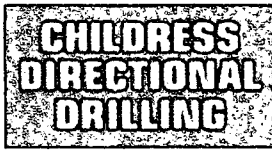


API # 30-015-42570

Customer: LimeRock Resources	Rig: UDI #33	Run # 1
Lease, Well No.: Horseshoe State #4	Job No.: CD-14148	Bit to Sensor: 58
County or Parrish: Eddy County	Location or Area: Artesia, NM	Mag. Decl.: 7.54°



Tie-In Survey Co.: N/A						Minimum Curvature Calculations						
Surveying Company: Childress Directional						Proposed Azimuth: 106.50°						
Svy 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.	469.00	0.40	210.30	469.00'	-1.41'	-0.83'	-0.39'	0.09°
2.	579.00	2.10	156.10	578.97'	-3.69'	-0.20'	0.82'	1.72°
3.	653.00	7.50	112.40	652.70'	-6.67'	4.82'	6.51'	8.32°
4.	749.00	11.10	102.60	747.43'	-11.08'	19.63'	21.97'	4.08°
5.	845.00	12.10	104.80	841.46'	-15.66'	38.38'	41.25'	1.14°
6.	941.00	13.10	106.70	935.16'	-21.36'	58.53'	62.18'	1.13°
7.	1037.00	12.40	105.30	1,028.78'	-27.20'	78.89'	83.37'	0.80°
8.	1133.00	11.90	103.80	1,122.63'	-32.29'	98.45'	103.56'	0.62°
9.	1229.00	11.40	104.00	1,216.66'	-36.94'	117.26'	122.93'	0.52°
10.	1325.00	10.70	104.20	1,310.88'	-41.42'	135.11'	141.31'	0.73°
11.	1421.00	10.90	108.20	1,405.18'	-46.44'	152.37'	159.29'	0.81°
12.	1485.00	9.80	112.90	1,468.13'	-50.45'	163.14'	170.75'	2.17°
13.	1517.00	8.80	112.60	1,499.71'	-52.45'	167.91'	175.89'	3.13°
14.	1581.00	5.30	115.50	1,563.22'	-55.61'	175.10'	183.68'	5.50°
15.	1677.00	1.50	225.30	1,659.09'	-58.40'	178.21'	187.46'	6.23°
16.	1773.00	4.30	333.30	1,754.99'	-56.07'	175.70'	184.39'	5.18°
17.	1869.00	2.40	315.60	1,850.83'	-51.42'	172.67'	180.17'	2.23°
18.	1965.00	0.60	243.40	1,946.80'	-50.21'	170.82'	178.04'	2.38°
19.	2061.00	0.60	238.80	2,042.79'	-50.69'	169.94'	177.34'	0.05°
20.	2157.00	0.50	237.30	2,138.79'	-51.18'	169.15'	176.72'	0.11°
21.	2252.00	0.50	251.10	2,233.78'	-51.54'	168.41'	176.12'	0.13°
22.	2348.00	0.50	239.80	2,329.78'	-51.89'	167.66'	175.49'	0.10°
23.	2444.00	0.70	253.30	2,425.77'	-52.26'	166.73'	174.71'	0.25°
24.	2540.00	0.70	253.80	2,521.77'	-52.60'	165.61'	173.73'	0.01°
25.	2636.00	0.60	246.50	2,617.76'	-52.96'	164.68'	172.85'	0.14°
26.	2733.00	0.70	247.70	2,714.75'	-53.39'	163.57'	172.00'	0.10°
27.	2829.00	0.70	229.30	2,810.75'	-53.99'	162.58'	171.22'	0.23°
28.	2925.00	0.60	234.00	2,906.74'	-54.67'	161.73'	170.60'	0.12°
29.	2996.00	0.80	273.80	2,977.74'	-54.86'	160.93'	169.89'	0.72°
30.	3092.00	1.10	335.60	3,073.73'	-53.97'	159.89'	168.63'	1.05°
31.	3188.00	1.00	17.60	3,169.71'	-52.34'	159.76'	168.04'	0.79°
32.	3283.00	1.00	31.20	3,264.70'	-50.84'	160.44'	168.27'	0.25°
33.	3379.00	1.10	18.10	3,360.68'	-49.24'	161.16'	168.51'	0.27°
34.	3475.00	1.10	18.70	3,456.66'	-47.49'	161.74'	168.57'	0.01°
35.	3571.00	1.00	23.60	3,552.65'	-45.85'	162.37'	168.71'	0.14°
36.	3667.00	1.20	27.10	3,648.63'	-44.19'	163.16'	169.00'	0.22°
37.	3763.00	1.30	29.00	3,744.61'	-42.34'	164.15'	169.42'	0.11°

38.	3859.00	0.60	19.40	3,840.59'	-40.92'	164.85'	169.68'	0.75°
39.	3956.00	0.30	191.30	3,937.59'	-40.69'	164.96'	169.73'	0.93°
40.	4051.00	0.60	174.60	4,032.59'	-41.43'	164.96'	169.93'	0.34°
41.	4147.00	0.70	172.70	4,128.58'	-42.51'	165.08'	170.36'	0.11°
42.	4243.00	0.60	209.50	4,224.58'	-43.53'	164.91'	170.48'	0.44°
43.	4339.00	0.70	197.10	4,320.57'	-44.53'	164.49'	170.36'	0.18°
44.	4435.00	0.70	204.60	4,416.56'	-45.62'	164.07'	170.27'	0.10°
45.	4531.00	0.90	199.30	4,512.55'	-46.86'	163.58'	170.16'	0.22°
46.	4627.00	0.80	196.70	4,608.54'	-48.22'	163.14'	170.12'	0.11°
47.	4723.00	0.80	194.70	4,704.53'	-49.51'	162.78'	170.13'	0.03°
48.	4819.00	0.80	202.40	4,800.52'	-50.78'	162.35'	170.09'	0.11°
49.	4915.00	0.70	229.90	4,896.52'	-51.77'	161.65'	169.70'	0.38°
50.	5011.00	0.70	207.80	4,992.51'	-52.67'	160.93'	169.26'	0.28°
51.	5060.00	0.90	219.80	5,041.50'	-53.23'	160.54'	169.05'	0.53°
PTB	5118.00	0.90	219.80	5,099.50'	-53.93'	159.96'	168.69'	0.00°

N/G 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