SURVEY CERTIFICATION FORM

3610 Elkins Road Midland, TX 79705 t:432-684-0057 f: 432-686-7964

PHOENIX TECHNOLOGY SERVICES

Company: COG

Job #: 01610264

Well Name: Fascinator Fee Com # 2H

County/State: Lea Co., New Mexico

Survey Instrument Type: North Seek Rate Gyro

API # 30-025-43023

TIE-IN DATA

Measure Depth (ft)	Vertical Depth (ft)	Inclination (°)	Azimuth (°)	N-S Coordinates	E-W Coordinates	Data Source
0	0	0	0	0	0	Surface

First Survey

Date	Depth (ft)	Inclination (°)	Azimuth (°)
2016-04-27	0	0	0

Last Survey

Date	Depth (ft)	Inclination (°)	Azimuth (°)
2016-04-27	825	0.15	237.72

Projected TD Survey

Date	Depth (ft)	Inclination (°)	Azimuth (°)
0	0	0	0

Grid Correction
-0.49

Gyro Operator: Phoenix Technology Services USA Ltd.

Gyro Supervisor: Jaime Stephenson

To the best of my knowledge I certify this survey data to be correct and true

Date: 04-27-16

Print Name: Noe Garza

Signature:

PHOENIX TECHNOLOGY SERVICES

Company: COG
Well: Fascinator Fee Com # 2H
Location: Lea Co., New Mexico
Rig: McVay 8

Job Number: 1610264
Grid Corr.: -0.49
Lat: 32.18
Long: -103.40

Date: 04-27-16
Calculation Method: Minimum Curvature
Proposed Azimuth:
RKB - MSL in feet: 26 Feet
Tie Into: Surface

Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	Coordinates E/W (ft)	Closure Distance (ft)	Closure Angle (deg)	Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
Enter Tie-In Survey on Line 10						**FIELD COPY, NON-DEFINITIVE**							
TIE IN	0			0	0	0	0	0					
Gyro	100.00	0.69	101.44	100	100.00	-0.12	0.12 S	0.59 E	0.60	101.44	0.69	0.69	101.44
	200.00	0.97	102.15	100	199.99	-0.42	0.42 S	2.01 E	2.05	101.73	0.28	0.28	0.71
	300.00	1.01	100.79	100	299.97	-0.76	0.76 S	3.70 E	3.78	101.61	0.05	0.04	-1.36
	400.00	1.07	110.84	100	399.96	-1.26	1.26 S	5.44 E	5.58	103.02	0.19	0.06	10.05
	500.00	0.52	115.55	100	499.95	-1.79	1.79 S	6.72 E	6.95	104.87	0.55	-0.55	4.71
	600.00	0.49	101.48	100	599.94	-2.07	2.07 S	7.55 E	7.83	105.30	0.13	-0.03	-14.07
	700.00	0.13	193.87	100	699.94	-2.26	2.26 S	7.94 E	8.26	105.89	0.51	-0.36	92.39
	800.00	0.37	212.74	100	799.94	-2.64	2.64 S	7.74 E	8.18	108.85	0.25	0.24	18.87
	825.00	0.15	237.72	25	824.94	-2.73	2.73 S	7.67 E	8.14	109.58	0.97	-0.88	99.92

CONCHO

COG Operating, LLC

Lea County, NM
Sec 30, T24-S,R35E
Fascinator Fee Com #2H

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

26 May, 2016

QES
DIRECTIONAL DRILLING

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Fascinator Fee Com #2H
Project:	Lea County, NM	**TVD Reference:**	Well @ 3344.0usft (McVay 8)
Site:	Sec 30, T24-S,R35E	**MD Reference:**	Well @ 3344.0usft (McVay 8)
Well:	Fascinator Fee Com #2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM5002

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 30, T24-S,R35E

Site Position:		**Northing:**	430,949.60 usft	**Latitude:**	32° 10' 52.979 N
From:	Map	**Easting:**	787,533.30 usft	**Longitude:**	103° 24' 14.307 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.50 °

Well Fascinator Fee Com #2H

Well Position	**+N/-S**	0.0 usft	**Northing:**	430,949.60 usft	**Latitude:**	32° 10' 52.979 N
	+E/-W	0.0 usft	**Easting:**	787,533.30 usft	**Longitude:**	103° 24' 14.307 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	3,344.0 usft	**Ground Level:**	3,318.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/15/2016	7.00	60.07	48,052

Design Wellbore #1

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	1.97

Survey Program **Date** 5/26/2016

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	825.0	Gyro (Wellbore #1)	Good_gyro	Good Gyro
1,024.0	19,840.0	MWD Surveys (Wellbore #1)	MWD default	MWD - Standard

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	430,949.60	787,533.30	32° 10' 52.979 N	103° 24' 14.307 W
100.0	0.69	101.44	100.0	-0.1	0.6	430,949.48	787,533.89	32° 10' 52.978 N	103° 24' 14.300 W
200.0	0.97	102.15	200.0	-0.4	2.0	430,949.18	787,535.31	32° 10' 52.975 N	103° 24' 14.284 W
300.0	1.01	100.79	300.0	-0.8	3.7	430,948.84	787,537.00	32° 10' 52.971 N	103° 24' 14.264 W
400.0	1.07	110.84	400.0	-1.3	5.4	430,948.34	787,538.74	32° 10' 52.966 N	103° 24' 14.244 W
500.0	0.52	115.55	499.9	-1.8	6.7	430,947.81	787,540.02	32° 10' 52.961 N	103° 24' 14.229 W
600.0	0.49	101.48	599.9	-2.1	7.5	430,947.53	787,540.85	32° 10' 52.958 N	103° 24' 14.220 W
700.0	0.13	193.87	699.9	-2.3	7.9	430,947.34	787,541.24	32° 10' 52.956 N	103° 24' 14.215 W
800.0	0.37	212.74	799.9	-2.6	7.7	430,946.96	787,541.04	32° 10' 52.952 N	103° 24' 14.218 W
825.0	0.15	237.72	824.9	-2.7	7.7	430,946.87	787,540.97	32° 10' 52.951 N	103° 24' 14.218 W

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Fascinator Fee Com #2H
Project:	Lea County, NM	**TVD Reference:**	Well @ 3344.0usft (McVay 8)
Site:	Sec 30, T24-S,R35E	**MD Reference:**	Well @ 3344.0usft (McVay 8)
Well:	Fascinator Fee Com #2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM5002

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,024.0	0.20	9.00	1,023.9	-2.5	7.5	430,947.08	787,540.80	32° 10' 52.953 N	103° 24' 14.220 W
First MWD Survey @ 1024' MD / 1023' TVD									
1,146.0	0.30	55.70	1,145.9	-2.1	7.8	430,947.47	787,541.10	32° 10' 52.957 N	103° 24' 14.217 W
1,331.0	1.10	79.60	1,330.9	-1.5	9.9	430,948.06	787,543.24	32° 10' 52.963 N	103° 24' 14.192 W
1,520.0	1.60	85.90	1,519.9	-1.0	14.4	430,948.58	787,547.66	32° 10' 52.968 N	103° 24' 14.140 W
1,709.0	0.50	74.30	1,708.8	-0.6	17.8	430,948.99	787,551.09	32° 10' 52.971 N	103° 24' 14.100 W
1,898.0	1.20	77.20	1,897.8	0.0	20.5	430,949.65	787,553.81	32° 10' 52.978 N	103° 24' 14.069 W
2,087.0	1.60	79.30	2,086.8	1.0	25.0	430,950.58	787,558.33	32° 10' 52.986 N	103° 24' 14.016 W
2,276.0	0.70	77.50	2,275.7	1.7	28.8	430,951.32	787,562.05	32° 10' 52.993 N	103° 24' 13.973 W
2,465.0	0.90	82.10	2,464.7	2.2	31.4	430,951.77	787,564.65	32° 10' 52.998 N	103° 24' 13.942 W
2,653.0	1.90	93.30	2,652.6	2.2	35.9	430,951.79	787,569.22	32° 10' 52.998 N	103° 24' 13.889 W
2,842.0	1.80	96.50	2,841.5	1.7	42.0	430,951.28	787,575.30	32° 10' 52.992 N	103° 24' 13.818 W
3,031.0	0.90	76.80	3,030.5	1.7	46.4	430,951.28	787,579.70	32° 10' 52.992 N	103° 24' 13.767 W
3,219.0	1.40	100.00	3,218.5	1.6	50.1	430,951.22	787,583.39	32° 10' 52.991 N	103° 24' 13.724 W
3,409.0	1.80	106.70	3,408.4	0.4	55.2	430,949.96	787,588.54	32° 10' 52.978 N	103° 24' 13.665 W
3,597.0	0.90	100.70	3,596.3	-0.8	59.5	430,948.84	787,592.82	32° 10' 52.966 N	103° 24' 13.615 W
3,786.0	0.70	84.60	3,785.3	-0.9	62.1	430,948.67	787,595.43	32° 10' 52.964 N	103° 24' 13.585 W
3,975.0	0.70	104.90	3,974.3	-1.1	64.4	430,948.48	787,597.69	32° 10' 52.962 N	103° 24' 13.558 W
4,164.0	0.50	108.40	4,163.3	-1.7	66.3	430,947.92	787,599.59	32° 10' 52.957 N	103° 24' 13.536 W
4,352.0	1.40	102.80	4,351.3	-2.4	69.3	430,947.16	787,602.61	32° 10' 52.949 N	103° 24' 13.501 W
4,541.0	2.30	112.30	4,540.2	-4.4	75.1	430,945.21	787,608.37	32° 10' 52.929 N	103° 24' 13.434 W
4,730.0	1.90	120.40	4,729.0	-7.4	81.3	430,942.18	787,614.58	32° 10' 52.899 N	103° 24' 13.362 W
4,919.0	2.30	110.90	4,917.9	-10.4	87.5	430,939.24	787,620.82	32° 10' 52.869 N	103° 24' 13.290 W
5,108.0	2.60	103.90	5,106.7	-12.7	95.2	430,936.86	787,628.53	32° 10' 52.845 N	103° 24' 13.201 W
5,297.0	2.50	92.60	5,295.5	-14.0	103.5	430,935.64	787,636.81	32° 10' 52.832 N	103° 24' 13.104 W
5,391.0	2.10	98.30	5,389.5	-14.3	107.3	430,935.30	787,640.56	32° 10' 52.828 N	103° 24' 13.061 W
5,587.0	1.80	96.80	5,585.3	-15.2	113.9	430,934.42	787,647.17	32° 10' 52.819 N	103° 24' 12.984 W
5,776.0	1.90	95.80	5,774.3	-15.8	119.9	430,933.75	787,653.23	32° 10' 52.812 N	103° 24' 12.914 W
5,963.0	1.90	90.20	5,961.1	-16.2	126.1	430,933.43	787,659.42	32° 10' 52.808 N	103° 24' 12.842 W
6,151.0	1.90	97.20	6,149.0	-16.6	132.3	430,933.02	787,665.63	32° 10' 52.804 N	103° 24' 12.769 W
6,340.0	1.90	95.10	6,337.9	-17.2	138.6	430,932.35	787,671.86	32° 10' 52.796 N	103° 24' 12.697 W
6,529.0	1.90	91.20	6,526.8	-17.6	144.8	430,932.01	787,678.11	32° 10' 52.792 N	103° 24' 12.624 W
6,718.0	1.80	88.40	6,715.7	-17.6	150.9	430,932.03	787,684.21	32° 10' 52.792 N	103° 24' 12.553 W
6,907.0	1.80	89.50	6,904.6	-17.5	156.8	430,932.14	787,690.14	32° 10' 52.793 N	103° 24' 12.484 W
7,095.0	2.10	90.90	7,092.5	-17.5	163.2	430,932.11	787,696.54	32° 10' 52.792 N	103° 24' 12.410 W
7,286.0	1.20	107.10	7,283.5	-18.1	168.7	430,931.46	787,701.95	32° 10' 52.785 N	103° 24' 12.347 W
7,475.0	1.40	106.70	7,472.4	-19.4	172.8	430,930.22	787,706.05	32° 10' 52.772 N	103° 24' 12.299 W
7,664.0	1.20	106.30	7,661.4	-20.6	176.9	430,929.00	787,710.17	32° 10' 52.760 N	103° 24' 12.252 W
7,852.0	1.20	114.10	7,849.3	-22.0	180.6	430,927.64	787,713.85	32° 10' 52.746 N	103° 24' 12.209 W
8,041.0	1.20	106.30	8,038.3	-23.3	184.3	430,926.28	787,717.56	32° 10' 52.732 N	103° 24' 12.166 W
8,230.0	1.20	124.30	8,227.2	-25.0	187.8	430,924.61	787,721.09	32° 10' 52.716 N	103° 24' 12.125 W
8,419.0	1.40	121.80	8,416.2	-27.3	191.4	430,922.28	787,724.69	32° 10' 52.692 N	103° 24' 12.083 W
8,608.0	1.40	65.60	8,605.1	-27.6	195.5	430,922.01	787,728.76	32° 10' 52.689 N	103° 24' 12.036 W
8,797.0	1.80	63.10	8,794.1	-25.3	200.2	430,924.31	787,733.50	32° 10' 52.712 N	103° 24' 11.981 W
8,986.0	1.40	58.90	8,983.0	-22.8	204.8	430,926.85	787,738.13	32° 10' 52.736 N	103° 24' 11.926 W
9,174.0	1.40	68.40	9,170.9	-20.7	208.9	430,928.88	787,742.23	32° 10' 52.756 N	103° 24' 11.879 W
9,363.0	1.10	63.80	9,359.9	-19.1	212.7	430,930.53	787,746.01	32° 10' 52.772 N	103° 24' 11.834 W
9,552.0	0.90	68.40	9,548.9	-17.7	215.7	430,931.88	787,749.01	32° 10' 52.785 N	103° 24' 11.799 W
9,740.0	0.40	340.80	9,736.9	-16.6	216.9	430,933.04	787,750.17	32° 10' 52.796 N	103° 24' 11.786 W
9,929.0	1.20	96.80	9,925.8	-16.2	218.6	430,933.43	787,751.92	32° 10' 52.800 N	103° 24' 11.765 W
10,118.0	0.90	114.80	10,114.8	-17.0	221.9	430,932.57	787,755.23	32° 10' 52.791 N	103° 24' 11.727 W
10,307.0	1.00	75.60	10,303.8	-17.2	224.9	430,932.36	787,758.18	32° 10' 52.789 N	103° 24' 11.693 W
10,496.0	2.30	52.20	10,492.7	-14.5	229.5	430,935.09	787,762.77	32° 10' 52.816 N	103° 24' 11.639 W
10,684.0	2.60	95.10	10,680.5	-12.6	236.7	430,937.03	787,770.00	32° 10' 52.834 N	103° 24' 11.555 W
10,873.0	1.60	110.90	10,869.4	-13.9	243.4	430,935.70	787,776.73	32° 10' 52.821 N	103° 24' 11.476 W

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Fascinator Fee Com #2H
Project:	Lea County, NM	**TVD Reference:**	Well @ 3344.0usft (McVay 8)
Site:	Sec 30, T24-S,R35E	**MD Reference:**	Well @ 3344.0usft (McVay 8)
Well:	Fascinator Fee Com #2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM5002

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,062.0	0.70	104.60	11,058.4	-15.1	247.0	430,934.47	787,780.32	32° 10' 52.808 N	103° 24' 11.435 W
11,251.0	0.70	116.50	11,247.4	-15.9	249.2	430,933.67	787,782.47	32° 10' 52.800 N	103° 24' 11.410 W
11,440.0	1.20	175.90	11,436.3	-18.4	250.3	430,931.18	787,783.64	32° 10' 52.775 N	103° 24' 11.397 W
11,629.0	0.90	129.20	11,625.3	-21.3	251.6	430,928.26	787,784.93	32° 10' 52.746 N	103° 24' 11.382 W
11,818.0	1.20	90.20	11,814.3	-22.3	254.8	430,927.32	787,788.06	32° 10' 52.737 N	103° 24' 11.345 W
11,912.0	1.10	90.90	11,908.3	-22.3	256.7	430,927.30	787,789.95	32° 10' 52.736 N	103° 24' 11.324 W
12,005.0	1.10	88.90	12,001.2	-22.3	258.4	430,927.31	787,791.73	32° 10' 52.736 N	103° 24' 11.303 W
12,047.0	1.00	62.40	12,043.2	-22.1	259.2	430,927.48	787,792.46	32° 10' 52.738 N	103° 24' 11.294 W
12,095.0	2.00	2.30	12,091.2	-21.1	259.6	430,928.51	787,792.87	32° 10' 52.748 N	103° 24' 11.289 W
12,142.0	4.80	348.40	12,138.1	-18.3	259.2	430,931.26	787,792.50	32° 10' 52.775 N	103° 24' 11.293 W
12,190.0	8.40	343.50	12,185.8	-13.0	257.8	430,936.59	787,791.10	32° 10' 52.828 N	103° 24' 11.309 W
12,237.0	16.90	341.70	12,231.6	-3.2	254.7	430,946.39	787,787.98	32° 10' 52.925 N	103° 24' 11.345 W
12,286.0	23.80	339.30	12,277.5	12.8	248.9	430,962.42	787,782.24	32° 10' 53.084 N	103° 24' 11.410 W
12,333.0	31.20	339.30	12,319.2	33.1	241.3	430,982.70	787,774.57	32° 10' 53.286 N	103° 24' 11.497 W
12,381.0	39.80	340.70	12,358.2	59.3	231.8	431,008.88	787,765.08	32° 10' 53.546 N	103° 24' 11.605 W
12,428.0	48.80	345.40	12,391.9	90.7	222.3	431,040.26	787,755.63	32° 10' 53.857 N	103° 24' 11.711 W
12,467.0	52.16	353.04	12,416.7	120.2	216.8	431,069.78	787,750.06	32° 10' 54.150 N	103° 24' 11.773 W
Crossed 330' Hardline @ 12467' MD / 12417' TVD									
12,476.0	53.00	354.70	12,422.2	127.3	216.0	431,076.89	787,749.30	32° 10' 54.220 N	103° 24' 11.781 W
12,509.0	58.00	359.10	12,440.9	154.4	214.6	431,104.03	787,747.86	32° 10' 54.489 N	103° 24' 11.795 W
12,570.0	66.70	1.40	12,469.1	208.4	214.8	431,158.00	787,748.14	32° 10' 55.023 N	103° 24' 11.787 W
12,617.0	69.40	2.60	12,486.7	252.0	216.4	431,201.56	787,749.67	32° 10' 55.454 N	103° 24' 11.765 W
12,665.0	73.90	1.80	12,501.8	297.5	218.1	431,247.08	787,751.41	32° 10' 55.904 N	103° 24' 11.740 W
12,712.0	78.30	0.70	12,513.1	343.1	219.1	431,292.68	787,752.40	32° 10' 56.355 N	103° 24' 11.724 W
12,760.0	83.60	0.00	12,520.7	390.5	219.4	431,340.06	787,752.69	32° 10' 56.824 N	103° 24' 11.716 W
12,807.0	89.70	359.50	12,523.4	437.4	219.2	431,386.96	787,752.48	32° 10' 57.288 N	103° 24' 11.713 W
12,857.0	91.60	0.30	12,522.8	487.4	219.1	431,436.95	787,752.40	32° 10' 57.783 N	103° 24' 11.709 W
12,952.0	92.20	0.70	12,519.7	582.3	219.9	431,531.90	787,753.22	32° 10' 58.722 N	103° 24' 11.690 W
13,047.0	92.00	0.50	12,516.2	677.2	220.9	431,626.83	787,754.22	32° 10' 59.661 N	103° 24' 11.669 W
13,142.0	92.80	1.00	12,512.2	772.1	222.2	431,721.74	787,755.46	32° 11' 0.600 N	103° 24' 11.645 W
13,238.0	94.30	1.40	12,506.3	867.9	224.2	431,817.53	787,757.47	32° 11' 1.548 N	103° 24' 11.612 W
13,333.0	93.70	2.50	12,499.6	962.6	227.4	431,912.24	787,760.69	32° 11' 2.485 N	103° 24' 11.565 W
13,428.0	92.80	3.70	12,494.3	1,057.3	232.5	432,006.95	787,765.82	32° 11' 3.422 N	103° 24' 11.496 W
13,523.0	92.40	4.00	12,490.0	1,152.0	238.9	432,101.63	787,772.19	32° 11' 4.358 N	103° 24' 11.412 W
13,618.0	89.50	3.50	12,488.4	1,246.8	245.1	432,196.41	787,778.41	32° 11' 5.295 N	103° 24' 11.330 W
13,713.0	89.20	3.00	12,489.5	1,341.6	250.5	432,291.25	787,783.79	32° 11' 6.233 N	103° 24' 11.258 W
13,808.0	90.80	3.90	12,489.5	1,436.5	256.2	432,386.07	787,789.51	32° 11' 7.171 N	103° 24' 11.182 W
13,903.0	92.00	4.20	12,487.1	1,531.2	262.9	432,480.80	787,796.21	32° 11' 8.108 N	103° 24' 11.094 W
13,998.0	91.80	3.00	12,484.0	1,626.0	268.9	432,575.56	787,802.18	32° 11' 9.045 N	103° 24' 11.015 W
14,093.0	91.70	2.50	12,481.1	1,720.8	273.4	432,670.41	787,806.73	32° 11' 9.983 N	103° 24' 10.953 W
14,188.0	91.40	2.30	12,478.5	1,815.7	277.4	432,765.29	787,810.71	32° 11' 10.922 N	103° 24' 10.897 W
14,283.0	91.70	2.30	12,475.9	1,910.6	281.2	432,860.18	787,814.52	32° 11' 11.860 N	103° 24' 10.843 W
14,378.0	92.00	1.60	12,472.9	2,005.5	284.5	432,955.07	787,817.75	32° 11' 12.799 N	103° 24' 10.796 W
14,473.0	91.70	1.20	12,469.8	2,100.4	286.8	433,050.00	787,820.07	32° 11' 13.738 N	103° 24' 10.759 W
14,568.0	91.20	0.20	12,467.4	2,195.4	287.9	433,144.96	787,821.23	32° 11' 14.678 N	103° 24' 10.736 W
14,663.0	90.60	359.60	12,465.9	2,290.3	287.8	433,239.94	787,821.07	32° 11' 15.618 N	103° 24' 10.729 W
14,758.0	91.60	358.90	12,464.1	2,385.3	286.5	433,334.92	787,819.82	32° 11' 16.557 N	103° 24' 10.734 W
14,853.0	91.50	359.60	12,461.5	2,480.3	285.3	433,429.87	787,818.58	32° 11' 17.497 N	103° 24' 10.739 W
14,948.0	92.80	0.50	12,458.0	2,575.2	285.4	433,524.80	787,818.66	32° 11' 18.436 N	103° 24' 10.728 W
15,044.0	92.90	359.30	12,453.2	2,671.1	285.2	433,620.68	787,818.49	32° 11' 19.385 N	103° 24' 10.720 W
15,139.0	93.10	358.80	12,448.2	2,765.9	283.6	433,715.54	787,816.92	32° 11' 20.324 N	103° 24' 10.729 W
15,234.0	93.30	359.10	12,442.9	2,860.8	281.9	433,810.37	787,815.18	32° 11' 21.263 N	103° 24' 10.740 W
15,329.0	93.50	359.10	12,437.3	2,955.6	280.4	433,905.20	787,813.69	32° 11' 22.201 N	103° 24' 10.748 W
15,424.0	93.90	358.90	12,431.1	3,050.4	278.7	433,999.98	787,812.04	32° 11' 23.139 N	103° 24' 10.757 W
15,519.0	93.40	359.10	12,425.1	3,145.2	277.1	434,094.77	787,810.38	32° 11' 24.077 N	103° 24' 10.767 W

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Fascinator Fee Com #2H
Project:	Lea County, NM	**TVD Reference:**	Well @ 3344.0usft (McVay 8)
Site:	Sec 30, T24-S,R35E	**MD Reference:**	Well @ 3344.0usft (McVay 8)
Well:	Fascinator Fee Com #2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM5002

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,614.0	92.80	358.40	12,420.0	3,240.0	275.0	434,189.61	787,808.31	32° 11' 25.016 N	103° 24' 10.782 W
15,709.0	93.40	358.20	12,414.8	3,334.8	272.2	434,284.43	787,805.50	32° 11' 25.954 N	103° 24' 10.805 W
15,805.0	93.20	358.90	12,409.3	3,430.6	269.8	434,380.24	787,803.08	32° 11' 26.902 N	103° 24' 10.823 W
15,924.0	92.30	359.60	12,403.6	3,549.5	268.2	434,499.09	787,801.52	32° 11' 28.079 N	103° 24' 10.829 W
16,019.0	93.20	0.30	12,399.0	3,644.4	268.1	434,593.98	787,801.44	32° 11' 29.018 N	103° 24' 10.821 W
16,114.0	93.40	359.80	12,393.6	3,739.2	268.2	434,688.82	787,801.52	32° 11' 29.956 N	103° 24' 10.810 W
16,210.0	93.00	359.10	12,388.2	3,835.1	267.3	434,784.67	787,800.60	32° 11' 30.905 N	103° 24' 10.811 W
16,305.0	94.10	359.60	12,382.3	3,929.9	266.2	434,879.48	787,799.52	32° 11' 31.843 N	103° 24' 10.814 W
16,400.0	92.40	359.10	12,376.9	4,024.7	265.1	434,974.31	787,798.45	32° 11' 32.781 N	103° 24' 10.817 W
16,495.0	92.50	357.90	12,372.9	4,119.6	262.7	435,069.19	787,795.96	32° 11' 33.720 N	103° 24' 10.837 W
16,590.0	93.40	357.90	12,368.0	4,214.4	259.2	435,164.00	787,792.49	32° 11' 34.659 N	103° 24' 10.868 W
16,686.0	96.00	359.30	12,360.1	4,310.0	256.8	435,259.64	787,790.15	32° 11' 35.605 N	103° 24' 10.885 W
16,781.0	94.70	359.50	12,351.3	4,404.6	255.9	435,354.22	787,789.16	32° 11' 36.541 N	103° 24' 10.887 W
16,876.0	93.20	359.60	12,344.7	4,499.4	255.1	435,448.99	787,788.41	32° 11' 37.479 N	103° 24' 10.886 W
16,971.0	93.40	359.80	12,339.2	4,594.2	254.6	435,543.83	787,787.92	32° 11' 38.418 N	103° 24' 10.883 W
17,067.0	93.70	0.00	12,333.3	4,690.0	254.5	435,639.65	787,787.75	32° 11' 39.366 N	103° 24' 10.875 W
17,162.0	90.80	359.10	12,329.6	4,785.0	253.7	435,734.56	787,787.00	32° 11' 40.305 N	103° 24' 10.874 W
17,257.0	90.00	359.30	12,328.9	4,879.9	252.4	435,829.55	787,785.68	32° 11' 41.245 N	103° 24' 10.880 W
17,352.0	89.20	359.10	12,329.6	4,974.9	251.1	435,924.53	787,784.35	32° 11' 42.185 N	103° 24' 10.886 W
17,447.0	88.40	0.50	12,331.6	5,069.9	250.7	436,019.51	787,784.02	32° 11' 43.125 N	103° 24' 10.880 W
17,542.0	86.60	0.30	12,335.7	5,164.8	251.4	436,114.41	787,784.68	32° 11' 44.064 N	103° 24' 10.863 W
17,561.6	86.62	0.24	12,336.9	5,184.4	251.5	436,133.98	787,784.77	32° 11' 44.257 N	103° 24' 10.860 W
Crossed Section Line @ 17562' MD / 12337' TVD									
17,638.0	86.70	0.00	12,341.3	5,260.6	251.6	436,210.25	787,784.93	32° 11' 45.012 N	103° 24' 10.850 W
17,733.0	87.80	0.70	12,345.9	5,355.5	252.2	436,305.13	787,785.51	32° 11' 45.951 N	103° 24' 10.834 W
17,828.0	88.50	0.70	12,348.9	5,450.5	253.4	436,400.08	787,786.67	32° 11' 46.890 N	103° 24' 10.811 W
17,923.0	89.60	0.90	12,350.5	5,545.5	254.7	436,495.05	787,788.00	32° 11' 47.830 N	103° 24' 10.786 W
18,018.0	88.50	1.40	12,352.1	5,640.4	256.6	436,590.02	787,789.90	32° 11' 48.770 N	103° 24' 10.754 W
18,113.0	85.70	0.50	12,356.9	5,735.3	258.2	436,684.87	787,791.48	32° 11' 49.708 N	103° 24' 10.726 W
18,208.0	85.70	359.50	12,364.0	5,830.0	258.2	436,779.61	787,791.48	32° 11' 50.645 N	103° 24' 10.717 W
18,304.0	86.80	359.30	12,370.3	5,925.8	257.2	436,875.39	787,790.47	32° 11' 51.593 N	103° 24' 10.719 W
18,399.0	87.10	359.10	12,375.4	6,020.6	255.9	436,970.25	787,789.15	32° 11' 52.532 N	103° 24' 10.725 W
18,494.0	90.70	0.00	12,377.2	6,115.6	255.1	437,065.21	787,788.40	32° 11' 53.472 N	103° 24' 10.724 W
18,589.0	90.40	0.20	12,376.3	6,210.6	255.3	437,160.21	787,788.57	32° 11' 54.412 N	103° 24' 10.712 W
18,684.0	91.10	0.00	12,375.0	6,305.6	255.4	437,255.20	787,788.74	32° 11' 55.352 N	103° 24' 10.701 W
18,779.0	91.40	0.30	12,372.9	6,400.6	255.7	437,350.18	787,788.98	32° 11' 56.292 N	103° 24' 10.688 W
18,875.0	90.10	359.60	12,371.7	6,496.6	255.6	437,446.16	787,788.90	32° 11' 57.241 N	103° 24' 10.680 W
18,970.0	87.70	358.60	12,373.5	6,591.5	254.1	437,541.13	787,787.41	32° 11' 58.181 N	103° 24' 10.687 W
19,065.0	88.20	359.30	12,376.9	6,686.4	252.4	437,636.05	787,785.67	32° 11' 59.121 N	103° 24' 10.698 W
19,160.0	87.40	358.80	12,380.6	6,781.4	250.8	437,730.97	787,784.10	32° 12' 0.060 N	103° 24' 10.707 W
19,255.0	91.50	357.90	12,381.5	6,876.3	248.1	437,825.90	787,781.36	32° 12' 1.000 N	103° 24' 10.729 W
19,350.0	90.50	356.80	12,379.8	6,971.2	243.7	437,920.78	787,776.97	32° 12' 1.939 N	103° 24' 10.771 W
19,445.0	92.00	358.90	12,377.7	7,066.1	240.1	438,015.68	787,773.41	32° 12' 2.878 N	103° 24' 10.803 W
19,540.0	92.40	0.20	12,374.1	7,161.0	239.4	438,110.61	787,772.66	32° 12' 3.818 N	103° 24' 10.802 W
19,635.0	92.90	1.90	12,369.7	7,255.9	241.1	438,205.49	787,774.40	32° 12' 4.756 N	103° 24' 10.772 W
19,667.0	92.70	2.60	12,368.1	7,287.8	242.4	438,237.42	787,775.65	32° 12' 5.072 N	103° 24' 10.754 W
19,840.0	92.70	2.60	12,360.0	7,460.5	250.2	438,410.05	787,783.49	32° 12' 6.780 N	103° 24' 10.645 W
TD @ 19840' MD / 12360' TVD									

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Fascinator Fee Com #2H
Project:	Lea County, NM	**TVD Reference:**	Well @ 3344.0usft (McVay 8)
Site:	Sec 30, T24-S,R35E	**MD Reference:**	Well @ 3344.0usft (McVay 8)
Well:	Fascinator Fee Com #2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM5002

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
1,024.0	1,023.9	-2.5	7.5	First MWD Survey @ 1024' MD / 1023' TVD
12,467.0	12,416.7	120.2	216.8	Crossed 330' Hardline @ 12467' MD / 12417' TVD
17,561.6	12,336.9	5,184.4	251.5	Crossed Section Line @ 17562' MD / 12337' TVD
19,840.0	12,360.0	7,460.5	250.2	TD @ 19840' MD / 12360' TVD

Checked By: _____ Approved By: _____ Date: _____