

Results of Directional Survey

API number:	30-025-41714		
OGRID:		Operator:	COG OPERATING LLC
		Property:	TOMCAT FEE # 1H

surface	ULSTR:	D	08	T 19S	R 35E
				370 FNL	760 FWL

BH Loc	ULSTR:	M	08	T 19S	R 35E
15160	MD	10793.9	TVD	334 FSL	629 FWL
4946 FNL					

Top Perf/OH	ULSTR:	D	08	T 19S	R 35E
10779	MD	10633.8	TVD	576 FNL	794 FWL

Bot Perf/OH	ULSTR:	M	08	T 19S	R 35E
14931	MD	10786.0	TVD	563 FSL	642 FWL
4717 FNL					

	MD	N/S	E/W	VD
	10747	-176.00	36.10	1624
TOP PERFS/OH	10779	-206.40	34.40	10633.80
	10779	-206.40	34.40	10633.80
	14913	-4329.40	-116.90	10785.20
BOT PERFS/OH	14931	-4347.36	-117.73	10786.01
	15039	-4455.10	-122.70	10790.90

NEXT TO LAST	15114	-4529.90	-127.50	10792.70
LAST READING	15160	-4575.80	-130.90	10793.90
TD	15160	-4575.80	-130.90	10793.90

Surface Location	370	FN	760	FW
Projected BHL	4946	FN	629	FW
Location of				
Top Perfs/OH	576	FN	794	FW
Bottom Perfs/OH	4717	FN	642	FW

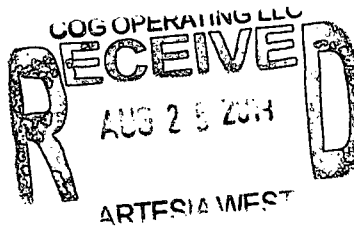
SUMMARY of Subsurface Locations

Surface Location	D-08-19S-35E	370	FN	760	FW	Vert. Depth
Top Perfs/OH	D-08-19S-35E	576	FN	794	FW	10633.80
Bottom Perfs/OH	M-08-19S-35E	4717	FN	642	FW	10786.01
Projected TD	M-08-19S-35E	4946	FN	629	FW	10793.90

OC1 20 2014

**McVAY DRILLING COMPANY**

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



Well Name and Num: Tomcat Fee #1H
Location: Sec 8, T19S, R35E
Operator: COG
Drilling Contractor: McVay Drilling Company

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

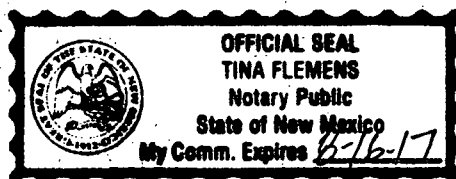
<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>
0.40	297	1.70	7626	89.70	13591
0.20	691	0.80	8195	89.00	13967
0.60	1070	2.40	8648	92.20	14440
0.40	1450	2.20	8744	88.50	15114
0.60	1840	2.00	8935		
0.10	1938	0.80	9190		
0.30	2350	0.90	9667		
0.60	2763	0.30	9855		
0.70	3175	2.90	10111		
0.40	3389	27.50	10428		
3.00	3856	53.20	10620		
2.60	4236	74.70	10779		
1.20	5058	85.00	10937		
0.20	5691	86.80	11508		
0.20	6134	87.60	12076		
0.70	6958	87.40	12644		
0.90	7212	87.60	12832		

HOBBS OCD**OCT 14 2014****RECEIVED**

By: Hunter Crow

Subscribed and sworn to before me this 21st day of August, 2014

Tina Flemens
Notary Public, Lea County, New Mexico





August 15, 2014

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

HOBBS OCD

OCT 14 2014

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Attn: Kanicia Castillo

RE: Tomcat Fee No. 001H

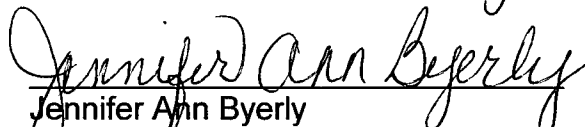
Please find enclosed a copy of the survey from 0.00' to 8550.00' ran on the above referenced well.

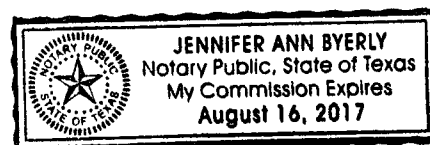
Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 15 day of August A.D., 2014, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas



Company: COG OPERATING LLC
Lease/Well: TOMCAT FEE/NO. 001H



Rig Name: MCVAY # 7
State/County: NEW MEXICO /LEA
Latitude: 32.68, Longitude: -103.49
GRID North is 0.46 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : R.K.B= 17FT

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: tomcat fee 1h.ut
Minimum Curvature Method
Report Date/Time: 8/15/2014 / 13:06

VES Survey International
(432) 563-5444
West Texas

Surveyor: Javier Estrada
Tomcat Fee No. 001H / API 30-025-41714

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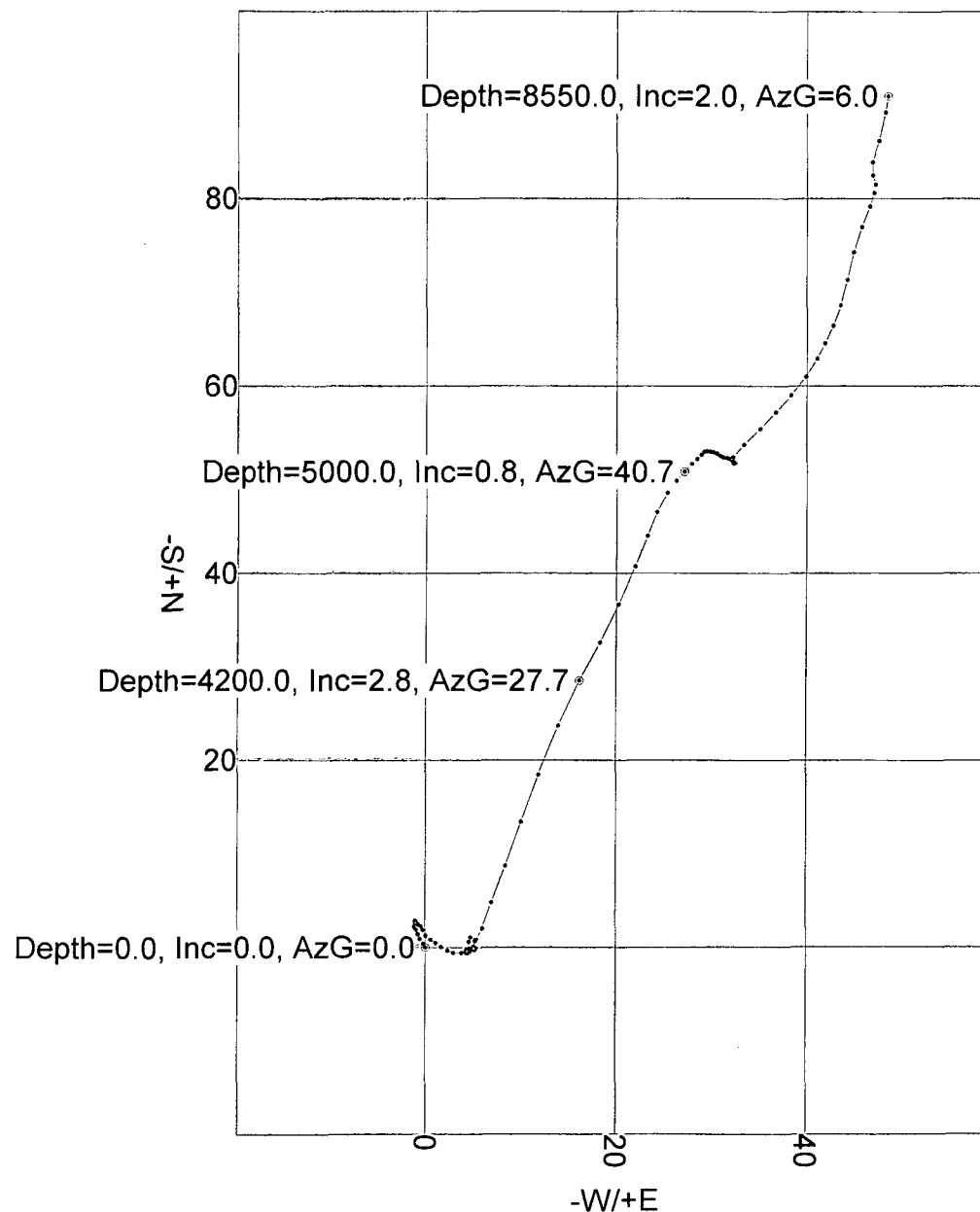
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.50	328.96	100.00	0.38	-0.23	0.38	0.44	328.96	0.50
200.00	0.26	316.96	200.00	0.92	-0.61	0.92	1.10	326.48	0.25
300.00	0.36	352.61	300.00	1.40	-0.81	1.40	1.62	330.07	0.21
400.00	0.28	310.72	399.99	1.87	-1.03	1.87	2.14	331.17	0.24
500.00	0.20	14.53	499.99	2.20	-1.17	2.20	2.49	331.92	0.26
600.00	0.26	21.52	599.99	2.57	-1.05	2.57	2.78	337.83	0.07
700.00	0.02	199.67	699.99	2.76	-0.97	2.76	2.93	340.57	0.28
800.00	0.14	336.00	799.99	2.85	-1.03	2.85	3.03	340.13	0.16
900.00	0.11	159.21	899.99	2.88	-1.05	2.88	3.06	339.99	0.25
1000.00	0.13	145.24	999.99	2.69	-0.95	2.69	2.85	340.60	0.04
1100.00	0.29	127.83	1099.99	2.44	-0.68	2.44	2.53	344.38	0.17
1200.00	0.07	128.10	1199.99	2.25	-0.44	2.25	2.29	349.03	0.22
1300.00	0.41	164.24	1299.99	1.87	-0.29	1.87	1.89	351.14	0.36
1400.00	0.38	142.52	1399.99	1.26	0.01	1.26	1.26	0.39	0.15
1500.00	0.41	119.52	1499.98	0.82	0.52	0.82	0.97	32.62	0.16
1600.00	0.30	127.76	1599.98	0.48	1.05	0.48	1.15	65.40	0.12
1700.00	0.52	124.95	1699.98	0.05	1.63	0.05	1.63	88.09	0.22
1800.00	0.37	115.38	1799.98	-0.35	2.30	-0.35	2.32	98.58	0.17

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	0.39	106.39	1899.97	-0.58	2.92	-0.58	2.97	101.27	0.06
2000.00	0.61	80.63	1999.97	-0.59	3.76	-0.59	3.81	98.90	0.31
2100.00	0.39	76.78	2099.97	-0.42	4.62	-0.42	4.64	95.26	0.22
2200.00	0.23	64.38	2199.97	-0.26	5.13	-0.26	5.14	92.91	0.17
2300.00	0.15	332.58	2299.97	-0.06	5.25	-0.06	5.25	90.61	0.28
2400.00	0.30	253.10	2399.96	-0.01	4.94	-0.01	4.94	90.17	0.31
2500.00	0.16	257.74	2499.96	-0.12	4.54	-0.12	4.55	91.53	0.14
2600.00	0.17	219.46	2599.96	-0.27	4.31	-0.27	4.32	93.55	0.11
2700.00	0.10	167.57	2699.96	-0.46	4.23	-0.46	4.26	96.26	0.14
2800.00	0.13	119.04	2799.96	-0.60	4.35	-0.60	4.39	97.86	0.10
2900.00	0.25	30.50	2899.96	-0.47	4.56	-0.47	4.58	95.89	0.27
3000.00	0.10	346.22	2999.96	-0.20	4.64	-0.20	4.65	92.49	0.19
3100.00	0.55	59.46	3099.96	0.12	5.03	0.12	5.04	88.59	0.53
3200.00	0.60	342.94	3199.96	0.87	5.29	0.87	5.36	80.68	0.71
3300.00	0.60	239.99	3299.95	1.11	4.68	1.11	4.81	76.70	0.94
3400.00	0.42	126.56	3399.95	0.63	4.53	0.63	4.57	82.12	0.86
3500.00	0.53	52.93	3499.95	0.69	5.19	0.69	5.24	82.44	0.58
3600.00	1.30	19.58	3599.94	2.04	5.94	2.04	6.28	71.09	0.90
3700.00	2.07	18.97	3699.89	4.81	6.91	4.81	8.42	55.15	0.77
3800.00	2.72	20.52	3799.80	8.74	8.33	8.74	12.08	43.62	0.65
3900.00	2.97	17.82	3899.68	13.43	9.95	13.43	16.72	36.54	0.28
4000.00	3.19	21.79	3999.54	18.48	11.78	18.48	21.92	32.51	0.30
4100.00	3.30	22.14	4099.38	23.73	13.90	23.73	27.50	30.36	0.11
4200.00	2.80	27.71	4199.23	28.55	16.11	28.55	32.78	29.44	0.58
4300.00	2.51	29.09	4299.13	32.62	18.31	32.62	37.41	29.31	0.29
4400.00	2.66	22.29	4399.03	36.69	20.26	36.69	41.91	28.91	0.34
4500.00	2.38	24.66	4498.93	40.72	22.01	40.72	46.29	28.39	0.30
4600.00	1.65	16.84	4598.87	43.99	23.29	43.99	49.77	27.90	0.77
4700.00	1.50	24.66	4698.83	46.56	24.25	46.56	52.49	27.52	0.27
4800.00	1.17	33.45	4798.80	48.59	25.36	48.59	54.81	27.56	0.39
4900.00	0.67	40.77	4898.79	49.89	26.30	49.89	56.39	27.80	0.51
5000.00	0.79	40.74	4998.78	50.85	27.13	50.85	57.64	28.08	0.13
5100.00	0.52	46.85	5098.77	51.69	27.92	51.69	58.74	28.37	0.28
5200.00	0.42	53.33	5198.77	52.21	28.54	52.21	59.50	28.66	0.12
5300.00	0.32	26.04	5298.77	52.68	28.95	52.68	60.11	28.79	0.20
5400.00	0.23	66.90	5398.77	53.01	29.26	53.01	60.55	28.90	0.21
5500.00	0.19	104.84	5498.77	53.05	29.61	53.05	60.75	29.17	0.14
5600.00	0.21	91.66	5598.77	53.00	29.95	53.00	60.88	29.48	0.05
5700.00	0.17	113.81	5698.77	52.93	30.27	52.93	60.98	29.76	0.08

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	0.28	115.15	5798.76	52.77	30.62	52.77	61.01	30.13	0.12
5900.00	0.17	142.42	5898.76	52.55	30.94	52.55	60.98	30.49	0.15
6000.00	0.25	100.66	5998.76	52.39	31.24	52.39	61.00	30.81	0.17
6100.00	0.20	90.17	6098.76	52.35	31.64	52.35	61.17	31.15	0.06
6200.00	0.17	136.85	6198.76	52.24	31.92	52.24	61.22	31.42	0.15
6300.00	0.25	114.43	6298.76	52.04	32.22	52.04	61.20	31.76	0.11
6400.00	0.18	152.25	6398.76	51.81	32.49	51.81	61.15	32.09	0.15
6500.00	0.31	286.81	6498.76	51.75	32.30	51.75	61.00	31.97	0.45
6600.00	0.69	24.53	6598.76	52.38	32.30	52.38	61.54	31.66	0.80
6700.00	1.38	47.48	6698.74	53.74	33.44	53.74	63.29	31.89	0.78
6800.00	1.38	42.77	6798.71	55.44	35.14	55.44	65.64	32.37	0.11
6900.00	1.37	41.41	6898.68	57.22	36.75	57.22	68.00	32.71	0.03
7000.00	1.39	41.77	6998.65	59.02	38.34	59.02	70.38	33.01	0.02
7100.00	1.52	34.12	7098.62	61.02	39.90	61.02	72.91	33.18	0.23
7200.00	1.04	26.95	7198.60	62.93	41.05	62.93	75.14	33.12	0.51
7300.00	1.07	25.30	7298.58	64.58	41.86	64.58	76.96	32.95	0.04
7400.00	1.29	23.08	7398.56	66.46	42.70	66.46	79.00	32.72	0.22
7500.00	1.40	19.42	7498.53	68.65	43.55	68.65	81.29	32.39	0.14
7600.00	1.79	11.93	7598.49	71.32	44.28	71.32	83.95	31.83	0.44
7700.00	1.69	13.55	7698.45	74.28	44.95	74.28	86.82	31.18	0.11
7800.00	1.55	21.75	7798.41	76.97	45.79	76.97	89.56	30.75	0.27
7900.00	1.14	19.58	7898.38	79.16	46.63	79.16	91.87	30.50	0.40
8000.00	0.59	11.89	7998.37	80.60	47.07	80.60	93.34	30.28	0.57
8100.00	0.48	4.35	8098.36	81.52	47.20	81.52	94.20	30.07	0.12
8200.00	0.72	327.82	8198.36	82.48	46.90	82.48	94.88	29.62	0.44
8300.00	1.06	20.03	8298.35	83.88	46.88	83.88	96.09	29.20	0.84
8400.00	1.69	15.86	8398.32	86.17	47.60	86.17	98.45	28.92	0.64
8500.00	1.92	10.09	8498.27	89.25	48.30	89.25	101.48	28.42	0.29
8550.00	2.02	6.02	8548.24	90.95	48.54	90.95	103.09	28.09	0.34



VES Survey International
(432) 563-5444
West Texas
Surveyor: Javier Estrada
Tomcat Fee No. 001H / API 30-025-41714



VES Survey Date: 08/07/2014



COG Operating LLC

Lea County, NM (NAD27 NME)

Tomcat Fee

#1H

OH

Survey: MWD #1

Standard Survey Report

22 August, 2014

HOBBS OCD

OCT 14 2014

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Wellplanning Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3893.8usft (Original Well Elev)
Site:	Tomcat Fee	MD Reference:	WELL @ 3893.8usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Project	Lea County, NM (NAD27 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	Tomcat Fee		
Site Position:		Northing:	612,589.00 usft
From:	Map	Easting:	760,981.50 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 40' 52.461 N
		Longitude:	103° 29' 6.450 W
		Grid Convergence:	0.46 °

Well	#1H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 40' 52.461 N
		Longitude:	103° 29' 6.450 W
		Ground Level:	3,876.8 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/24/2014	7.19	60.54	48,586

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	7.19	

Survey Program	Date 8/22/2014				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	8,550.0	GYRO (OH)	MWD	MWD - Standard	
8,648.0	15,160.0	MWD #1 (OH)	MWD	MWD - Standard	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,550.0	2.02	6.02	8,548.2	91.0	48.6	96.3	0.00	0.00	0.00	
8,648.0	2.40	1.60	8,646.2	94.7	48.8	100.1	0.42	0.39	-4.51	
8,744.0	2.20	9.30	8,742.1	98.6	49.2	104.0	0.38	-0.21	8.02	
8,840.0	2.00	15.80	8,838.0	102.0	49.9	107.5	0.32	-0.21	6.77	
8,935.0	2.00	21.70	8,933.0	105.1	51.0	110.7	0.22	0.00	6.21	
8,999.0	2.00	16.90	8,996.9	107.2	51.7	112.9	0.26	0.00	-7.50	
9,095.0	2.20	10.50	9,092.9	110.7	52.5	116.4	0.32	0.21	-6.67	
9,190.0	0.80	349.50	9,187.8	113.1	52.7	118.8	1.56	-1.47	-22.11	
9,286.0	0.70	11.50	9,283.8	114.3	52.7	120.0	0.32	-0.10	22.92	
9,382.0	1.20	7.50	9,379.8	115.9	53.0	121.6	0.53	0.52	-4.17	



Wellplanning Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3893.8usft (Original Well Elev)
Site:	Tomcat Fee	MD Reference:	WELL @ 3893.8usft (Original Well Elev)
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)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,477.0	1.10	25.80	9,474.8	117.7	53.5	123.5	0.40	-0.11	19.26
9,571.0	0.90	12.50	9,568.8	119.3	54.1	125.1	0.32	-0.21	-14.15
9,667.0	0.90	354.80	9,664.8	120.7	54.2	126.6	0.29	0.00	-18.44
9,762.0	0.60	354.40	9,759.8	122.0	54.0	127.8	0.32	-0.32	-0.42
9,856.0	0.30	9.40	9,853.7	122.7	54.0	128.5	0.34	-0.32	15.96
9,952.0	0.40	313.50	9,949.7	123.2	53.8	129.0	0.35	0.10	-58.23
10,035.0	0.30	219.20	10,032.7	123.2	53.5	128.9	0.62	-0.12	-113.61
10,047.0	0.40	184.30	10,044.7	123.2	53.5	128.9	1.92	0.83	-290.83
10,079.0	1.40	182.40	10,076.7	122.7	53.4	128.4	3.13	3.13	-5.94
10,111.0	2.90	178.30	10,108.7	121.5	53.4	127.2	4.71	4.69	-12.81
10,141.0	4.40	180.70	10,138.7	119.5	53.5	125.3	5.02	5.00	8.00
10,173.0	5.90	179.30	10,170.5	116.7	53.5	122.4	4.70	4.69	-4.38
10,205.0	7.50	178.80	10,202.3	112.9	53.5	118.7	5.00	5.00	-1.56
10,237.0	9.10	180.10	10,234.0	108.3	53.6	114.2	5.03	5.00	4.06
10,269.0	10.20	180.90	10,265.5	103.0	53.5	108.8	3.46	3.44	2.50
10,301.0	11.50	179.90	10,296.9	96.9	53.5	102.9	4.10	4.06	-3.13
10,333.0	14.60	176.70	10,328.1	89.7	53.7	95.7	9.94	9.69	-10.00
10,365.0	18.80	175.30	10,358.8	80.5	54.4	86.7	13.18	13.13	-4.38
10,396.0	22.60	175.40	10,387.8	69.6	55.3	76.0	12.26	12.26	0.32
10,428.0	27.50	177.60	10,416.7	56.1	56.1	62.7	15.58	15.31	6.88
10,460.0	31.60	180.70	10,444.6	40.3	56.3	47.1	13.67	12.81	9.69
10,492.0	35.70	183.90	10,471.2	22.6	55.5	29.4	13.96	12.81	10.00
10,524.0	39.80	185.10	10,496.5	3.1	54.0	9.8	13.02	12.81	3.75
10,556.0	44.10	186.20	10,520.3	-18.2	51.9	-11.5	13.63	13.44	3.44
10,588.0	48.40	186.40	10,542.4	-41.2	49.3	-34.7	13.45	13.44	0.63
10,620.0	53.20	186.10	10,562.6	-65.8	46.6	-59.4	15.02	15.00	-0.94
10,652.0	56.80	186.80	10,581.0	-91.8	43.7	-85.6	11.39	11.25	2.19
10,683.0	60.60	185.30	10,597.1	-118.2	40.9	-112.1	12.94	12.26	-4.84
10,715.0	65.10	184.90	10,611.7	-146.5	38.4	-140.6	14.11	14.06	-1.25
10,747.0	69.70	184.00	10,624.0	-176.0	36.1	-170.1	14.61	14.38	-2.81
10,779.0	74.70	182.30	10,633.8	-206.4	34.4	-200.5	16.42	15.63	-5.31
10,810.0	77.90	182.00	10,641.1	-236.5	33.3	-230.4	10.37	10.32	-0.97
10,841.0	79.60	182.20	10,647.2	-266.9	32.2	-260.7	5.52	5.48	0.65
10,873.0	81.20	181.80	10,652.5	-298.4	31.1	-292.2	5.15	5.00	-1.25
10,905.0	83.50	181.90	10,656.7	-330.1	30.1	-323.7	7.19	7.19	0.31
10,937.0	85.00	181.90	10,660.0	-361.9	29.0	-355.4	4.69	4.69	0.00
10,969.0	87.30	183.00	10,662.1	-393.8	27.6	-387.2	7.96	7.19	3.44
11,033.0	88.40	182.70	10,664.5	-457.7	24.5	-451.0	1.78	1.72	-0.47
11,128.0	89.00	183.00	10,666.7	-552.5	19.7	-545.7	0.71	0.63	0.32
11,223.0	89.40	182.50	10,668.0	-647.4	15.2	-640.4	0.67	0.42	-0.53
11,318.0	89.70	182.40	10,668.7	-742.3	11.1	-735.1	0.33	0.32	-0.11
11,413.0	86.90	180.80	10,671.5	-837.2	8.5	-829.6	3.39	-2.95	-1.68
11,508.0	86.90	180.70	10,676.7	-932.1	7.2	-923.9	0.11	0.00	-0.11



Wellplanning Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3893.8usft (Original Well Elev)
Site:	Tomcat Fee	MD Reference:	WELL @ 3893.8usft (Original Well Elev)
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)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,603.0	87.30	180.80	10,681.5	-1,027.0	6.0	-1,018.1	0.43	0.42	0.11
11,698.0	88.70	181.40	10,684.8	-1,121.9	4.2	-1,112.5	1.60	1.47	0.63
11,793.0	89.80	181.60	10,686.1	-1,216.8	1.7	-1,207.1	1.18	1.16	0.21
11,887.0	90.10	181.30	10,686.1	-1,310.8	-0.7	-1,300.6	0.45	0.32	-0.32
11,982.0	88.70	181.50	10,687.1	-1,405.8	-3.0	-1,395.1	1.49	-1.47	0.21
12,076.0	87.60	181.30	10,690.2	-1,499.7	-5.3	-1,488.6	1.19	-1.17	-0.21
12,172.0	88.00	181.30	10,693.8	-1,595.6	-7.5	-1,584.0	0.42	0.42	0.00
12,267.0	88.50	180.90	10,696.7	-1,690.5	-9.3	-1,678.4	0.67	0.53	-0.42
12,362.0	87.20	179.90	10,700.3	-1,785.5	-10.0	-1,772.7	1.73	-1.37	-1.05
12,456.0	87.30	179.80	10,704.8	-1,879.4	-9.7	-1,865.8	0.15	0.11	-0.11
12,550.0	87.60	180.00	10,709.0	-1,973.3	-9.6	-1,958.9	0.38	0.32	0.21
12,644.0	87.40	179.80	10,713.1	-2,067.2	-9.4	-2,052.1	0.30	-0.21	-0.21
12,739.0	87.00	179.60	10,717.7	-2,162.1	-8.9	-2,146.2	0.47	-0.42	-0.21
12,832.0	87.60	180.20	10,722.1	-2,255.0	-8.8	-2,238.3	0.91	0.65	0.65
12,926.0	86.60	179.60	10,726.9	-2,348.8	-8.6	-2,331.4	1.24	-1.06	-0.64
13,021.0	86.20	179.20	10,732.8	-2,443.6	-7.6	-2,425.4	0.59	-0.42	-0.42
13,116.0	85.80	180.20	10,739.5	-2,538.4	-7.1	-2,519.3	1.13	-0.42	1.05
13,211.0	87.90	179.90	10,744.7	-2,633.3	-7.2	-2,613.4	2.23	2.21	-0.32
13,306.0	87.80	180.30	10,748.3	-2,728.2	-7.4	-2,707.7	0.43	-0.11	0.42
13,401.0	89.20	181.60	10,750.7	-2,823.1	-8.9	-2,802.1	2.01	1.47	1.37
13,496.0	89.80	182.00	10,751.6	-2,918.1	-11.9	-2,896.6	0.76	0.63	0.42
13,591.0	89.70	182.70	10,752.0	-3,013.0	-15.8	-2,991.3	0.74	-0.11	0.74
13,685.0	90.30	183.40	10,752.0	-3,106.9	-20.8	-3,085.0	0.98	0.64	0.74
13,780.0	90.00	183.60	10,751.7	-3,201.7	-26.6	-3,179.8	0.38	-0.32	0.21
13,873.0	88.70	183.70	10,752.8	-3,294.5	-32.5	-3,272.7	1.40	-1.40	0.11
13,967.0	89.00	184.70	10,754.7	-3,388.2	-39.4	-3,366.5	1.11	0.32	1.06
14,062.0	88.60	185.40	10,756.7	-3,482.8	-47.8	-3,461.4	0.85	-0.42	0.74
14,156.0	88.40	185.50	10,759.1	-3,576.4	-56.7	-3,555.3	0.24	-0.21	0.11
14,251.0	89.80	186.70	10,760.6	-3,670.8	-66.8	-3,650.3	1.94	1.47	1.26
14,345.0	91.90	186.70	10,759.2	-3,764.2	-77.8	-3,744.3	2.23	2.23	0.00
14,440.0	92.20	184.70	10,755.8	-3,858.6	-87.2	-3,839.2	2.13	0.32	-2.11
14,536.0	88.70	184.60	10,755.1	-3,954.3	-95.0	-3,935.1	3.65	-3.65	-0.10
14,630.0	84.80	183.60	10,760.4	-4,047.9	-101.7	-4,028.8	4.28	-4.15	-1.06
14,723.0	85.50	183.90	10,768.3	-4,140.4	-107.7	-4,121.3	0.82	0.75	0.32
14,818.0	84.00	182.50	10,777.0	-4,234.8	-113.0	-4,215.6	2.16	-1.58	-1.47
14,913.0	86.10	182.20	10,785.2	-4,329.4	-116.9	-4,309.9	2.23	2.21	-0.32
15,039.0	88.70	183.10	10,790.9	-4,455.1	-122.7	-4,435.4	2.18	2.06	0.71
15,114.0	88.50	184.20	10,792.7	-4,529.9	-127.5	-4,510.2	1.49	-0.27	1.47
15,160.0	88.50	184.20	10,793.9	-4,575.8	-130.9	-4,556.2	0.00	0.00	0.00

PBHL(TC#1)



COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: Tomcat Fee
Well: #1H
Wellbore: OH
Plan: Plan #2 (#1H/OH)

WELL DETAILS: #1H

Ground Elevation:: 3876.8
RKB Elevation: WELL @ 3893.8usft (Original Well Elev)
Rig Name: Original Well Elev

Northing 612589.00 Easting 760981.50 Latitude 32° 40' 52.461 N Longitude 103° 29' 6.450 W

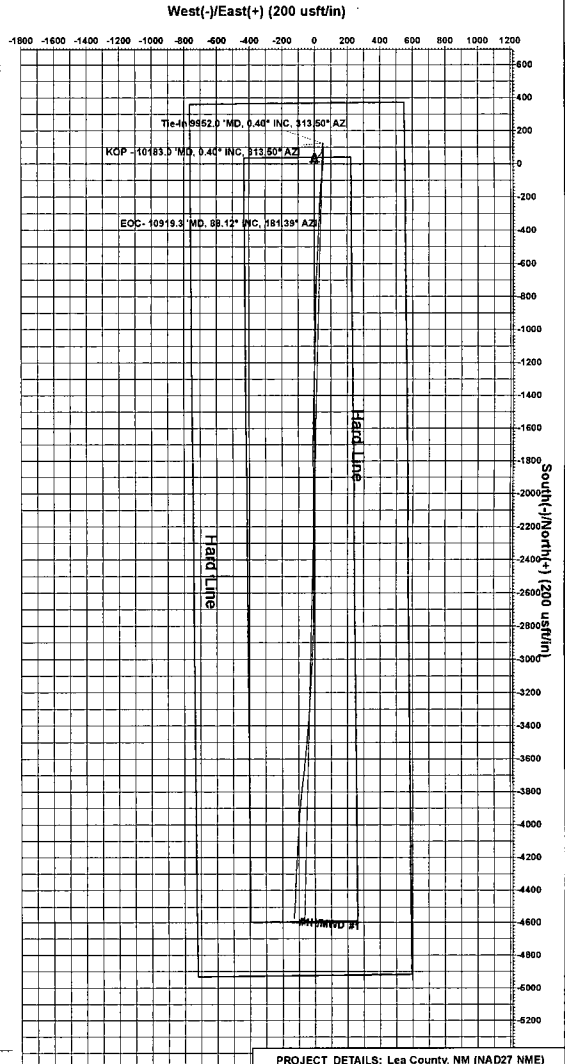
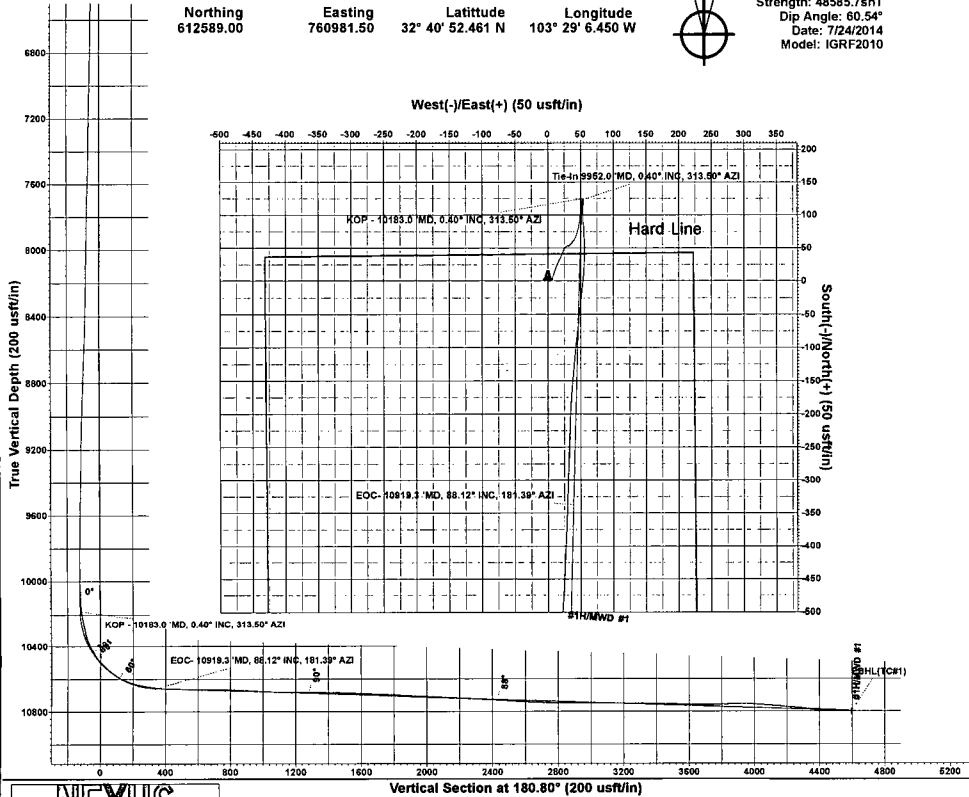
Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	9952.0	0.40	313.50	9949.7	123.2	53.8	0.00	0.00	-123.9
2	10183.0	0.40	313.50	10180.7	124.3	52.7	0.00	0.00	-125.0
3	10919.3	88.12	181.39	10660.0	-337.1	39.1	12.00	-132.12	336.6
4	15180.3	88.12	181.39	10799.8	-4594.6	-64.2	0.00	0.00	4595.1



Azimuths to Grid North
True North: -0.46°
Magnetic North: 6.74°

Magnetic Field
Strength: 48585.7nT
Dip Angle: 60.54°
Date: 7/24/2014
Model: IGRF2010



NEXUS
DIRECTIONAL SOLUTIONS, L.P.

Nexus Directional Solutions

PROJECT DETAILS: Lea County, NM (NAD27 NME)
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level
Local North: Grid