.47 usft
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	2,420,948.21 usft
<b>Position Uncertainty</b>	0.0 usft	<b>Wellhead Elevation:</b>	0.0 usft	<b>Ground Level:</b> 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	11/5/2014	9.71	65.74	51,966

<b>Design</b>	FINAL			
<b>Audit Notes:</b>				
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<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	2.43

<b>Survey Program</b>	<b>Date</b>	11/21/2014		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
149.0	8,163.0	Survey #1 (DD)	ISCWSA MWD	MWD - ISCWSA

<b>Survey</b>									
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usf)</b>	<b>Build Rate (°/100u)</b>	<b>Formations / Comments</b>
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
149.0	1.10	282.00	149.0	0.3	-1.4	0.2	0.74	0.74	
180.0	1.80	239.70	180.0	0.1	-2.1	0.0	3.98	2.26	
212.0	2.10	237.00	212.0	-0.5	-3.0	-0.6	0.98	0.94	
275.0	2.30	178.80	274.9	-2.4	-4.0	-2.5	3.41	0.32	
337.0	2.70	223.10	336.9	-4.7	-4.9	-4.9	3.10	0.65	
431.0	2.90	226.20	430.8	-7.9	-8.2	-8.3	0.27	0.21	
525.0	2.90	223.00	524.6	-11.3	-11.5	-11.8	0.17	0.00	
619.0	2.30	215.50	618.5	-14.6	-14.2	-15.2	0.73	-0.64	
713.0	3.30	257.50	712.4	-16.7	-18.0	-17.5	2.35	1.06	
807.0	5.50	293.60	806.2	-15.5	-24.7	-16.5	3.65	2.34	
901.0	7.70	329.50	899.6	-8.3	-32.1	-9.6	4.86	2.34	
995.0	9.80	351.20	992.5	5.1	-36.5	3.5	4.12	2.23	

## Survey Report

<b>Company:</b>	Coachman Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Coachman Energy Federal 14/15-4-21
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Site:</b>	S21 T6S R91W (21B Pad)	<b>MD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Well:</b>	Coachman Energy Federal 14/15-4-21	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
1,089.0	11.20	2.20	1,084.9	22.1	-37.4	20.5	2.59	1.49	
1,183.0	13.60	12.50	1,176.8	42.0	-34.6	40.5	3.46	2.55	
1,277.0	16.50	14.00	1,267.5	65.8	-29.0	64.5	3.11	3.09	
1,371.0	20.30	10.90	1,356.7	94.8	-22.7	93.7	4.17	4.04	
1,466.0	22.60	8.70	1,445.1	129.0	-16.8	128.2	2.56	2.42	
1,495.0	22.70	8.30	1,471.9	140.0	-15.2	139.3	0.63	0.34	
1,599.0	23.50	5.80	1,567.5	180.5	-10.2	179.9	1.22	0.77	
1,693.0	24.70	5.00	1,653.3	218.7	-6.6	218.3	1.32	1.28	
1,786.0	24.90	6.00	1,737.8	257.6	-2.8	257.2	0.50	0.22	
1,880.0	25.70	6.50	1,822.8	297.5	1.6	297.3	0.88	0.85	
1,974.0	24.30	5.40	1,907.9	337.0	5.7	336.9	1.57	-1.49	
2,069.0	24.20	4.30	1,994.6	375.9	9.0	375.9	0.49	-0.11	
2,165.0	23.80	3.90	2,082.3	414.8	11.8	414.9	0.45	-0.42	
2,260.0	23.30	3.50	2,169.3	452.7	14.2	452.9	0.55	-0.53	
2,353.0	22.30	4.00	2,255.1	488.7	16.6	488.9	1.10	-1.08	
2,448.0	22.40	3.50	2,342.9	524.7	18.9	525.0	0.23	0.11	
2,543.0	24.40	1.90	2,430.1	562.4	20.7	562.8	2.21	2.11	
2,636.0	24.20	0.50	2,514.9	600.6	21.5	601.0	0.66	-0.22	
2,732.0	23.30	0.70	2,602.8	639.3	21.9	639.7	0.94	-0.94	
2,826.0	24.00	0.70	2,688.9	677.0	22.4	677.4	0.74	0.74	
2,921.0	23.60	0.10	2,775.8	715.4	22.6	715.7	0.49	-0.42	
3,014.0	24.00	359.50	2,860.9	752.9	22.5	753.2	0.50	0.43	
3,107.0	24.30	3.20	2,945.7	790.9	23.4	791.2	1.66	0.32	
3,200.0	24.40	3.70	3,030.5	829.2	25.7	829.5	0.25	0.11	
3,293.0	23.90	3.20	3,115.3	867.2	28.0	867.6	0.58	-0.54	
3,386.0	23.10	3.20	3,200.6	904.2	30.1	904.6	0.86	-0.86	
3,480.0	22.90	3.40	3,287.1	940.8	32.2	941.4	0.23	-0.21	
3,573.0	22.30	3.50	3,373.0	976.5	34.3	977.1	0.65	-0.65	
3,666.0	20.40	6.00	3,459.6	1,010.3	37.1	1,010.9	2.26	-2.04	
3,760.0	19.00	7.70	3,548.1	1,041.7	40.9	1,042.5	1.61	-1.49	
3,853.0	16.60	9.50	3,636.7	1,069.8	45.1	1,070.8	2.65	-2.58	
3,947.0	14.20	13.40	3,727.3	1,094.3	50.0	1,095.4	2.78	-2.55	
4,043.0	11.40	13.90	3,820.9	1,115.0	55.0	1,116.3	2.92	-2.92	
4,137.0	9.30	17.40	3,913.3	1,131.2	59.5	1,132.7	2.33	-2.23	
4,232.0	7.10	10.70	4,007.4	1,144.3	62.9	1,146.0	2.52	-2.32	
4,326.0	6.20	5.80	4,100.7	1,155.1	64.5	1,156.8	1.13	-0.96	
4,419.0	4.20	10.20	4,193.3	1,163.4	65.6	1,165.2	2.19	-2.15	
4,513.0	2.70	29.00	4,287.2	1,168.8	67.3	1,170.6	1.98	-1.60	
4,605.0	0.80	59.30	4,379.1	1,171.0	68.9	1,172.8	2.23	-2.07	
4,698.0	0.50	172.70	4,472.1	1,170.9	69.5	1,172.8	1.18	-0.32	
4,791.0	0.80	198.20	4,565.1	1,169.9	69.3	1,171.8	0.44	0.32	
4,884.0	0.80	207.60	4,658.1	1,168.7	68.8	1,170.6	0.14	0.00	
4,977.0	0.50	168.70	4,751.1	1,167.7	68.6	1,169.6	0.56	-0.32	
5,070.0	0.70	200.40	4,844.1	1,166.8	68.5	1,168.6	0.41	0.22	
5,165.0	0.10	258.10	4,939.1	1,166.2	68.2	1,168.1	0.69	-0.63	
5,260.0	0.20	279.70	5,034.1	1,166.2	68.0	1,168.1	0.12	0.11	
5,354.0	0.30	295.20	5,128.1	1,166.4	67.6	1,168.2	0.13	0.11	
5,448.0	0.40	285.20	5,222.1	1,166.6	67.0	1,168.4	0.12	0.11	
5,542.0	0.40	333.90	5,316.1	1,166.9	66.6	1,168.7	0.35	0.00	
5,636.0	0.40	321.30	5,410.1	1,167.5	66.2	1,169.3	0.09	0.00	
5,730.0	0.10	50.60	5,504.1	1,167.8	66.1	1,169.6	0.44	-0.32	
5,825.0	0.70	154.20	5,599.1	1,167.3	66.4	1,169.1	0.77	0.63	
5,919.0	0.70	138.30	5,693.1	1,166.4	67.0	1,168.2	0.21	0.00	

## Survey Report

<b>Company:</b>	Coachman Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Coachman Energy Federal 14/15-4-21
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Site:</b>	S21 T6S R91W (21B Pad)	<b>MD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Well:</b>	Coachman Energy Federal 14/15-4-21	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
6,014.0	0.60	116.90	5,788.1	1,165.7	67.9	1,167.6	0.27	-0.11	
6,110.0	0.90	80.70	5,884.1	1,165.6	69.1	1,167.5	0.57	0.31	
6,205.0	0.90	76.20	5,979.1	1,165.9	70.5	1,167.9	0.07	0.00	
6,300.0	0.80	75.40	6,074.0	1,166.3	71.9	1,168.3	0.11	-0.11	
6,394.0	1.20	82.90	6,168.0	1,166.6	73.5	1,168.6	0.45	0.43	
6,435.0	1.30	68.90	6,209.0	1,166.8	74.4	1,168.9	0.78	0.24	
6,498.0	1.40	79.50	6,272.0	1,167.2	75.8	1,169.3	0.43	0.16	
6,593.0	1.20	349.30	6,367.0	1,168.4	76.7	1,170.6	1.94	-0.21	
6,687.0	1.80	334.14	6,461.0	1,170.7	75.9	1,172.8	0.76	0.64	
6,782.0	1.90	317.70	6,555.9	1,173.2	74.2	1,175.3	0.57	0.11	
6,877.0	1.10	310.90	6,650.9	1,174.9	72.4	1,176.9	0.86	-0.84	
6,972.0	1.00	291.20	6,745.9	1,175.8	71.0	1,177.8	0.39	-0.11	
7,066.0	1.20	311.20	6,839.8	1,176.8	69.5	1,178.7	0.46	0.21	
7,161.0	1.30	307.10	6,934.8	1,178.1	67.9	1,179.9	0.14	0.11	
7,256.0	1.40	330.90	7,029.8	1,179.7	66.4	1,181.5	0.59	0.11	
7,350.0	1.50	325.90	7,123.8	1,181.8	65.2	1,183.5	0.17	0.11	
7,445.0	1.50	310.60	7,218.7	1,183.6	63.6	1,185.2	0.42	0.00	
7,539.0	1.90	319.40	7,312.7	1,185.6	61.6	1,187.1	0.51	0.43	
7,634.0	0.50	313.70	7,407.7	1,187.1	60.3	1,188.6	1.48	-1.47	
7,729.0	0.70	287.40	7,502.6	1,187.5	59.4	1,189.0	0.35	0.21	
7,825.0	1.10	271.10	7,598.6	1,187.7	58.0	1,189.1	0.49	0.42	
7,919.0	1.40	279.70	7,692.6	1,187.9	55.9	1,189.2	0.38	0.32	
8,013.0	1.40	303.90	7,786.6	1,188.8	53.8	1,190.0	0.62	0.00	
8,108.0	1.80	323.70	7,881.6	1,190.6	52.0	1,191.7	0.71	0.42	Last CES Survey @ 8,108' MD
8,163.0	1.80	323.70	7,936.5	1,192.0	51.0	1,193.1	0.00	0.00	PTB @ 8,163'

Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude Longitude
Coachman Federal 14/1	- actual wellpath misses target center by 9.7usft at 7713.4usft MD (7487.1 TVD, 1187.5 N, 59.6 E)	0.00	0.00	7,487.0	1,190.8	50.5	1,073,855.80	2,421,026.26	39.517689 -107.552300
Dejour Federal 14/15-4-	- actual wellpath misses target center by 5066.5usft at 8163.0usft MD (7936.5 TVD, 1192.0 N, 51.0 E)	0.00	0.00	13,003.0	1,190.8	50.5	1,073,855.80	2,421,026.26	39.517689 -107.552300
Coachman Federal 14/1	- actual wellpath misses target center by 2.3usft at 8076.5usft MD (7850.1 TVD, 1189.9 N, 52.6 E)	0.00	0.00	7,850.0	1,190.8	50.5	1,073,855.80	2,421,026.26	39.517689 -107.552300

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
8,108.0	7,881.6	1,190.6	52.0	Last CES Survey @ 8,108' MD	
8,163.0	7,936.5	1,192.0	51.0	PTB @ 8,163'	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

# **Coachman Energy Operating Company, LLC**

**Garfield County, CO**

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

**Coachman Energy Federal 14/15-4-21**

**DD**

**Design: FINAL**

## **Survey Report - Geographic**

**21 November, 2014**

# Survey Report - Geographic

<b>Company:</b>	Coachman Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Coachman Energy Federal 14/15-4-21
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Site:</b>	S21 T6S R91W (21B Pad)	<b>MD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Well:</b>	Coachman Energy Federal 14/15-4-21	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

<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 14/15-4-21					
Well Position	+N/-S	0.0 usft	Northing:	1,072,666.47 usft	Latitude:	39.514420
	+E/-W	0.0 usft	Easting:	2,420,948.22 usft	Longitude:	-107.552479
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	11/5/2014	9.71	65.74	51,966

<b>Design</b>	FINAL				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<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	2.43	

<b>Survey Program</b>	<b>Date</b>	11/21/2014			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
149.0	8,163.0	Survey #1 (DD)	ISCWSA MWD	MWD - ISCWSA	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Map Northing (usft)</b>	<b>Map Easting (usft)</b>	<b>Latitude</b>	<b>Longitude</b>	
0.0	0.00	0.00	0.0	0.0	0.0	1,072,666.47	2,420,948.22	39.514420	-107.552479	
149.0	1.10	282.00	149.0	0.3	-1.4	1,072,666.80	2,420,946.82	39.514421	-107.552484	
180.0	1.80	239.70	180.0	0.1	-2.1	1,072,666.64	2,420,946.11	39.514420	-107.552487	
212.0	2.10	237.00	212.0	-0.5	-3.0	1,072,666.09	2,420,945.17	39.514419	-107.552490	
275.0	2.30	178.80	274.9	-2.4	-4.0	1,072,664.22	2,420,944.18	39.514414	-107.552493	
337.0	2.70	223.10	336.9	-4.7	-4.9	1,072,661.93	2,420,943.16	39.514407	-107.552497	
431.0	2.90	226.20	430.8	-7.9	-8.2	1,072,658.74	2,420,939.86	39.514398	-107.552508	
525.0	2.90	223.00	524.6	-11.3	-11.5	1,072,655.43	2,420,936.44	39.514389	-107.552520	
619.0	2.30	215.50	618.5	-14.6	-14.2	1,072,652.22	2,420,933.65	39.514380	-107.552530	
713.0	3.30	257.50	712.4	-16.7	-18.0	1,072,650.19	2,420,929.86	39.514374	-107.552543	
807.0	5.50	293.60	806.2	-15.5	-24.7	1,072,651.56	2,420,923.12	39.514378	-107.552567	
901.0	7.70	329.50	899.6	-8.3	-32.1	1,072,658.96	2,420,915.96	39.514397	-107.552593	

# Survey Report - Geographic

<b>Company:</b>	Coachman Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Coachman Energy Federal 14/15-4-21
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Site:</b>	S21 T6S R91W (21B Pad)	<b>MD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Well:</b>	Coachman Energy Federal 14/15-4-21	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
995.0	9.80	351.20	992.5	5.1	-36.5	1,072,672.40	2,420,911.85	39.514434	-107.552609
1,089.0	11.20	2.20	1,084.9	22.1	-37.4	1,072,689.45	2,420,911.37	39.514481	-107.552612
1,183.0	13.60	12.50	1,176.8	42.0	-34.6	1,072,709.30	2,420,914.58	39.514535	-107.552602
1,277.0	16.50	14.00	1,267.5	65.8	-29.0	1,072,732.91	2,420,920.75	39.514601	-107.552582
1,371.0	20.30	10.90	1,356.7	94.8	-22.7	1,072,761.73	2,420,927.73	39.514680	-107.552560
1,466.0	22.60	8.70	1,445.1	129.0	-16.8	1,072,795.81	2,420,934.40	39.514774	-107.552539
1,495.0	22.70	8.30	1,471.9	140.0	-15.2	1,072,806.82	2,420,936.31	39.514804	-107.552533
1,599.0	23.50	5.80	1,567.5	180.5	-10.2	1,072,847.18	2,420,942.23	39.514916	-107.552515
1,693.0	24.70	5.00	1,653.3	218.7	-6.6	1,072,885.30	2,420,946.72	39.515020	-107.552503
1,786.0	24.90	6.00	1,737.8	257.6	-2.8	1,072,924.03	2,420,951.36	39.515127	-107.552489
1,880.0	25.70	6.50	1,822.8	297.5	1.6	1,072,963.85	2,420,956.66	39.515237	-107.552474
1,974.0	24.30	5.40	1,907.9	337.0	5.7	1,073,003.25	2,420,961.70	39.515345	-107.552459
2,069.0	24.20	4.30	1,994.6	375.9	9.0	1,073,042.04	2,420,965.90	39.515452	-107.552447
2,165.0	23.80	3.90	2,082.3	414.8	11.8	1,073,080.91	2,420,969.59	39.515559	-107.552438
2,260.0	23.30	3.50	2,169.3	452.7	14.2	1,073,118.72	2,420,972.92	39.515663	-107.552429
2,353.0	22.30	4.00	2,255.1	488.7	16.6	1,073,154.62	2,420,976.10	39.515762	-107.552420
2,448.0	22.40	3.50	2,342.9	524.7	18.9	1,073,190.60	2,420,979.30	39.515860	-107.552412
2,543.0	24.40	1.90	2,430.1	562.4	20.7	1,073,228.23	2,420,981.93	39.515964	-107.552406
2,636.0	24.20	0.50	2,514.9	600.6	21.5	1,073,266.47	2,420,983.62	39.516069	-107.552403
2,732.0	23.30	0.70	2,602.8	639.3	21.9	1,073,305.11	2,420,984.91	39.516175	-107.552402
2,826.0	24.00	0.70	2,688.9	677.0	22.4	1,073,342.79	2,420,986.25	39.516279	-107.552400
2,921.0	23.60	0.10	2,775.8	715.4	22.6	1,073,381.11	2,420,987.40	39.516384	-107.552399
3,014.0	24.00	359.50	2,860.9	752.9	22.5	1,073,418.63	2,420,988.14	39.516487	-107.552400
3,107.0	24.30	3.20	2,945.7	790.9	23.4	1,073,456.62	2,420,989.92	39.516591	-107.552396
3,200.0	24.40	3.70	3,030.5	829.2	25.7	1,073,494.83	2,420,993.12	39.516696	-107.552388
3,293.0	23.90	3.20	3,115.3	867.2	28.0	1,073,532.75	2,420,996.29	39.516801	-107.552380
3,386.0	23.10	3.20	3,200.6	904.2	30.1	1,073,569.72	2,420,999.21	39.516902	-107.552373
3,480.0	22.90	3.40	3,287.1	940.8	32.2	1,073,606.33	2,421,002.17	39.517003	-107.552365
3,573.0	22.30	3.50	3,373.0	976.5	34.3	1,073,641.94	2,421,005.15	39.517101	-107.552358
3,666.0	20.40	6.00	3,459.6	1,010.3	37.1	1,073,675.60	2,421,008.70	39.517193	-107.552348
3,760.0	19.00	7.70	3,548.1	1,041.7	40.9	1,073,706.97	2,421,013.19	39.517280	-107.552334
3,853.0	16.60	9.50	3,636.7	1,069.8	45.1	1,073,734.97	2,421,018.06	39.517357	-107.552319
3,947.0	14.20	13.40	3,727.3	1,094.3	50.0	1,073,759.31	2,421,023.52	39.517424	-107.552302
4,043.0	11.40	13.90	3,820.9	1,115.0	55.0	1,073,779.86	2,421,029.00	39.517481	-107.552284
4,137.0	9.30	17.40	3,913.3	1,131.2	59.5	1,073,796.02	2,421,033.88	39.517525	-107.552268
4,232.0	7.10	10.70	4,007.4	1,144.3	62.9	1,073,809.03	2,421,037.57	39.517561	-107.552256
4,326.0	6.20	5.80	4,100.7	1,155.1	64.5	1,073,819.75	2,421,039.41	39.517591	-107.552251
4,419.0	4.20	10.20	4,193.3	1,163.4	65.6	1,073,828.07	2,421,040.71	39.517614	-107.552247
4,513.0	2.70	29.00	4,287.2	1,168.8	67.3	1,073,833.36	2,421,042.52	39.517629	-107.552241
4,605.0	0.80	59.30	4,379.1	1,171.0	68.9	1,073,835.54	2,421,044.17	39.517635	-107.552235
4,698.0	0.50	172.70	4,472.1	1,170.9	69.5	1,073,835.46	2,421,044.78	39.517634	-107.552233
4,791.0	0.80	198.20	4,565.1	1,169.9	69.3	1,073,834.44	2,421,044.61	39.517632	-107.552234
4,884.0	0.80	207.60	4,658.1	1,168.7	68.8	1,073,833.26	2,421,044.07	39.517628	-107.552235
4,977.0	0.50	168.70	4,751.1	1,167.7	68.6	1,073,832.29	2,421,043.83	39.517626	-107.552236
5,070.0	0.70	200.40	4,844.1	1,166.8	68.5	1,073,831.37	2,421,043.69	39.517623	-107.552237
5,165.0	0.10	258.10	4,939.1	1,166.2	68.2	1,073,830.81	2,421,043.39	39.517622	-107.552238
5,260.0	0.20	279.70	5,034.1	1,166.2	68.0	1,073,830.83	2,421,043.15	39.517622	-107.552238
5,354.0	0.30	295.20	5,128.1	1,166.4	67.6	1,073,830.97	2,421,042.77	39.517622	-107.552240
5,448.0	0.40	285.20	5,222.1	1,166.6	67.0	1,073,831.17	2,421,042.23	39.517622	-107.552242
5,542.0	0.40	333.90	5,316.1	1,166.9	66.6	1,073,831.56	2,421,041.78	39.517624	-107.552243
5,636.0	0.40	321.30	5,410.1	1,167.5	66.2	1,073,832.12	2,421,041.45	39.517625	-107.552245
5,730.0	0.10	50.60	5,504.1	1,167.8	66.1	1,073,832.43	2,421,041.31	39.517626	-107.552245
5,825.0	0.70	154.20	5,599.1	1,167.3	66.4	1,073,831.96	2,421,041.62	39.517625	-107.552244
5,919.0	0.70	138.30	5,693.1	1,166.4	67.0	1,073,831.00	2,421,042.23	39.517622	-107.552242
6,014.0	0.60	116.90	5,788.1	1,165.7	67.9	1,073,830.32	2,421,043.04	39.517620	-107.552239



# Survey Report - Geographic

<b>Company:</b>	Coachman Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Coachman Energy Federal 14/15-4-21
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Site:</b>	S21 T6S R91W (21B Pad)	<b>MD Reference:</b>	KB=23' @ 6955.0usft (Frontier # 28)
<b>Well:</b>	Coachman Energy Federal 14/15-4-21	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,110.0	0.90	80.70	5,884.1	1,165.6	69.1	1,073,830.19	2,421,044.23	39.517620	-107.552235
6,205.0	0.90	76.20	5,979.1	1,165.9	70.5	1,073,830.45	2,421,045.70	39.517621	-107.552229
6,300.0	0.80	75.40	6,074.0	1,166.3	71.9	1,073,830.76	2,421,047.07	39.517622	-107.552224
6,394.0	1.20	82.90	6,168.0	1,166.6	73.5	1,073,831.01	2,421,048.69	39.517622	-107.552219
6,435.0	1.30	68.90	6,209.0	1,166.8	74.4	1,073,831.21	2,421,049.55	39.517623	-107.552216
6,498.0	1.40	79.50	6,272.0	1,167.2	75.8	1,073,831.58	2,421,050.99	39.517624	-107.552211
6,593.0	1.20	349.30	6,367.0	1,168.4	76.7	1,073,832.75	2,421,051.97	39.517627	-107.552207
6,687.0	1.80	334.14	6,461.0	1,170.7	75.9	1,073,835.06	2,421,051.20	39.517634	-107.552210
6,782.0	1.90	317.70	6,555.9	1,173.2	74.2	1,073,837.61	2,421,049.55	39.517641	-107.552216
6,877.0	1.10	310.90	6,650.9	1,174.9	72.4	1,073,839.41	2,421,047.84	39.517645	-107.552222
6,972.0	1.00	291.20	6,745.9	1,175.8	71.0	1,073,840.34	2,421,046.40	39.517648	-107.552228
7,066.0	1.20	311.20	6,839.8	1,176.8	69.5	1,073,841.32	2,421,044.91	39.517651	-107.552233
7,161.0	1.30	307.10	6,934.8	1,178.1	67.9	1,073,842.66	2,421,043.34	39.517654	-107.552239
7,256.0	1.40	330.90	7,029.8	1,179.7	66.4	1,073,844.36	2,421,041.95	39.517659	-107.552244
7,350.0	1.50	325.90	7,123.8	1,181.8	65.2	1,073,846.41	2,421,040.75	39.517664	-107.552248
7,445.0	1.50	310.60	7,218.7	1,183.6	63.6	1,073,848.28	2,421,039.15	39.517669	-107.552254
7,539.0	1.90	319.40	7,312.7	1,185.6	61.6	1,073,850.31	2,421,037.25	39.517675	-107.552261
7,634.0	0.50	313.70	7,407.7	1,187.1	60.3	1,073,851.82	2,421,035.96	39.517679	-107.552266
7,729.0	0.70	287.40	7,502.6	1,187.5	59.4	1,073,852.30	2,421,035.12	39.517680	-107.552269
7,825.0	1.10	271.10	7,598.6	1,187.7	58.0	1,073,852.53	2,421,033.64	39.517681	-107.552274
7,919.0	1.40	279.70	7,692.6	1,187.9	55.9	1,073,852.79	2,421,031.61	39.517681	-107.552281
8,013.0	1.40	303.90	7,786.6	1,188.8	53.8	1,073,853.67	2,421,029.55	39.517683	-107.552288
8,108.0	1.80	323.70	7,881.6	1,190.6	52.0	1,073,855.56	2,421,027.74	39.517689	-107.552295
Last CES Survey @ 8,108' MD									
8,163.0	1.80	323.70	7,936.5	1,192.0	51.0	1,073,856.98	2,421,026.75	39.517692	-107.552299
PTB @ 8,163'									

Design 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	7,850.0	1,190.8	50.5	1,073,855.81	2,421,026.27	39.517689	-107.552300
- actual wellpath misses target center by 2.3usft at 8076.5usft MD (7850.1 TVD, 1189.9 N, 52.6 E)									
- Circle (radius 100.0)									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
8,108.0	7,881.6	1,190.6	52.0	Last CES Survey @ 8,108' MD	
8,163.0	7,936.5	1,192.0	51.0	PTB @ 8,163'	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_