

PATRIOT DRILLING, LLC

OPERATOR: COG Operating, LLC
WELL/LEASE: Cookie Tosser St Com 1H
COUNTY: Eddy Co., New Mexico
Sec. 9, T 18S, R 30E

3001542439

**STATE OF NEW MEXICO
DEVIATION REPORT**

<u>Depth</u>	<u>Deviation</u>	<u>Depth</u>	<u>Deviation</u>
440	1 1/4	4,253	1
709	1 1/4	4,730	2
1,120	1 3/4	5,169	2
1,500	1 3/4	5,638	2 1/4
1,918	2 1/4	5,928	1 1/4
2,394	2	6,387	3 1/4
2,840	1	6,842	3/4
3,335	1/2	7,331	1 1/4
3,799	1		

NM OIL CONSERVATION
ARTESIA DISTRICT

MAY 02 2016

RECEIVED

Patriot Drilling, LLC

M. Leroy Peterson, Executive Vice-President

The foregoing instrument was acknowledged before me on this 12th day of August, 2015 by M. Leroy Peterson, Executive Vice-President of Patriot Drilling, LLC.

My Commission Expires: 02/01/2019

Lori J. Rowan
Notary Public for Ector Co., Texas





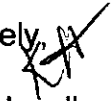
August 4, 2015

Concho Resources, Inc.
One Concho Center
600 W. Illinois Avenue
Midland, Texas 79701

Attn: Kanicia Castillo

RE: **Cookie Tossler State Com No 001H**

Please find enclosed a copy of the survey from 0' to 7350' ran on the above referenced well.

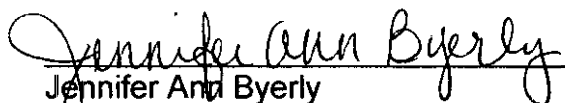
Sincerely,

Keith Havelka
Operations

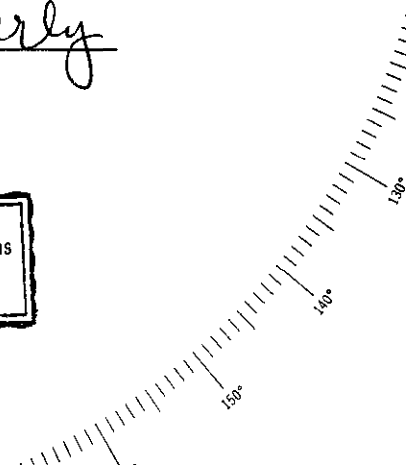
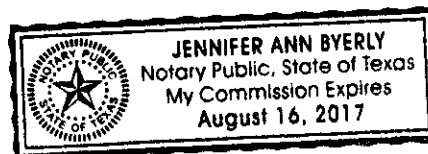
NM OIL CONSERVATION
ARTESIA DISTRICT
MAY 02 2016

STATE OF TEXAS §
 §
COUNTY OF NUECES §

RECEIVED

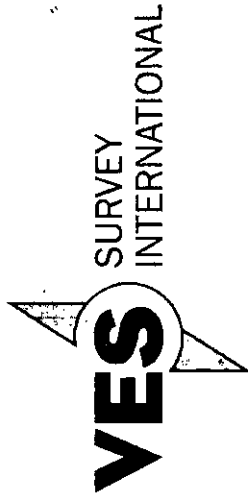
This instrument was acknowledged before me on the 4 day of August, A.D., 2015, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas





Company: Cog Operating LLC
 Lease/Well: Cookie Tosser State Com No/001H
 Rig Name: Patriot 6
 State/County: New Mexico /Eddy
 VS-Azi: 0.00 Degrees
 Latitude: 32.75375, Longitude: -103.97109
 Grid North = True North -0.20 degs (NAD 27)



NM OIL CONSERVATION
 ARTESIA DISTRICT
 MAY 02 2016
 RECEIVED

Depth Reference : R.K.B= 18 FT
 DRILLOG HA GYRO SURVEY CALCULATIONS
 Filename: cookie tosser state com 1h.ut
 Minimum Curvature Method
 Report Date/Time: 8/4/2015 / 12:30
 VES Survey International
 (432) 563-5444
 West Texas
 Surveyor: Javier Estrada
 Cookie Tosser State Com No 001H / API 30-015-42439

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N-S FT	+E-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.21	151.65	100.00	-0.16	0.09	-0.16	0.18	151.65	0.21
200.00	0.31	159.44	200.00	-0.58	0.27	-0.58	0.63	154.98	0.11
300.00	0.18	172.51	300.00	-0.99	0.38	-0.99	1.06	158.73	0.14
400.00	0.37	197.56	400.00	-1.46	0.31	-1.46	1.49	168.06	0.22
500.00	1.34	218.08	499.98	-2.69	-0.51	-2.69	2.73	190.79	1.00
600.00	1.79	220.86	599.95	-4.79	-2.25	-4.79	5.29	205.21	0.45
700.00	1.13	212.80	699.91	-6.80	-3.81	-6.80	7.79	209.27	0.68
800.00	1.03	221.27	799.90	-8.30	-4.94	-8.30	9.66	210.74	0.19
900.00	1.10	225.02	899.88	-9.66	-6.21	-9.66	11.49	212.74	0.10
1000.00	0.81	212.70	999.86	-10.94	-7.28	-10.94	13.14	213.64	0.36
1100.00	1.30	205.32	1099.85	-12.55	-8.14	-12.55	14.96	212.96	0.50
1200.00	0.42	133.63	1199.84	-13.83	-8.36	-13.83	16.16	211.14	1.23
1300.00	0.58	112.16	1299.83	-14.28	-7.62	-14.28	16.19	208.10	0.24
1400.00	0.79	129.12	1399.83	-14.91	-6.62	-14.91	16.31	203.94	0.29
1500.00	1.25	101.73	1499.81	-15.56	-5.02	-15.56	16.35	197.86	0.65
1600.00	1.63	90.19	1599.78	-15.79	-2.53	-15.79	15.99	189.10	0.48
1700.00	2.02	83.17	1699.73	-15.58	0.65	-15.58	15.60	177.62	0.45
1800.00	2.32	78.21	1799.66	-14.96	4.38	-14.96	15.59	163.67	0.35

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/S FT	+E/W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	2.13	74.24	1899.58	-14.04	8.15	-14.04	16.24	149.86	0.25
2000.00	1.66	76.46	1999.53	-13.20	11.35	-13.20	17.41	139.30	0.47
2100.00	1.20	79.15	2099.49	-12.66	13.79	-12.66	18.72	132.55	0.47
2200.00	1.21	76.19	2199.47	-12.19	15.84	-12.19	19.99	127.58	0.08
2300.00	1.12	71.66	2299.45	-11.62	17.79	-11.62	21.25	123.14	0.12
2400.00	0.92	73.44	2399.44	-11.08	19.48	-11.08	22.41	119.63	0.20
2500.00	0.92	66.87	2499.42	-10.54	20.99	-10.54	23.48	116.66	0.11
2600.00	0.83	52.23	2599.41	-9.78	22.30	-9.78	24.35	113.68	0.24
2700.00	0.82	45.14	2699.40	-8.83	23.38	-8.83	24.99	110.70	0.10
2800.00	0.83	43.46	2799.39	-7.80	24.38	-7.80	25.60	107.75	0.03
2900.00	0.82	49.60	2899.38	-6.81	25.42	-6.81	26.32	105.00	0.09
3000.00	1.08	35.34	2999.37	-5.58	26.52	-5.58	27.10	101.88	0.35
3100.00	0.66	48.57	3099.36	-4.42	27.50	-4.42	27.85	99.14	0.46
3200.00	0.74	43.20	3199.35	-3.57	28.37	-3.57	28.60	97.17	0.10
3300.00	0.55	52.75	3299.34	-2.81	29.20	-2.81	29.33	95.50	0.22
3400.00	0.55	354.74	3399.34	-2.04	29.53	-2.04	29.60	93.95	0.53
3500.00	0.25	19.04	3499.34	-1.35	29.56	-1.35	29.59	92.61	0.34
3600.00	0.26	322.70	3599.33	-0.96	29.49	-0.96	29.51	91.86	0.24
3700.00	0.42	335.35	3699.33	-0.44	29.20	-0.44	29.21	90.87	0.17
3800.00	0.43	335.67	3799.33	0.23	28.90	0.23	28.90	89.54	0.02
3900.00	0.55	318.65	3899.33	0.94	28.42	0.94	28.44	88.11	0.19
4000.00	0.40	340.50	3999.32	1.62	27.99	1.62	28.04	86.68	0.24
4100.00	0.63	323.26	4099.32	2.39	27.54	2.39	27.65	85.04	0.28
4200.00	0.98	329.58	4199.31	3.57	26.78	3.57	27.02	82.40	0.36
4300.00	0.90	329.80	4299.30	4.99	25.95	4.99	26.42	79.11	0.08
4400.00	1.41	322.93	4399.27	6.65	24.81	6.65	25.69	74.99	0.52
4500.00	2.79	323.55	4499.21	9.59	22.63	9.59	24.58	67.03	1.38
4600.00	2.07	325.75	4599.11	13.04	20.17	13.04	24.01	57.11	0.72
4700.00	1.74	323.43	4699.06	15.76	18.24	15.76	24.10	49.18	0.34
4800.00	1.75	316.87	4799.01	18.09	16.29	18.09	24.35	42.01	0.20
4900.00	1.39	309.11	4898.98	19.97	14.31	19.97	24.57	35.63	0.41
5000.00	1.02	289.35	4998.95	21.03	12.53	21.03	24.48	30.78	0.55
5100.00	1.35	285.68	5098.93	21.64	10.55	21.64	24.08	25.98	0.34
5200.00	1.51	246.41	5198.90	21.44	8.20	21.44	22.95	20.95	0.97
5300.00	2.17	259.28	5298.85	20.56	5.14	20.56	21.19	14.03	0.77
5400.00	1.90	246.45	5398.79	19.54	1.76	19.54	19.62	5.13	0.53
5500.00	1.89	256.17	5498.73	18.48	-1.36	18.48	18.53	355.78	0.32
5600.00	1.79	254.60	5598.68	17.68	-4.46	17.68	18.23	345.83	0.11
5700.00	1.74	248.76	5698.64	16.71	-7.38	16.71	18.27	336.16	0.18

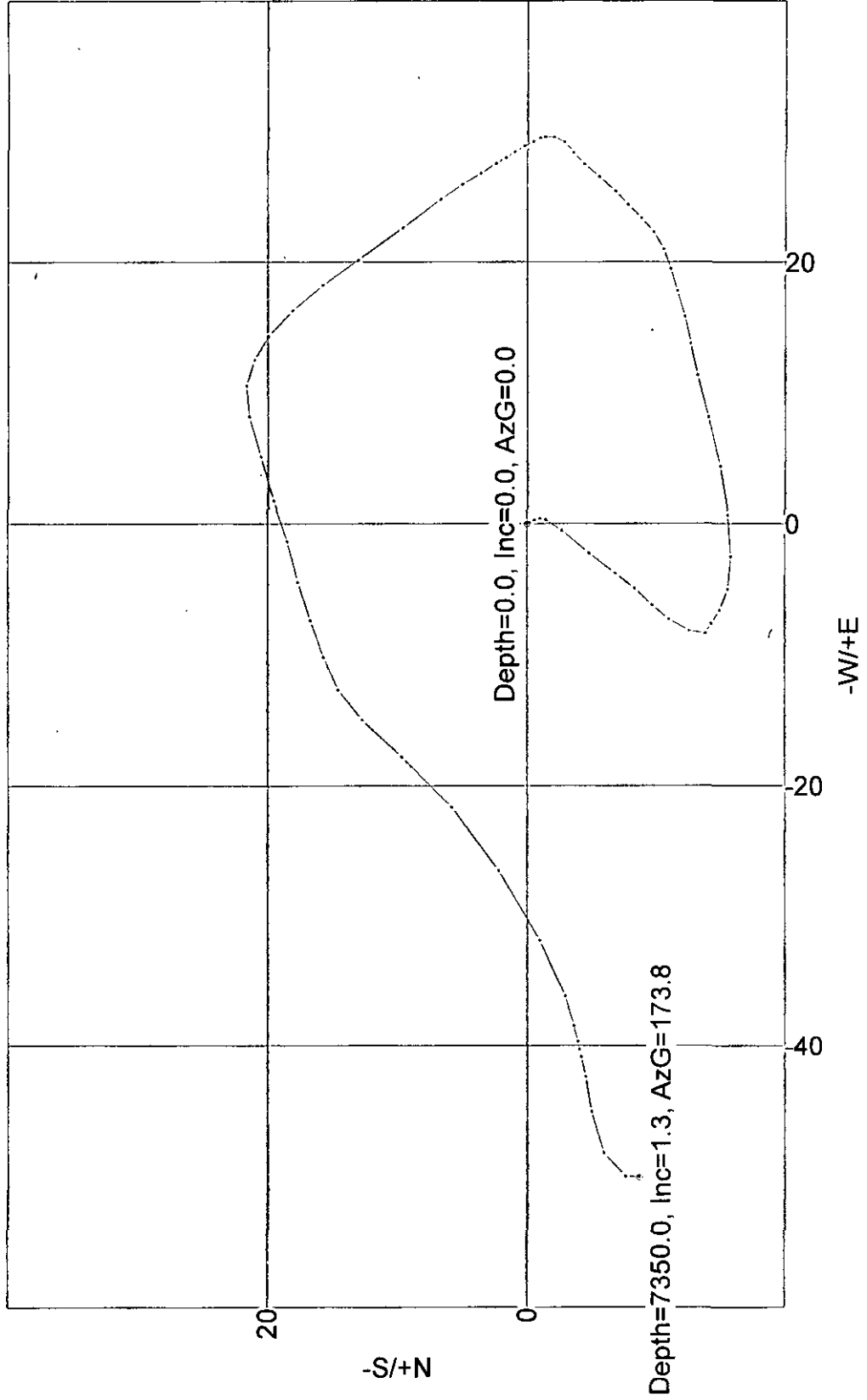
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/S FT	+E/W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	1.68	251.47	5798.59	15.70	-10.19	15.70	18.71	327.01	0.10
5900.00	1.45	238.73	5898.55	14.57	-12.66	14.57	19.30	319.02	0.41
6000.00	1.95	225.76	5998.51	12.73	-14.96	12.73	19.64	310.38	0.63
6100.00	2.82	220.30	6098.42	9.66	-17.78	9.66	20.23	298.52	0.90
6200.00	3.43	229.20	6198.27	5.83	-21.63	5.83	22.41	285.08	0.78
6300.00	3.55	236.99	6298.09	2.19	-26.49	2.19	26.58	274.72	0.49
6400.00	3.61	241.89	6397.89	-0.98	-31.87	-0.98	31.88	268.24	0.31
6500.00	1.83	252.69	6497.78	-2.94	-36.17	-2.94	36.29	265.35	1.85
6600.00	0.92	255.05	6597.75	-3.62	-38.47	-3.62	38.64	264.62	0.92
6700.00	0.49	258.61	6697.74	-3.91	-39.67	-3.91	39.86	264.36	0.43
6800.00	0.26	259.55	6797.74	-4.04	-40.31	-4.04	40.51	264.28	0.23
6900.00	0.41	253.54	6897.74	-4.18	-40.87	-4.18	41.08	264.16	0.15
7000.00	1.40	258.91	6997.72	-4.52	-42.41	-4.52	42.65	263.92	1.00
7100.00	1.75	261.51	7097.68	-4.98	-45.12	-4.98	45.40	263.70	0.35
7200.00	2.09	246.67	7197.63	-5.93	-48.30	-5.93	48.66	263.01	0.60
7300.00	1.12	189.36	7297.59	-7.61	-50.13	-7.61	50.71	261.37	1.76
7350.00	1.29	173.81	7347.58	-8.65	-50.15	-8.65	50.89	260.21	0.73



VES Survey International
(432) 563-5444
West Texas
Surveyor: Javier Estrada
Cookie Tosser State Com No 001H / API 30-015-42439



SURVEY
INTERNATIONAL





I JAVIER ESTRADA certify that I am employed by Vaughn Energy Services. That I did on the day(s) of 07/29/15 through 07/29/15 conduct or supervise the taking of a RATE GYRO survey from a depth of 0 feet to a depth of 7350 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Vaughn Energy Services, that I am authorized and qualified to make this report; that this survey was conducted at the request of COG OPERATING for the COOKIE TOSSER STATE COM Well # 1H API # 30-015-42439 in EDDY County / Parish NEW MEXICO; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by Vaughn Energy Services



JAVIER ESTRADA
Service Technician
Vaughn Energy Services



COG Operating LLC.

Eddy County, NM

Cookie Tossler State Com

#1H

OH

Survey: MWD #1

Survey Report - Geographic

12 August, 2015



Wellplanning
Survey Report - Geographic

Company:	COG Operating LLC.	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County, NM	TVD Reference:	WELL @ 3435.7usft (Patriot #6 - 18' KB)
Site:	Cookie Tosser State Com	MD Reference:	WELL @ 3435.7usft (Patriot #6 - 18' KB)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Project	Eddy 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	Cookie Tosser State Com				
Site Position:	Northing:	638,116.90 usft	Latitude:	32° 45' 13.512 N	
From: Map	Easting:	611,365.40 usft	Longitude:	103° 58' 15.925 W	
Position Uncertainty:	2.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.20 °

Well	#1H					
Well Position	+N/-S	0.0 usft	Northing:	638,116.90 usft	Latitude:	32° 45' 13.512 N
	+E/-W	0.0 usft	Easting:	611,365.40 usft	Longitude:	103° 58' 15.925 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,417.7 usft	

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010	7/11/2015	(°)	(°)	(nT)
			7.31	60.51	48,484

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	171.73	

Survey Program	Date	8/12/2015			
From	To	Survey (Wellbore)	Tool Name	Description	
(usft)	(usft)				
100.0	7,350.0	GYRO (OH)	NS-GYRO-SS	NS Gyro single shots	
7,538.0	12,622.0	MWD #1 (OH)	MWD	MWD - Standard	

Survey										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Map Northing	Map Easting	Latitude	Longitude	
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)			
7,350.0	1.29	173.81	7,347.6	-8.7	-50.2	638,108.25	611,315.25	32° 45' 13.428 N	103° 58' 16.513 W	
Hurl State Com #1 (200' Rad)										
7,538.0	1.10	156.80	7,535.5	-12.4	-49.2	638,104.48	611,316.19	32° 45' 13.391 N	103° 58' 16.502 W	
7,601.0	0.50	131.80	7,598.5	-13.2	-48.8	638,103.74	611,316.63	32° 45' 13.384 N	103° 58' 16.497 W	
7,633.0	1.70	145.00	7,630.5	-13.6	-48.4	638,103.26	611,317.01	32° 45' 13.379 N	103° 58' 16.493 W	
7,664.0	6.30	153.00	7,661.4	-15.5	-47.4	638,101.37	611,318.04	32° 45' 13.360 N	103° 58' 16.481 W	
7,696.0	10.80	154.70	7,693.1	-19.8	-45.3	638,097.09	611,320.12	32° 45' 13.318 N	103° 58' 16.456 W	
7,728.0	14.20	156.70	7,724.3	-26.1	-42.4	638,090.77	611,322.96	32° 45' 13.255 N	103° 58' 16.423 W	
7,759.0	16.70	157.00	7,754.2	-33.7	-39.2	638,083.18	611,326.20	32° 45' 13.180 N	103° 58' 16.386 W	
7,791.0	18.80	156.30	7,784.7	-42.7	-35.3	638,074.23	611,330.07	32° 45' 13.091 N	103° 58' 16.341 W	
7,823.0	21.60	159.20	7,814.7	-52.9	-31.2	638,064.00	611,334.24	32° 45' 12.990 N	103° 58' 16.292 W	



Wellplanning
Survey Report - Geographic

Company:	COG Operating LLC..	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County, NM	TVD Reference:	WELL @ 3435.7usft (Patriot #6 - 18' KB)
Site:	Cookie Tosser State Com	MD Reference:	WELL @ 3435.7usft (Patriot #6 - 18' KB)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
7,854.0	23.80	161.40	7,843.3	-64.2	-27.1	638,052.73	611,338.26	32° 45' 12.878 N	103° 58' 16.246 W
7,886.0	26.00	163.50	7,872.3	-77.0	-23.1	638,039.89	611,342.31	32° 45' 12.751 N	103° 58' 16.199 W
7,918.0	29.60	163.70	7,900.6	-91.3	-18.9	638,025.57	611,346.52	32° 45' 12.609 N	103° 58' 16.150 W
7,949.0	34.30	162.80	7,926.9	-107.0	-14.1	638,009.87	611,351.26	32° 45' 12.454 N	103° 58' 16.095 W
7,981.0	37.90	162.40	7,952.8	-125.0	-8.5	637,991.88	611,356.90	32° 45' 12.275 N	103° 58' 16.030 W
8,013.0	40.00	162.80	7,977.7	-144.2	-2.5	637,972.69	611,362.91	32° 45' 12.085 N	103° 58' 15.960 W
8,044.0	42.50	163.90	8,001.0	-163.8	3.4	637,953.10	611,368.76	32° 45' 11.891 N	103° 58' 15.893 W
8,076.0	46.00	164.70	8,023.9	-185.3	9.4	637,931.61	611,374.80	32° 45' 11.678 N	103° 58' 15.823 W
8,107.0	48.60	163.80	8,044.9	-207.2	15.6	637,909.69	611,380.99	32° 45' 11.461 N	103° 58' 15.751 W
8,139.0	50.40	164.00	8,065.7	-230.6	22.3	637,886.31	611,387.73	32° 45' 11.230 N	103° 58' 15.673 W
8,171.0	52.40	165.20	8,085.6	-254.7	29.0	637,862.20	611,394.37	32° 45' 10.991 N	103° 58' 15.596 W
8,202.0	55.40	165.90	8,103.9	-279.0	35.2	637,837.95	611,400.62	32° 45' 10.751 N	103° 58' 15.524 W
8,234.0	59.20	166.50	8,121.2	-305.1	41.6	637,811.80	611,407.04	32° 45' 10.492 N	103° 58' 15.450 W
8,266.0	62.70	166.60	8,136.7	-332.3	48.1	637,784.60	611,413.54	32° 45' 10.222 N	103° 58' 15.375 W
8,297.0	65.70	167.10	8,150.2	-359.5	54.5	637,757.42	611,419.89	32° 45' 9.953 N	103° 58' 15.302 W
8,329.0	68.80	166.60	8,162.6	-388.2	61.2	637,728.69	611,426.60	32° 45' 9.669 N	103° 58' 15.224 W
8,360.0	72.50	166.40	8,172.9	-416.7	68.0	637,700.25	611,433.43	32° 45' 9.387 N	103° 58' 15.145 W
8,392.0	76.30	168.50	8,181.5	-446.7	74.7	637,670.18	611,440.12	32° 45' 9.089 N	103° 58' 15.068 W
8,424.0	79.10	168.30	8,188.3	-477.4	81.0	637,639.55	611,446.41	32° 45' 8.786 N	103° 58' 14.996 W
8,455.0	81.70	170.10	8,193.5	-507.4	86.7	637,609.53	611,452.13	32° 45' 8.489 N	103° 58' 14.930 W
8,487.0	84.40	170.80	8,197.3	-538.7	92.0	637,578.21	611,457.40	32° 45' 8.179 N	103° 58' 14.870 W
8,550.0	87.70	171.70	8,201.7	-600.8	101.6	637,516.10	611,466.96	32° 45' 7.564 N	103° 58' 14.760 W
8,645.0	88.60	170.90	8,204.7	-694.7	115.9	637,422.24	611,481.32	32° 45' 6.634 N	103° 58' 14.596 W
8,720.0	89.20	172.70	8,206.2	-768.9	126.6	637,348.03	611,492.02	32° 45' 5.900 N	103° 58' 14.474 W
8,815.0	91.20	171.60	8,205.8	-863.0	139.6	637,253.92	611,504.99	32° 45' 4.968 N	103° 58' 14.325 W
8,878.0	90.70	171.20	8,204.8	-925.3	149.0	637,191.64	611,514.41	32° 45' 4.351 N	103° 58' 14.218 W
8,973.0	89.00	173.50	8,205.0	-1,019.4	161.7	637,097.50	611,527.05	32° 45' 3.419 N	103° 58' 14.073 W
9,099.0	90.50	172.30	8,205.6	-1,144.4	177.2	636,972.47	611,542.63	32° 45' 2.182 N	103° 58' 13.896 W
9,226.0	88.40	173.00	8,206.8	-1,270.4	193.5	636,846.53	611,558.87	32° 45' 0.935 N	103° 58' 13.711 W
9,323.0	85.70	171.40	8,211.8	-1,366.3	206.6	636,750.56	611,572.02	32° 44' 59.985 N	103° 58' 13.561 W
9,418.0	86.30	170.20	8,218.4	-1,459.9	221.8	636,657.02	611,587.17	32° 44' 59.059 N	103° 58' 13.387 W
9,545.0	88.70	169.60	8,224.0	-1,584.8	244.0	636,532.11	611,609.42	32° 44' 57.822 N	103° 58' 13.132 W
9,640.0	88.90	171.10	8,226.0	-1,678.4	259.9	636,438.48	611,625.34	32° 44' 56.895 N	103° 58' 12.949 W
9,734.0	91.00	171.80	8,226.0	-1,771.4	273.9	636,345.53	611,639.31	32° 44' 55.975 N	103° 58' 12.789 W
9,861.0	88.80	173.80	8,226.3	-1,897.4	289.8	636,219.55	611,655.23	32° 44' 54.727 N	103° 58' 12.608 W
9,945.0	89.60	172.70	8,227.4	-1,980.8	299.7	636,136.14	611,665.10	32° 44' 53.902 N	103° 58' 12.496 W
10,072.0	87.40	171.20	8,230.8	-2,106.5	317.5	636,010.45	611,682.88	32° 44' 52.657 N	103° 58' 12.292 W
10,167.0	88.40	170.50	8,234.2	-2,200.2	332.6	635,916.72	611,697.97	32° 44' 51.729 N	103° 58' 12.119 W
10,262.0	89.30	170.40	8,236.2	-2,293.8	348.3	635,823.06	611,713.73	32° 44' 50.802 N	103° 58' 11.939 W
10,357.0	88.10	170.80	8,238.3	-2,387.5	363.8	635,729.36	611,729.24	32° 44' 49.874 N	103° 58' 11.761 W
10,452.0	88.40	170.10	8,241.2	-2,481.2	379.6	635,635.72	611,745.00	32° 44' 48.947 N	103° 58' 11.580 W
10,547.0	87.70	170.50	8,244.4	-2,574.8	395.6	635,542.13	611,760.99	32° 44' 48.021 N	103° 58' 11.397 W
10,673.0	86.10	171.60	8,251.3	-2,699.1	415.2	635,417.85	611,780.57	32° 44' 46.790 N	103° 58' 11.172 W
10,768.0	85.60	172.30	8,258.1	-2,792.9	428.4	635,324.04	611,793.84	32° 44' 45.861 N	103° 58' 11.021 W
10,895.0	84.90	174.20	8,268.6	-2,918.5	443.3	635,198.36	611,808.71	32° 44' 44.617 N	103° 58' 10.852 W
10,990.0	87.00	174.60	8,275.4	-3,012.9	452.6	635,104.05	611,817.96	32° 44' 43.684 N	103° 58' 10.747 W
11,085.0	91.00	174.60	8,277.0	-3,107.4	461.5	635,009.51	611,826.90	32° 44' 42.748 N	103° 58' 10.646 W
11,180.0	90.20	173.90	8,276.0	-3,201.9	471.0	634,914.99	611,836.41	32° 44' 41.812 N	103° 58' 10.539 W
11,274.0	91.50	173.80	8,274.6	-3,295.4	481.1	634,821.55	611,846.48	32° 44' 40.887 N	103° 58' 10.425 W
11,369.0	90.00	173.30	8,273.4	-3,389.7	491.7	634,727.16	611,857.15	32° 44' 39.953 N	103° 58' 10.303 W
11,464.0	91.80	173.40	8,271.9	-3,484.1	502.7	634,632.81	611,868.15	32° 44' 39.019 N	103° 58' 10.178 W
11,591.0	89.70	173.00	8,270.2	-3,610.2	517.8	634,506.72	611,883.19	32° 44' 37.771 N	103° 58' 10.008 W
11,749.0	87.10	173.10	8,274.6	-3,766.9	536.9	634,349.96	611,902.30	32° 44' 36.219 N	103° 58' 9.790 W
11,844.0	87.90	173.20	8,278.8	-3,861.2	548.2	634,255.73	611,913.62	32° 44' 35.286 N	103° 58' 9.661 W
11,939.0	87.10	173.10	8,282.9	-3,955.4	559.5	634,161.50	611,924.94	32° 44' 34.353 N	103° 58' 9.533 W



Wellplanning
Survey Report - Geographic

Company:	COG Operating LLC.	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County, NM	TVD Reference:	WELL @ 3435.7usft (Patriot #6 - 18' KB)
Site:	Cookie Tossler State Com	MD Reference:	WELL @ 3435.7usft (Patriot #6 - 18' KB)
Well:	#1H	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	
12,034.0	88.70	173.00	8,286.4	-4,049.6	571.0	634,067.26	611,936.42	32° 44' 33.420 N	103° 58' 9.402 W	
12,129.0	90.00	172.80	8,287.5	-4,143.9	582.8	633,973.00	611,948.16	32° 44' 32.487 N	103° 58' 9.268 W	
12,224.0	88.80	172.30	8,288.5	-4,238.1	595.1	633,878.81	611,960.48	32° 44' 31.555 N	103° 58' 9.128 W	
12,319.0	88.00	171.40	8,291.1	-4,332.1	608.5	633,784.80	611,973.94	32° 44' 30.624 N	103° 58' 8.974 W	
12,431.0	89.10	170.80	8,294.0	-4,442.7	625.9	633,674.19	611,991.27	32° 44' 29.529 N	103° 58' 8.776 W	
12,622.0	89.10	170.80	8,297.0	-4,631.2	656.4	633,485.67	612,021.80	32° 44' 27.662 N	103° 58' 8.426 W	
PBHL (CT#1H)										

Checked By: _____ Approved By: _____ Date: _____