



# **Laramie Energy, LLC**

Garfield County, CO

CC 0610-21-41 Pad

CC 0697-09-01E - Slot B-4

Wellbore #1

Design: Wellbore #1

## **KLX Survey Report**

25 October, 2022





<b>Company:</b>	Laramie Energy, LLC	<b>Local Co-ordinate Reference:</b>	Well CC 0697-09-01E - Slot B-4
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	RKB @ 8615.0usft (Ensign #157)
<b>Site:</b>	CC 0610-21-41 Pad	<b>MD Reference:</b>	RKB @ 8615.0usft (Ensign #157)
<b>Well:</b>	CC 0697-09-01E	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User 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 Central Zone		

Site		CC 0610-21-41 Pad						
Site Position:		Northing:	1,634,529.66	usft	Latitude:	39.544356		
From:	Lat/Long	Easting:	2,236,830.21	usft	Longitude:	-108.206613		
Position Uncertainty:	0.0	usft	Slot Radius:	13-3/16	"	Grid Convergence:	-1.71	°

Well	CC 0697-09-01E - Slot B-4					
Well Position	+N/-S	0.0 usft	Northing:	1,634,528.70 usft	Latitude:	39.544346
	+E/-W	0.0 usft	Easting:	2,236,740.18 usft	Longitude:	-108.206932
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	8,592.0 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM2022	10/4/2022	9.20	65.60	51,103.20000000

<b>Design</b>	Wellbore #1				
<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	269.74	

<b>Survey Program</b>	<b>Date</b>	10/25/2022			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
228.0	10,006.0	KLX MWD (Wellbore #1)	MWD	OWSG MWD - Standard	

<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 (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>First MWD Survey @ 228.0' MD / 228.0' TVD</b>									
228.0	1.66	317.54	228.0	2.4	-2.2	2.2	0.73	0.73	0.00
318.0	2.05	323.61	317.9	4.7	-4.1	4.0	0.48	0.43	6.74
409.0	3.75	318.13	408.8	8.2	-7.0	7.0	1.89	1.87	-6.02
500.0	5.82	310.60	499.5	13.4	-12.5	12.4	2.37	2.27	-8.27
564.0	6.76	308.99	563.1	17.9	-17.9	17.8	1.49	1.47	-2.52
658.0	9.71	305.52	656.1	26.0	-28.7	28.5	3.18	3.14	-3.69
753.0	13.39	299.42	749.2	36.1	-44.8	44.6	4.08	3.87	-6.42
848.0	16.50	289.73	841.0	46.0	-67.1	66.8	4.19	3.27	-10.20
942.0	19.23	277.46	930.5	52.6	-95.0	94.7	4.93	2.90	-13.05



<b>Company:</b>	Laramie Energy, LLC	<b>Local Co-ordinate Reference:</b>	Well CC 0697-09-01E - Slot B-4
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	RKB @ 8615.0usft (Ensign #157)
<b>Site:</b>	CC 0610-21-41 Pad	<b>MD Reference:</b>	RKB @ 8615.0usft (Ensign #157)
<b>Well:</b>	CC 0697-09-01E	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,037.0	21.24	272.27	1,019.6	55.3	-127.7	127.4	2.83	2.12	-5.46
1,131.0	23.11	271.53	1,106.6	56.4	-163.1	162.9	2.01	1.99	-0.79
1,226.0	25.19	268.90	1,193.3	56.5	-202.0	201.7	2.46	2.19	-2.77
1,320.0	28.31	266.51	1,277.3	54.8	-244.3	244.0	3.51	3.32	-2.54
1,415.0	29.27	268.35	1,360.5	52.8	-290.0	289.7	1.38	1.01	1.94
1,509.0	30.55	267.40	1,442.0	51.0	-336.8	336.6	1.45	1.36	-1.01
1,604.0	30.90	270.25	1,523.7	50.0	-385.3	385.1	1.58	0.37	3.00
1,699.0	29.41	270.57	1,605.8	50.4	-433.0	432.8	1.58	-1.57	0.34
1,794.0	26.43	271.91	1,689.7	51.3	-477.5	477.3	3.21	-3.14	1.41
1,889.0	25.92	271.14	1,775.0	52.4	-519.4	519.2	0.64	-0.54	-0.81
1,983.0	25.39	270.10	1,859.7	52.9	-560.1	559.8	0.74	-0.56	-1.11
2,078.0	24.84	268.08	1,945.7	52.2	-600.4	600.2	1.07	-0.58	-2.13
2,172.0	25.96	266.18	2,030.7	50.2	-640.7	640.4	1.47	1.19	-2.02
2,267.0	24.82	265.57	2,116.5	47.3	-681.3	681.1	1.23	-1.20	-0.64
2,362.0	25.62	264.99	2,202.4	43.9	-721.6	721.4	0.88	0.84	-0.61
2,457.0	26.65	265.14	2,287.7	40.3	-763.3	763.1	1.09	1.08	0.16
2,548.0	25.08	264.89	2,369.6	36.9	-802.9	802.7	1.73	-1.73	-0.27
2,709.0	21.23	261.80	2,517.6	29.7	-865.7	865.6	2.51	-2.39	-1.92
2,804.0	21.49	257.58	2,606.1	23.5	-899.8	899.6	1.64	0.27	-4.44
2,898.0	25.93	256.61	2,692.1	15.0	-936.6	936.5	4.74	4.72	-1.03
2,992.0	28.52	257.67	2,775.7	5.5	-978.5	978.5	2.80	2.76	1.13
3,087.0	30.76	260.22	2,858.3	-3.5	-1,024.6	1,024.6	2.71	2.36	2.68
3,181.0	30.28	263.12	2,939.3	-10.4	-1,071.8	1,071.9	1.65	-0.51	3.09
3,275.0	28.61	270.41	3,021.1	-13.1	-1,117.9	1,117.9	4.20	-1.78	7.76
3,370.0	28.61	270.59	3,104.5	-12.7	-1,163.4	1,163.4	0.09	0.00	0.19
3,464.0	26.10	269.37	3,188.0	-12.7	-1,206.6	1,206.6	2.74	-2.67	-1.30
3,558.0	26.28	270.76	3,272.4	-12.6	-1,248.0	1,248.1	0.68	0.19	1.48
3,653.0	25.27	272.96	3,357.9	-11.3	-1,289.3	1,289.4	1.46	-1.06	2.32
3,747.0	28.39	274.01	3,441.8	-8.7	-1,331.7	1,331.7	3.36	3.32	1.12
3,841.0	30.28	275.77	3,523.7	-4.8	-1,377.5	1,377.5	2.21	2.01	1.87
3,936.0	31.46	273.75	3,605.3	-0.7	-1,426.1	1,426.1	1.65	1.24	-2.13
4,030.0	29.97	272.52	3,686.1	1.9	-1,474.0	1,474.0	1.72	-1.59	-1.31
4,125.0	30.94	275.77	3,768.0	5.4	-1,522.0	1,522.0	2.01	1.02	3.42
4,220.0	27.99	273.66	3,850.7	9.3	-1,568.6	1,568.5	3.29	-3.11	-2.22
4,315.0	29.66	273.93	3,933.9	12.3	-1,614.3	1,614.2	1.76	1.76	0.28
4,409.0	31.51	272.87	4,014.8	15.1	-1,662.0	1,662.0	2.05	1.97	-1.13
4,502.0	28.65	271.20	4,095.3	16.8	-1,708.6	1,708.5	3.20	-3.08	-1.80
4,597.0	29.22	271.03	4,178.4	17.7	-1,754.6	1,754.5	0.61	0.60	-0.18
4,692.0	31.03	270.67	4,260.6	18.4	-1,802.2	1,802.1	1.91	1.91	-0.38
4,787.0	31.33	269.36	4,341.9	18.4	-1,851.4	1,851.3	0.78	0.32	-1.38
4,882.0	31.51	270.41	4,423.0	18.3	-1,901.0	1,900.8	0.61	0.19	1.11
4,977.0	29.49	269.71	4,504.8	18.4	-1,949.2	1,949.1	2.16	-2.13	-0.74
5,071.0	28.56	272.43	4,587.0	19.2	-1,994.8	1,994.6	1.72	-0.99	2.89



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Survey										
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5,165.0	30.32	270.85	4,668.9	20.5	-2,040.9	2,040.8	2.05	1.87	-1.68	
5,260.0	27.77	269.80	4,751.9	20.8	-2,087.0	2,086.9	2.74	-2.68	-1.11	
5,354.0	26.15	269.00	4,835.7	20.4	-2,129.7	2,129.5	1.77	-1.72	-0.85	
5,449.0	24.13	268.83	4,921.7	19.6	-2,170.0	2,169.9	2.13	-2.13	-0.18	
5,543.0	21.49	268.13	5,008.3	18.6	-2,206.4	2,206.3	2.82	-2.81	-0.74	
5,637.0	21.62	262.94	5,095.8	16.0	-2,240.8	2,240.7	2.03	0.14	-5.52	
5,732.0	22.63	261.36	5,183.8	11.1	-2,276.3	2,276.2	1.23	1.06	-1.66	
5,827.0	21.93	263.47	5,271.7	6.3	-2,312.0	2,311.9	1.12	-0.74	2.22	
5,925.0	23.03	267.51	5,362.2	3.4	-2,349.3	2,349.3	1.93	1.12	4.12	
6,019.0	25.27	269.80	5,448.0	2.5	-2,387.7	2,387.7	2.58	2.38	2.44	
6,114.0	27.64	272.34	5,533.1	3.3	-2,430.0	2,430.0	2.76	2.49	2.67	
6,208.0	26.41	271.20	5,616.8	4.7	-2,472.7	2,472.7	1.42	-1.31	-1.21	
6,303.0	28.70	270.32	5,701.0	5.2	-2,516.7	2,516.6	2.45	2.41	-0.93	
6,398.0	27.60	271.20	5,784.8	5.8	-2,561.5	2,561.4	1.24	-1.16	0.93	
6,492.0	26.54	271.03	5,868.5	6.7	-2,604.3	2,604.2	1.13	-1.13	-0.18	
6,587.0	25.66	272.34	5,953.8	7.9	-2,646.0	2,646.0	1.11	-0.93	1.38	
6,682.0	24.21	267.33	6,039.9	7.8	-2,686.0	2,686.0	2.70	-1.53	-5.27	
6,776.0	22.41	266.63	6,126.3	5.9	-2,723.2	2,723.1	1.94	-1.91	-0.74	
6,871.0	21.09	265.31	6,214.5	3.4	-2,758.3	2,758.3	1.48	-1.39	-1.39	
6,966.0	20.21	264.70	6,303.4	0.5	-2,791.7	2,791.6	0.95	-0.93	-0.64	
7,061.0	20.13	265.05	6,392.6	-2.4	-2,824.3	2,824.3	0.15	-0.08	0.37	
7,155.0	20.08	265.40	6,480.8	-5.1	-2,856.5	2,856.5	0.14	-0.05	0.37	
7,249.0	19.95	265.66	6,569.2	-7.6	-2,888.6	2,888.6	0.17	-0.14	0.28	
7,343.0	17.14	265.58	6,658.3	-9.9	-2,918.4	2,918.4	2.99	-2.99	-0.09	
7,438.0	15.42	264.52	6,749.5	-12.2	-2,944.9	2,944.9	1.84	-1.81	-1.12	
7,532.0	14.24	262.94	6,840.3	-14.8	-2,968.8	2,968.9	1.33	-1.26	-1.68	
7,626.0	12.44	263.47	6,931.8	-17.4	-2,990.4	2,990.4	1.92	-1.91	0.56	
7,720.0	9.71	263.03	7,024.0	-19.5	-3,008.3	3,008.3	2.91	-2.90	-0.47	
7,817.0	8.17	273.22	7,119.9	-20.1	-3,023.3	3,023.4	2.27	-1.59	10.51	
7,911.0	6.50	277.88	7,213.1	-19.0	-3,035.2	3,035.3	1.88	-1.78	4.96	
8,006.0	3.69	294.32	7,307.7	-17.0	-3,043.3	3,043.4	3.30	-2.96	17.31	
8,101.0	3.30	327.19	7,402.5	-13.4	-3,047.6	3,047.6	2.12	-0.41	34.60	
8,196.0	2.77	4.98	7,497.4	-8.9	-3,048.9	3,048.9	2.13	-0.56	39.78	
8,289.0	2.64	11.13	7,590.3	-4.5	-3,048.3	3,048.3	0.34	-0.14	6.61	
8,385.0	2.33	347.14	7,686.2	-0.5	-3,048.3	3,048.3	1.12	-0.32	-24.99	
8,480.0	0.83	340.02	7,781.2	2.1	-3,049.0	3,048.9	1.59	-1.58	-7.49	
8,574.0	1.98	119.50	7,875.2	1.9	-3,047.8	3,047.7	2.84	1.22	148.38	
8,669.0	2.50	132.51	7,970.1	-0.3	-3,044.8	3,044.8	0.76	0.55	13.69	
8,763.0	2.50	158.35	8,064.0	-3.6	-3,042.6	3,042.5	1.19	0.00	27.49	
8,858.0	2.46	177.07	8,158.9	-7.5	-3,041.7	3,041.7	0.85	-0.04	19.71	
8,953.0	2.55	189.29	8,253.8	-11.7	-3,041.9	3,041.9	0.57	0.09	12.86	
9,047.0	2.42	193.77	8,347.7	-15.7	-3,042.7	3,042.8	0.25	-0.14	4.77	
9,142.0	2.86	204.58	8,442.6	-19.8	-3,044.2	3,044.3	0.70	0.46	11.38	



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<b>Well:</b>	CC 0697-09-01E	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,237.0	3.38	217.85	8,537.5	-24.1	-3,046.9	3,047.0	0.93	0.55	13.97	
9,332.0	3.69	209.77	8,632.3	-29.0	-3,050.1	3,050.2	0.62	0.33	-8.51	
9,426.0	4.39	222.86	8,726.1	-34.3	-3,054.1	3,054.2	1.23	0.74	13.93	
9,521.0	4.26	233.23	8,820.8	-39.0	-3,059.4	3,059.5	0.83	-0.14	10.92	
9,616.0	4.39	244.48	8,915.5	-42.7	-3,065.5	3,065.7	0.90	0.14	11.84	
9,711.0	5.27	256.88	9,010.2	-45.3	-3,073.0	3,073.2	1.43	0.93	13.05	
9,805.0	6.94	262.15	9,103.7	-47.0	-3,082.9	3,083.0	1.87	1.78	5.61	
9,900.0	7.25	263.29	9,198.0	-48.5	-3,094.5	3,094.7	0.36	0.33	1.20	
9,946.0	7.82	263.38	9,243.6	-49.2	-3,100.5	3,100.7	1.24	1.24	0.20	
TD @ 10006.0' MD / 9303.0' TVD										
10,006.0	7.82	263.38	9,303.0	-50.1	-3,108.6	3,108.8	0.00	0.00	0.00	

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
228.0	228.0	2.4	-2.2	First MWD Survey @ 228.0' MD / 228.0' TVD	
10,006.0	9,303.0	-50.1	-3,108.6	TD @ 10006.0' MD / 9303.0' TVD	