



Directional Survey Report

Company Name: Lime Rock Resources
 Well Name: Jaffrey 5AH
 Field: SEC 23 Block 13
 Rig ID: Trinidad 430

State/Prov: Texas
 County: Andrews
 Location: Andrews, TX
 API/UWI: 42-003-47757

Survey Company: Total Directional Services
 Job Number: 2018-178-430
 Latitude: 0
 Longitude: 0

Proposed Azimuth: 344.24
 Declination: 6.49
 North Reference: True
 KB: 3285

Svy	Depth	Inc	Azm	TVD	NS	EW	VS	DLS	CL	CD	CA	Temp	GTot	HTot	DipA
Tiein	0	0	0	0	0	0	0	0	0	0	90	0	0	0	0
1	176	0.30	345.80	176.00	0.45	-0.11	0.46	0.17	176	0.46	345.80	57	1	0	60.80
2	360	0.30	348.70	360.00	1.39	-0.33	1.42	0	184	1.42	346.78	61	1	0	60.20
3	482	0.20	350.30	482.00	1.91	-0.42	1.95	0.08	122	1.96	347.48	61	1	0	60.10
4	605	0.10	123.20	605.00	2.06	-0.37	2.09	0.23	123	2.09	349.82	61	1	0	60.10
5	730	0.10	51.50	730.00	2.07	-0.19	2.04	0	125	2.08	354.65	63	1	0	60.10
6	856	0.20	337.70	855.99	2.34	-0.19	2.31	0.16	126	2.35	355.33	64	1	0	60
7	981	0.10	166.60	980.99	2.44	-0.25	2.41	0.24	125	2.45	354.18	66	1	0	60.10
8	1108	0.10	230.40	1,107.99	2.26	-0.31	2.26	0	127	2.28	352.23	68	1	0	60
9	1233	0.20	183.60	1,232.99	1.97	-0.41	2.01	0.12	125	2.01	348.36	72	1	0	60.10
10	1360	0.30	178.80	1,359.99	1.42	-0.41	1.48	0.08	127	1.48	343.76	73	1	0	60.10
11	1483	0.30	143.50	1,482.99	0.84	-0.21	0.86	0	123	0.86	345.62	79	1	0	60.10
12	1610	0.10	176.40	1,609.99	0.46	-0.01	0.45	0.18	127	0.46	358.75	81	1	0	60
13	1756	0.10	249.20	1,755.99	0.29	-0.12	0.31	0	146	0.31	337.14	84	1	0	60.10
14	1875	0.20	191.80	1,874.99	0.05	-0.26	0.12	0.14	119	0.26	280.26	79	1	0	60.50
15	2003	0	86.70	2,002.99	-0.17	-0.31	-0.08	0.16	128	0.35	240.76	81	1	0	60.50
16	2130	0.20	26	2,129.99	0.03	-0.21	0.08	0.16	127	0.21	277.55	81	1	0	60.50
17	2256	0.40	13.60	2,255.99	0.65	-0.01	0.63	0.17	126	0.65	359.17	84	1	0	60.40
18	2382	0.60	19.10	2,381.98	1.70	0.31	1.56	0.16	126	1.73	10.31	84	1	0	60.40
19	2508	0.90	66.50	2,507.97	2.72	1.43	2.23	0.53	126	3.08	27.77	88	1	0	60.50
20	2636	0.10	345.10	2,635.97	3.23	2.33	2.48	0.70	128	3.98	35.76	91	1	0	60.50
21	2763	0.10	255.40	2,762.97	3.31	2.19	2.59	0	127	3.97	33.50	91	1	0	60.50
22	2889	0.20	335.50	2,888.97	3.48	1.99	2.81	0.16	126	4.01	29.79	93	1	0	60.50
23	3015	0.30	57.50	3,014.97	3.86	2.18	3.12	0.27	126	4.43	29.46	95	1	0	60.50
24	3142	0.20	5.10	3,141.96	4.26	2.48	3.43	0.19	127	4.93	30.21	97	0.81	0	60.50
25	3267	0.30	342.80	3,266.96	4.79	2.40	3.96	0.11	125	5.36	26.65	99	1	0	60.50
26	3393	0.70	7.50	3,392.96	5.87	2.41	4.99	0.35	126	6.34	22.30	99	1	0	60.50
27	3520	0.60	25.60	3,519.95	7.24	2.79	6.20	0.18	127	7.76	21.12	97	1	0	60.50
28	3645	0.60	45.30	3,644.94	8.29	3.54	7.01	0	125	9.01	23.15	99	1	0	60.50
29	3771	1.40	359.20	3,770.93	10.29	3.99	8.82	0.85	126	11.04	21.19	97	1	0	60.40
30	3895	0.40	9.20	3,894.91	12.23	4.04	10.68	0.81	124	12.88	18.27	99	1	0	60.50
31	3985	2.10	341.60	3,984.88	14.11	3.57	12.61	1.95	90	14.55	14.19	99	1	0	60.50
32	4016	4.10	340.60	4,015.84	15.69	3.02	14.28	6.45	31	15.98	10.89	99	1	0	60.50
33	4048	6.40	339.20	4,047.70	18.44	2.01	17.20	7.20	32	18.55	6.21	99	1	0	60.50

Svy	Depth	Inc	Azm	TVD	NS	EW	VS	DLS	CL	CD	CA	Temp	GTot	HTot	DipA
34	4080	8.80	338	4,079.42	22.37	0.46	21.41	7.52	32	22.38	1.17	100	1	0	60.50
35	4112	11.20	341.20	4,110.93	27.59	-1.46	26.95	7.70	32	27.63	356.97	100	1	0	60.50
36	4143	14.20	345.20	4,141.17	34.11	-3.40	33.76	10.08	31	34.28	354.30	100	1	0	60.50
37	4175	17.10	347.70	4,171.98	42.51	-5.41	42.38	9.30	32	42.85	352.75	100	1	0	60.50
38	4206	19.70	347.90	4,201.39	52.07	-7.48	52.14	8.39	31	52.61	351.83	100	1	0	60.50
39	4239	22.50	346.70	4,232.18	63.66	-10.10	64.01	8.58	33	64.45	350.99	97	1	0	60.40
40	4270	25.70	345.20	4,260.47	75.93	-13.18	76.66	10.51	31	77.07	350.15	97	1	0	60.40
41	4303	28.90	344.70	4,289.79	90.55	-17.11	91.79	9.72	33	92.15	349.30	97	1	0	60.30
42	4335	32.30	344.50	4,317.33	106.25	-21.44	108.08	10.63	32	108.39	348.59	97	1	0	60.30
43	4366	35.50	344.70	4,343.06	122.91	-26.03	125.36	10.33	31	125.64	348.04	99	1	0	60.20
44	4398	38.70	343.50	4,368.58	141.47	-31.32	144.66	10.25	32	144.90	347.52	99	1	0	60.10
45	4430	41.80	342	4,393.00	161.21	-37.46	165.33	10.15	32	165.51	346.92	99	1	0	60.10
46	4462	45.80	340.80	4,416.09	182.20	-44.53	187.44	12.77	32	187.56	346.27	99	1	0	60.20
47	4493	49.60	340.90	4,436.95	203.85	-52.05	210.33	12.26	31	210.39	345.68	99	1	0	60.10
48	4525	53.90	341.70	4,456.76	227.65	-60.10	235.42	13.58	32	235.45	345.21	100	1.00	0	59.90
49	4557	56.30	342.70	4,475.06	252.64	-68.12	261.64	7.93	32	261.66	344.91	100	1	0	59.80
50	4581	57.80	344.30	4,488.12	271.95	-73.84	281.78	8.39	24	281.79	344.81	100	1	0	59.90
51	4618	58.60	345	4,507.62	302.27	-82.16	313.23	2.69	37	313.24	344.79	102	1	0	59.80
52	4650	59	344.90	4,524.19	328.71	-89.27	340.59	1.28	32	340.61	344.81	104	1	0	59.80
53	4682	59.20	344.60	4,540.63	355.20	-96.49	368.05	1.02	32	368.07	344.80	104	1	0	59.80
54	4713	59.40	344.80	4,556.45	380.91	-103.52	394.71	0.85	31	394.72	344.80	104	1	0	59.80
55	4745	59.40	345.20	4,572.74	407.51	-110.65	422.25	0	32	422.27	344.81	104	1	0	59.80
56	4777	60	345.10	4,588.89	434.22	-117.73	449.87	1.89	32	449.90	344.83	104	1	0	59.80
57	4808	62.70	344.30	4,603.75	460.46	-124.91	477.07	9.00	31	477.10	344.82	104	1	0	59.80
58	4839	66.80	344.20	4,616.97	487.43	-132.52	505.11	13.23	31	505.13	344.79	106	1	0	59.80
59	4871	71	343.80	4,628.49	516.13	-140.75	534.95	13.18	32	534.97	344.75	106	1	0	59.80
60	4902	74.80	343.20	4,637.60	544.53	-149.17	564.57	12.40	31	564.59	344.68	106	1	0	59.70
61	4934	77	343.30	4,645.40	574.25	-158.11	595.60	6.88	32	595.62	344.61	106	1	0	59.70
62	4965	80	343.80	4,651.58	603.38	-166.71	625.98	9.81	31	625.98	344.55	106	1	0	59.70
63	4997	83	344.30	4,656.30	633.80	-175.41	657.62	9.50	32	657.63	344.53	106	1	0	59.70
64	5028	85.80	344.80	4,659.33	663.54	-183.62	688.47	9.17	31	688.48	344.53	106	1	0	59.60
65	5059	87.20	344.40	4,661.22	693.37	-191.84	719.41	4.70	31	719.42	344.53	106	1	0	59.60
66	5091	87.70	344.30	4,662.65	724.15	-200.46	751.38	1.59	32	751.39	344.53	108	1	0	59.60
67	5122	88.90	344.30	4,663.57	753.98	-208.85	782.36	3.87	31	782.37	344.52	108	1	0	59.60
68	5154	89.90	344.40	4,663.90	784.79	-217.48	814.36	3.14	32	814.37	344.51	106	1	0	59.60
69	5185	90.40	344.70	4,663.82	814.67	-225.74	845.36	1.88	31	845.37	344.51	108	1	0	59.50
70	5248	89.70	345.30	4,663.76	875.53	-242.04	908.35	1.46	63	908.37	344.55	108	1	0	59.50
71	5311	89.40	345.50	4,664.26	936.49	-257.92	971.34	0.57	63	971.36	344.60	109	1	0	59.50
72	5374	90.60	344.70	4,664.26	997.37	-274.12	1,034.33	2.29	63	1,034.35	344.63	109	1	0	59.60
73	5438	91.80	344.90	4,662.92	1,059.12	-290.90	1,098.31	1.90	64	1,098.34	344.64	109	1	0	59.60
74	5501	90.30	344.60	4,661.76	1,119.89	-307.47	1,161.30	2.43	63	1,161.33	344.65	111	1	0	59.40
75	5564	89.30	344.60	4,661.98	1,180.62	-324.20	1,224.29	1.59	63	1,224.33	344.65	111	1	0	59.60
76	5627	89.60	344.70	4,662.59	1,241.37	-340.87	1,287.29	0.50	63	1,287.32	344.65	111	1	0	59.50
77	5690	89.70	344.80	4,662.97	1,302.15	-357.44	1,350.29	0.22	63	1,350.32	344.65	113	1	0	59.60
78	5751	89.80	345	4,663.24	1,361.05	-373.33	1,411.28	0.37	61	1,411.32	344.66	113	1	0	59.50

Svy	Depth	Inc	Azm	TVD	NS	EW	VS	DLS	CL	CD	CA	Temp	GTot	HTot	DipA
79	5813	90.10	343.90	4,663.29	1,420.78	-389.96	1,473.28	1.84	62	1,473.32	344.65	115	1	0	59.60
80	5875	90.80	343.40	4,662.81	1,480.27	-407.41	1,535.27	1.39	62	1,535.31	344.61	115	1	0	59.60
81	5936	89.40	343.50	4,662.70	1,538.74	-424.78	1,596.27	2.30	61	1,596.29	344.57	115	1	0	59.40
82	5999	88.60	343.80	4,663.80	1,599.18	-442.52	1,659.25	1.36	63	1,659.28	344.53	115	1	0	59.60
83	6060	88.90	344.70	4,665.13	1,657.87	-459.07	1,720.24	1.55	61	1,720.26	344.52	115	1	0	59.60
84	6123	89.70	345.40	4,665.90	1,718.74	-475.32	1,783.23	1.69	63	1,783.25	344.54	117	1	0	59.50
85	6186	89.60	343.80	4,666.29	1,779.47	-492.05	1,846.22	2.54	63	1,846.25	344.54	115	1	0	59.50
86	6249	88.70	341.80	4,667.22	1,839.64	-510.68	1,909.19	3.48	63	1,909.21	344.49	115	1	0	59.50
87	6312	88.90	342.10	4,668.54	1,899.53	-530.19	1,972.13	0.57	63	1,972.14	344.40	117	1	0	59.50
88	6375	89.60	342.70	4,669.36	1,959.58	-549.24	2,035.09	1.46	63	2,035.09	344.34	117	1	0	59.60
89	6438	89.90	342.70	4,669.64	2,019.72	-567.97	2,098.07	0.48	63	2,098.07	344.29	117	1	0	59.60
90	6500	90	342.60	4,669.69	2,078.90	-586.46	2,160.04	0.23	62	2,160.04	344.25	117	1	0	59.50
91	6562	90.30	342.30	4,669.53	2,138.02	-605.16	2,222.01	0.68	62	2,222.01	344.20	117	1	0	59.60
92	6626	90.20	342.10	4,669.25	2,198.95	-624.72	2,285.97	0.35	64	2,285.97	344.14	117	1	0	59.60
93	6690	90.40	342	4,668.92	2,259.84	-644.45	2,349.92	0.35	64	2,349.93	344.08	117	1	0	59.50
94	6752	90.40	342.40	4,668.48	2,318.87	-663.40	2,411.88	0	62	2,411.90	344.03	117	1	0	59.60
95	6815	90.80	343.80	4,667.82	2,379.14	-681.71	2,474.86	2.31	63	2,474.88	344.01	115	1	0	59.60
96	6878	91.70	345	4,666.45	2,439.80	-698.65	2,537.85	2.38	63	2,537.86	344.02	115	1	0	59.50
97	6941	90.80	345.90	4,665.08	2,500.77	-714.47	2,600.82	2.02	63	2,600.83	344.06	117	1	0	59.40
98	7003	91	346.50	4,664.10	2,560.97	-729.26	2,662.77	1.02	62	2,662.78	344.11	117	1	0	59.50
99	7065	90.30	345.50	4,663.40	2,621.12	-744.26	2,724.74	1.97	62	2,724.74	344.15	117	1	0	59.50
100	7129	90	345	4,663.23	2,683.01	-760.55	2,788.73	0.91	64	2,788.73	344.17	117	1	0	59.50
101	7192	90.10	344.40	4,663.18	2,743.78	-777.17	2,851.72	0.97	63	2,851.73	344.19	118	1	0	59.60
102	7255	89.10	344.60	4,663.62	2,804.49	-794.01	2,914.72	1.62	63	2,914.72	344.19	117	1	0	59.60
103	7317	88.90	345.10	4,664.70	2,864.32	-810.21	2,976.71	0.87	62	2,976.71	344.21	117	1	0	59.60
104	7381	91.10	345.40	4,664.70	2,926.21	-826.50	3,040.69	3.47	64	3,040.69	344.23	118	1	0	59.60
105	7444	90.80	345	4,663.65	2,987.11	-842.60	3,103.68	0.79	63	3,103.68	344.25	118	1	0	59.60
106	7508	89.70	344.70	4,663.37	3,048.89	-859.32	3,167.67	1.78	64	3,167.67	344.26	117	1	0	59.60
107	7571	89.20	344.80	4,663.98	3,109.66	-875.89	3,230.67	0.81	63	3,230.67	344.27	117	1	0	59.50
108	7634	89.70	345	4,664.58	3,170.49	-892.30	3,293.66	0.85	63	3,293.66	344.28	118	1	0	59.60
109	7697	90	345	4,664.75	3,231.34	-908.61	3,356.65	0.48	63	3,356.65	344.29	118	1	0	59.50
110	7758	90.40	345.10	4,664.54	3,290.27	-924.34	3,417.65	0.68	61	3,417.65	344.31	118	1	0	59.60
111	7821	90.40	345.20	4,664.10	3,351.17	-940.49	3,480.64	0	63	3,480.64	344.32	118	1	0	59.60
112	7884	90	343.80	4,663.88	3,411.88	-957.33	3,543.63	2.31	63	3,543.64	344.33	118	1	0	59.60
113	7947	89.80	343.10	4,663.99	3,472.26	-975.27	3,606.63	1.16	63	3,606.63	344.31	118	1	0	59.50
114	8009	89.70	342.70	4,664.26	3,531.52	-993.50	3,668.61	0.67	62	3,668.61	344.29	118	1	0	59.50
115	8072	89.60	342.30	4,664.64	3,591.61	-1,012.45	3,731.58	0.65	63	3,731.58	344.26	118	1	0	59.50
116	8135	90.20	343	4,664.75	3,651.74	-1,031.23	3,794.55	1.46	63	3,794.55	344.23	118	1	0	59.60
117	8198	90.20	342.50	4,664.53	3,711.90	-1,049.91	3,857.53	0	63	3,857.53	344.21	118	1	0	59.60
118	8261	90.20	344.10	4,664.31	3,772.24	-1,068.02	3,920.52	0	63	3,920.52	344.19	118	1	0	59.58
119	8325	90.40	344.90	4,663.98	3,833.91	-1,085.12	3,984.51	1.29	64	3,984.52	344.20	118	1	0	59.60
120	8387	90.40	344.90	4,663.54	3,893.77	-1,101.27	4,046.51	0	62	4,046.51	344.21	118	1	0	59.50
121	8450	90.30	344.80	4,663.16	3,954.58	-1,117.73	4,109.50	0.22	63	4,109.50	344.22	118	1	0	59.50
122	8513	90.30	344.50	4,662.83	4,015.33	-1,134.41	4,172.50	0	63	4,172.50	344.22	120	1	0	59.60
123	8577	90.20	344.50	4,662.55	4,077.00	-1,151.51	4,236.50	0.16	64	4,236.50	344.23	120	1	0	59.50

Svy	Depth	Inc	Azm	TVD	NS	EW	VS	DLS	CL	CD	CA	Temp	GTot	HTot	DipA
124	8640	90.50	344.40	4,662.16	4,137.70	-1,168.40	4,299.50	0.50	63	4,299.50	344.23	120	1	0	59.60
125	8703	90.60	344.60	4,661.56	4,198.40	-1,185.24	4,362.49	0.35	63	4,362.49	344.24	120	1	0	59.60
126	8765	91	345	4,660.69	4,258.23	-1,201.49	4,424.49	0.91	62	4,424.49	344.24	120	1	0	59.60
127	8828	90.10	344.80	4,660.09	4,319.05	-1,217.90	4,487.48	1.46	63	4,487.48	344.25	122	1	0	59.60
128	8891	89.40	344.30	4,660.36	4,379.77	-1,234.69	4,550.48	1.37	63	4,550.48	344.26	120	1	0	59.40
129	8955	88.90	344	4,661.31	4,441.33	-1,252.16	4,614.47	0.91	64	4,614.47	344.26	120	1	0	59.60
130	9018	88.80	344.20	4,662.58	4,501.91	-1,269.42	4,677.46	0.35	63	4,677.46	344.25	120	1	0	59.50
131	9081	89.40	343.90	4,663.57	4,562.47	-1,286.73	4,740.45	1.06	63	4,740.45	344.25	122	1	0	59.70
132	9144	90.30	344.70	4,663.73	4,623.12	-1,303.78	4,803.45	1.91	63	4,803.45	344.25	120	1	0	59.60
133	9207	90.50	344.90	4,663.29	4,683.92	-1,320.29	4,866.44	0.45	63	4,866.44	344.26	120	1	0	59.60
134	9270	90.60	344.80	4,662.69	4,744.72	-1,336.76	4,929.43	0.22	63	4,929.43	344.27	120	1	0	59.50
135	9333	90.70	344	4,661.97	4,805.40	-1,353.70	4,992.43	1.28	63	4,992.43	344.27	118	1	0	59.50
136	9396	90.90	343.90	4,661.09	4,865.94	-1,371.12	5,055.42	0.35	63	5,055.42	344.26	120	1	0	59.50
137	9459	91.40	344.90	4,659.83	4,926.60	-1,388.05	5,118.41	1.77	63	5,118.41	344.27	108	1	0	58.40
138	9521	90.80	344.90	4,658.64	4,986.45	-1,404.20	5,180.39	0.97	62	5,180.39	344.27	111	1	0	58.30
139	9584	91.30	344.70	4,657.48	5,047.24	-1,420.72	5,243.38	0.85	63	5,243.38	344.28	113	1	0	58.40
140	9646	90.60	344.90	4,656.46	5,107.06	-1,436.97	5,305.37	1.17	62	5,305.37	344.29	115	1	0	58.40
141	9707	90.40	344.90	4,655.92	5,165.95	-1,452.86	5,366.36	0.33	61	5,366.36	344.29	113	1	0	58.40
142	9768	91.30	345	4,655.02	5,224.85	-1,468.70	5,427.35	1.48	61	5,427.35	344.30	115	1	0	58.40
143	9829	90.80	345.10	4,653.90	5,283.78	-1,484.43	5,488.33	0.84	61	5,488.34	344.31	115	1	0	58.40
144	9891	90.40	345	4,653.25	5,343.67	-1,500.43	5,550.32	0.67	62	5,550.33	344.32	115	1	0	58.40
145	9952	90.70	344.90	4,652.67	5,402.58	-1,516.26	5,611.31	0.52	61	5,611.32	344.32	117	1	0	58.50
146	10013	91.10	344.80	4,651.71	5,461.45	-1,532.20	5,672.30	0.68	61	5,672.31	344.33	118	1	0	58.40
147	10075	91.50	344.60	4,650.30	5,521.24	-1,548.56	5,734.29	0.72	62	5,734.29	344.33	118	1	0	58.50
148	10137	91.20	344.30	4,648.84	5,580.95	-1,565.18	5,796.27	0.68	62	5,796.28	344.33	118	1	0	58.40
149	10198	90.40	344.30	4,647.99	5,639.67	-1,581.68	5,857.26	1.31	61	5,857.27	344.33	295	1	0	70.40
150	10262	90.90	344.70	4,647.26	5,701.34	-1,598.78	5,921.26	1.00	64	5,921.26	344.34	117	1	0	58.50
151	10325	90.60	345	4,646.44	5,762.14	-1,615.25	5,984.25	0.67	63	5,984.26	344.34	118	1	0	58.40
152	10388	90.60	344.80	4,645.78	5,822.97	-1,631.66	6,047.24	0	63	6,047.25	344.35	117	1	0	58.50
153	10452	90.90	344.30	4,644.94	5,884.65	-1,648.71	6,111.23	0.91	64	6,111.24	344.35	118	1	0	58.50
154	10515	91.30	344.30	4,643.73	5,945.29	-1,665.75	6,174.22	0.63	63	6,174.23	344.35	120	1	0	58.40
155	10578	91.70	344	4,642.08	6,005.87	-1,682.95	6,237.20	0.79	63	6,237.21	344.35	120	1	0	58.40
156	10640	91	344	4,640.62	6,065.45	-1,700.04	6,299.18	1.13	62	6,299.19	344.34	118	1	0	58.40
157	10704	90.90	343.70	4,639.56	6,126.92	-1,717.83	6,363.17	0.49	64	6,363.18	344.34	118	1	0	58.30
158	10767	91.20	343.50	4,638.41	6,187.34	-1,735.62	6,426.16	0.57	63	6,426.16	344.33	120	1	0	58.40
159	10830	91.50	343.50	4,636.92	6,247.73	-1,753.51	6,489.13	0.48	63	6,489.14	344.32	120	1	0	58.40
160	10891	91.10	344.10	4,635.54	6,306.29	-1,770.52	6,550.12	1.18	61	6,550.12	344.32	120	1	0	58.50
161	10954	90.30	343.80	4,634.77	6,366.83	-1,787.94	6,613.11	1.36	63	6,613.11	344.31	122	1	0	58.40
162	11016	89.40	343.50	4,634.93	6,426.33	-1,805.39	6,675.10	1.53	62	6,675.11	344.31	120	1	0	58.40
163	11078	89.60	343.30	4,635.47	6,485.74	-1,823.10	6,737.10	0.46	62	6,737.10	344.30	118	1	0	58.50
164	11140	90.20	343.40	4,635.58	6,545.14	-1,840.87	6,799.09	0.98	62	6,799.09	344.29	120	1	0	58.50
165	11204	90.40	343.30	4,635.24	6,606.45	-1,859.20	6,863.08	0.35	64	6,863.08	344.28	122	1	0	58.40
166	11267	91	343.50	4,634.48	6,666.82	-1,877.20	6,926.07	1.00	63	6,926.07	344.27	118	1	0	58.30
167	11329	90.50	343.50	4,633.66	6,726.27	-1,894.81	6,988.06	0.81	62	6,988.06	344.27	120	1	0	58.50
168	11392	90.60	343.40	4,633.06	6,786.65	-1,912.75	7,051.05	0.22	63	7,051.05	344.26	122	1	0	58.50

Svy	Depth	Inc	Azm	TVD	NS	EW	VS	DLS	CL	CD	CA	Temp	GTot	HTot	DipA
169	11455	90.90	343.20	4,632.23	6,846.99	-1,930.86	7,114.03	0.57	63	7,114.03	344.25	122	1	0	58.50
170	11517	91.60	343.30	4,630.88	6,906.35	-1,948.72	7,176.01	1.14	62	7,176.01	344.24	122	1	0	58.30
171	11581	91.20	343.90	4,629.32	6,967.72	-1,966.78	7,239.99	1.13	64	7,239.99	344.24	122	1	0	58.40
172	11643	91.80	344.60	4,627.69	7,027.37	-1,983.61	7,301.96	1.49	62	7,301.96	344.24	122	1	0	58.30
173	11706	91.30	344.80	4,625.99	7,088.12	-2,000.22	7,364.94	0.85	63	7,364.94	344.24	124	1	0	58.30
174	11768	91.50	345.10	4,624.48	7,147.97	-2,016.32	7,426.92	0.58	62	7,426.92	344.25	124	1	0	58.30
175	11831	90.80	344.60	4,623.21	7,208.77	-2,032.78	7,489.90	1.37	63	7,489.90	344.25	109	1	0	59.30
176	11894	90.70	344.20	4,622.39	7,269.45	-2,049.72	7,552.89	0.65	63	7,552.89	344.25	117	1	0	59.50
177	11956	91.40	344.10	4,621.25	7,329.08	-2,066.65	7,614.88	1.14	62	7,614.88	344.25	117	1	0	59.50
178	12018	91.70	344.30	4,619.57	7,388.71	-2,083.53	7,676.86	0.58	62	7,676.86	344.25	118	1	0	59.30
179	12080	90.60	344.80	4,618.33	7,448.46	-2,100.04	7,738.84	1.95	62	7,738.84	344.25	396	1	0	59.40
180	12143	91.50	344.60	4,617.18	7,509.22	-2,116.66	7,801.83	1.46	63	7,801.83	344.26	120	1	0	59.50
181	12206	91.60	344.50	4,615.47	7,569.92	-2,133.44	7,864.81	0.22	63	7,864.81	344.26	120	1	0	59.50
182	12268	90.30	344.90	4,614.44	7,629.71	-2,149.79	7,926.80	2.19	62	7,926.80	344.26	122	1	0	59.40
183	12330	90.20	344.50	4,614.17	7,689.51	-2,166.15	7,988.79	0.67	62	7,988.79	344.27	122	1	0	59.30
184	12394	89.30	344.30	4,614.45	7,751.15	-2,183.37	8,052.79	1.44	64	8,052.79	344.27	122	1	0	59.50
185	12458	89.90	344.20	4,614.90	7,812.75	-2,200.74	8,116.79	0.95	64	8,116.79	344.27	113	1	0	59.40
186	12519	90.60	343.90	4,614.63	7,871.40	-2,217.50	8,177.79	1.25	61	8,177.79	344.27	113	1	0	59.60
187	12581	91.80	344.30	4,613.33	7,931.01	-2,234.48	8,239.77	2.04	62	8,239.77	344.27	120	1	0	59.40
188	12645	92	344.30	4,611.21	7,992.59	-2,251.79	8,303.74	0.31	64	8,303.74	344.27	120	1	0	59.30
189	12708	90.80	344.70	4,609.67	8,053.28	-2,268.62	8,366.72	2.01	63	8,366.72	344.27	122	1	0	59.40
190	12772	91.50	344.60	4,608.39	8,114.98	-2,285.56	8,430.70	1.10	64	8,430.70	344.27	122	1	0	59.40
191	12835	91.70	344.40	4,606.63	8,175.67	-2,302.39	8,493.68	0.45	63	8,493.68	344.27	124	1	0	59.50
192	12899	89.50	344.30	4,605.96	8,237.29	-2,319.65	8,557.67	3.44	64	8,557.67	344.27	122	1	0	59.50
193	12961	90	344.30	4,606.23	8,296.98	-2,336.43	8,619.67	0.81	62	8,619.67	344.27	124	1	0	59.50
194	13024	90.70	344.30	4,605.84	8,357.62	-2,353.48	8,682.67	1.11	63	8,682.67	344.27	122	1	0	59.50
195	13088	91.30	344	4,604.73	8,419.18	-2,370.95	8,746.66	1.05	64	8,746.66	344.27	124	1	0	59.40
196	13152	92	343.70	4,602.89	8,480.63	-2,388.75	8,810.63	1.19	64	8,810.63	344.27	124	1	0	59.50
197	13216	92.10	343.20	4,600.60	8,541.94	-2,406.97	8,874.58	0.80	64	8,874.58	344.26	122	1	0	59.50
198	13279	92	343.10	4,598.34	8,602.20	-2,425.21	8,937.53	0.22	63	8,937.53	344.26	122	1	0	59.40
199	13343	92.70	343	4,595.72	8,663.36	-2,443.86	9,001.46	1.10	64	9,001.46	344.25	124	1	0	59.40
200	13406	93.30	342.80	4,592.42	8,723.50	-2,462.36	9,064.36	1.00	63	9,064.36	344.24	124	1	0	59.40
201	13416	93.10	342.90	4,591.86	8,733.04	-2,465.30	9,074.34	2.24	10	9,074.34	344.24	122	1	0	59.50
PTB	13470	93.10	342.90	4,588.94	8,784.57	-2,481.16	9,128.24	0	54	9,128.24	344.23	0	0	0	0



Final MWD Survey Certification

Andrews County, Texas

Client: Lime Rock Resources

Well Name: Jaffrey 5AH

Total Job No: 2018-178-430

API No: 42-003-47757

Start Date: 03/20/2018

End Date: 04/04/2018

Measured Start Depth: 90 feet

Measured End Depth: 13,470 feet

Vertical Section from well center at TD: 9,128.24 feet

I, Aaron Lawrence, certify that; I am employed by Total Directional Services, LLC and we conducted or supervised the taking of these open hole MWD surveys at the request of this client. This data is true, correct, complete and within the limitations of the tool as set forth by Total Directional Services, LLC. I am authorized and qualified to make this report and have reviewed this report and find that it conforms to the principals and procedures as set forth by Total Directional Services, LLC.

Date: 04/05/2018

Signed:

A handwritten signature in black ink that reads 'Aaron Lawrence'. The signature is written in a cursive style with a long horizontal line extending from the end.