

COG

SURVEY REPORT

MAS FED COM # 01 H

SCAN DRILL FREEDOM

1/4/2018

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

Kolton Cotton

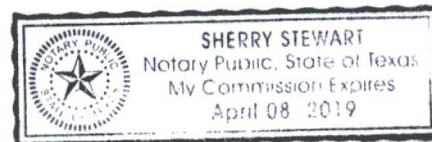
Notarized this date 7 of March, 2018.

Sherry Stewart

Notary Signature

County of Midland

State of Texas

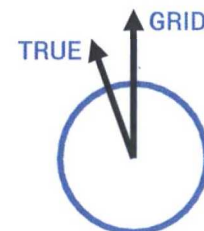


The **Ultimate Partner** In Wellbore Placement

SURVEY REPORT

MAS FED COM # 01 H

COMPUTED OUTFRAN KEEPER GYRO SURVEY

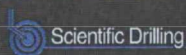
CUSTOMER
PROJECT
FIELDCOG
MAS FED COM # 01 H
SEC 35, T 20 S, R 34 ESDI JOB NO.
SDI DISTRICT
SDI KIT/UNITOP.007084
Midland**SITE INFORMATION**Site Name SEC 35, T 20 S, R 34 E
Lat/Long 32.5362° N, 103.536865° W
Northing 559,699.5 ft
Easting 745,455.6 ftSection
Township
Range**MAP INFORMATION**North Reference Grid North
Grid Correction -0.43 deg
System US State Plane 1927
Datum North American Datum 1927 (Clarke 1866)
Map Zone New Mexico East: 3001**WELL INFORMATION**Lat/Long 32.5362° N, 103.536865° W
Northing 559,699.5 ft
Easting 745,455.6 ft
UWI 300254409200**DEPTH AND ELEVATION REFERENCE**Ground Level 3722 ft above Mean Sea Level
Reference Datum KB
Reference Height 26 ft above G.L.
Reference Elevation 3748 ft**VERTICAL SECTION REFERENCE**+N/-S 0 ft
+E/-W 0 ft
Proposal Direction 179.64°
Calculation Method Minimum Curvature**LOCAL GRAVITY REFERENCE INFORMATION**Local Gravity 998.496 mG [computed]
True to Grid subtract 0.43°**WELL NOTES****OPERATORS**

H.SANGHOTT

SDI Operator Name (Printed)

SIGNATURE

DATE



MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
100.00	0.59	150.54	100.00	0.45	-0.44	0.25	0.59	0.51	150.54
125.00	0.86	148.73	125.00	0.72	-0.72	0.41	1.10	0.83	150.13
150.00	0.74	159.90	149.99	1.03	-1.03	0.56	0.79	1.17	151.23
175.00	0.86	155.18	174.99	1.35	-1.35	0.70	0.57	1.52	152.64
200.00	0.83	161.90	199.99	1.70	-1.69	0.83	0.42	1.89	153.77
225.00	0.80	161.78	224.99	2.04	-2.03	0.94	0.12	2.24	155.05
250.00	0.79	159.60	249.98	2.36	-2.36	1.06	0.13	2.58	155.80
275.00	0.85	161.53	274.98	2.70	-2.69	1.18	0.26	2.94	156.38
300.00	0.82	161.05	299.98	3.04	-3.04	1.29	0.12	3.30	156.92
325.00	0.85	158.45	324.98	3.39	-3.38	1.42	0.19	3.66	157.20
350.00	0.80	163.55	349.97	3.73	-3.72	1.54	0.35	4.02	157.53
375.00	0.70	160.53	374.97	4.04	-4.03	1.64	0.42	4.35	157.88
400.00	0.59	161.52	399.97	4.30	-4.29	1.73	0.45	4.63	158.07
425.00	0.57	160.74	424.97	4.55	-4.53	1.81	0.07	4.88	158.23
450.00	0.43	152.54	449.97	4.75	-4.74	1.90	0.64	5.10	158.18
475.00	0.21	154.07	474.97	4.87	-4.86	1.96	0.86	5.24	158.05
500.00	0.11	157.38	499.97	4.94	-4.92	1.99	0.43	5.31	158.01
525.00	0.15	150.53	524.97	4.99	-4.97	2.01	0.17	5.37	157.96
550.00	0.06	96.06	549.97	5.02	-5.00	2.04	0.49	5.40	157.79
575.00	0.06	116.16	574.97	5.02	-5.01	2.07	0.09	5.42	157.57
600.00	0.15	7.32	599.97	5.00	-4.98	2.08	0.74	5.40	157.30
625.00	0.21	340.84	624.97	4.92	-4.91	2.07	0.39	5.33	157.08
650.00	0.22	342.82	649.97	4.83	-4.82	2.05	0.07	5.23	157.00
675.00	0.29	357.57	674.97	4.72	-4.71	2.03	0.37	5.13	156.70
700.00	0.29	351.72	699.97	4.60	-4.58	2.02	0.12	5.01	156.25
725.00	0.31	1.11	724.97	4.47	-4.45	2.01	0.21	4.89	155.72
750.00	0.29	356.23	749.97	4.34	-4.32	2.01	0.11	4.77	155.11
775.00	0.23	347.31	774.96	4.22	-4.21	1.99	0.30	4.66	154.69
800.00	0.24	350.94	799.96	4.12	-4.11	1.97	0.07	4.56	154.37
825.00	0.31	353.88	824.96	4.00	-3.99	1.96	0.28	4.44	153.89
850.00	0.29	354.16	849.96	3.87	-3.86	1.94	0.07	4.32	153.30

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
875.00	0.26	333.81	874.96	3.76	-3.75	1.91	0.40	4.21	152.99
900.00	0.22	326.20	899.96	3.67	-3.66	1.86	0.21	4.10	153.06
925.00	0.20	15.13	924.96	3.59	-3.58	1.84	0.70	4.02	152.73
950.00	0.24	341.49	949.96	3.50	-3.49	1.84	0.52	3.94	152.20
975.00	0.16	306.29	974.96	3.43	-3.42	1.79	0.56	3.86	152.31
1000.00	0.07	279.14	999.96	3.40	-3.39	1.75	0.41	3.82	152.73
1025.00	0.03	214.30	1024.96	3.41	-3.40	1.73	0.27	3.81	153.00
1050.00	0.17	264.99	1049.96	3.41	-3.40	1.69	0.62	3.80	153.60
1075.00	0.12	217.73	1074.96	3.44	-3.43	1.64	0.50	3.80	154.47
1100.00	0.08	171.51	1099.96	3.47	-3.46	1.62	0.33	3.82	154.88
1125.00	0.21	245.26	1124.96	3.51	-3.50	1.58	0.81	3.84	155.63
1150.00	0.14	248.26	1149.96	3.54	-3.53	1.51	0.28	3.84	156.77
1175.00	0.16	195.22	1174.96	3.58	-3.57	1.48	0.55	3.87	157.55
1200.00	0.05	252.73	1199.96	3.62	-3.61	1.46	0.57	3.89	158.05
1225.00	0.13	226.21	1224.96	3.64	-3.63	1.43	0.32	3.90	158.59
1250.00	0.14	206.75	1249.96	3.69	-3.68	1.39	0.19	3.94	159.30
1275.00	0.10	214.65	1274.96	3.74	-3.73	1.37	0.19	3.97	159.88
1300.00	0.15	204.34	1299.96	3.78	-3.77	1.34	0.21	4.00	160.45
1325.00	0.20	245.85	1324.96	3.83	-3.82	1.29	0.54	4.03	161.39
1350.00	0.11	187.61	1349.96	3.87	-3.86	1.24	0.69	4.06	162.17
1375.00	0.15	234.20	1374.96	3.91	-3.91	1.21	0.43	4.09	162.74
1400.00	0.23	241.30	1399.96	3.96	-3.95	1.14	0.34	4.11	163.84
1425.00	0.11	235.50	1424.96	3.99	-3.99	1.08	0.48	4.13	164.83
1450.00	0.11	176.16	1449.96	4.03	-4.02	1.06	0.44	4.16	165.21
1475.00	0.24	277.33	1474.96	4.05	-4.04	1.01	1.14	4.17	165.94
1500.00	0.18	291.22	1499.96	4.03	-4.02	0.92	0.31	4.13	167.07
1525.00	0.23	280.81	1524.96	4.00	-4.00	0.84	0.24	4.08	168.16
1550.00	0.32	288.76	1549.96	3.97	-3.97	0.72	0.39	4.03	169.66
1575.00	0.23	272.22	1574.96	3.95	-3.94	0.61	0.48	3.99	171.23
1600.00	0.21	273.83	1599.96	3.94	-3.94	0.51	0.08	3.97	172.57
1625.00	0.33	281.41	1624.96	3.92	-3.92	0.40	0.50	3.94	174.20
1650.00	0.22	258.22	1649.96	3.92	-3.92	0.28	0.61	3.93	175.89

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
1675.00	0.24	275.62	1674.96	3.92	-3.92	0.18	0.30	3.92	177.35
1700.00	0.15	274.43	1699.96	3.91	-3.91	0.09	0.36	3.91	178.61
1725.00	0.10	299.13	1724.96	3.90	-3.90	0.04	0.30	3.90	179.38
1750.00	0.07	336.29	1749.96	3.87	-3.87	0.02	0.25	3.87	179.75
1775.00	0.16	280.97	1774.96	3.85	-3.85	-0.02	0.52	3.85	180.34
1800.00	0.07	279.42	1799.96	3.85	-3.85	-0.07	0.35	3.85	181.06
1825.00	0.04	262.24	1824.96	3.84	-3.84	-0.10	0.12	3.85	181.43
1850.00	0.08	240.23	1849.96	3.85	-3.85	-0.12	0.18	3.86	181.80
1875.00	0.10	244.62	1874.96	3.87	-3.87	-0.16	0.07	3.88	182.31
1900.00	0.14	259.75	1899.96	3.89	-3.89	-0.21	0.22	3.89	183.05
1925.00	0.38	261.82	1924.96	3.90	-3.91	-0.32	0.92	3.92	184.67
1950.00	0.18	237.59	1949.96	3.93	-3.94	-0.43	0.91	3.96	186.28
1975.00	0.14	222.84	1974.96	3.98	-3.98	-0.49	0.22	4.01	186.97
2000.00	0.14	185.10	1999.96	4.03	-4.03	-0.51	0.36	4.06	187.20
2025.00	0.20	162.55	2024.96	4.10	-4.10	-0.50	0.35	4.13	186.94
2050.00	0.13	192.75	2049.96	4.17	-4.17	-0.49	0.43	4.20	186.74
2075.00	0.16	188.61	2074.96	4.23	-4.23	-0.50	0.15	4.26	186.79
2100.00	0.16	240.25	2099.96	4.28	-4.29	-0.54	0.57	4.32	187.18
2125.00	0.28	227.70	2124.96	4.34	-4.34	-0.62	0.52	4.39	188.08
2150.00	0.14	202.09	2149.96	4.41	-4.41	-0.67	0.68	4.47	188.68
2175.00	0.28	216.86	2174.96	4.49	-4.49	-0.72	0.61	4.55	189.13
2200.00	0.22	220.10	2199.96	4.57	-4.58	-0.79	0.27	4.64	189.78
2225.00	0.33	220.11	2224.96	4.66	-4.67	-0.87	0.45	4.75	190.51
2250.00	0.33	204.17	2249.96	4.78	-4.79	-0.94	0.36	4.88	191.12
2275.00	0.31	210.70	2274.96	4.91	-4.91	-1.01	0.16	5.01	191.57
2300.00	0.30	234.01	2299.96	5.00	-5.01	-1.09	0.50	5.13	192.32
2325.00	0.32	222.18	2324.96	5.09	-5.10	-1.20	0.27	5.24	193.19
2350.00	0.26	198.42	2349.96	5.20	-5.21	-1.26	0.54	5.36	193.60
2375.00	0.36	221.94	2374.96	5.31	-5.32	-1.33	0.64	5.48	194.04
2400.00	0.34	227.80	2399.95	5.42	-5.43	-1.44	0.16	5.61	194.83
2425.00	0.35	218.95	2424.95	5.52	-5.53	-1.54	0.21	5.74	195.54
2450.00	0.32	214.23	2449.95	5.64	-5.65	-1.62	0.16	5.88	196.05

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
2475.00	0.35	220.37	2474.95	5.75	-5.76	-1.71	0.20	6.01	196.55
2500.00	0.32	207.85	2499.95	5.87	-5.88	-1.79	0.32	6.15	196.96
2525.00	0.39	203.05	2524.95	6.01	-6.02	-1.86	0.33	6.30	197.16
2550.00	0.27	201.17	2549.95	6.14	-6.16	-1.92	0.50	6.45	197.28
2575.00	0.29	217.18	2574.95	6.25	-6.26	-1.97	0.32	6.57	197.50
2600.00	0.36	205.43	2599.95	6.37	-6.38	-2.05	0.39	6.70	197.77
2625.00	0.33	239.90	2624.95	6.48	-6.49	-2.14	0.82	6.83	198.26
2650.00	0.36	228.10	2649.95	6.56	-6.58	-2.26	0.31	6.95	198.97
2675.00	0.42	233.08	2674.95	6.67	-6.68	-2.39	0.28	7.10	199.69
2700.00	0.34	191.22	2699.95	6.79	-6.81	-2.48	1.12	7.25	200.00
2725.00	0.28	212.04	2724.95	6.92	-6.93	-2.53	0.50	7.38	200.01
2750.00	0.26	198.12	2749.95	7.02	-7.04	-2.58	0.27	7.50	200.09
2775.00	0.18	194.39	2774.95	7.12	-7.13	-2.60	0.34	7.59	200.05
2800.00	0.26	204.39	2799.95	7.20	-7.22	-2.64	0.35	7.69	200.05
2825.00	0.26	192.33	2824.95	7.31	-7.33	-2.67	0.22	7.80	200.03
2850.00	0.32	192.26	2849.95	7.43	-7.45	-2.70	0.22	7.92	199.91
2875.00	0.23	190.45	2874.95	7.55	-7.57	-2.72	0.33	8.04	199.78
2900.00	0.29	144.78	2899.95	7.65	-7.67	-2.69	0.83	8.13	199.36
2925.00	0.11	179.78	2924.95	7.73	-7.74	-2.66	0.82	8.19	198.95
2950.00	0.28	150.00	2949.95	7.81	-7.82	-2.63	0.75	8.25	198.57
2975.00	0.24	157.76	2974.95	7.91	-7.92	-2.58	0.20	8.33	198.02
3000.00	0.24	142.32	2999.95	8.00	-8.01	-2.53	0.26	8.40	197.49
3025.00	0.28	134.55	3024.95	8.08	-8.10	-2.45	0.20	8.46	196.83
3050.00	0.29	125.97	3049.95	8.16	-8.18	-2.36	0.17	8.51	196.07
3075.00	0.31	139.09	3074.95	8.25	-8.27	-2.26	0.29	8.57	195.30
3100.00	0.32	123.82	3099.95	8.34	-8.36	-2.16	0.34	8.63	194.48
3125.00	0.52	111.31	3124.94	8.42	-8.44	-2.00	0.86	8.67	193.31
3150.00	0.71	108.99	3149.94	8.52	-8.53	-1.74	0.79	8.70	191.56
3175.00	0.82	107.40	3174.94	8.62	-8.63	-1.43	0.46	8.75	189.38
3200.00	0.82	109.73	3199.94	8.74	-8.75	-1.09	0.13	8.81	187.08
3225.00	0.86	107.31	3224.94	8.86	-8.86	-0.74	0.22	8.89	184.76
3250.00	1.04	106.66	3249.93	8.98	-8.98	-0.34	0.70	8.99	182.18

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
3275.00	0.93	110.00	3274.93	9.12	-9.12	0.07	0.48	9.12	179.59
3300.00	1.09	108.31	3299.92	9.26	-9.26	0.48	0.65	9.27	177.02
3325.00	1.15	115.69	3324.92	9.45	-9.45	0.94	0.63	9.49	174.35
3350.00	1.18	115.08	3349.91	9.67	-9.66	1.40	0.12	9.76	171.78
3375.00	1.21	112.67	3374.91	9.89	-9.87	1.87	0.23	10.05	169.27
3400.00	1.24	112.28	3399.90	10.09	-10.08	2.37	0.14	10.35	166.79
3425.00	1.25	115.59	3424.90	10.32	-10.30	2.86	0.29	10.69	164.47
3450.00	1.27	116.81	3449.89	10.56	-10.54	3.35	0.14	11.06	162.35
3475.00	1.19	116.93	3474.89	10.81	-10.78	3.83	0.31	11.44	160.44
3500.00	1.19	119.72	3499.88	11.06	-11.03	4.29	0.23	11.83	158.75
3525.00	1.20	119.57	3524.87	11.32	-11.29	4.74	0.05	12.24	157.21
3550.00	1.26	123.53	3549.87	11.60	-11.57	5.20	0.41	12.69	155.79
3575.00	1.26	123.70	3574.86	11.91	-11.88	5.66	0.02	13.16	154.51
3600.00	1.31	125.11	3599.86	12.23	-12.19	6.12	0.22	13.64	153.33
3625.00	1.37	123.24	3624.85	12.56	-12.52	6.61	0.31	14.16	152.18
3650.00	1.36	124.11	3649.84	12.90	-12.85	7.10	0.10	14.68	151.07
3675.00	1.26	124.11	3674.84	13.22	-13.17	7.58	0.40	15.20	150.09
3700.00	0.90	127.91	3699.83	13.50	-13.45	7.96	1.46	15.63	149.37
3725.00	0.43	127.27	3724.83	13.68	-13.63	8.19	1.91	15.90	148.99
3750.00	0.21	66.79	3749.83	13.72	-13.66	8.31	1.49	15.99	148.70
3775.00	0.20	357.37	3774.83	13.66	-13.60	8.35	0.93	15.96	148.47
3800.00	0.17	345.48	3799.83	13.58	-13.52	8.34	0.19	15.89	148.35
3825.00	0.31	346.51	3824.83	13.48	-13.42	8.31	0.56	15.79	148.24
3850.00	0.49	334.68	3849.83	13.31	-13.26	8.25	0.81	15.62	148.11
3875.00	0.42	356.68	3874.83	13.12	-13.07	8.20	0.76	15.43	147.91
3900.00	0.63	338.09	3899.83	12.90	-12.85	8.14	1.08	15.21	147.65
3925.00	0.51	357.77	3924.83	12.66	-12.61	8.09	0.91	14.98	147.34
3950.00	0.58	342.85	3949.82	12.43	-12.38	8.04	0.63	14.76	146.99
3975.00	0.62	343.43	3974.82	12.18	-12.13	7.97	0.15	14.51	146.70
4000.00	0.76	343.78	3999.82	11.89	-11.84	7.88	0.56	14.22	146.35
4025.00	0.75	339.55	4024.82	11.58	-11.53	7.78	0.23	13.91	145.99
4050.00	0.83	337.89	4049.82	11.25	-11.21	7.65	0.34	13.57	145.67

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
4075.00	0.73	342.95	4074.81	10.93	-10.89	7.54	0.49	13.24	145.30
4100.00	0.84	337.00	4099.81	10.61	-10.56	7.42	0.56	12.91	144.92
4125.00	0.99	335.32	4124.81	10.24	-10.20	7.26	0.61	12.52	144.56
4150.00	0.95	328.41	4149.81	9.87	-9.82	7.06	0.50	12.10	144.30
4175.00	0.84	335.47	4174.80	9.52	-9.48	6.87	0.62	11.71	144.06
4200.00	1.02	324.29	4199.80	9.17	-9.13	6.67	1.02	11.31	143.87
4225.00	1.02	334.67	4224.79	8.79	-8.75	6.44	0.74	10.86	143.64
4250.00	1.17	327.33	4249.79	8.37	-8.33	6.21	0.81	10.39	143.31
4275.00	1.05	333.34	4274.79	7.95	-7.91	5.97	0.67	9.91	142.98
4300.00	1.23	325.85	4299.78	7.52	-7.48	5.71	0.94	9.42	142.65
4325.00	1.14	331.98	4324.78	7.08	-7.04	5.45	0.63	8.90	142.29
4350.00	1.32	332.58	4349.77	6.60	-6.57	5.20	0.72	8.37	141.65
4375.00	1.30	328.05	4374.76	6.10	-6.07	4.91	0.42	7.81	141.02
4400.00	1.40	329.64	4399.76	5.60	-5.57	4.61	0.45	7.23	140.38
4425.00	1.40	329.42	4424.75	5.07	-5.04	4.30	0.02	6.62	139.54
4450.00	1.64	326.99	4449.74	4.50	-4.48	3.95	0.98	5.97	138.59
4475.00	1.60	328.53	4474.73	3.90	-3.88	3.57	0.22	5.27	137.36
4500.00	1.59	330.29	4499.72	3.30	-3.28	3.22	0.21	4.59	135.54
4525.00	1.41	332.21	4524.71	2.72	-2.70	2.90	0.74	3.96	132.99
4550.00	1.57	331.30	4549.70	2.15	-2.13	2.59	0.65	3.35	129.42
4575.00	1.58	332.04	4574.69	1.54	-1.53	2.27	0.09	2.73	123.95
4600.00	1.64	329.98	4599.68	0.92	-0.91	1.93	0.34	2.13	115.34
4625.00	1.71	331.15	4624.67	0.28	-0.27	1.57	0.32	1.59	99.95
4650.00	1.38	338.33	4649.66	-0.33	0.33	1.27	1.52	1.32	75.35
4675.00	1.23	343.75	4674.66	-0.86	0.87	1.09	0.80	1.39	51.31
4700.00	1.20	343.49	4699.65	-1.37	1.38	0.94	0.11	1.67	34.22
4725.00	1.13	347.06	4724.65	-1.87	1.87	0.81	0.40	2.04	23.36
4750.00	1.20	350.62	4749.64	-2.37	2.37	0.71	0.38	2.47	16.68
4775.00	1.06	359.17	4774.64	-2.85	2.86	0.66	0.86	2.94	13.09
4800.00	1.09	0.24	4799.63	-3.32	3.33	0.66	0.13	3.39	11.26
4825.00	1.21	358.69	4824.63	-3.82	3.83	0.66	0.50	3.88	9.74
4850.00	1.17	0.11	4849.62	-4.34	4.34	0.65	0.20	4.39	8.53

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
4875.00	1.24	351.12	4874.62	-4.86	4.87	0.61	0.81	4.90	7.15
4900.00	1.27	357.19	4899.61	-5.41	5.41	0.55	0.54	5.44	5.86
4925.00	1.48	351.58	4924.60	-6.00	6.01	0.49	1.01	6.03	4.70
4950.00	1.45	352.74	4949.59	-6.64	6.64	0.41	0.18	6.65	3.51
4975.00	1.60	353.37	4974.59	-7.30	7.30	0.33	0.61	7.31	2.56
5000.00	1.74	351.61	4999.58	-8.02	8.02	0.23	0.58	8.03	1.65
5025.00	1.85	349.15	5024.56	-8.79	8.79	0.10	0.54	8.79	0.65
5050.00	2.03	350.81	5049.55	-9.63	9.63	-0.05	0.78	9.63	359.72
5075.00	2.10	348.70	5074.53	-10.51	10.51	-0.21	0.40	10.52	358.87
5100.00	2.23	351.89	5099.51	-11.45	11.44	-0.37	0.71	11.45	358.17
5125.00	2.35	353.86	5124.49	-12.44	12.43	-0.49	0.56	12.44	357.75
5150.00	2.40	4.15	5149.47	-13.47	13.47	-0.51	1.72	13.48	357.85
5175.00	2.37	7.41	5174.45	-14.50	14.50	-0.40	0.56	14.51	358.41
5200.00	2.24	13.51	5199.43	-15.49	15.49	-0.22	1.11	15.49	359.18
5225.00	2.04	29.48	5224.41	-16.35	16.35	0.11	2.50	16.35	0.39
5250.00	1.78	41.71	5249.40	-17.02	17.03	0.59	1.93	17.04	1.98
5275.00	1.62	48.99	5274.39	-17.54	17.55	1.11	1.07	17.58	3.63
5300.00	1.52	49.76	5299.38	-17.98	17.99	1.63	0.40	18.06	5.18
5325.00	1.78	67.78	5324.37	-18.34	18.35	2.24	2.30	18.49	6.96
5350.00	1.99	74.70	5349.36	-18.59	18.61	3.02	1.25	18.86	9.22
5375.00	1.94	76.98	5374.34	-18.80	18.82	3.85	0.39	19.21	11.56
5400.00	2.05	81.84	5399.33	-18.95	18.98	4.70	0.80	19.55	13.92
5425.00	1.97	86.46	5424.31	-19.03	19.07	5.57	0.71	19.87	16.29
5450.00	1.90	97.04	5449.30	-19.01	19.05	6.42	1.45	20.10	18.61
5475.00	1.95	102.74	5474.28	-18.86	18.90	7.24	0.78	20.24	20.96
5500.00	2.05	106.84	5499.27	-18.63	18.68	8.08	0.70	20.35	23.40
5525.00	2.14	109.47	5524.25	-18.34	18.39	8.95	0.55	20.46	25.95
5550.00	2.24	110.39	5549.23	-18.01	18.07	9.85	0.40	20.58	28.59
5575.00	2.21	122.75	5574.21	-17.57	17.64	10.71	1.92	20.63	31.27
5600.00	2.04	137.51	5599.20	-16.98	17.05	11.42	2.29	20.52	33.81
5625.00	2.20	154.20	5624.18	-16.21	16.29	11.93	2.54	20.19	36.21
5650.00	2.30	163.86	5649.16	-15.30	15.37	12.27	1.56	19.67	38.60

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
5675.00	2.18	172.89	5674.14	-14.34	14.42	12.47	1.48	19.07	40.86
5700.00	1.91	181.53	5699.13	-13.45	13.53	12.52	1.65	18.44	42.77
5725.00	1.41	195.14	5724.12	-12.74	12.82	12.43	2.52	17.86	44.11
5750.00	1.21	202.57	5749.11	-12.20	12.28	12.25	1.06	17.34	44.92
5775.00	1.19	212.57	5774.10	-11.74	11.82	12.01	0.84	16.85	45.45
5800.00	1.17	214.10	5799.10	-11.32	11.39	11.72	0.14	16.35	45.83
5825.00	1.29	217.11	5824.09	-10.88	10.95	11.41	0.52	15.82	46.17
5850.00	1.14	212.65	5849.09	-10.45	10.52	11.11	0.68	15.30	46.56
5875.00	1.14	211.79	5874.08	-10.03	10.10	10.84	0.07	14.82	47.03
5900.00	1.13	213.96	5899.08	-9.62	9.68	10.57	0.18	14.34	47.52
5925.00	1.17	215.46	5924.07	-9.20	9.27	10.29	0.21	13.85	47.98
5950.00	1.13	211.95	5949.07	-8.79	8.85	10.01	0.34	13.36	48.51
5975.00	1.21	218.24	5974.06	-8.37	8.44	9.71	0.61	12.87	49.03
6000.00	1.24	212.90	5999.06	-7.94	8.00	9.40	0.47	12.35	49.61
6025.00	1.17	214.19	6024.05	-7.51	7.56	9.11	0.30	11.84	50.31
6050.00	1.26	218.70	6049.05	-7.08	7.14	8.80	0.52	11.33	50.95
6075.00	1.21	215.38	6074.04	-6.66	6.71	8.48	0.35	10.81	51.63
6100.00	1.18	215.73	6099.03	-6.24	6.29	8.17	0.09	10.31	52.43
6125.00	1.20	214.42	6124.03	-5.81	5.86	7.88	0.12	9.82	53.34
6150.00	1.17	214.44	6149.02	-5.39	5.44	7.58	0.09	9.33	54.37
6175.00	1.23	214.62	6174.02	-4.96	5.00	7.29	0.22	8.84	55.52
6200.00	1.11	214.36	6199.01	-4.54	4.58	7.00	0.50	8.36	56.77
6225.00	1.20	209.16	6224.01	-4.11	4.15	6.73	0.57	7.91	58.32
6250.00	1.22	211.16	6249.00	-3.66	3.70	6.47	0.18	7.45	60.24
6275.00	1.17	206.10	6274.00	-3.20	3.24	6.22	0.47	7.01	62.46
6300.00	1.24	211.92	6298.99	-2.75	2.78	5.96	0.56	6.58	64.98
6325.00	1.23	211.18	6323.99	-2.29	2.32	5.68	0.07	6.14	67.75
6350.00	1.26	214.39	6348.98	-1.83	1.87	5.39	0.30	5.70	70.88
6375.00	1.22	205.16	6373.97	-1.37	1.40	5.12	0.82	5.31	74.70
6400.00	1.21	216.53	6398.97	-0.92	0.95	4.85	0.96	4.94	78.93
6425.00	1.26	210.40	6423.96	-0.47	0.50	4.55	0.56	4.58	83.73
6450.00	1.25	212.60	6448.96	-0.01	0.04	4.27	0.20	4.27	89.52

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	%/100ft	ft	deg
6475.00	1.23	207.83	6473.95	0.46	-0.43	4.00	0.42	4.02	96.15
6500.00	1.26	209.91	6498.94	0.93	-0.91	3.73	0.22	3.84	103.65
6525.00	1.24	213.35	6523.94	1.39	-1.37	3.45	0.32	3.71	111.69
6550.00	1.24	214.16	6548.93	1.84	-1.82	3.15	0.07	3.64	120.06
6575.00	1.21	209.80	6573.93	2.29	-2.27	2.86	0.40	3.66	128.47
6600.00	1.32	211.98	6598.92	2.76	-2.75	2.58	0.48	3.77	136.81
6625.00	1.18	209.36	6623.92	3.23	-3.22	2.30	0.60	3.96	144.43
6650.00	1.38	211.26	6648.91	3.71	-3.70	2.02	0.80	4.21	151.38
6675.00	1.35	212.65	6673.90	4.21	-4.20	1.70	0.17	4.54	157.94
6700.00	1.44	215.89	6698.89	4.71	-4.71	1.36	0.47	4.90	163.88
6725.00	1.43	213.55	6723.89	5.23	-5.22	1.00	0.24	5.32	169.12
6750.00	1.40	209.98	6748.88	5.75	-5.75	0.68	0.37	5.79	173.27
6775.00	1.43	214.91	6773.87	6.27	-6.27	0.35	0.50	6.28	176.83
6800.00	1.44	212.17	6798.86	6.79	-6.79	0.00	0.28	6.79	179.99
6825.00	1.47	210.85	6823.86	7.33	-7.33	-0.33	0.19	7.33	182.57
6850.00	1.44	211.14	6848.85	7.87	-7.87	-0.66	0.12	7.90	184.76
6875.00	1.45	211.90	6873.84	8.40	-8.41	-0.99	0.09	8.47	186.68
6900.00	1.46	213.61	6898.83	8.93	-8.94	-1.33	0.18	9.04	188.45
6925.00	1.46	214.85	6923.82	9.46	-9.47	-1.69	0.13	9.62	190.11
6950.00	1.39	217.09	6948.82	9.96	-9.97	-2.05	0.34	10.18	191.63
6975.00	1.43	213.86	6973.81	10.46	-10.48	-2.41	0.34	10.75	192.96
7000.00	1.34	216.72	6998.80	10.95	-10.97	-2.76	0.44	11.31	194.12
7025.00	1.41	218.32	7023.79	11.42	-11.44	-3.12	0.31	11.86	195.27
7050.00	1.48	218.32	7048.79	11.92	-11.94	-3.51	0.29	12.44	196.40
7075.00	1.51	217.99	7073.78	12.43	-12.45	-3.92	0.12	13.05	197.47
7100.00	1.44	217.49	7098.77	12.93	-12.96	-4.31	0.30	13.66	198.40
7125.00	1.37	216.75	7123.76	13.42	-13.45	-4.68	0.27	14.24	199.19
7150.00	1.45	218.19	7148.75	13.90	-13.94	-5.06	0.35	14.82	199.94
7175.00	1.49	215.40	7173.75	14.42	-14.45	-5.44	0.34	15.44	200.63
7200.00	1.37	216.99	7198.74	14.92	-14.95	-5.81	0.53	16.04	201.22
7225.00	1.42	220.91	7223.73	15.39	-15.43	-6.19	0.43	16.62	201.86
7250.00	1.39	217.49	7248.72	15.86	-15.90	-6.58	0.36	17.21	202.47

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
7275.00	1.50	217.62	7273.71	16.36	-16.40	-6.96	0.46	17.82	203.00
7300.00	1.48	215.76	7298.71	16.88	-16.92	-7.35	0.21	18.45	203.48
7325.00	1.39	218.35	7323.70	17.37	-17.42	-7.73	0.47	19.06	203.92
7350.00	1.45	216.47	7348.69	17.86	-17.91	-8.10	0.33	19.66	204.34
7375.00	1.50	218.62	7373.68	18.37	-18.42	-8.50	0.28	20.29	204.76
7400.00	1.44	214.55	7398.67	18.88	-18.94	-8.88	0.48	20.92	205.12
7425.00	1.42	214.33	7423.67	19.39	-19.45	-9.23	0.09	21.53	205.38
7450.00	1.47	218.09	7448.66	19.90	-19.96	-9.60	0.44	22.15	205.69
7475.00	1.30	216.52	7473.65	20.38	-20.44	-9.97	0.72	22.74	206.00
7500.00	1.44	216.49	7498.64	20.85	-20.92	-10.32	0.57	23.33	206.27
7525.00	1.41	215.36	7523.64	21.36	-21.42	-10.69	0.15	23.94	206.52
7550.00	1.37	216.58	7548.63	21.85	-21.92	-11.05	0.20	24.54	206.75
7575.00	1.44	215.97	7573.62	22.34	-22.41	-11.41	0.28	25.15	206.98
7600.00	1.29	211.67	7598.61	22.83	-22.90	-11.74	0.73	25.74	207.14
7625.00	1.29	215.99	7623.61	23.30	-23.37	-12.05	0.39	26.30	207.28
7650.00	1.41	215.03	7648.60	23.77	-23.85	-12.40	0.49	26.88	207.46
7675.00	1.36	216.04	7673.59	24.26	-24.34	-12.75	0.23	27.48	207.64
7700.00	1.44	219.02	7698.59	24.74	-24.83	-13.12	0.45	28.08	207.85
7725.00	1.39	221.39	7723.58	25.21	-25.30	-13.52	0.32	28.68	208.12
7750.00	1.42	216.19	7748.57	25.69	-25.78	-13.90	0.52	29.28	208.34
7775.00	1.42	215.79	7773.56	26.19	-26.28	-14.26	0.04	29.90	208.50
7800.00	1.41	214.36	7798.56	26.69	-26.78	-14.62	0.14	30.51	208.63
7825.00	1.40	216.06	7823.55	27.19	-27.28	-14.97	0.17	31.12	208.76
7850.00	1.44	214.45	7848.54	27.69	-27.79	-15.33	0.22	31.74	208.89
7875.00	1.67	216.22	7873.53	28.24	-28.34	-15.73	0.94	32.41	209.02
7900.00	1.64	212.70	7898.52	28.84	-28.94	-16.13	0.43	33.13	209.14
7925.00	1.65	212.08	7923.51	29.44	-29.55	-16.52	0.10	33.85	209.21
7950.00	1.63	212.67	7948.50	30.04	-30.15	-16.90	0.11	34.57	209.28
7975.00	1.65	213.60	7973.49	30.64	-30.75	-17.29	0.13	35.28	209.35
8000.00	1.70	211.52	7998.48	31.25	-31.37	-17.69	0.30	36.01	209.42
8025.00	1.47	215.88	8023.47	31.83	-31.94	-18.07	1.01	36.70	209.50
8050.00	0.78	231.43	8048.46	32.19	-32.31	-18.39	3.00	37.18	209.65

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
8075.00	0.67	340.70	8073.46	32.16	-32.28	-18.57	4.74	37.24	209.92
8100.00	0.97	351.36	8098.46	31.81	-31.93	-18.65	1.34	36.98	210.29
8125.00	1.01	352.56	8123.46	31.38	-31.50	-18.71	0.18	36.64	210.71
8150.00	1.12	358.14	8148.45	30.92	-31.04	-18.75	0.60	36.26	211.13
8175.00	1.24	355.87	8173.45	30.41	-30.53	-18.78	0.51	35.84	211.60
8200.00	1.16	354.73	8198.44	29.89	-30.00	-18.82	0.33	35.42	212.10
8225.00	1.14	0.36	8223.44	29.39	-29.50	-18.84	0.46	35.01	212.56
8250.00	1.18	351.98	8248.43	28.88	-29.00	-18.88	0.69	34.60	213.06
8275.00	1.22	355.25	8273.43	28.36	-28.48	-18.93	0.33	34.20	213.61
8300.00	1.36	353.77	8298.42	27.80	-27.92	-18.99	0.58	33.77	214.22
8325.00	1.46	355.19	8323.41	27.19	-27.31	-19.05	0.42	33.29	214.89
8350.00	1.43	354.02	8348.40	26.56	-26.68	-19.11	0.19	32.82	215.61
8375.00	1.37	354.67	8373.40	25.95	-26.07	-19.17	0.25	32.36	216.32
8400.00	1.34	353.85	8398.39	25.37	-25.49	-19.22	0.13	31.92	217.03
8425.00	1.35	355.06	8423.38	24.78	-24.90	-19.28	0.12	31.50	217.75
8450.00	1.43	356.01	8448.38	24.18	-24.30	-19.33	0.34	31.05	218.50
8475.00	1.36	353.95	8473.37	23.57	-23.69	-19.38	0.33	30.61	219.28
8500.00	1.33	350.27	8498.36	22.99	-23.11	-19.46	0.37	30.22	220.10
8525.00	1.26	345.76	8523.36	22.44	-22.56	-19.58	0.49	29.87	220.95
8550.00	1.10	349.10	8548.35	21.94	-22.06	-19.69	0.70	29.57	221.75
8575.00	1.34	342.41	8573.34	21.42	-21.55	-19.82	1.13	29.28	222.62
8600.00	1.15	341.96	8598.34	20.90	-21.03	-19.99	0.80	29.01	223.55
8625.00	1.29	346.59	8623.33	20.39	-20.52	-20.13	0.70	28.75	224.46
8650.00	1.18	335.18	8648.33	19.88	-20.01	-20.31	1.07	28.51	225.42
8675.00	1.13	342.44	8673.32	19.41	-19.54	-20.49	0.62	28.31	226.36
8700.00	1.28	339.80	8698.32	18.91	-19.04	-20.66	0.61	28.10	227.33
8725.00	1.24	337.27	8723.31	18.40	-18.53	-20.86	0.26	27.90	228.39
8750.00	1.16	333.83	8748.31	17.92	-18.05	-21.08	0.45	27.75	229.42
8775.00	1.23	337.80	8773.30	17.44	-17.58	-21.29	0.44	27.61	230.46
8800.00	1.18	344.58	8798.29	16.95	-17.08	-21.46	0.60	27.43	231.48
8825.00	1.30	342.31	8823.29	16.43	-16.56	-21.62	0.53	27.23	232.54
8850.00	1.10	341.78	8848.28	15.93	-16.06	-21.78	0.80	27.06	233.59

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
8875.00	1.15	346.31	8873.28	15.45	-15.59	-21.91	0.41	26.89	234.57
8900.00	1.16	347.60	8898.27	14.96	-15.10	-22.03	0.11	26.70	235.57
8925.00	1.06	350.68	8923.27	14.48	-14.62	-22.12	0.46	26.51	236.53
8950.00	1.18	342.88	8948.26	14.01	-14.15	-22.23	0.77	26.35	237.53
8975.00	1.12	344.61	8973.26	13.53	-13.67	-22.37	0.28	26.22	238.58
9000.00	1.19	348.83	8998.25	13.04	-13.18	-22.49	0.44	26.06	239.62
9025.00	1.19	343.23	9023.25	12.53	-12.68	-22.61	0.47	25.92	240.72
9050.00	1.12	345.28	9048.24	12.05	-12.19	-22.75	0.32	25.81	241.81
9075.00	1.23	333.25	9073.24	11.57	-11.71	-22.93	1.07	25.75	242.94
9100.00	1.14	336.59	9098.23	11.10	-11.25	-23.15	0.45	25.74	244.09
9125.00	1.14	333.37	9123.23	10.65	-10.80	-23.36	0.26	25.74	245.19
9150.00	1.06	323.31	9148.22	10.24	-10.39	-23.61	0.84	25.79	246.25
9175.00	1.14	325.22	9173.22	9.85	-10.00	-23.89	0.37	25.90	247.28
9200.00	1.30	313.35	9198.21	9.45	-9.60	-24.24	1.18	26.07	248.39
9225.00	1.39	312.48	9223.21	9.05	-9.20	-24.67	0.40	26.33	249.54
9250.00	1.40	304.73	9248.20	8.66	-8.82	-25.14	0.76	26.65	250.66
9275.00	1.48	305.28	9273.19	8.30	-8.46	-25.66	0.31	27.02	251.75
9300.00	1.56	301.06	9298.18	7.94	-8.10	-26.21	0.55	27.43	252.83
9325.00	1.48	299.73	9323.17	7.60	-7.77	-26.78	0.36	27.89	253.83
9350.00	1.58	298.98	9348.16	7.27	-7.44	-27.36	0.43	28.36	254.79
9375.00	1.57	296.82	9373.15	6.94	-7.12	-27.97	0.25	28.86	255.72
9400.00	1.62	296.52	9398.14	6.63	-6.81	-28.59	0.22	29.39	256.61
9425.00	1.70	292.89	9423.13	6.32	-6.50	-29.25	0.53	29.96	257.46
9450.00	1.84	294.44	9448.12	6.00	-6.19	-29.96	0.61	30.59	258.32
9475.00	2.07	292.17	9473.11	5.66	-5.86	-30.74	0.95	31.29	259.21
9500.00	2.10	292.69	9498.09	5.31	-5.51	-31.58	0.16	32.06	260.10
9525.00	2.21	291.56	9523.07	4.95	-5.16	-32.45	0.47	32.86	260.97
9550.00	2.14	292.90	9548.06	4.59	-4.80	-33.33	0.37	33.67	261.81
9575.00	2.17	294.08	9573.04	4.21	-4.42	-34.19	0.22	34.48	262.63
9600.00	2.73	288.90	9598.02	3.82	-4.04	-35.19	2.40	35.42	263.46
9625.00	2.05	293.62	9622.99	3.44	-3.66	-36.16	2.80	36.35	264.21
9650.00	1.72	294.84	9647.98	3.10	-3.33	-36.91	1.35	37.06	264.85

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
9675.00	0.80	306.30	9672.97	2.83	-3.07	-37.39	3.78	37.52	265.31
9700.00	0.80	314.43	9697.97	2.60	-2.84	-37.66	0.46	37.77	265.69
9725.00	0.82	309.64	9722.97	2.37	-2.60	-37.92	0.28	38.01	266.07
9750.00	0.95	307.64	9747.97	2.12	-2.36	-38.22	0.54	38.30	266.46
9775.00	0.84	299.71	9772.96	1.90	-2.15	-38.55	0.67	38.61	266.81
9800.00	0.83	307.21	9797.96	1.70	-1.95	-38.85	0.44	38.90	267.13
9825.00	0.61	335.85	9822.96	1.47	-1.72	-39.05	1.67	39.08	267.48
9850.00	1.08	68.12	9847.96	1.26	-1.51	-38.88	5.03	38.91	267.78
9875.00	1.38	80.68	9872.95	1.13	-1.37	-38.37	1.62	38.39	267.95
9900.00	1.58	74.08	9897.94	0.99	-1.23	-37.74	1.02	37.76	268.14
9925.00	1.50	75.85	9922.93	0.82	-1.05	-37.09	0.36	37.10	268.37
9950.00	1.52	74.38	9947.92	0.66	-0.88	-36.45	0.17	36.46	268.61
9975.00	1.56	71.92	9972.92	0.46	-0.69	-35.81	0.31	35.82	268.90
10000.00	1.55	74.44	9997.91	0.27	-0.49	-35.16	0.27	35.17	269.20
10025.00	1.48	75.52	10022.90	0.11	-0.32	-34.53	0.32	34.53	269.46
10050.00	1.59	72.68	10047.89	-0.07	-0.14	-33.88	0.53	33.88	269.77
10075.00	1.38	75.36	10072.88	-0.25	0.04	-33.26	0.86	33.26	270.07
10100.00	1.28	70.68	10097.87	-0.41	0.21	-32.71	0.60	32.71	270.37
10125.00	1.05	75.48	10122.87	-0.56	0.36	-32.22	0.99	32.22	270.64
10150.00	1.05	81.89	10147.86	-0.65	0.45	-31.77	0.47	31.77	270.81
10175.00	0.78	79.91	10172.86	-0.71	0.51	-31.38	1.11	31.38	270.93
10200.00	0.79	81.86	10197.86	-0.76	0.57	-31.04	0.12	31.04	271.04
10225.00	0.82	82.08	10222.86	-0.81	0.61	-30.69	0.11	30.70	271.15
10250.00	0.79	84.40	10247.85	-0.85	0.66	-30.34	0.16	30.35	271.24
10275.00	0.68	81.60	10272.85	-0.88	0.69	-30.03	0.47	30.03	271.32
10300.00	0.56	87.44	10297.85	-0.91	0.72	-29.76	0.54	29.77	271.39
10325.00	0.44	96.16	10322.85	-0.90	0.72	-29.54	0.58	29.55	271.39
10350.00	0.30	76.45	10347.85	-0.91	0.72	-29.38	0.73	29.39	271.41
10375.00	0.47	79.35	10372.85	-0.94	0.76	-29.22	0.66	29.23	271.48
10400.00	0.39	87.79	10397.85	-0.96	0.78	-29.03	0.38	29.04	271.53
10425.00	0.32	74.29	10422.85	-0.98	0.80	-28.88	0.45	28.89	271.59
10450.00	0.20	61.84	10447.85	-1.02	0.84	-28.77	0.51	28.78	271.67

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
10475.00	0.18	27.22	10472.85	-1.08	0.90	-28.72	0.47	28.73	271.79
10500.00	0.24	3.98	10497.85	-1.16	0.98	-28.69	0.42	28.71	271.97
10525.00	0.23	331.53	10522.85	-1.26	1.08	-28.71	0.54	28.73	272.16
10550.00	0.28	17.40	10547.85	-1.37	1.19	-28.72	0.82	28.74	272.36



CONCHO

COG Operating L L C

Lea County, NM (NAD27 NME)

Sec. 35, T 20 S. , R 34 E

Mas Fed Com 1H

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

12 January, 2018



INTEGRITY
DIRECTIONAL

Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Mas Fed Com 1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Site:	Sec. 35, T 20 S. , R 34 E	MD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Well:	Mas Fed Com 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Project	Lea County, NM (NAD27 NME)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Sec. 35, T 20 S. , R 34 E		
Site Position:		Northing:	559,699.5000 usft
From:	Map	Easting:	745,455.6000 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "
		Latitude:	32.536200
		Longitude:	-103.536869
		Grid Convergence:	0.43 °

Well	Mas Fed Com 1H, ACTIVE		
Well Position	+N/-S	0.00 ft	Northing: 559,699.5000 usft
	+E/-W	0.00 ft	Easting: 745,455.6000 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft
		Latitude:	32.536200
		Longitude:	-103.536869
		Ground Level:	3,722.00 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/5/2017	6.73	60.48	48,259

Design	Wellbore #1			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	179.64

Survey Program	Date 1/12/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
100.00	10,550.00	Keeper Gyros (Wellbore #1)	Keeper	Standard Wireline Keeper ver 1.0.2
10,656.00	15,934.00	MWD Surveys (Wellbore #1)	MWD	MWD - Standard

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	559,699.5000	745,455.6000	32.536200	-103.536869
100.00	0.59	150.54	100.00	-0.45	0.25	559,699.0517	745,455.8533	32.536199	-103.536868
125.00	0.86	148.73	125.00	-0.72	0.41	559,698.7793	745,456.0139	32.536198	-103.536868
150.00	0.74	159.90	149.99	-1.03	0.57	559,698.4673	745,456.1668	32.536197	-103.536867
175.00	0.86	155.18	174.99	-1.35	0.70	559,698.1455	745,456.3010	32.536197	-103.536867
200.00	0.83	161.90	199.99	-1.70	0.84	559,697.8031	745,456.4361	32.536196	-103.536866
225.00	0.80	161.78	224.99	-2.03	0.95	559,697.4652	745,456.5469	32.536195	-103.536866
250.00	0.79	159.60	249.98	-2.36	1.06	559,697.1379	745,456.6615	32.536194	-103.536865
275.00	0.85	161.53	274.98	-2.70	1.18	559,696.8004	745,456.7803	32.536193	-103.536865
300.00	0.82	161.05	299.98	-3.04	1.30	559,696.4554	745,456.8972	32.536192	-103.536865
325.00	0.85	158.45	324.98	-3.39	1.42	559,696.1137	745,457.0234	32.536191	-103.536864

Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Mas Fed Com 1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Site:	Sec. 35, T 20 S. , R 34 E	MD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Well:	Mas Fed Com 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
350.00	0.80	163.55	349.97	-3.73	1.54	559,695.7738	745,457.1409	32.536190	-103.536864
375.00	0.70	160.53	374.97	-4.04	1.64	559,695.4625	745,457.2412	32.536189	-103.536864
400.00	0.59	161.52	399.97	-4.30	1.73	559,695.1964	745,457.3329	32.536188	-103.536863
425.00	0.57	160.74	424.97	-4.54	1.81	559,694.9569	745,457.4148	32.536188	-103.536863
450.00	0.43	152.54	449.97	-4.74	1.90	559,694.7563	745,457.4990	32.536187	-103.536863
475.00	0.21	154.07	474.97	-4.87	1.96	559,694.6319	745,457.5623	32.536187	-103.536863
500.00	0.11	157.38	499.97	-4.93	1.99	559,694.5685	745,457.5916	32.536187	-103.536863
525.00	0.15	150.53	524.97	-4.98	2.02	559,694.5179	745,457.6169	32.536187	-103.536862
550.00	0.06	96.06	549.97	-5.01	2.05	559,694.4880	745,457.6460	32.536186	-103.536862
575.00	0.06	116.16	574.97	-5.02	2.07	559,694.4808	745,457.6708	32.536186	-103.536862
600.00	0.15	7.32	599.97	-4.99	2.09	559,694.5075	745,457.6867	32.536187	-103.536862
625.00	0.21	340.84	624.97	-4.92	2.08	559,694.5833	745,457.6759	32.536187	-103.536862
650.00	0.22	342.82	649.97	-4.83	2.05	559,694.6724	745,457.6466	32.536187	-103.536862
675.00	0.29	357.57	674.97	-4.72	2.03	559,694.7815	745,457.6298	32.536187	-103.536862
700.00	0.29	351.72	699.97	-4.59	2.02	559,694.9073	745,457.6180	32.536188	-103.536862
725.00	0.31	1.11	724.97	-4.46	2.01	559,695.0375	745,457.6102	32.536188	-103.536862
750.00	0.29	356.23	749.97	-4.33	2.01	559,695.1683	745,457.6073	32.536188	-103.536862
775.00	0.23	347.31	774.96	-4.22	1.99	559,695.2803	745,457.5922	32.536189	-103.536863
800.00	0.24	350.94	799.96	-4.12	1.97	559,695.3810	745,457.5729	32.536189	-103.536863
825.00	0.31	353.88	824.96	-4.00	1.96	559,695.5000	745,457.5574	32.536189	-103.536863
850.00	0.29	354.16	849.96	-3.87	1.94	559,695.6301	745,457.5438	32.536190	-103.536863
875.00	0.26	333.81	874.96	-3.76	1.91	559,695.7440	745,457.5123	32.536190	-103.536863
900.00	0.22	326.20	899.96	-3.67	1.86	559,695.8348	745,457.4606	32.536190	-103.536863
925.00	0.20	15.13	924.96	-3.58	1.85	559,695.9168	745,457.4453	32.536190	-103.536863
950.00	0.24	341.49	949.96	-3.49	1.84	559,696.0085	745,457.4400	32.536191	-103.536863
975.00	0.16	306.29	974.96	-3.42	1.80	559,696.0789	745,457.3953	32.536191	-103.536863
1,000.00	0.07	279.14	999.96	-3.40	1.75	559,696.1019	745,457.3521	32.536191	-103.536863
1,025.00	0.03	214.30	1,024.96	-3.40	1.73	559,696.0990	745,457.3333	32.536191	-103.536863
1,050.00	0.17	264.99	1,049.96	-3.41	1.69	559,696.0903	745,457.2927	32.536191	-103.536863
1,075.00	0.12	217.73	1,074.96	-3.43	1.64	559,696.0664	745,457.2397	32.536191	-103.536864
1,100.00	0.08	171.51	1,099.96	-3.47	1.63	559,696.0284	745,457.2263	32.536191	-103.536864
1,125.00	0.21	245.26	1,124.96	-3.51	1.59	559,695.9920	745,457.1872	32.536191	-103.536864
1,150.00	0.14	248.26	1,149.96	-3.54	1.52	559,695.9615	745,457.1172	32.536191	-103.536864
1,175.00	0.16	195.22	1,174.96	-3.58	1.48	559,695.9165	745,457.0797	32.536190	-103.536864
1,200.00	0.05	252.73	1,199.96	-3.62	1.46	559,695.8796	745,457.0601	32.536190	-103.536864
1,225.00	0.13	226.21	1,224.96	-3.64	1.43	559,695.8567	745,457.0292	32.536190	-103.536864
1,250.00	0.14	206.75	1,249.96	-3.69	1.39	559,695.8098	745,456.9950	32.536190	-103.536864
1,275.00	0.10	214.65	1,274.96	-3.74	1.37	559,695.7646	745,456.9689	32.536190	-103.536865
1,300.00	0.15	204.34	1,299.96	-3.78	1.34	559,695.7168	745,456.9430	32.536190	-103.536865
1,325.00	0.20	245.85	1,324.96	-3.83	1.29	559,695.6691	745,456.8897	32.536190	-103.536865
1,350.00	0.11	187.61	1,349.96	-3.87	1.25	559,695.6275	745,456.8467	32.536190	-103.536865
1,375.00	0.15	234.20	1,374.96	-3.92	1.22	559,695.5846	745,456.8170	32.536189	-103.536865
1,400.00	0.23	241.30	1,399.96	-3.96	1.15	559,695.5413	745,456.7464	32.536189	-103.536865
1,425.00	0.11	235.50	1,424.96	-4.00	1.08	559,695.5036	745,456.6826	32.536189	-103.536865
1,450.00	0.11	176.16	1,449.96	-4.03	1.06	559,695.4661	745,456.6644	32.536189	-103.536866
1,475.00	0.24	277.33	1,474.96	-4.05	1.01	559,695.4488	745,456.6141	32.536189	-103.536866
1,500.00	0.18	291.22	1,499.96	-4.03	0.93	559,695.4697	745,456.5256	32.536189	-103.536866
1,525.00	0.23	280.81	1,524.96	-4.01	0.84	559,695.4934	745,456.4397	32.536189	-103.536866
1,550.00	0.32	288.76	1,549.96	-3.97	0.72	559,695.5252	745,456.3243	32.536189	-103.536867
1,575.00	0.23	272.22	1,574.96	-3.95	0.61	559,695.5496	745,456.2080	32.536189	-103.536867
1,600.00	0.21	273.83	1,599.96	-3.95	0.51	559,695.5546	745,456.1122	32.536189	-103.536867
1,625.00	0.33	281.41	1,624.96	-3.93	0.40	559,695.5719	745,455.9959	32.536189	-103.536868
1,650.00	0.22	258.22	1,649.96	-3.92	0.28	559,695.5764	745,455.8784	32.536189	-103.536868
1,675.00	0.24	275.62	1,674.96	-3.93	0.18	559,695.5717	745,455.7793	32.536189	-103.536868
1,700.00	0.15	274.43	1,699.96	-3.92	0.09	559,695.5794	745,455.6945	32.536190	-103.536869

Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Mas Fed Com 1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Site:	Sec. 35, T 20 S., R 34 E	MD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Well:	Mas Fed Com 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,725.00	0.10	299.13	1,724.96	-3.91	0.04	559,695.5925	745,455.6428	32.536190	-103.536869
1,750.00	0.07	336.29	1,749.96	-3.88	0.02	559,695.6171	745,455.6176	32.536190	-103.536869
1,775.00	0.16	280.97	1,774.96	-3.86	-0.02	559,695.6377	745,455.5772	32.536190	-103.536869
1,800.00	0.07	279.42	1,799.96	-3.85	-0.07	559,695.6469	745,455.5279	32.536190	-103.536869
1,825.00	0.04	262.24	1,824.96	-3.85	-0.10	559,695.6482	745,455.5042	32.536190	-103.536869
1,850.00	0.08	240.23	1,849.96	-3.86	-0.12	559,695.6384	745,455.4804	32.536190	-103.536869
1,875.00	0.10	244.62	1,874.96	-3.88	-0.15	559,695.6203	745,455.4455	32.536190	-103.536869
1,900.00	0.14	259.75	1,899.96	-3.89	-0.20	559,695.6055	745,455.3958	32.536190	-103.536870
1,925.00	0.38	261.82	1,924.96	-3.91	-0.32	559,695.5883	745,455.2836	32.536190	-103.536870
1,950.00	0.18	237.59	1,949.96	-3.94	-0.43	559,695.5555	745,455.1684	32.536189	-103.536870
1,975.00	0.14	222.84	1,974.96	-3.99	-0.49	559,695.5120	745,455.1145	32.536189	-103.536871
2,000.00	0.14	185.10	1,999.96	-4.04	-0.51	559,695.4592	745,455.0910	32.536189	-103.536871
2,025.00	0.20	162.55	2,024.96	-4.11	-0.50	559,695.3872	745,455.1014	32.536189	-103.536871
2,050.00	0.13	192.75	2,049.96	-4.18	-0.49	559,695.3179	745,455.1082	32.536189	-103.536871
2,075.00	0.16	188.61	2,074.96	-4.24	-0.50	559,695.2557	745,455.0967	32.536189	-103.536871
2,100.00	0.16	240.25	2,099.96	-4.30	-0.54	559,695.2039	745,455.0612	32.536188	-103.536871
2,125.00	0.28	227.70	2,124.96	-4.35	-0.61	559,695.1454	745,454.9857	32.536188	-103.536871
2,150.00	0.14	202.09	2,149.96	-4.42	-0.67	559,695.0760	745,454.9291	32.536188	-103.536871
2,175.00	0.28	216.86	2,174.96	-4.50	-0.72	559,694.9988	745,454.8809	32.536188	-103.536871
2,200.00	0.22	220.10	2,199.96	-4.59	-0.79	559,694.9133	745,454.8134	32.536188	-103.536872
2,225.00	0.33	220.11	2,224.96	-4.68	-0.86	559,694.8215	745,454.7361	32.536187	-103.536872
2,250.00	0.33	204.17	2,249.96	-4.80	-0.94	559,694.7007	745,454.6602	32.536187	-103.536872
2,275.00	0.31	210.70	2,274.96	-4.92	-1.00	559,694.5769	745,454.5962	32.536187	-103.536872
2,300.00	0.30	234.01	2,299.96	-5.02	-1.09	559,694.4803	745,454.5087	32.536187	-103.536873
2,325.00	0.32	222.18	2,324.96	-5.11	-1.19	559,694.3901	745,454.4089	32.536186	-103.536873
2,350.00	0.26	198.42	2,349.96	-5.22	-1.26	559,694.2845	745,454.3441	32.536186	-103.536873
2,375.00	0.36	221.94	2,374.96	-5.33	-1.33	559,694.1723	745,454.2737	32.536186	-103.536873
2,400.00	0.34	227.80	2,399.95	-5.44	-1.43	559,694.0641	745,454.1662	32.536185	-103.536874
2,425.00	0.35	218.95	2,424.95	-5.55	-1.54	559,693.9549	745,454.0633	32.536185	-103.536874
2,450.00	0.32	214.23	2,449.95	-5.66	-1.62	559,693.8377	745,453.9760	32.536185	-103.536874
2,475.00	0.35	220.37	2,474.95	-5.78	-1.71	559,693.7219	745,453.8873	32.536184	-103.536875
2,500.00	0.32	207.85	2,499.95	-5.90	-1.79	559,693.6020	745,453.8052	32.536184	-103.536875
2,525.00	0.39	203.05	2,524.95	-6.04	-1.86	559,693.4619	745,453.7393	32.536184	-103.536875
2,550.00	0.27	201.17	2,549.95	-6.17	-1.92	559,693.3287	745,453.6847	32.536183	-103.536875
2,575.00	0.29	217.18	2,574.95	-6.28	-1.97	559,693.2234	745,453.6252	32.536183	-103.536875
2,600.00	0.36	205.43	2,599.95	-6.40	-2.05	559,693.1020	745,453.5532	32.536183	-103.536876
2,625.00	0.33	239.90	2,624.95	-6.51	-2.14	559,692.9950	745,453.4572	32.536182	-103.536876
2,650.00	0.36	228.10	2,649.95	-6.59	-2.26	559,692.9064	745,453.3365	32.536182	-103.536876
2,675.00	0.42	233.08	2,674.95	-6.70	-2.40	559,692.7990	745,453.2048	32.536182	-103.536877
2,700.00	0.34	191.22	2,699.95	-6.83	-2.48	559,692.6712	745,453.1171	32.536182	-103.536877
2,725.00	0.28	212.04	2,724.95	-6.95	-2.53	559,692.5466	745,453.0702	32.536181	-103.536877
2,750.00	0.26	198.12	2,749.95	-7.06	-2.58	559,692.4409	745,453.0202	32.536181	-103.536877
2,775.00	0.18	194.39	2,774.95	-7.15	-2.61	559,692.3490	745,452.9928	32.536181	-103.536878
2,800.00	0.26	204.39	2,799.95	-7.24	-2.64	559,692.2593	745,452.9596	32.536180	-103.536878
2,825.00	0.26	192.33	2,824.95	-7.35	-2.68	559,692.1522	745,452.9241	32.536180	-103.536878
2,850.00	0.32	192.26	2,849.95	-7.47	-2.70	559,692.0286	745,452.8971	32.536180	-103.536878
2,875.00	0.23	190.45	2,874.95	-7.59	-2.73	559,691.9110	745,452.8732	32.536179	-103.536878
2,900.00	0.29	144.78	2,899.95	-7.69	-2.70	559,691.8100	745,452.9006	32.536179	-103.536878
2,925.00	0.11	179.78	2,924.95	-7.77	-2.66	559,691.7343	745,452.9372	32.536179	-103.536878
2,950.00	0.28	150.00	2,949.95	-7.84	-2.63	559,691.6574	745,452.9678	32.536179	-103.536878
2,975.00	0.24	157.76	2,974.95	-7.94	-2.58	559,691.5560	745,453.0182	32.536179	-103.536877
3,000.00	0.24	142.32	2,999.95	-8.03	-2.53	559,691.4661	745,453.0700	32.536178	-103.536877
3,025.00	0.28	134.55	3,024.95	-8.12	-2.45	559,691.3818	745,453.1455	32.536178	-103.536877
3,050.00	0.29	125.97	3,049.95	-8.20	-2.36	559,691.3018	745,453.2403	32.536178	-103.536877
3,075.00	0.31	139.09	3,074.95	-8.29	-2.26	559,691.2135	745,453.3357	32.536178	-103.536876

Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Mas Fed Com 1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Site:	Sec. 35, T 20 S., R 34 E	MD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Well:	Mas Fed Com 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
3,100.00	0.32	123.82	3,099.95	-8.38	-2.16	559,691.1236	745,453.4380	32.536177	-103.536876
3,125.00	0.52	111.31	3,124.94	-8.46	-2.00	559,691.0435	745,453.6017	32.536177	-103.536876
3,150.00	0.71	108.99	3,149.94	-8.55	-1.75	559,690.9518	745,453.8539	32.536177	-103.536875
3,175.00	0.82	107.40	3,174.94	-8.65	-1.43	559,690.8480	745,454.1710	32.536177	-103.536874
3,200.00	0.82	109.73	3,199.94	-8.77	-1.09	559,690.7341	745,454.5101	32.536176	-103.536873
3,225.00	0.86	107.31	3,224.94	-8.88	-0.74	559,690.6178	745,454.8576	32.536176	-103.536872
3,250.00	1.04	106.66	3,249.93	-9.00	-0.35	559,690.4970	745,455.2541	32.536176	-103.536870
3,275.00	0.93	110.00	3,274.93	-9.14	0.06	559,690.3625	745,455.6621	32.536175	-103.536869
3,300.00	1.09	108.31	3,299.92	-9.28	0.48	559,690.2185	745,456.0785	32.536175	-103.536868
3,325.00	1.15	115.69	3,324.92	-9.47	0.93	559,690.0350	745,456.5303	32.536174	-103.536866
3,350.00	1.18	115.08	3,349.91	-9.68	1.39	559,689.8171	745,456.9896	32.536174	-103.536865
3,375.00	1.21	112.67	3,374.91	-9.89	1.87	559,689.6063	745,457.4663	32.536173	-103.536863
3,400.00	1.24	112.28	3,399.90	-10.10	2.36	559,689.4020	745,457.9602	32.536172	-103.536861
3,425.00	1.25	115.59	3,424.90	-10.32	2.86	559,689.1816	745,458.4564	32.536172	-103.536860
3,450.00	1.27	116.81	3,449.89	-10.56	3.35	559,688.9389	745,458.9496	32.536171	-103.536858
3,475.00	1.19	116.93	3,474.89	-10.80	3.83	559,688.6964	745,459.4283	32.536171	-103.536857
3,500.00	1.19	119.72	3,499.88	-11.05	4.29	559,688.4501	745,459.8852	32.536170	-103.536855
3,525.00	1.20	119.57	3,524.87	-11.31	4.74	559,688.1922	745,460.3384	32.536169	-103.536854
3,550.00	1.26	123.53	3,549.87	-11.59	5.20	559,687.9112	745,460.7952	32.536168	-103.536852
3,575.00	1.26	123.70	3,574.86	-11.89	5.65	559,687.6069	745,461.2530	32.536167	-103.536851
3,600.00	1.31	125.11	3,599.86	-12.21	6.12	559,687.2900	745,461.7154	32.536167	-103.536849
3,625.00	1.37	123.24	3,624.85	-12.54	6.60	559,686.9618	745,462.1992	32.536166	-103.536848
3,650.00	1.36	124.11	3,649.84	-12.87	7.09	559,686.6316	745,462.6948	32.536165	-103.536846
3,675.00	1.26	124.11	3,674.84	-13.19	7.57	559,686.3111	745,463.1680	32.536164	-103.536845
3,700.00	0.90	127.91	3,699.83	-13.46	7.95	559,686.0363	745,463.5505	32.536163	-103.536843
3,725.00	0.43	127.27	3,724.83	-13.64	8.18	559,685.8589	745,463.7800	32.536163	-103.536843
3,750.00	0.21	66.79	3,749.83	-13.68	8.30	559,685.8201	745,463.8968	32.536163	-103.536842
3,775.00	0.20	357.37	3,774.83	-13.62	8.34	559,685.8818	745,463.9369	32.536163	-103.536842
3,800.00	0.17	345.48	3,799.83	-13.54	8.33	559,685.9613	745,463.9256	32.536163	-103.536842
3,825.00	0.31	346.51	3,824.83	-13.44	8.30	559,686.0629	745,463.9005	32.536163	-103.536842
3,850.00	0.49	334.68	3,849.83	-13.27	8.24	559,686.2253	745,463.8390	32.536164	-103.536842
3,875.00	0.42	356.68	3,874.83	-13.09	8.19	559,686.4134	745,463.7880	32.536164	-103.536843
3,900.00	0.63	338.09	3,899.83	-12.87	8.13	559,686.6324	745,463.7314	32.536165	-103.536843
3,925.00	0.51	357.77	3,924.83	-12.63	8.08	559,686.8711	745,463.6758	32.536165	-103.536843
3,950.00	0.58	342.85	3,949.82	-12.40	8.03	559,687.1032	745,463.6341	32.536166	-103.536843
3,975.00	0.62	343.43	3,974.82	-12.15	7.96	559,687.3538	745,463.5583	32.536167	-103.536843
4,000.00	0.76	343.78	3,999.82	-11.86	7.87	559,687.6426	745,463.4734	32.536168	-103.536844
4,025.00	0.75	339.55	4,024.82	-11.54	7.77	559,687.9551	745,463.3699	32.536168	-103.536844
4,050.00	0.83	337.89	4,049.82	-11.22	7.64	559,688.2762	745,463.2446	32.536169	-103.536844
4,075.00	0.73	342.95	4,074.81	-10.90	7.53	559,688.5962	745,463.1297	32.536170	-103.536845
4,100.00	0.84	337.00	4,099.81	-10.58	7.41	559,688.9171	745,463.0114	32.536171	-103.536845
4,125.00	0.99	335.32	4,124.81	-10.22	7.25	559,689.2821	745,462.8496	32.536172	-103.536846
4,150.00	0.95	328.41	4,149.81	-9.85	7.05	559,689.6548	745,462.6509	32.536173	-103.536846
4,175.00	0.84	335.47	4,174.80	-9.50	6.87	559,689.9981	745,462.4663	32.536174	-103.536847
4,200.00	1.02	324.29	4,199.80	-9.15	6.66	559,690.3455	745,462.2603	32.536175	-103.536847
4,225.00	1.02	334.67	4,224.80	-8.77	6.44	559,690.7273	745,462.0352	32.536176	-103.536848
4,250.00	1.17	327.33	4,249.79	-8.36	6.20	559,691.1433	745,461.8022	32.536177	-103.536849
4,275.00	1.05	333.34	4,274.79	-7.94	5.96	559,691.5628	745,461.5617	32.536178	-103.536850
4,300.00	1.23	325.85	4,299.78	-7.51	5.71	559,691.9896	745,461.3083	32.536180	-103.536851
4,325.00	1.14	331.98	4,324.78	-7.07	5.44	559,692.4312	745,461.0408	32.536181	-103.536851
4,350.00	1.32	332.58	4,349.77	-6.59	5.19	559,692.9064	745,460.7914	32.536182	-103.536852
4,375.00	1.30	328.05	4,374.76	-6.10	4.91	559,693.4026	745,460.5087	32.536183	-103.536853
4,400.00	1.40	329.64	4,399.76	-5.59	4.60	559,693.9067	745,460.2043	32.536185	-103.536854
4,425.00	1.40	329.42	4,424.75	-5.07	4.29	559,694.4332	745,459.8946	32.536186	-103.536855
4,450.00	1.64	326.99	4,449.74	-4.50	3.94	559,694.9961	745,459.5443	32.536188	-103.536856

Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Mas Fed Com 1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3748.00ft (Scandrell Freedom)
Site:	Sec. 35, T 20 S. , R 34 E	MD Reference:	KB=26' @ 3748.00ft (Scandrell Freedom)
Well:	Mas Fed Com 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,475.00	1.60	328.53	4,474.73	-3.91	3.57	559,695.5938	745,459.1672	32.536189	-103.536857
4,500.00	1.59	330.29	4,499.72	-3.31	3.21	559,696.1927	745,458.8131	32.536191	-103.536859
4,525.00	1.41	332.21	4,524.71	-2.73	2.90	559,696.7661	745,458.4978	32.536193	-103.536860
4,550.00	1.57	331.30	4,549.70	-2.16	2.59	559,697.3386	745,458.1899	32.536194	-103.536861
4,575.00	1.58	332.04	4,574.69	-1.56	2.26	559,697.9434	745,457.8639	32.536196	-103.536862
4,600.00	1.64	329.98	4,599.68	-0.94	1.92	559,698.5576	745,457.5233	32.536198	-103.536863
4,625.00	1.71	331.15	4,624.67	-0.31	1.56	559,699.1941	745,457.1643	32.536199	-103.536864
4,650.00	1.38	338.33	4,649.66	0.30	1.27	559,699.8005	745,456.8732	32.536201	-103.536865
4,675.00	1.23	343.75	4,674.66	0.84	1.09	559,700.3379	745,456.6869	32.536203	-103.536865
4,700.00	1.20	343.49	4,699.65	1.35	0.94	559,700.8465	745,456.5374	32.536204	-103.536866
4,725.00	1.13	347.06	4,724.65	1.84	0.81	559,701.3377	745,456.4078	32.536205	-103.536866
4,750.00	1.20	350.62	4,749.64	2.34	0.71	559,701.8363	745,456.3100	32.536207	-103.536867
4,775.00	1.06	359.17	4,774.64	2.83	0.66	559,702.3258	745,456.2640	32.536208	-103.536867
4,800.00	1.09	0.24	4,799.63	3.29	0.66	559,702.7948	745,456.2616	32.536209	-103.536867
4,825.00	1.21	358.69	4,824.63	3.80	0.66	559,703.2964	745,456.2566	32.536211	-103.536867
4,850.00	1.17	0.11	4,849.62	4.32	0.65	559,703.8156	745,456.2510	32.536212	-103.536867
4,875.00	1.24	351.12	4,874.62	4.84	0.61	559,704.3381	745,456.2098	32.536214	-103.536867
4,900.00	1.27	357.19	4,899.61	5.38	0.55	559,704.8820	745,456.1544	32.536215	-103.536867
4,925.00	1.48	351.58	4,924.60	5.98	0.49	559,705.4781	745,456.0936	32.536217	-103.536867
4,950.00	1.45	352.74	4,949.60	6.61	0.41	559,706.1113	745,456.0063	32.536218	-103.536867
4,975.00	1.60	353.37	4,974.59	7.27	0.33	559,706.7717	745,455.9261	32.536220	-103.536868
5,000.00	1.74	351.61	4,999.58	7.99	0.23	559,707.4939	745,455.8304	32.536222	-103.536868
5,025.00	1.85	349.15	5,024.56	8.77	0.10	559,708.2657	745,455.6990	32.536224	-103.536868
5,050.00	2.03	350.81	5,049.55	9.60	-0.05	559,709.0991	745,455.5524	32.536227	-103.536869
5,075.00	2.10	348.70	5,074.53	10.49	-0.21	559,709.9854	745,455.3919	32.536229	-103.536869
5,100.00	2.23	351.89	5,099.52	11.42	-0.37	559,710.9161	745,455.2335	32.536232	-103.536870
5,125.00	2.35	353.86	5,124.50	12.41	-0.49	559,711.9072	745,455.1101	32.536234	-103.536870
5,150.00	2.40	4.15	5,149.47	13.44	-0.51	559,712.9389	745,455.0931	32.536237	-103.536870
5,175.00	2.37	7.41	5,174.45	14.47	-0.40	559,713.9736	745,455.1977	32.536240	-103.536870
5,200.00	2.24	13.51	5,199.43	15.46	-0.22	559,714.9612	745,455.3785	32.536243	-103.536869
5,225.00	2.04	29.48	5,224.41	16.32	0.11	559,715.8236	745,455.7116	32.536245	-103.536868
5,250.00	1.78	41.71	5,249.40	17.00	0.59	559,716.5008	745,456.1889	32.536247	-103.536867
5,275.00	1.62	48.99	5,274.39	17.52	1.11	559,717.0226	745,456.7139	32.536248	-103.536865
5,300.00	1.52	49.76	5,299.38	17.97	1.63	559,717.4686	745,457.2337	32.536250	-103.536863
5,325.00	1.78	67.78	5,324.37	18.33	2.25	559,717.8297	745,457.8462	32.536251	-103.536861
5,350.00	1.99	74.70	5,349.36	18.59	3.02	559,718.0910	745,458.6244	32.536251	-103.536859
5,375.00	1.94	76.98	5,374.34	18.80	3.86	559,718.3009	745,459.4553	32.536252	-103.536856
5,400.00	2.05	81.84	5,399.33	18.96	4.71	559,718.4597	745,460.3102	32.536252	-103.536853
5,425.00	1.97	86.46	5,424.31	19.05	5.58	559,718.5497	745,461.1817	32.536253	-103.536850
5,450.00	1.90	97.04	5,449.30	19.03	6.42	559,718.5254	745,462.0219	32.536252	-103.536848
5,475.00	1.95	102.74	5,474.28	18.88	7.25	559,718.3808	745,462.8481	32.536252	-103.536845
5,500.00	2.05	106.84	5,499.27	18.66	8.09	559,718.1575	745,463.6909	32.536251	-103.536842
5,525.00	2.14	109.47	5,524.25	18.37	8.96	559,717.8724	745,464.5590	32.536251	-103.536839
5,550.00	2.24	110.39	5,549.23	18.05	9.86	559,717.5466	745,465.4570	32.536250	-103.536836
5,575.00	2.21	122.75	5,574.21	17.62	10.72	559,717.1156	745,466.3204	32.536248	-103.536834
5,600.00	2.04	137.51	5,599.20	17.03	11.43	559,716.5267	745,467.0263	32.536247	-103.536831
5,625.00	2.20	154.20	5,624.18	16.27	11.94	559,715.7666	745,467.5357	32.536245	-103.536830
5,650.00	2.30	163.86	5,649.16	15.35	12.28	559,714.8527	745,467.8840	32.536242	-103.536829
5,675.00	2.18	172.89	5,674.14	14.40	12.48	559,713.8990	745,468.0823	32.536240	-103.536828
5,700.00	1.91	181.53	5,699.13	13.51	12.53	559,713.0107	745,468.1301	32.536237	-103.536828
5,725.00	1.41	195.14	5,724.12	12.80	12.44	559,712.2973	745,468.0386	32.536235	-103.536828
5,750.00	1.21	202.57	5,749.11	12.26	12.26	559,711.7566	745,467.8570	32.536234	-103.536829
5,775.00	1.19	212.57	5,774.10	11.79	12.02	559,711.2941	745,467.6159	32.536232	-103.536830
5,800.00	1.17	214.10	5,799.10	11.36	11.73	559,710.8640	745,467.3331	32.536231	-103.536831
5,825.00	1.29	217.11	5,824.09	10.93	11.42	559,710.4282	745,467.0202	32.536230	-103.536832

Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Mas Fed Com 1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Site:	Sec. 35, T 20 S. , R 34 E	MD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Well:	Mas Fed Com 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,850.00	1.14	212.65	5,849.09	10.49	11.12	559,709.9944	745,466.7162	32.536229	-103.536833
5,875.00	1.14	211.79	5,874.08	10.07	10.85	559,709.5736	745,466.4510	32.536228	-103.536833
5,900.00	1.13	213.96	5,899.08	9.66	10.58	559,709.1578	745,466.1823	32.536227	-103.536834
5,925.00	1.17	215.46	5,924.07	9.25	10.30	559,708.7454	745,465.8965	32.536225	-103.536835
5,950.00	1.13	211.95	5,949.07	8.83	10.02	559,708.3284	745,465.6180	32.536224	-103.536836
5,975.00	1.21	218.24	5,974.06	8.41	9.72	559,707.9119	745,465.3242	32.536223	-103.536837
6,000.00	1.24	212.90	5,999.06	7.98	9.41	559,707.4774	745,465.0139	32.536222	-103.536838
6,025.00	1.17	214.19	6,024.05	7.54	9.12	559,707.0392	745,464.7235	32.536221	-103.536839
6,050.00	1.26	218.70	6,049.05	7.11	8.81	559,706.6135	745,464.4082	32.536220	-103.536840
6,075.00	1.21	215.38	6,074.04	6.68	8.48	559,706.1838	745,464.0836	32.536218	-103.536841
6,100.00	1.18	215.73	6,099.03	6.26	8.18	559,705.7596	745,463.7804	32.536217	-103.536842
6,125.00	1.20	214.42	6,124.03	5.83	7.88	559,705.3347	745,463.4821	32.536216	-103.536843
6,150.00	1.17	214.44	6,149.02	5.41	7.59	559,704.9083	745,463.1898	32.536215	-103.536844
6,175.00	1.23	214.62	6,174.02	4.98	7.29	559,704.4770	745,462.8930	32.536214	-103.536845
6,200.00	1.11	214.36	6,199.01	4.56	7.00	559,704.0563	745,462.6039	32.536213	-103.536846
6,225.00	1.20	209.16	6,224.01	4.13	6.74	559,703.6278	745,462.3397	32.536211	-103.536847
6,250.00	1.22	211.16	6,249.00	3.67	6.47	559,703.1714	745,462.0744	32.536210	-103.536848
6,275.00	1.17	206.10	6,274.00	3.21	6.22	559,702.7145	745,461.8244	32.536209	-103.536849
6,300.00	1.24	211.92	6,298.99	2.76	5.97	559,702.2557	745,461.5691	32.536208	-103.536849
6,325.00	1.23	211.18	6,323.99	2.30	5.69	559,701.7965	745,461.2871	32.536206	-103.536850
6,350.00	1.26	214.39	6,348.98	1.84	5.39	559,701.3401	745,460.9930	32.536205	-103.536851
6,375.00	1.22	205.16	6,373.97	1.37	5.12	559,700.8724	745,460.7246	32.536204	-103.536852
6,400.00	1.21	216.53	6,398.97	0.92	4.85	559,700.4194	745,460.4543	32.536203	-103.536853
6,425.00	1.26	210.40	6,423.96	0.47	4.56	559,699.9702	745,460.1581	32.536201	-103.536854
6,450.00	1.25	212.60	6,448.96	0.00	4.27	559,699.5034	745,459.8721	32.536200	-103.536855
6,475.00	1.23	207.83	6,473.95	-0.46	4.00	559,699.0364	745,459.5999	32.536199	-103.536856
6,500.00	1.26	209.91	6,498.94	-0.94	3.74	559,698.5608	745,459.3376	32.536198	-103.536857
6,525.00	1.24	213.35	6,523.94	-1.40	3.45	559,698.0966	745,459.0518	32.536196	-103.536858
6,550.00	1.24	214.16	6,548.93	-1.85	3.15	559,697.6468	745,458.7512	32.536195	-103.536859
6,575.00	1.21	209.80	6,573.93	-2.31	2.87	559,697.1939	745,458.4681	32.536194	-103.536860
6,600.00	1.32	211.98	6,598.92	-2.78	2.58	559,696.7206	745,458.1844	32.536193	-103.536861
6,625.00	1.18	209.36	6,623.91	-3.25	2.31	559,696.2520	745,457.9057	32.536191	-103.536861
6,650.00	1.38	211.26	6,648.91	-3.73	2.02	559,695.7703	745,457.6233	32.536190	-103.536862
6,675.00	1.35	212.65	6,673.90	-4.23	1.71	559,695.2650	745,457.3082	32.536189	-103.536863
6,700.00	1.44	215.89	6,698.89	-4.74	1.37	559,694.7626	745,456.9652	32.536187	-103.536865
6,725.00	1.43	213.55	6,723.89	-5.25	1.01	559,694.2481	745,456.6086	32.536186	-103.536866
6,750.00	1.40	209.98	6,748.88	-5.78	0.68	559,693.7236	745,456.2836	32.536184	-103.536867
6,775.00	1.43	214.91	6,773.87	-6.30	0.35	559,693.2033	745,455.9525	32.536183	-103.536868
6,800.00	1.44	212.17	6,798.86	-6.82	0.01	559,692.6816	745,455.6067	32.536182	-103.536869
6,825.00	1.47	210.85	6,823.86	-7.36	-0.33	559,692.1404	745,455.2750	32.536180	-103.536870
6,850.00	1.44	211.14	6,848.85	-7.90	-0.65	559,691.5962	745,454.9481	32.536179	-103.536871
6,875.00	1.45	211.90	6,873.84	-8.44	-0.98	559,691.0588	745,454.6185	32.536177	-103.536872
6,900.00	1.46	213.61	6,898.83	-8.98	-1.32	559,690.5250	745,454.2751	32.536176	-103.536873
6,925.00	1.46	214.85	6,923.82	-9.50	-1.68	559,689.9984	745,453.9168	32.536174	-103.536875
6,950.00	1.39	217.09	6,948.82	-10.00	-2.05	559,689.4952	745,453.5520	32.536173	-103.536876
6,975.00	1.43	213.86	6,973.81	-10.51	-2.40	559,688.9943	745,453.1953	32.536171	-103.536877
7,000.00	1.34	216.72	6,998.80	-11.00	-2.75	559,688.5009	745,452.8467	32.536170	-103.536878
7,025.00	1.41	218.32	7,023.79	-11.47	-3.12	559,688.0253	745,452.4812	32.536169	-103.536879
7,050.00	1.48	218.32	7,048.79	-11.97	-3.51	559,687.5307	745,452.0903	32.536167	-103.536881
7,075.00	1.51	217.99	7,073.78	-12.48	-3.91	559,687.0178	745,451.6874	32.536166	-103.536882
7,100.00	1.44	217.49	7,098.77	-12.99	-4.31	559,686.5089	745,451.2934	32.536165	-103.536883
7,125.00	1.37	216.75	7,123.76	-13.48	-4.68	559,686.0202	745,450.9234	32.536163	-103.536884
7,150.00	1.45	218.19	7,148.75	-13.97	-5.05	559,685.5322	745,450.5491	32.536162	-103.536886
7,175.00	1.49	215.40	7,173.75	-14.48	-5.43	559,685.0186	745,450.1652	32.536161	-103.536887
7,200.00	1.37	216.99	7,198.74	-14.99	-5.80	559,684.5150	745,449.7971	32.536159	-103.536888

Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Mas Fed Com 1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Site:	Sec. 35, T 20 S. , R 34 E	MD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Well:	Mas Fed Com 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
7,225.00	1.42	220.91	7,223.73	-15.46	-6.19	559,684.0421	745,449.4145	32.536158	-103.536889
7,250.00	1.39	217.49	7,248.72	-15.93	-6.57	559,683.5675	745,449.0270	32.536157	-103.536891
7,275.00	1.50	217.62	7,273.71	-16.43	-6.96	559,683.0677	745,448.6428	32.536155	-103.536892
7,300.00	1.48	215.76	7,298.71	-16.95	-7.35	559,682.5465	745,448.2544	32.536154	-103.536893
7,325.00	1.39	218.35	7,323.70	-17.45	-7.72	559,682.0467	745,447.8776	32.536152	-103.536894
7,350.00	1.45	216.47	7,348.69	-17.95	-8.10	559,681.5546	745,447.5014	32.536151	-103.536896
7,375.00	1.50	218.62	7,373.68	-18.46	-8.49	559,681.0446	745,447.1092	32.536150	-103.536897
7,400.00	1.44	214.55	7,398.67	-18.97	-8.87	559,680.5302	745,446.7268	32.536148	-103.536898
7,425.00	1.42	214.33	7,423.67	-19.48	-9.23	559,680.0157	745,446.3739	32.536147	-103.536899
7,450.00	1.47	218.09	7,448.66	-19.99	-9.60	559,679.5075	745,446.0014	32.536146	-103.536901
7,475.00	1.30	216.52	7,473.65	-20.47	-9.97	559,679.0272	745,445.6348	32.536144	-103.536902
7,500.00	1.44	216.49	7,498.64	-20.95	-10.32	559,678.5467	745,445.2793	32.536143	-103.536903
7,525.00	1.41	215.36	7,523.64	-21.46	-10.69	559,678.0434	745,444.9145	32.536142	-103.536904
7,550.00	1.37	216.58	7,548.63	-21.95	-11.04	559,677.5525	745,444.5584	32.536140	-103.536905
7,575.00	1.44	215.97	7,573.62	-22.44	-11.40	559,677.0583	745,444.1957	32.536139	-103.536906
7,600.00	1.29	211.67	7,598.61	-22.94	-11.74	559,676.5646	745,443.8635	32.536137	-103.536908
7,625.00	1.29	215.99	7,623.61	-23.40	-12.05	559,676.0974	745,443.5504	32.536136	-103.536909
7,650.00	1.41	215.03	7,648.60	-23.88	-12.39	559,675.6178	745,443.2085	32.536135	-103.536910
7,675.00	1.36	216.04	7,673.59	-24.37	-12.74	559,675.1260	745,442.8573	32.536134	-103.536911
7,700.00	1.44	219.02	7,698.59	-24.86	-13.12	559,674.6421	745,442.4850	32.536132	-103.536912
7,725.00	1.39	221.39	7,723.58	-25.33	-13.51	559,674.1706	745,442.0868	32.536131	-103.536913
7,750.00	1.42	216.19	7,748.57	-25.81	-13.90	559,673.6931	745,441.7034	32.536130	-103.536915
7,775.00	1.42	215.79	7,773.56	-26.31	-14.26	559,673.1918	745,441.3393	32.536128	-103.536916
7,800.00	1.41	214.36	7,798.56	-26.81	-14.62	559,672.6866	745,440.9846	32.536127	-103.536917
7,825.00	1.40	216.06	7,823.55	-27.31	-14.97	559,672.1858	745,440.6312	32.536126	-103.536918
7,850.00	1.44	214.45	7,848.54	-27.82	-15.33	559,671.6799	745,440.2737	32.536124	-103.536919
7,875.00	1.67	216.22	7,873.53	-28.37	-15.72	559,671.1270	745,439.8808	32.536123	-103.536921
7,900.00	1.64	212.70	7,898.52	-28.97	-16.13	559,670.5321	745,439.4723	32.536121	-103.536922
7,925.00	1.65	212.08	7,923.51	-29.57	-16.51	559,669.9260	745,439.0878	32.536119	-103.536923
7,950.00	1.63	212.67	7,948.50	-30.18	-16.90	559,669.3218	745,438.7048	32.536118	-103.536924
7,975.00	1.65	213.60	7,973.49	-30.78	-17.29	559,668.7227	745,438.3136	32.536116	-103.536926
8,000.00	1.70	211.52	7,998.48	-31.39	-17.68	559,668.1068	745,437.9206	32.536114	-103.536927
8,025.00	1.47	215.88	8,023.47	-31.97	-18.06	559,667.5308	745,437.5388	32.536113	-103.536928
8,050.00	0.78	231.43	8,048.46	-32.34	-18.38	559,667.1649	745,437.2178	32.536112	-103.536929
8,075.00	0.67	340.70	8,073.46	-32.30	-18.56	559,667.1968	745,437.0364	32.536112	-103.536930
8,100.00	0.97	351.36	8,098.46	-31.96	-18.64	559,667.5439	745,436.9563	32.536113	-103.536930
8,125.00	1.01	352.56	8,123.46	-31.53	-18.70	559,667.9716	745,436.8960	32.536114	-103.536930
8,150.00	1.12	358.14	8,148.45	-31.07	-18.74	559,668.4343	745,436.8596	32.536115	-103.536930
8,175.00	1.24	355.87	8,173.45	-30.55	-18.77	559,668.9483	745,436.8322	32.536117	-103.536931
8,200.00	1.16	354.73	8,198.44	-30.03	-18.81	559,669.4701	745,436.7894	32.536118	-103.536931
8,225.00	1.14	0.36	8,223.44	-29.53	-18.83	559,669.9708	745,436.7678	32.536120	-103.536931
8,250.00	1.18	351.98	8,248.43	-29.03	-18.87	559,670.4744	745,436.7334	32.536121	-103.536931
8,275.00	1.22	355.25	8,273.43	-28.51	-18.92	559,670.9945	745,436.6754	32.536122	-103.536931
8,300.00	1.36	353.77	8,298.42	-27.95	-18.98	559,671.5546	745,436.6212	32.536124	-103.536931
8,325.00	1.46	355.19	8,323.41	-27.33	-19.04	559,672.1669	745,436.5623	32.536126	-103.536931
8,350.00	1.43	354.02	8,348.40	-26.71	-19.10	559,672.7945	745,436.5031	32.536127	-103.536931
8,375.00	1.37	354.67	8,373.40	-26.10	-19.16	559,673.4024	745,436.4428	32.536129	-103.536932
8,400.00	1.34	353.85	8,398.39	-25.51	-19.22	559,673.9906	745,436.3838	32.536131	-103.536932
8,425.00	1.35	355.06	8,423.38	-24.93	-19.27	559,674.5746	745,436.3271	32.536132	-103.536932
8,450.00	1.43	356.01	8,448.38	-24.32	-19.32	559,675.1792	745,436.2800	32.536134	-103.536932
8,475.00	1.36	353.95	8,473.37	-23.71	-19.37	559,675.7854	745,436.2271	32.536136	-103.536932
8,500.00	1.33	350.27	8,498.36	-23.13	-19.45	559,676.3664	745,436.1467	32.536137	-103.536933
8,525.00	1.26	345.76	8,523.36	-22.58	-19.57	559,676.9188	745,436.0301	32.536139	-103.536933
8,550.00	1.10	349.10	8,548.35	-22.08	-19.68	559,677.4208	745,435.9171	32.536140	-103.536933
8,575.00	1.34	342.41	8,573.34	-21.56	-19.82	559,677.9351	745,435.7834	32.536141	-103.536934

Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Mas Fed Com 1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Site:	Sec. 35, T 20 S. , R 34 E	MD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Well:	Mas Fed Com 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
8,600.00	1.15	341.96	8,598.34	-21.05	-19.98	559,678.4523	745,435.6174	32.536143	-103.536934
8,625.00	1.29	346.59	8,623.33	-20.54	-20.13	559,678.9646	745,435.4744	32.536144	-103.536935
8,650.00	1.18	335.18	8,648.33	-20.03	-20.30	559,679.4720	745,435.3011	32.536146	-103.536935
8,675.00	1.13	342.44	8,673.32	-19.56	-20.48	559,679.9406	745,435.1187	32.536147	-103.536936
8,700.00	1.28	339.80	8,698.32	-19.06	-20.65	559,680.4377	745,434.9479	32.536148	-103.536936
8,725.00	1.24	337.27	8,723.31	-18.55	-20.85	559,680.9493	745,434.7469	32.536150	-103.536937
8,750.00	1.16	333.83	8,748.31	-18.07	-21.07	559,681.4259	745,434.5308	32.536151	-103.536938
8,775.00	1.23	337.80	8,773.30	-17.60	-21.28	559,681.9014	745,434.3178	32.536152	-103.536938
8,800.00	1.18	344.58	8,798.29	-17.10	-21.45	559,682.3980	745,434.1480	32.536154	-103.536939
8,825.00	1.30	342.31	8,823.29	-16.58	-21.61	559,682.9163	745,433.9934	32.536155	-103.536939
8,850.00	1.10	341.78	8,848.28	-16.09	-21.77	559,683.4144	745,433.8322	32.536157	-103.536940
8,875.00	1.15	346.31	8,873.28	-15.61	-21.90	559,683.8861	745,433.6978	32.536158	-103.536940
8,900.00	1.16	347.60	8,898.27	-15.12	-22.02	559,684.3770	745,433.5840	32.536159	-103.536941
8,925.00	1.06	350.68	8,923.27	-14.65	-22.11	559,684.8524	745,433.4923	32.536160	-103.536941
8,950.00	1.18	342.88	8,948.26	-14.17	-22.22	559,685.3266	745,433.3790	32.536162	-103.536941
8,975.00	1.12	344.61	8,973.26	-13.69	-22.36	559,685.8082	745,433.2384	32.536163	-103.536942
9,000.00	1.19	348.83	8,998.25	-13.20	-22.48	559,686.2984	745,433.1233	32.536164	-103.536942
9,025.00	1.19	343.23	9,023.25	-12.70	-22.60	559,686.8016	745,432.9981	32.536166	-103.536943
9,050.00	1.12	345.28	9,048.24	-12.21	-22.74	559,687.2865	745,432.8611	32.536167	-103.536943
9,075.00	1.23	333.25	9,073.24	-11.74	-22.92	559,687.7624	745,432.6782	32.536168	-103.536944
9,100.00	1.14	336.59	9,098.23	-11.27	-23.14	559,688.2303	745,432.4587	32.536170	-103.536944
9,125.00	1.14	333.37	9,123.23	-10.82	-23.35	559,688.6808	745,432.2484	32.536171	-103.536945
9,150.00	1.06	323.31	9,148.22	-10.41	-23.60	559,689.0885	745,431.9988	32.536172	-103.536946
9,175.00	1.14	325.22	9,173.22	-10.02	-23.88	559,689.4782	745,431.7187	32.536173	-103.536947
9,200.00	1.30	313.35	9,198.21	-9.62	-24.23	559,689.8772	745,431.3706	32.536174	-103.536948
9,225.00	1.39	312.48	9,223.21	-9.22	-24.66	559,690.2766	745,430.9408	32.536175	-103.536949
9,250.00	1.40	304.73	9,248.20	-8.84	-25.13	559,690.6554	745,430.4662	32.536176	-103.536951
9,275.00	1.48	305.28	9,273.19	-8.48	-25.65	559,691.0158	745,429.9516	32.536177	-103.536952
9,300.00	1.56	301.06	9,298.18	-8.12	-26.20	559,691.3779	745,429.3966	32.536178	-103.536954
9,325.00	1.48	299.73	9,323.17	-7.79	-26.78	559,691.7135	745,428.8247	32.536179	-103.536956
9,350.00	1.58	298.98	9,348.16	-7.46	-27.36	559,692.0406	745,428.2428	32.536180	-103.536958
9,375.00	1.57	296.82	9,373.15	-7.14	-27.96	559,692.3622	745,427.6357	32.536181	-103.536960
9,400.00	1.62	296.52	9,398.14	-6.83	-28.59	559,692.6745	745,427.0139	32.536182	-103.536962
9,425.00	1.70	292.89	9,423.13	-6.52	-29.24	559,692.9765	745,426.3561	32.536183	-103.536964
9,450.00	1.84	294.44	9,448.12	-6.21	-29.95	559,693.2868	745,425.6490	32.536184	-103.536966
9,475.00	2.07	292.17	9,473.11	-5.88	-30.73	559,693.6232	745,424.8655	32.536185	-103.536969
9,500.00	2.10	292.69	9,498.09	-5.53	-31.58	559,693.9703	745,424.0248	32.536186	-103.536971
9,525.00	2.21	291.56	9,523.07	-5.18	-32.45	559,694.3241	745,423.1539	32.536187	-103.536974
9,550.00	2.14	292.90	9,548.06	-4.82	-33.32	559,694.6829	745,422.2756	32.536188	-103.536977
9,575.00	2.17	294.08	9,573.04	-4.44	-34.19	559,695.0576	745,421.4135	32.536189	-103.536980
9,600.00	2.73	288.90	9,598.01	-4.06	-35.18	559,695.4436	745,420.4181	32.536190	-103.536983
9,625.00	2.05	293.62	9,622.99	-3.68	-36.15	559,695.8156	745,419.4452	32.536191	-103.536986
9,650.00	1.72	294.84	9,647.98	-3.35	-36.91	559,696.1524	745,418.6950	32.536192	-103.536989
9,675.00	0.80	306.30	9,672.97	-3.09	-37.39	559,696.4133	745,418.2139	32.536193	-103.536990
9,700.00	0.80	314.43	9,697.97	-2.86	-37.65	559,696.6388	745,417.9486	32.536193	-103.536991
9,725.00	0.82	309.64	9,722.97	-2.62	-37.91	559,696.8751	745,417.6862	32.536194	-103.536992
9,750.00	0.95	307.64	9,747.97	-2.38	-38.22	559,697.1158	745,417.3843	32.536195	-103.536993
9,775.00	0.84	299.71	9,772.96	-2.17	-38.54	559,697.3332	745,417.0610	32.536195	-103.536994
9,800.00	0.83	307.21	9,797.96	-1.97	-38.84	559,697.5335	745,416.7577	32.536196	-103.536995
9,825.00	0.61	335.85	9,822.96	-1.74	-39.04	559,697.7644	745,416.5590	32.536196	-103.536996
9,850.00	1.08	68.12	9,847.96	-1.53	-38.88	559,697.9737	745,416.7232	32.536197	-103.536995
9,875.00	1.38	80.68	9,872.95	-1.39	-38.36	559,698.1102	745,417.2389	32.536197	-103.536993
9,900.00	1.58	74.08	9,897.94	-1.25	-37.73	559,698.2535	745,417.8674	32.536198	-103.536991
9,925.00	1.50	75.85	9,922.93	-1.07	-37.08	559,698.4281	745,418.5161	32.536198	-103.536989
9,950.00	1.52	74.38	9,947.92	-0.90	-36.45	559,698.5973	745,419.1527	32.536199	-103.536987

Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Mas Fed Com 1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Site:	Sec. 35, T 20 S., R 34 E	MD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Well:	Mas Fed Com 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,975.00	1.56	71.92	9,972.91	-0.71	-35.80	559,698.7922	745,419.7956	32.536199	-103.536985
10,000.00	1.55	74.44	9,997.91	-0.51	-35.16	559,698.9885	745,420.4448	32.536200	-103.536983
10,025.00	1.48	75.52	10,022.90	-0.34	-34.52	559,699.1599	745,421.0831	32.536200	-103.536981
10,050.00	1.59	72.68	10,047.89	-0.16	-33.87	559,699.3439	745,421.7268	32.536201	-103.536979
10,075.00	1.38	75.36	10,072.88	0.02	-33.25	559,699.5233	745,422.3492	32.536201	-103.536977
10,100.00	1.28	70.68	10,097.87	0.19	-32.70	559,699.6917	745,422.9040	32.536201	-103.536975
10,125.00	1.05	75.48	10,122.87	0.34	-32.21	559,699.8415	745,423.3892	32.536202	-103.536973
10,150.00	1.05	81.89	10,147.86	0.43	-31.76	559,699.9313	745,423.8377	32.536202	-103.536972
10,175.00	0.78	79.91	10,172.86	0.49	-31.37	559,699.9934	745,424.2320	32.536202	-103.536971
10,200.00	0.79	81.86	10,197.86	0.55	-31.03	559,700.0476	745,424.5702	32.536202	-103.536970
10,225.00	0.82	82.08	10,222.86	0.60	-30.68	559,700.0967	745,424.9180	32.536203	-103.536968
10,250.00	0.79	84.40	10,247.85	0.64	-30.33	559,700.1381	745,425.2667	32.536203	-103.536967
10,275.00	0.68	81.60	10,272.85	0.68	-30.02	559,700.1766	745,425.5849	32.536203	-103.536966
10,300.00	0.56	87.44	10,297.85	0.70	-29.75	559,700.2038	745,425.8538	32.536203	-103.536965
10,325.00	0.44	96.16	10,322.85	0.70	-29.53	559,700.1989	745,426.0712	32.536203	-103.536965
10,350.00	0.30	76.45	10,347.85	0.70	-29.37	559,700.2040	745,426.2303	32.536203	-103.536964
10,375.00	0.47	79.35	10,372.85	0.74	-29.21	559,700.2382	745,426.3947	32.536203	-103.536964
10,400.00	0.39	87.79	10,397.85	0.76	-29.02	559,700.2605	745,426.5805	32.536203	-103.536963
10,425.00	0.32	74.29	10,422.85	0.78	-28.87	559,700.2827	745,426.7327	32.536203	-103.536963
10,450.00	0.20	61.84	10,447.85	0.82	-28.76	559,700.3221	745,426.8384	32.536203	-103.536962
10,475.00	0.18	27.22	10,472.85	0.88	-28.71	559,700.3777	745,426.8948	32.536203	-103.536962
10,500.00	0.24	3.98	10,497.85	0.96	-28.68	559,700.4648	745,426.9164	32.536204	-103.536962
10,525.00	0.23	331.53	10,522.85	1.06	-28.70	559,700.5612	745,426.8961	32.536204	-103.536962
10,550.00	0.28	17.40	10,547.85	1.16	-28.71	559,700.6636	745,426.8905	32.536204	-103.536962
10,566.00	0.70	281.70	10,653.84	1.54	-29.27	559,701.0420	745,426.3339	32.536205	-103.536964
10,681.00	0.60	277.00	10,678.84	1.59	-29.55	559,701.0889	745,426.0544	32.536205	-103.536965
10,750.00	1.80	256.90	10,747.82	1.39	-30.96	559,700.8874	745,424.6403	32.536205	-103.536969
10,775.00	4.70	238.90	10,772.78	0.77	-32.22	559,700.2692	745,423.3806	32.536203	-103.536973
10,807.00	8.60	233.80	10,804.56	-1.32	-35.27	559,698.1781	745,420.3261	32.536197	-103.536983
10,838.00	13.30	236.30	10,834.99	-4.67	-40.11	559,694.8289	745,415.4864	32.536188	-103.536999
10,869.00	17.60	239.00	10,864.86	-9.07	-47.10	559,690.4345	745,408.4992	32.536176	-103.537022
10,900.00	21.70	233.50	10,894.05	-14.89	-55.73	559,684.6087	745,399.8705	32.536160	-103.537050
10,931.00	24.70	221.90	10,922.56	-23.13	-64.67	559,676.3726	745,390.9313	32.536138	-103.537079
10,963.00	27.70	211.80	10,951.28	-34.43	-73.06	559,665.0670	745,382.5409	32.536107	-103.537107
10,994.00	30.60	199.60	10,978.38	-48.00	-79.51	559,651.4955	745,376.0903	32.536070	-103.537128
11,025.00	33.50	189.00	11,004.67	-63.90	-83.50	559,635.5967	745,372.1012	32.536026	-103.537141
11,056.00	37.30	181.10	11,029.95	-81.76	-85.02	559,617.7400	745,370.5812	32.535977	-103.537147
11,088.00	41.40	177.20	11,054.69	-102.03	-84.69	559,597.4658	745,370.9122	32.535922	-103.537146
11,119.00	44.50	175.90	11,077.38	-123.11	-83.41	559,576.3859	745,372.1900	32.535864	-103.537142
11,151.00	47.20	175.70	11,099.67	-146.01	-81.73	559,553.4893	745,373.8723	32.535801	-103.537138
11,198.00	52.20	174.50	11,130.06	-181.71	-78.65	559,517.7886	745,376.9469	32.535702	-103.537128
11,244.00	57.40	174.00	11,156.56	-219.10	-74.88	559,480.4027	745,380.7168	32.535600	-103.537117
11,291.00	63.10	173.30	11,179.88	-259.63	-70.37	559,439.8657	745,385.2350	32.535488	-103.537103
11,337.00	66.70	173.70	11,199.39	-301.02	-65.65	559,398.4841	745,389.9477	32.535374	-103.537089
11,384.00	71.30	175.70	11,216.23	-344.69	-61.61	559,354.8069	745,393.9877	32.535254	-103.537077
11,431.00	75.20	175.40	11,229.77	-389.56	-58.12	559,309.9456	745,397.4801	32.535131	-103.537067
11,478.00	79.80	175.40	11,239.94	-435.28	-54.44	559,264.2199	745,401.1592	32.535005	-103.537056
11,494.00	81.20	175.60	11,242.58	-451.01	-53.20	559,248.4884	745,402.3972	32.534962	-103.537052
11,525.00	84.20	176.70	11,246.52	-481.69	-51.14	559,217.8130	745,404.4605	32.534877	-103.537046
11,551.00	85.10	178.70	11,248.94	-507.55	-50.10	559,191.9488	745,405.4990	32.534806	-103.537044
11,582.00	87.40	178.40	11,250.97	-538.47	-49.32	559,161.0272	745,406.2818	32.534721	-103.537042
11,644.00	88.90	176.50	11,252.97	-600.38	-46.56	559,099.1257	745,409.0391	32.534551	-103.537035
11,737.00	90.50	177.60	11,253.46	-693.25	-41.78	559,006.2548	745,413.8249	32.534296	-103.537021
11,830.00	90.90	177.80	11,252.32	-786.16	-38.04	558,913.3371	745,417.5569	32.534040	-103.537011
11,923.00	88.50	177.40	11,252.81	-879.07	-34.15	558,820.4271	745,421.4509	32.533785	-103.537001

Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Mas Fed Com 1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Site:	Sec. 35, T 20 S. , R 34 E	MD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Well:	Mas Fed Com 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
12,017.00	88.20	177.30	11,255.52	-972.94	-29.80	558,726.5669	745,425.7952	32.533527	-103.536989
12,110.00	88.20	177.50	11,258.44	-1,065.79	-25.59	558,633.7087	745,430.0118	32.533271	-103.536978
12,204.00	89.20	178.20	11,260.57	-1,159.70	-22.06	558,539.8010	745,433.5372	32.533013	-103.536969
12,297.00	89.20	178.20	11,261.87	-1,252.65	-19.14	558,446.8561	745,436.4581	32.532758	-103.536961
12,391.00	89.10	178.70	11,263.26	-1,346.60	-16.60	558,352.9013	745,439.0005	32.532499	-103.536955
12,485.00	88.80	179.00	11,264.99	-1,440.57	-14.71	558,258.9365	745,440.8867	32.532241	-103.536952
12,578.00	88.70	179.20	11,267.01	-1,533.53	-13.25	558,165.9703	745,442.3472	32.531986	-103.536949
12,673.00	88.50	179.70	11,269.33	-1,628.50	-12.34	558,071.0036	745,443.2588	32.531724	-103.536948
12,767.00	88.40	179.80	11,271.88	-1,722.46	-11.93	557,977.0391	745,443.6688	32.531466	-103.536949
12,861.00	88.20	180.50	11,274.67	-1,816.42	-12.18	557,883.0816	745,443.4229	32.531208	-103.536952
12,955.00	88.10	180.60	11,277.70	-1,910.37	-13.08	557,789.1351	745,442.5210	32.530950	-103.536958
13,049.00	87.90	180.60	11,280.98	-2,004.31	-14.06	557,695.1978	745,441.5373	32.530692	-103.536963
13,143.00	89.40	180.90	11,283.20	-2,098.27	-15.29	557,601.2349	745,440.3072	32.530433	-103.536969
13,236.00	89.30	181.20	11,284.25	-2,191.25	-17.00	557,508.2568	745,438.6031	32.530178	-103.536977
13,329.00	89.10	179.30	11,285.55	-2,284.23	-17.40	557,415.2712	745,438.1973	32.529922	-103.536981
13,423.00	89.10	179.20	11,287.03	-2,378.21	-16.17	557,321.2911	745,439.4276	32.529664	-103.536979
13,517.00	90.10	179.00	11,287.68	-2,472.20	-14.70	557,227.3064	745,440.9040	32.529406	-103.536977
13,610.00	90.10	179.10	11,287.52	-2,565.19	-13.15	557,134.3195	745,442.4459	32.529150	-103.536974
13,704.00	90.00	179.50	11,287.44	-2,659.18	-12.01	557,040.3270	745,443.5943	32.528892	-103.536972
13,798.00	89.50	179.40	11,287.85	-2,753.17	-11.10	556,946.3327	745,444.4966	32.528633	-103.536972
13,891.00	88.30	179.30	11,289.63	-2,846.15	-10.05	556,853.3577	745,445.5514	32.528378	-103.536971
13,984.00	87.80	179.40	11,292.80	-2,939.09	-8.99	556,760.4180	745,446.6059	32.528122	-103.536969
14,078.00	88.80	179.80	11,295.59	-3,033.04	-8.34	556,666.4633	745,447.2617	32.527864	-103.536969
14,173.00	89.80	179.40	11,296.75	-3,128.03	-7.68	556,571.4742	745,447.9249	32.527603	-103.536970
14,267.00	89.30	179.20	11,297.49	-3,222.02	-6.53	556,477.4847	745,449.0733	32.527344	-103.536968
14,361.00	89.90	178.90	11,298.14	-3,316.01	-4.97	556,383.5006	745,450.6317	32.527086	-103.536965
14,454.00	89.80	178.90	11,298.39	-3,408.99	-3.18	556,290.5183	745,452.4171	32.526830	-103.536962
14,549.00	89.60	178.60	11,298.88	-3,503.96	-1.11	556,195.5425	745,454.4894	32.526569	-103.536957
14,643.00	89.40	178.50	11,299.70	-3,597.93	1.27	556,101.5766	745,456.8680	32.526311	-103.536952
14,737.00	89.20	178.30	11,300.85	-3,691.89	3.89	556,007.6205	745,459.4924	32.526053	-103.536946
14,830.00	88.90	178.30	11,302.39	-3,784.83	6.65	555,914.6745	745,462.2510	32.525797	-103.536939
14,923.00	88.70	178.50	11,304.34	-3,877.78	9.25	555,821.7314	745,464.8471	32.525542	-103.536933
15,018.00	88.40	178.60	11,306.74	-3,972.72	11.65	555,726.7926	745,467.2503	32.525281	-103.536927
15,111.00	88.00	178.30	11,309.67	-4,065.64	14.16	555,633.8729	745,469.7646	32.525025	-103.536922
15,206.00	87.80	178.30	11,313.15	-4,160.53	16.98	555,538.9788	745,472.5810	32.524764	-103.536915
15,300.00	87.50	178.20	11,317.00	-4,254.41	19.85	555,445.1019	745,475.4492	32.524506	-103.536908
15,394.00	88.00	177.60	11,320.69	-4,348.27	23.29	555,351.2384	745,478.8911	32.524248	-103.536899
15,487.00	87.60	177.60	11,324.26	-4,441.12	27.18	555,258.3888	745,482.7826	32.523993	-103.536888
15,582.00	87.30	177.40	11,328.49	-4,535.94	31.32	555,163.5736	745,486.9223	32.523732	-103.536877
15,675.00	88.70	177.80	11,331.73	-4,628.79	35.21	555,070.7144	745,490.8141	32.523477	-103.536867
15,769.00	88.80	177.50	11,333.78	-4,722.69	39.07	554,976.8161	745,494.6676	32.523219	-103.536857
15,881.00	88.60	177.50	11,336.33	-4,834.56	43.95	554,864.9518	745,499.5517	32.522911	-103.536844
15,934.00	88.60	177.50	11,337.62	-4,887.49	46.26	554,812.0182	745,501.8628	32.522766	-103.536837

Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Mas Fed Com 1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Site:	Sec. 35, T 20 S. , R 34 E	MD Reference:	KB=26' @ 3748.00ft (Scandril Freedom)
Well:	Mas Fed Com 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
10,656.00	10,653.84	1.54	-29.27	First MWD Survey @ 10656'MD
11,143.61	11,094.62	-140.63	-82.13	FTP @ 11143.61'MD
15,805.97	11,334.58	-4,759.62	40.68	LTP @ 15805.97'MD
15,881.00	11,336.33	-4,834.56	43.95	Final MWD Survey @ 15881'MD
15,934.00	11,337.62	-4,887.49	46.26	PTD @ 15934'MD

Checked By: _____ Approved By: _____ Date: _____