

API# 30-015-41082

Customer: Lime Rock	Rig: 22	SHL X:
Lease, Well No.: AID 24 State#27	Job No.: CD-13042	SHL Y:
County or Parrish: Eddy County	Location or Area: Artisia New Mexico	Mag.Decl.: 7.66

**CHILDRESS
DIRECTIONAL
DRILLING**

		Sensor			
	Calculated f/ Targets	TVD			
	KBTVD (@ 0' VS)	N-S			
	Dip Angle (+Dn/-Up)	E-W			

Tie-In Survey Co.: NA						Minimum Curvature Calculations			Rates / 100' M.D.		Dist f/ Target Line		
Surveying Company: Childress Directional						Proposed Azimuth: 322.75°			Build or	R or -L	Course	Above or	Right or
Survey No.	M.D.	INCL.	AZM.	TVD	N / -S	E / -W	V. SECT.	DLS / 100'	-Drop	-Turn	Length	-Below	-Left
Tie-In	0.00	0.00	0.00	0.00'	0.00'	0.00'	0.00'	0.00'					
1.	495.00	0.00	0.00	495.00'	0.00'	0.00'	0.00'	0.00°					
2.	528.00	0.80	184.00	528.00'	-0.23'	-0.02'	-0.17'	2.42°					
3.	554.00	0.60	181.20	554.00'	-0.55'	-0.03'	-0.42'	0.78°					
4.	586.00	0.40	188.40	586.00'	-0.83'	-0.05'	-0.63'	0.65°					
5.	617.00	1.00	301.40	616.99'	-0.79'	-0.30'	-0.45'	3.91°					
6.	649.00	2.80	319.30	648.98'	-0.05'	-1.05'	0.59'	5.86°					
7.	681.00	3.90	320.40	680.92'	1.38'	-2.25'	2.46'	3.44°					
8.	712.00	4.60	319.50	711.83'	3.14'	-3.73'	4.75'	2.27°					
9.	744.00	5.60	320.40	743.71'	5.31'	-5.56'	7.59'	3.13°					
10.	776.00	6.90	320.40	775.52'	8.00'	-7.78'	11.08'	4.06°					
11.	808.00	7.90	319.70	807.25'	11.16'	-10.43'	15.19'	3.14°					
12.	839.00	9.00	323.00	837.91'	14.72'	-13.26'	19.74'	3.88°					
13.	871.00	9.70	322.70	869.49'	18.86'	-16.40'	24.94'	2.19°					
14.	903.00	10.80	323.00	900.98'	23.40'	-19.84'	30.64'	3.44°					
15.	935.00	11.40	323.50	932.38'	28.34'	-23.53'	36.80'	1.90°					
16.	966.00	11.50	321.60	962.76'	33.22'	-27.27'	42.95'	1.26°					
17.	998.00	11.60	321.60	994.11'	38.24'	-31.25'	49.36'	0.31°					
18.	1062.00	10.80	322.30	1,056.89'	48.03'	-38.91'	61.79'	1.27°					
19.	1125.00	11.00	322.80	1,118.76'	57.49'	-46.16'	73.70'	0.35°					
20.	1194.00	11.30	324.10	1,186.45'	68.21'	-54.10'	87.04'	0.57°					
21.	1257.00	11.20	323.90	1,248.24'	78.15'	-61.32'	99.33'	0.17°					
22.	1320.00	11.60	323.00	1,310.00'	88.15'	-68.74'	111.78'	0.69°					
23.	1385.00	11.20	322.00	1,373.72'	98.35'	-76.56'	124.63'	0.69°					
24.	1448.00	11.90	321.10	1,435.44'	108.22'	-84.41'	137.24'	1.15°					
25.	1512.00	11.20	319.10	1,498.15'	118.06'	-92.62'	150.04'	1.26°					
26.	1575.00	10.50	318.30	1,560.02'	126.97'	-100.44'	161.86'	1.14°					
27.	1639.00	8.20	324.10	1,623.17'	135.02'	-107.00'	172.24'	3.88°					
28.	1702.00	6.30	325.60	1,685.66'	141.51'	-111.59'	180.19'	3.03°					
29.	1765.00	6.30	323.70	1,748.28'	147.15'	-115.59'	187.10'	0.33°					
30.	1860.00	5.60	326.00	1,842.77'	155.19'	-121.27'	196.94'	0.78°					
31.	1892.00	4.50	334.40	1,874.64'	157.62'	-122.68'	199.72'	4.13°					
32.	1924.00	3.50	339.40	1,906.57'	159.67'	-123.57'	201.89'	3.31°					
33.	1956.00	2.70	334.40	1,938.52'	161.26'	-124.24'	203.56'	2.64°					
34.	1987.00	1.20	329.90	1,969.50'	162.20'	-124.71'	204.60'	4.86°					
35.	2019.00	1.10	320.40	2,001.49'	162.73'	-125.08'	205.24'	0.67°					
36.	2051.00	1.10	314.20	2,033.49'	163.18'	-125.49'	205.85'	0.37°					
37.	2083.00	1.10	314.20	2,065.48'	163.61'	-125.93'	206.46'	0.00°					

38.	2115.00	1.20	314.00	2,097.47'	164.05'	-126.40'	207.09'	0.31°
39.	2146.00	1.30	309.50	2,128.47'	164.50'	-126.90'	207.76'	0.45°
40.	2177.00	1.50	314.90	2,159.46'	165.01'	-127.46'	208.50'	0.77°
41.	2208.00	1.40	328.80	2,190.45'	165.62'	-127.94'	209.28'	1.18°
42.	2240.00	1.10	315.80	2,222.44'	166.18'	-128.36'	209.97'	1.28°
43.	2271.00	1.20	312.60	2,253.43'	166.61'	-128.81'	210.59'	0.38°
44.	2303.00	1.10	310.00	2,285.43'	167.03'	-129.29'	211.22'	0.35°
45.	2400.00	0.40	57.80	2,382.42'	167.81'	-129.71'	212.10'	1.32°
46.	2463.00	0.70	121.60	2,445.42'	167.73'	-129.20'	211.72'	1.01°
47.	2527.00	0.90	136.00	2,509.41'	167.16'	-128.52'	210.85'	0.44°
48.	2590.00	0.90	132.10	2,572.41'	166.47'	-127.81'	209.88'	0.10°
49.	2653.00	0.90	133.50	2,635.40'	165.80'	-127.08'	208.90'	0.03°
50.	2717.00	0.80	153.40	2,699.39'	165.06'	-126.52'	207.97'	0.48°
51.	2779.00	0.60	123.00	2,761.39'	164.49'	-126.05'	207.23'	0.67°
52.	2843.00	1.10	130.70	2,825.38'	163.91'	-125.30'	206.32'	0.80°
53.	2906.00	0.70	114.20	2,888.37'	163.36'	-124.50'	205.39'	0.75°
54.	2969.00	0.90	131.80	2,951.37'	162.87'	-123.78'	204.57'	0.50°
55.	3033.00	1.00	113.50	3,015.36'	162.31'	-122.89'	203.58'	0.50°
56.	3096.00	0.60	96.60	3,078.35'	162.06'	-122.06'	202.88'	0.73°
57.	3160.00	0.70	112.80	3,142.35'	161.87'	-121.36'	202.31'	0.33°
58.	3223.00	0.80	116.30	3,205.34'	161.52'	-120.61'	201.58'	0.17°
59.	3286.00	0.80	111.00	3,268.33'	161.17'	-119.81'	200.81'	0.12°
60.	3349.00	0.80	105.90	3,331.33'	160.89'	-118.98'	200.08'	0.11°
61.	3412.00	0.60	124.00	3,394.32'	160.59'	-118.28'	199.42'	0.47°
62.	3475.00	0.70	132.50	3,457.32'	160.14'	-117.72'	198.73'	0.22°
63.	3539.00	0.60	133.20	3,521.32'	159.65'	-117.19'	198.01'	0.16°
64.	3602.00	0.30	91.70	3,584.31'	159.42'	-116.78'	197.59'	0.67°
65.	3666.00	0.40	163.80	3,648.31'	159.20'	-116.55'	197.27'	0.66°
66.	3738.00	0.40	110.10	3,720.31'	158.87'	-116.25'	196.83'	0.50°
67.	3794.00	0.70	126.30	3,776.31'	158.60'	-115.79'	196.33'	0.60°
68.	3862.00	0.40	144.90	3,844.31'	158.16'	-115.32'	195.70'	0.51°
69.	3925.00	0.50	129.70	3,907.30'	157.80'	-114.98'	195.21'	0.25°
70.	3988.00	0.90	119.30	3,970.30'	157.39'	-114.34'	194.49'	0.66°
71.	4052.00	1.10	98.40	4,034.29'	157.05'	-113.29'	193.59'	0.64°
72.	4115.00	1.10	95.90	4,097.28'	156.90'	-112.09'	192.74'	0.08°
73.	4179.00	1.10	86.10	4,161.27'	156.88'	-110.87'	191.98'	0.29°
74.	4242.00	1.00	82.10	4,224.26'	157.00'	-109.72'	191.38'	0.20°
75.	4306.00	0.40	252.00	4,288.25'	157.00'	-109.38'	191.18'	2.18°
76.	4369.00	0.80	235.50	4,351.25'	156.69'	-109.95'	191.28'	0.69°
77.	4433.00	0.50	216.70	4,415.25'	156.21'	-110.49'	191.22'	0.57°
78.	4496.00	0.80	249.40	4,478.24'	155.83'	-111.06'	191.27'	0.74°
79.	4560.00	0.70	211.60	4,542.24'	155.34'	-111.68'	191.26'	0.77°
80.	4623.00	0.60	209.10	4,605.23'	154.73'	-112.05'	190.99'	0.16°
81.	4686.00	0.70	219.80	4,668.23'	154.14'	-112.45'	190.77'	0.25°
82.	4750.00	0.60	256.70	4,732.22'	153.77'	-113.03'	190.82'	0.66°
83.	4814.00	0.40	202.60	4,796.22'	153.48'	-113.44'	190.84'	0.76°
84.	4909.00	0.60	201.20	4,891.22'	152.71'	-113.75'	190.41'	0.21°
85.	5004.00	0.70	211.90	4,986.21'	151.76'	-114.24'	189.95'	0.17°

86.	5099.00	0.50	251.80	5,081.21'	151.14'	-114.94'	189.87'	0.47°
87.	5194.00	0.50	263.20	5,176.20'	150.96'	-115.74'	190.22'	0.10°
88.	5289.00	1.00	277.70	5,271.20'	151.02'	-116.97'	191.02'	0.56°
89.	5311.00	1.00	279.80	5,293.19'	151.08'	-117.35'	191.29'	0.17°
<u>Proj.</u>	5357.00	1.00	279.80	5,339.19'	151.21'	-118.14'	191.88'	0.00°

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

