



PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

RECEIVED

JUN 26 2019

DISTRICT II-ARTESIA O.C.D.

April 29, 2019

Mack Energy Corporation
PO Box 960
Artesia, NM 88211-0960

RE: Duncan State Com 1H
765' FNL & 355' FWL
Sec. 36, T15S, R28E
Chaves County, New Mexico

Dear Sir,

The attached is the Deviation Survey for the above captioned well.

Very truly yours,

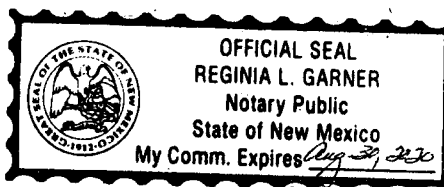
A handwritten signature in cursive script, appearing to read "Chris Graham".

Chris Graham
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 29th day of April, 2019

A handwritten signature in cursive script, appearing to read "Regina L. Garner".

Notary Public

DUNCAN ST COM #1H

MD(ftKB) Incl(deg) Azm(deg) TVD(ftKB)

141	2.4		
295	2.4		
405	2.3		
479	2.3	52	
567	1.6	94.9	
754	0.4	274.9	
877	0.4		
936	1.2	322.9	
1096	2	304.9	
1123	1.9	291.5	
1217	1.8	297.2	
1312	1.3	276	
1407	0.3	212.7	
1571	0.4	202	
1761	0.4	224.7	
1951	0	270.1	1951
2139	0.3	238.6	2139
2207	3.1	352.4	2206.97
2239	5.4	358.9	2238.88
2397	19.2	0.1	2392.88
2461	24	357.5	2452.37
2518	0.7	286.2	2507.7
2587	33.8	0.7	2572.74
2650	38.3	1.3	2623.66
2713	42.2	3.2	2671.74
2881	53.9	1.4	2783.86
2897	13.1	88.3	2797.39
2926	54.3	1	2821.86
2966	55.6	0.5	2844.84
3085	9.9	79.6	2944.65
3092	70.6	359.9	2949.92
3218	84.2	358.9	2977.34
3250	87.5	359.2	2979.66
3341	90.5	359.1	2981.24
3436	90.2	358.6	2980.66
3751	91.1	358.9	2977.09
3941	89.5	358.7	2976.1
4321	90.4	0.1	2976.43
4415	91.2	0.2	2975.12
4605	91.1	359.8	2971.3
4699	90.2	359.9	2970.24
4889	90.3	359.6	2969.41

# MD(ftKB)	Incl(deg)	Azm(deg)	TVD(ftKB)
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5080	89.6	0.1	2969.57
5368	90.3	359.5	2969.82
5458	91.2	359.6	2968.65
5581	91.5	359.3	2965.75
5768	90.4	359.9	2962.65
5957	90.2	359.7	2961.66
6147	88.8	0.1	2963.32
6337	90	0.6	2965.31
6526	89.9	1	2965.47
6715	89.7	0.3	2966.13
6904	90	359.4	2966.63
7093	89.9	359	2966.79
7281	91.21	0.3	2964.97
7469	90.8	358.8	2961.67
7658	90.6	358.1	2959.36
8228	89.8	0.3	2957.37
8417	89.3	0.3	2958.86
8607	90	0.2	2960.02
8796	91	360	2958.37
8986	90.5	359.4	2955.88
9176	89.6	359.45	2955.72
9365	88.8	358.4	2958.35
9555	89.5	358.6	2961.17
9744	91.1	359.4	2960.18
9879	92.1	359.8	2956.41

EOF

NEXUS II

Directional Drilling Specialists

Client: Mack Energy
Well Name: Duncan State Com 1H
Job Number: ND0012
Survey Company: Nexus II

Target KBTVD: 2886.00
Target Dip Angle: 90.50°
Declination Correction: 6.93°
KB Elevation: 3593.6

Vertical Section Calculated Along Azimuth: 359.72°
Survey Calculation Method: Minimum Curvature

TIE PT TYPE	SVY #	Survey Depth	INC deg.	Azm deg.	Course Length	TVD Ft.	V'Sect FT.	+N/-S Ft.	+E/-W Ft.	Dogleg °/100'	BR °/100'
Tie In	0	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Gyro	1	180	2.50	54.00	180	179.94	2.29	2.31	3.18	1.39	1.39
Gyro	2	210	2.50	50.00	30	209.91	3.09	3.11	4.21	0.58	0.00
Gyro	3	304	2.40	61.00	94	303.83	5.35	5.38	7.50	0.51	-0.11
Gyro	4	414	2.30	56.00	110	413.74	7.68	7.74	11.34	0.21	-0.09
Gyro	5	432	2.30	52.00	18	431.72	8.10	8.16	11.93	0.89	0.00
Gyro	6	541	1.60	65.00	109	540.66	10.08	10.15	15.03	0.76	-0.64
Gyro	7	666	0.40	48.00	125	665.64	11.10	11.18	16.94	0.98	-0.96
Gyro	8	728	0.40	275.00	62	727.64	11.26	11.34	16.88	1.18	0.00
Gyro	9	910	1.20	323.00	182	909.62	12.85	12.92	15.10	0.54	0.44
Gyro	10	1096	2.00	305.00	186	1095.55	16.28	16.34	11.27	0.50	0.43
MWD	11	1123	1.90	291.50	27	1122.53	16.72	16.77	10.47	1.74	-0.37
MWD	12	1217	1.80	287.20	94	1216.48	17.74	17.78	7.61	0.18	-0.11
MWD	13	1312	1.30	276.00	95	1311.45	18.31	18.33	5.11	0.61	-0.53
MWD	14	1407	0.30	212.70	95	1406.44	18.22	18.24	3.90	1.26	-1.05
MWD	15	1444	0.10	158.20	37	1443.44	18.11	18.13	3.86	0.69	-0.54
MWD	16	1571	0.40	202.00	127	1570.44	17.59	17.61	3.74	0.26	0.24
MWD	17	1761	0.40	224.70	190	1760.43	16.51	16.53	3.02	0.08	0.00
MWD	18	1951	0.00	270.10	190	1950.43	16.04	16.05	2.56	0.21	-0.21
MWD	19	2139	0.30	238.60	188	2138.43	15.79	15.80	2.14	0.16	0.16
MWD	20	2144	0.60	304.20	5	2143.43	15.79	15.81	2.11	10.98	6.00
MWD	21	2176	1.40	329.00	32	2175.42	16.23	16.23	1.77	2.79	2.50
MWD	22	2207	3.10	352.40	31	2206.40	17.38	17.39	1.46	6.12	5.48
MWD	23	2239	5.40	358.90	32	2238.31	19.75	19.75	1.32	7.33	7.19
MWD	24	2270	8.20	3.90	31	2269.09	23.41	23.42	1.44	9.22	9.03
MWD	25	2302	11.20	5.20	32	2300.63	28.78	28.79	1.88	9.40	9.38
MWD	26	2334	13.80	2.90	32	2331.87	35.69	35.70	2.35	8.27	8.13
MWD	27	2366	16.60	1.50	32	2362.74	44.07	44.08	2.66	8.82	8.75
MWD	28	2397	19.20	0.10	31	2392.24	53.59	53.61	2.79	8.50	8.39
MWD	29	2461	24.00	357.50	64	2451.73	77.14	77.15	2.24	7.65	7.50
MWD	30	2524	28.70	358.10	63	2508.17	105.08	105.08	1.18	7.47	7.46
MWD	31	2587	33.80	0.70	63	2562.01	137.74	137.75	0.89	8.37	8.10
MWD	32	2650	38.30	1.30	63	2612.94	174.80	174.81	1.55	7.16	7.14
MWD	33	2713	42.20	3.20	63	2661.01	215.45	215.47	3.17	6.49	6.19
MWD	34	2777	47.00	2.50	64	2706.57	260.31	260.34	5.39	7.54	7.50
MWD	35	2808	49.60	1.90	31	2727.19	283.43	283.46	6.28	8.51	8.39
MWD	36	2866	53.70	1.40	58	2763.17	328.88	328.92	7.58	7.10	7.07
MWD	37	2881	53.90	1.40	15	2772.03	340.98	341.02	7.88	1.33	1.33
MWD	38	2896	54.10	1.00	15	2780.84	353.11	353.15	8.13	2.54	1.33
MWD	39	2911	54.20	0.80	15	2789.63	365.27	365.31	8.32	1.27	0.67
MWD	40	2926	54.30	1.00	15	2798.39	377.44	377.48	8.52	1.27	0.67
MWD	41	2941	54.30	0.90	15	2807.15	389.61	389.66	8.72	0.54	0.00
MWD	42	2956	55.00	0.80	15	2815.83	401.85	401.90	8.90	4.70	4.67
MWD	43	2966	55.60	0.50	10	2821.52	410.07	410.12	8.99	6.49	6.00
MWD	44	2997	58.80	0.50	31	2838.31	436.12	436.17	9.22	10.32	10.32
MWD	45	3029	62.10	0.30	32	2854.09	463.95	464.00	9.41	10.33	10.31
MWD	46	3061	66.20	0.30	32	2868.04	492.74	492.79	9.56	12.81	12.81
MWD	47	3092	70.60	359.90	31	2879.45	521.56	521.61	9.61	14.24	14.19
MWD	48	3124	74.20	359.40	32	2889.12	552.05	552.11	9.42	11.35	11.25
MWD	49	3156	77.60	358.70	32	2896.92	583.08	583.13	8.91	10.83	10.63
MWD	50	3187	80.90	358.80	31	2902.70	613.53	613.58	8.24	10.65	10.65
MWD	51	3218	84.20	358.90	31	2906.72	644.26	644.31	7.63	10.65	10.65
MWD	52	3250	87.50	359.20	32	2909.03	676.17	676.21	7.10	10.35	10.31
MWD	53	3278	88.70	359.00	28	2909.96	704.15	704.19	6.66	4.34	4.29
MWD	54	3341	90.50	359.10	63	2910.40	767.14	767.18	5.61	2.86	2.86
MWD	55	3436	90.20	358.60	95	2909.82	862.13	862.16	3.71	0.61	-0.32
MWD	56	3562	89.90	358.30	126	2909.71	988.10	988.11	0.30	0.34	-0.24
MWD	57	3751	91.10	358.90	189	2908.06	1177.05	1177.04	-4.32	0.71	0.63
MWD	58	3941	89.50	358.70	190	2907.07	1367.02	1366.99	-8.30	0.85	-0.84

TR °/100'	Target TVD At V'Sect	Target Line Hi +/-Low -	TEMP
30.00	2885.98	2706.04	
-13.33	2885.97	2676.06	
11.70	2885.95	2582.12	
-4.55	2885.93	2472.20	
-22.22	2885.93	2454.21	
11.93	2885.91	2345.25	
-13.60	2885.90	2220.27	
366.13	2885.90	2158.26	
26.37	2885.89	1976.27	
-9.68	2885.86	1790.31	
-50.00	2885.85	1763.32	
-4.57	2885.85	1669.36	
-11.79	2885.84	1574.39	
-66.63	2885.84	1479.40	
-147.30	2885.84	1442.40	
34.49	2885.85	1315.41	
11.95	2885.86	1125.42	
23.89	2885.86	935.43	
-16.76	2885.86	747.43	
1312.00	2885.86	742.43	
77.50	2885.86	710.43	
75.48	2885.85	679.45	
20.31	2885.83	647.52	
-1145.16	2885.80	616.71	
4.06	2885.75	585.12	
-7.19	2885.69	553.82	
-4.38	2885.62	522.87	
-4.52	2885.53	493.29	
558.44	2885.33	433.60	
0.95	2885.08	376.91	
-567.30	2884.80	322.78	
0.95	2884.47	271.54	
3.02	2884.12	223.11	
-1.09	2883.73	177.16	
-1.94	2883.53	156.34	
-0.86	2883.13	119.96	
0.00	2883.02	111.00	
-2.67	2882.92	102.07	
-1.33	2882.81	93.18	
1.33	2882.71	84.31	
-0.67	2882.60	75.45	
-0.67	2882.49	66.67	
-3.00	2882.42	60.90	
0.00	2882.19	43.89	
-0.63	2881.95	27.86	
0.00	2881.70	13.66	
1160.00	2881.45	2.00	
-1.56	2881.18	-7.94	
-2.19	2880.91	-16.00	
0.32	2880.65	-22.05	
0.32	2880.38	-26.34	
0.94	2880.10	-28.93	
-0.71	2879.85	-30.11	
0.16	2879.31	-31.09	
-0.53	2878.48	-31.34	
-0.24	2877.38	-32.33	
0.32	2875.73	-32.33	
-0.11	2874.07	-33.00	

MWD	59	4131	88.90	0.20	190	2909.72	1556.99	1556.96	-10.12	0.85	-0.32
MWD	60	4321	90.40	0.10	190	2910.88	1746.98	1746.95	-9.62	0.79	0.79
MWD	61	4415	91.20	0.20	94	2909.57	1840.96	1840.94	-9.38	0.86	0.85
MWD	62	4605	91.10	359.80	190	2905.75	2030.92	2030.90	-9.38	0.22	-0.05
MWD	63	4699	90.20	359.90	94	2904.69	2124.92	2124.89	-9.62	0.96	-0.96
MWD	64	4889	90.30	359.60	190	2903.86	2314.91	2314.89	-10.45	0.17	0.05
MWD	65	5080	89.60	0.10	191	2904.02	2505.91	2505.89	-10.95	0.45	-0.37
MWD	66	5268	90.30	359.50	188	2904.19	2693.91	2693.89	-11.61	0.49	0.37
MWD	67	5458	91.20	359.60	190	2901.70	2883.89	2883.86	-13.10	0.48	0.47
MWD	68	5581	91.50	359.30	123	2898.80	3006.85	3006.82	-14.28	0.34	0.24
MWD	69	5768	90.40	359.90	187	2895.70	3193.82	3193.79	-15.59	0.67	-0.59
MWD	70	5958	90.20	359.70	190	2894.71	3383.82	3383.78	-16.25	0.15	-0.11
MWD	71	6147	88.80	0.10	189	2896.36	3572.81	3572.77	-16.58	0.77	-0.74
MWD	72	6337	90.00	0.60	190	2898.35	3762.78	3762.75	-15.42	0.68	0.63
MWD	73	6526	89.90	1.00	189	2898.51	3951.75	3951.73	-12.78	0.22	-0.05
MWD	74	6715	89.70	0.30	189	2899.17	4140.72	4140.72	-10.64	0.39	-0.11
MWD	75	6904	90.00	359.40	189	2899.67	4329.72	4329.72	-11.13	0.50	0.16
MWD	76	7093	89.90	359.00	189	2899.83	4518.71	4518.70	-13.77	0.22	-0.05
MWD	77	7281	91.20	0.30	188	2898.03	4706.69	4706.68	-14.92	0.98	0.69
MWD	78	7469	90.80	358.80	188	2894.75	4894.66	4894.64	-16.39	0.83	-0.21
MWD	79	7658	90.60	358.10	189	2892.44	5083.60	5083.55	-21.51	0.39	-0.11
MWD	80	7847	90.60	358.50	189	2890.46	5272.53	5272.46	-27.11	0.21	0.00
MWD	81	8038	90.00	0.30	191	2889.46	5463.51	5463.44	-29.11	0.99	-0.31
MWD	82	8227	89.80	0.30	189	2889.79	5652.50	5652.43	-28.12	0.11	-0.11
MWD	83	8417	89.30	0.30	190	2891.28	5842.49	5842.42	-27.13	0.26	-0.26
MWD	84	8607	90.00	0.20	190	2892.44	6032.47	6032.42	-26.30	0.37	0.37
MWD	85	8796	91.10	360.00	189	2890.63	6221.46	6221.41	-25.97	0.59	0.58
MWD	86	8986	90.50	359.40	190	2887.97	6411.44	6411.38	-26.96	0.45	-0.32
MWD	87	9176	89.60	359.50	190	2887.81	6601.43	6601.37	-28.79	0.48	-0.47
MWD	88	9365	88.80	358.40	189	2890.45	6790.39	6790.32	-32.25	0.72	-0.42
MWD	89	9555	89.50	358.60	190	2893.27	6980.33	6980.23	-37.22	0.38	0.37
MWD	90	9744	91.10	359.40	189	2892.28	7169.30	7169.19	-40.52	0.95	0.85
MWD	91	9879	92.10	359.80	135	2888.51	7304.25	7304.13	-41.46	0.80	0.74
PTB	92	9935	92.10	359.80	56	2886.45	7360.21	7360.09	-41.66	0.00	0.00

-188.68	2872.41	-37.31
-0.05	2870.75	-40.12
0.11	2869.93	-39.63
189.26	2868.28	-37.48
0.11	2867.46	-37.23
-0.16	2865.80	-38.06
-188.22	2864.13	-39.89
191.17	2862.49	-41.70
0.05	2860.83	-40.87
-0.24	2859.76	-39.04
0.32	2858.13	-37.58
-0.11	2856.47	-38.24
-190.26	2854.82	-41.54
0.26	2853.16	-45.18
0.21	2851.51	-47.00
-0.37	2849.86	-49.31
190.00	2848.22	-51.45
-0.21	2846.57	-53.27
-190.80	2844.93	-53.10
190.69	2843.28	-51.46
-0.37	2841.64	-50.80
0.21	2839.99	-50.47
-187.54	2838.32	-51.14
0.00	2836.67	-53.12
0.00	2835.01	-56.27
-0.05	2833.36	-59.09
190.37	2831.71	-58.92
-0.32	2830.05	-57.93
0.05	2828.39	-59.42
-0.58	2826.74	-63.71
0.11	2825.08	-68.18
0.42	2823.43	-68.84
0.30	2822.26	-66.25
0.00	2821.77	-64.69