

30-015-44063

CAZA OPERATING LLC.

FOREHAND RANCH 22 STATE #9 H

NABORS 893

NM OIL COM
ARTESIA DISTRICT

MAR 05 2018

RECEIVED

Scientific Drilling

The Ultimate Partner In Wellbore Placement

2

SURVEY REPORT

FOREHAND RANCH 22 STATE #9 H

COMPUTED SURVEYS

CUSTOMER **Caza Operating LLC.**
PROJECT **Caza Operating LLC.**
FIELD **Wolfcamp**

SDI JOB NO. **OP000487**
SDI DISTRICT **Midland**
SDI KIT/UNIT **MWD-00271-M**

SITE INFORMATION

Site Name **Forehand Ranch 22 State #9H**
Lat/Long **32° 17' 21.211" N, 104° 10' 11.733" W**
Northing **468,975.8 ft**
Easting **550,495.8 ft**

Section -
Township -
Range -

MAP INFORMATION

North Reference **Grid North**
Grid Correction **-0.09 deg**
System **US State Plane 1927**
Datum **North American Datum 1927 (Clarke 1866)**
Map Zone **New Mexico East: 3001**

**WELL INFORMATION**

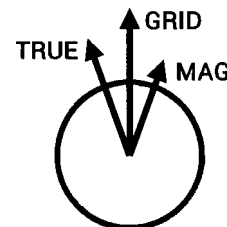
Lat/Long **32° 17' 22.025" N, 104° 10' 45.927" W**
Northing **469,053.7 ft**
Easting **547,560.6 ft**
UWI

DEPTH AND ELEVATION REFERENCE

Ground Level **3149 ft above Mean Sea Level**
Reference Datum **KB**
Reference Height **27 ft above G.L.**
Reference Elevation **3176 ft**

VERTICAL SECTION REFERENCE

+N/-S **0 ft**
+E/-W **0 ft**
Proposal Direction **178.86°**
Calculation Method **Minimum Curvature**

**GEOMAGNETIC REFERENCE INFORMATION**Local Gravity: **998.530 mG** [computed]

MD	MODEL	DATE	DECLINATION	TRUE TO GRID	MAG TO GRID
0-16734 ft	HDGM2016	05 Apr 2017	7.43°	subtract 0.09°	add 7.34°

WELL NOTES**OPERATORS**

A. DAHMANI, K. ELGER

SDI Operator Name (Printed)

SIGNATURE

DATE

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
230.00	1.70	224.47	229.97	2.39	-2.43	-2.39	0.74
416.00	1.41	232.60	415.90	5.67	-5.79	-6.14	0.20
600.00	0.91	222.12	599.86	8.08	-8.25	-8.92	0.29
701.00	1.10	211.73	700.84	9.47	-9.67	-9.97	0.26
798.00	0.88	215.97	797.89	10.35	-10.07	-10.90	0.23
979.00	0.75	207.78	978.81	11.01	-10.25	-10.27	0.10
1163.00	0.60	239.78	1162.80	11.57	-10.20	-10.66	0.22
1349.00	0.70	120.74	1348.70	12.14	-15.87	-13.51	0.60
1538.00	1.95	107.41	1537.74	12.25	-17.42	-9.44	0.68
1728.00	3.56	107.14	1727.51	20.11	-20.13	-0.71	0.85
1918.00	3.74	86.69	1917.14	21.73	-21.51	11.11	0.69
2108.00	2.28	97.05	2106.87	22.03	-21.62	21.04	0.81
2297.00	1.63	91.40	2295.76	22.69	-22.15	27.46	0.36
2487.00	1.40	97.54	2485.69	23.16	-22.52	32.46	0.15
2677.00	1.47	108.09	2676.73	24.31	-23.58	37.07	10.14
2866.00	2.59	99.58	2865.33	25.90	-25.04	43.59	0.61
3056.00	2.91	82.98	3054.76	26.21	-25.17	52.59	0.45
3245.00	2.81	74.50	3243.15	24.51	-24.32	61.52	0.23
3434.00	2.72	67.08	3431.35	21.72	-20.32	70.59	0.20
3624.00	2.26	67.41	3621.66	18.68	-17.13	78.19	0.24
3813.00	2.12	67.33	3810.52	16.04	-14.35	84.85	0.07
4003.00	1.87	66.23	4000.40	13.56	-11.75	90.92	0.13
4192.00	1.58	69.48	4189.32	11.51	-9.60	96.17	0.16
4382.00	0.76	74.98	4379.28	10.34	-8.35	99.84	0.43
4571.00	0.20	101.45	4569.27	10.11	-8.06	101.39	0.31
4760.00	0.35	221.35	4759.27	10.63	-8.59	101.38	0.26
4950.00	0.76	248.60	4949.26	5.79	-9.00	99.77	0.25
5139.00	0.80	244.99	5138.24	12.45	-10.51	97.40	0.08
5255.00	0.11	173.41	5252.24	12.88	-10.96	96.68	0.67
5444.00	0.10	58.76	5441.24	12.98	-11.05	96.84	0.09
5633.00	1.08	6.21	5630.22	11.12	-9.19	97.18	0.54
5821.00	1.30	17.90	5818.18	7.34	-5.40	98.02	0.17

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS
ft	deg	deg	ft	ft	ft	ft	°/100ft
6011.00	0.86	344.16	6008.15	3.94	-1.98	98.30	0.40
6201.00	2.22	17.87	6198.08	-0.92	2.89	99.04	0.83
6400.00	1.39	35.22	6387.99	35.51	18.52	100.57	0.48
6599.00	1.09	35.00	6577.93	25.55	13.70	102.47	0.38
6798.00	1.27	35.41	6767.89	15.43	18.52	102.40	0.39
6997.00	0.78	35.59	6957.80	5.49	21.60	102.35	0.43
7196.00	1.25	35.90	7147.72	25.48	22.32	102.75	0.27
7395.00	0.93	336.69	7335.74	-26.11	28.17	103.44	0.17
7450.00	0.93	306.60	7446.72	-27.50	29.54	102.36	0.44
7627.00	0.64	242.46	7623.71	-27.93	29.94	100.33	0.49
7817.00	0.61	350.72	7813.70	-28.46	30.44	99.23	0.53
8006.00	1.21	81.19	8002.69	-29.72	31.73	101.05	0.72
8195.00	2.79	89.88	8191.57	25.90	32.05	107.62	0.85
8385.00	1.42	76.15	8380.79	15.94	32.61	107.36	0.76
8574.00	2.02	22.35	8571.76	15.91	36.23	115.00	0.87
8763.00	2.75	7.90	8760.25	15.92	42.18	115.76	0.29
8950.00	2.00	1.51	8950.22	15.90	45.26	120.00	0.36
8955.00	1.86	12.47	8951.15	-46.02	48.43	120.37	0.41
9003.00	1.77	15.02	8999.13	-47.49	49.91	120.73	0.26
9051.00	0.47	44.25	9047.12	-48.34	50.76	121.06	2.88
9098.00	4.56	186.98	9094.07	-46.63	49.05	120.97	10.51
9145.00	9.76	185.31	9140.69	-40.82	43.22	120.37	11.06
9322.00	17.75	180.75	9316.65	15.90	83.16	119.98	9.79
9420.00	17.93	179.70	9414.13	15.90	100.38	120.72	9.96
9517.00	22.16	180.53	9512.13	15.90	113.49	120.35	8.29
9615.00	22.45	182.31	9610.19	17.70	115.40	120.08	3.12
9662.00	25.50	182.46	9658.11	17.68	135.27	118.57	6.31
9430.00	29.03	185.53	9405.88	59.85	-57.54	116.86	5.38
9477.00	31.53	181.62	9446.47	83.46	-81.18	115.42	6.77
9525.00	35.40	177.92	9486.51	109.91	-107.63	115.57	9.11
9572.00	40.96	178.44	9523.45	138.95	-136.66	116.48	11.86
9620.00	45.53	178.71	9558.40	171.82	-169.52	117.30	9.52
9667.00	48.35	181.41	9590.49	206.15	203.86	117.24	7.36

MD	INC	AZIM	TVD	VS	+N-S	+E-W	DLS
ft	deg	deg	ft	ft	ft	ft	°/100ft
9905.00	71.60	175.67	9704.84	412.57	-410.19	124.00	5.90
9952.00	74.11	176.18	9718.70	457.42	-454.98	127.19	5.43
9999.00	78.90	177.18	9729.66	503.08	-500.59	129.83	10.40
10046.00	82.80	176.89	9737.14	549.45	-546.92	132.23	8.31
10094.00	88.12	177.16	9740.94	597.25	-594.69	134.71	11.10
10139.00	91.41	178.22	9743.60	647.07	-644.50	136.41	3.72
10186.00	89.16	181.02	9746.63	698.01	-695.39	138.41	3.73
10233.00	89.10	180.82	9749.89	749.07	-746.46	138.45	0.34
10280.00	89.65	179.03	9751.53	799.03	-796.42	139.43	0.49
10326.00	90.61	179.06	9751.58	849.01	-846.40	139.47	1.03
10663.00	88.59	181.40	9743.68	1165.80	-1163.45	129.81	2.12
10757.00	87.82	180.88	9746.63	1259.68	-1257.39	127.94	0.99
10852.00	88.25	178.80	9749.89	1354.61	-1352.32	128.20	2.24
10947.00	89.76	179.47	9751.53	1449.59	-1447.30	129.64	1.74
11042.00	90.17	179.06	9751.58	1544.59	-1542.29	130.85	0.61
11087.00	90.40	179.07	9751.19	1639.59	-1637.27	132.40	0.14
11132.00	90.16	178.69	9750.60	1734.61	-1732.26	134.35	0.64
11177.00	89.76	177.06	9750.15	1829.63	-1827.21	137.00	0.74
11222.00	90.64	178.17	9750.11	1924.67	-1922.16	140.14	1.05
11267.00	90.72	178.60	9750.08	2019.63	-2017.11	145.36	1.29
11612.00	87.65	176.33	9752.45	2114.48	-2111.94	148.35	2.59
11706.00	90.57	177.45	9753.91	2208.40	-2205.78	153.44	3.33
11801.00	90.30	178.66	9753.19	2303.38	-2300.72	156.67	1.30
11896.00	89.76	178.44	9753.13	2398.38	-2395.69	159.07	0.61
11990.00	88.15	177.85	9754.84	2492.36	-2489.62	162.11	1.83
12085.00	89.49	177.06	9757.65	2588.20	-2585.49	166.20	0.71
12180.00	90.02	178.00	9759.46	2684.05	-2679.43	168.36	2.45
12274.00	90.17	178.06	9760.17	2779.90	-2774.36	170.08	2.06
12369.00	88.96	180.20	9766.07	2875.18	-2868.30	170.47	2.37

MD	INC	AZIM	TVD	VS	+N-S	+E-W	DLS
ft	deg	deg	ft	ft	ft	ft	°/100ft
12464.00	90.16	180.74	9768.35	2966.08	-2963.29	167.32	1.26
12559.00	87.85	180.82	9768.55	3061.00	-3058.26	168.22	2.37
12653.00	90.54	181.71	9769.87	3154.90	-3152.22	166.14	3.01
12749.00	95.04	181.72	9765.20	3250.64	-3248.04	163.27	4.69
12844.00	92.96	180.18	9758.57	3345.34	-3342.78	161.70	2.73
12939.00	90.87	177.49	9755.39	3440.27	-3437.70	163.63	3.58
13034.00	93.06	177.85	9752.12	3535.19	-3532.66	167.77	2.30
13129.00	91.45	176.76	9748.41	3630.00	-3627.46	170.87	2.20
13224.00	90.17	181.26	9744.10	3724.80	-3722.40	170.85	2.85
13319.00	88.72	180.91	9740.07	3819.50	-3817.38	169.16	1.56
13414.00	89.98	180.24	9739.13	3914.30	-3912.36	168.08	1.35
13509.00	88.45	180.40	9750.48	4009.89	-4007.35	167.38	1.56
13603.00	87.07	180.41	9754.15	4103.78	-4101.27	166.72	1.47
13698.00	88.52	180.60	9757.80	4198.67	-4196.20	165.88	1.54
13792.00	88.55	179.25	9760.20	4292.62	-4290.16	166.00	1.44
13887.00	87.85	178.24	9763.18	4387.57	-4385.09	168.08	1.30
13982.00	88.82	179.57	9761.97	4482.52	-4480.03	169.80	1.74
14077.00	90.00	180.42	9763.93	4577.50	-4575.02	169.90	1.53
14172.00	89.56	179.42	9763.20	4672.48	-4670.02	170.03	1.15
14267.00	89.46	178.81	9763.50	4767.48	-4765.01	171.49	0.64
14362.00	88.89	180.28	9769.87	4862.45	-4859.98	172.22	1.90
14457.00	90.64	181.93	9770.67	4957.36	-4954.95	170.39	2.94
14552.00	90.71	182.08	9769.56	5052.21	-5049.89	167.07	0.17
14646.00	89.26	180.03	9769.59	5146.14	-5143.86	165.34	2.67
14742.00	89.29	178.90	9770.80	5242.12	-5239.85	166.24	1.18
14837.00	88.86	179.63	9772.33	5337.11	-5334.83	167.47	0.89
14932.00	87.75	180.20	9775.14	5432.07	-5429.79	167.26	1.42
15027.00	87.75	180.20	9778.98	5526.92	-5524.71	169.00	0.27
15122.00	88.89	180.76	9781.65	5621.88	-5619.67	166.26	1.37
15217.00	92.58	180.11	9780.78	5716.80	-5714.62	165.49	3.95
15312.00	91.01	178.22	9777.47	5811.71	-5809.57	166.91	2.59
15406.00	89.63	177.84	9776.94	5905.73	-5903.51	170.14	1.52
15501.00	91.38	179.40	9776.11	6000.72	-5998.48	172.43	2.47

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
15596.00	86.47	182.39	9777.89	6095.60	-6093.41	170.94	6.05
15691.00	89.30	183.14	9781.40	6190.31	-6188.22	166.36	3.08
15786.00	84.62	181.47	9786.44	6284.97	-6282.98	162.54	5.22
15881.00	86.37	181.12	9791.90	6379.59	-6377.66	160.40	1.88
15976.00	89.29	181.30	9797.49	6474.43	-6472.66	158.32	3.09
16071.00	89.90	180.50	9798.16	6569.36	-6567.54	156.58	1.05
16166.00	89.73	180.96	9798.46	6664.31	-6662.58	154.40	0.43
16261.00	90.10	181.53	9798.60	6759.22	-6757.51	153.34	0.72
16355.00	90.03	181.37	9798.49	6853.13	-6851.48	150.96	0.18
16449.00	87.28	180.16	9800.70	6947.04	-6945.44	149.70	3.21
16544.00	88.22	179.98	9804.43	7041.94	-7040.36	149.59	1.01
16638.00	92.01	181.34	9804.24	7135.88	-7134.33	148.50	4.29
16734.00	91.65	181.12	9801.17	7231.75	-7230.26	146.44	0.44

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

