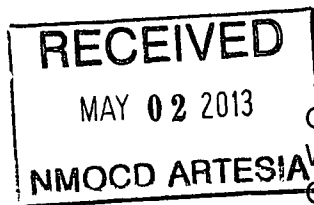


30-015-39060



OPERATOR: COG Operating, LLC
WELL/LEASE: MYOX 28 State # 2 H
COUNTY: Eddy Co., New Mexico
Sec. 28, T25S, R28E

STATE OF NEW MEXICO
DEVIATION REPORT

<u>Depth</u>	<u>Deviation</u>	<u>Depth</u>	<u>Deviation</u>
291	1 1/4	2,230	2 1/2
573	1 3/4	2,262	2 1/4
774	2 1/4	2,294	2 1/4
900	2 1/2	2,325	2 1/4
1,313	1	2,349	2 1/2
1,502	1/4	2,901	2 1/4
1,692	1	3,441	1 3/4
1,882	2	3,932	1
2,072	3 1/2	4,391	1
2,103	3 1/2	4,899	1 1/2
2,135	3 1/2	5,309	2 1/4
2,167	3 1/4	5,896	1 1/2
2,199	2 3/4	6,418	2 1/2

Patriot Drilling, LLC

Daniel Campbell for

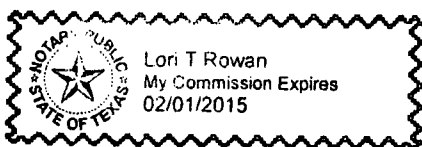
M. Leroy Peterson, Executive Vice-
President

The foregoing instrument was acknowledged before me on this 2nd day of
December, 2012 by M. Leroy Peterson, Executive Vice-President of Patriot Drilling,

My Commission Expires: 02/01/2015

Lori T. Rowan

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



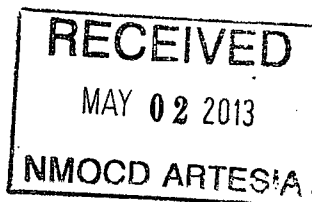


A GYRO TECHNOLOGIES INC. COMPANY

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

January 11, 2013

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

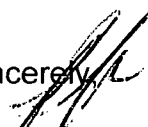


Attn: Kanicia Castillo

RE: **Myox 28 State Com No. 002H**

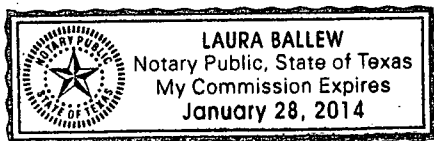
Please find enclosed a copy of the survey from 0.00' to 7378.00' ran on the above referenced well.

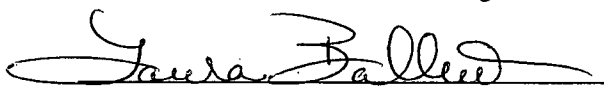
Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

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

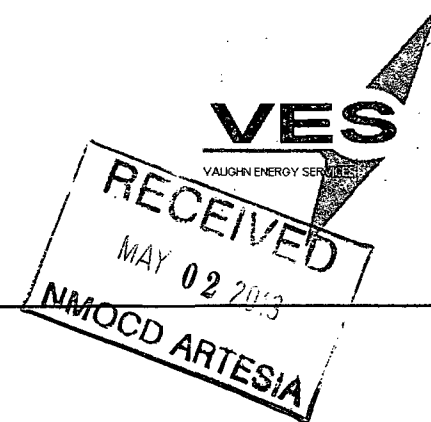



Laura Ballew
Notary Public, State of Texas



Company: COG Operating LLC (Concho)
Lease/Well: Myox 28 State Com / No. 002H

Rig Name: Patroit 3
State/County: New Mexico / Eddy
Latitude: 32.09, Longitude: -104.10
GRID North is 0.12 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB = 17'

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey 1.ut

Minimum Curvature Method

Report Date/Time: 1/11/2013 / 09:22

Vaughn Energy Services

Midland, Texas

432-563-5444

Surveyor: Tim Dillon

Myox 28 State Com No. 002H / API 30-015-39060

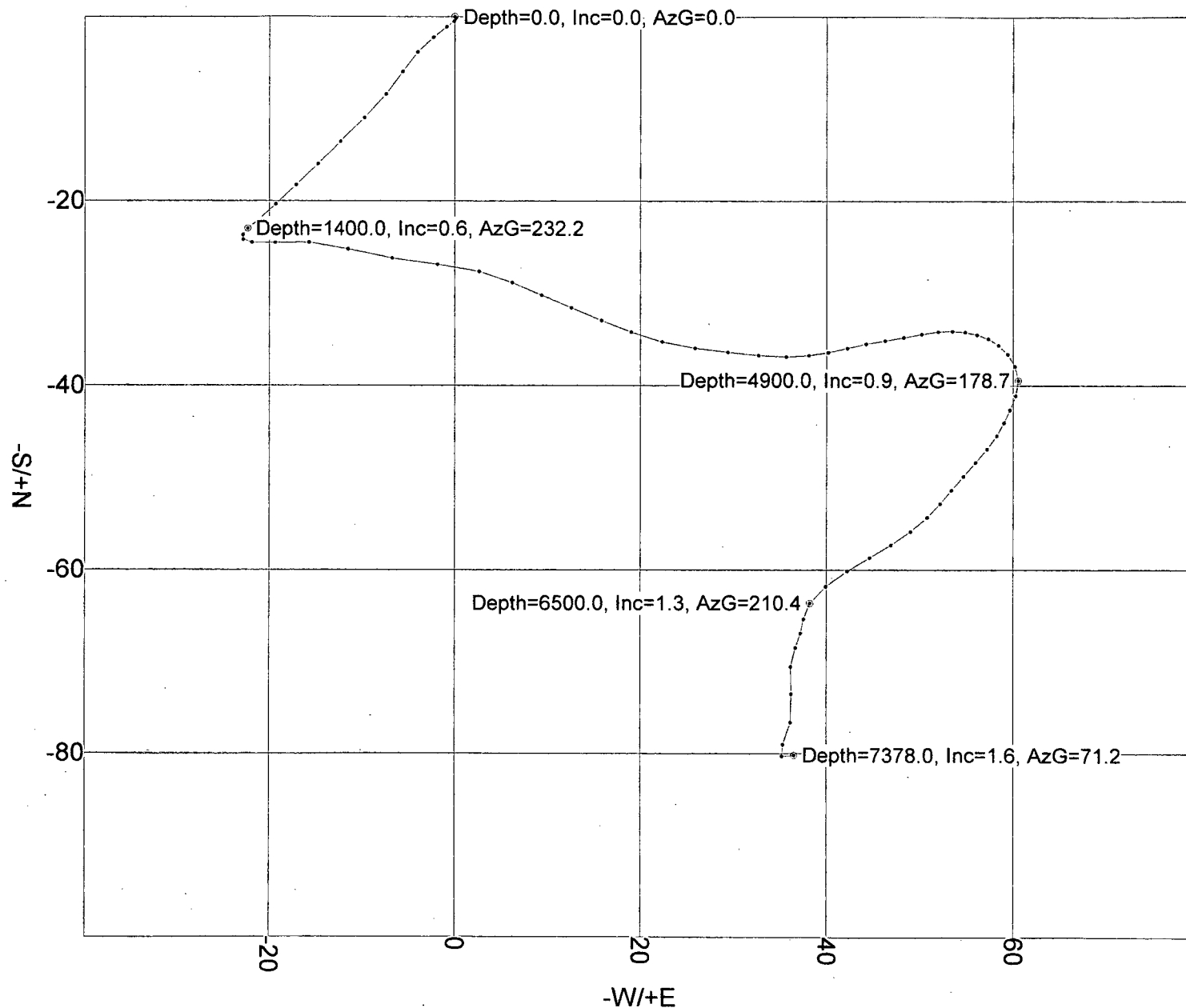
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.20	148.90	100.00	-0.15	0.09	0.17	148.90	0.20
200.00	0.36	230.89	200.00	-0.49	-0.07	0.50	187.54	0.39
300.00	0.81	231.47	299.99	-1.13	-0.86	1.42	217.26	0.45
400.00	1.26	232.04	399.98	-2.25	-2.28	3.20	225.40	0.45
500.00	1.43	220.95	499.95	-3.86	-3.96	5.53	225.70	0.32
600.00	1.61	212.91	599.91	-5.99	-5.55	8.17	222.79	0.28
700.00	1.87	218.68	699.87	-8.45	-7.33	11.18	220.95	0.31
800.00	2.12	225.51	799.81	-11.01	-9.67	14.65	221.27	0.35
900.00	2.03	225.45	899.74	-13.55	-12.25	18.27	222.11	0.08
1000.00	1.95	225.37	999.68	-15.99	-14.72	21.74	222.63	0.08
1100.00	1.81	226.89	1099.63	-18.27	-17.09	25.02	223.09	0.15
1200.00	1.68	226.42	1199.58	-20.36	-19.30	28.06	223.48	0.14
1300.00	1.16	230.32	1299.55	-22.02	-21.15	30.53	223.84	0.52
1400.00	0.65	232.23	1399.54	-23.01	-22.37	32.09	224.20	0.52
1500.00	0.41	190.80	1499.53	-23.71	-22.89	32.96	223.99	0.44
1600.00	0.18	149.36	1599.53	-24.20	-22.88	33.30	223.39	0.30
1700.00	1.04	101.72	1699.53	-24.51	-21.91	32.88	221.79	0.93
1800.00	1.91	84.08	1799.49	-24.53	-19.36	31.25	218.29	0.97

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	2.32	94.00	1899.42	-24.50	-15.69	29.09	212.65	0.55
2000.00	2.73	103.92	1999.33	-25.21	-11.37	27.65	204.27	0.60
2100.00	2.78	99.87	2099.21	-26.20	-6.67	27.03	194.29	0.20
2200.00	2.83	95.82	2199.09	-26.86	-1.82	26.93	183.88	0.21
2300.00	2.39	104.59	2298.99	-27.64	2.65	27.77	174.52	0.59
2400.00	1.95	113.36	2398.92	-28.84	6.23	29.51	167.81	0.55
2500.00	1.98	113.23	2498.86	-30.20	9.38	31.62	162.74	0.03
2600.00	2.01	113.10	2598.80	-31.57	12.58	33.98	158.27	0.03
2700.00	1.99	112.86	2698.74	-32.93	15.80	36.52	154.37	0.02
2800.00	1.97	110.61	2798.68	-34.21	19.01	39.14	150.94	0.08
2900.00	2.03	104.21	2898.62	-35.25	22.34	41.73	147.64	0.23
3000.00	2.08	97.80	2998.55	-35.93	25.85	44.26	144.27	0.24
3100.00	1.97	96.68	3098.49	-36.38	29.36	46.74	141.10	0.11
3200.00	1.86	95.57	3198.43	-36.74	32.68	49.17	138.34	0.11
3300.00	1.55	89.32	3298.39	-36.88	35.66	51.30	135.96	0.36
3400.00	1.24	83.08	3398.36	-36.73	38.09	52.91	133.96	0.35
3500.00	1.21	79.27	3498.34	-36.40	40.20	54.24	132.16	0.09
3600.00	1.19	75.46	3598.31	-35.95	42.25	55.47	130.39	0.08
3700.00	1.19	79.02	3698.29	-35.49	44.27	56.74	128.72	0.07
3800.00	1.19	80.59	3798.27	-35.12	46.31	58.12	127.18	0.03
3900.00	1.14	79.65	3898.25	-34.77	48.31	59.52	125.75	0.05
4000.00	1.10	78.72	3998.23	-34.41	50.23	60.88	124.41	0.05
4100.00	0.94	84.74	4098.22	-34.14	51.99	62.20	123.30	0.19
4200.00	0.78	90.76	4198.20	-34.08	53.49	63.42	122.50	0.18
4300.00	0.76	98.98	4298.20	-34.19	54.83	64.62	121.95	0.11
4400.00	0.73	105.19	4398.19	-34.46	56.10	65.84	121.56	0.08
4500.00	0.75	116.26	4498.18	-34.92	57.31	67.10	121.35	0.14
4600.00	0.76	127.33	4598.17	-35.61	58.41	68.41	121.36	0.15
4700.00	0.84	141.33	4698.16	-36.58	59.40	69.76	121.63	0.21
4800.00	0.93	155.33	4798.15	-37.89	60.19	71.13	122.19	0.23
4900.00	0.95	178.73	4898.14	-39.45	60.55	72.27	123.09	0.38
5000.00	0.97	200.14	4998.12	-41.08	60.28	72.94	124.27	0.36
5100.00	0.92	203.77	5098.11	-42.61	59.66	73.31	125.53	0.08
5200.00	0.87	205.40	5198.10	-44.03	59.01	73.63	126.72	0.06
5300.00	0.97	212.44	5298.08	-45.42	58.23	73.85	127.96	0.15
5400.00	1.08	219.49	5398.07	-46.87	57.18	73.93	129.34	0.16
5500.00	1.12	220.34	5498.05	-48.33	55.95	73.94	130.82	0.04
5600.00	1.16	221.19	5598.03	-49.84	54.66	73.97	132.36	0.04
5700.00	1.11	219.05	5698.01	-51.35	53.38	74.07	133.89	0.06

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
5800.00	1.07	218.91	5797.99	-52.83	52.18	74.26	135.35	0.04
5900.00	1.25	225.67	5897.97	-54.32	50.82	74.38	136.91	0.23
6000.00	1.43	232.42	5997.94	-55.84	49.05	74.32	138.70	0.24
6100.00	1.51	236.99	6097.91	-57.31	46.96	74.10	140.67	0.14
6200.00	1.58	241.57	6197.87	-58.69	44.64	73.74	142.74	0.15
6300.00	1.62	236.28	6297.84	-60.13	42.25	73.49	144.91	0.15
6400.00	1.66	232.99	6397.79	-61.79	39.91	73.56	147.14	0.10
6500.00	1.27	210.36	6497.76	-63.62	38.20	74.20	149.02	0.69
6600.00	0.88	187.73	6597.75	-65.33	37.53	75.35	150.12	0.57
6700.00	0.93	195.42	6697.73	-66.88	37.21	76.54	150.91	0.13
6800.00	0.99	203.12	6797.72	-68.45	36.66	77.65	151.83	0.14
6900.00	1.47	187.51	6897.70	-70.52	36.15	79.25	152.86	0.59
7000.00	1.96	171.91	6997.65	-73.49	36.23	81.93	153.76	0.67
7100.00	1.67	193.38	7097.60	-76.60	36.13	84.69	154.75	0.73
7200.00	1.25	205.11	7197.57	-79.00	35.33	86.54	155.91	0.52
7300.00	0.53	131.79	7297.56	-80.30	35.21	87.68	156.32	1.21
7378.00	1.61	71.22	7375.55	-80.18	36.52	88.11	155.51	1.83



Vaughn Energy Services
Midland, Texas
432-563-5444
Surveyor: Tim Dillon
Myox 28 State Com No. 002H / API 30-015-39060



VES Survey Date: 01/05/2013



COG Operating, LLC

Eddy County, NM (NAD 83)

Sec 28, T25S, R28E

Myox 28 State Com #2H

Wellbore #1

Design: Wellbore #1

DDC Survey Report

15 January, 2013





DDC
Survey Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Myox 28 State Com #2H
Project:	Eddy County, NM (NAD 83)	TVD Reference:	WELL @ 2980.0usft (Patriot #3)
Site:	Sec 28, T25S, R28E	MD Reference:	WELL @ 2980.0usft (Patriot #3)
Well:	Myox 28 State Com #2H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Eddy County, NM (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 28, T25S, R28E		
Site Position:	Map	Northing:	398,090.88 usft
From:		Easting:	613,719.68 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 5' 39.176 N
		Longitude:	104° 5' 58.540 W
		Grid Convergence:	0.12 °

Well	Myox 28 State Com #2H		
Well Position	+N-S	0.0 usft	Northing:
	+E-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 5' 39.176 N
		Longitude:	104° 5' 58.540 W
		Ground Level:	2,963.0 usft

Wellbore	Wellbore #1		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/27/2012	7.63	59.94	48,329

Design	Wellbore #1		
--------	-------------	--	--

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	155.52

Survey Program	Date 1/15/2013		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
100.0	7,378.0	GYRO (Wellbore #1)	Good_gyro
7,518.0	12,669.0	MWD (Wellbore #1)	MWD default
			Description
			Good Gyro
			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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.20	148.90	100.0	-0.1	0.1	0.2	0.20	0.20	0.00	
200.0	0.36	230.89	200.0	-0.5	-0.1	0.4	0.39	0.16	81.99	
300.0	0.81	231.47	300.0	-1.1	-0.9	0.7	0.45	0.45	0.58	
400.0	1.26	232.04	400.0	-2.3	-2.3	1.1	0.45	0.45	0.57	
500.0	1.43	220.95	499.9	-3.9	-4.0	1.9	0.31	0.17	-11.09	
600.0	1.61	212.91	599.9	-6.0	-5.5	3.2	0.28	0.18	-8.04	
700.0	1.87	218.68	699.9	-8.4	-7.3	4.7	0.31	0.26	5.77	
800.0	2.12	225.51	799.8	-11.0	-9.7	6.0	0.34	0.25	6.83	
900.0	2.03	225.45	899.7	-13.6	-12.2	7.3	0.09	-0.09	-0.06	



DDC
Survey Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Myox 28 State Com #2H
Project:	Eddy County, NM (NAD 83)	TVD Reference:	WELL @ 2980.0usft (Patriot #3)
Site:	Sec 28, T25S, R28E	MD Reference:	WELL @ 2980.0usft (Patriot #3)
Well:	Myox 28 State Com #2H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	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)
1,000.0	1.95	225.37	999.7	-16.0	-14.7	8.5	0.08	-0.08	-0.08
1,100.0	1.81	226.89	1,099.6	-18.3	-17.1	9.5	0.15	-0.14	1.52
1,200.0	1.68	226.42	1,199.6	-20.4	-19.3	10.5	0.13	-0.13	-0.47
1,300.0	1.16	230.32	1,299.6	-22.0	-21.1	11.3	0.53	-0.52	3.90
1,400.0	0.65	232.23	1,399.5	-23.0	-22.4	11.7	0.51	-0.51	1.91
1,500.0	0.41	190.80	1,499.5	-23.7	-22.9	12.1	0.44	-0.24	-41.43
1,600.0	0.18	149.36	1,599.5	-24.2	-22.9	12.5	0.30	-0.23	-41.44
1,700.0	1.04	101.72	1,699.5	-24.5	-21.9	13.2	0.93	0.86	-47.64
1,800.0	1.91	84.08	1,799.5	-24.5	-19.4	14.3	0.97	0.87	-17.64
1,900.0	2.32	94.00	1,899.4	-24.5	-15.7	15.8	0.55	0.41	9.92
2,000.0	2.73	103.92	1,999.3	-25.2	-11.3	18.2	0.60	0.41	9.92
2,100.0	2.78	99.87	2,099.2	-26.2	-6.6	21.1	0.20	0.05	-4.05
2,200.0	2.83	95.82	2,199.1	-26.9	-1.8	23.7	0.20	0.05	-4.05
2,300.0	2.39	104.59	2,299.0	-27.6	2.7	26.3	0.59	-0.44	8.77
2,400.0	1.95	113.36	2,398.9	-28.8	6.2	28.8	0.55	-0.44	8.77
2,500.0	1.98	113.23	2,498.9	-30.2	9.4	31.4	0.03	0.03	-0.13
2,600.0	2.01	113.10	2,598.8	-31.6	12.6	33.9	0.03	0.03	-0.13
2,700.0	1.99	112.86	2,698.7	-32.9	15.8	36.5	0.02	-0.02	-0.24
2,800.0	1.97	110.61	2,798.7	-34.2	19.0	39.0	0.08	-0.02	-2.25
2,900.0	2.03	104.21	2,898.6	-35.2	22.3	41.3	0.23	0.06	-6.40
3,000.0	2.08	97.80	2,998.6	-35.9	25.9	43.4	0.24	0.05	-6.41
3,100.0	1.97	96.68	3,098.5	-36.4	29.4	45.3	0.12	-0.11	-1.12
3,200.0	1.86	95.57	3,198.4	-36.7	32.7	47.0	0.12	-0.11	-1.11
3,300.0	1.55	89.32	3,298.4	-36.9	35.7	48.3	0.36	-0.31	-6.25
3,400.0	1.24	83.08	3,398.4	-36.7	38.1	49.2	0.34	-0.31	-6.24
3,500.0	1.21	79.27	3,498.3	-36.4	40.2	49.8	0.09	-0.03	-3.81
3,600.0	1.19	75.46	3,598.3	-35.9	42.2	50.2	0.08	-0.02	-3.81
3,700.0	1.19	79.02	3,698.3	-35.5	44.3	50.6	0.07	0.00	3.56
3,800.0	1.19	80.59	3,798.3	-35.1	46.3	51.1	0.03	0.00	1.57
3,900.0	1.14	79.65	3,898.3	-34.8	48.3	51.7	0.05	-0.05	-0.94
4,000.0	1.10	78.72	3,998.2	-34.4	50.2	52.1	0.04	-0.04	-0.93
4,100.0	0.94	84.74	4,098.2	-34.1	52.0	52.6	0.19	-0.16	6.02
4,200.0	0.78	90.76	4,198.2	-34.1	53.5	53.2	0.18	-0.16	6.02
4,300.0	0.76	98.98	4,298.2	-34.2	54.8	53.8	0.11	-0.02	8.22
4,400.0	0.73	105.19	4,398.2	-34.5	56.1	54.6	0.09	-0.03	6.21
4,500.0	0.75	116.26	4,498.2	-34.9	57.3	55.5	0.14	0.02	11.07
4,600.0	0.76	127.33	4,598.2	-35.6	58.4	56.6	0.15	0.01	11.07
4,700.0	0.84	141.33	4,698.2	-36.6	59.4	57.9	0.21	0.08	14.00
4,800.0	0.93	155.33	4,798.1	-37.9	60.2	59.4	0.23	0.09	14.00
4,900.0	0.95	178.73	4,898.1	-39.5	60.5	61.0	0.38	0.02	23.40
5,000.0	0.97	200.14	4,998.1	-41.1	60.3	62.4	0.36	0.02	21.41
5,100.0	0.92	203.77	5,098.1	-42.6	59.7	63.5	0.08	-0.05	3.63
5,200.0	0.87	205.40	5,198.1	-44.0	59.0	64.5	0.06	-0.05	1.63

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Myox 28 State Com #2H
Project:	Eddy County, NM (NAD 83)	TVD Reference:	WELL @ 2980.0usft (Patriot #3)
Site:	Sec 28, T25S, R28E	MD Reference:	WELL @ 2980.0usft (Patriot #3)
Well:	Myox 28 State Com #2H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	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)	
5,300.0	0.97	212.44	5,298.1	-45.4	58.2	65.5	0.15	0.10	7.04	
5,400.0	1.08	219.49	5,398.1	-46.9	57.2	66.3	0.17	0.11	7.05	
5,500.0	1.12	220.34	5,498.0	-48.3	55.9	67.2	0.04	0.04	0.85	
5,600.0	1.16	221.19	5,598.0	-49.8	54.6	68.0	0.04	0.04	0.85	
5,700.0	1.11	219.05	5,698.0	-51.4	53.4	68.9	0.07	-0.05	-2.14	
5,800.0	1.07	218.91	5,798.0	-52.8	52.2	69.7	0.04	-0.04	-0.14	
5,900.0	1.25	225.67	5,898.0	-54.3	50.8	70.5	0.23	0.18	6.76	
6,000.0	1.43	232.42	5,997.9	-55.9	49.0	71.1	0.24	0.18	6.75	
6,100.0	1.51	236.99	6,097.9	-57.3	46.9	71.6	0.14	0.08	4.57	
6,200.0	1.58	241.57	6,197.9	-58.7	44.6	71.9	0.14	0.07	4.58	
6,300.0	1.62	236.28	6,297.8	-60.1	42.2	72.2	0.15	0.04	-5.29	
6,400.0	1.66	232.99	6,397.8	-61.8	39.9	72.8	0.10	0.04	-3.29	
6,500.0	1.27	210.36	6,497.8	-63.6	38.2	73.7	0.69	-0.39	-22.63	
6,600.0	0.88	187.73	6,597.7	-65.3	37.5	75.0	0.57	-0.39	-22.63	
6,700.0	0.93	195.42	6,697.7	-66.9	37.2	76.3	0.13	0.05	7.69	
6,800.0	0.99	203.12	6,797.7	-68.5	36.6	77.5	0.14	0.06	7.70	
6,900.0	1.47	187.51	6,897.7	-70.5	36.1	79.2	0.58	0.48	-15.61	
7,000.0	1.96	171.91	6,997.7	-73.5	36.2	81.9	0.67	0.49	-15.60	
7,100.0	1.67	193.38	7,097.6	-76.6	36.1	84.7	0.73	-0.29	21.47	
7,200.0	1.25	205.11	7,197.6	-79.0	35.3	86.5	0.51	-0.42	11.73	
7,300.0	0.53	131.79	7,297.6	-80.3	35.2	87.7	1.21	-0.72	-73.32	
TIE IN @ 7378' MD / 7376' TVD										
7,378.0	1.61	71.22	7,375.5	-80.2	36.5	88.1	1.83	1.38	-77.65	
7,518.0	3.20	55.50	7,515.4	-77.4	41.6	87.6	1.22	1.14	-11.23	
7,549.0	2.80	33.90	7,546.4	-76.2	42.7	87.1	3.84	-1.29	-69.68	
7,581.0	4.80	26.00	7,578.3	-74.4	43.7	85.8	6.45	6.25	-24.69	
7,613.0	6.50	17.20	7,610.2	-71.4	44.9	83.6	5.95	5.31	-27.50	
7,644.0	7.10	18.20	7,640.9	-68.0	46.0	80.9	1.97	1.94	3.23	
7,676.0	8.50	24.00	7,672.6	-63.9	47.6	77.9	5.01	4.38	18.13	
7,708.0	12.00	27.70	7,704.1	-58.8	50.1	74.3	11.12	10.94	11.56	
7,740.0	15.90	26.70	7,735.2	-51.9	53.6	69.5	12.21	12.19	-3.13	
7,771.0	20.60	23.70	7,764.6	-43.1	57.7	63.2	15.46	15.16	-9.68	
7,803.0	24.90	19.80	7,794.1	-31.6	62.2	54.6	14.23	13.44	-12.19	
7,835.0	28.80	13.80	7,822.7	-17.8	66.4	43.7	14.83	12.19	-18.75	
CROSSED HARDLINE @ 7866' MD / 7849' TVD										
7,866.0	33.20	10.20	7,849.2	-2.2	69.7	30.9	15.40	14.19	-11.61	
7,898.0	37.40	8.60	7,875.3	16.0	72.7	15.5	13.44	13.13	-5.00	
7,930.0	41.50	6.30	7,900.0	36.2	75.3	-1.8	13.60	12.81	-7.19	
7,961.0	44.80	5.80	7,922.7	57.3	77.5	-20.0	10.70	10.65	-1.61	
7,993.0	49.20	5.20	7,944.5	80.6	79.7	-40.3	13.82	13.75	-1.88	
8,025.0	53.10	3.10	7,964.5	105.4	81.5	-62.2	13.21	12.19	-6.56	
8,056.0	57.40	0.80	7,982.2	130.9	82.4	-85.0	15.15	13.87	-7.42	
8,088.0	60.80	358.20	7,998.6	158.3	82.1	-110.1	12.71	10.63	-8.13	
8,119.0	65.20	358.40	8,012.7	185.9	81.3	-135.5	14.21	14.19	0.65	



DDC Survey Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Myox 28 State Com #2H
Project:	Eddy County, NM (NAD 83)	TVD Reference:	WELL @ 2980.0usft (Patriot #3)
Site:	Sec 28, T25S, R28E	MD Reference:	WELL @ 2980.0usft (Patriot #3)
Well:	Myox 28 State Com #2H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	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)	
8,151.0	69.70	359.40	8,025.0	215.5	80.8	-162.6	14.36	14.06	3.13	
8,183.0	74.00	0.80	8,035.0	245.9	80.8	-190.3	14.07	13.44	4.38	
8,214.0	78.40	0.80	8,042.3	275.9	81.2	-217.5	14.19	14.19	0.00	
8,246.0	82.80	359.80	8,047.6	307.5	81.4	-246.2	14.09	13.75	-3.13	
8,295.0	89.30	359.30	8,050.9	356.4	81.0	-290.8	13.30	13.27	-1.02	
8,390.0	89.10	359.80	8,052.3	451.4	80.3	-377.5	0.57	-0.21	0.53	
8,453.0	90.60	0.00	8,052.4	514.4	80.2	-434.9	2.40	2.38	0.32	
8,517.0	91.20	359.60	8,051.4	578.3	79.9	-493.3	1.13	0.94	-0.63	
8,580.0	91.40	359.40	8,050.0	641.3	79.4	-550.8	0.45	0.32	-0.32	
8,675.0	91.40	358.90	8,047.7	736.3	78.0	-637.8	0.53	0.00	-0.53	
8,770.0	90.90	358.50	8,045.8	831.2	75.8	-725.1	0.67	-0.53	-0.42	
8,865.0	91.10	358.40	8,044.1	926.2	73.3	-812.6	0.24	0.21	-0.11	
8,960.0	89.90	358.70	8,043.3	1,021.2	70.8	-900.0	1.30	-1.26	0.32	
9,055.0	90.40	358.70	8,043.0	1,116.1	68.7	-987.4	0.53	0.53	0.00	
9,150.0	89.80	358.90	8,042.9	1,211.1	66.7	-1,074.6	0.67	-0.63	0.21	
9,245.0	89.30	358.20	8,043.6	1,306.1	64.3	-1,162.1	0.91	-0.53	-0.74	
9,341.0	90.00	358.90	8,044.2	1,402.0	61.9	-1,250.4	1.03	0.73	0.73	
9,436.0	90.70	359.30	8,043.6	1,497.0	60.4	-1,337.5	0.85	0.74	0.42	
9,531.0	90.70	358.50	8,042.5	1,592.0	58.6	-1,424.7	0.84	0.00	-0.84	
9,626.0	90.40	358.90	8,041.6	1,687.0	56.4	-1,512.0	0.53	-0.32	0.42	
9,721.0	90.50	358.00	8,040.8	1,781.9	53.8	-1,599.5	0.95	0.11	-0.95	
9,816.0	90.00	358.20	8,040.4	1,876.9	50.7	-1,687.2	0.57	-0.53	0.21	
9,912.0	89.50	359.10	8,040.8	1,972.9	48.4	-1,775.5	1.07	-0.52	0.94	
10,007.0	89.80	358.40	8,041.4	2,067.8	46.3	-1,862.8	0.80	0.32	-0.74	
10,102.0	89.00	359.10	8,042.4	2,162.8	44.3	-1,950.1	1.12	-0.84	0.74	
10,198.0	90.50	359.10	8,042.8	2,258.8	42.8	-2,038.1	1.56	1.56	0.00	
10,292.0	90.30	0.00	8,042.1	2,352.8	42.0	-2,123.9	0.98	-0.21	0.96	
10,387.0	91.10	359.40	8,041.0	2,447.8	41.5	-2,210.6	1.05	0.84	-0.63	
10,482.0	90.40	359.30	8,039.7	2,542.8	40.5	-2,297.5	0.74	-0.74	-0.11	
10,577.0	89.70	358.70	8,039.7	2,637.7	38.8	-2,384.6	0.97	-0.74	-0.63	
10,670.0	89.90	358.40	8,040.0	2,730.7	36.4	-2,470.2	0.39	0.22	-0.32	
10,765.0	88.80	359.30	8,041.1	2,825.7	34.5	-2,557.4	1.50	-1.16	0.95	
10,828.0	89.70	359.40	8,041.9	2,888.7	33.8	-2,615.1	1.44	1.43	0.16	
10,892.0	89.90	359.60	8,042.1	2,952.7	33.3	-2,673.6	0.44	0.31	0.31	
10,955.0	90.40	0.30	8,041.9	3,015.7	33.2	-2,730.9	1.37	0.79	1.11	
11,018.0	90.80	0.60	8,041.3	3,078.7	33.7	-2,788.0	0.79	0.63	0.48	
11,113.0	90.60	0.30	8,040.1	3,173.6	34.4	-2,874.2	0.38	-0.21	-0.32	
11,208.0	90.00	0.30	8,039.6	3,268.6	34.9	-2,960.4	0.63	-0.63	0.00	
11,303.0	90.90	0.50	8,038.9	3,363.6	35.6	-3,046.6	0.97	0.95	0.21	
11,398.0	90.60	0.00	8,037.6	3,458.6	36.0	-3,132.9	0.61	-0.32	-0.53	
11,493.0	90.60	0.00	8,036.6	3,553.6	36.0	-3,219.4	0.00	0.00	0.00	
11,588.0	90.30	0.10	8,035.9	3,648.6	36.1	-3,305.8	0.33	-0.32	0.11	
11,684.0	89.70	0.30	8,035.9	3,744.6	36.4	-3,393.0	0.66	-0.63	0.21	



DDC
Survey Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Myox 28 State Com #2H
Project:	Eddy County, NM (NAD 83)	TVD Reference:	WELL @ 2980.0usft (Patriot #3)
Site:	Sec 28, T25S, R28E	MD Reference:	WELL @ 2980.0usft (Patriot #3)
Well:	Myox 28 State Com #2H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	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)
11,779.0	90.30	0.10	8,035.9	3,839.6	36.8	-3,479.3	0.67	0.63	-0.21
11,874.0	90.00	359.40	8,035.6	3,934.6	36.4	-3,566.0	0.80	-0.32	-0.74
11,969.0	90.00	358.90	8,035.6	4,029.6	34.9	-3,653.0	0.53	0.00	-0.53
12,064.0	91.20	0.50	8,034.7	4,124.6	34.5	-3,739.7	2.11	1.26	1.68
12,159.0	91.40	0.80	8,032.5	4,219.6	35.5	-3,825.7	0.38	0.21	0.32
12,254.0	89.90	359.10	8,031.4	4,314.6	35.4	-3,912.2	2.39	-1.58	-1.79
12,349.0	89.20	358.20	8,032.2	4,409.5	33.2	-3,999.5	1.20	-0.74	-0.95
12,444.0	88.70	357.50	8,033.9	4,504.4	29.6	-4,087.4	0.91	-0.53	-0.74
12,539.0	89.10	357.30	8,035.7	4,599.3	25.3	-4,175.5	0.47	0.42	-0.21
12,614.0	89.10	358.20	8,036.9	4,674.3	22.4	-4,244.9	1.20	0.00	1.20
LAST MWD SURVEY @ 12669' MD / 8038' TVD									
12,669.0	89.10	358.20	8,037.8	4,729.2	20.7	-4,295.7	0.00	0.00	0.00

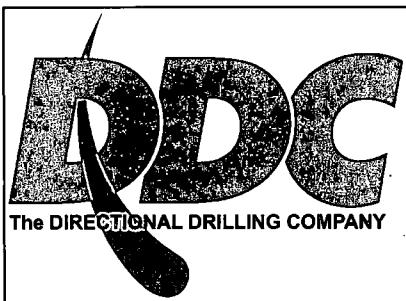
Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,378.0	7,375.5	-80.2	36.5	TIE IN @ 7378' MD / 7376' TVD
7,866.0	7,849.2	-2.2	69.7	CROSSED HARDLINE @ 7866' MD / 7849' TVD
12,669.0	8,037.8	4,729.2	20.7	LAST MWD SURVEY @ 12669' MD / 8038' TVD

Checked By: _____ Approved By: _____ Date: _____

Company Name: COG Operating, LLC
 Myox 28 State Com #2H
 Eddy County, NM (NAD 83)
 Rig: Patriot 83
 Created By: TIFFANI MIZELL
 Date: 1/15/13

Myox 28 State Com #2H
 Eddy County, NM (NAD 83)
 Q120945 & WT-13018
 Design #2



PROJECT DETAILS: Eddy County, NM (NAD 83)

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone
 System Datum: Mean Sea Level

WELL DETAILS: Myox 28 State Com #2H

Ground Level: 2963.0
 +N/-S +E/-W Northing Easting Latitude Longitude
 0.0 0.0 398090.88 613719.88 32° 6' 39.176 N 104° 6' 58.540 W



Azimuths to Grid North

Magnetic North: 7.51°

Magnetic Field

Strength: 48329.5snT

Dip Angle: 59.94°

Date: 12/27/2012

Model: IGRF2010

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL Myox 28 State Com #2H Design #2	8030.0	4729.3	11.8	402820.13	613731.46	32° 6' 25.978 N	104° 6' 58.284 W

- plan hits target center

ANNOTATIONS

MD	Line	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
7376-0	1.04	71.22	7376-5	-80-0	38-6	88-4	175-0	TIE IN @ 7376 MD / 7376 TVD
7866-0	33.20	10.20	7849-2	-2-2	69-7	30-9	262-0	CROSSED HARDLINE @ 7866 MD / 7849 TVD
12669-0	89.10	350.20	8037-8	4729-2	20-7	4295-7	4995-0	LAST-MWD-SURVEY @ 12669 MD / 8038 TVD

