



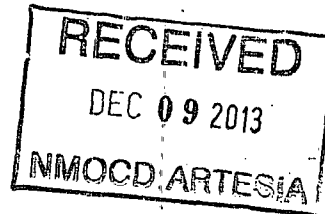
A GYRO TECHNOLOGIES INC. COMPANY

PO Box 261021
Corpus Christi, Texas 78426
(361) 767-0602 • (800) 606-GYRO • Fax (361) 767-0612

30-015-40955

July 11, 2013

COG Operating LLC (Concho)
One Concho Center
600 W. Illinois Avenue
Midland, TX 79701



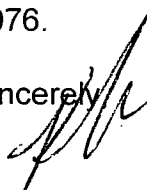
Attn: Kanicia Castillo

Re: **Grave Digger State Com No 006H**

Please find enclosed a copy of the survey from 0' to 2,275' ran on the above referenced well.

If I can be of any further service, please do not hesitate to call me at 800-606-4976.

Sincerely,

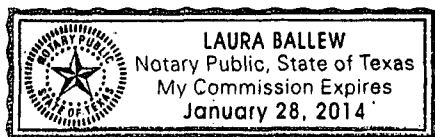

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 11th day of July, A.D., 2013, by Keith Havelka.



Laura Ballew
Notary Public, State of Texas



Company: COG Operating LLC - Concho
Lease/Well: Grave Digger State Com/No 006H



Rig Name: PW Rig 4
State/County: New Mexico/Eddy
Latitude: 32.61, Longitude: -104.45
GRID North is 0.07 Degrees West of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB = 13 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ...rstatecom6h-de_gyro survey.ut

Minimum Curvature Method

Report Date/Time: 7/11/2013 / 12:32

Vaughn Energy Services

Midland, Texas

432-563-5444

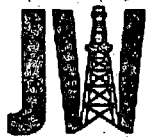
Surveyor: Gene Heiss

Grave Digger State Com No 006H / API 30-015-40955



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	0.46	83.46	100.00	0.05	0.40	0.05	0.40	83.46	0.46
200.00	0.80	108.22	199.99	-0.13	1.46	-0.13	1.47	94.97	0.43
300.00	0.53	116.89	299.99	-0.56	2.54	-0.56	2.60	102.35	0.29
400.00	0.59	130.75	399.98	-1.10	3.34	-1.10	3.52	108.24	0.15
500.00	0.75	165.13	499.97	-2.07	3.90	-2.07	4.41	117.91	0.42
600.00	0.68	184.76	599.97	-3.29	4.02	-3.29	5.19	129.29	0.25
700.00	0.66	204.41	699.96	-4.40	3.73	-4.40	5.77	139.72	0.23
800.00	0.41	233.95	799.96	-5.13	3.20	-5.13	6.05	148.03	0.36
900.00	0.61	284.84	899.95	-5.21	2.40	-5.21	5.73	155.26	0.48
1000.00	0.99	301.27	999.94	-4.62	1.15	-4.62	4.76	166.08	0.44
1100.00	1.51	308.85	1099.92	-3.35	-0.62	-3.35	3.40	190.47	0.55
1200.00	1.50	316.08	1199.88	-1.58	-2.55	-1.58	3.00	238.29	0.19
1300.00	1.78	311.09	1299.84	0.39	-4.63	0.39	4.65	274.77	0.31
1400.00	1.89	302.14	1399.79	2.29	-7.20	2.29	7.55	287.61	0.31
1500.00	2.02	311.42	1499.73	4.33	-9.92	4.33	10.82	293.58	0.34
1600.00	2.03	310.66	1599.67	6.65	-12.58	6.65	14.23	297.86	0.03
1700.00	2.13	309.54	1699.61	8.99	-15.37	8.99	17.80	300.34	0.11
1800.00	2.46	311.29	1799.53	11.59	-18.42	11.59	21.76	302.20	0.34

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	2.76	309.98	1899.42	14.56	-21.87	14.56	26.27	303.65	0.30
2000.00	2.67	310.02	1999.31	17.60	-25.50	17.60	30.98	304.61	0.09
2100.00	2.44	319.92	2099.21	20.72	-28.65	20.72	35.36	305.88	0.50
2200.00	2.70	324.86	2199.11	24.28	-31.38	24.28	39.68	307.73	0.35
2275.00	2.71	327.93	2274.03	27.23	-33.34	27.23	43.05	309.24	0.19



DRILLING INC. Oil Well Drilling Contractor

Post Office Box 160 Artesia, New Mexico 88211-0160 Office (575) 748-8704 Fax (575) 748-8719

July 12, 2013

30-015-40955

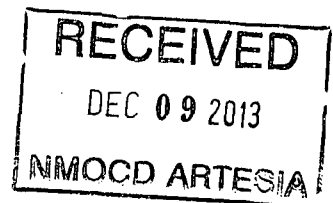
COG Operating, LLC
One Conch Center, 600 W. Illinois Ave.
Midland, Texas 79701

Re: Grave Digger St. Com. 6H
Sec. 2, T-20-S, R-25-E
Eddy County, New Mexico

Attn: Jim Evans

The following is a Deviation Survey on the referenced well in Eddy County, New Mexico:

135' - 0.25°	489' - 0.25°	958' - 1°	1746' - 2°
254' - 1°	606' - 0.75°	1030' - 1.25°	1933' - 2.25°
372' - 1°	780' - 0.75°	1277' - 1.5°	2276' - 2.25°



Sincerely,

Gary W. Chappell
Contracts Manager

STATE OF NEW MEXICO)
COUNTY OF EDDY)

The foregoing was acknowledged before me this 12th day of July, 2013 by Gary W. Chappell.



OFFICIAL SEAL
CHERYL A. BARTLETT
NOTARY PUBLIC-STATE OF NEW MEXICO

My commission expires: 4-29-16

Cheryl A. Bartlett
NOTARY PUBLIC



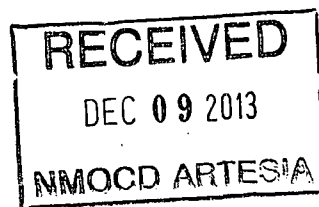
COG Operating LLC

Eddy County, New Mexico (NAD 27 NME)

Grave Digger State Com

#6H

OH/Job #1310800



Survey: Phoenix MWD Surveys

Phoenix Final Survey Report

11 July, 2013





Phoenix Technology Services
Phoenix Final Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #6H
Project:	Eddy County, New Mexico (NAD 27 NME)	TVD Reference:	KB @ 3471.00usft (JW 4)
Site:	Grave Digger State Com	MD Reference:	KB @ 3471.00usft (JW 4)
Well:	#6H	North Reference:	Grid
Wellbore:	OH/Job #1310800	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (JW 4)	Database:	GCR DB

Project:	Eddy County, New Mexico (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:	Grave Digger State Com		
Site Position:		Northing:	585,277.40 usft
From:	Map	Easting:	464,199.50 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 36' 32.321917 N
		Longitude:	104° 26' 58.544589 W
		Grid Convergence:	-0.06 °

Well:	#6H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 36' 32.545237 N
		Longitude:	104° 27' 17.700626 W
		Ground Level:	3,457.00 usft

Wellbore:	OH/Job #1310800		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010_14	07/03/13	7.77
			Dip Angle
			60.34
			Field Strength
			48,544

Design:	Surveys (JW 4)		
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
			(°)
			179.78

Survey/Program	Date 07/11/13		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.00	2,275.00	VES Gyro (OH/Job #1310800)	VES-ISCWSA-GYRO-3
2,370.00	7,440.00	Phoenix MWD Surveys (OH/Job #1310800)	MWD
			Description
			Biaxial Semi-Cont. Gyro
			MWD - Standard

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
2,275.00	2.71	327.93	2,274.03	27.23	-33.34	-27.36	0.00
2,370.00	2.50	325.40	2,368.93	30.84	-35.71	-30.98	0.25
First Phoenix MWD Survey							
2,401.00	1.00	281.80	2,399.91	31.45	-36.36	-31.59	6.15
2,432.00	4.20	179.80	2,430.89	30.37	-36.62	-30.51	14.56
2,463.00	8.20	173.60	2,461.70	27.04	-36.37	-27.18	13.06
2,494.00	12.60	174.50	2,492.18	21.47	-35.80	-21.61	14.20
2,525.00	16.20	175.00	2,522.20	13.80	-35.10	-13.93	11.62
2,557.00	19.20	177.00	2,552.69	4.09	-34.43	-4.22	9.56
2,587.00	22.30	174.30	2,580.74	-6.50	-33.61	6.37	10.81
2,619.00	25.60	171.50	2,609.98	-19.38	-31.98	19.26	10.90



Phoenix Technology Services
Phoenix Final Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #6H
Project:	Eddy County, New Mexico (NAD 27 NME)	TVD Reference:	KB @ 3471.00usft (JW 4)
Site:	Grave Digger State Com	MD Reference:	KB @ 3471.00usft (JW 4)
Well:	#6H	North Reference:	Grid
Wellbore:	OH/Job #1310800	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (JW 4)	Database:	GCR DB

MD (usft)	Inc. (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
2,650.00	29.00	169.70	2,637.52	-33.41	-29.65	33.29	11.29
2,682.00	32.10	172.20	2,665.08	-49.47	-27.11	49.36	10.47
2,713.00	34.60	175.50	2,690.97	-66.41	-25.30	66.31	9.96
2,744.00	37.60	177.90	2,716.02	-84.64	-24.26	84.54	10.70
2,775.00	40.70	178.60	2,740.06	-104.20	-23.67	104.10	10.10
2,807.00	43.50	178.10	2,763.80	-125.64	-23.05	125.55	8.81
2,838.00	46.30	177.30	2,785.75	-147.50	-22.16	147.41	9.21
2,869.00	49.20	177.40	2,806.60	-170.42	-21.10	170.34	9.36
2,901.00	51.50	179.40	2,827.01	-195.04	-20.42	194.97	8.65
2,932.00	53.50	180.80	2,845.89	-219.64	-20.47	219.56	7.38
2,963.00	55.80	180.20	2,863.82	-244.92	-20.69	244.84	7.59
2,994.00	58.70	178.90	2,880.59	-270.99	-20.48	270.91	10.00
3,025.00	61.80	178.00	2,895.97	-297.89	-19.75	297.81	10.31
3,056.00	64.30	176.60	2,910.02	-325.49	-18.44	325.41	9.01
3,087.00	67.20	175.80	2,922.75	-353.69	-16.57	353.62	9.65
3,118.00	70.40	175.10	2,933.96	-382.49	-14.27	382.43	10.53
3,150.00	74.00	175.00	2,943.74	-412.84	-11.64	412.79	11.25
3,181.00	77.00	174.80	2,951.50	-442.73	-8.98	442.69	9.70
3,212.00	79.50	174.90	2,957.81	-472.96	-6.25	472.93	8.07
3,243.00	82.20	174.80	2,962.74	-503.44	-3.51	503.42	8.72
3,274.00	85.20	175.00	2,966.14	-534.12	-0.77	534.12	9.70
3,305.00	88.00	176.60	2,967.98	-564.98	1.50	564.98	10.40
3,337.00	89.40	178.90	2,968.71	-596.95	2.75	596.95	8.41
3,368.00	89.50	180.20	2,969.01	-627.94	3.00	627.95	4.21
3,461.00	91.60	179.20	2,968.11	-720.93	3.48	720.94	2.50
3,554.00	91.50	179.60	2,965.60	-813.89	4.46	813.90	0.44
3,648.00	91.30	179.20	2,963.30	-907.86	5.44	907.87	0.48
3,741.00	91.30	178.50	2,961.19	-1,000.82	7.31	1,000.84	0.75
3,835.00	89.80	179.80	2,960.29	-1,094.80	8.70	1,094.82	2.11
3,928.00	89.70	179.90	2,960.69	-1,187.79	8.95	1,187.82	0.15
4,022.00	90.40	178.30	2,960.61	-1,281.78	10.42	1,281.81	1.86
4,116.00	89.90	178.10	2,960.37	-1,375.73	13.37	1,375.77	0.57
4,209.00	91.10	180.40	2,959.55	-1,468.71	14.59	1,468.76	2.79
4,302.00	90.90	179.60	2,957.93	-1,561.70	14.59	1,561.74	0.89
4,396.00	90.50	179.80	2,956.78	-1,655.69	15.08	1,655.73	0.48
4,489.00	90.00	179.30	2,956.38	-1,748.68	15.81	1,748.73	0.76
4,583.00	90.70	181.00	2,955.80	-1,842.68	15.57	1,842.72	1.96
4,676.00	90.00	180.20	2,955.23	-1,935.67	14.59	1,935.71	1.14
4,770.00	91.20	181.30	2,954.25	-2,029.65	13.36	2,029.69	1.73
4,863.00	90.70	181.00	2,952.71	-2,122.62	11.50	2,122.65	0.63
4,957.00	90.20	181.00	2,951.97	-2,216.60	9.86	2,216.63	0.53
5,051.00	90.50	180.10	2,951.40	-2,310.60	8.96	2,310.61	1.01
5,145.00	89.90	180.20	2,951.07	-2,404.60	8.71	2,404.61	0.65
5,238.00	90.20	178.90	2,950.99	-2,497.59	9.44	2,497.61	1.43
5,332.00	89.30	178.80	2,951.40	-2,591.57	11.33	2,591.59	0.96



Phoenix Technology Services
Phoenix Final Survey Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well #6H:
Project:	Eddy County, New Mexico (NAD 27 NME)	TVD Reference:	KB @ 3471.00usft (JW 4)
Site:	Grave Digger, State, Com	MD Reference:	KB @ 3471.00usft (JW 4)
Well:	#6H	North Reference:	Grid
Wellbore:	OH/Job #1310800	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (JW 4)	Database:	GCR-DB

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
5,425.00	90.70	178.80	2,951.40	-2,684.55	13.27	2,684.58	1.51
5,519.00	90.20	179.60	2,950.66	-2,778.53	14.59	2,778.57	1.00
5,613.00	89.30	179.60	2,951.07	-2,872.53	15.24	2,872.57	0.96
5,706.00	91.30	179.50	2,950.58	-2,965.52	15.97	2,965.56	2.15
5,799.00	91.00	179.60	2,948.72	-3,058.50	16.70	3,058.54	0.34
5,893.00	90.70	179.70	2,947.32	-3,152.49	17.28	3,152.53	0.34
5,986.00	89.90	179.50	2,946.83	-3,245.48	17.93	3,245.53	0.89
6,080.00	91.20	178.00	2,945.93	-3,339.45	19.98	3,339.50	2.11
6,173.00	90.90	178.70	2,944.23	-3,432.40	22.65	3,432.46	0.82
6,267.00	90.50	178.80	2,943.08	-3,526.37	24.70	3,526.44	0.44
6,360.00	90.70	180.80	2,942.10	-3,619.36	25.03	3,619.43	2.16
6,454.00	90.10	180.60	2,941.45	-3,713.35	23.88	3,713.41	0.67
6,547.00	91.40	179.80	2,940.23	-3,806.34	23.56	3,806.40	1.64
6,641.00	91.00	180.00	2,938.26	-3,900.31	23.72	3,900.38	0.48
6,735.00	90.50	180.00	2,937.03	-3,994.31	23.72	3,994.37	0.53
6,828.00	90.10	179.50	2,936.55	-4,087.30	24.13	4,087.37	0.69
6,923.00	90.90	180.50	2,935.72	-4,182.30	24.13	4,182.36	1.35
7,017.00	90.90	180.80	2,934.24	-4,276.28	23.06	4,276.34	0.32
7,110.00	90.60	181.60	2,933.02	-4,369.25	21.11	4,369.30	0.92
7,204.00	90.20	182.70	2,932.37	-4,463.18	17.59	4,463.22	1.25
7,297.00	89.80	183.70	2,932.37	-4,556.03	12.39	4,556.05	1.16
7,360.00	89.30	184.00	2,932.86	-4,618.89	8.16	4,618.89	0.93
Last Phoenix MWD Survey							
7,440.00	89.30	184.00	2,933.84	-4,698.69	2.58	4,698.66	0.00
Projection to TD							

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/S (usft)	+E/W (usft)	
2,370.00	2,368.93	30.84	-35.71	First Phoenix MWD Survey
7,360.00	2,932.86	-4,618.89	8.16	Last Phoenix MWD Survey
7,440.00	2,933.84	-4,698.69	2.58	Projection to TD

Checked By: _____ Approved By: _____ Date: _____