CONCHO

COG Operating, LLC

Eddy County, NM (NAD 27)
Sec 28 T25S, R28E
Myox 28 State Com #5H

Wellbore #1

Survey: MWD

DDC Survey Report

27 January, 2015

Amended: w/ signature 30-015-41607

DDC
The DIRECTIONAL DRILLING COMPANY

The DIRECTIONAL DRILLING COMPANY

Survey Certification Sheet

COG Operating	WT-150001	1/27/15
Company	Job Number	Date

Sec28,T25S,R28E	Myox 28 State Com #5H	Eddy, NM
Lease	Well Name	County & State

API: 30-015-41607

Surveyed from a depth of: 6533 feet to 12739 feet MD

Type of Survey: MWD

Directional Supervisor/Surveyor: Taylor Matejek

The data and calculations for this survey have been checked by me and conform to the standards and procedures set forth by **The Directional Drilling Company (DDC)**. This report represents a true and correct Directional survey of this well based on the original data obtained at the well site. Wellbore Coordinates are calculated using minimum curvature.

Bryon Reed
MWD General Manager

Bryon Reed

Digitally signed by Bryon Reed
DN: cn=Bryon Reed, o=DDC, ou, email=Bryon.reed@directionaldrillers.com, c=US
Date: 2015.01.28 06:55:36 -06'00'

• 11390 FM 830 • Willis, Texas 77318 •
• PH 936-856-4332 • FAX 936-856-8678 •

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Myox 28 State Com #5H
Project:	Eddy County, NM (NAD 27)	**TVD Reference:**	well @ 2975.0usft (Patterson #79)
Site:	Sec 28 T25S, R28E	**MD Reference:**	well @ 2975.0usft (Patterson #79)
Well:	Myox 28 State Com #5H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	Compass

Project Eddy County, NM (NAD 27)

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 Sec 28 T25S, R28E

Site Position:		**Northing:**	402,955.50 usft	**Latitude:**	32° 6' 27.347 N
From:	Map	**Easting:**	577,034.00 usft	**Longitude:**	104° 5' 4.350 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.13 °

Well Myox 28 State Com #5H

Well Position	**+N/-S**	0.0 usft	**Northing:**	402,955.50 usft	**Latitude:**	32° 6' 27.347 N
	+E/-W	0.0 usft	**Easting:**	577,034.00 usft	**Longitude:**	104° 5' 4.350 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	0.0 usft	**Ground Level:**	2,957.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/11/2015	7.37	59.90	48,137

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	178.80

Survey Program **Date** 1/21/2015

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	6,533.0	Gyro (Wellbore #1)	Good_gyro	Good Gyro
6,533.0	12,739.0	MWD (Wellbore #1)	MWD default	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)
Tie In @ 6533' MD / 6531' TVD									
6,533.0	2.12	257.03	6,531.4	-70.4	-30.1	69.7	0.00	0.00	0.00
6,678.0	1.70	236.80	6,676.3	-72.2	-34.5	71.4	0.54	-0.29	-13.95
6,773.0	1.80	240.70	6,771.3	-73.7	-37.0	72.9	0.16	0.11	4.11
6,868.0	1.90	250.90	6,866.2	-74.9	-39.8	74.1	0.36	0.11	10.74
6,963.0	0.70	257.40	6,961.2	-75.5	-41.8	74.7	1.27	-1.26	6.84
7,058.0	0.90	264.20	7,056.2	-75.8	-43.1	74.8	0.23	0.21	7.16
7,153.0	0.80	264.10	7,151.2	-75.9	-44.5	74.9	0.11	-0.11	-0.11
7,248.0	1.00	259.50	7,246.2	-76.1	-46.0	75.1	0.22	0.21	-4.84
7,343.0	1.20	256.90	7,341.2	-76.5	-47.8	75.5	0.22	0.21	-2.74

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Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	Compass

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)
7,437.0	1.30	263.70	7,435.1	-76.8	-49.8	75.8	0.19	0.11	7.23
7,532.0	1.80	271.50	7,530.1	-76.9	-52.4	75.8	0.57	0.53	8.21
7,580.0	1.90	259.90	7,578.1	-77.0	-53.9	75.9	0.81	0.21	-24.17
7,628.0	1.60	235.90	7,626.0	-77.5	-55.3	76.4	1.63	-0.63	-50.00
7,659.0	4.80	166.30	7,657.0	-79.0	-55.3	77.9	14.51	10.32	-224.52
7,691.0	9.50	163.20	7,688.7	-82.9	-54.2	81.7	14.73	14.69	-9.69
7,723.0	14.30	162.10	7,720.0	-89.2	-52.2	88.1	15.02	15.00	-3.44
7,754.0	17.90	165.10	7,749.8	-97.4	-49.8	96.4	11.92	11.61	9.68
7,786.0	21.30	168.60	7,780.0	-107.9	-47.4	106.9	11.24	10.63	10.94
7,818.0	24.00	170.60	7,809.5	-120.0	-45.2	119.0	8.77	8.44	6.25
7,849.0	26.60	172.50	7,837.5	-133.1	-43.3	132.2	8.79	8.39	6.13
7,881.0	29.20	174.40	7,865.8	-148.0	-41.6	147.1	8.59	8.13	5.94
7,912.0	31.60	173.50	7,892.5	-163.6	-39.9	162.7	7.88	7.74	-2.90
7,944.0	34.20	172.10	7,919.4	-180.8	-37.7	180.0	8.46	8.13	-4.38
7,976.0	36.50	170.20	7,945.5	-199.1	-34.9	198.3	7.97	7.19	-5.94
8,007.0	38.70	170.60	7,970.1	-217.7	-31.7	217.0	7.14	7.10	1.29
8,039.0	40.70	173.50	7,994.7	-238.0	-28.9	237.3	8.52	6.25	9.06
8,071.0	43.10	174.60	8,018.5	-259.2	-26.7	258.6	7.84	7.50	3.44
8,102.0	44.80	174.90	8,040.8	-280.7	-24.7	280.1	5.52	5.48	0.97
8,134.0	47.30	176.00	8,063.0	-303.6	-22.9	303.1	8.19	7.81	3.44
8,166.0	51.70	178.60	8,083.8	-327.9	-21.8	327.4	15.07	13.75	8.13
8,197.0	55.90	180.80	8,102.1	-352.9	-21.7	352.4	14.71	13.55	7.10
8,229.0	59.40	181.10	8,119.2	-380.0	-22.1	379.4	10.97	10.94	0.94
8,261.0	62.60	180.20	8,134.7	-407.9	-22.4	407.4	10.30	10.00	-2.81
8,292.0	65.50	179.50	8,148.3	-435.8	-22.4	435.2	9.57	9.35	-2.26
8,324.0	68.40	178.50	8,160.8	-465.2	-21.8	464.7	9.51	9.06	-3.13
8,362.0	71.20	178.50	8,174.0	-500.9	-20.9	500.3	7.37	7.37	0.00
8,393.0	74.00	178.10	8,183.2	-530.5	-20.0	529.9	9.12	9.03	-1.29
8,425.0	75.80	178.10	8,191.6	-561.3	-19.0	560.8	5.63	5.63	0.00
8,457.0	78.50	180.60	8,198.7	-592.5	-18.7	592.0	11.37	8.44	7.81
8,488.0	81.40	180.20	8,204.1	-623.1	-18.9	622.5	9.44	9.35	-1.29
8,520.0	84.40	182.00	8,208.0	-654.8	-19.5	654.2	10.91	9.38	5.63
8,551.0	86.90	180.90	8,210.4	-685.7	-20.3	685.1	8.81	8.06	-3.55
8,583.0	88.50	181.40	8,211.7	-717.7	-20.9	717.1	5.24	5.00	1.56
8,615.0	89.20	182.90	8,212.3	-749.6	-22.1	749.0	5.17	2.19	4.69
8,647.0	91.10	180.40	8,212.2	-781.6	-23.0	781.0	9.81	5.94	-7.81
8,710.0	92.00	182.00	8,210.5	-844.6	-24.3	843.9	2.91	1.43	2.54
8,804.0	93.00	181.10	8,206.4	-938.4	-26.9	937.7	1.43	1.06	-0.96
8,899.0	92.00	181.30	8,202.3	-1,033.3	-28.9	1,032.5	1.07	-1.05	0.21
8,993.0	90.70	179.50	8,200.1	-1,127.3	-29.5	1,126.4	2.36	-1.38	-1.91
9,087.0	91.50	179.30	8,198.3	-1,221.3	-28.5	1,220.4	0.88	0.85	-0.21
9,182.0	93.00	179.30	8,194.5	-1,316.2	-27.4	1,315.3	1.58	1.58	0.00
9,276.0	91.50	179.50	8,190.8	-1,410.1	-26.4	1,409.2	1.61	-1.60	0.21

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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)
9,370.0	90.70	177.60	8,189.0	-1,504.1	-24.0	1,503.2	2.19	-0.85	-2.02
9,465.0	91.80	179.20	8,187.0	-1,599.0	-21.4	1,598.2	2.04	1.16	1.68
9,560.0	90.90	177.10	8,184.7	-1,693.9	-18.3	1,693.2	2.40	-0.95	-2.21
9,655.0	92.20	178.50	8,182.2	-1,788.8	-14.7	1,788.1	2.01	1.37	1.47
9,749.0	90.90	177.80	8,179.6	-1,882.7	-11.6	1,882.1	1.57	-1.38	-0.74
9,844.0	91.80	177.10	8,177.4	-1,977.6	-7.4	1,977.0	1.20	0.95	-0.74
9,939.0	90.40	176.90	8,175.6	-2,072.4	-2.4	2,071.9	1.49	-1.47	-0.21
10,033.0	92.00	177.60	8,173.6	-2,166.3	2.1	2,165.9	1.86	1.70	0.74
10,128.0	90.10	175.80	8,171.9	-2,261.1	7.6	2,260.8	2.75	-2.00	-1.89
10,222.0	90.80	176.50	8,171.1	-2,354.9	13.9	2,354.7	1.05	0.74	0.74
10,316.0	92.30	176.70	8,168.6	-2,448.7	19.4	2,448.6	1.61	1.60	0.21
10,411.0	91.10	176.90	8,165.8	-2,543.5	24.7	2,543.5	1.28	-1.26	0.21
10,505.0	89.70	177.60	8,165.1	-2,637.4	29.2	2,637.4	1.67	-1.49	0.74
10,600.0	90.80	178.10	8,164.7	-2,732.3	32.8	2,732.4	1.27	1.16	0.53
10,695.0	89.40	177.10	8,164.5	-2,827.3	36.8	2,827.4	1.81	-1.47	-1.05
10,790.0	90.00	177.40	8,165.0	-2,922.1	41.3	2,922.4	0.71	0.63	0.32
10,885.0	91.10	177.40	8,164.1	-3,017.0	45.7	3,017.3	1.16	1.16	0.00
10,980.0	88.90	178.30	8,164.1	-3,112.0	49.2	3,112.3	2.50	-2.32	0.95
11,075.0	87.50	178.10	8,167.1	-3,206.9	52.2	3,207.3	1.49	-1.47	-0.21
11,169.0	88.80	178.50	8,170.1	-3,300.8	55.0	3,301.2	1.45	1.38	0.43
11,265.0	90.80	177.90	8,170.5	-3,396.7	58.0	3,397.2	2.18	2.08	-0.63
11,358.0	92.80	178.50	8,167.5	-3,489.6	60.9	3,490.1	2.25	2.15	0.65
11,452.0	92.50	176.70	8,163.2	-3,583.4	64.9	3,584.0	1.94	-0.32	-1.91
11,547.0	93.50	176.90	8,158.2	-3,678.2	70.1	3,678.8	1.07	1.05	0.21
11,641.0	94.30	176.00	8,151.8	-3,771.8	76.0	3,772.5	1.28	0.85	-0.96
11,736.0	92.90	176.90	8,145.9	-3,866.4	81.8	3,867.3	1.75	-1.47	0.95
11,831.0	91.20	178.10	8,142.5	-3,961.2	86.0	3,962.2	2.19	-1.79	1.26
11,926.0	92.60	176.20	8,139.3	-4,056.1	90.7	4,057.1	2.48	1.47	-2.00
12,021.0	91.40	177.80	8,136.0	-4,150.9	95.7	4,152.0	2.10	-1.26	1.68
12,116.0	89.30	176.90	8,135.4	-4,245.8	100.0	4,246.9	2.40	-2.21	-0.95
12,211.0	90.80	177.40	8,135.3	-4,340.6	104.8	4,341.9	1.66	1.58	0.53
12,305.0	92.10	177.90	8,132.9	-4,434.5	108.6	4,435.8	1.48	1.38	0.53
12,399.0	93.50	176.40	8,128.4	-4,528.3	113.3	4,529.7	2.18	1.49	-1.60
12,494.0	92.20	175.80	8,123.6	-4,622.9	119.7	4,624.4	1.51	-1.37	-0.63
12,588.0	90.80	176.50	8,121.2	-4,716.7	126.1	4,718.3	1.67	-1.49	0.74
12,682.0	90.50	179.50	8,120.1	-4,810.6	129.3	4,812.3	3.21	-0.32	3.19
TD @ 12739' MD / 8119.6' TVD									
12,739.0	90.50	179.50	8,119.6	-4,867.6	129.8	4,869.3	0.00	0.00	0.00

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Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
6,533.0	6,531.4	-70.4	-30.1	Tie In @ 6533' MD / 6531' TVD
12,739.0	8,119.6	-4,867.6	129.8	TD @ 12739' MD / 8119.6' TVD

Checked By: _____ Approved By: _____ Date: _____