



**Caza Operating LLC
Lea County, New Mexico (NAD 83)
30-025-46551
Sioux 25-36 State Fed Com 9H
Wellbore 1**

**MS MWD
Certified Survey Report
18 August 2020**

Field	Lea County, New Mexico (NAD 83) - Caza Operating LLC		
CRS	US-SPC83 / New Mexico Eastern Zone		
Apply Scale Factor	NO	Scale Factor	0.9999090909
System Datum	Mean Sea Level	Depth Datum->MSL	3110.99 UsFt

Well	Sioux 25-36 State Fed Com 9H		
Local North	100.00 UsFt	Local East	-1.56 UsFt
Map Northing	404679.81 US survey foot	Map Easting	855900.09 US survey foot
Latitude	32° 6' 30.48808" N	Longitude	103° 19' 2.64617" W
Depth Datum	WELL	Datum Elevation	3111.00 UsFt
GL Elevation	3087.00 UsFt		
Grid Convergence	0.540		

Well bore	Sioux 25-36 State Fed Com 9H - Wellbore 1		
Magnetic Model	User defined	Date	15/07/2020
Total Field (nT)	47654.40	Dip Angle (°)	59.683
Declination (°)	6.417		
VS Origin	User Defined	VS Azimuth	180.82
VS Origin NS	0.00 UsFt	VS Origin EW	0.00 UsFt

Survey Program	MS MWD		
Depth From (UsFt)	0.00	Survey Tool	MWD+HRGM
9143.00	21945.00	Phoenix MWD	MWD+HRGM
		MS MWD	

Survey Report									
MD UsFt	Inc °	Azi °	TVD UsFt	NS UsFt	EW UsFt	VS UsFt	DLS (°/100 UsFt)	BR (°/100 UsFt)	TR (°/100 UsFt)
9027.00	1.53	202.22	9025.16	-35.36	-23.87	35.70	0.00	0.00	0.00 Tie In
9143.00	1.32	201.00	9141.12	-38.04	-24.93	38.39	0.18	-0.18	-1.05
9238.00	1.01	237.82	9236.11	-39.51	-26.04	39.88	0.83	-0.33	38.76
9331.00	1.80	277.02	9329.08	-39.77	-28.18	40.17	1.29	0.85	42.15
9426.00	6.99	300.40	9423.77	-36.66	-34.65	37.15	5.67	5.46	24.61
9520.00	8.79	302.77	9516.88	-29.87	-45.62	30.52	1.95	1.91	2.52
9614.00	9.58	295.57	9609.68	-22.61	-58.72	23.45	1.48	0.84	-7.66
9709.00	8.22	297.15	9703.53	-16.10	-71.89	17.13	1.45	-1.43	1.66
9805.00	6.99	296.97	9798.68	-10.32	-83.21	11.51	1.28	-1.28	-0.19
9898.00	8.09	292.76	9890.88	-5.22	-94.29	6.57	1.32	1.18	-4.53
9993.00	8.22	290.29	9984.92	-0.28	-106.82	1.81	0.39	0.14	-2.60
10087.00	7.60	287.31	10078.02	3.90	-119.06	-2.20	0.79	-0.66	-3.17
10180.00	5.80	283.00	10170.39	6.79	-129.51	-4.93	2.01	-1.94	-4.63
10273.00	5.41	282.65	10262.94	8.81	-138.36	-6.82	0.42	-0.42	-0.38
10325.00	7.30	278.96	10314.62	9.86	-144.02	-7.79	3.72	3.63	-7.10
10366.00	7.12	280.54	10355.29	10.73	-149.09	-8.59	0.65	-0.44	3.85
10412.00	6.20	282.38	10400.98	11.78	-154.32	-9.57	2.05	-2.00	4.00
10459.00	5.49	286.34	10447.74	12.96	-158.96	-10.68	1.74	-1.51	8.43
10507.00	7.21	282.91	10495.44	14.28	-164.10	-11.93	3.67	3.58	-7.15
10554.00	8.48	280.54	10542.00	15.57	-170.38	-13.13	2.79	2.70	-5.04
10648.00	8.31	276.58	10635.00	17.62	-183.94	-14.98	0.64	-0.18	-4.21
10742.00	7.60	264.01	10728.10	17.75	-196.87	-14.93	1.99	-0.76	-13.37
10837.00	8.48	254.96	10822.17	15.27	-209.89	-12.27	1.62	0.93	-9.53
10932.00	7.52	233.78	10916.26	9.78	-221.67	-6.61	3.24	-1.01	-22.29
11026.00	4.88	191.07	11009.75	2.22	-227.40	1.04	5.46	-2.81	-45.44
11120.00	2.68	199.59	11103.54	-3.78	-228.91	7.05	2.41	-2.34	9.06
11177.00	3.08	198.36	11160.47	-6.49	-229.84	9.78	0.71	0.70	-2.16
11214.00	3.12	193.61	11197.41	-8.41	-230.39	11.70	0.70	0.11	-12.84
11261.00	7.52	194.76	11244.20	-12.63	-231.47	15.94	9.36	9.36	2.45
11309.00	12.40	196.69	11291.46	-20.61	-233.75	23.95	10.19	10.17	4.02
11356.00	16.00	190.98	11337.02	-31.80	-236.44	35.18	8.21	7.66	-12.15
11404.00	21.10	188.25	11382.51	-46.86	-238.94	50.27	10.78	10.63	-5.69
11451.00	26.29	188.52	11425.54	-65.54	-241.70	68.99	11.04	11.04	0.57
11499.00	29.89	188.69	11467.88	-87.88	-245.08	91.38	7.50	7.50	0.35
11546.00	34.90	186.58	11507.55	-112.83	-248.39	116.37	10.93	10.66	-4.49
11593.00	40.48	185.88	11544.73	-141.39	-251.50	144.97	11.91	11.87	-1.49
11640.00	43.69	185.00	11579.00	-172.74	-254.48	176.36	6.94	6.83	-1.87
11688.00	48.22	180.69	11612.98	-207.18	-256.14	210.82	11.43	9.44	-8.98
11735.00	53.80	179.11	11642.54	-243.69	-256.05	247.33	12.16	11.87	-3.36
11782.00	57.41	179.82	11669.08	-282.47	-255.70	286.10	7.78	7.68	1.51
11829.00	61.01	180.87	11693.14	-322.83	-255.95	326.46	7.90	7.66	2.23
11875.00	64.40	180.17	11714.23	-363.70	-256.31	367.33	7.49	7.37	-1.52
11922.00	67.60	180.52	11733.34	-406.63	-256.57	410.26	6.84	6.81	0.74
11969.00	70.68	180.08	11750.08	-450.55	-256.80	454.18	6.61	6.55	-0.94
12016.00	76.48	179.90	11763.36	-495.61	-256.79	499.23	12.35	12.34	-0.38
12064.00	80.22	180.61	11773.05	-542.61	-257.00	546.23	7.93	7.79	1.48
12135.00	87.52	182.19	11780.63	-613.14	-258.73	616.78	10.52	10.28	2.23
12182.00	87.91	182.54	11782.50	-660.06	-260.67	663.72	1.11	0.83	0.74
12275.00	88.62	181.75	11785.32	-752.95	-264.15	756.65	1.14	0.76	-0.85
12368.00	91.12	180.34	11785.53	-845.92	-265.85	849.64	3.09	2.69	-1.52

Survey Report

MD UsFt	Inc °	Azi °	TVD UsFt	NS UsFt	EW UsFt	VS UsFt	DLS (°/100 UsFt)	BR (°/100 UsFt)	TR (°/100 UsFt)
12462.00	90.20	179.29	11784.44	-939.91	-265.54	943.62	1.49	-0.98	-1.12
12556.00	88.48	178.41	11785.53	-1033.88	-263.66	1037.55	2.06	-1.83	-0.94
12650.00	88.22	177.35	11788.23	-1127.78	-260.18	1131.39	1.16	-0.28	-1.13
12743.00	88.31	176.74	11791.05	-1220.61	-255.39	1224.14	0.66	0.10	-0.66
12837.00	88.40	176.04	11793.75	-1314.39	-249.47	1317.82	0.75	0.10	-0.74
12930.00	89.41	178.15	11795.52	-1407.24	-244.76	1410.60	2.51	1.09	2.27
13024.00	88.88	179.90	11796.93	-1501.22	-243.16	1504.54	1.95	-0.56	1.86
13117.00	89.41	179.64	11798.32	-1594.20	-242.79	1597.52	0.63	0.57	-0.28
13212.00	87.91	177.88	11800.54	-1689.15	-240.73	1692.42	2.43	-1.58	-1.85
13306.00	88.22	177.88	11803.71	-1783.03	-237.26	1786.24	0.33	0.33	0.00
13400.00	88.31	177.71	11806.56	-1876.92	-233.64	1880.07	0.20	0.10	-0.18
13495.00	89.10	178.94	11808.70	-1971.85	-230.87	1974.95	1.54	0.83	1.29
13588.00	92.70	179.82	11807.24	-2064.82	-229.86	2067.90	3.98	3.87	0.95
13683.00	92.79	182.80	11802.69	-2159.67	-232.03	2162.77	3.13	0.09	3.14
13777.00	91.38	183.86	11799.27	-2253.45	-237.49	2256.62	1.88	-1.50	1.13
13872.00	89.71	182.72	11798.37	-2348.28	-242.94	2351.52	2.13	-1.76	-1.20
13966.00	88.31	182.19	11799.99	-2442.18	-246.96	2445.47	1.59	-1.49	-0.56
14060.00	88.40	180.69	11802.69	-2536.11	-249.33	2539.42	1.60	0.10	-1.60
14154.00	88.09	177.62	11805.57	-2630.04	-247.94	2633.32	3.28	-0.33	-3.27
14249.00	88.48	177.27	11808.41	-2724.91	-243.71	2728.12	0.55	0.41	-0.37
14344.00	88.09	177.71	11811.26	-2819.77	-239.55	2822.91	0.62	-0.41	0.46
14437.00	89.01	177.97	11813.61	-2912.68	-236.05	2915.76	1.03	0.99	0.28
14531.00	88.70	177.27	11815.49	-3006.58	-232.14	3009.59	0.81	-0.33	-0.74
14625.00	89.01	177.62	11817.37	-3100.46	-227.95	3103.41	0.50	0.33	0.37
14719.00	88.48	177.79	11819.43	-3194.36	-224.19	3197.25	0.59	-0.56	0.18
14813.00	88.79	177.79	11821.67	-3288.27	-220.57	3291.09	0.33	0.33	0.00
14907.00	89.32	178.59	11823.22	-3382.21	-217.60	3384.97	1.02	0.56	0.85
15002.00	89.19	180.52	11824.45	-3477.19	-216.86	3479.94	2.04	-0.14	2.03
15096.00	87.21	179.99	11827.40	-3571.14	-217.28	3573.88	2.18	-2.11	-0.56
15190.00	87.52	180.78	11831.73	-3665.04	-217.91	3667.78	0.90	0.33	0.84
15283.00	87.91	182.72	11835.43	-3757.92	-220.75	3760.69	2.13	0.42	2.09
15377.00	87.69	183.68	11839.04	-3851.70	-225.99	3854.54	1.05	-0.23	1.02
15471.00	87.91	182.19	11842.65	-3945.50	-230.80	3948.40	1.60	0.23	-1.59
15566.00	86.20	180.52	11847.53	-4040.34	-233.04	4043.27	2.51	-1.80	-1.76
15659.00	86.20	180.61	11853.70	-4133.14	-233.96	4136.06	0.10	0.00	0.10
15754.00	86.29	179.20	11859.92	-4227.93	-233.80	4230.84	1.48	0.09	-1.48
15847.00	86.20	178.41	11866.01	-4320.71	-231.87	4323.58	0.85	-0.10	-0.85
15941.00	86.20	178.59	11872.24	-4414.47	-229.41	4417.30	0.19	0.00	0.19
16036.00	86.20	178.59	11878.53	-4509.23	-227.08	4512.02	0.00	0.00	0.00
16130.00	86.11	178.41	11884.84	-4602.99	-224.62	4605.73	0.21	-0.10	-0.19
16225.00	86.20	178.59	11891.21	-4697.74	-222.14	4700.44	0.21	0.09	0.19
16319.00	86.29	178.06	11897.36	-4791.50	-219.40	4794.15	0.57	0.10	-0.56
16414.00	86.20	178.67	11903.59	-4886.26	-216.70	4888.86	0.65	-0.09	0.64
16508.00	87.69	178.59	11908.60	-4980.09	-214.45	4982.65	1.59	1.59	-0.09
16601.00	88.62	178.76	11911.59	-5073.02	-212.30	5075.54	1.02	1.00	0.18
16696.00	87.60	178.50	11914.72	-5167.94	-210.03	5170.42	1.11	-1.07	-0.27
16790.00	87.69	178.50	11918.58	-5261.83	-207.57	5264.26	0.10	0.10	0.00
16884.00	89.32	178.06	11921.04	-5355.75	-204.75	5358.13	1.80	1.73	-0.47
16977.00	92.00	178.59	11919.97	-5448.69	-202.04	5451.03	2.94	2.88	0.57
17071.00	92.31	178.41	11916.43	-5542.60	-199.58	5544.88	0.38	0.33	-0.19
17164.00	92.22	178.06	11912.76	-5635.48	-196.71	5637.72	0.39	-0.10	-0.38
17258.00	92.31	177.97	11909.04	-5729.35	-193.46	5731.53	0.14	0.10	-0.10
17352.00	92.31	178.15	11905.25	-5823.22	-190.28	5825.35	0.19	0.00	0.19
17446.00	91.91	179.55	11901.79	-5917.13	-188.40	5919.22	1.55	-0.43	1.49
17540.00	92.31	179.90	11898.33	-6011.07	-187.95	6013.14	0.57	0.43	0.37
17634.00	91.52	179.90	11895.19	-6105.02	-187.78	6107.08	0.84	-0.84	0.00
17729.00	91.30	180.08	11892.85	-6199.99	-187.76	6202.04	0.30	-0.23	0.19
17824.00	91.30	179.99	11890.70	-6294.96	-187.82	6297.01	0.09	0.00	-0.09
17918.00	91.12	179.99	11888.71	-6388.94	-187.81	6390.97	0.19	-0.19	0.00
18011.00	91.21	179.90	11886.82	-6481.92	-187.72	6483.94	0.14	0.10	-0.10
18106.00	91.38	179.82	11884.67	-6576.90	-187.48	6578.91	0.20	0.18	-0.08
18200.00	90.99	180.08	11882.73	-6670.88	-187.40	6672.88	0.50	-0.41	0.28
18295.00	91.30	179.64	11880.83	-6765.86	-187.17	6767.84	0.57	0.33	-0.46
18390.00	91.30	179.64	11878.68	-6860.83	-186.57	6862.80	0.00	0.00	0.00
18486.00	91.21	180.52	11876.57	-6956.81	-186.71	6958.77	0.92	-0.09	0.92
18580.00	91.30	179.90	11874.51	-7050.78	-187.05	7052.74	0.67	0.10	-0.66
18675.00	91.38	180.08	11872.29	-7145.76	-187.04	7147.70	0.21	0.08	0.19
18771.00	91.21	179.55	11870.12	-7241.73	-186.73	7243.66	0.58	-0.18	-0.55
18865.00	91.21	179.46	11868.14	-7335.71	-185.91	7337.62	0.10	0.00	-0.10
18959.00	91.30	179.64	11866.08	-7429.68	-185.18	7431.57	0.21	0.10	0.19
19054.00	90.99	179.90	11864.18	-7524.66	-184.79	7526.54	0.43	-0.33	0.27
19149.00	90.59	179.38	11862.87	-7619.65	-184.20	7621.51	0.69	-0.42	-0.55
19245.00	90.81	179.99	11861.70	-7715.64	-183.67	7717.48	0.68	0.23	0.64
19339.00	90.51	179.82	11860.62	-7809.63	-183.51	7811.46	0.37	-0.32	-0.18
19433.00	90.90	180.08	11859.46	-7903.63	-183.43	7905.44	0.50	0.41	0.28
19527.00	90.59	179.90	11858.24	-7997.62	-183.42	7999.43	0.38	-0.33	-0.19
19622.00	90.90	180.61	11857.00	-8092.61	-183.84	8094.41	0.82	0.33	0.75
19717.00	90.99	180.08	11855.43	-8187.59	-184.41	8189.40	0.57	0.09	-0.56

Survey Report

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19811.00	90.11	179.99	11854.53	-8281.59	-184.47	8283.38	0.94	-0.94	-0.10
19907.00	90.68	180.08	11853.87	-8377.59	-184.53	8379.37	0.60	0.59	0.09
20002.00	90.81	179.99	11852.64	-8472.58	-184.58	8474.35	0.17	0.14	-0.09
20096.00	90.59	180.17	11851.49	-8566.57	-184.72	8568.34	0.30	-0.23	0.19
20192.00	89.58	180.17	11851.34	-8662.57	-185.00	8664.33	1.05	-1.05	0.00
20287.00	88.88	180.26	11852.62	-8757.56	-185.36	8759.32	0.74	-0.74	0.09
20382.00	88.79	179.90	11854.55	-8852.54	-185.49	8854.29	0.39	-0.09	-0.38
20475.00	88.62	180.08	11856.65	-8945.52	-185.47	8947.25	0.27	-0.18	0.19
20570.00	88.79	180.34	11858.80	-9040.49	-185.82	9042.22	0.33	0.18	0.27
20665.00	88.40	178.41	11861.13	-9135.45	-184.79	9137.16	2.07	-0.41	-2.03
20760.00	88.48	178.15	11863.72	-9230.37	-181.94	9232.03	0.29	0.08	-0.27
20855.00	88.62	178.67	11866.12	-9325.31	-179.30	9326.92	0.57	0.15	0.55
20950.00	88.31	178.50	11868.67	-9420.24	-176.96	9421.81	0.37	-0.33	-0.18
21045.00	88.09	178.59	11871.65	-9515.17	-174.54	9516.69	0.25	-0.23	0.09
21139.00	89.01	179.11	11874.03	-9609.12	-172.66	9610.60	1.12	0.98	0.55
21234.00	87.78	178.85	11876.69	-9704.06	-170.97	9705.51	1.32	-1.29	-0.27
21328.00	88.09	178.32	11880.08	-9797.97	-168.65	9799.38	0.65	0.33	-0.56
21423.00	89.32	178.76	11882.22	-9892.91	-166.23	9894.28	1.38	1.29	0.46
21519.00	89.41	177.97	11883.29	-9988.87	-163.49	9990.18	0.83	0.09	-0.82
21613.00	88.70	177.44	11884.84	-10082.78	-159.73	10084.03	0.94	-0.76	-0.56
21709.00	88.22	177.27	11887.42	-10178.64	-155.30	10179.82	0.53	-0.50	-0.18
21802.00	88.00	177.35	11890.48	-10271.49	-150.94	10272.60	0.25	-0.24	0.09
21897.00	88.31	178.06	11893.54	-10366.36	-147.13	10367.41	0.82	0.33	0.75
21945.00	88.31	178.06	11894.96	-10414.31	-145.51	10415.33	0.00	0.00	0.00 PTB