



Directional Survey Report

Company Name: Lime Rock Resources

Well Name: Keene 6AH

Field: SEC 12 Block 13

Rig ID: Trinidad 430

State/Prov: Texas

County: Andrews

Location: Andrews, TX

API/UWI: 42-003-47771

Survey Company: Total Directional Services

Job Number: 2018-206-430

Latitude: 0

Longitude: 0

Proposed Azimuth: 344.24

Declination: 6.47

North Reference: True

KB: 3262

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	146	1.30	88.20	145.99	0.05	1.66	-0.40	0.89	146	1.66	88.20	57	1	0	62.10
2	328	1.40	88.40	327.94	0.18	5.94	-1.44	0.06	182	5.94	88.27	61	1	0	48.30
3	480	1	84.80	479.90	0.35	9.12	-2.14	0.27	152	9.13	87.80	66	1	0	60.90
4	664	1.10	95.60	663.87	0.32	12.48	-3.08	0.12	184	12.48	88.51	70	1	0	60.90
5	848	1	90.90	847.84	0.13	15.84	-4.18	0.07	184	15.84	89.54	81	1	0	60.80
6	1035	0.60	254.30	1,034.83	-0.16	16.53	-4.65	0.85	187	16.53	90.57	88	1	0	60.80
7	1222	0.30	264.30	1,221.83	-0.48	15.10	-4.56	0.17	187	15.11	91.81	91	1	0	60.80
8	1411	0.20	247.60	1,410.83	-0.65	14.30	-4.51	0.06	189	14.32	92.61	95	1	0	60.80
9	1600	0.40	223.80	1,599.82	-1.25	13.54	-4.88	0.12	189	13.60	95.29	104	1	0	60.80
10	1775	0.20	178.30	1,774.82	-2.00	13.13	-5.49	0.17	175	13.28	98.67	104	1	0	60.80
11	1925	0.50	135.80	1,924.82	-2.73	13.59	-6.32	0.25	150	13.86	101.36	86	1	0	88.70
12	2116	0.10	79.60	2,115.82	-3.30	14.33	-7.07	0.24	191	14.71	102.96	81	1	0	61.10
13	2305	0.40	321.50	2,304.81	-2.75	14.09	-6.47	0.24	189	14.35	101.06	82	1	0	61
14	2494	0.90	334.30	2,493.80	-0.90	13.03	-4.40	0.27	189	13.06	93.95	84	1	0	61.10
15	2683	1	358.90	2,682.78	2.09	12.36	-1.35	0.22	189	12.53	80.41	86	1	0	61
16	2872	1	283.80	2,871.75	4.13	10.72	1.06	0	189	11.49	68.93	88	1	0	60.90
17	3061	1.10	302.90	3,060.72	5.51	7.60	3.24	0.19	189	9.38	54.06	88	1	0	60.90
18	3251	0.30	283.40	3,250.70	6.61	5.58	4.85	0.43	190	8.66	40.16	95	1	0	60.90
19	3440	0.20	26	3,439.70	7.03	5.25	5.34	0.21	189	8.77	36.75	99	0.81	0	60.90
20	3629	0.30	56	3,628.70	7.60	5.80	5.74	0.09	189	9.56	37.36	100	0.81	0	59.30
21	3817	0.50	81.10	3,816.69	8.00	7.02	5.79	0.14	188	10.64	41.26	102	1	0	60.90
22	3906	0.90	48.80	3,905.69	8.52	7.93	6.05	0.61	89	11.64	42.94	99	1	0	60.90
23	3938	2.40	4.80	3,937.67	9.35	8.17	6.78	5.81	32	12.42	41.15	100	0.99	0	61
24	3969	5.90	353.80	3,968.59	11.59	8.06	8.96	11.53	31	14.11	34.81	100	1	0	60.80
25	4000	8.30	356.40	3,999.35	15.40	7.74	12.72	7.81	31	17.24	26.69	100	1	0	60.70
26	4032	9.80	358	4,030.95	20.43	7.50	17.63	4.75	32	21.77	20.17	100	1	0	60.60
27	4064	10.80	359.10	4,062.43	26.15	7.36	23.17	3.18	32	27.17	15.72	104	1	0	60.50
28	4096	11.70	356	4,093.82	32.39	7.09	29.24	3.39	32	33.15	12.34	97	1	0	61.30
29	4128	13.70	351.20	4,125.03	39.37	6.28	36.18	7.06	32	39.87	9.07	99	1	0	61.20
30	4160	16.70	350.10	4,155.91	47.64	4.91	44.52	9.42	32	47.90	5.89	99	1	0	60.30
31	4192	20.20	349.70	4,186.26	57.61	3.13	54.60	10.94	32	57.70	3.11	100	1	0	60.90
32	4223	23.60	349.20	4,215.02	68.98	1.01	66.11	10.98	31	68.98	0.84	100	1	0	60.90
33	4255	27.30	348.50	4,243.91	82.46	-1.65	79.81	11.60	32	82.48	358.85	100	1	0	60.50

Svy	Depth	Inc	Azm	TVD	NS	EW	VS	DLS	CL	CD	CA	Temp	GTot	HTot	DipA
34	4286	30.50	347.20	4,271.05	97.11	-4.81	94.76	10.52	31	97.23	357.16	100	1	0	60.30
35	4319	34.10	346.50	4,298.94	114.27	-8.83	112.38	10.97	33	114.61	355.58	100	1	0	60.10
36	4351	37.20	345.80	4,324.94	132.38	-13.30	131.01	9.77	32	133.04	354.26	100	1	0	59.90
37	4383	40.80	345.40	4,349.80	151.88	-18.31	151.14	11.28	32	152.98	353.13	102	1	0	59.80
38	4415	44.50	345.20	4,373.33	172.85	-23.81	172.82	11.57	32	174.48	352.16	102	1	0	59.60
39	4447	48.10	345	4,395.44	195.20	-29.76	195.94	11.26	32	197.45	351.33	102	1	0	59.30
40	4478	51.40	344.40	4,415.46	218.02	-36.00	219.60	10.75	31	220.97	350.62	102	1	0	59.20
41	4509	54.70	343.50	4,434.10	241.82	-42.86	244.37	10.89	31	245.59	349.95	102	1.00	0	59
42	4541	57.30	343.60	4,451.99	267.26	-50.37	270.90	8.13	32	271.97	349.33	104	1	0	59
43	4572	57.30	344	4,468.74	292.31	-57.65	296.98	0	31	297.94	348.84	102	1	0	58.90
44	4604	57	344	4,486.10	318.15	-65.06	323.86	0.94	32	324.74	348.44	102	1	0	59
45	4636	56.60	344.10	4,503.62	343.90	-72.41	350.64	1.28	32	351.44	348.11	104	1.00	0	58.90
46	4668	56.20	344.20	4,521.33	369.54	-79.69	377.29	1.28	32	378.04	347.83	104	1.00	0	58.90
47	4700	55.90	344.30	4,539.20	395.09	-86.90	403.84	0.97	32	404.53	347.60	104	1	0	59
48	4732	57.30	343.90	4,556.81	420.78	-94.22	430.55	4.50	32	431.20	347.38	104	1	0	58.90
49	4763	60.40	343	4,572.85	446.21	-101.78	457.08	10.30	31	457.67	347.15	104	1	0	58.70
50	4794	63.50	341.90	4,587.42	472.29	-110.03	484.42	10.48	31	484.93	346.89	104	1	0	58.70
51	4826	67.40	342	4,600.71	499.96	-119.05	513.50	12.19	32	513.93	346.61	104	1	0	58.70
52	4857	71.30	342.10	4,611.64	527.55	-127.98	542.48	12.58	31	542.85	346.36	100	1	0	58.30
53	4889	75.50	342.10	4,620.78	556.72	-137.41	573.12	13.13	32	573.43	346.14	100	1	0	58.20
54	4920	78.80	342.40	4,627.68	585.50	-146.62	603.32	10.69	31	603.58	345.94	99	1	0	58
55	4952	80.80	342.40	4,633.34	615.52	-156.14	634.79	6.25	32	635.02	345.77	99	1	0	58
56	4983	83.80	342.20	4,637.50	644.79	-165.48	665.49	9.70	31	665.68	345.61	99	1	0	57.80
57	5015	87.30	341.90	4,639.98	675.13	-175.31	697.37	10.98	32	697.52	345.44	99	1	0	57.80
58	5046	88.30	341.90	4,641.17	704.58	-184.94	728.32	3.23	31	728.44	345.29	100	1	0	57.60
59	5110	89.10	342.40	4,642.62	765.48	-204.55	792.26	1.47	64	792.34	345.04	100	1	0	57.70
60	5172	88.80	343	4,643.76	824.66	-222.98	854.23	1.08	62	854.28	344.87	100	1	0	57.70
61	5235	89.90	343.20	4,644.47	884.94	-241.30	917.21	1.77	63	917.24	344.75	102	1	0	57.50
62	5299	91.90	343.60	4,643.47	946.26	-259.58	981.19	3.19	64	981.22	344.66	102	1	0	57.60
63	5362	91.70	343.80	4,641.49	1,006.70	-277.25	1,044.16	0.45	63	1,044.18	344.60	104	1	0	57.60
64	5425	91.20	343.50	4,639.89	1,067.13	-294.98	1,107.13	0.93	63	1,107.15	344.55	106	1	0	57.50
65	5488	91.10	343.60	4,638.63	1,127.54	-312.82	1,170.12	0.22	63	1,170.13	344.49	106	1	0	57.50
66	5552	90.50	343.50	4,637.74	1,188.91	-330.94	1,234.10	0.95	64	1,234.11	344.45	108	1	0	57.60
67	5616	89.80	343.50	4,637.57	1,250.28	-349.11	1,298.10	1.09	64	1,298.10	344.40	108	1	0	57.60
68	5680	89.40	343.70	4,638.02	1,311.67	-367.18	1,362.09	0.70	64	1,362.10	344.36	108	1	0	57.70
69	5743	89.40	344.30	4,638.68	1,372.23	-384.55	1,425.09	0	63	1,425.09	344.35	109	1	0	57.70
70	5806	88.90	344.50	4,639.61	1,432.90	-401.49	1,488.08	0.85	63	1,488.08	344.35	109	1	0	57.60
71	5869	90.10	344.90	4,640.16	1,493.66	-418.11	1,551.07	2.01	63	1,551.08	344.36	111	1	0	57.60
72	5932	90.20	345.10	4,640.00	1,554.52	-434.42	1,614.07	0.35	63	1,614.07	344.39	111	1	0	57.70
73	5996	90	345	4,639.88	1,616.35	-450.93	1,678.06	0.35	64	1,678.07	344.41	111	1	0	57.50
74	6059	90	345.40	4,639.88	1,677.26	-467.02	1,741.05	0	63	1,741.06	344.44	113	1	0	57.50
75	6123	90.20	345.60	4,639.77	1,739.22	-483.04	1,805.04	0.44	64	1,805.05	344.48	113	1	0	57.60
76	6186	90.20	345.80	4,639.55	1,800.27	-498.60	1,868.02	0	63	1,868.04	344.52	115	1	0	57.60
77	6249	90.40	344.90	4,639.22	1,861.22	-514.54	1,931.00	1.46	63	1,931.03	344.55	115	1	0	57.50
78	6313	90.30	344.70	4,638.83	1,922.98	-531.32	1,995.00	0.35	64	1,995.03	344.55	115	1	0	57.60

Svy	Depth	Inc	Azm	TVD	NS	EW	VS	DLS	CL	CD	CA	Temp	GTot	HTot	DipA
79	6375	89.70	344.80	4,638.83	1,982.79	-547.63	2,057.00	0.98	62	2,057.03	344.56	115	1	0	57.60
80	6438	89.10	343.90	4,639.49	2,043.45	-564.62	2,119.99	1.72	63	2,120.02	344.55	115	1	0	57.50
81	6501	88.90	343.50	4,640.59	2,103.91	-582.30	2,182.98	0.71	63	2,183.01	344.53	115	1	0	57.50
82	6563	89.80	343.40	4,641.29	2,163.34	-599.96	2,244.97	1.46	62	2,244.99	344.50	117	1	0	57.70
83	6626	89.80	343.60	4,641.51	2,223.74	-617.85	2,307.96	0	63	2,307.98	344.47	117	1	0	57.60
84	6690	89.10	343.50	4,642.13	2,285.12	-635.97	2,371.95	1.10	64	2,371.97	344.45	117	1	0	57.60
85	6754	90.80	344.10	4,642.18	2,346.58	-653.83	2,435.95	2.82	64	2,435.96	344.43	115	1	0	57.70
86	6816	91.10	344.60	4,641.16	2,406.27	-670.55	2,497.94	0.94	62	2,497.95	344.43	115	1	0	57.60
87	6880	90.60	344.70	4,640.21	2,467.98	-687.49	2,561.93	0.80	64	2,561.95	344.43	117	1	0	57.60
88	6942	90.20	344.90	4,639.77	2,527.81	-703.75	2,623.93	0.72	62	2,623.94	344.44	117	1	0	57.50
89	7005	89.70	344.60	4,639.83	2,588.59	-720.32	2,686.92	0.93	63	2,686.94	344.45	117	1	0	57.50
90	7069	88.90	344.40	4,640.61	2,650.26	-737.42	2,750.92	1.29	64	2,750.94	344.45	118	1	0	57.70
91	7130	89.50	344.10	4,641.46	2,708.96	-753.97	2,811.91	1.10	61	2,811.93	344.45	118	1	0	57.70
92	7192	90	344.10	4,641.73	2,768.59	-770.96	2,873.91	0.81	62	2,873.93	344.44	117	1	0	57.70
93	7254	88.20	342.30	4,642.71	2,827.93	-788.88	2,935.89	4.11	62	2,935.90	344.41	117	1	0	57.70
94	7315	89.50	343.60	4,643.93	2,886.24	-806.76	2,996.86	3.01	61	2,996.87	344.38	117	1	0	57.60
95	7375	91.30	345	4,643.51	2,943.99	-822.99	3,056.85	3.80	60	3,056.86	344.38	117	1	0	57.50
96	7437	91.70	345.20	4,641.89	3,003.89	-838.93	3,118.82	0.72	62	3,118.84	344.40	117	1	0	57.50
97	7498	91.40	345.20	4,640.24	3,062.84	-854.50	3,179.79	0.49	61	3,179.81	344.41	117	1	0	57.50
98	7559	91.40	345.80	4,638.75	3,121.88	-869.77	3,240.76	0	61	3,240.78	344.43	117	1	0	57.60
99	7620	90.40	345.40	4,637.79	3,180.96	-884.94	3,301.73	1.77	61	3,301.76	344.45	117	1	0	57.50
100	7682	90.20	345.20	4,637.47	3,240.93	-900.67	3,363.72	0.46	62	3,363.75	344.47	117	1	0	57.50
101	7744	90.90	345.10	4,636.87	3,300.85	-916.56	3,425.71	1.14	62	3,425.74	344.48	117	1	0	57.50
102	7806	90.50	344.90	4,636.11	3,360.73	-932.61	3,487.70	0.72	62	3,487.73	344.49	117	1	0	57.50
103	7867	89.70	344.90	4,636.01	3,419.63	-948.50	3,548.70	1.31	61	3,548.73	344.50	118	1	0	57.50
104	7929	89.30	345	4,636.55	3,479.50	-964.60	3,610.69	0.67	62	3,610.73	344.51	118	1	0	57.50
105	7991	88.50	344.20	4,637.74	3,539.26	-981.06	3,672.68	1.82	62	3,672.72	344.51	118	1	0	57.70
106	8052	89	342.70	4,639.07	3,597.72	-998.43	3,733.65	2.59	61	3,733.69	344.49	118	1	0	57.70
107	8113	89.30	342.50	4,639.97	3,655.92	-1,016.67	3,794.62	0.59	61	3,794.65	344.46	118	1	0	57.80
108	8175	89.10	342.80	4,640.84	3,715.09	-1,035.16	3,856.59	0.58	62	3,856.61	344.43	118	1	0	57.70
109	8237	90.80	343.10	4,640.89	3,774.37	-1,053.33	3,918.57	2.78	62	3,918.59	344.41	120	1	0	57.60
110	8299	91	343.20	4,639.92	3,833.70	-1,071.30	3,980.55	0.36	62	3,980.57	344.39	120	1	0	57.70
111	8361	90.10	343	4,639.32	3,893.02	-1,089.33	4,042.54	1.49	62	4,042.55	344.37	120	1	0	57.70
112	8421	89.90	343.40	4,639.32	3,950.45	-1,106.67	4,102.53	0.75	60	4,102.54	344.35	122	1	0	57.70
113	8483	89.70	344.10	4,639.54	4,009.98	-1,124.02	4,164.53	1.17	62	4,164.53	344.34	122	1	0	57.70
114	8543	89.50	344.20	4,639.96	4,067.69	-1,140.40	4,224.52	0.37	60	4,224.53	344.34	122	1	0	57.70
115	8605	89.60	345.20	4,640.45	4,127.49	-1,156.76	4,286.52	1.62	62	4,286.53	344.34	122	1	0	57.50
116	8668	90.20	344.10	4,640.56	4,188.25	-1,173.44	4,349.52	1.99	63	4,349.52	344.35	120	1	0	57.50
117	8731	90.40	343.90	4,640.23	4,248.80	-1,190.81	4,412.52	0.45	63	4,412.52	344.34	120	1	0	57.60
118	8794	89.40	343.60	4,640.34	4,309.29	-1,208.43	4,475.51	1.66	63	4,475.52	344.34	122	1	0	57.60
119	8856	88.70	343.40	4,641.36	4,368.72	-1,226.04	4,537.50	1.17	62	4,537.50	344.32	122	1	0	57.60
120	8919	88.60	344.10	4,642.85	4,429.19	-1,243.66	4,600.48	1.12	63	4,600.48	344.32	122	1	0	57.80
121	8982	89.40	344.10	4,643.95	4,489.77	-1,260.92	4,663.47	1.27	63	4,663.47	344.31	122	1	0	57.70
122	9045	89.20	343.70	4,644.72	4,550.29	-1,278.39	4,726.46	0.71	63	4,726.46	344.31	122	1	0	57.80
123	9109	90.50	343.50	4,644.89	4,611.69	-1,296.46	4,790.46	2.06	64	4,790.46	344.30	124	1	0	57.60

Svy	Depth	Inc	Azm	TVD	NS	EW	VS	DLS	CL	CD	CA	Temp	GTot	HTot	DipA
124	9172	90.80	343.90	4,644.17	4,672.15	-1,314.14	4,853.45	0.79	63	4,853.45	344.29	122	1	0	57.60
125	9235	91.10	344.50	4,643.13	4,732.76	-1,331.29	4,916.44	1.06	63	4,916.44	344.29	122	1	0	57.70
126	9299	89.50	345	4,642.79	4,794.51	-1,348.13	4,980.43	2.62	64	4,980.44	344.30	124	1	0	57.70
127	9362	89	344.60	4,643.62	4,855.30	-1,364.64	5,043.43	1.02	63	5,043.43	344.30	122	1	0	57.70
128	9426	89.50	345.10	4,644.45	4,917.07	-1,381.37	5,107.42	1.10	64	5,107.42	344.31	124	1	0	57.70
129	9489	90.20	345.70	4,644.62	4,978.03	-1,397.25	5,170.40	1.46	63	5,170.41	344.32	124	1	0	57.70
130	9552	89.80	345.10	4,644.62	5,039.00	-1,413.13	5,233.39	1.14	63	5,233.40	344.33	124	1	0	57.60
131	9616	89.20	344.40	4,645.18	5,100.74	-1,429.96	5,297.38	1.44	64	5,297.39	344.34	124	1	0	57.60
132	9679	88.50	344.30	4,646.44	5,161.39	-1,446.95	5,360.37	1.12	63	5,360.38	344.34	124	1	0	57.60
133	9743	88.40	344.30	4,648.17	5,222.98	-1,464.26	5,424.35	0.16	64	5,424.35	344.34	124	1	0	57.70
134	9805	89.10	345	4,649.53	5,282.76	-1,480.67	5,486.33	1.60	62	5,486.34	344.34	124	1	0	57.70
135	9869	90.10	345.40	4,649.97	5,344.63	-1,497.02	5,550.32	1.68	64	5,550.33	344.35	124	1	0	57.70
136	9933	89.80	345.30	4,650.03	5,406.55	-1,513.21	5,614.31	0.49	64	5,614.32	344.36	124	1	0	57.70
137	9995	89.50	345.50	4,650.41	5,466.55	-1,528.83	5,676.29	0.58	62	5,676.31	344.38	124	1	0	57.60
138	10058	89.40	345.30	4,651.01	5,527.51	-1,544.71	5,739.28	0.35	63	5,739.29	344.39	126	1	0	57.60
139	10122	89.10	343.50	4,651.85	5,589.14	-1,561.92	5,803.27	2.85	64	5,803.29	344.39	124	1	0	57.60
140	10186	89.10	343.60	4,652.85	5,650.52	-1,580.04	5,867.25	0	64	5,867.27	344.38	124	1	0	57.60
141	10249	90.40	343.50	4,653.13	5,710.94	-1,597.88	5,930.25	2.07	63	5,930.26	344.37	126	1	0	57.60
142	10293	90.80	342.40	4,652.67	5,753.00	-1,610.78	5,974.23	2.66	44	5,974.25	344.36	113	1	0	59
143	10357	91	341.80	4,651.66	5,813.89	-1,630.45	6,038.18	0.99	64	6,038.19	344.33	113	1	0	59
144	10420	91.60	341.80	4,650.23	5,873.73	-1,650.12	6,101.11	0.95	63	6,101.11	344.31	118	1	0	59
145	10483	90.50	342.90	4,649.08	5,933.75	-1,669.22	6,164.06	2.47	63	6,164.06	344.29	118	1	0	59
146	10546	90.90	342.90	4,648.31	5,993.96	-1,687.74	6,227.04	0.63	63	6,227.04	344.27	120	1	0	59
147	10608	91.60	343.10	4,646.96	6,053.23	-1,705.87	6,289.01	1.17	62	6,289.01	344.26	120	1	0	58.90
148	10669	90.40	343.40	4,645.89	6,111.64	-1,723.44	6,349.99	2.03	61	6,349.99	344.25	122	1	0	58.90
149	10730	90.30	343.40	4,645.52	6,170.09	-1,740.87	6,410.98	0.16	61	6,410.98	344.24	122	1	0	58.90
150	10791	90	343.70	4,645.36	6,228.60	-1,758.14	6,471.98	0.70	61	6,471.98	344.24	122	1	0	59
151	10852	90.80	343.70	4,644.93	6,287.14	-1,775.26	6,532.97	1.31	61	6,532.97	344.23	124	1	0	59
152	10914	91.30	343.90	4,643.80	6,346.67	-1,792.56	6,594.96	0.87	62	6,594.96	344.23	124	1	0	59
153	10975	89.70	344.60	4,643.27	6,405.38	-1,809.12	6,655.95	2.86	61	6,655.95	344.23	124	1	0	59
154	11036	89.90	344.90	4,643.48	6,464.23	-1,825.16	6,716.95	0.59	61	6,716.95	344.23	124	1	0	59
155	11098	91	345.20	4,642.99	6,524.13	-1,841.15	6,778.94	1.84	62	6,778.94	344.24	124	1	0	59
156	11159	90	345.50	4,642.46	6,583.14	-1,856.58	6,839.93	1.71	61	6,839.93	344.25	124	1	0	58.90
157	11222	87.70	344.60	4,643.72	6,643.99	-1,872.83	6,902.90	3.92	63	6,902.90	344.26	124	1	0	58.90
158	11283	88.20	344.70	4,645.91	6,702.78	-1,888.97	6,963.86	0.84	61	6,963.86	344.26	124	1	0	58.90
159	11345	88	344.50	4,647.96	6,762.52	-1,905.42	7,025.83	0.46	62	7,025.83	344.26	126	1	0	59
160	11407	89.40	343.90	4,649.37	6,822.16	-1,922.30	7,087.81	2.46	62	7,087.81	344.26	126	1	0	59.10
161	11468	90.80	344	4,649.26	6,880.78	-1,939.16	7,148.81	2.30	61	7,148.81	344.26	124	1	0	59.10
162	11530	91.60	344.10	4,647.96	6,940.38	-1,956.20	7,210.79	1.30	62	7,210.79	344.26	124	1	0	58.90
163	11591	92.30	344	4,645.89	6,999.00	-1,972.95	7,271.76	1.16	61	7,271.76	344.26	126	1	0	59
164	11653	91.90	344.60	4,643.62	7,058.64	-1,989.72	7,333.72	1.16	62	7,333.72	344.26	126	1	0	59
165	11715	90.20	343.70	4,642.48	7,118.27	-2,006.64	7,395.70	3.10	62	7,395.70	344.26	126	1	0	59
166	11776	90.30	343.40	4,642.21	7,176.77	-2,023.92	7,456.70	0.52	61	7,456.70	344.25	126	1	0	59
167	11838	90.90	343.30	4,641.56	7,236.17	-2,041.68	7,518.69	0.98	62	7,518.69	344.24	126	1	0	59
168	11899	91.40	342.70	4,640.34	7,294.49	-2,059.51	7,579.66	1.28	61	7,579.66	344.23	126	1	0	59

Svy	Depth	Inc	Azm	TVD	NS	EW	VS	DLS	CL	CD	CA	Temp	GTot	HTot	DipA
169	11960	89.90	343	4,639.65	7,352.78	-2,077.50	7,640.63	2.51	61	7,640.64	344.22	126	1	0	59
170	12021	88.80	343.40	4,640.34	7,411.17	-2,095.13	7,701.62	1.92	61	7,701.62	344.21	126	1	0	59
171	12082	88.80	342.80	4,641.62	7,469.52	-2,112.86	7,762.59	0	61	7,762.60	344.21	126	1	0	59
172	12146	89.50	342.70	4,642.57	7,530.63	-2,131.83	7,826.56	1.10	64	7,826.57	344.19	126	1	0	59
173	12209	88	343.50	4,643.94	7,590.90	-2,150.14	7,889.53	2.70	63	7,889.54	344.19	126	1	0	59
174	12272	88.10	343.90	4,646.09	7,651.33	-2,167.81	7,952.50	0.65	63	7,952.50	344.18	126	1	0	59
175	12335	89.20	344	4,647.57	7,711.86	-2,185.23	8,015.48	1.75	63	8,015.48	344.18	126	1	0	59
176	12399	90.70	344	4,647.63	7,773.37	-2,202.87	8,079.47	2.34	64	8,079.48	344.18	126	1	0	59
177	12462	90.90	343.90	4,646.75	7,833.91	-2,220.28	8,142.47	0.35	63	8,142.47	344.18	126	1	0	59
178	12525	90.70	343.90	4,645.87	7,894.44	-2,237.75	8,205.46	0.32	63	8,205.46	344.17	126	1	0	59
179	12589	88.90	344.90	4,646.09	7,956.07	-2,254.96	8,269.46	3.22	64	8,269.46	344.18	126	1	0	59
180	12651	89.10	344.90	4,647.17	8,015.92	-2,271.11	8,331.44	0.32	62	8,331.45	344.18	126	1	0	59
181	12715	89.40	344.60	4,648.01	8,077.67	-2,287.94	8,395.43	0.66	64	8,395.44	344.19	118	1	0	59
182	12778	90	344.60	4,648.34	8,138.40	-2,304.67	8,458.43	0.95	63	8,458.43	344.19	122	1	0	59
183	12841	89.80	344.30	4,648.45	8,199.10	-2,321.56	8,521.43	0.57	63	8,521.43	344.19	124	1	0	59
184	12905	89.70	344	4,648.73	8,260.66	-2,339.04	8,585.43	0.49	64	8,585.43	344.19	126	1	0	59
185	12968	90.20	344.70	4,648.78	8,321.33	-2,356.04	8,648.43	1.37	63	8,648.43	344.19	126	1	0	59
186	13031	90.20	344.30	4,648.56	8,382.03	-2,372.87	8,711.43	0	63	8,711.43	344.19	126	1	0	59
187	13093	91.50	344.60	4,647.64	8,441.76	-2,389.49	8,773.42	2.15	62	8,773.42	344.20	126	1	0	59
188	13156	91.70	344.50	4,645.88	8,502.46	-2,406.27	8,836.39	0.35	63	8,836.40	344.20	127	1	0	59
189	13219	91.70	344.70	4,644.02	8,563.17	-2,422.99	8,899.36	0	63	8,899.37	344.20	127	1	0	59
190	13282	90.30	345.10	4,642.92	8,623.98	-2,439.40	8,962.35	2.31	63	8,962.35	344.21	129	1	0	59
191	13346	90.30	345	4,642.58	8,685.81	-2,455.91	9,026.34	0	64	9,026.34	344.21	127	1	0	59
192	13409	90.50	344.70	4,642.14	8,746.62	-2,472.37	9,089.34	0.57	63	9,089.34	344.22	129	1	0	59
193	13471	91.20	344.60	4,641.22	8,806.40	-2,488.78	9,151.33	1.14	62	9,151.33	344.22	129	1	0	59
194	13534	91.70	344.50	4,639.63	8,867.11	-2,505.56	9,214.31	0.81	63	9,214.31	344.22	129	1	0	59
195	13598	90.30	344.60	4,638.51	8,928.78	-2,522.61	9,278.29	2.19	64	9,278.29	344.22	129	1	0	59
196	13661	90.50	344	4,638.07	8,989.43	-2,539.66	9,341.29	1.00	63	9,341.29	344.22	129	1	0	59
197	13724	90.80	343.70	4,637.36	9,049.94	-2,557.18	9,404.29	0.67	63	9,404.29	344.22	129	1	0	59
198	13787	90.90	344	4,636.42	9,110.45	-2,574.70	9,467.28	0.50	63	9,467.28	344.22	129	1	0	59
199	13850	89.50	343.50	4,636.20	9,170.93	-2,592.33	9,530.27	2.36	63	9,530.27	344.22	129	1	0	58.90
200	13912	89.80	342.80	4,636.58	9,230.27	-2,610.30	9,592.26	1.23	62	9,592.26	344.21	129	1	0	59.10
201	13975	91.20	342.90	4,636.03	9,290.46	-2,628.88	9,655.24	2.23	63	9,655.24	344.20	129	1	0	59.10
202	14038	90.50	342.60	4,635.10	9,350.62	-2,647.56	9,718.21	1.21	63	9,718.21	344.19	129	1	0	59
203	14101	90.30	342.20	4,634.66	9,410.67	-2,666.60	9,781.18	0.71	63	9,781.18	344.18	129	1	0	59
PTB	14146	90.30	342.20	4,634.42	9,453.52	-2,680.36	9,826.15	0	45	9,826.15	344.17	0	0	0	0



Final MWD Survey Certification

Andrews County, Texas

Client: Lime Rock Resources

Well Name: Keene 6AH

Total Job No: 2018-206-430

API No: 42-003-47771

Start Date: 04/08/2018

End Date: 04/22/2018

Measured Start Depth: 80 feet

Measured End Depth: 14,146 feet

Vertical Section from well center at TD: 9826.15 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: 04/22/2018

Signed:

A handwritten signature in black ink, appearing to read 'Aaron Lawrence', written over a horizontal line.