

COG Operating LLC

Lea County, NM (NAD 27 NME)

Stove Pipe Federal Com

#706H

OH

Design: OH

Survey Report - Geographic

17 March, 2020

LEAM Drilling Systems

Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #706H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Site:	Stove Pipe Federal Com	MD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Well:	#706H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	LEAM Multi_User Db

Project	Lea County, NM (NAD 27 NME)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Stove Pipe Federal Com		
Site Position:		Northing:	425,816.30 usft
From:	Map	Easting:	784,611.50 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 10' 2.432 N
		Longitude:	103° 24' 48.812 W
		Grid Convergence:	0.49 °

Well	#706H		
Well Position	+N/-S	0.00 usft	Northing: 425,816.50 usft
	+E/-W	0.00 usft	Easting: 784,641.50 usft
Position Uncertainty	3.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 10' 2.432 N
		Longitude:	103° 24' 48.463 W
		Ground Level:	3,348.20 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	HDGM	12/31/2019	6.55
			Dip Angle (°)
			59.77
			Field Strength (nT)
			47,785.10000000

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction (°)
			177.22

Survey Program	Date	3/17/2020		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
100.00	11,725.00	Survey #3 (OH)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4
11,800.00	23,040.00	Survey #4 (OH)	Superior QC	OWSG MWD + IFR1 + FDIR Correction
23,094.00	23,094.00	Projection (OH)	Project	Projection

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Map	Map	Latitude	Longitude
Depth	(°)	(°)	Depth	(usft)	(usft)	Northing	Easting		
(usft)			(usft)			(usft)	(usft)		
0.00	0.00	0.00	0.00	0.00	0.00	425,816.50	784,641.50	32° 10' 2.432 N	103° 24' 48.463 W
100.00	0.79	268.49	100.00	-0.02	-0.69	425,816.48	784,640.81	32° 10' 2.432 N	103° 24' 48.471 W
125.00	0.88	269.09	124.99	-0.03	-1.05	425,816.47	784,640.44	32° 10' 2.432 N	103° 24' 48.475 W
150.00	0.77	270.22	149.99	-0.03	-1.41	425,816.47	784,640.08	32° 10' 2.432 N	103° 24' 48.479 W
175.00	0.82	276.98	174.99	-0.01	-1.76	425,816.49	784,639.74	32° 10' 2.432 N	103° 24' 48.483 W
200.00	0.81	281.67	199.99	0.05	-2.11	425,816.55	784,639.39	32° 10' 2.433 N	103° 24' 48.487 W
225.00	0.80	282.43	224.98	0.13	-2.45	425,816.62	784,639.04	32° 10' 2.433 N	103° 24' 48.491 W
250.00	0.91	279.44	249.98	0.20	-2.82	425,816.69	784,638.68	32° 10' 2.434 N	103° 24' 48.495 W

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Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Site:	Stove Pipe Federal Com	MD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Well:	#706H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	LEAM Multi_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	
275.00	0.91	276.60	274.98	0.25	-3.21	425,816.75	784,638.29	32° 10' 2.435 N	103° 24' 48.500 W	
300.00	0.86	275.42	299.98	0.29	-3.60	425,816.79	784,637.90	32° 10' 2.435 N	103° 24' 48.505 W	
325.00	0.68	271.19	324.97	0.31	-3.93	425,816.81	784,637.57	32° 10' 2.435 N	103° 24' 48.508 W	
350.00	0.55	277.49	349.97	0.33	-4.20	425,816.83	784,637.30	32° 10' 2.436 N	103° 24' 48.512 W	
375.00	0.57	291.74	374.97	0.39	-4.43	425,816.89	784,637.06	32° 10' 2.436 N	103° 24' 48.514 W	
400.00	0.66	289.57	399.97	0.49	-4.68	425,816.99	784,636.81	32° 10' 2.437 N	103° 24' 48.517 W	
425.00	0.66	286.14	424.97	0.57	-4.96	425,817.07	784,636.54	32° 10' 2.438 N	103° 24' 48.520 W	
450.00	0.68	282.77	449.97	0.65	-5.24	425,817.15	784,636.26	32° 10' 2.439 N	103° 24' 48.524 W	
475.00	0.61	275.33	474.96	0.69	-5.52	425,817.19	784,635.98	32° 10' 2.439 N	103° 24' 48.527 W	
500.00	0.47	278.78	499.96	0.72	-5.75	425,817.22	784,635.75	32° 10' 2.440 N	103° 24' 48.530 W	
525.00	0.44	287.64	524.96	0.77	-5.95	425,817.27	784,635.55	32° 10' 2.440 N	103° 24' 48.532 W	
550.00	0.50	290.34	549.96	0.83	-6.14	425,817.33	784,635.36	32° 10' 2.441 N	103° 24' 48.534 W	
575.00	0.53	279.41	574.96	0.89	-6.36	425,817.39	784,635.14	32° 10' 2.441 N	103° 24' 48.537 W	
600.00	0.47	273.55	599.96	0.91	-6.57	425,817.41	784,634.93	32° 10' 2.442 N	103° 24' 48.539 W	
625.00	0.39	256.23	624.96	0.90	-6.76	425,817.40	784,634.74	32° 10' 2.441 N	103° 24' 48.541 W	
650.00	0.28	235.75	649.96	0.85	-6.89	425,817.35	784,634.61	32° 10' 2.441 N	103° 24' 48.543 W	
675.00	0.25	251.72	674.96	0.79	-6.99	425,817.29	784,634.51	32° 10' 2.440 N	103° 24' 48.544 W	
700.00	0.25	271.18	699.96	0.78	-7.10	425,817.28	784,634.40	32° 10' 2.440 N	103° 24' 48.545 W	
725.00	0.29	274.28	724.96	0.78	-7.22	425,817.28	784,634.28	32° 10' 2.440 N	103° 24' 48.547 W	
750.00	0.33	269.86	749.96	0.79	-7.35	425,817.29	784,634.15	32° 10' 2.440 N	103° 24' 48.548 W	
775.00	0.40	254.89	774.96	0.77	-7.51	425,817.27	784,633.99	32° 10' 2.440 N	103° 24' 48.550 W	
800.00	0.36	229.66	799.96	0.69	-7.65	425,817.19	784,633.85	32° 10' 2.439 N	103° 24' 48.552 W	
825.00	0.28	228.96	824.96	0.60	-7.76	425,817.10	784,633.74	32° 10' 2.439 N	103° 24' 48.553 W	
850.00	0.25	247.50	849.96	0.54	-7.85	425,817.04	784,633.64	32° 10' 2.438 N	103° 24' 48.554 W	
875.00	0.31	261.26	874.96	0.51	-7.97	425,817.01	784,633.53	32° 10' 2.438 N	103° 24' 48.555 W	
900.00	0.31	252.25	899.95	0.48	-8.10	425,816.98	784,633.40	32° 10' 2.437 N	103° 24' 48.557 W	
925.00	0.42	242.15	924.95	0.42	-8.25	425,816.91	784,633.25	32° 10' 2.437 N	103° 24' 48.559 W	
950.00	0.26	225.99	949.95	0.33	-8.37	425,816.83	784,633.13	32° 10' 2.436 N	103° 24' 48.560 W	
975.00	0.10	291.77	974.95	0.30	-8.43	425,816.80	784,633.07	32° 10' 2.436 N	103° 24' 48.561 W	
1,000.00	0.10	71.86	999.95	0.32	-8.43	425,816.82	784,633.07	32° 10' 2.436 N	103° 24' 48.561 W	
1,025.00	0.08	62.70	1,024.95	0.33	-8.39	425,816.83	784,633.10	32° 10' 2.436 N	103° 24' 48.560 W	
1,050.00	0.13	60.79	1,049.95	0.35	-8.35	425,816.85	784,633.14	32° 10' 2.436 N	103° 24' 48.560 W	
1,075.00	0.16	65.01	1,074.95	0.38	-8.30	425,816.88	784,633.20	32° 10' 2.436 N	103° 24' 48.559 W	
1,100.00	0.31	70.17	1,099.95	0.42	-8.20	425,816.92	784,633.30	32° 10' 2.437 N	103° 24' 48.558 W	
1,125.00	0.46	53.10	1,124.95	0.50	-8.06	425,817.00	784,633.44	32° 10' 2.438 N	103° 24' 48.556 W	
1,150.00	0.52	32.82	1,149.95	0.66	-7.92	425,817.16	784,633.58	32° 10' 2.439 N	103° 24' 48.555 W	
1,175.00	0.45	45.38	1,174.95	0.82	-7.79	425,817.32	784,633.71	32° 10' 2.441 N	103° 24' 48.553 W	
1,200.00	0.42	47.54	1,199.95	0.95	-7.65	425,817.45	784,633.85	32° 10' 2.442 N	103° 24' 48.552 W	
1,225.00	0.56	59.37	1,224.95	1.08	-7.47	425,817.58	784,634.02	32° 10' 2.443 N	103° 24' 48.550 W	
1,250.00	0.64	61.76	1,249.95	1.21	-7.25	425,817.71	784,634.25	32° 10' 2.444 N	103° 24' 48.547 W	
1,275.00	0.79	58.25	1,274.95	1.36	-6.98	425,817.86	784,634.52	32° 10' 2.446 N	103° 24' 48.544 W	
1,300.00	0.72	50.70	1,299.94	1.55	-6.71	425,818.05	784,634.79	32° 10' 2.448 N	103° 24' 48.541 W	
1,325.00	0.61	55.65	1,324.94	1.73	-6.48	425,818.23	784,635.02	32° 10' 2.450 N	103° 24' 48.538 W	
1,350.00	0.72	64.19	1,349.94	1.87	-6.23	425,818.37	784,635.27	32° 10' 2.451 N	103° 24' 48.535 W	
1,375.00	0.75	54.92	1,374.94	2.03	-5.95	425,818.53	784,635.55	32° 10' 2.453 N	103° 24' 48.532 W	
1,400.00	0.64	47.82	1,399.94	2.22	-5.71	425,818.72	784,635.78	32° 10' 2.454 N	103° 24' 48.529 W	
1,425.00	0.60	63.18	1,424.94	2.37	-5.49	425,818.87	784,636.00	32° 10' 2.456 N	103° 24' 48.526 W	
1,450.00	0.67	61.84	1,449.93	2.50	-5.25	425,819.00	784,636.25	32° 10' 2.457 N	103° 24' 48.524 W	
1,475.00	0.61	44.93	1,474.93	2.66	-5.02	425,819.16	784,636.47	32° 10' 2.459 N	103° 24' 48.521 W	
1,500.00	0.48	38.74	1,499.93	2.84	-4.87	425,819.34	784,636.63	32° 10' 2.460 N	103° 24' 48.519 W	
1,525.00	0.39	37.98	1,524.93	2.99	-4.75	425,819.49	784,636.75	32° 10' 2.462 N	103° 24' 48.518 W	
1,550.00	0.35	40.51	1,549.93	3.11	-4.65	425,819.61	784,636.85	32° 10' 2.463 N	103° 24' 48.516 W	
1,575.00	0.43	52.35	1,574.93	3.23	-4.52	425,819.73	784,636.98	32° 10' 2.464 N	103° 24' 48.515 W	

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Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #706H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Site:	Stove Pipe Federal Com	MD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Well:	#706H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	LEAM Multi_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
1,600.00	0.52	55.58	1,599.93	3.35	-4.35	425,819.85	784,637.14	32° 10' 2.465 N	103° 24' 48.513 W
1,625.00	0.46	38.50	1,624.93	3.49	-4.20	425,819.99	784,637.30	32° 10' 2.467 N	103° 24' 48.511 W
1,650.00	0.39	29.63	1,649.93	3.65	-4.09	425,820.15	784,637.40	32° 10' 2.468 N	103° 24' 48.510 W
1,675.00	0.38	47.97	1,674.93	3.78	-3.99	425,820.28	784,637.51	32° 10' 2.470 N	103° 24' 48.509 W
1,700.00	0.46	54.37	1,699.93	3.89	-3.85	425,820.39	784,637.65	32° 10' 2.471 N	103° 24' 48.507 W
1,725.00	0.56	62.31	1,724.92	4.01	-3.66	425,820.50	784,637.84	32° 10' 2.472 N	103° 24' 48.505 W
1,750.00	0.64	60.54	1,749.92	4.13	-3.43	425,820.63	784,638.07	32° 10' 2.473 N	103° 24' 48.502 W
1,775.00	0.64	51.81	1,774.92	4.29	-3.20	425,820.79	784,638.30	32° 10' 2.475 N	103° 24' 48.499 W
1,800.00	0.52	53.88	1,799.92	4.44	-2.99	425,820.94	784,638.50	32° 10' 2.476 N	103° 24' 48.497 W
1,825.00	0.56	73.46	1,824.92	4.54	-2.79	425,821.04	784,638.71	32° 10' 2.477 N	103° 24' 48.495 W
1,850.00	0.71	74.51	1,849.92	4.62	-2.52	425,821.12	784,638.98	32° 10' 2.478 N	103° 24' 48.492 W
1,875.00	0.79	75.28	1,874.92	4.70	-2.20	425,821.20	784,639.29	32° 10' 2.479 N	103° 24' 48.488 W
1,900.00	0.75	67.48	1,899.91	4.81	-1.89	425,821.31	784,639.61	32° 10' 2.480 N	103° 24' 48.484 W
1,925.00	0.65	72.37	1,924.91	4.91	-1.60	425,821.41	784,639.90	32° 10' 2.481 N	103° 24' 48.481 W
1,950.00	0.72	84.84	1,949.91	4.97	-1.31	425,821.47	784,640.19	32° 10' 2.481 N	103° 24' 48.477 W
1,975.00	0.89	84.12	1,974.91	5.01	-0.96	425,821.50	784,640.54	32° 10' 2.482 N	103° 24' 48.473 W
2,000.00	0.87	83.71	1,999.90	5.05	-0.58	425,821.55	784,640.92	32° 10' 2.482 N	103° 24' 48.469 W
2,025.00	0.80	85.83	2,024.90	5.08	-0.21	425,821.58	784,641.28	32° 10' 2.482 N	103° 24' 48.465 W
2,050.00	0.77	93.49	2,049.90	5.08	0.13	425,821.58	784,641.63	32° 10' 2.482 N	103° 24' 48.461 W
2,075.00	0.91	97.00	2,074.90	5.05	0.49	425,821.55	784,641.99	32° 10' 2.482 N	103° 24' 48.456 W
2,100.00	0.97	93.15	2,099.89	5.01	0.90	425,821.51	784,642.40	32° 10' 2.481 N	103° 24' 48.452 W
2,125.00	0.94	90.18	2,124.89	5.00	1.32	425,821.50	784,642.82	32° 10' 2.481 N	103° 24' 48.447 W
2,150.00	0.91	85.75	2,149.89	5.01	1.72	425,821.51	784,643.22	32° 10' 2.481 N	103° 24' 48.442 W
2,175.00	0.94	86.89	2,174.88	5.04	2.12	425,821.54	784,643.62	32° 10' 2.482 N	103° 24' 48.438 W
2,200.00	0.94	97.26	2,199.88	5.02	2.53	425,821.52	784,644.03	32° 10' 2.481 N	103° 24' 48.433 W
2,225.00	0.97	98.88	2,224.88	4.97	2.94	425,821.47	784,644.44	32° 10' 2.481 N	103° 24' 48.428 W
2,250.00	1.04	96.02	2,249.87	4.91	3.38	425,821.41	784,644.88	32° 10' 2.480 N	103° 24' 48.423 W
2,275.00	1.04	89.23	2,274.87	4.89	3.83	425,821.39	784,645.33	32° 10' 2.480 N	103° 24' 48.418 W
2,300.00	0.93	90.97	2,299.86	4.89	4.26	425,821.39	784,645.76	32° 10' 2.480 N	103° 24' 48.413 W
2,325.00	0.92	95.98	2,324.86	4.86	4.66	425,821.36	784,646.16	32° 10' 2.480 N	103° 24' 48.408 W
2,350.00	0.96	98.78	2,349.86	4.81	5.07	425,821.31	784,646.57	32° 10' 2.479 N	103° 24' 48.403 W
2,375.00	0.99	100.18	2,374.85	4.74	5.49	425,821.24	784,646.99	32° 10' 2.478 N	103° 24' 48.398 W
2,400.00	1.05	95.98	2,399.85	4.68	5.93	425,821.18	784,647.43	32° 10' 2.478 N	103° 24' 48.393 W
2,425.00	0.94	96.11	2,424.85	4.63	6.36	425,821.13	784,647.86	32° 10' 2.477 N	103° 24' 48.388 W
2,450.00	0.94	102.36	2,449.84	4.57	6.77	425,821.07	784,648.26	32° 10' 2.477 N	103° 24' 48.384 W
2,475.00	1.13	103.87	2,474.84	4.46	7.21	425,820.96	784,648.70	32° 10' 2.475 N	103° 24' 48.378 W
2,500.00	1.00	107.08	2,499.83	4.34	7.65	425,820.84	784,649.15	32° 10' 2.474 N	103° 24' 48.373 W
2,525.00	1.06	128.75	2,524.83	4.13	8.04	425,820.63	784,649.54	32° 10' 2.472 N	103° 24' 48.369 W
2,550.00	1.11	124.78	2,549.83	3.85	8.42	425,820.35	784,649.92	32° 10' 2.469 N	103° 24' 48.364 W
2,575.00	1.14	121.45	2,574.82	3.58	8.83	425,820.08	784,650.33	32° 10' 2.467 N	103° 24' 48.360 W
2,600.00	1.11	143.10	2,599.82	3.26	9.19	425,819.76	784,650.69	32° 10' 2.463 N	103° 24' 48.355 W
2,625.00	1.82	165.68	2,624.81	2.68	9.43	425,819.18	784,650.93	32° 10' 2.458 N	103° 24' 48.353 W
2,650.00	2.10	170.71	2,649.79	1.84	9.61	425,818.34	784,651.10	32° 10' 2.449 N	103° 24' 48.351 W
2,675.00	2.11	169.26	2,674.78	0.94	9.77	425,817.44	784,651.26	32° 10' 2.440 N	103° 24' 48.349 W
2,700.00	3.10	168.38	2,699.75	-0.18	9.99	425,816.32	784,651.49	32° 10' 2.429 N	103° 24' 48.347 W
2,725.00	3.89	169.79	2,724.70	-1.67	10.27	425,814.83	784,651.77	32° 10' 2.415 N	103° 24' 48.343 W
2,750.00	4.31	168.79	2,749.64	-3.43	10.61	425,813.07	784,652.10	32° 10' 2.397 N	103° 24' 48.340 W
2,775.00	4.32	170.88	2,774.57	-5.28	10.94	425,811.22	784,652.44	32° 10' 2.379 N	103° 24' 48.336 W
2,800.00	4.47	169.73	2,799.50	-7.17	11.26	425,809.33	784,652.76	32° 10' 2.360 N	103° 24' 48.332 W
2,825.00	4.41	169.23	2,824.42	-9.07	11.62	425,807.43	784,653.11	32° 10' 2.341 N	103° 24' 48.329 W
2,850.00	4.61	168.33	2,849.34	-11.00	12.00	425,805.50	784,653.50	32° 10' 2.322 N	103° 24' 48.324 W
2,875.00	4.63	168.32	2,874.26	-12.97	12.41	425,803.53	784,653.90	32° 10' 2.303 N	103° 24' 48.320 W
2,900.00	4.76	167.40	2,899.18	-14.97	12.84	425,801.53	784,654.33	32° 10' 2.283 N	103° 24' 48.315 W

LEAM Drilling Systems

Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #706H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Site:	Stove Pipe Federal Com	MD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Well:	#706H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	LEAM Multi_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
2,925.00	4.82	167.01	2,924.09	-17.01	13.30	425,799.49	784,654.80	32° 10' 2.263 N	103° 24' 48.310 W
2,950.00	4.83	166.60	2,949.00	-19.05	13.78	425,797.45	784,655.28	32° 10' 2.242 N	103° 24' 48.304 W
2,975.00	4.99	165.84	2,973.91	-21.13	14.29	425,795.37	784,655.79	32° 10' 2.222 N	103° 24' 48.299 W
3,000.00	5.01	164.17	2,998.82	-23.24	14.85	425,793.26	784,656.35	32° 10' 2.201 N	103° 24' 48.292 W
3,025.00	4.99	163.68	3,023.72	-25.33	15.46	425,791.17	784,656.95	32° 10' 2.180 N	103° 24' 48.285 W
3,050.00	5.09	163.68	3,048.62	-27.44	16.07	425,789.06	784,657.57	32° 10' 2.159 N	103° 24' 48.278 W
3,075.00	5.19	162.63	3,073.52	-29.58	16.72	425,786.92	784,658.22	32° 10' 2.138 N	103° 24' 48.271 W
3,100.00	5.27	161.80	3,098.42	-31.75	17.42	425,784.75	784,658.92	32° 10' 2.116 N	103° 24' 48.263 W
3,125.00	5.33	160.15	3,123.31	-33.93	18.17	425,782.57	784,659.67	32° 10' 2.095 N	103° 24' 48.255 W
3,150.00	5.25	158.46	3,148.21	-36.09	18.99	425,780.41	784,660.48	32° 10' 2.073 N	103° 24' 48.245 W
3,175.00	5.27	154.18	3,173.10	-38.19	19.91	425,778.31	784,661.40	32° 10' 2.052 N	103° 24' 48.235 W
3,200.00	5.58	141.86	3,197.99	-40.18	21.16	425,776.32	784,662.65	32° 10' 2.033 N	103° 24' 48.221 W
3,225.00	6.10	133.97	3,222.86	-42.06	22.86	425,774.44	784,664.36	32° 10' 2.014 N	103° 24' 48.201 W
3,250.00	6.46	131.46	3,247.71	-43.91	24.87	425,772.59	784,666.37	32° 10' 1.995 N	103° 24' 48.178 W
3,275.00	6.58	130.06	3,272.55	-45.76	27.02	425,770.74	784,668.52	32° 10' 1.977 N	103° 24' 48.153 W
3,300.00	6.74	129.90	3,297.38	-47.62	29.24	425,768.87	784,670.74	32° 10' 1.958 N	103° 24' 48.127 W
3,325.00	6.75	129.60	3,322.21	-49.50	31.50	425,767.00	784,673.00	32° 10' 1.939 N	103° 24' 48.101 W
3,350.00	6.68	128.35	3,347.04	-51.34	33.77	425,765.16	784,675.27	32° 10' 1.921 N	103° 24' 48.075 W
3,375.00	6.65	126.40	3,371.87	-53.10	36.08	425,763.40	784,677.58	32° 10' 1.903 N	103° 24' 48.048 W
3,400.00	6.74	113.24	3,396.70	-54.54	38.59	425,761.96	784,680.09	32° 10' 1.889 N	103° 24' 48.019 W
3,425.00	6.96	109.97	3,421.52	-55.64	41.36	425,760.86	784,682.86	32° 10' 1.878 N	103° 24' 47.987 W
3,450.00	7.11	108.65	3,446.33	-56.65	44.25	425,759.85	784,685.75	32° 10' 1.868 N	103° 24' 47.954 W
3,475.00	7.36	108.76	3,471.13	-57.66	47.24	425,758.84	784,688.73	32° 10' 1.857 N	103° 24' 47.919 W
3,500.00	7.33	106.97	3,495.93	-58.64	50.28	425,757.86	784,691.78	32° 10' 1.847 N	103° 24' 47.884 W
3,525.00	7.44	107.76	3,520.72	-59.60	53.34	425,756.90	784,694.84	32° 10' 1.838 N	103° 24' 47.848 W
3,550.00	7.38	107.29	3,545.51	-60.57	56.42	425,755.93	784,697.92	32° 10' 1.828 N	103° 24' 47.812 W
3,575.00	6.84	100.42	3,570.32	-61.32	59.42	425,755.18	784,700.91	32° 10' 1.820 N	103° 24' 47.778 W
3,600.00	6.52	92.69	3,595.15	-61.65	62.30	425,754.85	784,703.80	32° 10' 1.817 N	103° 24' 47.744 W
3,625.00	6.58	88.67	3,619.99	-61.68	65.15	425,754.82	784,706.65	32° 10' 1.816 N	103° 24' 47.711 W
3,650.00	6.63	87.93	3,644.82	-61.60	68.02	425,754.90	784,709.52	32° 10' 1.817 N	103° 24' 47.678 W
3,675.00	6.61	87.74	3,669.65	-61.49	70.90	425,755.01	784,712.40	32° 10' 1.817 N	103° 24' 47.644 W
3,700.00	6.83	87.26	3,694.48	-61.36	73.83	425,755.14	784,715.32	32° 10' 1.818 N	103° 24' 47.610 W
3,725.00	6.82	87.19	3,719.30	-61.22	76.79	425,755.28	784,718.29	32° 10' 1.820 N	103° 24' 47.575 W
3,750.00	6.78	86.75	3,744.13	-61.06	79.75	425,755.44	784,721.25	32° 10' 1.821 N	103° 24' 47.541 W
3,775.00	6.94	86.79	3,768.95	-60.89	82.73	425,755.61	784,724.23	32° 10' 1.822 N	103° 24' 47.506 W
3,800.00	6.80	87.29	3,793.77	-60.74	85.72	425,755.76	784,727.21	32° 10' 1.824 N	103° 24' 47.472 W
3,825.00	6.88	87.56	3,818.59	-60.61	88.69	425,755.89	784,730.19	32° 10' 1.825 N	103° 24' 47.437 W
3,850.00	6.58	86.27	3,843.42	-60.45	91.62	425,756.05	784,733.11	32° 10' 1.826 N	103° 24' 47.403 W
3,875.00	5.94	85.19	3,868.27	-60.25	94.33	425,756.25	784,735.83	32° 10' 1.828 N	103° 24' 47.371 W
3,900.00	6.00	85.42	3,893.14	-60.03	96.93	425,756.47	784,738.42	32° 10' 1.830 N	103° 24' 47.341 W
3,925.00	6.07	84.55	3,918.00	-59.80	99.54	425,756.70	784,741.04	32° 10' 1.832 N	103° 24' 47.311 W
3,950.00	6.09	84.42	3,942.86	-59.55	102.18	425,756.95	784,743.68	32° 10' 1.834 N	103° 24' 47.280 W
3,975.00	6.13	84.99	3,967.71	-59.30	104.83	425,757.20	784,746.33	32° 10' 1.836 N	103° 24' 47.249 W
4,000.00	6.15	83.96	3,992.57	-59.05	107.49	425,757.45	784,748.99	32° 10' 1.839 N	103° 24' 47.218 W
4,025.00	6.10	84.10	4,017.43	-58.77	110.14	425,757.73	784,751.64	32° 10' 1.841 N	103° 24' 47.187 W
4,050.00	5.51	96.66	4,042.30	-58.77	112.66	425,757.73	784,754.16	32° 10' 1.841 N	103° 24' 47.158 W
4,075.00	5.24	116.46	4,067.19	-59.42	114.87	425,757.08	784,756.37	32° 10' 1.834 N	103° 24' 47.132 W
4,100.00	5.32	126.06	4,092.09	-60.61	116.83	425,755.89	784,758.33	32° 10' 1.822 N	103° 24' 47.110 W
4,125.00	5.41	130.13	4,116.98	-62.05	118.67	425,754.45	784,760.17	32° 10' 1.808 N	103° 24' 47.088 W
4,150.00	5.38	130.43	4,141.87	-63.57	120.46	425,752.93	784,761.96	32° 10' 1.793 N	103° 24' 47.068 W
4,175.00	5.30	131.00	4,166.76	-65.09	122.23	425,751.41	784,763.72	32° 10' 1.777 N	103° 24' 47.047 W
4,200.00	5.45	130.38	4,191.65	-66.62	124.00	425,749.88	784,765.50	32° 10' 1.762 N	103° 24' 47.027 W
4,225.00	5.36	130.75	4,216.54	-68.15	125.79	425,748.35	784,767.29	32° 10' 1.747 N	103° 24' 47.006 W

LEAM Drilling Systems

Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #706H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Site:	Stove Pipe Federal Com	MD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Well:	#706H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	LEAM Multi_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
4,250.00	5.33	131.03	4,241.43	-69.67	127.55	425,746.83	784,769.05	32° 10' 1.732 N	103° 24' 46.986 W
4,275.00	5.36	132.08	4,266.32	-71.22	129.29	425,745.28	784,770.79	32° 10' 1.716 N	103° 24' 46.966 W
4,300.00	5.37	130.56	4,291.21	-72.76	131.05	425,743.74	784,772.55	32° 10' 1.701 N	103° 24' 46.945 W
4,325.00	5.32	125.43	4,316.10	-74.19	132.88	425,742.31	784,774.38	32° 10' 1.687 N	103° 24' 46.924 W
4,350.00	5.35	117.01	4,340.99	-75.39	134.86	425,741.11	784,776.36	32° 10' 1.674 N	103° 24' 46.901 W
4,375.00	5.29	113.26	4,365.89	-76.38	136.96	425,740.12	784,778.46	32° 10' 1.665 N	103° 24' 46.877 W
4,400.00	5.38	113.31	4,390.78	-77.30	139.10	425,739.20	784,780.59	32° 10' 1.655 N	103° 24' 46.852 W
4,425.00	5.36	113.41	4,415.67	-78.23	141.25	425,738.27	784,782.74	32° 10' 1.646 N	103° 24' 46.827 W
4,450.00	5.26	112.85	4,440.56	-79.13	143.37	425,737.37	784,784.87	32° 10' 1.637 N	103° 24' 46.803 W
4,475.00	5.07	112.11	4,465.46	-79.99	145.45	425,736.50	784,786.95	32° 10' 1.628 N	103° 24' 46.779 W
4,500.00	4.91	112.13	4,490.37	-80.81	147.47	425,735.69	784,788.96	32° 10' 1.620 N	103° 24' 46.755 W
4,525.00	4.79	111.09	4,515.28	-81.59	149.43	425,734.91	784,790.93	32° 10' 1.612 N	103° 24' 46.733 W
4,550.00	4.40	109.64	4,540.20	-82.29	151.31	425,734.21	784,792.81	32° 10' 1.605 N	103° 24' 46.711 W
4,575.00	4.04	106.64	4,565.13	-82.86	153.06	425,733.63	784,794.55	32° 10' 1.599 N	103° 24' 46.691 W
4,600.00	3.86	103.65	4,590.07	-83.32	154.72	425,733.18	784,796.21	32° 10' 1.594 N	103° 24' 46.671 W
4,625.00	3.91	103.00	4,615.01	-83.71	156.37	425,732.79	784,797.86	32° 10' 1.590 N	103° 24' 46.652 W
4,650.00	3.94	101.04	4,639.95	-84.06	158.04	425,732.44	784,799.54	32° 10' 1.587 N	103° 24' 46.633 W
4,675.00	4.22	104.33	4,664.89	-84.45	159.77	425,732.05	784,801.27	32° 10' 1.583 N	103° 24' 46.613 W
4,700.00	4.53	101.72	4,689.82	-84.88	161.63	425,731.62	784,803.13	32° 10' 1.578 N	103° 24' 46.591 W
4,725.00	4.97	102.48	4,714.73	-85.32	163.66	425,731.18	784,805.15	32° 10' 1.574 N	103° 24' 46.567 W
4,750.00	5.31	103.70	4,739.63	-85.82	165.84	425,730.67	784,807.33	32° 10' 1.569 N	103° 24' 46.542 W
4,775.00	5.66	102.76	4,764.51	-86.37	168.16	425,730.13	784,809.66	32° 10' 1.563 N	103° 24' 46.515 W
4,800.00	5.80	105.09	4,789.39	-86.97	170.58	425,729.53	784,812.08	32° 10' 1.557 N	103° 24' 46.487 W
4,825.00	5.97	104.09	4,814.26	-87.62	173.07	425,728.88	784,814.56	32° 10' 1.550 N	103° 24' 46.458 W
4,850.00	6.12	104.06	4,839.12	-88.26	175.62	425,728.24	784,817.12	32° 10' 1.544 N	103° 24' 46.429 W
4,875.00	6.43	104.93	4,863.97	-88.94	178.26	425,727.56	784,819.76	32° 10' 1.537 N	103° 24' 46.398 W
4,900.00	6.45	105.66	4,888.81	-89.68	180.97	425,726.82	784,822.47	32° 10' 1.529 N	103° 24' 46.366 W
4,925.00	6.39	105.22	4,913.65	-90.43	183.66	425,726.07	784,825.16	32° 10' 1.522 N	103° 24' 46.335 W
4,950.00	6.22	106.12	4,938.50	-91.17	186.31	425,725.33	784,827.80	32° 10' 1.514 N	103° 24' 46.305 W
4,975.00	6.07	105.95	4,963.36	-91.91	188.88	425,724.59	784,830.38	32° 10' 1.506 N	103° 24' 46.275 W
5,000.00	6.02	105.23	4,988.22	-92.61	191.41	425,723.89	784,832.91	32° 10' 1.499 N	103° 24' 46.245 W
5,025.00	6.04	106.75	5,013.08	-93.34	193.94	425,723.16	784,835.44	32° 10' 1.492 N	103° 24' 46.216 W
5,050.00	6.15	107.50	5,037.94	-94.12	196.48	425,722.38	784,837.97	32° 10' 1.484 N	103° 24' 46.187 W
5,075.00	6.03	107.04	5,062.80	-94.91	199.01	425,721.59	784,840.51	32° 10' 1.476 N	103° 24' 46.157 W
5,100.00	6.41	111.23	5,087.65	-95.80	201.56	425,720.70	784,843.06	32° 10' 1.467 N	103° 24' 46.127 W
5,125.00	6.58	111.86	5,112.49	-96.84	204.19	425,719.66	784,845.69	32° 10' 1.456 N	103° 24' 46.097 W
5,150.00	6.87	112.54	5,137.32	-97.94	206.91	425,718.56	784,848.40	32° 10' 1.445 N	103° 24' 46.066 W
5,175.00	7.09	113.17	5,162.14	-99.12	209.70	425,717.38	784,851.20	32° 10' 1.433 N	103° 24' 46.033 W
5,200.00	7.25	113.39	5,186.94	-100.36	212.57	425,716.14	784,854.07	32° 10' 1.421 N	103° 24' 46.000 W
5,225.00	7.24	112.70	5,211.74	-101.59	215.47	425,714.91	784,856.97	32° 10' 1.408 N	103° 24' 45.966 W
5,250.00	7.08	110.56	5,236.55	-102.74	218.37	425,713.76	784,859.87	32° 10' 1.397 N	103° 24' 45.933 W
5,275.00	6.49	103.67	5,261.37	-103.61	221.18	425,712.89	784,862.68	32° 10' 1.388 N	103° 24' 45.900 W
5,300.00	6.12	98.52	5,286.22	-104.15	223.87	425,712.35	784,865.37	32° 10' 1.382 N	103° 24' 45.869 W
5,325.00	5.84	97.78	5,311.08	-104.52	226.45	425,711.98	784,867.95	32° 10' 1.379 N	103° 24' 45.839 W
5,350.00	5.62	96.97	5,335.96	-104.84	228.93	425,711.66	784,870.43	32° 10' 1.375 N	103° 24' 45.810 W
5,375.00	5.32	97.04	5,360.84	-105.13	231.29	425,711.37	784,872.79	32° 10' 1.372 N	103° 24' 45.783 W
5,400.00	5.03	98.57	5,385.74	-105.43	233.53	425,711.07	784,875.02	32° 10' 1.369 N	103° 24' 45.757 W
5,425.00	4.80	100.54	5,410.65	-105.79	235.64	425,710.71	784,877.14	32° 10' 1.365 N	103° 24' 45.732 W
5,450.00	4.57	99.98	5,435.57	-106.15	237.65	425,710.35	784,879.15	32° 10' 1.361 N	103° 24' 45.709 W
5,475.00	4.31	100.94	5,460.49	-106.50	239.55	425,710.00	784,881.05	32° 10' 1.358 N	103° 24' 45.687 W
5,500.00	4.10	101.86	5,485.42	-106.86	241.35	425,709.64	784,882.85	32° 10' 1.354 N	103° 24' 45.666 W
5,525.00	3.83	102.24	5,510.36	-107.22	243.04	425,709.28	784,884.54	32° 10' 1.350 N	103° 24' 45.646 W
5,550.00	3.78	101.58	5,535.31	-107.57	244.66	425,708.93	784,886.16	32° 10' 1.347 N	103° 24' 45.627 W

LEAM Drilling Systems

Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #706H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Site:	Stove Pipe Federal Com	MD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Well:	#706H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	LEAM Multi_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
5,575.00	3.86	102.93	5,560.25	-107.92	246.29	425,708.58	784,887.79	32° 10' 1.343 N	103° 24' 45.608 W
5,600.00	3.86	101.72	5,585.20	-108.28	247.93	425,708.22	784,889.43	32° 10' 1.339 N	103° 24' 45.589 W
5,625.00	3.84	101.07	5,610.14	-108.61	249.58	425,707.89	784,891.08	32° 10' 1.336 N	103° 24' 45.570 W
5,650.00	3.80	102.69	5,635.09	-108.95	251.21	425,707.55	784,892.71	32° 10' 1.333 N	103° 24' 45.551 W
5,675.00	3.87	101.74	5,660.03	-109.31	252.84	425,707.19	784,894.34	32° 10' 1.329 N	103° 24' 45.532 W
5,700.00	3.89	101.39	5,684.97	-109.65	254.50	425,706.85	784,896.00	32° 10' 1.325 N	103° 24' 45.513 W
5,725.00	3.91	100.94	5,709.91	-109.98	256.17	425,706.52	784,897.67	32° 10' 1.322 N	103° 24' 45.494 W
5,750.00	4.01	101.43	5,734.85	-110.31	257.86	425,706.19	784,899.36	32° 10' 1.319 N	103° 24' 45.474 W
5,775.00	4.06	101.89	5,759.79	-110.67	259.59	425,705.83	784,901.08	32° 10' 1.315 N	103° 24' 45.454 W
5,800.00	4.16	101.64	5,784.73	-111.03	261.34	425,705.47	784,902.84	32° 10' 1.311 N	103° 24' 45.434 W
5,825.00	4.24	100.63	5,809.66	-111.38	263.14	425,705.11	784,904.63	32° 10' 1.307 N	103° 24' 45.413 W
5,850.00	4.26	101.40	5,834.59	-111.74	264.95	425,704.76	784,906.45	32° 10' 1.304 N	103° 24' 45.392 W
5,875.00	4.36	101.10	5,859.52	-112.11	266.80	425,704.39	784,908.29	32° 10' 1.300 N	103° 24' 45.370 W
5,900.00	4.43	100.08	5,884.45	-112.46	268.68	425,704.04	784,910.18	32° 10' 1.296 N	103° 24' 45.348 W
5,925.00	4.44	99.20	5,909.37	-112.78	270.59	425,703.72	784,912.08	32° 10' 1.293 N	103° 24' 45.326 W
5,950.00	4.41	97.31	5,934.30	-113.06	272.49	425,703.44	784,913.99	32° 10' 1.290 N	103° 24' 45.304 W
5,975.00	4.49	99.36	5,959.22	-113.34	274.41	425,703.16	784,915.91	32° 10' 1.287 N	103° 24' 45.282 W
6,000.00	4.52	99.09	5,984.15	-113.65	276.35	425,702.85	784,917.85	32° 10' 1.284 N	103° 24' 45.259 W
6,025.00	4.57	98.84	6,009.07	-113.96	278.31	425,702.54	784,919.81	32° 10' 1.281 N	103° 24' 45.237 W
6,050.00	4.54	99.15	6,033.99	-114.27	280.27	425,702.23	784,921.77	32° 10' 1.277 N	103° 24' 45.214 W
6,075.00	4.65	99.76	6,058.91	-114.60	282.25	425,701.90	784,923.74	32° 10' 1.274 N	103° 24' 45.191 W
6,100.00	4.55	97.29	6,083.83	-114.90	284.23	425,701.60	784,925.73	32° 10' 1.271 N	103° 24' 45.168 W
6,125.00	4.57	98.93	6,108.75	-115.18	286.20	425,701.32	784,927.69	32° 10' 1.268 N	103° 24' 45.145 W
6,150.00	4.73	98.84	6,133.67	-115.49	288.20	425,701.01	784,929.69	32° 10' 1.265 N	103° 24' 45.122 W
6,175.00	4.74	97.73	6,158.58	-115.79	290.24	425,700.71	784,931.74	32° 10' 1.262 N	103° 24' 45.098 W
6,200.00	4.79	97.95	6,183.49	-116.07	292.30	425,700.43	784,933.79	32° 10' 1.259 N	103° 24' 45.074 W
6,225.00	4.77	98.25	6,208.41	-116.37	294.36	425,700.13	784,935.86	32° 10' 1.256 N	103° 24' 45.050 W
6,250.00	4.85	97.64	6,233.32	-116.66	296.44	425,699.84	784,937.93	32° 10' 1.252 N	103° 24' 45.026 W
6,275.00	4.91	96.51	6,258.23	-116.92	298.55	425,699.58	784,940.04	32° 10' 1.250 N	103° 24' 45.001 W
6,300.00	5.10	94.32	6,283.13	-117.12	300.72	425,699.38	784,942.21	32° 10' 1.247 N	103° 24' 44.976 W
6,325.00	5.15	92.93	6,308.03	-117.27	302.95	425,699.23	784,944.44	32° 10' 1.246 N	103° 24' 44.950 W
6,350.00	5.20	91.44	6,332.93	-117.35	305.20	425,699.15	784,946.70	32° 10' 1.245 N	103° 24' 44.924 W
6,375.00	5.13	89.19	6,357.83	-117.36	307.45	425,699.14	784,948.95	32° 10' 1.245 N	103° 24' 44.898 W
6,400.00	5.09	90.15	6,382.73	-117.35	309.68	425,699.15	784,951.17	32° 10' 1.244 N	103° 24' 44.872 W
6,425.00	5.15	90.43	6,407.63	-117.36	311.91	425,699.14	784,953.40	32° 10' 1.244 N	103° 24' 44.846 W
6,450.00	5.20	89.27	6,432.53	-117.36	314.16	425,699.14	784,955.66	32° 10' 1.244 N	103° 24' 44.820 W
6,475.00	5.20	88.64	6,457.43	-117.31	316.43	425,699.18	784,957.92	32° 10' 1.244 N	103° 24' 44.793 W
6,500.00	5.23	88.00	6,482.32	-117.25	318.70	425,699.25	784,960.20	32° 10' 1.245 N	103° 24' 44.767 W
6,525.00	5.20	86.44	6,507.22	-117.14	320.97	425,699.36	784,962.46	32° 10' 1.246 N	103° 24' 44.741 W
6,550.00	5.22	85.51	6,532.12	-116.98	323.23	425,699.52	784,964.73	32° 10' 1.247 N	103° 24' 44.714 W
6,575.00	5.09	84.40	6,557.02	-116.78	325.47	425,699.72	784,966.97	32° 10' 1.249 N	103° 24' 44.688 W
6,600.00	5.12	85.63	6,581.92	-116.59	327.69	425,699.91	784,969.18	32° 10' 1.251 N	103° 24' 44.662 W
6,625.00	5.11	84.56	6,606.82	-116.40	329.91	425,700.10	784,971.40	32° 10' 1.252 N	103° 24' 44.637 W
6,650.00	5.11	83.99	6,631.72	-116.18	332.12	425,700.32	784,973.62	32° 10' 1.254 N	103° 24' 44.611 W
6,675.00	5.02	83.73	6,656.62	-115.94	334.32	425,700.56	784,975.81	32° 10' 1.256 N	103° 24' 44.585 W
6,700.00	5.13	84.47	6,681.52	-115.71	336.52	425,700.79	784,978.01	32° 10' 1.258 N	103° 24' 44.560 W
6,725.00	5.06	83.37	6,706.42	-115.48	338.72	425,701.02	784,980.22	32° 10' 1.261 N	103° 24' 44.534 W
6,750.00	5.06	82.25	6,731.33	-115.20	340.91	425,701.30	784,982.41	32° 10' 1.263 N	103° 24' 44.508 W
6,775.00	5.14	82.52	6,756.23	-114.91	343.11	425,701.59	784,984.61	32° 10' 1.266 N	103° 24' 44.483 W
6,800.00	5.08	80.96	6,781.13	-114.59	345.32	425,701.91	784,986.81	32° 10' 1.269 N	103° 24' 44.457 W
6,825.00	5.19	81.98	6,806.03	-114.26	347.53	425,702.24	784,989.03	32° 10' 1.272 N	103° 24' 44.431 W
6,850.00	5.12	81.11	6,830.93	-113.93	349.75	425,702.57	784,991.25	32° 10' 1.275 N	103° 24' 44.405 W
6,875.00	5.08	81.69	6,855.83	-113.59	351.95	425,702.91	784,993.45	32° 10' 1.278 N	103° 24' 44.380 W

LEAM Drilling Systems

Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #706H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Site:	Stove Pipe Federal Com	MD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Well:	#706H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	LEAM Multi_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
6,900.00	5.18	81.81	6,880.73	-113.27	354.16	425,703.23	784,995.66	32° 10' 1.281 N	103° 24' 44.354 W
6,925.00	5.26	80.64	6,905.62	-112.93	356.41	425,703.57	784,997.91	32° 10' 1.284 N	103° 24' 44.328 W
6,950.00	5.30	80.28	6,930.52	-112.54	358.68	425,703.96	785,000.18	32° 10' 1.288 N	103° 24' 44.302 W
6,975.00	5.38	79.10	6,955.41	-112.13	360.97	425,704.37	785,002.46	32° 10' 1.292 N	103° 24' 44.275 W
7,000.00	5.31	78.84	6,980.30	-111.68	363.25	425,704.82	785,004.75	32° 10' 1.296 N	103° 24' 44.248 W
7,025.00	5.25	79.45	7,005.19	-111.25	365.51	425,705.25	785,007.01	32° 10' 1.300 N	103° 24' 44.222 W
7,050.00	5.34	79.40	7,030.09	-110.82	367.78	425,705.67	785,009.28	32° 10' 1.304 N	103° 24' 44.195 W
7,075.00	5.36	77.68	7,054.98	-110.36	370.06	425,706.14	785,011.56	32° 10' 1.309 N	103° 24' 44.169 W
7,100.00	5.49	76.46	7,079.87	-109.83	372.37	425,706.67	785,013.86	32° 10' 1.314 N	103° 24' 44.142 W
7,125.00	5.41	76.20	7,104.75	-109.27	374.67	425,707.23	785,016.17	32° 10' 1.319 N	103° 24' 44.115 W
7,150.00	5.41	75.41	7,129.64	-108.69	376.96	425,707.81	785,018.46	32° 10' 1.324 N	103° 24' 44.088 W
7,175.00	5.49	76.21	7,154.53	-108.11	379.26	425,708.39	785,020.76	32° 10' 1.330 N	103° 24' 44.062 W
7,200.00	5.45	74.86	7,179.41	-107.52	381.57	425,708.98	785,023.07	32° 10' 1.336 N	103° 24' 44.035 W
7,225.00	5.51	75.29	7,204.30	-106.90	383.88	425,709.60	785,025.37	32° 10' 1.342 N	103° 24' 44.008 W
7,250.00	5.55	74.24	7,229.18	-106.27	386.20	425,710.23	785,027.70	32° 10' 1.348 N	103° 24' 43.981 W
7,275.00	5.57	74.14	7,254.07	-105.61	388.53	425,710.89	785,030.03	32° 10' 1.354 N	103° 24' 43.954 W
7,300.00	5.58	74.00	7,278.95	-104.94	390.87	425,711.56	785,032.36	32° 10' 1.360 N	103° 24' 43.926 W
7,325.00	5.56	74.01	7,303.83	-104.27	393.20	425,712.23	785,034.70	32° 10' 1.367 N	103° 24' 43.899 W
7,350.00	5.55	74.30	7,328.71	-103.61	395.53	425,712.89	785,037.02	32° 10' 1.373 N	103° 24' 43.872 W
7,375.00	5.42	72.50	7,353.60	-102.93	397.82	425,713.57	785,039.31	32° 10' 1.380 N	103° 24' 43.845 W
7,400.00	5.33	74.15	7,378.49	-102.26	400.06	425,714.24	785,041.56	32° 10' 1.386 N	103° 24' 43.819 W
7,425.00	5.33	73.40	7,403.38	-101.61	402.29	425,714.89	785,043.79	32° 10' 1.392 N	103° 24' 43.793 W
7,450.00	5.31	72.20	7,428.27	-100.92	404.50	425,715.58	785,046.00	32° 10' 1.399 N	103° 24' 43.767 W
7,475.00	5.30	72.11	7,453.17	-100.22	406.70	425,716.28	785,048.20	32° 10' 1.406 N	103° 24' 43.742 W
7,500.00	5.33	71.96	7,478.06	-99.50	408.91	425,717.00	785,050.40	32° 10' 1.413 N	103° 24' 43.716 W
7,525.00	5.35	71.52	7,502.95	-98.77	411.12	425,717.73	785,052.61	32° 10' 1.420 N	103° 24' 43.690 W
7,550.00	5.37	72.07	7,527.84	-98.04	413.33	425,718.46	785,054.83	32° 10' 1.427 N	103° 24' 43.664 W
7,575.00	5.37	72.13	7,552.73	-97.32	415.56	425,719.18	785,057.06	32° 10' 1.434 N	103° 24' 43.638 W
7,600.00	5.39	71.77	7,577.62	-96.60	417.79	425,719.90	785,059.29	32° 10' 1.441 N	103° 24' 43.612 W
7,625.00	5.25	71.90	7,602.51	-95.87	419.99	425,720.62	785,061.49	32° 10' 1.448 N	103° 24' 43.587 W
7,650.00	4.54	70.54	7,627.42	-95.19	422.01	425,721.31	785,063.51	32° 10' 1.454 N	103° 24' 43.563 W
7,675.00	4.04	70.92	7,652.35	-94.57	423.78	425,721.93	785,065.28	32° 10' 1.460 N	103° 24' 43.542 W
7,700.00	3.87	71.11	7,677.29	-94.01	425.41	425,722.49	785,066.91	32° 10' 1.466 N	103° 24' 43.523 W
7,725.00	3.93	71.58	7,702.23	-93.47	427.02	425,723.03	785,068.52	32° 10' 1.471 N	103° 24' 43.505 W
7,750.00	3.95	71.19	7,727.17	-92.92	428.65	425,723.58	785,070.14	32° 10' 1.476 N	103° 24' 43.486 W
7,775.00	3.94	68.81	7,752.12	-92.33	430.26	425,724.17	785,071.76	32° 10' 1.482 N	103° 24' 43.467 W
7,800.00	3.83	70.80	7,777.06	-91.75	431.85	425,724.75	785,073.35	32° 10' 1.488 N	103° 24' 43.448 W
7,825.00	3.92	72.38	7,802.00	-91.21	433.46	425,725.29	785,074.95	32° 10' 1.493 N	103° 24' 43.430 W
7,850.00	3.85	72.69	7,826.94	-90.70	435.07	425,725.80	785,076.57	32° 10' 1.498 N	103° 24' 43.411 W
7,875.00	3.73	72.33	7,851.89	-90.21	436.65	425,726.29	785,078.14	32° 10' 1.502 N	103° 24' 43.392 W
7,900.00	3.57	73.56	7,876.84	-89.74	438.17	425,726.76	785,079.67	32° 10' 1.507 N	103° 24' 43.375 W
7,925.00	3.59	74.18	7,901.79	-89.31	439.67	425,727.19	785,081.17	32° 10' 1.511 N	103° 24' 43.357 W
7,950.00	3.54	74.76	7,926.74	-88.89	441.17	425,727.61	785,082.66	32° 10' 1.515 N	103° 24' 43.340 W
7,975.00	3.43	73.55	7,951.69	-88.48	442.63	425,728.02	785,084.13	32° 10' 1.519 N	103° 24' 43.323 W
8,000.00	3.11	73.41	7,976.65	-88.07	443.99	425,728.43	785,085.49	32° 10' 1.523 N	103° 24' 43.307 W
8,025.00	3.08	71.30	8,001.62	-87.66	445.28	425,728.84	785,086.78	32° 10' 1.527 N	103° 24' 43.292 W
8,050.00	2.95	70.39	8,026.58	-87.23	446.52	425,729.27	785,088.02	32° 10' 1.531 N	103° 24' 43.277 W
8,075.00	2.92	68.70	8,051.55	-86.78	447.72	425,729.72	785,089.22	32° 10' 1.535 N	103° 24' 43.263 W
8,100.00	2.77	70.50	8,076.52	-86.35	448.89	425,730.15	785,090.38	32° 10' 1.539 N	103° 24' 43.250 W
8,125.00	2.68	66.92	8,101.49	-85.92	449.99	425,730.58	785,091.49	32° 10' 1.544 N	103° 24' 43.237 W
8,150.00	2.43	68.43	8,126.47	-85.50	451.02	425,731.00	785,092.52	32° 10' 1.548 N	103° 24' 43.225 W
8,175.00	2.24	69.29	8,151.45	-85.13	451.97	425,731.37	785,093.47	32° 10' 1.551 N	103° 24' 43.214 W
8,200.00	2.22	72.93	8,176.43	-84.81	452.89	425,731.69	785,094.39	32° 10' 1.554 N	103° 24' 43.203 W

LEAM Drilling Systems

Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #706H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Site:	Stove Pipe Federal Com	MD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Well:	#706H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	LEAM Multi_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
8,225.00	2.05	71.95	8,201.41	-84.53	453.78	425,731.97	785,095.28	32° 10' 1.557 N	103° 24' 43.192 W
8,250.00	2.00	74.05	8,226.39	-84.27	454.63	425,732.23	785,096.12	32° 10' 1.560 N	103° 24' 43.183 W
8,275.00	1.91	76.70	8,251.38	-84.06	455.45	425,732.44	785,096.95	32° 10' 1.562 N	103° 24' 43.173 W
8,300.00	1.81	78.26	8,276.37	-83.88	456.24	425,732.62	785,097.74	32° 10' 1.563 N	103° 24' 43.164 W
8,325.00	1.72	76.22	8,301.35	-83.71	456.99	425,732.79	785,098.49	32° 10' 1.565 N	103° 24' 43.155 W
8,350.00	1.61	73.91	8,326.34	-83.53	457.69	425,732.97	785,099.19	32° 10' 1.567 N	103° 24' 43.147 W
8,375.00	1.69	79.45	8,351.33	-83.36	458.39	425,733.14	785,099.89	32° 10' 1.568 N	103° 24' 43.139 W
8,400.00	1.70	78.87	8,376.32	-83.22	459.12	425,733.28	785,100.62	32° 10' 1.570 N	103° 24' 43.130 W
8,425.00	1.56	80.29	8,401.31	-83.09	459.82	425,733.41	785,101.32	32° 10' 1.571 N	103° 24' 43.122 W
8,450.00	1.59	83.72	8,426.30	-83.00	460.50	425,733.50	785,102.00	32° 10' 1.572 N	103° 24' 43.114 W
8,475.00	1.63	84.41	8,451.29	-82.92	461.20	425,733.57	785,102.70	32° 10' 1.572 N	103° 24' 43.106 W
8,500.00	1.42	83.20	8,476.28	-82.85	461.86	425,733.65	785,103.36	32° 10' 1.573 N	103° 24' 43.098 W
8,525.00	1.37	89.32	8,501.28	-82.81	462.47	425,733.69	785,103.96	32° 10' 1.573 N	103° 24' 43.091 W
8,550.00	1.32	89.03	8,526.27	-82.80	463.05	425,733.69	785,104.55	32° 10' 1.573 N	103° 24' 43.084 W
8,575.00	1.36	85.61	8,551.26	-82.78	463.64	425,733.72	785,105.14	32° 10' 1.574 N	103° 24' 43.078 W
8,600.00	1.31	82.20	8,576.26	-82.72	464.22	425,733.78	785,105.71	32° 10' 1.574 N	103° 24' 43.071 W
8,625.00	1.09	86.64	8,601.25	-82.66	464.74	425,733.84	785,106.23	32° 10' 1.575 N	103° 24' 43.065 W
8,650.00	1.05	88.67	8,626.25	-82.64	465.20	425,733.86	785,106.70	32° 10' 1.575 N	103° 24' 43.059 W
8,675.00	1.03	84.36	8,651.24	-82.62	465.66	425,733.88	785,107.15	32° 10' 1.575 N	103° 24' 43.054 W
8,700.00	0.96	87.18	8,676.24	-82.58	466.09	425,733.92	785,107.59	32° 10' 1.575 N	103° 24' 43.049 W
8,725.00	0.72	81.54	8,701.24	-82.55	466.45	425,733.95	785,107.95	32° 10' 1.576 N	103° 24' 43.045 W
8,750.00	0.54	87.22	8,726.23	-82.52	466.73	425,733.98	785,108.22	32° 10' 1.576 N	103° 24' 43.042 W
8,775.00	0.51	83.20	8,751.23	-82.50	466.95	425,734.00	785,108.45	32° 10' 1.576 N	103° 24' 43.039 W
8,800.00	0.49	77.24	8,776.23	-82.47	467.17	425,734.03	785,108.67	32° 10' 1.576 N	103° 24' 43.036 W
8,825.00	0.59	72.84	8,801.23	-82.40	467.40	425,734.10	785,108.89	32° 10' 1.577 N	103° 24' 43.034 W
8,850.00	0.58	65.90	8,826.23	-82.31	467.63	425,734.18	785,109.13	32° 10' 1.578 N	103° 24' 43.031 W
8,875.00	0.44	69.28	8,851.23	-82.23	467.84	425,734.27	785,109.34	32° 10' 1.579 N	103° 24' 43.029 W
8,900.00	0.45	72.76	8,876.23	-82.17	468.02	425,734.33	785,109.52	32° 10' 1.579 N	103° 24' 43.026 W
8,925.00	0.48	69.77	8,901.23	-82.10	468.22	425,734.40	785,109.71	32° 10' 1.580 N	103° 24' 43.024 W
8,950.00	0.43	75.44	8,926.23	-82.04	468.40	425,734.46	785,109.90	32° 10' 1.580 N	103° 24' 43.022 W
8,975.00	0.51	79.69	8,951.23	-82.00	468.61	425,734.50	785,110.10	32° 10' 1.581 N	103° 24' 43.020 W
9,000.00	0.35	67.38	8,976.22	-81.95	468.79	425,734.55	785,110.28	32° 10' 1.581 N	103° 24' 43.018 W
9,025.00	0.42	81.29	9,001.22	-81.91	468.95	425,734.59	785,110.44	32° 10' 1.582 N	103° 24' 43.016 W
9,050.00	0.42	80.03	9,026.22	-81.88	469.13	425,734.62	785,110.62	32° 10' 1.582 N	103° 24' 43.014 W
9,075.00	0.39	102.29	9,051.22	-81.88	469.30	425,734.62	785,110.80	32° 10' 1.582 N	103° 24' 43.012 W
9,100.00	0.37	72.31	9,076.22	-81.87	469.46	425,734.63	785,110.96	32° 10' 1.582 N	103° 24' 43.010 W
9,125.00	0.25	98.77	9,101.22	-81.85	469.59	425,734.64	785,111.09	32° 10' 1.582 N	103° 24' 43.008 W
9,150.00	0.19	71.11	9,126.22	-81.85	469.68	425,734.65	785,111.18	32° 10' 1.582 N	103° 24' 43.007 W
9,175.00	0.24	81.76	9,151.22	-81.83	469.78	425,734.67	785,111.27	32° 10' 1.582 N	103° 24' 43.006 W
9,200.00	0.28	53.91	9,176.22	-81.79	469.88	425,734.71	785,111.37	32° 10' 1.583 N	103° 24' 43.005 W
9,225.00	0.13	85.07	9,201.22	-81.75	469.95	425,734.75	785,111.45	32° 10' 1.583 N	103° 24' 43.004 W
9,250.00	0.06	358.71	9,226.22	-81.73	469.98	425,734.77	785,111.48	32° 10' 1.583 N	103° 24' 43.004 W
9,275.00	0.05	216.19	9,251.22	-81.73	469.98	425,734.77	785,111.47	32° 10' 1.583 N	103° 24' 43.004 W
9,300.00	0.19	269.86	9,276.22	-81.74	469.93	425,734.76	785,111.42	32° 10' 1.583 N	103° 24' 43.004 W
9,325.00	0.16	245.88	9,301.22	-81.75	469.85	425,734.75	785,111.35	32° 10' 1.583 N	103° 24' 43.005 W
9,350.00	0.25	275.89	9,326.22	-81.76	469.77	425,734.74	785,111.27	32° 10' 1.583 N	103° 24' 43.006 W
9,375.00	0.33	247.73	9,351.22	-81.78	469.65	425,734.72	785,111.14	32° 10' 1.583 N	103° 24' 43.008 W
9,400.00	0.28	275.97	9,376.22	-81.80	469.52	425,734.70	785,111.02	32° 10' 1.583 N	103° 24' 43.009 W
9,425.00	0.39	279.23	9,401.22	-81.78	469.38	425,734.72	785,110.87	32° 10' 1.583 N	103° 24' 43.011 W
9,450.00	0.41	258.20	9,426.22	-81.79	469.20	425,734.71	785,110.70	32° 10' 1.583 N	103° 24' 43.013 W
9,475.00	0.25	257.64	9,451.22	-81.82	469.06	425,734.68	785,110.56	32° 10' 1.583 N	103° 24' 43.014 W
9,500.00	0.52	256.56	9,476.22	-81.85	468.90	425,734.65	785,110.40	32° 10' 1.582 N	103° 24' 43.016 W
9,525.00	0.46	256.14	9,501.22	-81.90	468.69	425,734.59	785,110.19	32° 10' 1.582 N	103° 24' 43.019 W

LEAM Drilling Systems

Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #706H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Site:	Stove Pipe Federal Com	MD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Well:	#706H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	LEAM Multi_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
9,550.00	0.50	260.53	9,526.22	-81.95	468.49	425,734.55	785,109.98	32° 10' 1.581 N	103° 24' 43.021 W
9,575.00	0.47	270.23	9,551.22	-81.96	468.28	425,734.54	785,109.77	32° 10' 1.581 N	103° 24' 43.024 W
9,600.00	0.58	255.31	9,576.21	-82.00	468.05	425,734.50	785,109.55	32° 10' 1.581 N	103° 24' 43.026 W
9,625.00	0.45	258.21	9,601.21	-82.05	467.83	425,734.45	785,109.33	32° 10' 1.580 N	103° 24' 43.029 W
9,650.00	0.45	256.39	9,626.21	-82.09	467.64	425,734.41	785,109.14	32° 10' 1.580 N	103° 24' 43.031 W
9,675.00	0.48	265.11	9,651.21	-82.12	467.44	425,734.38	785,108.94	32° 10' 1.580 N	103° 24' 43.033 W
9,700.00	0.36	245.73	9,676.21	-82.16	467.27	425,734.33	785,108.76	32° 10' 1.579 N	103° 24' 43.035 W
9,725.00	0.46	235.97	9,701.21	-82.25	467.11	425,734.25	785,108.61	32° 10' 1.578 N	103° 24' 43.037 W
9,750.00	0.50	230.88	9,726.21	-82.38	466.94	425,734.12	785,108.44	32° 10' 1.577 N	103° 24' 43.039 W
9,775.00	0.52	216.64	9,751.21	-82.54	466.79	425,733.96	785,108.29	32° 10' 1.576 N	103° 24' 43.041 W
9,800.00	0.54	233.66	9,776.21	-82.70	466.63	425,733.80	785,108.13	32° 10' 1.574 N	103° 24' 43.043 W
9,825.00	0.49	231.94	9,801.21	-82.83	466.45	425,733.67	785,107.95	32° 10' 1.573 N	103° 24' 43.045 W
9,850.00	0.92	248.47	9,826.20	-82.97	466.18	425,733.53	785,107.68	32° 10' 1.571 N	103° 24' 43.048 W
9,875.00	1.24	256.83	9,851.20	-83.11	465.73	425,733.39	785,107.23	32° 10' 1.570 N	103° 24' 43.053 W
9,900.00	1.41	254.68	9,876.19	-83.25	465.17	425,733.25	785,106.67	32° 10' 1.569 N	103° 24' 43.060 W
9,925.00	1.48	255.21	9,901.19	-83.42	464.56	425,733.08	785,106.06	32° 10' 1.567 N	103° 24' 43.067 W
9,950.00	1.52	250.73	9,926.18	-83.61	463.93	425,732.89	785,105.43	32° 10' 1.565 N	103° 24' 43.074 W
9,975.00	1.96	249.73	9,951.17	-83.87	463.22	425,732.63	785,104.72	32° 10' 1.563 N	103° 24' 43.083 W
10,000.00	1.98	244.61	9,976.15	-84.20	462.43	425,732.30	785,103.93	32° 10' 1.560 N	103° 24' 43.092 W
10,025.00	2.14	239.97	10,001.13	-84.62	461.63	425,731.88	785,103.13	32° 10' 1.556 N	103° 24' 43.101 W
10,050.00	2.32	230.52	10,026.12	-85.17	460.84	425,731.33	785,102.34	32° 10' 1.550 N	103° 24' 43.110 W
10,075.00	2.38	226.33	10,051.09	-85.85	460.07	425,730.65	785,101.57	32° 10' 1.543 N	103° 24' 43.119 W
10,100.00	2.48	228.58	10,076.07	-86.57	459.29	425,729.93	785,100.79	32° 10' 1.536 N	103° 24' 43.128 W
10,125.00	2.65	221.76	10,101.05	-87.36	458.50	425,729.14	785,100.00	32° 10' 1.529 N	103° 24' 43.138 W
10,150.00	2.99	215.25	10,126.02	-88.32	457.74	425,728.18	785,099.24	32° 10' 1.519 N	103° 24' 43.147 W
10,175.00	3.22	212.50	10,150.98	-89.45	456.99	425,727.05	785,098.48	32° 10' 1.508 N	103° 24' 43.156 W
10,200.00	3.09	213.09	10,175.94	-90.60	456.24	425,725.90	785,097.74	32° 10' 1.497 N	103° 24' 43.164 W
10,225.00	2.97	211.55	10,200.91	-91.72	455.54	425,724.78	785,097.03	32° 10' 1.486 N	103° 24' 43.173 W
10,250.00	2.76	209.81	10,225.88	-92.79	454.90	425,723.71	785,096.39	32° 10' 1.475 N	103° 24' 43.180 W
10,275.00	2.75	209.60	10,250.85	-93.84	454.30	425,722.66	785,095.80	32° 10' 1.465 N	103° 24' 43.187 W
10,300.00	2.98	210.12	10,275.82	-94.92	453.68	425,721.58	785,095.18	32° 10' 1.454 N	103° 24' 43.195 W
10,325.00	2.87	213.02	10,300.78	-96.01	453.01	425,720.49	785,094.51	32° 10' 1.444 N	103° 24' 43.202 W
10,350.00	2.84	215.56	10,325.75	-97.04	452.31	425,719.46	785,093.81	32° 10' 1.433 N	103° 24' 43.211 W
10,375.00	2.79	221.27	10,350.72	-98.00	451.55	425,718.50	785,093.05	32° 10' 1.424 N	103° 24' 43.220 W
10,400.00	2.74	223.93	10,375.69	-98.89	450.73	425,717.61	785,092.23	32° 10' 1.415 N	103° 24' 43.229 W
10,425.00	2.57	234.14	10,400.67	-99.64	449.86	425,716.86	785,091.36	32° 10' 1.408 N	103° 24' 43.239 W
10,450.00	2.52	237.56	10,425.64	-100.27	448.95	425,716.23	785,090.44	32° 10' 1.402 N	103° 24' 43.250 W
10,475.00	2.65	241.15	10,450.62	-100.84	447.98	425,715.66	785,089.47	32° 10' 1.396 N	103° 24' 43.262 W
10,500.00	2.63	240.46	10,475.59	-101.40	446.97	425,715.10	785,088.47	32° 10' 1.391 N	103° 24' 43.273 W
10,525.00	2.45	241.58	10,500.57	-101.94	446.00	425,714.56	785,087.50	32° 10' 1.385 N	103° 24' 43.285 W
10,550.00	2.18	240.62	10,525.55	-102.43	445.12	425,714.07	785,086.62	32° 10' 1.381 N	103° 24' 43.295 W
10,575.00	1.64	242.53	10,550.53	-102.83	444.39	425,713.67	785,085.88	32° 10' 1.377 N	103° 24' 43.304 W
10,600.00	1.27	250.50	10,575.52	-103.08	443.81	425,713.42	785,085.31	32° 10' 1.374 N	103° 24' 43.310 W
10,625.00	1.29	254.65	10,600.52	-103.25	443.28	425,713.25	785,084.77	32° 10' 1.373 N	103° 24' 43.316 W
10,650.00	1.19	260.38	10,625.51	-103.37	442.75	425,713.13	785,084.25	32° 10' 1.372 N	103° 24' 43.323 W
10,675.00	1.27	266.28	10,650.51	-103.43	442.22	425,713.07	785,083.71	32° 10' 1.371 N	103° 24' 43.329 W
10,700.00	1.48	272.15	10,675.50	-103.43	441.62	425,713.06	785,083.11	32° 10' 1.371 N	103° 24' 43.336 W
10,725.00	1.77	273.82	10,700.49	-103.40	440.91	425,713.10	785,082.41	32° 10' 1.371 N	103° 24' 43.344 W
10,750.00	2.03	273.80	10,725.47	-103.34	440.08	425,713.16	785,081.58	32° 10' 1.372 N	103° 24' 43.354 W
10,775.00	2.15	274.59	10,750.46	-103.28	439.17	425,713.22	785,080.67	32° 10' 1.373 N	103° 24' 43.364 W
10,800.00	2.02	269.75	10,775.44	-103.24	438.26	425,713.26	785,079.76	32° 10' 1.373 N	103° 24' 43.375 W
10,825.00	1.97	289.39	10,800.43	-103.10	437.42	425,713.40	785,078.92	32° 10' 1.375 N	103° 24' 43.385 W
10,850.00	1.76	284.02	10,825.41	-102.86	436.64	425,713.64	785,078.14	32° 10' 1.377 N	103° 24' 43.394 W

LEAM Drilling Systems

Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #706H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Site:	Stove Pipe Federal Com	MD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Well:	#706H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	LEAM Multi_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
10,875.00	1.53	288.12	10,850.40	-102.67	435.95	425,713.83	785,077.45	32° 10' 1.379 N	103° 24' 43.402 W
10,900.00	1.28	291.72	10,875.39	-102.46	435.37	425,714.04	785,076.87	32° 10' 1.381 N	103° 24' 43.408 W
10,925.00	1.23	299.99	10,900.39	-102.22	434.88	425,714.28	785,076.38	32° 10' 1.384 N	103° 24' 43.414 W
10,950.00	1.06	303.65	10,925.38	-101.96	434.46	425,714.54	785,075.96	32° 10' 1.386 N	103° 24' 43.419 W
10,975.00	0.97	307.78	10,950.38	-101.70	434.10	425,714.80	785,075.60	32° 10' 1.389 N	103° 24' 43.423 W
11,000.00	0.94	315.56	10,975.38	-101.43	433.79	425,715.07	785,075.28	32° 10' 1.392 N	103° 24' 43.427 W
11,025.00	1.13	338.18	11,000.37	-101.05	433.55	425,715.45	785,075.05	32° 10' 1.395 N	103° 24' 43.429 W
11,050.00	1.31	341.86	11,025.37	-100.55	433.37	425,715.95	785,074.87	32° 10' 1.400 N	103° 24' 43.431 W
11,075.00	1.41	344.98	11,050.36	-99.98	433.20	425,716.52	785,074.70	32° 10' 1.406 N	103° 24' 43.433 W
11,100.00	1.38	342.70	11,075.35	-99.40	433.03	425,717.10	785,074.53	32° 10' 1.412 N	103° 24' 43.435 W
11,125.00	1.44	352.79	11,100.34	-98.80	432.90	425,717.70	785,074.40	32° 10' 1.418 N	103° 24' 43.437 W
11,150.00	1.45	352.89	11,125.34	-98.17	432.83	425,718.33	785,074.32	32° 10' 1.424 N	103° 24' 43.438 W
11,175.00	1.09	351.23	11,150.33	-97.62	432.75	425,718.88	785,074.25	32° 10' 1.429 N	103° 24' 43.438 W
11,200.00	0.73	359.65	11,175.33	-97.23	432.71	425,719.27	785,074.21	32° 10' 1.433 N	103° 24' 43.439 W
11,225.00	0.56	348.98	11,200.33	-96.95	432.69	425,719.55	785,074.19	32° 10' 1.436 N	103° 24' 43.439 W
11,250.00	0.40	5.60	11,225.33	-96.74	432.67	425,719.76	785,074.17	32° 10' 1.438 N	103° 24' 43.439 W
11,275.00	0.40	25.30	11,250.32	-96.58	432.72	425,719.92	785,074.22	32° 10' 1.440 N	103° 24' 43.439 W
11,300.00	0.48	36.60	11,275.32	-96.41	432.82	425,720.09	785,074.32	32° 10' 1.441 N	103° 24' 43.437 W
11,325.00	0.40	69.90	11,300.32	-96.30	432.96	425,720.20	785,074.46	32° 10' 1.442 N	103° 24' 43.436 W
11,350.00	0.38	83.76	11,325.32	-96.26	433.13	425,720.24	785,074.63	32° 10' 1.443 N	103° 24' 43.434 W
11,375.00	0.42	79.71	11,350.32	-96.24	433.30	425,720.26	785,074.80	32° 10' 1.443 N	103° 24' 43.432 W
11,400.00	0.35	94.04	11,375.32	-96.22	433.47	425,720.27	785,074.96	32° 10' 1.443 N	103° 24' 43.430 W
11,425.00	0.40	88.29	11,400.32	-96.23	433.63	425,720.27	785,075.13	32° 10' 1.443 N	103° 24' 43.428 W
11,450.00	0.33	103.79	11,425.32	-96.24	433.79	425,720.26	785,075.29	32° 10' 1.443 N	103° 24' 43.426 W
11,475.00	0.38	125.19	11,450.32	-96.31	433.93	425,720.19	785,075.42	32° 10' 1.442 N	103° 24' 43.425 W
11,500.00	0.58	150.60	11,475.32	-96.47	434.06	425,720.03	785,075.55	32° 10' 1.441 N	103° 24' 43.423 W
11,525.00	0.65	150.38	11,500.32	-96.70	434.19	425,719.80	785,075.69	32° 10' 1.438 N	103° 24' 43.422 W
11,550.00	0.69	150.59	11,525.32	-96.95	434.33	425,719.55	785,075.83	32° 10' 1.436 N	103° 24' 43.420 W
11,575.00	0.73	140.64	11,550.31	-97.21	434.51	425,719.29	785,076.00	32° 10' 1.433 N	103° 24' 43.418 W
11,600.00	0.80	125.39	11,575.31	-97.43	434.75	425,719.07	785,076.25	32° 10' 1.431 N	103° 24' 43.415 W
11,625.00	0.76	114.41	11,600.31	-97.60	435.04	425,718.90	785,076.54	32° 10' 1.429 N	103° 24' 43.412 W
11,650.00	0.85	117.71	11,625.31	-97.76	435.36	425,718.74	785,076.86	32° 10' 1.428 N	103° 24' 43.408 W
11,675.00	0.93	130.65	11,650.30	-97.97	435.68	425,718.53	785,077.17	32° 10' 1.426 N	103° 24' 43.404 W
11,700.00	0.99	164.27	11,675.30	-98.31	435.89	425,718.19	785,077.39	32° 10' 1.422 N	103° 24' 43.402 W
11,725.00	0.96	191.17	11,700.30	-98.73	435.91	425,717.77	785,077.40	32° 10' 1.418 N	103° 24' 43.402 W
11,800.00	2.09	224.53	11,775.27	-100.32	434.83	425,716.18	785,076.32	32° 10' 1.402 N	103° 24' 43.414 W
11,901.00	1.31	173.01	11,876.23	-102.78	433.67	425,713.72	785,075.17	32° 10' 1.378 N	103° 24' 43.428 W
11,994.00	1.92	128.03	11,969.20	-104.79	435.03	425,711.71	785,076.53	32° 10' 1.358 N	103° 24' 43.413 W
12,026.00	2.28	125.40	12,001.18	-105.49	435.97	425,711.01	785,077.47	32° 10' 1.351 N	103° 24' 43.402 W
12,057.00	2.15	141.89	12,032.15	-106.31	436.83	425,710.19	785,078.33	32° 10' 1.343 N	103° 24' 43.392 W
12,088.00	1.51	183.87	12,063.14	-107.17	437.17	425,709.33	785,078.66	32° 10' 1.334 N	103° 24' 43.388 W
12,119.00	2.31	189.49	12,094.12	-108.20	437.03	425,708.30	785,078.53	32° 10' 1.324 N	103° 24' 43.390 W
12,151.00	3.19	186.08	12,126.08	-109.72	436.83	425,706.78	785,078.33	32° 10' 1.309 N	103° 24' 43.392 W
12,183.00	5.55	183.58	12,157.99	-112.15	436.64	425,704.35	785,078.14	32° 10' 1.285 N	103° 24' 43.395 W
12,215.00	10.40	176.49	12,189.67	-116.58	436.72	425,699.92	785,078.22	32° 10' 1.241 N	103° 24' 43.394 W
12,247.00	15.41	172.90	12,220.85	-123.68	437.43	425,692.82	785,078.92	32° 10' 1.171 N	103° 24' 43.387 W
12,278.00	20.81	169.85	12,250.31	-133.20	438.91	425,683.30	785,080.40	32° 10' 1.077 N	103° 24' 43.370 W
12,310.00	26.23	168.13	12,279.64	-145.72	441.36	425,670.78	785,082.86	32° 10' 0.953 N	103° 24' 43.343 W
12,342.00	29.94	165.93	12,307.86	-160.40	444.76	425,656.10	785,086.26	32° 10' 0.807 N	103° 24' 43.305 W
12,373.00	33.67	168.48	12,334.21	-176.33	448.36	425,640.17	785,089.86	32° 10' 0.649 N	103° 24' 43.265 W
12,405.00	35.84	167.19	12,360.50	-194.16	452.21	425,622.34	785,093.71	32° 10' 0.472 N	103° 24' 43.222 W
12,437.00	37.18	165.76	12,386.22	-212.66	456.67	425,603.84	785,098.16	32° 10' 0.289 N	103° 24' 43.172 W
12,468.00	39.42	163.99	12,410.54	-231.21	461.69	425,585.29	785,103.18	32° 10' 0.105 N	103° 24' 43.115 W

LEAM Drilling Systems

Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #706H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Site:	Stove Pipe Federal Com	MD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Well:	#706H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	LEAM Multi_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
12,498.00	39.92	163.30	12,433.64	-249.58	467.08	425,566.92	785,108.58	32° 9' 59.923 N	103° 24' 43.054 W
12,529.00	40.60	163.78	12,457.29	-268.80	472.75	425,547.70	785,114.25	32° 9' 59.732 N	103° 24' 42.990 W
12,560.00	41.91	162.64	12,480.60	-288.36	478.66	425,528.14	785,120.16	32° 9' 59.538 N	103° 24' 42.923 W
12,591.00	45.98	163.54	12,502.91	-308.94	484.91	425,507.56	785,126.41	32° 9' 59.334 N	103° 24' 42.853 W
12,623.00	53.20	167.62	12,523.65	-332.53	490.93	425,483.97	785,132.43	32° 9' 59.100 N	103° 24' 42.785 W
12,655.00	58.68	171.26	12,541.57	-358.58	495.76	425,457.92	785,137.25	32° 9' 58.842 N	103° 24' 42.731 W
12,687.00	65.39	174.62	12,556.57	-386.61	499.20	425,429.89	785,140.70	32° 9' 58.564 N	103° 24' 42.694 W
12,721.00	72.06	178.91	12,568.90	-418.22	500.96	425,398.28	785,142.46	32° 9' 58.251 N	103° 24' 42.677 W
12,753.00	77.65	180.84	12,577.26	-449.09	501.02	425,367.41	785,142.52	32° 9' 57.946 N	103° 24' 42.679 W
12,784.00	81.75	181.34	12,582.80	-479.58	500.44	425,336.92	785,141.94	32° 9' 57.644 N	103° 24' 42.689 W
12,815.00	82.71	180.75	12,586.99	-510.29	499.88	425,306.21	785,141.38	32° 9' 57.340 N	103° 24' 42.699 W
12,847.00	84.47	180.22	12,590.57	-542.09	499.61	425,274.41	785,141.11	32° 9' 57.026 N	103° 24' 42.705 W
12,941.00	87.91	180.05	12,596.81	-635.86	499.39	425,180.64	785,140.89	32° 9' 56.098 N	103° 24' 42.717 W
13,037.00	88.55	179.60	12,599.78	-731.82	499.68	425,084.68	785,141.18	32° 9' 55.148 N	103° 24' 42.723 W
13,130.00	89.24	180.79	12,601.57	-824.80	499.37	424,991.70	785,140.87	32° 9' 54.228 N	103° 24' 42.736 W
13,224.00	90.11	178.82	12,602.10	-918.79	499.69	424,897.71	785,141.19	32° 9' 53.298 N	103° 24' 42.741 W
13,318.00	88.42	180.00	12,603.31	-1,012.77	500.66	424,803.73	785,142.15	32° 9' 52.368 N	103° 24' 42.740 W
13,413.00	88.61	181.83	12,605.77	-1,107.72	499.14	424,708.78	785,140.64	32° 9' 51.429 N	103° 24' 42.767 W
13,508.00	89.63	180.58	12,607.23	-1,202.69	497.14	424,613.81	785,138.64	32° 9' 50.489 N	103° 24' 42.799 W
13,601.00	88.93	181.82	12,608.40	-1,295.66	495.19	424,520.84	785,136.69	32° 9' 49.569 N	103° 24' 42.831 W
13,696.00	90.05	180.19	12,609.24	-1,390.63	493.53	424,425.87	785,135.03	32° 9' 48.630 N	103° 24' 42.860 W
13,791.00	87.47	181.76	12,611.30	-1,485.59	491.91	424,330.91	785,133.41	32° 9' 47.690 N	103° 24' 42.888 W
13,884.00	89.59	181.70	12,613.69	-1,578.51	489.11	424,237.99	785,130.60	32° 9' 46.771 N	103° 24' 42.930 W
13,978.00	88.74	181.04	12,615.06	-1,672.47	486.86	424,144.03	785,128.36	32° 9' 45.841 N	103° 24' 42.966 W
14,073.00	88.84	180.46	12,617.06	-1,767.44	485.62	424,049.06	785,127.11	32° 9' 44.902 N	103° 24' 42.990 W
14,167.00	87.49	178.28	12,620.07	-1,861.38	486.65	423,955.12	785,128.15	32° 9' 43.972 N	103° 24' 42.987 W
14,261.00	90.27	176.59	12,621.91	-1,955.25	490.85	423,861.25	785,132.35	32° 9' 43.043 N	103° 24' 42.947 W
14,356.00	90.17	174.49	12,621.55	-2,049.96	498.24	423,766.54	785,139.74	32° 9' 42.105 N	103° 24' 42.871 W
14,453.00	91.44	174.49	12,620.18	-2,146.50	507.55	423,670.00	785,149.05	32° 9' 41.149 N	103° 24' 42.772 W
14,547.00	90.45	175.22	12,618.63	-2,240.11	515.98	423,576.39	785,157.48	32° 9' 40.222 N	103° 24' 42.684 W
14,638.00	89.46	176.71	12,618.70	-2,330.88	522.39	423,485.62	785,163.88	32° 9' 39.323 N	103° 24' 42.618 W
14,732.00	90.02	179.37	12,619.13	-2,424.81	525.60	423,391.69	785,167.10	32° 9' 38.393 N	103° 24' 42.590 W
14,826.00	88.30	181.33	12,620.51	-2,518.79	525.03	423,297.71	785,166.52	32° 9' 37.464 N	103° 24' 42.606 W
14,920.00	87.17	180.12	12,624.22	-2,612.71	523.84	423,203.79	785,165.33	32° 9' 36.534 N	103° 24' 42.629 W
15,014.00	88.55	181.13	12,627.73	-2,706.63	522.81	423,109.86	785,164.31	32° 9' 35.605 N	103° 24' 42.651 W
15,107.00	87.54	179.97	12,630.91	-2,799.57	521.92	423,016.93	785,163.42	32° 9' 34.685 N	103° 24' 42.670 W
15,201.00	90.10	180.33	12,632.84	-2,893.55	521.67	422,922.95	785,163.17	32° 9' 33.756 N	103° 24' 42.682 W
15,296.00	89.32	180.40	12,633.32	-2,988.54	521.07	422,827.96	785,162.57	32° 9' 32.816 N	103° 24' 42.699 W
15,391.00	92.29	183.20	12,631.99	-3,083.47	518.09	422,733.03	785,159.58	32° 9' 31.877 N	103° 24' 42.743 W
15,485.00	92.46	183.03	12,628.09	-3,177.25	512.98	422,639.25	785,154.48	32° 9' 30.949 N	103° 24' 42.812 W
15,580.00	91.85	182.67	12,624.52	-3,272.06	508.26	422,544.44	785,149.76	32° 9' 30.011 N	103° 24' 42.876 W
15,673.00	91.65	182.42	12,621.68	-3,364.93	504.14	422,451.57	785,145.63	32° 9' 29.093 N	103° 24' 42.933 W
15,767.00	89.69	182.39	12,620.58	-3,458.83	500.19	422,357.67	785,141.69	32° 9' 28.164 N	103° 24' 42.989 W
15,862.00	89.11	182.23	12,621.58	-3,553.75	496.36	422,262.75	785,137.86	32° 9' 27.225 N	103° 24' 43.043 W
15,957.00	88.93	182.20	12,623.20	-3,648.66	492.69	422,167.84	785,134.19	32° 9' 26.286 N	103° 24' 43.095 W
16,051.00	88.23	180.86	12,625.53	-3,742.60	490.18	422,073.90	785,131.68	32° 9' 25.357 N	103° 24' 43.133 W
16,145.00	87.80	180.10	12,628.79	-3,836.54	489.39	421,979.96	785,130.89	32° 9' 24.427 N	103° 24' 43.152 W
16,240.00	87.77	180.00	12,632.46	-3,931.47	489.31	421,885.03	785,130.81	32° 9' 23.488 N	103° 24' 43.162 W
16,334.00	88.73	177.04	12,635.33	-4,025.38	491.74	421,791.12	785,133.24	32° 9' 22.558 N	103° 24' 43.143 W
16,428.00	91.52	176.04	12,635.12	-4,119.20	497.41	421,697.30	785,138.91	32° 9' 21.630 N	103° 24' 43.087 W
16,523.00	93.62	177.65	12,630.86	-4,213.95	502.64	421,602.55	785,144.13	32° 9' 20.691 N	103° 24' 43.035 W
16,616.00	93.29	177.08	12,625.26	-4,306.68	506.90	421,509.82	785,148.40	32° 9' 19.774 N	103° 24' 42.995 W
16,710.00	93.54	178.60	12,619.66	-4,400.45	510.44	421,416.05	785,151.94	32° 9' 18.845 N	103° 24' 42.963 W

LEAM Drilling Systems

Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #706H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Site:	Stove Pipe Federal Com	MD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Well:	#706H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	LEAM Multi_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
16,804.00	92.99	180.52	12,614.31	-4,494.29	511.16	421,322.21	785,152.66	32° 9' 17.917 N	103° 24' 42.964 W
16,899.00	90.86	181.31	12,611.11	-4,589.21	509.64	421,227.29	785,151.14	32° 9' 16.978 N	103° 24' 42.991 W
16,993.00	94.30	184.44	12,606.88	-4,682.98	504.94	421,133.52	785,146.44	32° 9' 16.050 N	103° 24' 43.055 W
17,087.00	91.50	183.62	12,602.13	-4,776.61	498.34	421,039.89	785,139.84	32° 9' 15.124 N	103° 24' 43.141 W
17,181.00	91.08	182.62	12,600.01	-4,870.45	493.23	420,946.05	785,134.72	32° 9' 14.196 N	103° 24' 43.210 W
17,276.00	93.73	181.66	12,596.03	-4,965.29	489.68	420,851.21	785,131.18	32° 9' 13.258 N	103° 24' 43.261 W
17,369.00	90.34	180.71	12,592.72	-5,058.20	487.76	420,758.30	785,129.26	32° 9' 12.339 N	103° 24' 43.292 W
17,464.00	88.71	180.51	12,593.51	-5,153.18	486.75	420,663.32	785,128.25	32° 9' 11.399 N	103° 24' 43.314 W
17,558.00	89.26	180.67	12,595.18	-5,247.16	485.78	420,569.34	785,127.28	32° 9' 10.469 N	103° 24' 43.334 W
17,652.00	88.17	179.64	12,597.28	-5,341.14	485.53	420,475.36	785,127.03	32° 9' 9.539 N	103° 24' 43.347 W
17,746.00	88.64	178.94	12,599.90	-5,435.09	486.69	420,381.41	785,128.19	32° 9' 8.609 N	103° 24' 43.342 W
17,840.00	88.44	177.85	12,602.30	-5,529.02	489.32	420,287.48	785,130.82	32° 9' 7.680 N	103° 24' 43.321 W
17,934.00	90.18	179.25	12,603.43	-5,622.98	491.70	420,193.52	785,133.20	32° 9' 6.750 N	103° 24' 43.303 W
18,029.00	88.00	176.33	12,604.94	-5,717.88	495.36	420,098.62	785,136.86	32° 9' 5.810 N	103° 24' 43.270 W
18,123.00	87.20	176.61	12,608.87	-5,811.62	501.15	420,004.88	785,142.64	32° 9' 4.882 N	103° 24' 43.212 W
18,218.00	89.23	177.43	12,611.83	-5,906.44	506.08	419,910.06	785,147.58	32° 9' 3.944 N	103° 24' 43.164 W
18,313.00	90.65	177.21	12,611.93	-6,001.33	510.52	419,815.17	785,152.02	32° 9' 3.004 N	103° 24' 43.122 W
18,408.00	91.34	177.55	12,610.28	-6,096.22	514.87	419,720.28	785,156.36	32° 9' 2.065 N	103° 24' 43.080 W
18,501.00	91.70	177.35	12,607.81	-6,189.09	519.00	419,627.41	785,160.50	32° 9' 1.146 N	103° 24' 43.042 W
18,594.00	90.82	177.23	12,605.77	-6,281.97	523.40	419,534.53	785,164.90	32° 9' 0.226 N	103° 24' 43.000 W
18,688.00	90.33	178.08	12,604.83	-6,375.88	527.24	419,440.62	785,168.74	32° 8' 59.297 N	103° 24' 42.964 W
18,782.00	89.68	177.68	12,604.82	-6,469.82	530.72	419,346.68	785,172.22	32° 8' 58.367 N	103° 24' 42.933 W
18,877.00	89.59	177.64	12,605.42	-6,564.74	534.60	419,251.76	785,176.10	32° 8' 57.427 N	103° 24' 42.898 W
18,971.00	89.03	178.19	12,606.56	-6,658.67	538.02	419,157.83	785,179.52	32° 8' 56.498 N	103° 24' 42.867 W
19,064.00	89.78	178.73	12,607.52	-6,751.63	540.52	419,064.87	785,182.02	32° 8' 55.577 N	103° 24' 42.847 W
19,158.00	93.23	178.49	12,605.05	-6,845.55	542.80	418,970.95	785,184.30	32° 8' 54.648 N	103° 24' 42.830 W
19,252.00	94.22	179.36	12,598.95	-6,939.34	544.56	418,877.16	785,186.06	32° 8' 53.720 N	103° 24' 42.819 W
19,344.00	91.63	179.27	12,594.25	-7,031.20	545.66	418,785.30	785,187.15	32° 8' 52.811 N	103° 24' 42.815 W
19,439.00	91.46	179.42	12,591.69	-7,126.16	546.74	418,690.34	785,188.24	32° 8' 51.871 N	103° 24' 42.812 W
19,534.00	93.83	180.24	12,587.31	-7,221.05	547.02	418,595.45	785,188.52	32° 8' 50.932 N	103° 24' 42.818 W
19,629.00	92.96	180.35	12,581.68	-7,315.88	546.54	418,500.62	785,188.03	32° 8' 49.993 N	103° 24' 42.834 W
19,723.00	92.68	180.56	12,577.06	-7,409.77	545.79	418,406.73	785,187.29	32° 8' 49.065 N	103° 24' 42.852 W
19,817.00	92.68	180.47	12,572.66	-7,503.66	544.95	418,312.84	785,186.44	32° 8' 48.136 N	103° 24' 42.871 W
19,911.00	92.55	180.17	12,568.37	-7,597.56	544.42	418,218.94	785,185.92	32° 8' 47.206 N	103° 24' 42.886 W
20,006.00	93.05	179.89	12,563.73	-7,692.45	544.37	418,124.05	785,185.87	32° 8' 46.267 N	103° 24' 42.896 W
20,100.00	92.16	179.87	12,559.46	-7,786.35	544.57	418,030.15	785,186.07	32° 8' 45.338 N	103° 24' 42.903 W
20,193.00	92.14	179.86	12,555.97	-7,879.28	544.79	417,937.22	785,186.29	32° 8' 44.419 N	103° 24' 42.910 W
20,288.00	91.99	180.12	12,552.55	-7,974.22	544.80	417,842.28	785,186.30	32° 8' 43.479 N	103° 24' 42.919 W
20,382.00	91.94	180.15	12,549.32	-8,068.16	544.58	417,748.34	785,186.08	32° 8' 42.550 N	103° 24' 42.931 W
20,476.00	91.49	179.89	12,546.51	-8,162.12	544.55	417,654.38	785,186.05	32° 8' 41.620 N	103° 24' 42.941 W
20,570.00	91.56	179.68	12,544.01	-8,256.09	544.90	417,560.41	785,186.40	32° 8' 40.690 N	103° 24' 42.946 W
20,665.00	91.42	179.15	12,541.54	-8,351.05	545.87	417,465.45	785,187.37	32° 8' 39.750 N	103° 24' 42.944 W
20,759.00	90.20	178.54	12,540.21	-8,445.02	547.77	417,371.48	785,189.26	32° 8' 38.820 N	103° 24' 42.932 W
20,854.00	90.18	178.51	12,539.89	-8,539.99	550.21	417,276.51	785,191.71	32° 8' 37.880 N	103° 24' 42.913 W
20,948.00	90.38	179.09	12,539.44	-8,633.97	552.18	417,182.53	785,193.68	32° 8' 36.950 N	103° 24' 42.899 W
21,043.00	90.53	178.38	12,538.68	-8,728.94	554.28	417,087.56	785,195.78	32° 8' 36.010 N	103° 24' 42.884 W
21,137.00	90.32	178.58	12,537.98	-8,822.90	556.77	416,993.60	785,198.27	32° 8' 35.080 N	103° 24' 42.864 W
21,231.00	91.13	181.24	12,536.79	-8,916.89	556.92	416,899.61	785,198.42	32° 8' 34.150 N	103° 24' 42.872 W
21,326.00	91.32	181.68	12,534.76	-9,011.83	554.50	416,804.67	785,196.00	32° 8' 33.211 N	103° 24' 42.910 W
21,420.00	91.21	181.92	12,532.69	-9,105.76	551.55	416,710.74	785,193.05	32° 8' 32.282 N	103° 24' 42.953 W
21,515.00	91.41	182.00	12,530.52	-9,200.68	548.30	416,615.82	785,189.80	32° 8' 31.343 N	103° 24' 43.001 W
21,609.00	91.56	181.63	12,528.08	-9,294.60	545.32	416,521.90	785,186.82	32° 8' 30.414 N	103° 24' 43.045 W
21,704.00	91.36	181.78	12,525.66	-9,389.53	542.50	416,426.97	785,184.00	32° 8' 29.475 N	103° 24' 43.087 W

LEAM Drilling Systems

Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #706H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Site:	Stove Pipe Federal Com	MD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Well:	#706H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	LEAM Multi_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
21,797.00	90.88	181.50	12,523.84	-9,482.48	539.84	416,334.02	785,181.33	32° 8' 28.555 N	103° 24' 43.127 W
21,893.00	90.27	181.29	12,522.88	-9,578.44	537.50	416,238.06	785,179.00	32° 8' 27.606 N	103° 24' 43.164 W
21,987.00	92.49	180.69	12,520.61	-9,672.39	535.88	416,144.11	785,177.37	32° 8' 26.676 N	103° 24' 43.192 W
22,082.00	92.88	180.57	12,516.16	-9,767.28	534.83	416,049.22	785,176.33	32° 8' 25.737 N	103° 24' 43.214 W
22,177.00	92.79	180.44	12,511.47	-9,862.16	534.00	415,954.34	785,175.49	32° 8' 24.799 N	103° 24' 43.233 W
22,271.00	91.77	180.15	12,507.73	-9,956.09	533.51	415,860.41	785,175.01	32° 8' 23.869 N	103° 24' 43.248 W
22,364.00	92.15	180.24	12,504.54	-10,049.03	533.20	415,767.47	785,174.69	32° 8' 22.949 N	103° 24' 43.261 W
22,459.00	89.52	180.52	12,503.16	-10,144.01	532.57	415,672.49	785,174.06	32° 8' 22.010 N	103° 24' 43.277 W
22,553.00	89.66	180.65	12,503.83	-10,238.00	531.61	415,578.50	785,173.10	32° 8' 21.080 N	103° 24' 43.298 W
22,648.00	90.57	180.60	12,503.64	-10,333.00	530.57	415,483.50	785,172.07	32° 8' 20.140 N	103° 24' 43.319 W
22,741.00	92.14	181.26	12,501.44	-10,425.95	529.06	415,390.54	785,170.56	32° 8' 19.220 N	103° 24' 43.346 W
22,835.00	92.17	181.18	12,497.91	-10,519.87	527.06	415,296.63	785,168.56	32° 8' 18.291 N	103° 24' 43.379 W
22,930.00	91.73	180.95	12,494.68	-10,614.80	525.30	415,201.70	785,166.79	32° 8' 17.352 N	103° 24' 43.409 W
23,024.00	89.42	180.12	12,493.73	-10,708.78	524.42	415,107.72	785,165.92	32° 8' 16.422 N	103° 24' 43.428 W
23,040.00	89.23	180.22	12,493.92	-10,724.78	524.37	415,091.72	785,165.87	32° 8' 16.264 N	103° 24' 43.430 W
23,094.00	89.23	180.23	12,494.65	-10,778.77	524.16	415,037.73	785,165.66	32° 8' 15.729 N	103° 24' 43.438 W

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL(Stove Pipe Federal	0.00	0.00	0.00	0.00	0.00	425,816.50	784,641.50	32° 10' 2.432 N	103° 24' 48.463 W
- actual wellpath hits target center									
- Point									
PBHL(Stove Pipe Federi	0.00	179.59	12,500.0	-10,778.60	543.90	415,037.90	785,185.40	32° 8' 15.729 N	103° 24' 43.209 W
0									
- actual wellpath misses target center by 20.45usft at 23093.82usft MD (12494.64 TVD, -10778.59 N, 524.16 E)									
- Rectangle (sides W60.00 H10,290.00 D0.00)									
LTP(Stove Pipe Federal	0.00	0.00	12,501.0	-10,728.60	543.60	415,087.90	785,185.10	32° 8' 16.224 N	103° 24' 43.207 W
0									
- actual wellpath misses target center by 20.84usft at 23040.00usft MD (12493.92 TVD, -10724.78 N, 524.37 E)									
- Point									
TGT#1 (Stove Pipe Fedr	90.00	179.59	12,550.0	-7,983.74	523.89	417,832.76	785,165.39	32° 8' 43.387 N	103° 24' 43.163 W
0									
- actual wellpath misses target center by 21.01usft at 20297.65usft MD (12552.21 TVD, -7983.87 N, 544.78 E)									
- Point									
FTP(Stove Pipe Federal	0.00	0.00	12,600.0	-366.60	469.30	425,449.90	785,110.80	32° 9' 58.765 N	103° 24' 43.040 W
0									
- actual wellpath misses target center by 56.38usft at 12686.61usft MD (12556.41 TVD, -386.26 N, 499.17 E)									
- Point									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
12,664.00	12,546.12	-366.26	496.87	100' Heel HL Crossing
23,045.60	12,494.00	-10,730.38	524.35	100' Toe HL Crossing
23,094.00	12,494.65	-10,778.77	524.16	BHL - Projection

LEAM Drilling Systems

Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #706H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Site:	Stove Pipe Federal Com	MD Reference:	GE 3348.2' + KB 31 @ 3379.20usft (Precision 106)
Well:	#706H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	LEAM Multi_User Db

Checked By: _____	Approved By: _____	Date: _____
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