

API # 30-015-42247

Customer: Lime Rock Resources	Rig: UDI #33	SHL X:
Lease, Well No.: Logan 35 J Federal #20	Job No.: 14122	SHL Y:
County or Parrish: Eddy County	Location or Area: Eddy C	Mag.Decl.: 7.67

**CHILDRESS
DIRECTIONAL
DRILLING**

Calculated f/ Targets

KBTVD (@ 0' VS)

Dip Angle (+Dn/-Up)

Sensor

38

TVD

4517

N/-S

149.79°N

E/-W

85.16°W

Tie-In Survey Co.: n/a	Minimum Curvature Calculations				Rates / 100' M.D.		Dist f/ Target Line	
Surveying Company: Childress Directional	Proposed Azimuth: 330.38°				Build or	R or -L	Above or	Right or
Survey No.	M.D.	INCL.	AZM.	TVD	N / -S	E / -W	V. SECT.	DLS / 100'
Tie-In	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1	442.00	0.40	253.70	442.00	-0.43'	-1.48'	0.36'	0.09°
2	472.00	0.40	282.70	472.00	-0.44'	-1.68'	0.45'	0.67°
3	502.00	0.40	269.20	501.99	-0.42'	-1.89'	0.57'	0.31°
4	533.00	2.00	291.60	532.99	-0.22'	-2.50'	1.04'	5.28°
5	562.00	3.70	297.50	561.95	0.40'	-3.80'	2.23'	5.94°
6	593.00	4.20	297.60	592.88	1.39'	-5.70'	4.02'	1.61°
7	625.00	4.40	296.00	624.79	2.47'	-7.84'	6.02'	0.73°
8	657.00	5.50	294.20	656.67	3.63'	-10.34'	8.27'	3.47°
9	689.00	6.90	298.20	688.48	5.17'	-13.43'	11.13'	4.58°
10	721.00	7.80	304.50	720.22	7.31'	-16.92'	14.71'	3.77°
11	753.00	8.70	311.10	751.89	10.13'	-20.53'	18.95'	4.08°
12	817.00	11.40	318.90	814.90	18.08'	-28.34'	29.72'	4.72°
13	881.00	13.00	322.10	877.45	28.53'	-36.92'	43.05'	2.71°
14	946.00	14.50	326.50	940.59	41.08'	-45.90'	58.40'	2.81°
15	1010.00	14.60	332.30	1,002.54	54.91'	-54.07'	74.46'	2.28°
16	1107.00	13.70	331.70	1,096.60	75.85'	-65.20'	98.16'	0.94°
17	1172.00	12.60	330.80	1,159.89	88.81'	-72.31'	112.94'	1.72°
18	1204.00	12.10	330.20	1,191.15	94.77'	-75.68'	119.79'	1.61°
19	1236.00	11.70	331.20	1,222.46	100.52'	-78.91'	126.39'	1.41°
20	1268.00	10.80	334.40	1,253.85	106.07'	-81.77'	132.62'	3.42°
21	1300.00	10.20	333.50	1,285.31	111.31'	-84.33'	138.44'	1.94°
22	1332.00	10.20	332.30	1,316.81	116.35'	-86.91'	144.10'	0.66°
23	1364.00	9.90	334.00	1,348.32	121.33'	-89.43'	149.68'	1.32°
24	1396.00	9.50	340.20	1,379.86	126.29'	-91.53'	155.03'	3.49°
25	1428.00	9.20	342.40	1,411.43	131.21'	-93.20'	160.13'	1.46°
26	1460.00	8.80	349.70	1,443.04	136.06'	-94.41'	164.94'	3.78°
27	1492.00	8.00	359.30	1,474.70	140.70'	-94.88'	169.20'	5.04°
28	1588.00	3.70	43.00	1,570.22	149.65'	-92.84'	175.98'	6.15°
29	1620.00	2.70	73.00	1,602.17	150.63'	-91.42'	176.13'	5.99°
30	1652.00	2.10	100.20	1,634.14	150.74'	-90.12'	175.59'	3.97°
31	1748.00	1.70	157.90	1,730.10	149.11'	-87.85'	173.05'	1.94°
32	1813.00	1.80	155.10	1,795.07	147.29'	-87.06'	171.07'	0.20°
33	1876.00	1.80	152.30	1,858.04	145.52'	-86.18'	169.10'	0.14°
34	1972.00	1.30	189.70	1,954.00	143.11'	-85.67'	166.75'	1.15°
35	2069.00	2.00	229.50	2,050.96	140.93'	-87.14'	165.58'	1.34°
36	2165.00	1.50	315.40	2,146.93	140.73'	-89.30'	166.48'	2.51°
37	2260.00	1.40	302.30	2,241.90	142.24'	-91.15'	168.70'	0.36°

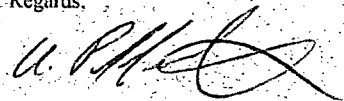
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38.	2356.00	2.50	330.90	2,337.85'	144.69'	-93.16'	171.83'	1.50°
39.	2458.00	2.30	346.80	2,439.76'	148.63'	-94.71'	176.02'	0.68°
40.	2554.00	2.80	50.70	2,535.68'	151.99'	-93.33'	178.26'	2.85°
41.	2648.00	2.20	87.70	2,629.60'	153.52'	-89.75'	177.82'	1.79°
42.	2744.00	2.20	86.30	2,725.53'	153.71'	-86.07'	176.17'	0.06°
43.	2841.00	2.20	90.00	2,822.46'	153.83'	-82.35'	174.43'	0.15°
44.	2937.00	1.50	138.80	2,918.41'	152.89'	-79.68'	172.29'	1.72°
45.	3033.00	1.60	140.60	3,014.38'	150.91'	-78.01'	169.74'	0.12°
46.	3128.00	1.30	208.20	3,109.35'	148.93'	-77.67'	167.86'	1.72°
47.	3224.00	1.10	197.70	3,205.33'	147.09'	-78.47'	166.65'	0.31°
48.	3320.00	1.10	199.00	3,301.31'	145.34'	-79.05'	165.42'	0.03°
49.	3416.00	1.10	197.20	3,397.29'	143.59'	-79.62'	164.18'	0.04°
50.	3512.00	2.40	244.90	3,493.25'	141.86'	-81.71'	163.71'	1.93°
51.	3612.00	1.50	245.50	3,593.19'	140.43'	-84.80'	163.99'	0.90°
52.	3709.00	0.30	349.90	3,690.18'	140.15'	-86.00'	164.34'	1.65°
53.	3805.00	0.20	336.70	3,786.18'	140.55'	-86.11'	164.75'	0.12°
54.	3901.00	0.20	285.30	3,882.18'	140.75'	-86.34'	165.03'	0.18°
55.	3997.00	0.20	315.00	3,978.18'	140.91'	-86.62'	165.31'	0.11°
56.	4093.00	0.30	283.20	4,074.18'	141.09'	-86.98'	165.64'	0.17°
57.	4189.00	0.20	318.10	4,170.18'	141.27'	-87.34'	165.98'	0.19°
58.	4285.00	0.40	272.70	4,266.18'	141.41'	-87.79'	166.32'	0.31°
59.	4381.00	0.40	287.60	4,362.17'	141.53'	-88.44'	166.75'	0.11°
60.	4478.00	0.30	287.80	4,459.17'	141.71'	-89.00'	167.18'	0.10°
PTB	4537.00	0.30	287.80	4,518.17'	141.80'	-89.30'	167.41'	0.00°

N/S E/W

The above survey data is true and correct, complete and within the limitations of the tool as set forth by Childress Directional Drilling, LLC; that I am authorized and qualified to make this report; that this survey was conducted at the request of Lime Rock Resources; that I reviewed these MWD Surveys and find they conform to the principles and procedures as set forth by Childress Directional Drilling.

Regards,



Art Poffenroth
MWD Manager
Childress Directional Drilling, LLC