

30-015-44063

CAZA OPERATING LLC.

FOREHAND RANCH 22 STATE #9 H

NABORS 893

Scientific Drilling

The

In Wellbore Placement

SURVEY REPORT

FOREHAND RANCH 22 STATE #9 H COMPUTED SURVEYS

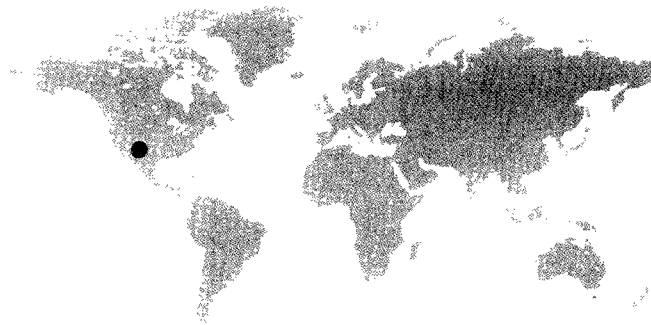
CUSTOMER Caza Operating LLC. SDI JOB NO. OP.000487
PROJECT Caza Operating LLC. SDI DISTRICT Midland
FIELD Wolfcamp SDI KIT/UNIT MWD-00271-M

SITE INFORMATION

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

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

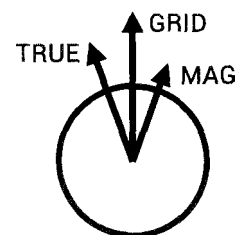
Lat/Long 32° 17' 22.025" N, 104° 10' 45.927" W
Northing 469,053.7 ft
Easting 547,560.6 ft
UWI

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

NM OIL CONSERVATION
ARTESIA DISTRICT

JUN 19 2017

RECEIVED

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	797.83	10.85	-11.07	-10.90	0.23
979.00	0.75	207.78	978.81	13.00	-13.25	-12.27	0.10
1163.00	0.60	239.78	1162.80	14.52	-14.79	-13.66	0.22
1349.00	0.70	120.74	1348.79	15.59	-15.87	-13.51	0.60
1538.00	1.95	107.41	1537.74	17.23	-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	2675.63	24.31	-23.58	37.07	0.14
2866.00	2.59	99.58	2864.51	25.90	-25.04	43.59	0.61
3056.00	2.91	82.98	3054.30	26.21	-25.17	52.62	0.45
3245.00	2.85	74.50	3243.06	24.55	-23.32	61.92	0.23
3434.00	2.72	67.08	3431.83	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	4568.27	10.11	-8.09	101.39	0.31
4760.00	0.35	221.35	4757.27	10.61	-8.59	101.33	0.26
4950.00	0.76	248.60	4947.26	11.47	-9.49	99.77	0.25
5139.00	0.80	244.89	5136.24	12.45	-10.51	97.40	0.03
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
6391.00	1.32	13.24	6387.99	-6.51	8.52	100.67	0.48
6582.00	1.99	23.14	6578.91	-11.66	13.70	102.47	0.38
6771.00	1.27	29.91	6767.83	-16.43	18.52	104.80	0.39
6960.00	0.78	351.62	6956.80	-19.49	21.60	105.66	0.43
7150.00	1.25	339.90	7146.77	-22.73	24.82	104.76	0.27
7339.00	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	-29.90	32.05	107.62	0.85
8386.00	1.42	76.45	8382.43	-30.32	32.61	114.56	0.76
8575.00	2.02	22.35	8571.36	-33.88	36.24	118.09	0.87
8765.00	1.73	7.82	8761.26	-39.79	42.18	119.76	0.29
8860.00	2.00	1.51	8856.21	-42.86	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
9192.00	14.26	180.75	9186.65	-31.07	33.46	119.93	9.79
9240.00	18.64	177.20	9232.68	-17.49	19.88	120.23	9.36
9287.00	22.49	180.21	9276.68	-0.99	3.39	120.56	8.49
9335.00	23.63	182.68	9320.84	17.79	-15.40	120.08	3.12
9382.00	26.50	184.46	9363.41	37.63	-35.27	118.82	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	48.36	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
9715.00	52.72	179.87	9620.99	243.18	-240.90	116.84	9.40
9762.00	58.91	179.10	9647.38	282.04	-279.76	117.20	13.25
9810.00	64.64	177.26	9670.07	324.31	-322.01	118.56	12.40
9857.00	68.88	176.50	9688.62	367.46	-365.12	120.91	9.15
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
10188.00	91.41	178.33	9741.32	691.22	-688.60	138.41	3.72
10282.00	89.16	181.02	9740.86	785.20	-782.59	138.94	3.73
10377.00	89.19	181.34	9742.22	880.11	-877.56	136.99	0.34
10473.00	89.63	181.50	9743.20	976.01	-973.52	134.61	0.49
10568.00	90.61	181.44	9743.01	1070.91	-1068.49	132.17	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
11137.00	90.30	179.07	9751.19	1639.58	-1637.27	132.40	0.14
11232.00	90.13	178.59	9750.83	1734.58	-1732.25	134.35	0.54
11327.00	89.76	177.98	9750.92	1829.58	-1827.21	137.20	0.74
11422.00	90.64	178.47	9750.58	1924.57	-1922.16	140.14	1.05
11517.00	89.73	177.64	9750.27	2019.56	-2017.11	143.36	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
12086.00	88.49	177.26	9757.65	2588.29	-2585.49	166.20	0.71
12180.00	89.03	179.50	9759.69	2682.26	-2679.43	168.86	2.45
12274.00	87.14	179.06	9762.84	2776.20	-2773.36	170.03	2.06
12369.00	88.96	180.40	9766.07	2871.13	-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	90.10	180.75	9766.85	2966.08	-2963.29	169.52	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	177.51	9752.12	3535.18	-3532.55	167.77	2.30
13129.00	91.41	178.79	9748.41	3630.10	-3627.42	170.84	2.20
13224.00	90.17	181.20	9747.10	3725.06	-3722.40	170.85	2.85
13319.00	88.72	180.85	9748.02	3819.99	-3817.38	169.15	1.56
13414.00	89.93	180.44	9749.14	3914.93	-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	9765.94	4482.52	-4480.03	169.89	1.74
14077.00	90.00	180.42	9766.91	4577.50	-4575.02	169.90	1.53
14172.00	89.56	179.42	9767.28	4672.48	-4670.02	170.03	1.15
14267.00	89.46	178.83	9768.09	4767.48	-4765.01	171.48	0.64
14362.00	88.39	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	180.40	9775.14	5432.04	-5429.79	167.45	1.42
15027.00	87.75	180.14	9778.88	5526.94	-5524.71	167.00	0.27
15122.00	88.89	180.76	9781.66	5621.86	-5619.67	166.25	1.37
15217.00	92.58	180.11	9780.44	5716.80	-5714.64	165.53	3.95
15312.00	91.01	178.22	9777.47	5811.75	-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	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS
ft	deg	deg	ft	ft	ft	ft	°/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	9793.90	6379.59	-6377.66	160.40	1.88
15976.00	89.29	181.39	9797.49	6474.43	-6472.56	158.32	3.09
16071.00	89.90	180.59	9798.16	6569.36	-6567.54	156.68	1.05
16166.00	89.73	180.96	9798.46	6664.31	-6662.53	155.40	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

