

**McVAY DRILLING COMPANY**

P.O. Box 2450
Hobbs, New Mexico 88241
(575) 397-3311
FAX: 39-DRILL

HOBBS OCD**JUN 08 2015**

Well Name and Num: Stratojet 31 State Com #8H
Location: Sec 31, T20S, R35E
Operator: COG
Drilling Contractor: McVay Drilling Company

RECEIVED

30-025-42430

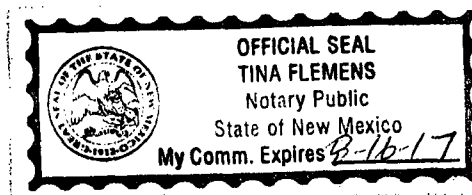
The undersigned certifies that he is an authorized representative of the drilling contractor who drilled the above described well and that he has conducted deviation tests and obtained the following results:

<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>
0.60	527	2.20	7053	68.50	11773
0.30	989	1.60	7528	90.60	12054
0.40	1462	1.40	7911	90.70	12433
0.80	1746	1.20	8389	89.50	12812
1.30	1975	1.10	8673	91.20	13287
0.60	2448	2.40	9054	91.20	13761
0.70	2732	1.90	9437	92.10	14149
2.30	3109	3.70	9628	92.10	14614
2.50	3487	3.70	10007	90.70	15088
1.90	3771	3.40	10294	91.20	15371
0.60	4151	3.40	10407	91.20	15748
0.90	4512	4.60	10788		
2.10	4985	1.30	11039		
1.50	5363	11.30	11167		
1.50	5792	35.30	11358		
2.00	6098	41.50	11422		
2.10	6575	51.87	11518		

By: *Mark O'Connell*

Subscribed and sworn to before me this 31st day of March, 2015

Tina Flemens
Notary Public, Lea County, New Mexico

**JUN 29 2015***fm*



HOBBS OCD

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30-025-42430

COG Operating LLC

Lea County, NM

Stratojet 31 State Com

#8H

OH

Survey: MWD #1

Survey Report - Geographic

30 March, 2015



Wellplanning
Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #8H
Project:	Lea County, NM	TVD Reference:	WELL @ 3759.3usft (Original Well Elev)
Site:	Stratojet 31 State Com	MD Reference:	WELL @ 3759.3usft (Original Well Elev)
Well:	#8H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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	Stratojet 31 State Com		
Site Position:		Northing:	555,232.30 usft
From:	Map	Easting:	756,058.50 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 31' 25.317 N
		Longitude:	103° 30' 7.288 W
		Grid Convergence:	0.45 °

Well	#8H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 31' 25.317 N
		Longitude:	103° 30' 7.885 W
		Ground Level:	3,742.3 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	2/16/2015	7.12
			Dip Angle
			(°)
			60.38
			Field Strength
			(nT)
			48,433

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			358.15

Survey Program	Date 3/30/2015		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
112.0	15,813.0	MWD #1 (OH)	MWD
			Description
			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	555,233.20	756,178.60	32° 31' 25.317 N	103° 30' 7.885 W
112.0	0.50	247.50	112.0	-0.2	-0.5	555,233.02	756,178.15	32° 31' 25.315 N	103° 30' 7.890 W
169.0	0.50	249.20	169.0	-0.4	-0.9	555,232.83	756,177.68	32° 31' 25.313 N	103° 30' 7.896 W
261.0	0.60	252.70	261.0	-0.7	-1.7	555,232.55	756,176.85	32° 31' 25.310 N	103° 30' 7.906 W
352.0	0.70	278.70	352.0	-0.7	-2.8	555,232.49	756,175.84	32° 31' 25.310 N	103° 30' 7.917 W
439.0	0.60	288.10	439.0	-0.5	-3.7	555,232.71	756,174.89	32° 31' 25.312 N	103° 30' 7.928 W
527.0	0.60	308.70	527.0	-0.1	-4.5	555,233.14	756,174.09	32° 31' 25.316 N	103° 30' 7.938 W
612.0	1.10	319.40	612.0	0.8	-5.4	555,234.04	756,173.21	32° 31' 25.325 N	103° 30' 7.948 W
706.0	1.20	307.60	705.9	2.1	-6.8	555,235.33	756,171.84	32° 31' 25.338 N	103° 30' 7.964 W
801.0	0.50	291.90	800.9	2.9	-7.9	555,236.09	756,170.67	32° 31' 25.346 N	103° 30' 7.977 W
895.0	0.50	287.30	894.9	3.2	-8.7	555,236.36	756,169.90	32° 31' 25.349 N	103° 30' 7.986 W
989.0	0.30	290.40	988.9	3.4	-9.3	555,236.57	756,169.28	32° 31' 25.351 N	103° 30' 7.994 W



Wellplanning
Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #8H
Project:	Lea County, NM	TVD Reference:	WELL @ 3759.3usft (Original Well Elev)
Site:	Stratojet 31 State Com	MD Reference:	WELL @ 3759.3usft (Original Well Elev)
Well:	#8H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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
1,084.0	0.30	118.70	1,083.9	3.3	-9.3	555,236.54	756,169.26	32° 31' 25.350 N	103° 30' 7.994 W
1,178.0	0.50	179.70	1,177.9	2.8	-9.1	555,236.01	756,169.48	32° 31' 25.345 N	103° 30' 7.991 W
1,273.0	0.20	182.30	1,272.9	2.2	-9.1	555,235.43	756,169.47	32° 31' 25.339 N	103° 30' 7.991 W
1,368.0	0.30	157.30	1,367.9	1.8	-9.0	555,235.03	756,169.56	32° 31' 25.336 N	103° 30' 7.990 W
1,462.0	0.40	236.20	1,461.9	1.4	-9.2	555,234.62	756,169.39	32° 31' 25.331 N	103° 30' 7.993 W
1,557.0	0.50	197.40	1,556.9	0.8	-9.6	555,234.04	756,168.99	32° 31' 25.326 N	103° 30' 7.997 W
1,651.0	0.40	236.30	1,650.9	0.3	-10.0	555,233.47	756,168.59	32° 31' 25.320 N	103° 30' 8.002 W
1,746.0	0.80	233.00	1,745.9	-0.3	-10.8	555,232.89	756,167.78	32° 31' 25.314 N	103° 30' 8.011 W
1,818.0	1.10	220.70	1,817.9	-1.1	-11.7	555,232.06	756,166.93	32° 31' 25.306 N	103° 30' 8.021 W
1,975.0	1.30	229.60	1,974.9	-3.4	-14.0	555,229.76	756,164.59	32° 31' 25.284 N	103° 30' 8.049 W
2,069.0	0.40	228.70	2,068.9	-4.3	-15.1	555,228.86	756,163.54	32° 31' 25.275 N	103° 30' 8.061 W
2,164.0	0.60	187.70	2,163.9	-5.1	-15.4	555,228.14	756,163.22	32° 31' 25.268 N	103° 30' 8.065 W
2,259.0	0.70	207.20	2,258.8	-6.1	-15.7	555,227.14	756,162.89	32° 31' 25.258 N	103° 30' 8.069 W
2,353.0	0.70	210.00	2,352.8	-7.1	-16.3	555,226.13	756,162.34	32° 31' 25.248 N	103° 30' 8.076 W
2,448.0	0.60	248.00	2,447.8	-7.8	-17.0	555,225.44	756,161.59	32° 31' 25.241 N	103° 30' 8.084 W
2,542.0	0.70	215.80	2,541.8	-8.4	-17.8	555,224.79	756,160.79	32° 31' 25.235 N	103° 30' 8.094 W
2,637.0	0.80	231.90	2,636.8	-9.3	-18.7	555,223.91	756,159.93	32° 31' 25.226 N	103° 30' 8.104 W
2,732.0	0.70	230.10	2,731.8	-10.1	-19.6	555,223.13	756,158.97	32° 31' 25.219 N	103° 30' 8.115 W
2,826.0	0.10	60.60	2,825.8	-10.4	-20.0	555,222.80	756,158.60	32° 31' 25.215 N	103° 30' 8.120 W
2,920.0	0.40	44.50	2,919.8	-10.1	-19.7	555,223.07	756,158.90	32° 31' 25.218 N	103° 30' 8.116 W
3,015.0	1.40	48.90	3,014.8	-9.1	-18.6	555,224.07	756,160.01	32° 31' 25.228 N	103° 30' 8.103 W
3,109.0	2.30	65.40	3,108.7	-7.6	-16.0	555,225.61	756,162.59	32° 31' 25.243 N	103° 30' 8.073 W
3,204.0	2.90	64.60	3,203.7	-5.8	-12.1	555,227.44	756,166.49	32° 31' 25.261 N	103° 30' 8.027 W
3,298.0	3.00	61.50	3,297.5	-3.6	-7.8	555,229.63	756,170.80	32° 31' 25.282 N	103° 30' 7.976 W
3,393.0	2.90	56.50	3,392.4	-1.1	-3.6	555,232.14	756,174.99	32° 31' 25.307 N	103° 30' 7.927 W
3,487.0	2.30	65.00	3,486.3	1.1	0.1	555,234.25	756,178.68	32° 31' 25.327 N	103° 30' 7.884 W
3,582.0	1.80	66.10	3,581.2	2.5	3.2	555,235.66	756,181.77	32° 31' 25.341 N	103° 30' 7.848 W
3,677.0	2.20	59.00	3,676.2	4.0	6.1	555,237.21	756,184.70	32° 31' 25.356 N	103° 30' 7.813 W
3,771.0	1.90	59.90	3,770.1	5.7	9.0	555,238.92	756,187.59	32° 31' 25.373 N	103° 30' 7.780 W
3,866.0	1.20	49.60	3,865.1	7.1	11.1	555,240.35	756,189.71	32° 31' 25.387 N	103° 30' 7.755 W
3,961.0	1.40	52.20	3,960.1	8.5	12.8	555,241.71	756,191.39	32° 31' 25.400 N	103° 30' 7.735 W
4,056.0	1.10	46.60	4,055.0	9.8	14.4	555,243.05	756,192.97	32° 31' 25.413 N	103° 30' 7.716 W
4,151.0	0.60	44.20	4,150.0	10.8	15.4	555,244.03	756,193.98	32° 31' 25.423 N	103° 30' 7.704 W
4,245.0	0.70	36.90	4,244.0	11.6	16.1	555,244.84	756,194.67	32° 31' 25.431 N	103° 30' 7.696 W
4,340.0	0.90	60.60	4,339.0	12.5	17.1	555,245.67	756,195.66	32° 31' 25.439 N	103° 30' 7.685 W
4,418.0	0.90	29.40	4,417.0	13.3	17.9	555,246.51	756,196.50	32° 31' 25.447 N	103° 30' 7.675 W
4,512.0	0.90	20.20	4,511.0	14.6	18.5	555,247.84	756,197.12	32° 31' 25.460 N	103° 30' 7.667 W
4,607.0	0.80	21.90	4,606.0	16.0	19.0	555,249.16	756,197.62	32° 31' 25.473 N	103° 30' 7.661 W
4,702.0	1.40	31.10	4,701.0	17.6	19.9	555,250.77	756,198.47	32° 31' 25.489 N	103° 30' 7.651 W
4,796.0	2.00	25.70	4,794.9	20.0	21.2	555,253.23	756,199.77	32° 31' 25.513 N	103° 30' 7.636 W
4,891.0	2.20	14.40	4,889.9	23.3	22.3	555,256.49	756,200.94	32° 31' 25.545 N	103° 30' 7.622 W
4,985.0	2.10	13.10	4,983.8	26.7	23.2	555,259.91	756,201.78	32° 31' 25.579 N	103° 30' 7.612 W
5,080.0	1.60	5.50	5,078.7	29.7	23.7	555,262.93	756,202.30	32° 31' 25.609 N	103° 30' 7.606 W
5,174.0	1.30	7.30	5,172.7	32.1	24.0	555,265.29	756,202.57	32° 31' 25.632 N	103° 30' 7.602 W
5,269.0	1.60	340.40	5,267.7	34.4	23.7	555,267.61	756,202.26	32° 31' 25.655 N	103° 30' 7.606 W
5,363.0	1.50	331.00	5,361.7	36.7	22.6	555,269.92	756,201.22	32° 31' 25.678 N	103° 30' 7.618 W
5,457.0	1.50	332.70	5,455.6	38.9	21.5	555,272.09	756,200.06	32° 31' 25.700 N	103° 30' 7.631 W
5,552.0	1.20	355.20	5,550.6	41.0	20.8	555,274.19	756,199.41	32° 31' 25.721 N	103° 30' 7.638 W
5,647.0	1.60	344.50	5,645.6	43.3	20.4	555,276.46	756,198.97	32° 31' 25.743 N	103° 30' 7.643 W
5,741.0	1.10	352.40	5,739.5	45.4	19.9	555,278.62	756,198.50	32° 31' 25.765 N	103° 30' 7.649 W
5,792.0	1.50	338.70	5,790.5	46.5	19.6	555,279.72	756,198.19	32° 31' 25.776 N	103° 30' 7.652 W
5,877.0	1.40	356.20	5,875.5	48.6	19.1	555,281.80	756,197.72	32° 31' 25.796 N	103° 30' 7.657 W
5,972.0	1.60	341.40	5,970.5	51.0	18.6	555,284.21	756,197.22	32° 31' 25.820 N	103° 30' 7.663 W
6,098.0	2.00	334.70	6,096.4	54.7	17.1	555,287.87	756,195.72	32° 31' 25.856 N	103° 30' 7.680 W
6,193.0	1.40	306.60	6,191.4	56.9	15.5	555,290.06	756,194.08	32° 31' 25.878 N	103° 30' 7.699 W



Wellplanning
Survey Report - Geographic

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Project:	Lea County, NM	TVD Reference:	WELL @ 3759.3usft (Original Well Elev)
Site:	Stratojet 31 State Com	MD Reference:	WELL @ 3759.3usft (Original Well Elev)
Well:	#8H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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
6,288.0	1.60	275.20	6,286.3	57.7	13.2	555,290.87	756,191.83	32° 31' 25.886 N	103° 30' 7.725 W
6,384.0	1.90	270.90	6,382.3	57.8	10.3	555,291.02	756,188.90	32° 31' 25.888 N	103° 30' 7.760 W
6,480.0	1.90	241.00	6,478.2	57.1	7.3	555,290.27	756,185.92	32° 31' 25.881 N	103° 30' 7.794 W
6,575.0	2.10	227.60	6,573.2	55.1	4.7	555,288.33	756,183.25	32° 31' 25.862 N	103° 30' 7.826 W
6,671.0	2.00	227.10	6,669.1	52.8	2.1	555,286.01	756,180.73	32° 31' 25.839 N	103° 30' 7.855 W
6,767.0	2.10	220.30	6,765.1	50.3	-0.2	555,283.52	756,178.36	32° 31' 25.815 N	103° 30' 7.883 W
6,862.0	2.50	198.80	6,860.0	47.0	-2.0	555,280.23	756,176.57	32° 31' 25.782 N	103° 30' 7.904 W
6,958.0	2.40	207.30	6,955.9	43.3	-3.6	555,276.47	756,174.97	32° 31' 25.745 N	103° 30' 7.923 W
7,053.0	2.20	200.00	7,050.8	39.8	-5.2	555,272.99	756,173.44	32° 31' 25.711 N	103° 30' 7.942 W
7,148.0	2.20	178.70	7,145.8	36.2	-5.7	555,269.45	756,172.85	32° 31' 25.676 N	103° 30' 7.949 W
7,243.0	2.30	179.60	7,240.7	32.5	-5.7	555,265.72	756,172.91	32° 31' 25.639 N	103° 30' 7.949 W
7,337.0	2.30	176.80	7,334.6	28.7	-5.6	555,261.95	756,173.03	32° 31' 25.602 N	103° 30' 7.948 W
7,433.0	2.50	182.00	7,430.5	24.7	-5.5	555,257.93	756,173.06	32° 31' 25.562 N	103° 30' 7.947 W
7,528.0	1.60	173.80	7,525.5	21.3	-5.5	555,254.55	756,173.13	32° 31' 25.528 N	103° 30' 7.947 W
7,624.0	2.20	187.50	7,621.4	18.2	-5.6	555,251.39	756,173.04	32° 31' 25.497 N	103° 30' 7.948 W
7,719.0	1.00	186.50	7,716.4	15.6	-5.9	555,248.75	756,172.71	32° 31' 25.471 N	103° 30' 7.952 W
7,816.0	2.20	191.80	7,813.3	12.9	-6.4	555,246.09	756,172.23	32° 31' 25.445 N	103° 30' 7.958 W
7,911.0	1.40	181.30	7,908.3	9.9	-6.8	555,243.15	756,171.83	32° 31' 25.416 N	103° 30' 7.963 W
8,007.0	1.60	183.90	8,004.2	7.4	-6.9	555,240.64	756,171.71	32° 31' 25.391 N	103° 30' 7.965 W
8,102.0	1.30	198.40	8,099.2	5.1	-7.3	555,238.29	756,171.28	32° 31' 25.368 N	103° 30' 7.970 W
8,198.0	1.20	208.40	8,195.2	3.2	-8.1	555,236.37	756,170.46	32° 31' 25.349 N	103° 30' 7.980 W
8,293.0	1.10	220.30	8,290.2	1.6	-9.2	555,234.80	756,169.40	32° 31' 25.333 N	103° 30' 7.992 W
8,389.0	1.20	230.00	8,386.2	0.3	-10.6	555,233.45	756,168.03	32° 31' 25.320 N	103° 30' 8.008 W
8,484.0	1.40	231.50	8,481.1	-1.1	-12.2	555,232.09	756,166.36	32° 31' 25.307 N	103° 30' 8.028 W
8,577.0	1.20	238.60	8,574.1	-2.3	-14.0	555,230.88	756,164.64	32° 31' 25.295 N	103° 30' 8.048 W
8,673.0	1.10	226.00	8,670.1	-3.5	-15.5	555,229.71	756,163.12	32° 31' 25.283 N	103° 30' 8.066 W
8,768.0	1.50	231.00	8,765.1	-4.9	-17.1	555,228.30	756,161.50	32° 31' 25.269 N	103° 30' 8.085 W
8,863.0	1.40	253.20	8,860.0	-6.0	-19.2	555,227.18	756,159.42	32° 31' 25.259 N	103° 30' 8.110 W
8,959.0	2.00	257.00	8,956.0	-6.7	-21.9	555,226.46	756,156.66	32° 31' 25.252 N	103° 30' 8.142 W
9,054.0	2.40	252.00	9,050.9	-7.7	-25.4	555,225.48	756,153.16	32° 31' 25.242 N	103° 30' 8.183 W
9,150.0	2.30	242.10	9,146.8	-9.2	-29.1	555,223.95	756,149.54	32° 31' 25.227 N	103° 30' 8.225 W
9,245.0	1.80	242.80	9,241.8	-10.8	-32.1	555,222.38	756,146.53	32° 31' 25.212 N	103° 30' 8.261 W
9,341.0	1.10	250.10	9,337.7	-11.8	-34.3	555,221.38	756,144.32	32° 31' 25.202 N	103° 30' 8.286 W
9,437.0	1.90	255.60	9,433.7	-12.5	-36.7	555,220.67	756,141.92	32° 31' 25.196 N	103° 30' 8.315 W
9,532.0	3.00	271.00	9,528.6	-12.9	-40.7	555,220.32	756,137.91	32° 31' 25.192 N	103° 30' 8.362 W
9,628.0	3.50	272.50	9,624.5	-12.7	-46.1	555,220.49	756,132.47	32° 31' 25.194 N	103° 30' 8.425 W
9,721.0	4.00	263.50	9,717.3	-13.0	-52.2	555,220.25	756,126.41	32° 31' 25.193 N	103° 30' 8.496 W
9,816.0	4.00	265.10	9,812.0	-13.6	-58.8	555,219.59	756,119.81	32° 31' 25.187 N	103° 30' 8.573 W
9,912.0	3.70	266.60	9,907.8	-14.1	-65.2	555,219.12	756,113.39	32° 31' 25.182 N	103° 30' 8.648 W
10,007.0	3.70	261.80	10,002.6	-14.7	-71.3	555,218.50	756,107.29	32° 31' 25.177 N	103° 30' 8.719 W
10,102.0	3.90	259.90	10,097.4	-15.7	-77.5	555,217.50	756,101.08	32° 31' 25.167 N	103° 30' 8.792 W
10,198.0	3.30	265.60	10,193.2	-16.5	-83.5	555,216.71	756,095.11	32° 31' 25.160 N	103° 30' 8.862 W
10,294.0	3.40	273.70	10,289.1	-16.5	-89.1	555,216.68	756,089.51	32° 31' 25.160 N	103° 30' 8.927 W
10,407.0	3.40	274.00	10,401.9	-16.1	-95.8	555,217.13	756,082.83	32° 31' 25.165 N	103° 30' 9.005 W
10,503.0	3.70	266.90	10,497.7	-16.0	-101.7	555,217.16	756,076.89	32° 31' 25.166 N	103° 30' 9.074 W
10,599.0	3.30	258.90	10,593.5	-16.7	-107.5	555,216.47	756,071.09	32° 31' 25.159 N	103° 30' 9.142 W
10,692.0	3.00	249.70	10,686.4	-18.1	-112.4	555,215.11	756,066.18	32° 31' 25.146 N	103° 30' 9.200 W
10,788.0	4.60	243.00	10,782.1	-20.7	-118.2	555,212.49	756,060.39	32° 31' 25.121 N	103° 30' 9.267 W
10,880.0	2.70	203.10	10,874.0	-24.4	-122.3	555,208.82	756,056.25	32° 31' 25.085 N	103° 30' 9.316 W
10,976.0	1.10	159.00	10,969.9	-27.3	-122.9	555,205.88	756,055.70	32° 31' 25.056 N	103° 30' 9.323 W
11,039.0	1.30	171.50	11,032.9	-28.6	-122.6	555,204.61	756,056.02	32° 31' 25.043 N	103° 30' 9.319 W
11,071.0	1.10	162.40	11,064.9	-29.2	-122.4	555,203.95	756,056.17	32° 31' 25.037 N	103° 30' 9.318 W
11,103.0	2.20	47.60	11,096.9	-29.1	-121.9	555,204.08	756,056.71	32° 31' 25.038 N	103° 30' 9.311 W
11,135.0	6.20	25.00	11,128.8	-27.1	-120.7	555,206.06	756,057.90	32° 31' 25.057 N	103° 30' 9.297 W
11,167.0	11.30	19.00	11,160.4	-22.6	-118.9	555,210.59	756,059.65	32° 31' 25.102 N	103° 30' 9.276 W



Wellplanning
Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #8H
Project:	Lea County, NM	TVD Reference:	WELL @ 3759.3usft (Original Well Elev)
Site:	Stratojet 31 State Com	MD Reference:	WELL @ 3759.3usft (Original Well Elev)
Well:	#8H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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	
11,199.0	16.60	15.40	11,191.5	-15.2	-116.7	555,217.97	756,061.89	32° 31' 25.175 N	103° 30' 9.250 W	
11,230.0	21.90	14.00	11,220.7	-5.4	-114.1	555,227.85	756,064.46	32° 31' 25.273 N	103° 30' 9.219 W	
11,262.0	27.60	13.40	11,249.8	7.7	-111.0	555,240.86	756,067.63	32° 31' 25.401 N	103° 30' 9.180 W	
11,294.0	30.90	12.70	11,277.7	22.9	-107.4	555,256.10	756,071.15	32° 31' 25.552 N	103° 30' 9.138 W	
11,326.0	32.40	11.90	11,304.9	39.3	-103.9	555,272.50	756,074.73	32° 31' 25.714 N	103° 30' 9.095 W	
11,358.0	35.30	11.50	11,331.5	56.8	-100.3	555,289.95	756,078.34	32° 31' 25.886 N	103° 30' 9.051 W	
11,390.0	38.80	11.10	11,357.0	75.7	-96.5	555,308.86	756,082.11	32° 31' 26.073 N	103° 30' 9.005 W	
11,422.0	41.50	11.20	11,381.5	95.9	-92.5	555,329.10	756,086.10	32° 31' 26.273 N	103° 30' 8.957 W	
11,454.0	42.20	12.40	11,405.3	116.8	-88.1	555,350.00	756,090.47	32° 31' 26.479 N	103° 30' 8.904 W	
11,486.0	44.50	13.30	11,428.6	138.2	-83.2	555,371.41	756,095.36	32° 31' 26.691 N	103° 30' 8.845 W	
11,518.0	48.30	14.60	11,450.7	160.7	-77.6	555,393.89	756,100.95	32° 31' 26.913 N	103° 30' 8.777 W	
11,550.0	51.10	14.00	11,471.4	184.3	-71.6	555,417.54	756,106.98	32° 31' 27.146 N	103° 30' 8.705 W	
11,582.0	51.70	13.90	11,491.3	208.6	-65.6	555,441.81	756,113.01	32° 31' 27.386 N	103° 30' 8.632 W	
11,613.0	54.40	14.50	11,510.0	232.6	-59.5	555,465.83	756,119.08	32° 31' 27.623 N	103° 30' 8.559 W	
11,645.0	58.60	14.10	11,527.6	258.5	-52.9	555,491.68	756,125.67	32° 31' 27.878 N	103° 30' 8.480 W	
11,677.0	61.50	12.20	11,543.6	285.5	-46.6	555,518.67	756,131.97	32° 31' 28.145 N	103° 30' 8.404 W	
11,709.0	63.90	10.90	11,558.3	313.3	-40.9	555,546.53	756,137.66	32° 31' 28.420 N	103° 30' 8.335 W	
11,741.0	65.80	10.60	11,571.9	341.8	-35.5	555,574.99	756,143.06	32° 31' 28.701 N	103° 30' 8.269 W	
11,773.0	68.50	10.00	11,584.3	370.8	-30.3	555,604.00	756,148.33	32° 31' 28.988 N	103° 30' 8.205 W	
11,805.0	71.80	8.80	11,595.2	400.5	-25.4	555,633.69	756,153.25	32° 31' 29.281 N	103° 30' 8.145 W	
11,825.0	74.00	6.80	11,601.0	419.4	-22.8	555,652.63	756,155.84	32° 31' 29.469 N	103° 30' 8.113 W	
11,865.0	77.70	4.40	11,610.8	458.0	-19.0	555,691.22	756,159.62	32° 31' 29.850 N	103° 30' 8.065 W	
11,895.0	79.30	1.40	11,616.8	487.4	-17.5	555,720.58	756,161.10	32° 31' 30.141 N	103° 30' 8.045 W	
11,927.0	81.20	359.00	11,622.2	518.9	-17.4	555,752.11	756,161.21	32° 31' 30.453 N	103° 30' 8.041 W	
11,959.0	84.20	352.40	11,626.3	550.5	-19.8	555,783.74	756,158.82	32° 31' 30.766 N	103° 30' 8.066 W	
11,991.0	87.00	357.00	11,628.7	582.3	-22.7	555,815.50	756,155.88	32° 31' 31.080 N	103° 30' 8.097 W	
12,023.0	89.60	358.90	11,629.7	614.3	-23.9	555,847.46	756,154.74	32° 31' 31.397 N	103° 30' 8.108 W	
12,054.0	90.60	359.60	11,629.6	645.3	-24.3	555,878.45	756,154.33	32° 31' 31.703 N	103° 30' 8.110 W	
12,148.0	92.20	358.40	11,627.3	739.2	-25.9	555,972.41	756,152.69	32° 31' 32.633 N	103° 30' 8.120 W	
12,243.0	91.20	359.20	11,624.5	834.1	-27.9	556,067.34	756,150.70	32° 31' 33.573 N	103° 30' 8.135 W	
12,338.0	92.60	359.50	11,621.4	929.1	-29.0	556,162.28	756,149.63	32° 31' 34.512 N	103° 30' 8.139 W	
12,433.0	90.70	359.90	11,618.6	1,024.0	-29.5	556,257.24	756,149.13	32° 31' 35.452 N	103° 30' 8.136 W	
12,528.0	91.10	0.30	11,617.1	1,119.0	-29.3	556,352.22	756,149.29	32° 31' 36.392 N	103° 30' 8.125 W	
12,622.0	91.80	358.10	11,614.8	1,213.0	-30.6	556,446.18	756,147.98	32° 31' 37.321 N	103° 30' 8.132 W	
12,717.0	91.40	359.00	11,612.1	1,307.9	-33.0	556,541.11	756,145.58	32° 31' 38.261 N	103° 30' 8.152 W	
12,812.0	89.50	359.80	11,611.4	1,402.9	-34.0	556,636.10	756,144.59	32° 31' 39.201 N	103° 30' 8.155 W	
12,907.0	90.60	359.60	11,611.3	1,497.9	-34.5	556,731.09	756,144.09	32° 31' 40.141 N	103° 30' 8.152 W	
13,002.0	91.80	359.00	11,609.3	1,592.9	-35.7	556,826.06	756,142.93	32° 31' 41.081 N	103° 30' 8.157 W	
13,097.0	93.10	359.60	11,605.2	1,687.8	-36.8	556,920.97	756,141.77	32° 31' 42.020 N	103° 30' 8.161 W	
13,192.0	93.10	357.40	11,600.1	1,782.6	-39.3	557,015.79	756,139.29	32° 31' 42.958 N	103° 30' 8.182 W	
13,287.0	91.20	356.70	11,596.5	1,877.4	-44.2	557,110.59	756,134.40	32° 31' 43.897 N	103° 30' 8.230 W	
13,381.0	92.60	356.60	11,593.4	1,971.2	-49.7	557,204.38	756,128.91	32° 31' 44.825 N	103° 30' 8.286 W	
13,476.0	92.20	356.20	11,589.4	2,065.9	-55.6	557,299.11	756,122.95	32° 31' 45.763 N	103° 30' 8.347 W	
13,571.0	92.00	356.00	11,586.0	2,160.6	-62.1	557,393.82	756,116.49	32° 31' 46.701 N	103° 30' 8.414 W	
13,666.0	93.10	356.00	11,581.7	2,255.3	-68.7	557,488.50	756,109.87	32° 31' 47.638 N	103° 30' 8.482 W	
13,761.0	91.20	355.80	11,578.2	2,350.0	-75.5	557,583.18	756,103.09	32° 31' 48.575 N	103° 30' 8.553 W	
13,856.0	90.50	358.00	11,576.8	2,444.8	-80.6	557,678.03	756,097.95	32° 31' 49.514 N	103° 30' 8.604 W	
13,951.0	91.80	357.40	11,574.8	2,539.7	-84.5	557,772.93	756,094.14	32° 31' 50.453 N	103° 30' 8.640 W	
14,046.0	93.20	357.40	11,570.7	2,634.5	-88.8	557,867.74	756,089.83	32° 31' 51.392 N	103° 30' 8.682 W	
14,142.0	92.10	356.80	11,566.3	2,730.3	-93.6	557,963.51	756,084.98	32° 31' 52.340 N	103° 30' 8.730 W	
14,236.0	93.50	356.90	11,561.7	2,824.1	-98.8	558,057.25	756,079.82	32° 31' 53.268 N	103° 30' 8.781 W	
14,331.0	92.70	356.00	11,556.5	2,918.7	-104.6	558,151.93	756,073.95	32° 31' 54.205 N	103° 30' 8.841 W	
14,425.0	91.90	358.20	11,552.8	3,012.5	-109.4	558,245.73	756,069.20	32° 31' 55.134 N	103° 30' 8.888 W	
14,519.0	93.10	357.50	11,548.7	3,106.4	-112.9	558,339.57	756,065.67	32° 31' 56.062 N	103° 30' 8.921 W	
14,614.0	92.10	358.80	11,544.4	3,201.2	-116.0	558,434.42	756,062.61	32° 31' 57.001 N	103° 30' 8.948 W	



Wellplanning
Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #8H
Project:	Lea County, NM	TVD Reference:	WELL @ 3759.3usft (Original Well Elev)
Site:	Stratojet 31 State Com	MD Reference:	WELL @ 3759.3usft (Original Well Elev)
Well:	#8H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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
14,708.0	91.00	358.10	11,541.8	3,295.1	-118.5	558,528.35	756,060.07	32° 31' 57.931 N	103° 30' 8.969 W
14,803.0	90.80	357.70	11,540.3	3,390.1	-122.0	558,623.27	756,056.59	32° 31' 58.870 N	103° 30' 9.001 W
14,898.0	89.90	358.10	11,539.7	3,485.0	-125.5	558,718.21	756,053.11	32° 31' 59.810 N	103° 30' 9.033 W
14,993.0	90.90	357.90	11,539.1	3,579.9	-128.8	558,813.15	756,049.79	32° 32' 0.750 N	103° 30' 9.063 W
15,088.0	90.70	359.20	11,537.7	3,674.9	-131.2	558,908.10	756,047.39	32° 32' 1.689 N	103° 30' 9.083 W
15,181.0	89.80	359.10	11,537.3	3,767.9	-132.6	559,001.09	756,046.01	32° 32' 2.610 N	103° 30' 9.090 W
15,276.0	92.00	359.50	11,535.8	3,862.9	-133.7	559,096.07	756,044.85	32° 32' 3.550 N	103° 30' 9.095 W
15,371.0	91.20	358.80	11,533.2	3,957.8	-135.2	559,191.02	756,043.44	32° 32' 4.489 N	103° 30' 9.103 W
15,465.0	89.90	358.60	11,532.3	4,051.8	-137.3	559,284.99	756,041.31	32° 32' 5.419 N	103° 30' 9.120 W
15,559.0	88.70	359.20	11,533.4	4,145.8	-139.1	559,378.96	756,039.50	32° 32' 6.349 N	103° 30' 9.132 W
15,655.0	89.50	359.00	11,534.9	4,241.7	-140.6	559,474.94	756,037.99	32° 32' 7.299 N	103° 30' 9.141 W
15,767.0	91.20	358.80	11,534.3	4,353.7	-142.8	559,566.91	756,035.84	32° 32' 8.407 N	103° 30' 9.156 W
15,813.0	91.20	358.80	11,533.3	4,399.7	-143.7	559,632.89	756,034.88	32° 32' 8.862 N	103° 30' 9.163 W

PBHL(SJ31#8H)

Checked By: _____ Approved By: _____ Date: _____