

30-015-43219



PO Box 4482, Midland, TX 79704 | 972-505-0433

NM OIL CONSERVATION
ARTESIA DISTRICT

12/18/2016

DEC 20 2016

Re: Lime Rock Resources
Well: Hawk 8E Federal #48
Rig: United 33
County: Eddy County, NM

RECEIVED

Enclosed please find the original of the surveys performed on the referenced well by True Shot, LLC. (P-5 No. 871488). Other information required by your office is as follows:

Name & Title Of Surveyor	Wellhole Number	Survey Depths	Dates Performed	Type Survey
Ben Wallace, Field Service Technician	Original Hole	198' - 4812'	9/12/2016 - 9/19/2016	MWD

A certified plat on which the bottom hole location is oriented both to the surface location and to the lease lines (or unit line in case of pooling) is attached to the survey report. If additional information is required, please contact the undersigned at the letterhead address and phone number.

12/18/2016

Dustin Trevino
Vice President

Cc: Lime Rock Resources

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MWD Survey Certification

State of New Mexico
County of Eddy

I, Dustin Trevino, certify that: I am employed by True Shot, LLC; that I did on the day(s) of 9/12/2016 through 9/19/2016 conduct or supervise the taking of MWD surveys from a depth of 198 feet to a depth of 4812 feet, that the data is true, correct, complete and within the limitations of the tool as set forth by True Shot, LLC; that I am authorized and qualified to make this report; that these surveys were conducted at the request of Lime Rock Resources for the Hawk 8E Federal), located in Eddy County, New Mexico; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by True Shot, LLC.


12/18/2016
Dustin Trevino
Vice President

Cc: Lime Rock Resources

Company: Lime Rock Resources Job Number: 03-1-16-0582 Calculation Method: Minimum Curvature
 Well: Hawk BE Federal #48 Mag (Grid): 7.80 Proposed Azimuth: 0.0
 Location: Eddy County, NM Dir. Driller: B. Tyler Depth Reference: 11.8' RKB
 Rig: United 33 FST: B. Wallace Tie Into: Assumed Vertical
 Job Date: 9/12/2016 - 9/19/2016

Survey Number	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	Coordinates EW (ft)	Closure Distance (ft)	Closure Direction Azimuth	Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
1	198	1.00	291.30	198	197.99	0.63	0.63 N	1.61 W	1.73	291.30	0.51	0.51	147.12
2	330	1.00	255.90	132	329.97	0.77	0.77 N	3.80 W	3.88	281.39	0.46	0.00	-26.82
3	520	1.10	215.40	190	519.94	-1.13	1.13 S	6.46 W	6.56	260.13	0.39	0.05	-21.32
4	712	5.80	167.20	192	711.56	-12.09	12.09 S	5.38 W	13.24	203.99	2.67	2.45	-25.10
5	866	11.60	168.80	154	863.73	-34.14	34.14 S	1.95 E	34.19	176.74	3.85	3.77	-5.45
6	1064	16.80	162.60	198	1055.62	-80.03	80.03 S	17.71 E	81.97	167.52	2.67	2.63	1.92
7	1224	22.60	163.40	150	1206.19	-131.61	131.61 S	33.43 E	135.78	165.75	3.63	3.63	0.50
8	1415	24.70	161.90	191	1381.14	-204.72	204.72 S	56.31 E	212.32	164.32	1.14	1.10	-0.79
9	1607	24.00	163.00	192	1556.06	-280.19	280.19 S	80.19 E	291.44	164.03	0.43	-0.36	0.57
10	1799	24.10	160.20	192	1731.40	-354.41	354.41 S	104.89 E	369.61	163.51	0.60	0.05	-1.46
11	1959	20.40	165.30	150	1879.47	-412.15	412.15 S	123.04 E	430.12	163.38	2.61	-2.31	3.19
12	2146	13.80	165.60	187	2053.11	-465.33	465.33 S	136.87 E	485.04	163.51	3.53	-3.53	0.16
13	2343	10.00	168.00	197	2250.84	-504.84	504.84 S	146.27 E	525.60	163.34	1.94	-1.93	1.22
14	2535	6.60	175.90	192	2440.81	-532.16	532.16 S	150.53 E	553.04	164.21	1.86	-1.77	4.11
15	2732	0.60	218.20	197	2637.34	-544.27	544.27 S	150.70 E	564.75	164.52	3.13	-3.05	21.47
16	2925	0.40	198.10	193	2830.33	-545.71	545.71 S	149.86 E	565.91	164.34	0.14	-0.10	-10.41
17	3116	0.70	218.80	191	3021.32	-547.25	547.25 S	148.93 E	567.15	164.78	0.19	0.16	10.84
18	3307	1.10	215.20	191	3212.30	-549.66	549.66 S	147.14 E	569.01	165.01	0.21	0.21	-1.88
19	3499	0.70	234.00	192	3404.27	-551.85	551.85 S	145.13 E	570.62	165.27	0.26	-0.21	9.79
20	3692	0.80	24.10	193	3597.26	-553.13	553.13 S	142.96 E	571.31	165.51	0.09	0.05	5.23
21	3884	0.40	272.20	192	3789.25	-553.69	553.69 S	141.09 E	571.38	165.70	0.25	-0.21	14.64
22	4076	0.70	299.40	192	3981.24	-553.09	553.09 S	139.39 E	570.39	165.95	0.20	0.16	14.17
23	4268	0.70	319.40	192	4173.22	-551.62	551.62 S	137.61 E	568.53	165.99	0.13	0.00	10.42
24	4460	1.10	344.20	192	4365.20	-548.96	548.96 S	136.34 E	565.64	166.05	0.29	0.21	12.92
25	4652	1.10	335.70	192	4557.17	-545.51	545.51 S	135.08 E	561.98	166.09	0.08	0.00	-4.43
26	4812	1.20	337.80	180	4717.13	-542.56	542.56 S	133.82 E	558.82	166.14	0.07	0.06	1.31