

30.015-44042

NM OIL CONSERVATION

ARTESIA DISTRICT

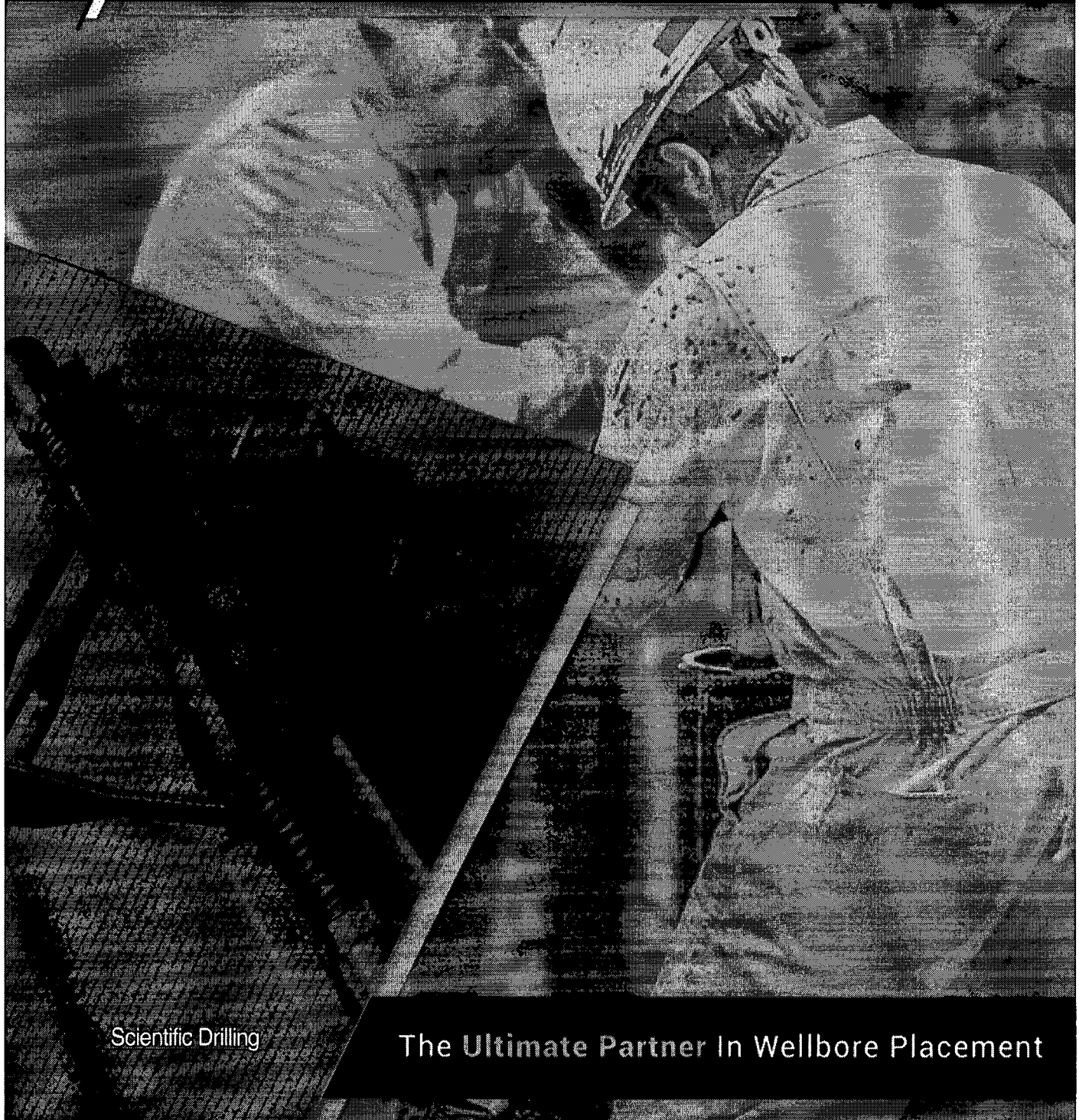
JUN 08 2017

CAZA OPERATING, LLC

RECEIVED

MAD RIVER 13 STATE #4H ST1

NABORS DRILLING 893



Scientific Drilling

The Ultimate Partner In Wellbore Placement

SURVEY REPORT

MAD RIVER 13 STATE #4H ST1

COMPUTED SURVEYS

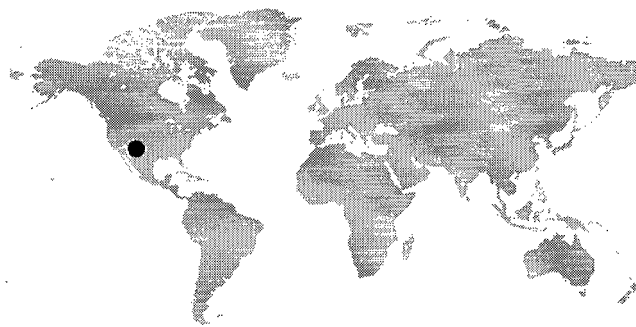
CUSTOMER	CAZA OPERATING, LLC	SDI JOB NO.	416305
PROJECT	CAZA OPERATING, LLC	SDI DISTRICT	Midland
FIELD	WOLFCAMP	SDI KIT/UNIT	MWD-00271-M

SITE INFORMATION

Site Name	MAD RIVER 13 STATE #4H	Section	13
Lat/Long	32° 12' 56.591" N, 104° 8' 7.889" W	Township	T-24-S
Northing	442,254.4 ft	Range	R-27-E
Easting	561,175.7 ft		

MAP INFORMATION

North Reference	Grid North
Grid Correction	-0.11 deg
System	US State Plane 1927
Datum	North American Datum 1927 (Clarke 1866)
Map Zone	New Mexico East: 3001

**WELL INFORMATION**

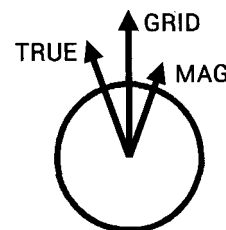
Lat/Long	32° 12' 56.591" N, 104° 8' 7.889" W
Northing	
Easting	
UWI	30-015-440420100

DEPTH AND ELEVATION REFERENCE

Ground Level	3090 ft above Mean Sea Level
Reference Datum	KB
Reference Height	27 ft above G.L.
Reference Elevation	3117 ft

VERTICAL SECTION REFERENCE

+N/-S	0 ft
+E/-W	0 ft
Proposal Direction	268.11°
Calculation Method	Minimum Curvature

**GEOMAGNETIC REFERENCE INFORMATION**

Local Gravity: 998.529 mG [computed]

MD	MODEL	DATE	DECLINATION	TRUE TO GRID	MAG TO GRID
0-13977 ft	HDGM2016	13 Feb 2017	7.40°	subtract 0.11°	add 7.29°

WELL NOTES**OPERATORS**

K. ELGER, S. SMITH

SDI Operator Name (Printed)

SIGNATURE

DATE

SURVEY REPORT

MAD RIVER 13 STATE #4H ST1

COMPUTED SURVEYS

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS
ft	deg	deg	ft	ft	ft	ft	°/100ft
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid
189.00	0.57	133.50	189.00	-0.66	-0.65	0.68	0.30
374.00	0.35	86.69	373.99	-1.88	-1.25	1.92	0.23
557.00	0.44	77.06	556.99	-3.11	-1.07	3.15	0.06
716.00	0.48	59.37	715.98	-4.29	-0.59	4.31	0.09
874.00	0.90	151.39	873.97	-5.49	-1.35	5.47	0.65
1056.00	1.50	154.89	1055.93	-7.01	-4.76	7.17	0.33
1239.00	1.73	155.65	1238.86	-9.01	-9.44	9.32	0.12
1429.00	1.67	155.24	1428.78	-11.17	-14.56	11.66	0.03
1616.00	1.29	140.92	1615.72	-13.50	-18.66	14.13	0.23
1806.00	1.87	135.81	1805.64	-16.88	-22.54	17.64	0.32
1995.00	2.37	144.46	1994.51	-21.12	-27.93	22.06	0.31
2185.00	2.18	84.13	2184.39	-26.91	-30.75	27.94	1.21
2374.00	1.90	58.76	2373.27	-33.24	-28.76	34.21	0.50
2564.00	1.97	28.42	2563.17	-37.64	-24.24	38.46	0.54
2753.00	2.00	28.82	2752.05	-40.97	-18.43	41.60	0.02
2943.00	1.78	343.43	2941.96	-41.92	-12.75	42.37	0.73
3132.00	1.75	344.29	3130.87	-40.49	-7.17	40.75	0.02
3321.00	1.79	328.70	3319.78	-38.35	-1.87	38.43	0.26
3511.00	1.55	325.23	3509.70	-35.50	2.78	35.43	0.14
3700.00	1.60	325.16	3698.63	-32.67	7.05	32.46	0.03
3890.00	1.37	330.82	3888.57	-30.19	11.22	29.83	0.14
4078.00	1.28	322.46	4076.52	-27.93	14.84	27.46	0.12
4268.00	1.47	316.67	4266.46	-25.09	18.29	24.50	0.12
4457.00	0.95	334.68	4455.42	-22.87	21.46	22.18	0.34
4648.00	0.92	315.84	4646.39	-21.21	23.99	20.43	0.16
4837.00	0.96	313.13	4835.37	-19.08	26.15	18.23	0.03
5026.00	0.90	309.26	5024.34	-16.85	28.17	15.93	0.04
5216.00	1.10	295.72	5214.32	-14.10	29.91	13.12	0.16
5383.00	0.89	295.97	5381.29	-11.54	31.17	10.51	0.13
5572.00	0.86	290.30	5570.27	-8.94	32.30	7.88	0.05
5760.00	1.01	266.71	5758.24	-5.98	32.69	4.91	0.22
5839.00	1.29	265.16	5837.23	-4.40	32.58	3.32	0.36

SURVEY REPORT

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MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS
ft	deg	deg	ft	ft	ft	ft	°/100ft
5985.00	1.17	243.23	5983.20	-1.40	31.77	0.35	0.33
6175.00	1.01	39.49	6173.18	-0.75	32.19	-0.32	1.12
6365.00	2.61	80.23	6363.09	-6.18	34.21	5.01	1.03
6555.00	2.35	83.43	6552.91	-14.80	35.38	13.14	0.15
6745.00	4.64	62.26	6742.55	-25.10	39.40	23.31	1.36
6934.00	3.85	59.24	6931.03	-37.54	46.21	36.03	0.44
7123.00	3.02	58.02	7119.69	-47.40	52.09	45.71	0.44
7312.00	3.81	43.50	7308.36	-56.18	59.29	54.26	0.62
7502.00	3.81	48.01	7497.94	-65.51	68.09	63.29	0.16
7693.00	3.49	44.89	7688.55	-74.59	76.45	72.11	0.20
7881.00	2.89	45.83	7876.26	-82.26	83.80	79.54	0.32
8070.00	2.15	41.26	8065.07	-88.20	89.78	85.29	0.41
8259.00	1.79	48.31	8253.96	-92.89	94.40	89.82	0.23
8448.00	1.84	77.03	8442.87	-98.13	97.03	94.93	0.43
8638.00	1.76	98.73	8632.78	-103.99	97.27	100.84	0.36
8827.00	1.67	104.79	8821.77	-104.84	97.09	101.69	0.70
9016.00	1.57	192.33	9010.75	-105.33	96.29	102.21	4.77
8761.00	5.58	237.72	8755.66	-103.20	94.44	100.14	9.82
8808.00	11.10	257.21	8802.15	-96.78	92.21	93.79	13.03
8856.00	16.39	262.07	8848.76	-85.50	90.25	82.57	11.28
8920.00	21.52	272.70	8909.29	-64.79	89.56	61.87	9.63
8952.00	25.30	278.04	8938.65	-52.20	90.79	49.23	13.53
8999.00	31.91	282.22	8979.90	-30.24	94.83	27.12	14.68
9047.00	33.82	279.40	9019.02	-3.14	99.98	-0.15	14.73
9094.00	45.97	276.86	9053.71	23.04	104.41	-31.50	15.65
9141.00	50.62	276.53	9084.97	62.73	108.50	-66.34	9.90
9188.00	53.50	277.19	9113.87	99.36	112.93	-103.14	6.23
9235.00	56.72	276.18	9140.75	137.48	117.41	-141.43	7.07
9282.00	60.29	272.99	9165.30	177.28	120.59	-181.36	9.54
9329.00	62.01	271.54	9187.98	218.34	122.22	-222.49	4.56
9376.00	65.03	271.34	9208.93	260.33	123.27	-264.54	6.44
9425.00	67.74	270.97	9228.56	305.16	124.18	-309.43	5.56
9472.00	69.35	270.30	9245.75	348.86	124.66	-353.17	3.67

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MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS
ft	deg	deg	ft	ft	ft	ft	°/100ft
9520.00	71.58	268.87	9261.81	894.08	124.83	-898.40	5.43
9567.00	77.32	268.82	9274.40	439.84	123.22	-443.64	12.28
9614.00	82.63	266.67	9282.62	435.69	121.19	-489.85	11.62
9712.00	90.67	262.66	9288.42	583.14	112.09	-587.16	9.25
9806.00	90.57	263.28	9287.40	676.76	100.59	-680.44	0.67
9901.00	89.90	263.70	9287.01	771.45	89.82	-774.83	0.83
9996.00	92.22	264.79	9285.26	866.21	80.30	-869.33	2.70
10091.00	95.09	264.54	9279.20	960.83	71.48	-963.71	3.03
10185.00	95.15	263.55	9270.82	1054.22	61.77	-1056.83	1.04
10280.00	92.59	265.19	9264.41	1148.79	52.48	-1151.15	3.20
10374.00	91.04	266.82	9261.44	1242.67	45.94	-1244.87	2.38
10469.00	93.26	268.29	9257.87	1337.59	41.89	-1339.71	2.80
10564.00	93.33	267.91	9252.42	1432.44	38.74	-1434.50	0.41
10659.00	92.69	267.06	9247.43	1527.30	34.57	-1529.27	1.12
10754.00	93.26	269.12	9242.50	1622.17	31.40	-1624.09	2.25
10849.00	91.24	268.25	9238.77	1717.08	29.22	-1718.98	2.32
10944.00	92.05	268.38	9236.04	1812.04	26.43	-1813.90	0.86
11038.00	93.63	268.24	9231.38	1905.92	23.66	-1907.74	1.69
11133.00	89.03	267.09	9229.18	2000.87	19.80	-2002.61	4.99
11228.00	88.99	266.91	9230.83	2095.84	14.83	-2097.47	0.20
11323.00	88.99	266.95	9232.50	2190.80	9.73	-2192.31	0.04
11418.00	92.18	267.68	9231.52	2285.77	5.28	-2287.19	3.45
11512.00	90.27	266.34	9229.51	2379.73	0.88	-2381.04	2.49
11607.00	90.34	265.91	9229.01	2474.67	-6.05	-2475.82	0.45
11702.00	91.41	267.06	9227.56	2569.62	-11.87	-2570.62	1.66
11797.00	90.91	265.82	9225.64	2664.56	-17.77	-2665.42	1.42
11892.00	90.81	265.73	9224.22	2759.47	-24.76	-2760.15	0.14
11986.00	92.79	265.75	9221.28	2853.33	-31.74	-2853.84	2.11
12081.00	90.07	266.38	9218.91	2948.23	-38.27	-2948.58	2.94
12176.00	90.34	266.68	9218.58	3043.20	-44.02	-3043.40	0.43
12271.00	90.27	266.72	9218.08	3138.17	-49.49	-3138.24	0.08
12366.00	90.13	265.97	9217.74	3233.12	-55.54	-3233.05	0.80
12460.00	90.81	266.24	9216.97	3327.06	-61.92	-3326.83	0.77

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MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS
ft	deg	deg	ft	ft	ft	ft	°/100ft
12555.00	92.93	266.70	9213.88	3421.97	-67.76	-3421.59	2.28
12650.00	91.01	267.03	9210.62	3516.88	-72.95	-3516.39	2.05
12744.00	90.10	266.75	9209.71	3610.86	-78.05	-3610.25	1.01
12839.00	90.47	266.57	9209.23	3705.82	-83.58	-3705.08	0.43
12934.00	90.87	266.45	9208.12	3800.78	-89.36	-3799.90	0.44
13029.00	90.34	267.55	9207.12	3895.76	-94.33	-3894.76	1.28
13124.00	93.16	268.35	9204.22	3990.70	-97.74	-3989.65	3.09
13219.00	92.39	268.17	9199.63	4085.59	-100.62	-4084.49	0.83
13314.00	93.39	267.54	9194.84	4180.46	-104.16	-4179.30	1.25
13410.00	93.33	266.67	9189.21	4276.28	-109.00	-4275.02	0.91
13505.00	93.19	265.86	9183.81	4371.08	-115.18	-4369.66	0.86
13599.00	93.20	265.74	9178.57	4464.86	-122.05	-4463.26	0.13
13694.00	93.70	265.45	9172.86	4559.59	-129.34	-4557.81	0.61
13789.00	94.27	265.28	9166.26	4654.26	-136.99	-4652.27	0.62
13884.00	93.13	264.69	9160.14	4748.92	-145.28	-4746.71	1.35
13977.00	93.19	264.50	9155.01	4841.60	-154.03	-4839.15	0.22

This survey is correct to the best of my knowledge and is supported by actual field data.

Steve Morris

