

30-025-43924

COG

SURVEY REPORT

MONTERA FEDERAL #23H

NORAM 21

12/21/2017

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

Kolton Cotton

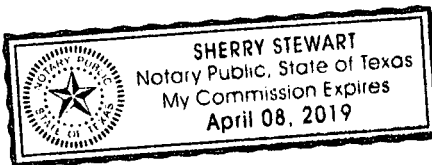
Notarized this date 9 of February, 2018.

Sherry Stewart

Notary Signature

County of Midland

State of Texas



The Ultimate Partner In Wellbore Placement

SURVEY REPORT

MONTERA FEDERAL #23H

KEEPER GYRO SURVEY

CUSTOMER
PROJECT
FIELD

COG
Lea County, New Mexico
N/A

SDI JOB NO.
SDI DISTRICT
SDI KIT/UNIT

OP.006727
Midland

SITE INFORMATION

Site Name
Lat/Long
Northing
Easting

Lea County, New Mexico
32.1380336° N, 103.35814° W
415,305.1 ft
801,857.4 ft

Section
Township
Range

MAP INFORMATION

North Reference
Grid Correction
System
Datum
Map Zone

Grid North
-0.52 deg
US State Plane 1927
North American Datum 1927 (Clarke 1866)
New Mexico East: 3001

**WELL INFORMATION**

Lat/Long
Northing
Easting
UWI

32.1380336° N, 103.35814° W

30-025-43924

DEPTH AND ELEVATION REFERENCE

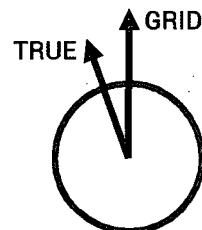
Ground Level
Reference Datum
Reference Height
Reference Elevation

3221 ft above Mean Sea Level
RKB
29 ft above G.L.
3250 ft

VERTICAL SECTION REFERENCE

+N/-S
+E/-W
Proposal Direction
Calculation Method

0 ft
0 ft
2.05°
Minimum Curvature

**LOCAL GRAVITY REFERENCE INFORMATION**

Local Gravity
True to Grid

998.510 mG [computed]
subtract 0.52°

WELL NOTES

Keeper Gyro survey

OPERATORS

Jeffrey Loyd

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	0.25	202.45	100.00	-0.20	-0.20	-0.08	0.25	0.22	202.45
125.00	0.27	207.68	125.00	-0.31	-0.30	-0.13	0.11	0.33	203.36
150.00	0.15	173.22	150.00	-0.39	-0.38	-0.15	0.67	0.41	201.76
175.00	0.19	189.53	175.00	-0.46	-0.46	-0.16	0.25	0.48	198.94
200.00	0.25	202.56	200.00	-0.55	-0.55	-0.18	0.33	0.58	198.62
225.00	0.20	204.04	225.00	-0.65	-0.64	-0.22	0.21	0.68	199.30
250.00	0.31	212.13	250.00	-0.75	-0.74	-0.28	0.46	0.79	200.66
275.00	0.33	198.35	275.00	-0.87	-0.86	-0.34	0.32	0.93	201.31
300.00	0.36	204.64	300.00	-1.02	-1.00	-0.39	0.19	1.08	201.36
325.00	0.33	200.55	325.00	-1.16	-1.14	-0.45	0.17	1.23	201.52
350.00	0.39	205.43	350.00	-1.30	-1.29	-0.51	0.26	1.38	201.71
375.00	0.45	210.92	375.00	-1.47	-1.45	-0.60	0.29	1.57	202.48
400.00	0.42	216.49	400.00	-1.63	-1.60	-0.70	0.21	1.75	203.67
425.00	0.40	225.69	424.99	-1.77	-1.74	-0.82	0.27	1.92	205.25
450.00	0.51	239.85	449.99	-1.89	-1.86	-0.98	0.63	2.10	207.83
475.00	0.56	247.66	474.99	-2.00	-1.96	-1.19	0.35	2.29	211.28
500.00	0.63	247.08	499.99	-2.11	-2.06	-1.43	0.26	2.50	214.77
525.00	0.71	250.48	524.99	-2.22	-2.16	-1.70	0.38	2.75	218.18
550.00	0.84	255.24	549.99	-2.33	-2.26	-2.03	0.58	3.04	221.85
575.00	0.74	250.51	574.99	-2.45	-2.36	-2.36	0.49	3.34	224.91
600.00	0.76	250.07	599.98	-2.57	-2.47	-2.66	0.07	3.63	227.12
625.00	0.78	252.36	624.98	-2.69	-2.58	-2.98	0.16	3.94	229.11
650.00	0.82	253.74	649.98	-2.80	-2.68	-3.31	0.18	4.26	231.02
675.00	0.72	247.10	674.98	-2.92	-2.79	-3.63	0.55	4.58	232.43
700.00	0.63	249.91	699.97	-3.04	-2.90	-3.90	0.37	4.86	233.38
725.00	0.65	248.83	724.97	-3.15	-3.00	-4.17	0.07	5.13	234.24
750.00	0.61	270.90	749.97	-3.21	-3.05	-4.43	0.97	5.38	235.47
775.00	0.58	288.24	774.97	-3.17	-3.01	-4.69	0.73	5.57	237.31
800.00	0.68	287.57	799.97	-3.10	-2.92	-4.95	0.38	5.75	239.43
825.00	0.69	301.58	824.97	-2.98	-2.80	-5.22	0.67	5.92	241.80
850.00	0.62	314.80	849.96	-2.82	-2.62	-5.44	0.67	6.04	244.28

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	0.72	315.22	874.96	-2.62	-2.42	-5.65	0.38	6.15	246.86
900.00	0.68	317.45	899.96	-2.40	-2.20	-5.86	0.21	6.26	249.47
925.00	0.59	317.54	924.96	-2.21	-1.99	-6.05	0.35	6.37	251.77
950.00	0.59	321.10	949.96	-2.02	-1.80	-6.21	0.15	6.47	253.87
975.00	0.60	322.95	974.96	-1.82	-1.59	-6.37	0.09	6.57	255.96
1000.00	0.68	319.70	999.96	-1.61	-1.38	-6.55	0.36	6.69	258.14
1025.00	0.52	325.54	1024.95	-1.41	-1.17	-6.71	0.71	6.81	260.11
1050.00	0.65	306.29	1049.95	-1.24	-0.99	-6.89	0.95	6.96	261.80
1075.00	0.64	315.44	1074.95	-1.06	-0.81	-7.10	0.41	7.15	263.50
1100.00	0.58	310.26	1099.95	-0.89	-0.63	-7.29	0.34	7.32	265.08
1125.00	0.66	308.02	1124.95	-0.73	-0.46	-7.50	0.36	7.52	266.51
1150.00	0.68	304.39	1149.95	-0.56	-0.28	-7.74	0.19	7.75	267.89
1175.00	0.61	314.74	1174.95	-0.39	-0.11	-7.96	0.55	7.96	269.23
1200.00	0.70	304.33	1199.94	-0.22	0.07	-8.18	0.58	8.18	270.50
1225.00	0.60	303.92	1224.94	-0.07	0.23	-8.41	0.36	8.41	271.57
1250.00	0.68	298.07	1249.94	0.07	0.37	-8.65	0.41	8.66	272.48
1275.00	0.66	297.20	1274.94	0.19	0.51	-8.91	0.10	8.93	273.28
1300.00	0.59	299.30	1299.94	0.31	0.64	-9.15	0.30	9.18	274.00
1325.00	0.56	306.82	1324.94	0.44	0.78	-9.36	0.33	9.39	274.74
1350.00	0.65	311.27	1349.93	0.60	0.94	-9.57	0.41	9.61	275.62
1375.00	0.54	315.31	1374.93	0.77	1.12	-9.76	0.46	9.82	276.55
1400.00	0.54	311.30	1399.93	0.92	1.28	-9.93	0.15	10.01	277.35
1425.00	0.56	300.03	1424.93	1.06	1.42	-10.12	0.45	10.22	277.98
1450.00	0.55	320.49	1449.93	1.20	1.57	-10.30	0.79	10.42	278.68
1475.00	0.45	314.01	1474.93	1.36	1.73	-10.45	0.45	10.59	279.42
1500.00	0.49	315.94	1499.93	1.50	1.88	-10.60	0.19	10.76	280.05
1525.00	0.46	321.70	1524.93	1.65	2.04	-10.73	0.23	10.92	280.74
1550.00	0.45	320.97	1549.93	1.80	2.19	-10.86	0.06	11.08	281.41
1575.00	0.45	315.58	1574.93	1.94	2.34	-10.99	0.17	11.23	282.01
1600.00	0.43	328.73	1599.92	2.09	2.49	-11.10	0.41	11.38	282.62
1625.00	0.46	332.25	1624.92	2.25	2.65	-11.20	0.16	11.51	283.33
1650.00	0.52	338.32	1649.92	2.44	2.85	-11.29	0.33	11.64	284.16

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	0.48	348.59	1674.92	2.65	3.05	-11.35	0.39	11.75	285.06
1700.00	0.42	352.27	1699.92	2.84	3.25	-11.38	0.25	11.84	285.93
1725.00	0.43	357.08	1724.92	3.02	3.43	-11.40	0.14	11.91	286.76
1750.00	0.53	6.53	1749.92	3.23	3.64	-11.39	0.53	11.96	287.73
1775.00	0.45	356.77	1774.92	3.45	3.86	-11.38	0.47	12.02	288.71
1800.00	0.44	8.90	1799.92	3.64	4.05	-11.37	0.38	12.07	289.59
1825.00	0.41	359.74	1824.92	3.83	4.23	-11.36	0.30	12.12	290.44
1850.00	0.46	10.21	1849.92	4.01	4.42	-11.34	0.36	12.17	291.30
1875.00	0.47	18.77	1874.92	4.21	4.62	-11.29	0.29	12.20	292.25
1900.00	0.47	15.44	1899.92	4.41	4.81	-11.23	0.12	12.22	293.21
1925.00	0.46	23.66	1924.91	4.60	5.00	-11.16	0.27	12.23	294.14
1950.00	0.49	29.06	1949.91	4.79	5.19	-11.07	0.23	12.23	295.12
1975.00	0.52	34.94	1974.91	4.98	5.38	-10.95	0.23	12.20	296.15
2000.00	0.47	30.54	1999.91	5.17	5.56	-10.84	0.25	12.18	297.16
2025.00	0.46	30.74	2024.91	5.35	5.73	-10.73	0.07	12.17	298.11
2050.00	0.57	43.03	2049.91	5.53	5.91	-10.60	0.65	12.13	299.15
2075.00	0.42	32.23	2074.91	5.70	6.08	-10.46	0.73	12.10	300.15
2100.00	0.57	29.89	2099.91	5.89	6.26	-10.35	0.62	12.10	301.17
2125.00	0.41	30.90	2124.91	6.08	6.45	-10.24	0.62	12.11	302.19
2150.00	0.54	42.07	2149.91	6.25	6.61	-10.12	0.61	12.09	303.16
2175.00	0.48	37.81	2174.91	6.42	6.78	-9.98	0.27	12.06	304.21
2200.00	0.52	47.30	2199.90	6.59	6.94	-9.83	0.37	12.03	305.24
2225.00	0.61	53.02	2224.90	6.75	7.10	-9.64	0.41	11.97	306.37
2250.00	0.63	59.12	2249.90	6.91	7.25	-9.42	0.28	11.88	307.60
2275.00	0.77	60.44	2274.90	7.07	7.40	-9.15	0.58	11.77	308.98
2300.00	0.81	57.86	2299.90	7.26	7.58	-8.85	0.21	11.66	310.57
2325.00	0.84	60.25	2324.89	7.46	7.77	-8.55	0.18	11.55	312.27
2350.00	0.83	61.30	2349.89	7.64	7.94	-8.23	0.08	11.44	313.99
2375.00	0.88	59.13	2374.89	7.84	8.13	-7.90	0.26	11.34	315.80
2400.00	1.04	60.60	2399.89	8.06	8.34	-7.54	0.63	11.24	317.88
2425.00	0.98	63.06	2424.88	8.29	8.55	-7.15	0.30	11.15	320.07
2450.00	1.06	60.66	2449.88	8.51	8.76	-6.76	0.38	11.06	322.32

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	1.19	58.93	2474.87	8.77	9.00	-6.34	0.52	11.01	324.85
2500.00	1.24	62.96	2499.87	9.04	9.26	-5.88	0.41	10.97	327.60
2525.00	1.36	58.24	2524.86	9.34	9.54	-5.38	0.63	10.95	330.57
2550.00	1.53	60.38	2549.85	9.68	9.86	-4.84	0.71	10.98	333.85
2575.00	1.60	56.34	2574.84	10.06	10.22	-4.26	0.53	11.07	337.36
2600.00	1.58	59.48	2599.83	10.45	10.59	-3.67	0.36	11.21	340.86
2625.00	1.71	55.97	2624.82	10.85	10.97	-3.07	0.65	11.39	344.37
2650.00	1.77	53.71	2649.81	11.31	11.41	-2.45	0.37	11.67	347.87
2675.00	1.87	53.31	2674.80	11.81	11.88	-1.81	0.42	12.02	351.32
2700.00	1.84	56.03	2699.79	12.30	12.35	-1.15	0.38	12.40	354.67
2725.00	1.78	55.34	2724.77	12.76	12.79	-0.50	0.25	12.80	357.75
2750.00	1.79	52.21	2749.76	13.25	13.25	0.13	0.40	13.25	0.55
2775.00	2.03	50.60	2774.75	13.79	13.77	0.78	0.95	13.79	3.23
2800.00	2.15	49.56	2799.73	14.40	14.36	1.48	0.52	14.43	5.87
2825.00	2.24	49.96	2824.71	15.04	14.97	2.21	0.38	15.14	8.38
2850.00	2.32	48.88	2849.69	15.72	15.62	2.96	0.35	15.90	10.74
2875.00	2.44	49.90	2874.67	16.42	16.30	3.75	0.50	16.72	12.96
2900.00	2.52	48.20	2899.65	17.16	17.00	4.57	0.43	17.61	15.03
2925.00	2.53	49.29	2924.62	17.91	17.73	5.39	0.20	18.53	16.92
2950.00	2.49	48.95	2949.60	18.66	18.45	6.22	0.15	19.47	18.63
2975.00	2.54	50.31	2974.58	19.40	19.16	7.06	0.32	20.42	20.22
3000.00	2.55	54.00	2999.55	20.11	19.84	7.93	0.66	21.37	21.80
3025.00	2.37	65.73	3024.53	20.68	20.38	8.86	2.13	22.22	23.49
3050.00	2.24	75.93	3049.51	21.05	20.71	9.80	1.73	22.91	25.32
3075.00	2.23	79.19	3074.49	21.29	20.92	10.75	0.51	23.52	27.20
3100.00	2.22	77.25	3099.47	21.52	21.12	11.70	0.30	24.14	28.99
3125.00	2.18	75.54	3124.45	21.78	21.34	12.63	0.30	24.80	30.62
3150.00	2.13	77.81	3149.43	22.03	21.56	13.55	0.41	25.46	32.14
3175.00	2.23	74.79	3174.42	22.29	21.79	14.47	0.62	26.15	33.59
3200.00	2.21	73.41	3199.40	22.59	22.05	15.40	0.23	26.90	34.93
3225.00	2.30	74.54	3224.38	22.89	22.32	16.35	0.40	27.67	36.21
3250.00	2.16	72.53	3249.36	23.20	22.60	17.28	0.65	28.45	37.40

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	2.18	73.09	3274.34	23.51	22.88	18.18	0.14	29.22	38.48
3300.00	1.98	75.34	3299.33	23.79	23.12	19.06	0.90	29.96	39.49
3325.00	1.66	73.73	3324.31	24.03	23.33	19.82	1.29	30.62	40.34
3350.00	1.19	87.77	3349.30	24.16	23.45	20.43	2.33	31.10	41.06
3375.00	1.15	92.35	3374.30	24.18	23.45	20.93	0.40	31.43	41.76
3400.00	0.94	89.53	3399.30	24.19	23.44	21.39	0.88	31.73	42.39
3425.00	0.97	84.67	3424.29	24.22	23.46	21.81	0.34	32.03	42.91
3450.00	0.86	85.98	3449.29	24.27	23.49	22.20	0.45	32.32	43.38
3475.00	0.64	89.95	3474.29	24.30	23.50	22.53	0.88	32.56	43.79
3500.00	0.53	93.61	3499.29	24.30	23.50	22.78	0.47	32.73	44.12
3525.00	0.61	85.97	3524.28	24.31	23.50	23.03	0.44	32.91	44.43
3550.00	0.43	91.34	3549.28	24.32	23.51	23.26	0.74	33.07	44.70
3575.00	0.37	85.73	3574.28	24.33	23.51	23.44	0.31	33.20	44.91
3600.00	0.34	77.50	3599.28	24.36	23.53	23.59	0.24	33.32	45.07
3625.00	0.30	72.93	3624.28	24.40	23.57	23.72	0.17	33.44	45.19
3650.00	0.34	65.92	3649.28	24.45	23.62	23.85	0.21	33.57	45.28
3675.00	0.27	75.80	3674.28	24.50	23.66	23.98	0.34	33.69	45.38
3700.00	0.14	61.67	3699.28	24.54	23.69	24.06	0.56	33.77	45.44
3725.00	0.17	85.54	3724.28	24.55	23.71	24.12	0.28	33.82	45.50
3750.00	0.27	100.15	3749.28	24.55	23.70	24.22	0.47	33.88	45.62
3775.00	0.33	89.55	3774.28	24.55	23.69	24.35	0.34	33.97	45.79
3800.00	0.32	92.49	3799.28	24.55	23.69	24.49	0.10	34.07	45.96
3825.00	0.41	80.34	3824.28	24.57	23.70	24.65	0.48	34.19	46.13
3850.00	0.70	69.41	3849.28	24.64	23.77	24.88	1.23	34.41	46.31
3875.00	1.12	79.85	3874.27	24.75	23.86	25.26	1.79	34.75	46.63
3900.00	1.58	86.29	3899.27	24.84	23.93	25.85	1.92	35.22	47.20
3925.00	2.08	89.80	3924.26	24.89	23.95	26.64	2.06	35.83	48.04
3950.00	2.57	91.30	3949.23	24.92	23.94	27.66	1.98	36.58	49.12
3975.00	2.89	92.14	3974.21	24.92	23.91	28.85	1.30	37.47	50.35
4000.00	3.37	92.41	3999.17	24.92	23.85	30.21	1.91	38.49	51.71
4025.00	3.70	94.29	4024.12	24.88	23.76	31.75	1.41	39.66	53.19
4050.00	3.87	94.16	4049.07	24.82	23.64	33.40	0.65	40.92	54.71

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	3.99	93.47	4074.01	24.77	23.52	35.11	0.54	42.26	56.17
4100.00	3.99	94.47	4098.95	24.71	23.40	36.84	0.28	43.65	57.57
4125.00	4.09	97.15	4123.88	24.59	23.23	38.60	0.85	45.05	58.96
4150.00	4.50	102.37	4148.81	24.34	22.90	40.44	2.26	46.48	60.47
4175.00	4.73	110.85	4173.73	23.83	22.33	42.36	2.87	47.88	62.21
4200.00	4.92	116.87	4198.65	23.05	21.48	44.28	2.16	49.21	64.13
4225.00	4.93	116.90	4223.55	22.15	20.51	46.19	0.05	50.54	66.06
4250.00	4.73	121.54	4248.46	21.19	19.48	48.03	1.76	51.83	67.92
4275.00	4.47	130.20	4273.38	20.08	18.31	49.65	2.96	52.92	69.75
4300.00	4.26	139.47	4298.31	18.79	16.98	51.00	2.94	53.75	71.59
4325.00	4.08	151.61	4323.25	17.34	15.49	52.02	3.60	54.28	73.42
4350.00	3.80	168.28	4348.19	15.77	13.90	52.62	4.69	54.42	75.20
4375.00	3.53	184.61	4373.14	14.20	12.32	52.72	4.30	54.14	76.85
4400.00	3.34	198.04	4398.09	12.73	10.86	52.43	3.30	53.55	78.30
4425.00	3.24	215.33	4423.05	11.44	9.59	51.80	3.97	52.68	79.51
4450.00	3.12	232.36	4448.01	10.41	8.60	50.85	3.80	51.57	80.40
4475.00	3.05	250.52	4472.98	9.73	7.96	49.69	3.91	50.32	80.90
4500.00	3.06	269.60	4497.94	9.46	7.73	48.39	4.05	49.00	80.92
4525.00	2.98	286.83	4522.91	9.60	7.92	47.10	3.63	47.76	80.46
4550.00	3.21	300.49	4547.87	10.10	8.46	45.87	3.08	46.65	79.55
4575.00	3.33	314.44	4572.83	10.92	9.32	44.75	3.21	45.71	78.23
4600.00	3.43	324.67	4597.79	12.00	10.44	43.80	2.45	45.03	76.59
4625.00	3.11	339.11	4622.75	13.22	11.69	43.13	3.52	44.68	74.84
4650.00	2.72	8.41	4647.72	14.44	12.91	42.97	6.09	44.87	73.28
4675.00	3.06	36.68	4672.69	15.57	14.03	43.46	5.79	45.67	72.11
4700.00	3.74	56.68	4697.64	16.60	15.01	44.54	5.44	47.00	71.37
4725.00	4.58	66.05	4722.58	17.51	15.87	46.13	4.30	48.78	71.02
4750.00	5.08	71.77	4747.49	18.33	16.62	48.10	2.78	50.89	70.94
4775.00	5.62	77.31	4772.38	19.02	17.23	50.34	2.98	53.21	71.10
4800.00	6.19	82.02	4797.25	19.57	17.69	52.87	3.00	55.75	71.50
4825.00	6.22	86.72	4822.10	19.93	17.95	55.56	2.04	58.39	72.09
4850.00	6.04	93.39	4846.96	20.03	17.95	58.23	2.94	60.93	72.86

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	5.62	102.13	4871.83	19.78	17.62	60.74	3.91	63.24	73.82
4900.00	4.97	112.74	4896.72	19.18	16.94	62.93	4.71	65.17	74.93
4925.00	4.56	122.64	4921.64	18.30	15.99	64.77	3.66	66.71	76.13
4950.00	4.27	127.11	4946.56	17.25	14.89	66.34	1.80	68.00	77.35
4975.00	4.07	129.09	4971.50	16.18	13.77	67.78	0.98	69.16	78.52
5000.00	3.60	134.20	4996.44	15.12	12.66	69.03	2.33	70.18	79.61
5025.00	3.03	142.77	5021.40	14.08	11.59	69.99	3.01	70.94	80.60
5050.00	2.70	151.41	5046.37	13.07	10.54	70.67	2.18	71.46	81.51
5075.00	2.58	155.93	5071.34	12.05	9.51	71.18	0.96	71.82	82.39
5100.00	2.59	155.70	5096.32	11.04	8.49	71.65	0.05	72.15	83.25
5125.00	2.26	167.62	5121.29	10.06	7.49	71.98	2.40	72.37	84.06
5150.00	1.91	181.18	5146.28	9.16	6.59	72.08	2.41	72.38	84.78
5175.00	1.77	200.68	5171.27	8.38	5.81	71.94	2.56	72.17	85.38
5200.00	1.98	200.82	5196.25	7.61	5.05	71.65	0.85	71.82	85.97
5225.00	1.70	223.10	5221.24	6.92	4.37	71.24	3.05	71.37	86.49
5250.00	1.70	240.87	5246.23	6.44	3.92	70.66	2.11	70.77	86.83
5275.00	1.83	247.03	5271.22	6.08	3.58	69.97	0.92	70.06	87.07
5300.00	1.81	249.70	5296.20	5.76	3.29	69.23	0.36	69.31	87.28
5325.00	1.72	250.04	5321.19	5.47	3.02	68.51	0.34	68.57	87.47
5350.00	1.68	252.70	5346.18	5.21	2.79	67.80	0.35	67.86	87.65
5375.00	1.68	255.24	5371.17	4.98	2.58	67.10	0.30	67.15	87.80
5400.00	1.75	253.74	5396.16	4.76	2.38	66.38	0.31	66.42	87.94
5425.00	1.70	251.43	5421.15	4.51	2.16	65.66	0.33	65.70	88.12
5450.00	1.70	254.03	5446.14	4.26	1.94	64.95	0.31	64.98	88.29
5475.00	1.72	257.31	5471.13	4.05	1.75	64.23	0.40	64.25	88.44
5500.00	1.62	254.93	5496.12	3.85	1.58	63.52	0.48	63.54	88.58
5525.00	1.67	253.06	5521.10	3.63	1.38	62.83	0.30	62.85	88.74
5550.00	1.61	253.42	5546.09	3.40	1.17	62.15	0.23	62.16	88.92
5575.00	1.47	252.46	5571.09	3.18	0.98	61.50	0.58	61.51	89.09
5600.00	1.42	252.43	5596.08	2.96	0.79	60.90	0.20	60.90	89.26
5625.00	1.32	251.47	5621.07	2.76	0.60	60.33	0.44	60.33	89.43
5650.00	1.23	248.50	5646.06	2.55	0.41	59.81	0.44	59.81	89.61

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	1.18	249.15	5671.06	2.34	0.22	59.32	0.20	59.32	89.79
5700.00	1.05	253.87	5696.05	2.17	0.07	58.86	0.64	58.86	89.94
5725.00	1.08	244.25	5721.05	1.99	-0.10	58.42	0.73	58.42	90.10
5750.00	1.13	244.23	5746.05	1.76	-0.31	57.99	0.19	57.99	90.31
5775.00	1.05	248.30	5771.04	1.56	-0.50	57.56	0.43	57.56	90.50
5800.00	1.01	241.20	5796.04	1.35	-0.69	57.15	0.54	57.15	90.69
5825.00	1.13	246.66	5821.03	1.13	-0.90	56.73	0.64	56.74	90.90
5850.00	0.90	248.13	5846.03	0.95	-1.07	56.32	0.93	56.33	91.08
5875.00	0.88	247.63	5871.03	0.79	-1.21	55.96	0.07	55.98	91.24
5900.00	0.94	243.67	5896.02	0.61	-1.38	55.60	0.33	55.62	91.42
5925.00	0.93	246.63	5921.02	0.43	-1.55	55.23	0.19	55.26	91.60
5950.00	1.04	248.80	5946.02	0.25	-1.71	54.83	0.47	54.86	91.79
5975.00	0.81	245.03	5971.01	0.08	-1.87	54.46	0.95	54.49	91.96
6000.00	0.92	249.23	5996.01	-0.08	-2.01	54.11	0.49	54.15	92.13
6025.00	0.79	252.07	6021.01	-0.21	-2.14	53.76	0.55	53.80	92.28
6050.00	0.96	257.11	6046.00	-0.33	-2.24	53.39	0.73	53.44	92.40
6075.00	0.92	239.73	6071.00	-0.49	-2.39	53.02	1.14	53.07	92.58
6100.00	0.93	229.00	6096.00	-0.73	-2.62	52.69	0.70	52.75	92.85
6125.00	0.95	233.46	6120.99	-1.00	-2.88	52.37	0.30	52.45	93.14
6150.00	0.81	227.13	6145.99	-1.26	-3.12	52.07	0.65	52.17	93.43
6175.00	0.86	228.70	6170.99	-1.51	-3.36	51.80	0.19	51.91	93.72
6200.00	0.91	233.76	6195.98	-1.76	-3.61	51.50	0.38	51.63	94.00
6225.00	0.95	223.51	6220.98	-2.04	-3.87	51.20	0.68	51.35	94.33
6250.00	0.84	219.22	6245.98	-2.34	-4.17	50.94	0.51	51.11	94.67
6275.00	0.82	222.91	6270.98	-2.62	-4.44	50.70	0.23	50.90	95.00
6300.00	0.81	216.42	6295.97	-2.90	-4.71	50.48	0.37	50.70	95.33
6325.00	0.90	216.97	6320.97	-3.21	-5.01	50.25	0.38	50.50	95.69
6350.00	0.69	213.37	6345.97	-3.50	-5.29	50.05	0.89	50.33	96.04
6375.00	0.63	215.44	6370.97	-3.74	-5.53	49.89	0.24	50.20	96.33
6400.00	0.76	223.67	6395.96	-3.98	-5.76	49.70	0.66	50.03	96.61
6425.00	0.71	220.24	6420.96	-4.23	-6.00	49.48	0.28	49.84	96.91
6450.00	0.66	216.13	6445.96	-4.47	-6.24	49.30	0.27	49.69	97.21

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	0.51	217.43	6470.96	-4.68	-6.44	49.15	0.61	49.57	97.47
6500.00	0.67	218.75	6495.96	-4.89	-6.64	48.99	0.66	49.43	97.72
6525.00	0.63	209.92	6520.96	-5.12	-6.88	48.83	0.43	49.31	98.02
6550.00	0.49	219.70	6545.96	-5.33	-7.08	48.69	0.68	49.20	98.27
6575.00	0.48	224.29	6570.95	-5.49	-7.24	48.55	0.16	49.08	98.48
6600.00	0.58	219.38	6595.95	-5.67	-7.41	48.39	0.44	48.96	98.71
6625.00	0.57	211.73	6620.95	-5.88	-7.61	48.25	0.31	48.84	98.97
6650.00	0.47	215.72	6645.95	-6.08	-7.80	48.12	0.42	48.75	99.21
6675.00	0.42	211.68	6670.95	-6.24	-7.96	48.01	0.23	48.67	99.42
6700.00	0.54	215.22	6695.95	-6.42	-8.14	47.90	0.49	48.58	99.64
6725.00	0.65	216.72	6720.95	-6.64	-8.35	47.74	0.45	48.47	99.92
6750.00	0.52	211.60	6745.95	-6.85	-8.56	47.60	0.56	48.36	100.19
6775.00	0.48	219.58	6770.95	-7.03	-8.74	47.47	0.32	48.27	100.43
6800.00	0.48	215.23	6795.94	-7.20	-8.90	47.35	0.15	48.17	100.65
6825.00	0.44	222.88	6820.94	-7.36	-9.06	47.22	0.28	48.08	100.86
6850.00	0.50	219.60	6845.94	-7.52	-9.21	47.08	0.25	47.98	101.07
6875.00	0.49	205.71	6870.94	-7.71	-9.39	46.97	0.48	47.90	101.31
6900.00	0.44	202.56	6895.94	-7.90	-9.58	46.88	0.25	47.85	101.55
6925.00	0.42	209.82	6920.94	-8.07	-9.75	46.80	0.22	47.81	101.77
6950.00	0.35	200.47	6945.94	-8.22	-9.90	46.73	0.38	47.77	101.96
6975.00	0.34	191.94	6970.94	-8.37	-10.05	46.69	0.21	47.76	102.14
7000.00	0.30	186.59	6995.94	-8.51	-10.18	46.66	0.23	47.76	102.31
7025.00	0.29	213.64	7020.94	-8.63	-10.30	46.62	0.55	47.75	102.46
7050.00	0.33	204.25	7045.94	-8.75	-10.42	46.56	0.25	47.71	102.61
7075.00	0.34	193.76	7070.94	-8.89	-10.56	46.51	0.25	47.69	102.79
7100.00	0.38	185.24	7095.94	-9.04	-10.71	46.48	0.25	47.70	102.98
7125.00	0.24	198.51	7120.94	-9.17	-10.84	46.46	0.62	47.71	103.14
7150.00	0.53	201.73	7145.94	-9.33	-11.00	46.40	1.17	47.69	103.34
7175.00	0.47	188.50	7170.94	-9.55	-11.21	46.34	0.52	47.68	103.60
7200.00	0.35	174.99	7195.94	-9.72	-11.39	46.33	0.64	47.71	103.81
7225.00	0.37	179.85	7220.93	-9.88	-11.54	46.34	0.15	47.76	103.99
7250.00	0.47	176.16	7245.93	-10.06	-11.73	46.35	0.43	47.81	104.20

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	0.24	180.49	7270.93	-10.22	-11.88	46.35	0.92	47.85	104.38
7300.00	0.36	164.01	7295.93	-10.35	-12.01	46.38	0.59	47.91	104.52
7325.00	0.15	180.45	7320.93	-10.46	-12.12	46.40	0.89	47.95	104.64
7350.00	0.31	181.91	7345.93	-10.56	-12.22	46.39	0.62	47.98	104.76
7375.00	0.32	152.91	7370.93	-10.68	-12.35	46.42	0.63	48.04	104.90
7400.00	0.19	162.68	7395.93	-10.78	-12.45	46.47	0.55	48.11	105.00
7425.00	0.08	107.91	7420.93	-10.83	-12.50	46.50	0.62	48.15	105.04
7450.00	0.20	149.75	7445.93	-10.87	-12.54	46.54	0.61	48.20	105.08
7475.00	0.36	148.60	7470.93	-10.97	-12.65	46.60	0.62	48.29	105.18
7500.00	0.30	111.85	7495.93	-11.06	-12.74	46.70	0.86	48.41	105.26
7525.00	0.22	114.28	7520.93	-11.10	-12.78	46.81	0.30	48.52	105.27
7550.00	0.21	131.29	7545.93	-11.15	-12.83	46.88	0.26	48.61	105.31
7575.00	0.19	95.34	7570.93	-11.18	-12.87	46.96	0.51	48.69	105.32
7600.00	0.06	100.20	7595.93	-11.18	-12.87	47.02	0.52	48.75	105.31
7625.00	0.15	121.50	7620.93	-11.20	-12.89	47.06	0.37	48.79	105.32
7650.00	0.11	156.63	7645.93	-11.24	-12.93	47.09	0.34	48.84	105.35
7675.00	0.31	65.63	7670.93	-11.23	-12.93	47.16	1.32	48.90	105.33
7700.00	0.19	83.04	7695.93	-11.19	-12.89	47.27	0.56	48.99	105.26
7725.00	0.17	80.72	7720.93	-11.18	-12.88	47.34	0.08	49.07	105.22
7750.00	0.19	72.32	7745.93	-11.16	-12.86	47.42	0.13	49.13	105.18
7775.00	0.20	60.10	7770.93	-11.12	-12.83	47.50	0.18	49.20	105.12
7800.00	0.35	53.72	7795.93	-11.05	-12.76	47.60	0.60	49.28	105.01
7825.00	0.40	43.56	7820.93	-10.94	-12.65	47.72	0.34	49.37	104.85
7850.00	0.43	45.54	7845.93	-10.80	-12.52	47.85	0.11	49.46	104.67
7875.00	0.42	36.48	7870.93	-10.66	-12.38	47.97	0.27	49.54	104.48
7900.00	0.38	30.08	7895.93	-10.51	-12.24	48.06	0.22	49.60	104.29
7925.00	0.29	42.31	7920.93	-10.39	-12.12	48.15	0.47	49.65	104.13
7950.00	0.32	40.33	7945.93	-10.29	-12.02	48.24	0.14	49.71	103.99
7975.00	0.42	53.06	7970.93	-10.17	-11.91	48.36	0.49	49.80	103.84
8000.00	0.57	48.12	7995.92	-10.03	-11.77	48.52	0.63	49.93	103.64
8025.00	0.61	46.75	8020.92	-9.85	-11.60	48.71	0.20	50.07	103.39
8050.00	0.63	36.32	8045.92	-9.64	-11.40	48.89	0.46	50.20	103.12

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	0.51	51.69	8070.92	-9.45	-11.22	49.06	0.76	50.32	102.88
8100.00	0.68	42.56	8095.92	-9.27	-11.04	49.25	0.76	50.47	102.63
8125.00	0.56	38.91	8120.92	-9.06	-10.84	49.42	0.52	50.60	102.37
8150.00	0.52	48.99	8145.92	-8.89	-10.67	49.58	0.40	50.72	102.14
8175.00	0.66	51.56	8170.92	-8.71	-10.50	49.78	0.60	50.88	101.91
8200.00	0.67	40.02	8195.91	-8.50	-10.30	49.99	0.54	51.04	101.64
8225.00	0.60	46.78	8220.91	-8.30	-10.10	50.18	0.42	51.19	101.38
8250.00	0.66	46.32	8245.91	-8.10	-9.91	50.38	0.25	51.35	101.13
8275.00	0.59	39.99	8270.91	-7.89	-9.71	50.57	0.41	51.49	100.87
8300.00	0.69	42.82	8295.91	-7.68	-9.50	50.75	0.43	51.63	100.60
8325.00	0.74	37.40	8320.91	-7.43	-9.26	50.95	0.33	51.79	100.30
8350.00	0.69	54.31	8345.90	-7.21	-9.05	51.17	0.86	51.97	100.03
8375.00	0.77	37.55	8370.90	-6.98	-8.83	51.40	0.90	52.15	99.75
8400.00	0.72	49.92	8395.90	-6.74	-8.59	51.62	0.66	52.33	99.45
8425.00	0.74	35.48	8420.90	-6.50	-8.36	51.83	0.74	52.50	99.16
8450.00	0.70	43.43	8445.90	-6.25	-8.12	52.03	0.42	52.66	98.87
8475.00	0.84	48.77	8470.89	-6.01	-7.89	52.27	0.62	52.86	98.58
8500.00	0.82	38.61	8495.89	-5.74	-7.63	52.52	0.59	53.07	98.26
8525.00	0.78	44.35	8520.89	-5.48	-7.37	52.75	0.36	53.26	97.95
8550.00	0.86	42.80	8545.89	-5.21	-7.11	53.00	0.36	53.47	97.64
8575.00	0.83	45.83	8570.88	-4.93	-6.84	53.26	0.23	53.69	97.32
8600.00	0.90	41.63	8595.88	-4.65	-6.57	53.52	0.40	53.92	97.00
8625.00	0.78	46.35	8620.88	-4.38	-6.30	53.77	0.55	54.14	96.69
8650.00	0.66	59.21	8645.88	-4.18	-6.11	54.02	0.82	54.36	96.46
8675.00	0.82	46.57	8670.87	-3.97	-5.92	54.27	0.91	54.59	96.22
8700.00	0.78	41.54	8695.87	-3.71	-5.67	54.51	0.32	54.81	95.93
8725.00	0.65	60.35	8720.87	-3.51	-5.47	54.75	1.06	55.02	95.70
8750.00	0.74	51.21	8745.87	-3.33	-5.30	55.00	0.57	55.25	95.50
8775.00	0.57	58.18	8770.87	-3.15	-5.13	55.23	0.74	55.47	95.31
8800.00	0.73	49.74	8795.86	-2.98	-4.96	55.46	0.72	55.68	95.11
8825.00	0.91	36.24	8820.86	-2.70	-4.70	55.70	1.07	55.90	94.82
8850.00	0.71	50.76	8845.86	-2.44	-4.44	55.94	1.15	56.11	94.54

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	0.84	53.19	8870.86	-2.22	-4.23	56.20	0.53	56.36	94.31
8900.00	1.00	47.76	8895.85	-1.95	-3.98	56.51	0.74	56.65	94.02
8925.00	0.87	60.62	8920.85	-1.70	-3.74	56.84	0.99	56.96	93.76
8950.00	1.01	59.83	8945.85	-1.48	-3.53	57.19	0.57	57.30	93.53
8975.00	1.09	69.15	8970.84	-1.27	-3.34	57.61	0.74	57.70	93.32
9000.00	1.23	76.31	8995.84	-1.11	-3.19	58.09	0.82	58.18	93.14
9025.00	1.30	75.45	9020.83	-0.96	-3.05	58.62	0.28	58.70	92.98
9050.00	1.43	86.61	9045.82	-0.84	-2.96	59.21	1.19	59.28	92.87
9075.00	1.56	91.67	9070.82	-0.81	-2.96	59.86	0.73	59.94	92.83
9100.00	1.75	97.09	9095.81	-0.84	-3.01	60.58	0.97	60.66	92.85
9125.00	1.79	95.80	9120.79	-0.90	-3.10	61.35	0.23	61.42	92.89
9150.00	1.79	92.17	9145.78	-0.93	-3.15	62.12	0.45	62.20	92.91
9175.00	1.63	92.43	9170.77	-0.93	-3.18	62.87	0.63	62.95	92.90
9200.00	1.75	95.93	9195.76	-0.96	-3.24	63.61	0.62	63.69	92.91
9225.00	1.72	95.43	9220.75	-1.01	-3.31	64.36	0.12	64.45	92.95
9250.00	1.75	92.65	9245.74	-1.03	-3.37	65.12	0.35	65.20	92.96
9275.00	1.63	96.93	9270.73	-1.07	-3.43	65.85	0.68	65.94	92.98
9300.00	1.69	102.60	9295.71	-1.17	-3.55	66.56	0.69	66.66	93.05
9325.00	1.70	100.03	9320.70	-1.29	-3.70	67.29	0.31	67.39	93.14
9350.00	1.72	101.29	9345.69	-1.40	-3.83	68.02	0.17	68.13	93.23
9375.00	1.73	98.50	9370.68	-1.50	-3.96	68.76	0.34	68.88	93.30
9400.00	1.68	106.93	9395.67	-1.64	-4.13	69.49	1.02	69.61	93.40
9425.00	1.74	113.48	9420.66	-1.87	-4.38	70.19	0.82	70.32	93.57
9450.00	1.53	120.47	9445.65	-2.17	-4.70	70.82	1.15	70.98	93.80
9475.00	1.37	122.44	9470.64	-2.48	-5.03	71.36	0.67	71.54	94.03
9500.00	1.45	127.04	9495.63	-2.81	-5.38	71.87	0.54	72.07	94.28
9525.00	1.37	132.53	9520.63	-3.18	-5.78	72.34	0.63	72.57	94.56
9550.00	1.30	173.84	9545.62	-3.66	-6.26	72.59	3.77	72.86	94.93
9575.00	1.38	188.36	9570.61	-4.24	-6.84	72.58	1.40	72.90	95.38
9600.00	1.26	204.06	9595.61	-4.79	-7.39	72.42	1.53	72.80	95.82
9625.00	1.33	207.06	9620.60	-5.31	-7.90	72.18	0.40	72.61	96.24
9650.00	1.36	203.56	9645.59	-5.85	-8.43	71.92	0.35	72.42	96.68

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	1.30	211.40	9670.59	-6.37	-8.94	71.66	0.76	72.21	97.11
9700.00	1.40	208.61	9695.58	-6.89	-9.45	71.36	0.45	71.99	97.55
9725.00	1.28	212.14	9720.57	-7.41	-9.96	71.07	0.58	71.76	97.97
9750.00	1.38	210.58	9745.57	-7.91	-10.45	70.77	0.43	71.54	98.40
9775.00	1.34	210.19	9770.56	-8.43	-10.96	70.47	0.16	71.32	98.84
9800.00	1.42	213.36	9795.55	-8.96	-11.47	70.15	0.45	71.08	99.29
9825.00	1.36	212.48	9820.54	-9.48	-11.98	69.82	0.26	70.84	99.74
9850.00	1.55	214.52	9845.54	-10.02	-12.51	69.47	0.81	70.59	100.21
9875.00	1.58	213.14	9870.53	-10.60	-13.08	69.09	0.18	70.32	100.72
9900.00	1.71	211.74	9895.52	-11.22	-13.68	68.71	0.54	70.06	101.26
9925.00	1.69	215.84	9920.51	-11.85	-14.30	68.29	0.49	69.78	101.83
9950.00	1.75	211.84	9945.49	-12.48	-14.92	67.88	0.53	69.50	102.40
9975.00	1.71	215.72	9970.48	-13.13	-15.55	67.46	0.49	69.23	102.98
10000.00	1.73	213.27	9995.47	-13.76	-16.17	67.03	0.30	68.96	103.56
10025.00	1.75	216.53	10020.46	-14.40	-16.79	66.60	0.40	68.68	104.15
10050.00	1.83	215.79	10045.45	-15.04	-17.42	66.14	0.36	68.40	104.76
10075.00	1.74	224.25	10070.44	-15.66	-18.02	65.64	1.12	68.07	105.35
10100.00	1.84	229.64	10095.42	-16.21	-18.55	65.07	0.79	67.66	105.91
10125.00	1.79	230.19	10120.41	-16.74	-19.06	64.47	0.20	67.22	106.47
10150.00	1.71	242.07	10145.40	-17.19	-19.48	63.84	1.49	66.74	106.97
10175.00	1.64	244.73	10170.39	-17.54	-19.81	63.18	0.42	66.22	107.41
10200.00	1.63	249.06	10195.38	-17.84	-20.09	62.53	0.49	65.68	107.81
10225.00	1.61	255.28	10220.37	-18.08	-20.30	61.86	0.71	65.11	108.17
10250.00	1.64	255.15	10245.36	-18.28	-20.48	61.17	0.15	64.51	108.51
10275.00	1.61	255.46	10270.35	-18.49	-20.66	60.49	0.15	63.92	108.86
10300.00	1.51	255.28	10295.34	-18.68	-20.84	59.83	0.39	63.35	109.20
10325.00	1.41	255.15	10320.33	-18.87	-21.00	59.21	0.39	62.83	109.53
10350.00	1.44	254.16	10345.32	-19.05	-21.16	58.61	0.15	62.32	109.85
10375.00	1.37	255.39	10370.32	-19.23	-21.32	58.02	0.30	61.82	110.18
10400.00	1.33	256.72	10395.31	-19.40	-21.47	57.45	0.21	61.33	110.49
10425.00	1.19	258.78	10420.30	-19.53	-21.58	56.91	0.61	60.87	110.77
10450.00	1.10	259.69	10445.30	-19.64	-21.68	56.42	0.34	60.44	111.02

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	1.02	262.75	10470.29	-19.73	-21.75	55.96	0.39	60.04	111.24
10500.00	0.95	265.86	10495.29	-19.79	-21.79	55.54	0.35	59.66	111.42
10525.00	0.81	277.50	10520.29	-19.80	-21.78	55.15	0.91	59.30	111.55
10550.00	0.79	293.44	10545.29	-19.72	-21.69	54.82	0.89	58.96	111.59
10575.00	0.87	295.59	10570.28	-19.58	-21.54	54.49	0.37	58.59	111.57
10600.00	0.91	290.55	10595.28	-19.44	-21.39	54.13	0.35	58.21	111.56
10625.00	0.87	292.39	10620.28	-19.31	-21.25	53.77	0.20	57.82	111.56
10650.00	0.94	291.33	10645.27	-19.18	-21.10	53.41	0.28	57.42	111.56
10675.00	1.05	281.47	10670.27	-19.07	-20.98	52.99	0.83	56.99	111.60
10700.00	1.16	275.71	10695.26	-19.02	-20.91	52.51	0.63	56.52	111.71
10725.00	1.23	273.69	10720.26	-18.99	-20.87	51.99	0.32	56.02	111.87
10750.00	1.29	273.08	10745.25	-18.98	-20.83	51.44	0.23	55.50	112.05
10775.00	1.24	273.67	10770.25	-18.97	-20.80	50.89	0.20	54.98	112.23
10800.00	1.21	272.94	10795.24	-18.96	-20.77	50.36	0.12	54.47	112.42
10825.00	1.19	274.17	10820.24	-18.94	-20.74	49.83	0.14	53.98	112.60
10850.00	1.26	272.51	10845.23	-18.93	-20.71	49.30	0.31	53.47	112.78
10875.00	1.30	269.52	10870.22	-18.94	-20.70	48.74	0.30	52.95	113.01
10900.00	1.28	271.35	10895.22	-18.96	-20.69	48.18	0.17	52.43	113.24
10925.00	1.38	274.24	10920.21	-18.95	-20.66	47.60	0.48	51.89	113.47
10950.00	1.41	274.47	10945.20	-18.92	-20.62	46.99	0.13	51.31	113.69
10975.00	1.52	274.10	10970.20	-18.90	-20.57	46.35	0.45	50.71	113.93
11000.00	1.62	274.26	10995.19	-18.87	-20.52	45.67	0.37	50.07	114.20
11025.00	1.82	276.35	11020.17	-18.83	-20.45	44.92	0.87	49.36	114.48
11050.00	2.18	281.04	11045.16	-18.73	-20.32	44.06	1.57	48.52	114.75
11075.00	2.59	283.08	11070.14	-18.54	-20.10	43.04	1.69	47.50	115.03
11100.00	2.99	286.82	11095.11	-18.27	-19.78	41.87	1.75	46.30	115.29
11125.00	3.38	293.75	11120.07	-17.83	-19.29	40.56	2.19	44.92	115.44
11150.00	3.86	301.02	11145.02	-17.15	-18.56	39.17	2.65	43.34	115.36
11175.00	4.36	304.60	11169.95	-16.23	-17.59	37.67	2.23	41.57	115.03
11200.00	4.70	306.78	11194.88	-15.14	-16.44	36.06	1.52	39.63	114.50
11225.00	4.96	308.78	11219.79	-13.91	-15.15	34.40	1.26	37.59	113.76
11250.00	5.11	310.11	11244.69	-12.57	-13.75	32.71	0.77	35.48	112.81

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
11275.00	5.03	311.94	11269.59	-11.18	-12.30	31.04	0.72	33.39	111.62
11300.00	4.61	313.42	11294.51	-9.82	-10.88	29.50	1.74	31.44	110.25
11325.00	4.45	314.75	11319.43	-8.50	-9.51	28.08	0.78	29.64	108.70
11350.00	4.14	316.40	11344.36	-7.21	-8.17	26.76	1.31	27.98	106.97
11375.00	4.11	316.73	11369.29	-5.94	-6.86	25.53	0.16	26.43	105.05
11400.00	4.12	317.21	11394.23	-4.68	-5.55	24.30	0.14	24.93	102.86
11425.00	4.16	317.19	11419.16	-3.40	-4.22	23.08	0.15	23.46	100.38
11450.00	4.11	317.01	11444.10	-2.12	-2.90	21.85	0.21	22.04	97.57
11475.00	4.11	317.94	11469.03	-0.85	-1.58	20.64	0.27	20.70	94.39
11500.00	4.03	317.73	11493.97	0.43	-0.27	19.45	0.31	19.45	90.79
11525.00	4.09	318.02	11518.91	1.70	1.04	18.26	0.25	18.29	86.73
11550.00	3.93	318.82	11543.85	2.96	2.35	17.10	0.68	17.26	82.16
11575.00	3.67	317.03	11568.79	4.15	3.58	15.99	1.14	16.38	77.37
11578.70	3.63	316.69	11572.49	4.32	3.76	15.83	1.21	16.27	76.65



COG Operating, LLC

Lea County, NM

Sec 10, T25S, R35E

Montera Federal Com #23H

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

12 January, 2018



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Montera Federal Com #23H
Project:	Lea County, NM	TVD Reference:	KB @ 3250.0usft (Noram 21)
Site:	Sec 10, T25S, R35E	MD Reference:	KB @ 3250.0usft (Noram 21)
Well:	Montera Federal Com #23H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000:1 Single User Db

Project:	Lea County, NM		
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 10, T25S, R35E
Site Position:	Northing: 415,305.10 usft Latitude: 32° 8' 16.921 N
From: Map	Easting: 801,857.40 usft Longitude: 103° 21' 29.304 W
Position Uncertainty: 0.0 usft	Slot Radius: 13-3/16 " Grid Convergence: 0.52 °

Well:	Montera Federal Com #23H
Well Position	+N/-S 0.0 usft Northing: 415,305.10 usft Latitude: 32° 8' 16.921 N
	+E/-W 0.0 usft Easting: 801,857.40 usft Longitude: 103° 21' 29.304 W
Position Uncertainty	0.0 usft Wellhead Elevation: usft Ground Level: 3,221.0 usft

Wellbore:	Wellbore #1
Magnetics	Model Name Sample Date Declination Dip Angle Field Strength
	(°) (°) (nT)
	IGRF2015 12/2/2017 6.80 60.01 47,863.50302031

Design:	Wellbore #1
Audit Notes:	
Version: 1.0	Phase: ACTUAL Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) +N/-S +E/-W Direction
	(usft) (usft) (usft) (°)
	0.0 0.0 0.0 2.05

Survey Program	Date 1/12/2018
From To	Survey (Wellbore) Tool Name Description
(usft) (usft)	
100.0 11,578.7	Gyro Surveys #2 (Wellbore #1) GYRO-NS OWSG Gyrocompass Gyro
11,638.0 19,659.0	QES Surveys (Gyro Tie-in) (Wellbore #1) MWD OWSG MWD - Standard

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Map	Map	Latitude	Longitude
Depth	(°)	(°)	Depth	(usft)	(usft)	Northing	Easting		
(usft)			(usft)			(usft)	(usft)		
0.0	0.00	0.00	0.0	0.0	0.0	415,305.10	801,857.40	32° 8' 16.921 N	103° 21' 29.304 W
100.0	0.25	202.45	100.0	-0.2	-0.1	415,304.90	801,857.31	32° 8' 16.919 N	103° 21' 29.305 W
125.0	0.27	207.68	125.0	-0.3	-0.1	415,304.80	801,857.27	32° 8' 16.918 N	103° 21' 29.305 W
150.0	0.15	173.22	150.0	-0.4	-0.2	415,304.71	801,857.24	32° 8' 16.917 N	103° 21' 29.306 W
175.0	0.19	189.53	175.0	-0.5	-0.2	415,304.64	801,857.24	32° 8' 16.916 N	103° 21' 29.306 W
200.0	0.25	202.56	200.0	-0.6	-0.2	415,304.55	801,857.21	32° 8' 16.915 N	103° 21' 29.306 W
225.0	0.20	204.04	225.0	-0.6	-0.2	415,304.46	801,857.17	32° 8' 16.914 N	103° 21' 29.306 W
250.0	0.31	212.13	250.0	-0.7	-0.3	415,304.36	801,857.12	32° 8' 16.913 N	103° 21' 29.307 W
275.0	0.33	198.35	275.0	-0.9	-0.3	415,304.23	801,857.06	32° 8' 16.912 N	103° 21' 29.308 W
300.0	0.36	204.64	300.0	-1.0	-0.4	415,304.09	801,857.01	32° 8' 16.911 N	103° 21' 29.308 W
325.0	0.33	200.55	325.0	-1.1	-0.5	415,303.95	801,856.95	32° 8' 16.909 N	103° 21' 29.309 W

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Montera Federal Com #23H
Project:	Lea County, NM	TVD Reference:	KB @ 3250.0usft (Noram 21)
Site:	Sec 10, T25S, R35E	MD Reference:	KB @ 3250.0usft (Noram 21)
Well:	Montera Federal Com #23H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
350.0	0.39	205.43	350.0	-1.3	-0.5	415,303.81	801,856.89	32° 8' 16.908 N	103° 21' 29.310 W	
375.0	0.45	210.92	375.0	-1.5	-0.6	415,303.65	801,856.80	32° 8' 16.906 N	103° 21' 29.311 W	
400.0	0.42	216.49	400.0	-1.6	-0.7	415,303.49	801,856.69	32° 8' 16.905 N	103° 21' 29.312 W	
425.0	0.40	225.69	425.0	-1.7	-0.8	415,303.36	801,856.58	32° 8' 16.904 N	103° 21' 29.313 W	
450.0	0.51	239.85	450.0	-1.9	-1.0	415,303.24	801,856.42	32° 8' 16.902 N	103° 21' 29.315 W	
475.0	0.56	247.66	475.0	-2.0	-1.2	415,303.14	801,856.21	32° 8' 16.901 N	103° 21' 29.318 W	
500.0	0.63	247.08	500.0	-2.1	-1.4	415,303.04	801,855.97	32° 8' 16.900 N	103° 21' 29.321 W	
525.0	0.71	250.48	525.0	-2.2	-1.7	415,302.93	801,855.70	32° 8' 16.899 N	103° 21' 29.324 W	
550.0	0.84	255.24	550.0	-2.3	-2.0	415,302.83	801,855.37	32° 8' 16.899 N	103° 21' 29.327 W	
575.0	0.74	250.51	575.0	-2.4	-2.4	415,302.73	801,855.04	32° 8' 16.898 N	103° 21' 29.331 W	
600.0	0.76	250.07	600.0	-2.5	-2.7	415,302.62	801,854.74	32° 8' 16.896 N	103° 21' 29.335 W	
625.0	0.78	252.36	625.0	-2.6	-3.0	415,302.51	801,854.42	32° 8' 16.895 N	103° 21' 29.339 W	
650.0	0.82	253.74	650.0	-2.7	-3.3	415,302.41	801,854.08	32° 8' 16.894 N	103° 21' 29.343 W	
675.0	0.72	247.10	675.0	-2.8	-3.6	415,302.30	801,853.77	32° 8' 16.893 N	103° 21' 29.346 W	
700.0	0.63	249.91	700.0	-2.9	-3.9	415,302.19	801,853.49	32° 8' 16.892 N	103° 21' 29.349 W	
725.0	0.65	248.83	725.0	-3.0	-4.2	415,302.10	801,853.23	32° 8' 16.891 N	103° 21' 29.352 W	
750.0	0.61	270.90	750.0	-3.1	-4.4	415,302.05	801,852.97	32° 8' 16.891 N	103° 21' 29.356 W	
775.0	0.58	288.24	775.0	-3.0	-4.7	415,302.09	801,852.71	32° 8' 16.891 N	103° 21' 29.358 W	
800.0	0.68	287.57	800.0	-2.9	-4.9	415,302.17	801,852.45	32° 8' 16.892 N	103° 21' 29.362 W	
825.0	0.69	301.58	825.0	-2.8	-5.2	415,302.30	801,852.18	32° 8' 16.893 N	103° 21' 29.365 W	
850.0	0.62	314.80	850.0	-2.6	-5.4	415,302.47	801,851.96	32° 8' 16.895 N	103° 21' 29.367 W	
875.0	0.72	315.22	875.0	-2.4	-5.6	415,302.68	801,851.75	32° 8' 16.897 N	103° 21' 29.370 W	
900.0	0.68	317.45	900.0	-2.2	-5.9	415,302.90	801,851.54	32° 8' 16.899 N	103° 21' 29.372 W	
925.0	0.59	317.54	925.0	-2.0	-6.0	415,303.10	801,851.35	32° 8' 16.902 N	103° 21' 29.374 W	
950.0	0.59	321.10	950.0	-1.8	-6.2	415,303.30	801,851.19	32° 8' 16.903 N	103° 21' 29.376 W	
975.0	0.60	322.95	975.0	-1.6	-6.4	415,303.50	801,851.03	32° 8' 16.906 N	103° 21' 29.378 W	
1,000.0	0.68	319.70	1,000.0	-1.4	-6.5	415,303.72	801,850.85	32° 8' 16.908 N	103° 21' 29.380 W	
1,025.0	0.52	325.54	1,025.0	-1.2	-6.7	415,303.93	801,850.69	32° 8' 16.910 N	103° 21' 29.382 W	
1,050.0	0.65	306.29	1,050.0	-1.0	-6.9	415,304.10	801,850.51	32° 8' 16.912 N	103° 21' 29.384 W	
1,075.0	0.64	315.44	1,075.0	-0.8	-7.1	415,304.29	801,850.30	32° 8' 16.913 N	103° 21' 29.386 W	
1,100.0	0.58	310.26	1,099.9	-0.6	-7.3	415,304.47	801,850.11	32° 8' 16.915 N	103° 21' 29.389 W	
1,125.0	0.66	308.02	1,124.9	-0.5	-7.5	415,304.64	801,849.90	32° 8' 16.917 N	103° 21' 29.391 W	
1,150.0	0.68	304.39	1,149.9	-0.3	-7.7	415,304.81	801,849.66	32° 8' 16.919 N	103° 21' 29.394 W	
1,175.0	0.61	314.74	1,174.9	-0.1	-8.0	415,304.99	801,849.44	32° 8' 16.920 N	103° 21' 29.396 W	
1,200.0	0.70	304.33	1,199.9	0.1	-8.2	415,305.17	801,849.22	32° 8' 16.922 N	103° 21' 29.399 W	
1,225.0	0.60	303.92	1,224.9	0.2	-8.4	415,305.33	801,848.99	32° 8' 16.924 N	103° 21' 29.401 W	
1,250.0	0.68	298.07	1,249.9	0.4	-8.6	415,305.47	801,848.75	32° 8' 16.925 N	103° 21' 29.404 W	
1,275.0	0.66	297.20	1,274.9	0.5	-8.9	415,305.61	801,848.49	32° 8' 16.927 N	103° 21' 29.407 W	
1,300.0	0.59	299.30	1,299.9	0.6	-9.1	415,305.73	801,848.25	32° 8' 16.928 N	103° 21' 29.410 W	
1,325.0	0.56	306.82	1,324.9	0.8	-9.4	415,305.87	801,848.04	32° 8' 16.929 N	103° 21' 29.412 W	
1,350.0	0.65	311.27	1,349.9	0.9	-9.6	415,306.04	801,847.83	32° 8' 16.931 N	103° 21' 29.415 W	
1,375.0	0.54	315.31	1,374.9	1.1	-9.8	415,306.21	801,847.65	32° 8' 16.933 N	103° 21' 29.417 W	
1,400.0	0.54	311.30	1,399.9	1.3	-9.9	415,306.38	801,847.47	32° 8' 16.934 N	103° 21' 29.419 W	
1,425.0	0.56	300.03	1,424.9	1.4	-10.1	415,306.52	801,847.28	32° 8' 16.936 N	103° 21' 29.421 W	
1,450.0	0.55	320.49	1,449.9	1.6	-10.3	415,306.67	801,847.10	32° 8' 16.937 N	103° 21' 29.423 W	
1,475.0	0.45	314.01	1,474.9	1.7	-10.4	415,306.83	801,846.95	32° 8' 16.939 N	103° 21' 29.425 W	
1,500.0	0.49	315.94	1,499.9	1.9	-10.6	415,306.97	801,846.81	32° 8' 16.940 N	103° 21' 29.427 W	
1,525.0	0.46	321.70	1,524.9	2.0	-10.7	415,307.13	801,846.67	32° 8' 16.942 N	103° 21' 29.428 W	
1,550.0	0.45	320.97	1,549.9	2.2	-10.9	415,307.29	801,846.55	32° 8' 16.943 N	103° 21' 29.430 W	
1,575.0	0.45	315.58	1,574.9	2.3	-11.0	415,307.43	801,846.41	32° 8' 16.945 N	103° 21' 29.431 W	
1,600.0	0.43	328.73	1,599.9	2.5	-11.1	415,307.58	801,846.30	32° 8' 16.946 N	103° 21' 29.433 W	
1,625.0	0.46	332.25	1,624.9	2.7	-11.2	415,307.75	801,846.20	32° 8' 16.948 N	103° 21' 29.434 W	
1,650.0	0.52	338.32	1,649.9	2.8	-11.3	415,307.95	801,846.11	32° 8' 16.950 N	103° 21' 29.435 W	
1,675.0	0.48	348.59	1,674.9	3.1	-11.3	415,308.15	801,846.05	32° 8' 16.952 N	103° 21' 29.435 W	
1,700.0	0.42	352.27	1,699.9	3.2	-11.4	415,308.35	801,846.02	32° 8' 16.954 N	103° 21' 29.436 W	

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Montera Federal Com #23H
Project:	Lea County, NM	TVD Reference:	KB @ 3250.0usft (Noram 21)
Site:	Sec 10, T25S, R35E	MD Reference:	KB @ 3250.0usft (Noram 21)
Well:	Montera Federal Com #23H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000:1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,725.0	0.43	357.08	1,724.9	3.4	-11.4	415,308.53	801,846.00	32° 8' 16.956 N	103° 21' 29.436 W
1,750.0	0.53	6.53	1,749.9	3.6	-11.4	415,308.74	801,846.01	32° 8' 16.958 N	103° 21' 29.436 W
1,775.0	0.45	356.77	1,774.9	3.9	-11.4	415,308.95	801,846.02	32° 8' 16.960 N	103° 21' 29.436 W
1,800.0	0.44	8.90	1,799.9	4.0	-11.4	415,309.15	801,846.03	32° 8' 16.962 N	103° 21' 29.436 W
1,825.0	0.41	359.74	1,824.9	4.2	-11.4	415,309.33	801,846.04	32° 8' 16.964 N	103° 21' 29.435 W
1,850.0	0.46	10.21	1,849.9	4.4	-11.3	415,309.52	801,846.06	32° 8' 16.965 N	103° 21' 29.435 W
1,875.0	0.47	18.77	1,874.9	4.6	-11.3	415,309.71	801,846.11	32° 8' 16.967 N	103° 21' 29.434 W
1,900.0	0.47	15.44	1,899.9	4.8	-11.2	415,309.91	801,846.17	32° 8' 16.969 N	103° 21' 29.434 W
1,925.0	0.46	23.66	1,924.9	5.0	-11.2	415,310.10	801,846.24	32° 8' 16.971 N	103° 21' 29.433 W
1,950.0	0.49	29.06	1,949.9	5.2	-11.1	415,310.29	801,846.33	32° 8' 16.973 N	103° 21' 29.432 W
1,975.0	0.52	34.94	1,974.9	5.4	-11.0	415,310.47	801,846.45	32° 8' 16.975 N	103° 21' 29.430 W
2,000.0	0.47	30.54	1,999.9	5.6	-10.8	415,310.65	801,846.56	32° 8' 16.977 N	103° 21' 29.429 W
2,025.0	0.46	30.74	2,024.9	5.7	-10.7	415,310.83	801,846.67	32° 8' 16.978 N	103° 21' 29.428 W
2,050.0	0.57	43.03	2,049.9	5.9	-10.6	415,311.01	801,846.80	32° 8' 16.980 N	103° 21' 29.426 W
2,075.0	0.42	32.23	2,074.9	6.1	-10.5	415,311.17	801,846.94	32° 8' 16.982 N	103° 21' 29.425 W
2,100.0	0.57	29.89	2,099.9	6.3	-10.4	415,311.36	801,847.05	32° 8' 16.984 N	103° 21' 29.423 W
2,125.0	0.41	30.90	2,124.9	6.4	-10.2	415,311.54	801,847.15	32° 8' 16.985 N	103° 21' 29.422 W
2,150.0	0.54	42.07	2,149.9	6.6	-10.1	415,311.71	801,847.28	32° 8' 16.987 N	103° 21' 29.421 W
2,175.0	0.48	37.81	2,174.9	6.8	-10.0	415,311.88	801,847.42	32° 8' 16.989 N	103° 21' 29.419 W
2,200.0	0.52	47.30	2,199.9	6.9	-9.8	415,312.04	801,847.57	32° 8' 16.990 N	103° 21' 29.417 W
2,225.0	0.61	53.02	2,224.9	7.1	-9.6	415,312.19	801,847.76	32° 8' 16.992 N	103° 21' 29.415 W
2,250.0	0.63	59.12	2,249.9	7.2	-9.4	415,312.35	801,847.98	32° 8' 16.993 N	103° 21' 29.412 W
2,275.0	0.77	60.44	2,274.9	7.4	-9.1	415,312.50	801,848.25	32° 8' 16.995 N	103° 21' 29.409 W
2,300.0	0.81	57.86	2,299.9	7.6	-8.9	415,312.68	801,848.54	32° 8' 16.997 N	103° 21' 29.406 W
2,325.0	0.84	60.25	2,324.9	7.8	-8.5	415,312.86	801,848.85	32° 8' 16.998 N	103° 21' 29.402 W
2,350.0	0.83	61.30	2,349.9	7.9	-8.2	415,313.04	801,849.17	32° 8' 17.000 N	103° 21' 29.399 W
2,375.0	0.88	59.13	2,374.9	8.1	-7.9	415,313.22	801,849.49	32° 8' 17.002 N	103° 21' 29.395 W
2,400.0	1.04	60.60	2,399.9	8.3	-7.5	415,313.43	801,849.86	32° 8' 17.004 N	103° 21' 29.391 W
2,425.0	0.98	63.06	2,424.9	8.5	-7.2	415,313.64	801,850.24	32° 8' 17.006 N	103° 21' 29.386 W
2,450.0	1.06	60.66	2,449.9	8.8	-6.8	415,313.85	801,850.64	32° 8' 17.008 N	103° 21' 29.381 W
2,475.0	1.19	58.93	2,474.9	9.0	-6.3	415,314.10	801,851.06	32° 8' 17.010 N	103° 21' 29.376 W
2,500.0	1.24	62.96	2,499.9	9.3	-5.9	415,314.36	801,851.52	32° 8' 17.013 N	103° 21' 29.371 W
2,525.0	1.36	58.24	2,524.9	9.5	-5.4	415,314.64	801,852.02	32° 8' 17.016 N	103° 21' 29.365 W
2,550.0	1.53	60.38	2,549.9	9.9	-4.8	415,314.96	801,852.56	32° 8' 17.019 N	103° 21' 29.359 W
2,575.0	1.60	56.34	2,574.8	10.2	-4.3	415,315.31	801,853.14	32° 8' 17.022 N	103° 21' 29.352 W
2,600.0	1.58	59.48	2,599.8	10.6	-3.7	415,315.68	801,853.73	32° 8' 17.026 N	103° 21' 29.345 W
2,625.0	1.71	55.97	2,624.8	11.0	-3.1	415,316.07	801,854.33	32° 8' 17.030 N	103° 21' 29.338 W
2,650.0	1.77	53.71	2,649.8	11.4	-2.4	415,316.50	801,854.95	32° 8' 17.034 N	103° 21' 29.331 W
2,675.0	1.87	53.31	2,674.8	11.9	-1.8	415,316.98	801,855.59	32° 8' 17.038 N	103° 21' 29.323 W
2,700.0	1.84	56.03	2,699.8	12.3	-1.1	415,317.44	801,856.25	32° 8' 17.043 N	103° 21' 29.316 W
2,725.0	1.78	55.34	2,724.8	12.8	-0.5	415,317.89	801,856.90	32° 8' 17.047 N	103° 21' 29.308 W
2,750.0	1.79	52.21	2,749.8	13.3	0.1	415,318.35	801,857.53	32° 8' 17.052 N	103° 21' 29.301 W
2,775.0	2.03	50.60	2,774.7	13.8	0.8	415,318.87	801,858.18	32° 8' 17.057 N	103° 21' 29.293 W
2,800.0	2.15	49.56	2,799.7	14.4	1.5	415,319.46	801,858.88	32° 8' 17.063 N	103° 21' 29.285 W
2,825.0	2.24	49.96	2,824.7	15.0	2.2	415,320.07	801,859.61	32° 8' 17.069 N	103° 21' 29.276 W
2,850.0	2.32	48.88	2,849.7	15.6	3.0	415,320.72	801,860.37	32° 8' 17.075 N	103° 21' 29.267 W
2,875.0	2.44	49.90	2,874.7	16.3	3.8	415,321.40	801,861.16	32° 8' 17.082 N	103° 21' 29.258 W
2,900.0	2.52	48.20	2,899.6	17.0	4.6	415,322.11	801,861.97	32° 8' 17.089 N	103° 21' 29.249 W
2,925.0	2.53	49.29	2,924.6	17.7	5.4	415,322.83	801,862.80	32° 8' 17.096 N	103° 21' 29.239 W
2,950.0	2.49	48.95	2,949.6	18.4	6.2	415,323.55	801,863.63	32° 8' 17.103 N	103° 21' 29.229 W
2,975.0	2.54	50.31	2,974.6	19.2	7.1	415,324.26	801,864.47	32° 8' 17.110 N	103° 21' 29.219 W
3,000.0	2.55	54.00	2,999.6	19.8	7.9	415,324.94	801,865.34	32° 8' 17.116 N	103° 21' 29.209 W
3,025.0	2.37	65.73	3,024.5	20.4	8.9	415,325.48	801,866.26	32° 8' 17.122 N	103° 21' 29.198 W
3,050.0	2.24	75.93	3,049.5	20.7	9.8	415,325.81	801,867.21	32° 8' 17.125 N	103° 21' 29.187 W
3,075.0	2.23	79.19	3,074.5	20.9	10.8	415,326.02	801,868.16	32° 8' 17.127 N	103° 21' 29.176 W

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Montera Federal Com #23H
Project:	Lea County, NM	TVD Reference:	KB @ 3250.0usft (Noram 21)
Site:	Sec 10, T25S, R35E	MD Reference:	KB @ 3250.0usft (Noram 21)
Well:	Montera Federal Com #23H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
3,100.0	2.22	77.25	3,099.5	21.1	11.7	415,326.22	801,869.11	32° 8' 17.129 N	103° 21' 29.165 W	
3,125.0	2.18	75.54	3,124.5	21.3	12.6	415,326.44	801,870.04	32° 8' 17.131 N	103° 21' 29.154 W	
3,150.0	2.13	77.81	3,149.4	21.6	13.6	415,326.66	801,870.96	32° 8' 17.133 N	103° 21' 29.144 W	
3,175.0	2.23	74.79	3,174.4	21.8	14.5	415,326.89	801,871.88	32° 8' 17.135 N	103° 21' 29.133 W	
3,200.0	2.21	73.41	3,199.4	22.1	15.4	415,327.15	801,872.81	32° 8' 17.138 N	103° 21' 29.122 W	
3,225.0	2.30	74.54	3,224.4	22.3	16.4	415,327.42	801,873.76	32° 8' 17.140 N	103° 21' 29.111 W	
3,250.0	2.16	72.53	3,249.4	22.6	17.3	415,327.70	801,874.69	32° 8' 17.143 N	103° 21' 29.100 W	
3,275.0	2.18	73.09	3,274.3	22.9	18.2	415,327.98	801,875.59	32° 8' 17.146 N	103° 21' 29.090 W	
3,300.0	1.98	75.34	3,299.3	23.1	19.1	415,328.23	801,876.47	32° 8' 17.148 N	103° 21' 29.080 W	
3,325.0	1.66	73.73	3,324.3	23.3	19.8	415,328.44	801,877.23	32° 8' 17.150 N	103° 21' 29.071 W	
3,350.0	1.19	87.77	3,349.3	23.4	20.4	415,328.55	801,877.84	32° 8' 17.151 N	103° 21' 29.064 W	
3,375.0	1.15	92.35	3,374.3	23.4	21.0	415,328.55	801,878.35	32° 8' 17.151 N	103° 21' 29.058 W	
3,400.0	0.94	89.53	3,399.3	23.4	21.4	415,328.54	801,878.81	32° 8' 17.151 N	103° 21' 29.052 W	
3,425.0	0.97	84.67	3,424.3	23.5	21.8	415,328.56	801,879.22	32° 8' 17.151 N	103° 21' 29.047 W	
3,450.0	0.86	85.98	3,449.3	23.5	22.2	415,328.59	801,879.62	32° 8' 17.151 N	103° 21' 29.043 W	
3,475.0	0.64	89.95	3,474.3	23.5	22.5	415,328.61	801,879.95	32° 8' 17.151 N	103° 21' 29.039 W	
3,500.0	0.53	93.61	3,499.3	23.5	22.8	415,328.60	801,880.20	32° 8' 17.151 N	103° 21' 29.036 W	
3,525.0	0.61	85.97	3,524.3	23.5	23.1	415,328.60	801,880.45	32° 8' 17.151 N	103° 21' 29.033 W	
3,550.0	0.43	91.34	3,549.3	23.5	23.3	415,328.61	801,880.68	32° 8' 17.151 N	103° 21' 29.031 W	
3,575.0	0.37	85.73	3,574.3	23.5	23.5	415,328.61	801,880.85	32° 8' 17.151 N	103° 21' 29.028 W	
3,600.0	0.34	77.50	3,599.3	23.5	23.6	415,328.63	801,881.00	32° 8' 17.152 N	103° 21' 29.027 W	
3,625.0	0.30	72.93	3,624.3	23.6	23.7	415,328.67	801,881.14	32° 8' 17.152 N	103° 21' 29.025 W	
3,650.0	0.34	65.92	3,649.3	23.6	23.9	415,328.72	801,881.27	32° 8' 17.152 N	103° 21' 29.024 W	
3,675.0	0.27	75.80	3,674.3	23.7	24.0	415,328.76	801,881.39	32° 8' 17.153 N	103° 21' 29.022 W	
3,700.0	0.14	61.67	3,699.3	23.7	24.1	415,328.79	801,881.48	32° 8' 17.153 N	103° 21' 29.021 W	
3,725.0	0.17	85.54	3,724.3	23.7	24.1	415,328.81	801,881.54	32° 8' 17.153 N	103° 21' 29.020 W	
3,750.0	0.27	100.15	3,749.3	23.7	24.2	415,328.80	801,881.64	32° 8' 17.153 N	103° 21' 29.019 W	
3,775.0	0.33	89.55	3,774.3	23.7	24.4	415,328.79	801,881.77	32° 8' 17.153 N	103° 21' 29.018 W	
3,800.0	0.32	92.49	3,799.3	23.7	24.5	415,328.79	801,881.91	32° 8' 17.153 N	103° 21' 29.016 W	
3,825.0	0.41	80.34	3,824.3	23.7	24.7	415,328.80	801,882.06	32° 8' 17.153 N	103° 21' 29.014 W	
3,850.0	0.70	69.41	3,849.3	23.8	24.9	415,328.87	801,882.30	32° 8' 17.154 N	103° 21' 29.012 W	
3,875.0	1.12	79.85	3,874.3	23.9	25.3	415,328.97	801,882.68	32° 8' 17.155 N	103° 21' 29.007 W	
3,900.0	1.58	86.29	3,899.3	23.9	25.9	415,329.03	801,883.26	32° 8' 17.155 N	103° 21' 29.000 W	
3,925.0	2.08	89.80	3,924.3	24.0	26.7	415,329.06	801,884.06	32° 8' 17.155 N	103° 21' 28.991 W	
3,950.0	2.57	91.30	3,949.2	23.9	27.7	415,329.05	801,885.08	32° 8' 17.155 N	103° 21' 28.979 W	
3,975.0	2.89	92.14	3,974.2	23.9	28.9	415,329.01	801,886.27	32° 8' 17.155 N	103° 21' 28.965 W	
4,000.0	3.37	92.41	3,999.2	23.9	30.2	415,328.96	801,887.63	32° 8' 17.154 N	103° 21' 28.950 W	
4,025.0	3.70	94.29	4,024.1	23.8	31.8	415,328.86	801,889.17	32° 8' 17.153 N	103° 21' 28.932 W	
4,050.0	3.87	94.16	4,049.1	23.6	33.4	415,328.74	801,890.81	32° 8' 17.152 N	103° 21' 28.913 W	
4,075.0	3.99	93.47	4,074.0	23.5	35.1	415,328.63	801,892.52	32° 8' 17.150 N	103° 21' 28.893 W	
4,100.0	3.99	94.47	4,098.9	23.4	36.9	415,328.51	801,894.26	32° 8' 17.149 N	103° 21' 28.873 W	
4,125.0	4.09	97.15	4,123.9	23.2	38.6	415,328.33	801,896.01	32° 8' 17.147 N	103° 21' 28.852 W	
4,150.0	4.50	102.37	4,148.8	22.9	40.5	415,328.01	801,897.85	32° 8' 17.144 N	103° 21' 28.831 W	
4,175.0	4.73	110.85	4,173.7	22.3	42.4	415,327.43	801,899.77	32° 8' 17.138 N	103° 21' 28.809 W	
4,200.0	4.92	116.87	4,198.6	21.5	44.3	415,326.58	801,901.69	32° 8' 17.129 N	103° 21' 28.786 W	
4,225.0	4.93	116.90	4,223.6	20.5	46.2	415,325.61	801,903.61	32° 8' 17.120 N	103° 21' 28.764 W	
4,250.0	4.73	121.54	4,248.5	19.5	48.0	415,324.58	801,905.45	32° 8' 17.109 N	103° 21' 28.743 W	
4,275.0	4.47	130.20	4,273.4	18.3	49.7	415,323.42	801,907.07	32° 8' 17.098 N	103° 21' 28.724 W	
4,300.0	4.26	139.47	4,298.3	17.0	51.0	415,322.08	801,908.42	32° 8' 17.084 N	103° 21' 28.709 W	
4,325.0	4.08	151.61	4,323.2	15.5	52.0	415,320.59	801,909.44	32° 8' 17.069 N	103° 21' 28.697 W	
4,350.0	3.80	168.28	4,348.2	13.9	52.6	415,319.00	801,910.03	32° 8' 17.054 N	103° 21' 28.690 W	
4,375.0	3.53	184.61	4,373.1	12.3	52.7	415,317.42	801,910.14	32° 8' 17.038 N	103° 21' 28.689 W	
4,400.0	3.34	198.04	4,398.1	10.9	52.5	415,315.96	801,909.85	32° 8' 17.024 N	103° 21' 28.693 W	
4,425.0	3.24	215.33	4,423.1	9.6	51.8	415,314.69	801,909.22	32° 8' 17.011 N	103° 21' 28.700 W	
4,450.0	3.12	232.36	4,448.0	8.6	50.9	415,313.70	801,908.27	32° 8' 17.001 N	103° 21' 28.711 W	

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Montera Federal Com #23H
Project:	Lea County, NM	TVD Reference:	KB @ 3250.0usft (Noram 21)
Site:	Sec 10; T25S, R35E	MD Reference:	KB @ 3250.0usft (Noram 21)
Well:	Montera Federal Com #23H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,475.0	3.05	250.52	4,473.0	8.0	49.7	415,313.06	801,907.10	32° 8' 16.995 N	103° 21' 28.725 W
4,500.0	3.06	269.60	4,497.9	7.7	48.4	415,312.84	801,905.81	32° 8' 16.993 N	103° 21' 28.740 W
4,525.0	2.98	286.83	4,522.9	7.9	47.1	415,313.02	801,904.52	32° 8' 16.995 N	103° 21' 28.755 W
4,550.0	3.21	300.49	4,547.9	8.5	45.9	415,313.56	801,903.30	32° 8' 17.000 N	103° 21' 28.769 W
4,575.0	3.33	314.44	4,572.8	9.3	44.8	415,314.43	801,902.17	32° 8' 17.009 N	103° 21' 28.782 W
4,600.0	3.43	324.67	4,597.8	10.4	43.8	415,315.55	801,901.22	32° 8' 17.020 N	103° 21' 28.793 W
4,625.0	3.11	339.11	4,622.7	11.7	43.2	415,316.79	801,900.55	32° 8' 17.033 N	103° 21' 28.801 W
4,650.0	2.72	8.41	4,647.7	12.9	43.0	415,318.01	801,900.39	32° 8' 17.045 N	103° 21' 28.802 W
4,675.0	3.06	36.68	4,672.7	14.0	43.5	415,319.13	801,900.88	32° 8' 17.056 N	103° 21' 28.797 W
4,700.0	3.74	56.68	4,697.6	15.0	44.6	415,320.12	801,901.96	32° 8' 17.065 N	103° 21' 28.784 W
4,725.0	4.58	66.05	4,722.6	15.9	46.2	415,320.97	801,903.55	32° 8' 17.074 N	103° 21' 28.765 W
4,750.0	5.08	71.77	4,747.5	16.6	48.1	415,321.72	801,905.52	32° 8' 17.081 N	103° 21' 28.742 W
4,775.0	5.62	77.31	4,772.4	17.2	50.4	415,322.34	801,907.76	32° 8' 17.087 N	103° 21' 28.716 W
4,800.0	6.19	82.02	4,797.2	17.7	52.9	415,322.79	801,910.29	32° 8' 17.091 N	103° 21' 28.687 W
4,825.0	6.22	86.72	4,822.1	18.0	55.6	415,323.06	801,912.98	32° 8' 17.093 N	103° 21' 28.655 W
4,850.0	6.04	93.39	4,847.0	18.0	58.2	415,323.06	801,915.64	32° 8' 17.093 N	103° 21' 28.624 W
4,875.0	5.62	102.13	4,871.8	17.6	60.8	415,322.72	801,918.15	32° 8' 17.090 N	103° 21' 28.595 W
4,900.0	4.97	112.74	4,896.7	16.9	63.0	415,322.04	801,920.35	32° 8' 17.083 N	103° 21' 28.570 W
4,925.0	4.56	122.64	4,921.6	16.0	64.8	415,321.09	801,922.18	32° 8' 17.073 N	103° 21' 28.549 W
4,950.0	4.27	127.11	4,946.6	14.9	66.4	415,319.99	801,923.76	32° 8' 17.062 N	103° 21' 28.530 W
4,975.0	4.07	129.09	4,971.5	13.8	67.8	415,318.87	801,925.19	32° 8' 17.051 N	103° 21' 28.514 W
5,000.0	3.60	134.20	4,996.4	12.7	69.0	415,317.76	801,926.45	32° 8' 17.040 N	103° 21' 28.499 W
5,025.0	3.03	142.77	5,021.4	11.6	70.0	415,316.69	801,927.41	32° 8' 17.029 N	103° 21' 28.488 W
5,050.0	2.70	151.41	5,046.4	10.5	70.7	415,315.65	801,928.09	32° 8' 17.019 N	103° 21' 28.481 W
5,075.0	2.58	155.93	5,071.3	9.5	71.2	415,314.62	801,928.60	32° 8' 17.009 N	103° 21' 28.475 W
5,100.0	2.59	155.70	5,096.3	8.5	71.7	415,313.59	801,929.06	32° 8' 16.998 N	103° 21' 28.469 W
5,125.0	2.26	167.62	5,121.3	7.5	72.0	415,312.59	801,929.40	32° 8' 16.988 N	103° 21' 28.466 W
5,150.0	1.91	181.18	5,146.3	6.6	72.1	415,311.69	801,929.50	32° 8' 16.980 N	103° 21' 28.465 W
5,175.0	1.77	200.68	5,171.3	5.8	72.0	415,310.92	801,929.35	32° 8' 16.972 N	103° 21' 28.466 W
5,200.0	1.98	200.82	5,196.3	5.1	71.7	415,310.15	801,929.06	32° 8' 16.964 N	103° 21' 28.470 W
5,225.0	1.70	223.10	5,221.2	4.4	71.3	415,309.48	801,928.66	32° 8' 16.958 N	103° 21' 28.475 W
5,250.0	1.70	240.87	5,246.2	3.9	70.7	415,309.03	801,928.08	32° 8' 16.953 N	103° 21' 28.481 W
5,275.0	1.83	247.03	5,271.2	3.6	70.0	415,308.69	801,927.39	32° 8' 16.950 N	103° 21' 28.489 W
5,300.0	1.81	249.70	5,296.2	3.3	69.3	415,308.40	801,926.65	32° 8' 16.947 N	103° 21' 28.498 W
5,325.0	1.72	250.04	5,321.2	3.0	68.5	415,308.13	801,925.93	32° 8' 16.945 N	103° 21' 28.506 W
5,350.0	1.68	252.70	5,346.2	2.8	67.8	415,307.90	801,925.22	32° 8' 16.942 N	103° 21' 28.515 W
5,375.0	1.68	255.24	5,371.2	2.6	67.1	415,307.69	801,924.52	32° 8' 16.940 N	103° 21' 28.523 W
5,400.0	1.75	253.74	5,396.2	2.4	66.4	415,307.49	801,923.80	32° 8' 16.938 N	103° 21' 28.531 W
5,425.0	1.70	251.43	5,421.1	2.2	65.7	415,307.27	801,923.08	32° 8' 16.936 N	103° 21' 28.540 W
5,450.0	1.70	254.03	5,446.1	1.9	65.0	415,307.05	801,922.37	32° 8' 16.934 N	103° 21' 28.548 W
5,475.0	1.72	257.31	5,471.1	1.8	64.3	415,306.86	801,921.65	32° 8' 16.932 N	103° 21' 28.556 W
5,500.0	1.62	254.93	5,496.1	1.6	63.5	415,306.69	801,920.94	32° 8' 16.931 N	103° 21' 28.565 W
5,525.0	1.67	253.06	5,521.1	1.4	62.9	415,306.49	801,920.25	32° 8' 16.929 N	103° 21' 28.573 W
5,550.0	1.61	253.42	5,546.1	1.2	62.2	415,306.28	801,919.57	32° 8' 16.927 N	103° 21' 28.581 W
5,575.0	1.47	252.46	5,571.1	1.0	61.5	415,306.09	801,918.93	32° 8' 16.925 N	103° 21' 28.588 W
5,600.0	1.42	252.43	5,596.1	0.8	60.9	415,305.90	801,918.32	32° 8' 16.923 N	103° 21' 28.595 W
5,625.0	1.32	251.47	5,621.1	0.6	60.4	415,305.71	801,917.76	32° 8' 16.921 N	103° 21' 28.602 W
5,650.0	1.23	248.50	5,646.1	0.4	59.8	415,305.52	801,917.23	32° 8' 16.920 N	103° 21' 28.608 W
5,675.0	1.18	249.15	5,671.1	0.2	59.3	415,305.33	801,916.74	32° 8' 16.918 N	103° 21' 28.614 W
5,700.0	1.05	253.87	5,696.1	0.1	58.9	415,305.18	801,916.28	32° 8' 16.916 N	103° 21' 28.619 W
5,725.0	1.08	244.25	5,721.1	-0.1	58.5	415,305.01	801,915.85	32° 8' 16.915 N	103° 21' 28.624 W
5,750.0	1.13	244.23	5,746.0	-0.3	58.0	415,304.80	801,915.42	32° 8' 16.913 N	103° 21' 28.629 W
5,775.0	1.05	248.30	5,771.0	-0.5	57.6	415,304.61	801,914.98	32° 8' 16.911 N	103° 21' 28.634 W
5,800.0	1.01	241.20	5,796.0	-0.7	57.2	415,304.42	801,914.58	32° 8' 16.909 N	103° 21' 28.639 W
5,825.0	1.13	246.66	5,821.0	-0.9	56.8	415,304.22	801,914.16	32° 8' 16.907 N	103° 21' 28.644 W

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Montera Federal Com #23H
Project:	Lea County, NM	TVD Reference:	KB @ 3250.0usft (Noram 21)
Site:	Sec 10, T25S, R35E	MD Reference:	KB @ 3250.0usft (Noram 21)
Well:	Montera Federal Com #23H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
5,850.0	0.90	248.13	5,846.0	-1.1	56.3	415,304.04	801,913.75	32° 8' 16.905 N	103° 21' 28.649 W	
5,875.0	0.88	247.63	5,871.0	-1.2	56.0	415,303.90	801,913.39	32° 8' 16.904 N	103° 21' 28.653 W	
5,900.0	0.94	243.67	5,896.0	-1.4	55.6	415,303.73	801,913.03	32° 8' 16.902 N	103° 21' 28.657 W	
5,925.0	0.93	246.63	5,921.0	-1.5	55.3	415,303.66	801,912.66	32° 8' 16.901 N	103° 21' 28.661 W	
5,950.0	1.04	248.80	5,946.0	-1.7	54.9	415,303.40	801,912.26	32° 8' 16.899 N	103° 21' 28.666 W	
5,975.0	0.81	245.03	5,971.0	-1.9	54.5	415,303.24	801,911.89	32° 8' 16.898 N	103° 21' 28.670 W	
6,000.0	0.92	249.23	5,996.0	-2.0	54.1	415,303.10	801,911.54	32° 8' 16.896 N	103° 21' 28.674 W	
6,025.0	0.79	252.07	6,021.0	-2.1	53.8	415,302.97	801,911.19	32° 8' 16.895 N	103° 21' 28.678 W	
6,050.0	0.96	257.11	6,046.0	-2.2	53.4	415,302.87	801,910.82	32° 8' 16.894 N	103° 21' 28.683 W	
6,075.0	0.92	239.73	6,071.0	-2.4	53.0	415,302.73	801,910.44	32° 8' 16.893 N	103° 21' 28.687 W	
6,100.0	0.93	229.00	6,096.0	-2.6	52.7	415,302.49	801,910.12	32° 8' 16.890 N	103° 21' 28.691 W	
6,125.0	0.95	233.46	6,121.0	-2.9	52.4	415,302.24	801,909.80	32° 8' 16.888 N	103° 21' 28.695 W	
6,150.0	0.81	227.13	6,146.0	-3.1	52.1	415,301.99	801,909.50	32° 8' 16.885 N	103° 21' 28.698 W	
6,175.0	0.86	228.70	6,171.0	-3.4	51.8	415,301.75	801,909.23	32° 8' 16.883 N	103° 21' 28.701 W	
6,200.0	0.91	233.76	6,196.0	-3.6	51.5	415,301.51	801,908.93	32° 8' 16.881 N	103° 21' 28.705 W	
6,225.0	0.95	223.51	6,221.0	-3.9	51.2	415,301.24	801,908.63	32° 8' 16.878 N	103° 21' 28.708 W	
6,250.0	0.84	219.22	6,246.0	-4.2	51.0	415,300.95	801,908.37	32° 8' 16.875 N	103° 21' 28.711 W	
6,275.0	0.82	222.91	6,271.0	-4.4	50.7	415,300.67	801,908.13	32° 8' 16.872 N	103° 21' 28.714 W	
6,300.0	0.81	216.42	6,296.0	-4.7	50.5	415,300.40	801,907.90	32° 8' 16.870 N	103° 21' 28.717 W	
6,325.0	0.90	216.97	6,321.0	-5.0	50.3	415,300.10	801,907.68	32° 8' 16.867 N	103° 21' 28.719 W	
6,350.0	0.69	213.37	6,346.0	-5.3	50.1	415,299.82	801,907.48	32° 8' 16.864 N	103° 21' 28.722 W	
6,375.0	0.63	215.44	6,371.0	-5.5	49.9	415,299.58	801,907.32	32° 8' 16.862 N	103° 21' 28.724 W	
6,400.0	0.76	223.67	6,396.0	-5.8	49.7	415,299.35	801,907.12	32° 8' 16.859 N	103° 21' 28.726 W	
6,425.0	0.71	220.24	6,421.0	-6.0	49.5	415,299.11	801,906.91	32° 8' 16.857 N	103° 21' 28.729 W	
6,450.0	0.66	216.13	6,446.0	-6.2	49.3	415,298.88	801,906.72	32° 8' 16.855 N	103° 21' 28.731 W	
6,475.0	0.51	217.43	6,471.0	-6.4	49.2	415,298.67	801,906.57	32° 8' 16.853 N	103° 21' 28.733 W	
6,500.0	0.67	218.75	6,496.0	-6.6	49.0	415,298.47	801,906.41	32° 8' 16.851 N	103° 21' 28.734 W	
6,525.0	0.63	209.92	6,521.0	-6.9	48.9	415,298.24	801,906.25	32° 8' 16.848 N	103° 21' 28.736 W	
6,550.0	0.49	219.70	6,546.0	-7.1	48.7	415,298.03	801,906.11	32° 8' 16.846 N	103° 21' 28.738 W	
6,575.0	0.48	224.29	6,571.0	-7.2	48.6	415,297.88	801,905.97	32° 8' 16.845 N	103° 21' 28.740 W	
6,600.0	0.58	219.38	6,596.0	-7.4	48.4	415,297.70	801,905.82	32° 8' 16.843 N	103° 21' 28.741 W	
6,625.0	0.57	211.73	6,621.0	-7.6	48.3	415,297.50	801,905.67	32° 8' 16.841 N	103° 21' 28.743 W	
6,650.0	0.47	215.72	6,646.0	-7.8	48.2	415,297.31	801,905.55	32° 8' 16.839 N	103° 21' 28.745 W	
6,675.0	0.42	211.68	6,671.0	-7.9	48.0	415,297.15	801,905.44	32° 8' 16.838 N	103° 21' 28.746 W	
6,700.0	0.54	215.22	6,696.0	-8.1	47.9	415,296.98	801,905.32	32° 8' 16.836 N	103° 21' 28.747 W	
6,725.0	0.65	216.72	6,720.9	-8.3	47.8	415,296.77	801,905.17	32° 8' 16.834 N	103° 21' 28.749 W	
6,750.0	0.52	211.60	6,745.9	-8.5	47.6	415,296.56	801,905.03	32° 8' 16.832 N	103° 21' 28.751 W	
6,775.0	0.48	219.58	6,770.9	-8.7	47.5	415,296.38	801,904.90	32° 8' 16.830 N	103° 21' 28.752 W	
6,800.0	0.48	215.23	6,795.9	-8.9	47.4	415,296.21	801,904.77	32° 8' 16.829 N	103° 21' 28.754 W	
6,825.0	0.44	222.88	6,820.9	-9.0	47.3	415,296.06	801,904.65	32° 8' 16.827 N	103° 21' 28.755 W	
6,850.0	0.50	219.60	6,845.9	-9.2	47.1	415,295.90	801,904.51	32° 8' 16.826 N	103° 21' 28.757 W	
6,875.0	0.49	205.71	6,870.9	-9.4	47.0	415,295.72	801,904.40	32° 8' 16.824 N	103° 21' 28.758 W	
6,900.0	0.44	202.56	6,895.9	-9.6	46.9	415,295.54	801,904.31	32° 8' 16.822 N	103° 21' 28.759 W	
6,925.0	0.42	209.82	6,920.9	-9.7	46.8	415,295.37	801,904.23	32° 8' 16.820 N	103° 21' 28.760 W	
6,950.0	0.35	200.47	6,945.9	-9.9	46.8	415,295.22	801,904.16	32° 8' 16.819 N	103° 21' 28.761 W	
6,975.0	0.34	191.94	6,970.9	-10.0	46.7	415,295.07	801,904.12	32° 8' 16.817 N	103° 21' 28.761 W	
7,000.0	0.30	186.59	6,995.9	-10.2	46.7	415,294.94	801,904.09	32° 8' 16.816 N	103° 21' 28.762 W	
7,025.0	0.29	213.64	7,020.9	-10.3	46.7	415,294.82	801,904.05	32° 8' 16.815 N	103° 21' 28.762 W	
7,050.0	0.33	204.25	7,045.9	-10.4	46.6	415,294.70	801,903.99	32° 8' 16.814 N	103° 21' 28.763 W	
7,075.0	0.34	193.76	7,070.9	-10.5	46.5	415,294.56	801,903.94	32° 8' 16.812 N	103° 21' 28.764 W	
7,100.0	0.38	185.24	7,095.9	-10.7	46.5	415,294.41	801,903.92	32° 8' 16.811 N	103° 21' 28.764 W	
7,125.0	0.24	198.51	7,120.9	-10.8	46.5	415,294.28	801,903.89	32° 8' 16.809 N	103° 21' 28.764 W	
7,150.0	0.53	201.73	7,145.9	-11.0	46.4	415,294.12	801,903.83	32° 8' 16.808 N	103° 21' 28.765 W	
7,175.0	0.47	188.50	7,170.9	-11.2	46.4	415,293.91	801,903.77	32° 8' 16.806 N	103° 21' 28.766 W	
7,200.0	0.35	174.99	7,195.9	-11.4	46.4	415,293.73	801,903.77	32° 8' 16.804 N	103° 21' 28.766 W	

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well: Monterá Federal Com #23H
Project:	Lea County, NM	TVD Reference:	KB @ 3250.0usft (Noram 21)
Site:	Sec 10, T25S, R35E	MD Reference:	KB @ 3250.0usft (Noram 21)
Well:	Montera Federal Com #23H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
7,225.0	0.37	179.85	7,220.9	-11.5	46.4	415,293.58	801,903.77	32° 8' 16.803 N	103° 21' 28.766 W	
7,250.0	0.47	176.16	7,245.9	-11.7	46.4	415,293.39	801,903.78	32° 8' 16.801 N	103° 21' 28.766 W	
7,275.0	0.24	180.49	7,270.9	-11.9	46.4	415,293.24	801,903.79	32° 8' 16.799 N	103° 21' 28.766 W	
7,300.0	0.36	164.01	7,295.9	-12.0	46.4	415,293.11	801,903.81	32° 8' 16.798 N	103° 21' 28.765 W	
7,325.0	0.15	180.45	7,320.9	-12.1	46.4	415,293.00	801,903.83	32° 8' 16.797 N	103° 21' 28.765 W	
7,350.0	0.31	181.91	7,345.9	-12.2	46.4	415,292.90	801,903.83	32° 8' 16.796 N	103° 21' 28.765 W	
7,375.0	0.32	152.91	7,370.9	-12.3	46.5	415,292.77	801,903.86	32° 8' 16.795 N	103° 21' 28.765 W	
7,400.0	0.19	162.68	7,395.9	-12.4	46.5	415,292.67	801,903.90	32° 8' 16.794 N	103° 21' 28.764 W	
7,425.0	0.08	107.91	7,420.9	-12.5	46.5	415,292.63	801,903.93	32° 8' 16.793 N	103° 21' 28.764 W	
7,450.0	0.20	149.75	7,445.9	-12.5	46.6	415,292.58	801,903.97	32° 8' 16.793 N	103° 21' 28.763 W	
7,475.0	0.36	148.60	7,470.9	-12.6	46.6	415,292.48	801,904.03	32° 8' 16.792 N	103° 21' 28.763 W	
7,500.0	0.30	111.85	7,495.9	-12.7	46.7	415,292.39	801,904.13	32° 8' 16.791 N	103° 21' 28.762 W	
7,525.0	0.22	114.28	7,520.9	-12.8	46.8	415,292.34	801,904.24	32° 8' 16.790 N	103° 21' 28.760 W	
7,550.0	0.21	131.29	7,545.9	-12.8	46.9	415,292.29	801,904.31	32° 8' 16.790 N	103° 21' 28.759 W	
7,575.0	0.19	95.34	7,570.9	-12.8	47.0	415,292.26	801,904.39	32° 8' 16.789 N	103° 21' 28.759 W	
7,600.0	0.06	100.20	7,595.9	-12.8	47.0	415,292.25	801,904.44	32° 8' 16.789 N	103° 21' 28.758 W	
7,625.0	0.15	121.50	7,620.9	-12.9	47.1	415,292.23	801,904.48	32° 8' 16.789 N	103° 21' 28.757 W	
7,650.0	0.11	156.63	7,645.9	-12.9	47.1	415,292.19	801,904.52	32° 8' 16.789 N	103° 21' 28.757 W	
7,675.0	0.31	65.63	7,670.9	-12.9	47.2	415,292.20	801,904.59	32° 8' 16.789 N	103° 21' 28.756 W	
7,700.0	0.19	83.04	7,695.9	-12.9	47.3	415,292.23	801,904.70	32° 8' 16.789 N	103° 21' 28.755 W	
7,725.0	0.17	80.72	7,720.9	-12.9	47.4	415,292.24	801,904.77	32° 8' 16.789 N	103° 21' 28.754 W	
7,750.0	0.19	72.32	7,745.9	-12.8	47.5	415,292.26	801,904.85	32° 8' 16.789 N	103° 21' 28.753 W	
7,775.0	0.20	60.10	7,770.9	-12.8	47.5	415,292.30	801,904.93	32° 8' 16.790 N	103° 21' 28.752 W	
7,800.0	0.35	53.72	7,795.9	-12.7	47.6	415,292.36	801,905.03	32° 8' 16.790 N	103° 21' 28.751 W	
7,825.0	0.40	43.56	7,820.9	-12.6	47.8	415,292.47	801,905.15	32° 8' 16.792 N	103° 21' 28.750 W	
7,850.0	0.43	45.54	7,845.9	-12.5	47.9	415,292.60	801,905.28	32° 8' 16.793 N	103° 21' 28.748 W	
7,875.0	0.42	36.48	7,870.9	-12.4	48.0	415,292.74	801,905.40	32° 8' 16.794 N	103° 21' 28.747 W	
7,900.0	0.38	30.08	7,895.9	-12.2	48.1	415,292.89	801,905.49	32° 8' 16.796 N	103° 21' 28.746 W	
7,925.0	0.29	42.31	7,920.9	-12.1	48.2	415,293.00	801,905.58	32° 8' 16.797 N	103° 21' 28.745 W	
7,950.0	0.32	40.33	7,945.9	-12.0	48.3	415,293.10	801,905.66	32° 8' 16.798 N	103° 21' 28.744 W	
7,975.0	0.42	53.06	7,970.9	-11.9	48.4	415,293.21	801,905.78	32° 8' 16.799 N	103° 21' 28.742 W	
8,000.0	0.57	48.12	7,995.9	-11.7	48.6	415,293.35	801,905.95	32° 8' 16.800 N	103° 21' 28.740 W	
8,025.0	0.61	46.75	8,020.9	-11.6	48.7	415,293.52	801,906.14	32° 8' 16.802 N	103° 21' 28.738 W	
8,050.0	0.63	36.32	8,045.9	-11.4	48.9	415,293.73	801,906.32	32° 8' 16.804 N	103° 21' 28.736 W	
8,075.0	0.51	51.69	8,070.9	-11.2	49.1	415,293.91	801,906.49	32° 8' 16.806 N	103° 21' 28.734 W	
8,100.0	0.68	42.56	8,095.9	-11.0	49.3	415,294.08	801,906.67	32° 8' 16.807 N	103° 21' 28.732 W	
8,125.0	0.56	38.91	8,120.9	-10.8	49.5	415,294.29	801,906.85	32° 8' 16.809 N	103° 21' 28.730 W	
8,150.0	0.52	48.99	8,145.9	-10.6	49.6	415,294.46	801,907.01	32° 8' 16.811 N	103° 21' 28.728 W	
8,175.0	0.66	51.56	8,170.9	-10.5	49.8	415,294.62	801,907.21	32° 8' 16.813 N	103° 21' 28.726 W	
8,200.0	0.67	40.02	8,195.9	-10.3	50.0	415,294.82	801,907.42	32° 8' 16.815 N	103° 21' 28.723 W	
8,225.0	0.60	46.78	8,220.9	-10.1	50.2	415,295.02	801,907.61	32° 8' 16.817 N	103° 21' 28.721 W	
8,250.0	0.66	46.32	8,245.9	-9.9	50.4	415,295.21	801,907.81	32° 8' 16.818 N	103° 21' 28.719 W	
8,275.0	0.59	39.99	8,270.9	-9.7	50.6	415,295.41	801,907.99	32° 8' 16.820 N	103° 21' 28.716 W	
8,300.0	0.69	42.82	8,295.9	-9.5	50.8	415,295.62	801,908.18	32° 8' 16.822 N	103° 21' 28.714 W	
8,325.0	0.74	37.40	8,320.9	-9.2	51.0	415,295.86	801,908.38	32° 8' 16.825 N	103° 21' 28.712 W	
8,350.0	0.69	54.31	8,345.9	-9.0	51.2	415,296.08	801,908.60	32° 8' 16.827 N	103° 21' 28.709 W	
8,375.0	0.77	37.55	8,370.9	-8.8	51.4	415,296.30	801,908.82	32° 8' 16.829 N	103° 21' 28.707 W	
8,400.0	0.72	49.92	8,395.9	-8.6	51.6	415,296.53	801,909.05	32° 8' 16.831 N	103° 21' 28.704 W	
8,425.0	0.74	35.48	8,420.9	-8.3	51.9	415,296.76	801,909.26	32° 8' 16.834 N	103° 21' 28.701 W	
8,450.0	0.70	43.43	8,445.9	-8.1	52.1	415,297.01	801,909.46	32° 8' 16.836 N	103° 21' 28.699 W	
8,475.0	0.84	48.77	8,470.9	-7.9	52.3	415,297.24	801,909.70	32° 8' 16.838 N	103° 21' 28.696 W	
8,500.0	0.82	38.61	8,495.9	-7.6	52.6	415,297.50	801,909.95	32° 8' 16.841 N	103° 21' 28.693 W	
8,525.0	0.78	44.35	8,520.9	-7.3	52.8	415,297.76	801,910.18	32° 8' 16.843 N	103° 21' 28.691 W	
8,550.0	0.86	42.80	8,545.9	-7.1	53.0	415,298.02	801,910.43	32° 8' 16.846 N	103° 21' 28.688 W	
8,575.0	0.83	45.83	8,570.9	-6.8	53.3	415,298.28	801,910.69	32° 8' 16.849 N	103° 21' 28.685 W	

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Montera Federal Com #23H
Project:	Lea County, NM	TVD Reference:	KB @ 3250.0usft (Noram 21)
Site:	Sec 10, T25S, R35E	MD Reference:	KB @ 3250.0usft (Noram 21)
Well:	Montera Federal Com #23H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
8,600.0	0.90	41.63	8,595.9	-6.5	53.5	415,298.56	801,910.95	32° 8' 16.851 N	103° 21' 28.682 W	
8,625.0	0.78	46.35	8,620.9	-6.3	53.8	415,298.82	801,911.20	32° 8' 16.854 N	103° 21' 28.679 W	
8,650.0	0.66	59.21	8,645.9	-6.1	54.0	415,299.01	801,911.45	32° 8' 16.856 N	103° 21' 28.676 W	
8,675.0	0.82	46.57	8,670.9	-5.9	54.3	415,299.21	801,911.70	32° 8' 16.858 N	103° 21' 28.673 W	
8,700.0	0.78	41.54	8,695.9	-5.6	54.5	415,299.46	801,911.94	32° 8' 16.860 N	103° 21' 28.670 W	
8,725.0	0.65	60.35	8,720.9	-5.4	54.8	415,299.66	801,912.18	32° 8' 16.862 N	103° 21' 28.667 W	
8,750.0	0.74	51.21	8,745.9	-5.3	55.0	415,299.83	801,912.43	32° 8' 16.864 N	103° 21' 28.664 W	
8,775.0	0.57	58.18	8,770.9	-5.1	55.3	415,299.99	801,912.66	32° 8' 16.865 N	103° 21' 28.662 W	
8,800.0	0.73	49.74	8,795.9	-4.9	55.5	415,300.16	801,912.89	32° 8' 16.867 N	103° 21' 28.659 W	
8,825.0	0.91	36.24	8,820.9	-4.7	55.7	415,300.43	801,913.13	32° 8' 16.870 N	103° 21' 28.656 W	
8,850.0	0.71	50.76	8,845.9	-4.4	56.0	415,300.68	801,913.36	32° 8' 16.872 N	103° 21' 28.653 W	
8,875.0	0.84	53.19	8,870.9	-4.2	56.2	415,300.89	801,913.63	32° 8' 16.874 N	103° 21' 28.650 W	
8,900.0	1.00	47.76	8,895.9	-4.0	56.5	415,301.15	801,913.94	32° 8' 16.877 N	103° 21' 28.647 W	
8,925.0	0.87	60.62	8,920.9	-3.7	56.9	415,301.39	801,914.26	32° 8' 16.879 N	103° 21' 28.643 W	
8,950.0	1.01	59.83	8,945.8	-3.5	57.2	415,301.59	801,914.62	32° 8' 16.881 N	103° 21' 28.639 W	
8,975.0	1.09	69.15	8,970.8	-3.3	57.6	415,301.79	801,915.03	32° 8' 16.883 N	103° 21' 28.634 W	
9,000.0	1.23	76.31	8,995.8	-3.2	58.1	415,301.93	801,915.52	32° 8' 16.884 N	103° 21' 28.628 W	
9,025.0	1.30	75.45	9,020.8	-3.0	58.7	415,302.07	801,916.05	32° 8' 16.886 N	103° 21' 28.622 W	
9,050.0	1.43	86.61	9,045.8	-2.9	59.2	415,302.16	801,916.64	32° 8' 16.886 N	103° 21' 28.615 W	
9,075.0	1.56	91.67	9,070.8	-2.9	59.9	415,302.17	801,917.29	32° 8' 16.886 N	103° 21' 28.608 W	
9,100.0	1.75	97.09	9,095.8	-3.0	60.6	415,302.11	801,918.01	32° 8' 16.886 N	103° 21' 28.599 W	
9,125.0	1.79	95.80	9,120.8	-3.1	61.4	415,302.02	801,918.77	32° 8' 16.885 N	103° 21' 28.590 W	
9,150.0	1.79	92.17	9,145.8	-3.1	62.2	415,301.97	801,919.55	32° 8' 16.884 N	103° 21' 28.581 W	
9,175.0	1.63	92.43	9,170.8	-3.2	62.9	415,301.94	801,920.30	32° 8' 16.884 N	103° 21' 28.573 W	
9,200.0	1.75	95.93	9,195.8	-3.2	63.6	415,301.89	801,921.03	32° 8' 16.883 N	103° 21' 28.564 W	
9,225.0	1.72	95.43	9,220.7	-3.3	64.4	415,301.81	801,921.79	32° 8' 16.882 N	103° 21' 28.555 W	
9,250.0	1.75	92.65	9,245.7	-3.3	65.1	415,301.76	801,922.54	32° 8' 16.882 N	103° 21' 28.546 W	
9,275.0	1.63	96.93	9,270.7	-3.4	65.9	415,301.70	801,923.28	32° 8' 16.881 N	103° 21' 28.538 W	
9,300.0	1.69	102.60	9,295.7	-3.5	66.6	415,301.57	801,923.99	32° 8' 16.880 N	103° 21' 28.530 W	
9,325.0	1.70	100.03	9,320.7	-3.7	67.3	415,301.43	801,924.71	32° 8' 16.878 N	103° 21' 28.521 W	
9,350.0	1.72	101.29	9,345.7	-3.8	68.0	415,301.29	801,925.45	32° 8' 16.877 N	103° 21' 28.513 W	
9,375.0	1.73	98.50	9,370.7	-3.9	68.8	415,301.16	801,926.19	32° 8' 16.876 N	103° 21' 28.504 W	
9,400.0	1.68	106.93	9,395.7	-4.1	69.5	415,301.00	801,926.91	32° 8' 16.874 N	103° 21' 28.496 W	
9,425.0	1.74	113.48	9,420.7	-4.4	70.2	415,300.74	801,927.61	32° 8' 16.871 N	103° 21' 28.488 W	
9,450.0	1.53	120.47	9,445.7	-4.7	70.8	415,300.42	801,928.25	32° 8' 16.868 N	103° 21' 28.480 W	
9,475.0	1.37	122.44	9,470.6	-5.0	71.4	415,300.09	801,928.79	32° 8' 16.865 N	103° 21' 28.474 W	
9,500.0	1.45	127.04	9,495.6	-5.4	71.9	415,299.74	801,929.29	32° 8' 16.861 N	103° 21' 28.468 W	
9,525.0	1.37	132.53	9,520.6	-5.8	72.4	415,299.35	801,929.76	32° 8' 16.857 N	103° 21' 28.463 W	
9,550.0	1.30	173.84	9,545.6	-6.2	72.6	415,298.86	801,930.01	32° 8' 16.853 N	103° 21' 28.460 W	
9,575.0	1.38	188.36	9,570.6	-6.8	72.6	415,298.28	801,930.00	32° 8' 16.847 N	103° 21' 28.460 W	
9,600.0	1.26	204.06	9,595.6	-7.4	72.4	415,297.73	801,929.85	32° 8' 16.841 N	103° 21' 28.462 W	
9,625.0	1.33	207.06	9,620.6	-7.9	72.2	415,297.23	801,929.60	32° 8' 16.836 N	103° 21' 28.465 W	
9,650.0	1.36	203.56	9,645.6	-8.4	72.0	415,296.70	801,929.35	32° 8' 16.831 N	103° 21' 28.468 W	
9,675.0	1.30	211.40	9,670.6	-8.9	71.7	415,296.18	801,929.08	32° 8' 16.826 N	103° 21' 28.471 W	
9,700.0	1.40	208.61	9,695.6	-9.4	71.4	415,295.67	801,928.79	32° 8' 16.821 N	103° 21' 28.474 W	
9,725.0	1.28	212.14	9,720.6	-9.9	71.1	415,295.17	801,928.50	32° 8' 16.816 N	103° 21' 28.478 W	
9,750.0	1.38	210.58	9,745.6	-10.4	70.8	415,294.67	801,928.19	32° 8' 16.811 N	103° 21' 28.482 W	
9,775.0	1.34	210.19	9,770.6	-10.9	70.5	415,294.16	801,927.89	32° 8' 16.806 N	103° 21' 28.485 W	
9,800.0	1.42	213.36	9,795.6	-11.5	70.2	415,293.65	801,927.58	32° 8' 16.801 N	103° 21' 28.489 W	
9,825.0	1.36	212.48	9,820.5	-12.0	69.8	415,293.14	801,927.25	32° 8' 16.796 N	103° 21' 28.493 W	
9,850.0	1.55	214.52	9,845.5	-12.5	69.5	415,292.61	801,926.90	32° 8' 16.791 N	103° 21' 28.497 W	
9,875.0	1.58	213.14	9,870.5	-13.1	69.1	415,292.04	801,926.52	32° 8' 16.785 N	103° 21' 28.501 W	
9,900.0	1.71	211.74	9,895.5	-13.7	68.7	415,291.44	801,926.13	32° 8' 16.779 N	103° 21' 28.506 W	
9,925.0	1.69	215.84	9,920.5	-14.3	68.3	415,290.82	801,925.72	32° 8' 16.773 N	103° 21' 28.511 W	
9,950.0	1.75	211.84	9,945.5	-14.9	67.9	415,290.20	801,925.30	32° 8' 16.767 N	103° 21' 28.516 W	

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Montera Federal Com #23H
Project:	Lea County, NM	TVD Reference:	KB @ 3250.0usft (Noram 21)
Site:	Sec 10, T25S, R35E	MD Reference:	KB @ 3250.0usft (Noram 21)
Well:	Montera Federal Com #23H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,975.0	1.71	215.72	9,970.5	-15.5	67.5	415,289.57	801,924.88	32° 8' 16.761 N	103° 21' 28.521 W
10,000.0	1.73	213.27	9,995.5	-16.1	67.1	415,288.95	801,924.46	32° 8' 16.755 N	103° 21' 28.526 W
10,025.0	1.75	216.53	10,020.5	-16.8	66.6	415,288.33	801,924.02	32° 8' 16.749 N	103° 21' 28.531 W
10,050.0	1.83	215.79	10,045.4	-17.4	66.2	415,287.70	801,923.56	32° 8' 16.743 N	103° 21' 28.536 W
10,075.0	1.74	224.25	10,070.4	-18.0	65.7	415,287.10	801,923.06	32° 8' 16.737 N	103° 21' 28.542 W
10,100.0	1.84	229.64	10,095.4	-18.5	65.1	415,286.57	801,922.49	32° 8' 16.732 N	103° 21' 28.549 W
10,125.0	1.79	230.19	10,120.4	-19.0	64.5	415,286.06	801,921.89	32° 8' 16.727 N	103° 21' 28.556 W
10,150.0	1.71	242.07	10,145.4	-19.5	63.9	415,285.64	801,921.26	32° 8' 16.722 N	103° 21' 28.563 W
10,175.0	1.64	244.73	10,170.4	-19.8	63.2	415,285.31	801,920.61	32° 8' 16.719 N	103° 21' 28.571 W
10,200.0	1.63	249.06	10,195.4	-20.1	62.6	415,285.03	801,919.95	32° 8' 16.717 N	103° 21' 28.578 W
10,225.0	1.61	255.28	10,220.4	-20.3	61.9	415,284.81	801,919.28	32° 8' 16.714 N	103° 21' 28.586 W
10,250.0	1.64	255.15	10,245.4	-20.5	61.2	415,284.63	801,918.59	32° 8' 16.713 N	103° 21' 28.594 W
10,275.0	1.61	255.46	10,270.3	-20.6	60.5	415,284.45	801,917.91	32° 8' 16.711 N	103° 21' 28.602 W
10,300.0	1.51	255.28	10,295.3	-20.8	59.9	415,284.28	801,917.25	32° 8' 16.709 N	103° 21' 28.610 W
10,325.0	1.41	255.15	10,320.3	-21.0	59.2	415,284.12	801,916.63	32° 8' 16.708 N	103° 21' 28.617 W
10,350.0	1.44	254.16	10,345.3	-21.1	58.6	415,283.95	801,916.03	32° 8' 16.706 N	103° 21' 28.624 W
10,375.0	1.37	255.39	10,370.3	-21.3	58.0	415,283.79	801,915.44	32° 8' 16.705 N	103° 21' 28.631 W
10,400.0	1.33	256.72	10,395.3	-21.4	57.5	415,283.65	801,914.87	32° 8' 16.703 N	103° 21' 28.638 W
10,425.0	1.19	258.78	10,420.3	-21.6	56.9	415,283.53	801,914.33	32° 8' 16.702 N	103° 21' 28.644 W
10,450.0	1.10	259.69	10,445.3	-21.7	56.4	415,283.44	801,913.84	32° 8' 16.701 N	103° 21' 28.650 W
10,475.0	1.02	262.75	10,470.3	-21.7	56.0	415,283.37	801,913.39	32° 8' 16.701 N	103° 21' 28.655 W
10,500.0	0.95	265.86	10,495.3	-21.8	55.6	415,283.33	801,912.96	32° 8' 16.700 N	103° 21' 28.660 W
10,525.0	0.81	277.50	10,520.3	-21.8	55.2	415,283.33	801,912.58	32° 8' 16.700 N	103° 21' 28.664 W
10,550.0	0.79	293.44	10,545.3	-21.7	54.8	415,283.43	801,912.24	32° 8' 16.701 N	103° 21' 28.668 W
10,575.0	0.87	295.59	10,570.3	-21.5	54.5	415,283.58	801,911.91	32° 8' 16.703 N	103° 21' 28.672 W
10,600.0	0.91	290.55	10,595.3	-21.4	54.2	415,283.73	801,911.56	32° 8' 16.704 N	103° 21' 28.676 W
10,625.0	0.87	292.39	10,620.3	-21.2	53.8	415,283.87	801,911.19	32° 8' 16.706 N	103° 21' 28.680 W
10,650.0	0.94	291.33	10,645.3	-21.1	53.4	415,284.02	801,910.83	32° 8' 16.707 N	103° 21' 28.685 W
10,675.0	1.05	281.47	10,670.3	-21.0	53.0	415,284.14	801,910.41	32° 8' 16.709 N	103° 21' 28.689 W
10,700.0	1.16	275.71	10,695.3	-20.9	52.5	415,284.21	801,909.94	32° 8' 16.709 N	103° 21' 28.695 W
10,725.0	1.23	273.69	10,720.3	-20.8	52.0	415,284.25	801,909.42	32° 8' 16.710 N	103° 21' 28.701 W
10,750.0	1.29	273.08	10,745.3	-20.8	51.5	415,284.28	801,908.87	32° 8' 16.710 N	103° 21' 28.707 W
10,775.0	1.24	273.67	10,770.2	-20.8	50.9	415,284.31	801,908.32	32° 8' 16.711 N	103° 21' 28.714 W
10,800.0	1.21	272.94	10,795.2	-20.8	50.4	415,284.35	801,907.78	32° 8' 16.711 N	103° 21' 28.720 W
10,825.0	1.19	274.17	10,820.2	-20.7	49.9	415,284.38	801,907.26	32° 8' 16.711 N	103° 21' 28.726 W
10,850.0	1.26	272.51	10,845.2	-20.7	49.3	415,284.41	801,906.73	32° 8' 16.712 N	103° 21' 28.732 W
10,875.0	1.30	269.52	10,870.2	-20.7	48.8	415,284.42	801,906.17	32° 8' 16.712 N	103° 21' 28.739 W
10,900.0	1.28	271.35	10,895.2	-20.7	48.2	415,284.42	801,905.61	32° 8' 16.712 N	103° 21' 28.745 W
10,925.0	1.38	274.24	10,920.2	-20.6	47.6	415,284.45	801,905.03	32° 8' 16.712 N	103° 21' 28.752 W
10,950.0	1.41	274.47	10,945.2	-20.6	47.0	415,284.50	801,904.42	32° 8' 16.713 N	103° 21' 28.759 W
10,975.0	1.52	274.10	10,970.2	-20.6	46.4	415,284.55	801,903.78	32° 8' 16.713 N	103° 21' 28.766 W
11,000.0	1.62	274.26	10,995.2	-20.5	45.7	415,284.60	801,903.10	32° 8' 16.714 N	103° 21' 28.774 W
11,025.0	1.82	276.35	11,020.2	-20.4	45.0	415,284.67	801,902.35	32° 8' 16.715 N	103° 21' 28.783 W
11,050.0	2.18	281.04	11,045.2	-20.3	44.1	415,284.80	801,901.49	32° 8' 16.716 N	103° 21' 28.793 W
11,075.0	2.59	283.08	11,070.1	-20.1	43.1	415,285.02	801,900.47	32° 8' 16.718 N	103° 21' 28.805 W
11,100.0	2.99	286.82	11,095.1	-19.8	41.9	415,285.34	801,899.30	32° 8' 16.721 N	103° 21' 28.818 W
11,125.0	3.38	293.75	11,120.1	-19.3	40.6	415,285.82	801,898.00	32° 8' 16.726 N	103° 21' 28.834 W
11,150.0	3.86	301.02	11,145.0	-18.5	39.2	415,286.55	801,896.61	32° 8' 16.734 N	103° 21' 28.850 W
11,175.0	4.36	304.60	11,170.0	-17.6	37.7	415,287.53	801,895.10	32° 8' 16.743 N	103° 21' 28.867 W
11,200.0	4.70	306.78	11,194.9	-16.4	36.1	415,288.68	801,893.50	32° 8' 16.755 N	103° 21' 28.886 W
11,225.0	4.96	308.78	11,219.8	-15.1	34.4	415,289.97	801,891.84	32° 8' 16.768 N	103° 21' 28.905 W
11,250.0	5.11	310.11	11,244.7	-13.7	32.7	415,291.36	801,890.14	32° 8' 16.782 N	103° 21' 28.924 W
11,275.0	5.03	311.94	11,269.6	-12.3	31.1	415,292.81	801,888.48	32° 8' 16.796 N	103° 21' 28.944 W
11,300.0	4.61	313.42	11,294.5	-10.9	29.5	415,294.24	801,886.93	32° 8' 16.811 N	103° 21' 28.961 W
11,325.0	4.45	314.75	11,319.4	-9.5	28.1	415,295.61	801,885.51	32° 8' 16.824 N	103° 21' 28.978 W

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Montera Federal Com #23H
Project:	Lea County, NM	TVD Reference:	KB @ 3250.0usft (Noram 21)
Site:	Sec 10, T25S, R35E	MD Reference:	KB @ 3250.0usft (Noram 21)
Well:	Montera Federal Com #23H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,350.0	4.14	316.40	11,344.4	-8.2	26.8	415,296.95	801,884.20	32° 8' 16.838 N	103° 21' 28.993 W
11,375.0	4.11	316.73	11,369.3	-6.8	25.6	415,298.25	801,882.97	32° 8' 16.851 N	103° 21' 29.007 W
11,400.0	4.12	317.21	11,394.2	-5.5	24.3	415,299.56	801,881.74	32° 8' 16.864 N	103° 21' 29.021 W
11,425.0	4.16	317.19	11,419.2	-4.2	23.1	415,300.89	801,880.52	32° 8' 16.877 N	103° 21' 29.035 W
11,450.0	4.11	317.01	11,444.1	-2.9	21.9	415,302.21	801,879.29	32° 8' 16.890 N	103° 21' 29.049 W
11,475.0	4.11	317.94	11,469.0	-1.6	20.7	415,303.53	801,878.08	32° 8' 16.903 N	103° 21' 29.063 W
11,500.0	4.03	317.73	11,494.0	-0.3	19.5	415,304.84	801,876.89	32° 8' 16.916 N	103° 21' 29.077 W
11,525.0	4.09	318.02	11,518.9	1.1	18.3	415,306.16	801,875.70	32° 8' 16.930 N	103° 21' 29.091 W
11,550.0	3.93	318.82	11,543.8	2.4	17.1	415,307.46	801,874.54	32° 8' 16.943 N	103° 21' 29.104 W
11,575.0	3.67	317.03	11,568.8	3.6	16.0	415,308.69	801,873.43	32° 8' 16.955 N	103° 21' 29.117 W
11,578.7	3.63	316.69	11,572.5	3.8	15.9	415,308.87	801,873.27	32° 8' 16.957 N	103° 21' 29.119 W
Gyro Tie-in @ 11578.7' MD / 11572.5' TVD									
11,638.0	3.10	315.10	11,631.7	6.3	13.5	415,311.37	801,870.85	32° 8' 16.982 N	103° 21' 29.147 W
11,741.0	2.30	329.70	11,734.6	10.0	10.4	415,315.12	801,867.84	32° 8' 17.019 N	103° 21' 29.181 W
11,772.0	2.20	333.40	11,765.5	11.1	9.9	415,316.19	801,867.26	32° 8' 17.030 N	103° 21' 29.188 W
11,803.0	2.50	349.90	11,796.5	12.3	9.5	415,317.39	801,866.87	32° 8' 17.042 N	103° 21' 29.192 W
11,835.0	4.70	7.00	11,828.5	14.3	9.5	415,319.38	801,866.91	32° 8' 17.061 N	103° 21' 29.192 W
11,866.0	5.60	2.90	11,859.3	17.1	9.7	415,322.15	801,867.14	32° 8' 17.089 N	103° 21' 29.189 W
11,898.0	8.80	2.80	11,891.1	21.1	9.9	415,326.16	801,867.34	32° 8' 17.128 N	103° 21' 29.186 W
11,929.0	13.00	0.60	11,921.5	26.9	10.1	415,332.01	801,867.49	32° 8' 17.186 N	103° 21' 29.183 W
11,960.0	16.90	0.00	11,951.5	34.9	10.1	415,340.01	801,867.53	32° 8' 17.265 N	103° 21' 29.182 W
11,992.0	20.30	0.00	11,981.8	45.1	10.1	415,350.21	801,867.53	32° 8' 17.366 N	103° 21' 29.181 W
12,023.0	22.90	0.50	12,010.6	56.5	10.2	415,361.63	801,867.58	32° 8' 17.479 N	103° 21' 29.179 W
12,055.0	26.40	1.70	12,039.7	69.9	10.5	415,374.97	801,867.85	32° 8' 17.611 N	103° 21' 29.175 W
12,086.0	30.40	0.50	12,066.9	84.6	10.7	415,389.70	801,868.12	32° 8' 17.757 N	103° 21' 29.170 W
12,118.0	33.80	358.90	12,094.0	101.6	10.6	415,406.71	801,868.02	32° 8' 17.925 N	103° 21' 29.169 W
12,149.0	36.20	358.50	12,119.4	119.4	10.2	415,424.48	801,867.62	32° 8' 18.101 N	103° 21' 29.172 W
12,180.0	39.00	358.20	12,144.0	138.3	9.7	415,443.38	801,867.07	32° 8' 18.288 N	103° 21' 29.177 W
12,212.0	41.90	0.30	12,168.3	159.0	9.4	415,464.14	801,866.81	32° 8' 18.494 N	103° 21' 29.177 W
12,243.0	43.20	2.90	12,191.2	180.0	10.0	415,485.09	801,867.40	32° 8' 18.701 N	103° 21' 29.168 W
12,275.0	45.90	2.80	12,214.0	202.4	11.1	415,507.51	801,868.52	32° 8' 18.923 N	103° 21' 29.153 W
12,306.0	50.70	3.30	12,234.6	225.5	12.4	415,530.62	801,869.75	32° 8' 19.151 N	103° 21' 29.136 W
12,337.0	52.40	4.30	12,253.9	249.7	14.0	415,554.84	801,871.36	32° 8' 19.391 N	103° 21' 29.115 W
12,369.0	55.20	4.90	12,272.8	275.5	16.0	415,580.57	801,873.44	32° 8' 19.645 N	103° 21' 29.088 W
12,400.0	57.50	5.20	12,290.0	301.2	18.3	415,606.28	801,875.71	32° 8' 19.899 N	103° 21' 29.059 W
12,432.0	60.30	5.60	12,306.5	328.5	20.9	415,633.55	801,878.29	32° 8' 20.169 N	103° 21' 29.026 W
12,463.0	63.30	4.50	12,321.1	355.7	23.3	415,660.77	801,880.69	32° 8' 20.438 N	103° 21' 28.995 W
12,495.0	67.60	4.50	12,334.4	384.7	25.6	415,689.78	801,882.97	32° 8' 20.725 N	103° 21' 28.966 W
12,526.0	71.70	5.80	12,345.2	413.6	28.2	415,718.72	801,885.58	32° 8' 21.011 N	103° 21' 28.932 W
12,558.0	74.00	5.60	12,354.6	444.0	31.2	415,749.14	801,888.62	32° 8' 21.312 N	103° 21' 28.894 W
12,589.0	75.90	5.10	12,362.7	473.8	34.0	415,778.95	801,891.41	32° 8' 21.606 N	103° 21' 28.858 W
12,621.0	81.40	4.90	12,369.0	505.1	36.7	415,810.19	801,894.14	32° 8' 21.915 N	103° 21' 28.823 W
12,652.0	82.40	5.10	12,373.3	535.7	39.4	415,840.76	801,896.82	32° 8' 22.218 N	103° 21' 28.789 W
12,684.0	84.70	4.50	12,376.9	567.3	42.1	415,872.45	801,899.48	32° 8' 22.531 N	103° 21' 28.755 W
12,752.0	87.80	3.30	12,381.4	635.0	46.7	415,940.13	801,904.09	32° 8' 23.200 N	103° 21' 28.694 W
12,846.0	91.80	1.90	12,381.7	728.9	51.0	416,034.01	801,908.36	32° 8' 24.129 N	103° 21' 28.634 W
12,940.0	93.50	4.20	12,377.4	822.7	56.0	416,127.77	801,913.35	32° 8' 25.056 N	103° 21' 28.566 W
13,035.0	91.30	3.50	12,373.4	917.4	62.3	416,222.47	801,919.72	32° 8' 25.993 N	103° 21' 28.482 W
13,129.0	91.40	2.80	12,371.2	1,011.2	67.5	416,316.30	801,924.89	32° 8' 26.921 N	103° 21' 28.412 W
13,223.0	90.80	357.80	12,369.4	1,105.2	68.0	416,410.25	801,925.38	32° 8' 27.850 N	103° 21' 28.397 W
13,318.0	94.00	2.40	12,365.4	1,200.0	68.1	416,505.13	801,925.54	32° 8' 28.789 N	103° 21' 28.385 W
13,412.0	91.20	3.80	12,361.1	1,293.8	73.2	416,598.88	801,930.62	32° 8' 29.716 N	103° 21' 28.316 W
13,506.0	89.40	1.00	12,360.6	1,387.7	77.2	416,692.79	801,934.55	32° 8' 30.645 N	103° 21' 28.260 W
13,600.0	89.90	1.20	12,361.2	1,481.7	79.0	416,786.77	801,936.36	32° 8' 31.575 N	103° 21' 28.229 W
13,695.0	90.70	1.00	12,360.7	1,576.6	80.8	416,881.75	801,938.18	32° 8' 32.515 N	103° 21' 28.198 W

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Montera Federal Com #23H
Project:	Lea County, NM	TVD Reference:	KB @ 3250.0usft (Noram 21)
Site:	Sec 10, T25S, R35E	MD Reference:	KB @ 3250.0usft (Noram 21)
Well:	Montera Federal Com #23H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
13,789.0	90.40	0.50	12,359.8	1,670.6	82.0	416,975.73	801,939.41	32° 8' 33.444 N	103° 21' 28.174 W
13,883.0	89.10	359.80	12,360.2	1,764.6	82.3	417,069.73	801,939.66	32° 8' 34.375 N	103° 21' 28.161 W
13,977.0	91.90	1.00	12,359.4	1,858.6	82.9	417,163.71	801,940.31	32° 8' 35.304 N	103° 21' 28.144 W
14,071.0	92.10	1.00	12,356.1	1,952.5	84.6	417,257.64	801,941.95	32° 8' 36.234 N	103° 21' 28.115 W
14,166.0	90.00	1.40	12,354.4	2,047.5	86.5	417,352.60	801,943.94	32° 8' 37.173 N	103° 21' 28.082 W
14,260.0	93.30	1.70	12,351.7	2,141.4	89.1	417,446.51	801,946.48	32° 8' 38.102 N	103° 21' 28.042 W
14,354.0	95.30	2.10	12,344.6	2,235.1	92.2	417,540.19	801,949.59	32° 8' 39.029 N	103° 21' 27.996 W
14,449.0	93.50	4.00	12,337.3	2,329.7	97.2	417,634.77	801,954.63	32° 8' 39.964 N	103° 21' 27.928 W
14,543.0	92.20	4.20	12,332.7	2,423.3	103.9	417,728.41	801,961.34	32° 8' 40.890 N	103° 21' 27.840 W
14,637.0	92.80	3.80	12,328.6	2,517.0	110.5	417,822.09	801,967.90	32° 8' 41.817 N	103° 21' 27.754 W
14,731.0	90.80	2.20	12,325.6	2,610.8	115.4	417,915.91	801,972.81	32° 8' 42.745 N	103° 21' 27.686 W
14,825.0	89.00	1.50	12,325.8	2,704.8	118.4	418,009.85	801,975.85	32° 8' 43.674 N	103° 21' 27.641 W
14,920.0	93.50	2.90	12,323.7	2,799.6	122.1	418,104.74	801,979.49	32° 8' 44.612 N	103° 21' 27.589 W
15,014.0	94.00	2.80	12,317.6	2,893.3	126.8	418,198.42	801,984.15	32° 8' 45.539 N	103° 21' 27.525 W
15,108.0	92.80	3.80	12,312.0	2,987.0	132.2	418,292.09	801,989.56	32° 8' 46.465 N	103° 21' 27.452 W
15,229.0	93.60	3.60	12,305.2	3,107.6	140.0	418,412.65	801,997.35	32° 8' 47.658 N	103° 21' 27.349 W
15,323.0	89.00	3.50	12,303.1	3,201.3	145.8	418,506.42	802,003.17	32° 8' 48.585 N	103° 21' 27.271 W
15,418.0	91.40	4.20	12,302.8	3,296.1	152.1	418,601.20	802,009.55	32° 8' 49.522 N	103° 21' 27.187 W
15,512.0	90.10	4.00	12,301.5	3,389.9	158.9	418,694.95	802,016.27	32° 8' 50.449 N	103° 21' 27.099 W
15,606.0	90.20	3.80	12,301.3	3,483.6	165.3	418,788.73	802,022.66	32° 8' 51.377 N	103° 21' 27.015 W
15,700.0	92.00	2.40	12,299.5	3,577.5	170.3	418,882.57	802,027.74	32° 8' 52.305 N	103° 21' 26.946 W
15,794.0	92.40	1.20	12,295.9	3,671.4	173.3	418,976.45	802,030.69	32° 8' 53.234 N	103° 21' 26.902 W
15,888.0	91.80	0.10	12,292.4	3,765.3	174.4	419,070.38	802,031.76	32° 8' 54.163 N	103° 21' 26.879 W
15,982.0	90.00	0.10	12,290.9	3,859.3	174.5	419,164.37	802,031.92	32° 8' 55.093 N	103° 21' 26.867 W
16,076.0	90.80	0.30	12,290.3	3,953.3	174.9	419,258.36	802,032.25	32° 8' 56.023 N	103° 21' 26.854 W
16,170.0	89.00	0.10	12,290.5	4,047.3	175.2	419,352.36	802,032.58	32° 8' 56.953 N	103° 21' 26.840 W
16,265.0	90.20	0.60	12,291.1	4,142.3	175.8	419,447.35	802,033.16	32° 8' 57.893 N	103° 21' 26.823 W
16,359.0	89.50	0.50	12,291.4	4,236.2	176.7	419,541.35	802,034.06	32° 8' 58.823 N	103° 21' 26.803 W
16,453.0	90.90	1.20	12,291.0	4,330.2	178.1	419,635.33	802,035.46	32° 8' 59.753 N	103° 21' 26.777 W
16,547.0	89.30	0.60	12,290.9	4,424.2	179.5	419,729.32	802,036.93	32° 9' 0.683 N	103° 21' 26.750 W
16,641.0	87.10	359.80	12,293.8	4,518.2	179.9	419,823.26	802,037.26	32° 9' 1.612 N	103° 21' 26.736 W
16,735.0	86.80	0.50	12,298.8	4,612.0	180.1	419,917.13	802,037.51	32° 9' 2.541 N	103° 21' 26.723 W
16,829.0	87.70	1.50	12,303.3	4,705.9	181.7	420,011.01	802,039.15	32° 9' 3.470 N	103° 21' 26.694 W
16,925.0	87.00	2.20	12,307.8	4,801.8	184.8	420,106.85	802,042.24	32° 9' 4.418 N	103° 21' 26.648 W
17,019.0	95.80	3.30	12,305.5	4,895.5	189.3	420,200.62	802,046.74	32° 9' 5.345 N	103° 21' 26.586 W
17,113.0	95.20	2.20	12,296.5	4,989.0	193.8	420,294.08	802,051.23	32° 9' 6.270 N	103° 21' 26.524 W
17,145.0	93.60	1.50	12,294.0	5,020.9	194.9	420,325.97	802,052.26	32° 9' 6.585 N	103° 21' 26.508 W
17,176.0	92.80	1.50	12,292.3	5,051.8	195.7	420,356.91	802,053.07	32° 9' 6.891 N	103° 21' 26.496 W
17,208.0	92.70	1.20	12,290.8	5,083.8	196.4	420,388.86	802,053.83	32° 9' 7.207 N	103° 21' 26.484 W
17,302.0	93.00	2.20	12,286.1	5,177.6	199.2	420,482.70	802,056.61	32° 9' 8.136 N	103° 21' 26.441 W
17,396.0	95.40	2.90	12,279.2	5,271.3	203.4	420,576.35	802,060.78	32° 9' 9.062 N	103° 21' 26.383 W
17,491.0	95.70	5.80	12,270.0	5,365.5	210.6	420,670.62	802,067.95	32° 9' 9.994 N	103° 21' 26.290 W
17,584.0	92.90	10.50	12,263.0	5,457.3	223.7	420,762.39	802,081.10	32° 9' 10.901 N	103° 21' 26.127 W
17,599.0	91.80	10.10	12,262.4	5,472.0	226.4	420,777.13	802,083.78	32° 9' 11.047 N	103° 21' 26.094 W
17,616.0	90.60	9.60	12,262.1	5,488.8	229.3	420,793.88	802,086.69	32° 9' 11.212 N	103° 21' 26.059 W
17,647.0	89.30	8.60	12,262.1	5,519.4	234.2	420,824.49	802,091.59	32° 9' 11.514 N	103° 21' 25.998 W
17,678.0	89.00	8.70	12,262.5	5,550.0	238.9	420,855.13	802,096.25	32° 9' 11.817 N	103° 21' 25.941 W
17,741.0	87.80	7.30	12,264.3	5,612.4	247.6	420,917.49	802,105.02	32° 9' 12.434 N	103° 21' 25.832 W
17,772.0	87.20	6.30	12,265.7	5,643.1	251.3	420,948.24	802,108.68	32° 9' 12.738 N	103° 21' 25.787 W
17,835.0	87.20	4.70	12,268.7	5,705.8	257.3	421,010.88	802,114.71	32° 9' 13.357 N	103° 21' 25.710 W
17,866.0	87.30	3.50	12,270.2	5,736.7	259.5	421,041.76	802,116.93	32° 9' 13.662 N	103° 21' 25.681 W
17,961.0	87.70	1.20	12,274.4	5,831.5	263.4	421,136.58	802,120.82	32° 9' 14.600 N	103° 21' 25.626 W
18,055.0	89.20	2.80	12,276.9	5,925.4	266.7	421,230.49	802,124.10	32° 9' 15.529 N	103° 21' 25.578 W
18,149.0	90.80	2.20	12,276.9	6,019.3	270.8	421,324.39	802,128.20	32° 9' 16.458 N	103° 21' 25.520 W
18,243.0	87.10	359.10	12,278.6	6,113.2	271.9	421,418.34	802,129.27	32° 9' 17.387 N	103° 21' 25.498 W

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Montera Federal Com #23H
Project:	Lea County, NM	TVD Reference:	KB @ 3250.0usft (Noram 21)
Site:	Sec 10, T25S, R35E	MD Reference:	KB @ 3250.0usft (Noram 21)
Well:	Montera Federal Com #23H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
18,337.0	86.30	359.80	12,284.0	6,207.1	271.0	421,512.18	802,128.36	32° 9' 18.316 N	103° 21' 25.498 W	
18,431.0	87.80	359.60	12,288.9	6,301.0	270.5	421,606.05	802,127.87	32° 9' 19.245 N	103° 21' 25.494 W	
18,525.0	88.60	0.00	12,291.8	6,394.9	270.1	421,700.01	802,127.54	32° 9' 20.175 N	103° 21' 25.488 W	
18,619.0	88.70	0.30	12,294.0	6,488.9	270.4	421,793.98	802,127.79	32° 9' 21.104 N	103° 21' 25.475 W	
18,713.0	89.60	0.00	12,295.4	6,582.9	270.6	421,887.97	802,128.04	32° 9' 22.034 N	103° 21' 25.462 W	
18,807.0	90.10	0.10	12,295.7	6,676.9	270.7	421,981.97	802,128.12	32° 9' 22.965 N	103° 21' 25.451 W	
18,901.0	90.60	0.10	12,295.1	6,770.9	270.9	422,075.97	802,128.28	32° 9' 23.895 N	103° 21' 25.440 W	
18,995.0	89.50	0.10	12,295.0	6,864.9	271.0	422,169.96	802,128.45	32° 9' 24.825 N	103° 21' 25.428 W	
19,089.0	90.20	0.50	12,295.3	6,958.9	271.5	422,263.96	802,128.94	32° 9' 25.755 N	103° 21' 25.412 W	
19,184.0	89.60	0.00	12,295.4	7,053.9	272.0	422,358.96	802,129.35	32° 9' 26.695 N	103° 21' 25.397 W	
19,278.0	88.20	359.10	12,297.2	7,147.8	271.2	422,452.94	802,128.62	32° 9' 27.625 N	103° 21' 25.396 W	
19,372.0	87.90	359.10	12,300.4	7,241.8	269.7	422,546.87	802,127.14	32° 9' 28.554 N	103° 21' 25.403 W	
19,467.0	88.60	0.00	12,303.3	7,336.7	269.0	422,641.82	802,126.39	32° 9' 29.494 N	103° 21' 25.402 W	
19,561.0	85.90	359.60	12,307.9	7,430.6	268.7	422,735.70	802,126.07	32° 9' 30.423 N	103° 21' 25.396 W	
19,607.0	85.80	359.60	12,311.2	7,476.5	268.3	422,781.58	802,125.75	32° 9' 30.877 N	103° 21' 25.395 W	
19,659.0	85.80	359.60	12,315.0	7,528.3	268.0	422,833.44	802,125.38	32° 9' 31.390 N	103° 21' 25.393 W	
TD @ 19659.0' MD / 12315.0' TVD										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
11,578.7	11,572.5	3.8	15.9	Gyro Tie-in @ 11578.7' MD / 11572.5' TVD	
19,659.0	12,315.0	7,528.3	268.0	TD @ 19659.0' MD / 12315.0' TVD	

Checked By: _____	Approved By: _____	Date: _____
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