



DRILLING INC. Oil Well Drilling Contractor

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

August 5, 2013

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

15-40814
Re: Falabella 31 Fee #1 H
Sec. 31, T-18-S, R-26-E
Eddy County, New Mexico

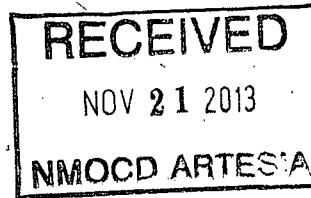
Attn: Jim Evans

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

313' - 1°	1158' - 1.5°	1638' - 2.25°
759' - 0.5°	1389' - 1.75°	2012' - 2°

RECEIVED

NOV 21 2013



Sincerely,

Gary W. Chappell
Contracts Manager

STATE OF NEW MEXICO)
COUNTY OF EDDY)

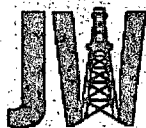
The foregoing was acknowledged before me this 5th day of August, 2013 by Gary W. Chappell.



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

My commission expires: 4-29-16

Cheryl A. Bartlett
NOTARY PUBLIC



DRILLING INC. Oil Well Drilling Contractor

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August 5, 2013

COG Operating, LLC
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Midland, Texas 79701

Re: Falabella 31 Fee #1 H
Sec. 31, T-18-S, R-26-E
Eddy County, New Mexico

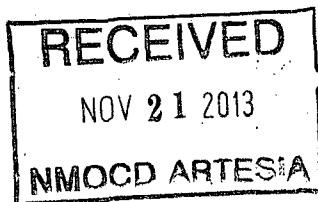
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313' - 1°	1158' - 1.5°	1638' - 2.25°
759' - 0.5°	1389' - 1.75°	2012' - 2°

RECEIVED

NOV 21 2013



Sincerely,

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Contracts Manager

STATE OF NEW MEXICO)

COUNTY OF EDDY)

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

My commission expires:

4-29-16

NOTARY PUBLIC



A GYRO TECHNOLOGIES INC. COMPANY

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

July 29, 2013

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

RECEIVED
NOV 21 2013

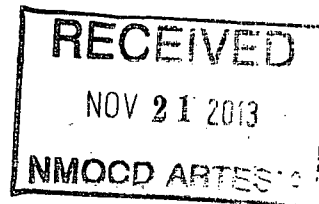
Attn: Kanicia Castillo

RE: **Falabella 31 Fee No. 001H**

Please find enclosed a copy of the survey from 0.00' to 2132.00' ran on the above referenced well.

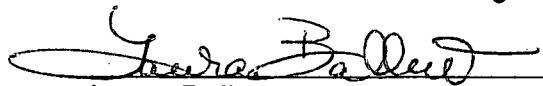
Sincerely,

Keith Havelka
Operations

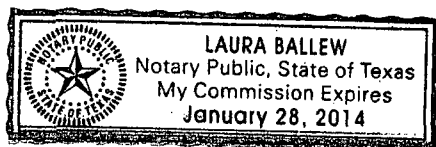


STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 29th day of July, A.D., 2013, by Keith Havelka.



Laura Ballew
Notary Public, State of Texas





Company: COG Operating LLC (Concho)
Lease/Well: Falabella 31 Fee/No. 001H
Location: S31 T18s R26e
Rig Name: JW #4
State/County: New Mexico/Eddy
Latitude: 32.70, Longitude: -104.43
GRID North is 0.05 Degrees West of True North
VS-Azi: 0.00 Degrees



RKB : 13.1 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ...lla 31 fee #1h gyro survey.ut

Minimum Curvature Method

Report Date/Time: 7/29/2013 / 09:21

Vaughn Energy Services

Gardendale, TX 79758

432-563-5444

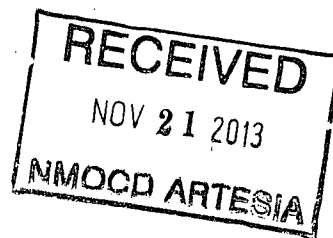
Surveyor: Dustin Wedel

Falabella 31 Fee No. 001H / API 30-015-40814



Measured Depth FT	Incl Angle Deg	Drift Direction - Deg	TVD FT	+N/-S FT	+E/-W 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	****
100.00	0.46	155.99	100.00	-0.36	0.16	0.40	155.99	0.46
200.00	0.36	206.54	200.00	-1.01	0.18	1.02	169.68	0.36
300.00	0.69	210.46	299.99	-1.81	-0.26	1.83	188.27	0.33
400.00	0.59	211.09	399.99	-2.77	-0.83	2.89	196.77	0.10
500.00	0.83	220.44	499.98	-3.76	-1.57	4.07	202.64	0.26
600.00	0.99	206.48	599.97	-5.08	-2.42	5.63	205.48	0.27
700.00	0.95	210.77	699.95	-6.57	-3.23	7.32	206.19	0.08
800.00	0.79	249.93	799.94	-7.51	-4.30	8.65	209.78	0.60
900.00	0.86	262.48	899.93	-7.85	-5.69	9.69	215.95	0.19
1000.00	1.30	276.68	999.91	-7.81	-7.57	10.88	224.09	0.51
1100.00	1.18	284.28	1099.89	-7.43	-9.69	12.21	232.54	0.21
1200.00	1.41	295.13	1199.86	-6.65	-11.80	13.54	240.58	0.34
1300.00	1.43	286.64	1299.83	-5.77	-14.10	15.24	247.73	0.21
1400.00	1.43	305.21	1399.80	-4.70	-16.32	16.98	253.94	0.46
1500.00	2.01	300.48	1499.76	-3.09	-18.85	19.10	260.70	0.59
1600.00	2.25	294.40	1599.69	-1.39	-22.15	22.19	266.42	0.33
1700.00	2.46	290.58	1699.60	0.18	-25.94	25.94	270.40	0.26
1800.00	1.98	290.48	1799.53	1.54	-29.56	29.60	272.97	0.48

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	2.22	290.20	1899.46	2.81	-33.00	33.11	274.86	0.24
2000.00	1.89	283.38	1999.40	3.86	-36.41	36.61	276.05	0.41
2100.00	2.12	287.73	2099.34	4.80	-39.78	40.07	276.88	0.28
2132.00	1.84	290.25	2131.32	5.16	-40.82	41.15	277.20	0.93



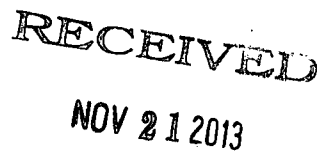
COG Operating LLC

Eddy County, New Mexico (NAD 27 NME)

Falabella 31 Fee

#1H

OH/Job #1310862



Survey: Phoenix MWD Survey

Phoenix Final Survey Report

24 July, 2013





Phoenix Technology Services

Phoenix Final Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County, New Mexico (NAD 27 NME)	TVD Reference:	KB @ 3453.00usft (JW 4)
Site:	Falabella 31 Fee	MD Reference:	KB @ 3453.00usft (JW 4)
Well:	#1H	North Reference:	Grid
Wellbore:	OH/Job #1310862	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	Falabella 31 Fee		
Site Position:	From: Map	Northing:	617,359.30 usft
		Easting:	472,777.20 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 41' 49.876122 N
		Longitude:	104° 25' 18.575151 W
		Grid Convergence:	-0.05 °

Well	#1H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Ground Level:	3,440.00 usft
		Latitude:	32° 41' 49.920759 N
		Longitude:	104° 25' 40.135898 W

Wellbore	OH/Job #1310862		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010_14	07/11/13	7.76
			Dip Angle
			(°)
			60.43
			Field Strength
			(nT)
			48,598

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
			(°)
			0.16

Survey/Program	Date 07/24/13		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.00	2,132.00	VES Gyro Surveys (OH/Job #1310862)	VES-ISCWSA-GYRO-3
2,230.00	7,366.00	Phoenix MWD Survey (OH/Job #1310862)	MWD
			Description
			Biaxial Semi-Cont. Gyro
			MWD - Standard

Survey	MD	Inc	Azi (azimuth)	TVD	N/S	E/W	V. Sec	DLeg
	(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)
	2,132.00	1.84	290.25	2,131.32	5.15	-40.85	5.04	0.00
Tie-on to VES Gyro								
	2,230.00	1.50	292.60	2,229.27	6.19	-43.51	6.07	0.35
First Phoenix MWD Survey								
	2,261.00	1.40	7.70	2,260.27	6.72	-43.83	6.60	5.71
	2,292.00	5.40	30.60	2,291.21	8.35	-43.04	8.23	13.37
	2,324.00	9.40	23.90	2,322.93	12.04	-41.21	11.92	12.77
	2,355.00	13.60	19.10	2,353.31	17.80	-38.99	17.69	13.88
	2,386.00	16.80	18.70	2,383.22	25.49	-36.36	25.39	10.33
	2,417.00	20.30	18.40	2,412.60	34.84	-33.23	34.75	11.29
	2,448.00	24.00	16.60	2,441.31	45.99	-29.73	45.90	12.13



Phoenix Technology Services
Phoenix Final Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County, New Mexico (NAD 27-NME)	TVD Reference:	KB @ 3453.00usft (JW 4)
Site:	Falabella 31 Fee	MD Reference:	KB @ 3453.00usft (JW 4)
Well:	#1H	North Reference:	Grid
Wellbore:	OH/Job #1310862	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)
2,479.00	27.60	15.20	2,469.22	58.96	-26.04	58.89	11.78
2,511.00	30.50	12.60	2,497.19	74.05	-22.33	73.98	9.88
2,542.00	33.60	9.70	2,523.46	90.18	-19.17	90.13	11.16
2,573.00	36.70	7.50	2,548.81	107.83	-16.51	107.78	10.80
2,604.00	40.00	6.50	2,573.12	126.92	-14.17	126.88	10.83
2,635.00	42.80	5.70	2,596.37	147.30	-12.00	147.26	9.19
2,666.00	46.00	6.10	2,618.51	168.87	-9.77	168.84	10.36
2,697.00	48.50	6.20	2,639.55	191.50	-7.33	191.48	8.07
2,729.00	51.40	5.40	2,660.14	215.87	-4.86	215.85	9.26
2,760.00	54.20	4.00	2,678.88	240.47	-2.84	240.47	9.72
2,791.00	56.90	2.40	2,696.42	265.99	-1.42	265.99	9.69
2,822.00	59.20	0.80	2,712.82	292.29	-0.69	292.28	8.62
2,853.00	61.20	0.10	2,728.23	319.18	-0.48	319.18	6.74
2,884.00	63.30	0.10	2,742.66	346.62	-0.43	346.61	6.77
2,916.00	65.50	0.40	2,756.49	375.47	-0.31	375.47	6.93
2,947.00	68.30	0.70	2,768.65	403.98	-0.03	403.98	9.08
2,978.00	73.10	0.50	2,778.89	433.23	0.27	433.23	15.50
3,009.00	77.90	359.90	2,786.65	463.23	0.38	463.23	15.60
3,040.00	82.20	358.90	2,792.01	493.76	0.06	493.76	14.23
3,072.00	86.30	358.40	2,795.21	525.58	-0.69	525.58	12.91
3,103.00	89.20	358.30	2,796.43	556.54	-1.59	556.54	9.36
3,166.00	90.60	0.70	2,796.54	619.53	-2.14	619.53	4.41
3,259.00	93.00	0.90	2,793.62	712.47	-0.84	712.47	2.59
3,352.00	92.30	0.20	2,789.32	805.37	0.05	805.36	1.06
3,447.00	92.00	1.30	2,785.75	900.29	1.30	900.29	1.20
3,540.00	91.80	0.90	2,782.67	993.22	3.08	993.23	0.48
3,633.00	91.30	0.70	2,780.16	1,086.18	4.38	1,086.19	0.58
3,727.00	92.70	1.00	2,776.87	1,180.11	5.77	1,180.12	1.52
3,821.00	92.10	1.50	2,772.94	1,274.00	7.82	1,274.02	0.83
3,914.00	92.20	1.40	2,769.45	1,366.91	10.17	1,366.93	0.15
4,008.00	92.00	359.90	2,766.00	1,460.84	11.24	1,460.86	1.61
4,101.00	91.80	359.60	2,762.92	1,553.78	10.83	1,553.81	0.39
4,194.00	91.60	359.00	2,760.16	1,646.74	9.70	1,646.76	0.68
4,288.00	93.00	359.70	2,756.39	1,740.65	8.63	1,740.67	1.66
4,381.00	92.80	359.40	2,751.68	1,833.53	7.90	1,833.54	0.39
4,475.00	92.70	359.20	2,747.17	1,927.41	6.75	1,927.42	0.24
4,568.00	92.40	359.00	2,743.04	2,020.31	5.29	2,020.32	0.39
4,662.00	92.20	359.00	2,739.26	2,114.22	3.66	2,114.22	0.21
4,755.00	92.00	359.00	2,735.86	2,207.14	2.03	2,207.14	0.22
4,849.00	91.30	359.00	2,733.15	2,301.09	0.39	2,301.08	0.74
4,942.00	92.20	0.30	2,730.31	2,394.04	-0.17	2,394.03	1.70
5,035.00	91.90	0.00	2,726.98	2,486.98	0.07	2,486.97	0.46
5,129.00	92.20	1.00	2,723.62	2,580.92	0.89	2,580.91	1.11
5,222.00	91.90	0.50	2,720.29	2,673.85	2.11	2,673.84	0.63



Phoenix Technology Services
Phoenix Final Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County, New Mexico (NAD 27 NME)	TVD Reference:	KB @ 3453.00usft (JW 4)
Site:	Falabella 31 Fee	MD Reference:	KB @ 3453.00usft (JW 4)
Well:	#1H	North Reference:	Grid
Wellbore:	OH/Job #1310862	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (JW 4)	Database:	GGRDB

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
5,316.00	91.70	0.30	2,717.34	2,767.80	2.76	2,767.80	0.30	
5,409.00	91.60	0.30	2,714.66	2,860.76	3.25	2,860.76	0.11	
5,503.00	91.30	0.50	2,712.28	2,954.73	3.90	2,954.73	0.38	
5,596.00	91.00	0.50	2,710.42	3,047.70	4.72	3,047.71	0.32	
5,690.00	92.50	359.90	2,707.55	3,141.66	5.04	3,141.66	1.72	
5,784.00	92.50	0.00	2,703.45	3,235.57	4.96	3,235.57	0.11	
5,877.00	92.50	359.80	2,699.39	3,328.48	4.80	3,328.48	0.21	
5,971.00	92.50	359.90	2,695.29	3,422.39	4.55	3,422.39	0.11	
6,065.00	92.60	359.90	2,691.11	3,516.30	4.39	3,516.29	0.11	
6,159.00	92.40	359.70	2,687.01	3,610.21	4.06	3,610.20	0.30	
6,252.00	91.80	0.90	2,683.60	3,703.14	4.55	3,703.14	1.44	
6,346.00	91.50	0.80	2,680.89	3,797.09	5.94	3,797.09	0.34	
6,440.00	91.10	0.60	2,678.76	3,891.06	7.09	3,891.06	0.48	
6,533.00	91.00	0.80	2,677.06	3,984.04	8.23	3,984.04	0.24	
6,627.00	90.90	0.90	2,675.50	4,078.01	9.62	4,078.02	0.15	
6,720.00	90.90	0.30	2,674.04	4,171.00	10.59	4,171.01	0.65	
6,813.00	91.80	359.40	2,671.85	4,263.97	10.35	4,263.98	1.37	
6,906.00	91.20	359.80	2,669.41	4,356.93	9.70	4,356.94	0.78	
7,000.00	93.00	0.50	2,665.97	4,450.86	9.95	4,450.88	2.05	
7,093.00	92.60	0.60	2,661.42	4,543.75	10.84	4,543.76	0.44	
7,187.00	92.50	0.80	2,657.24	4,637.65	11.99	4,637.66	0.24	
7,280.00	92.30	0.70	2,653.35	4,730.56	13.20	4,730.58	0.24	
Last Phoenix MWD Survey								
7,366.00	92.30	0.70	2,649.90	4,816.48	14.25	4,816.50	0.00	
Projection to TD								

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,132.00	2,131.32	5.15	-40.85	Tie-on to VES Gyro
2,230.00	2,229.27	6.19	-43.51	First Phoenix MWD Survey
7,280.00	2,653.35	4,730.56	13.20	Last Phoenix MWD Survey
7,366.00	2,649.90	4,816.48	14.25	Projection to TD

Checked By: _____ Approved By: _____ Date: _____