

NOV 25 2019

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240
Phone: (575) 393-8181 Fax: (575) 393-0720

DISTRICT II
811 S. FIRST ST., ARTESIA, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-45745		Pool Code 30216	Pool Name Hay Hollow; Bone Spring, North
Property Code 325001	Property Name DAISY 24 STATE COM		Well Number 501H
OGRID No. 229137	Operator Name COG OPERATING, LLC		Elevation 3051.0'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	24	25-S	27-E		275	NORTH	385	WEST	EDDY

Bottom Hole Location If Different From Surface

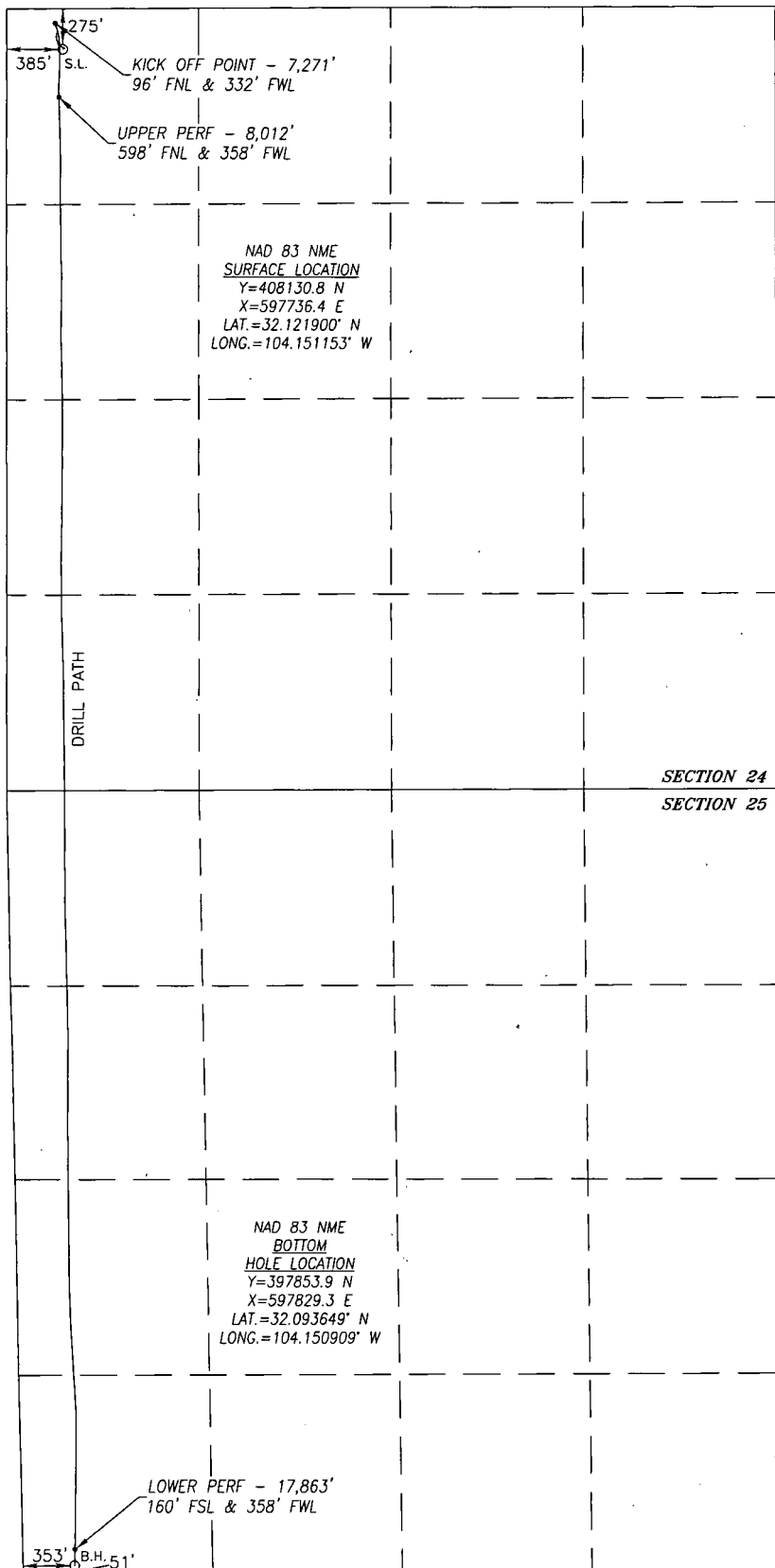
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	25	25-S	27-E		51	SOUTH	353	WEST	EDDY

Dedicated Acres 640	Joint or Infill	Consolidation Code	Order No.
------------------------	-----------------	--------------------	-----------

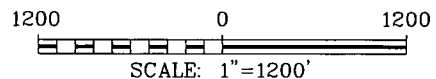
NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

SEE PAGE 2

Property Code 325001	Property Name DAISY 24 STATE COM	Well Number 501H
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 3051.0'



BOREPATH SHOWN HEREON IS BASED ON
DIRECTIONAL SURVEY REPORT PROVIDED BY
COG OPERATING, LLC FOR THE DAISY 24 STATE
COM #501H SUPPLIED TO HARCROW SURVEYING,
LLC ON OCTOBER 10, 2019



OPERATOR CERTIFICATION

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Amanda Avery 11/19/19
Signature Date

Amanda Avery

Printed Name

aavery@concho.com

E-mail Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

DEC. 4, 2018/JUNE 17, 2019

Date of Survey/Date of Geographic Survey

Signature & Seal of Professional Surveyor



Chad Harcrow 10/21/19
Certificate No. CHAD HARCROW 17777

Intent ☐ As Drilled ☒

API #
30-015-45745

Operator Name: COG OPERATING, LLC	Property Name: DAISY 24 STATE COM	Well Number 501H
--------------------------------------	--------------------------------------	---------------------

Kick Off Point (KOP)

UL D	Section 24	Township 25S	Range 27E	Lot	Feet 96	From N/S NORTH	Feet 332	From E/W WEST	County EDDY
Latitude 32.122391					Longitude -104.151325			NAD 83	

First Take Point (FTP)

UL D	Section 24	Township 25S	Range 27E	Lot	Feet 598	From N/S NORTH	Feet 358	From E/W WEST	County EDDY
Latitude 32.121012					Longitude -104.151239			NAD 83	

Last Take Point (LTP)

UL M	Section 25	Township 25S	Range 27E	Lot	Feet 160	From N/S SOUTH	Feet 358	From E/W WEST	County EDDY
Latitude 32.093951					Longitude -104.150901			NAD 83	

Is this well the defining well for the Horizontal Spacing Unit? ☐ No

Is this well an infill well? ☐ Yes

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #
30-015-45748

Operator Name: COG Operating LLC	Property Name: Daisy 24 State Com	Well Number 501H
-------------------------------------	--------------------------------------	---------------------

KZ 06/29/2018



PHOENIX
TECHNOLOGY SERVICES

NM OIL CONSERVATION
ARTESTA DISTRICT

NOV 25 2019

RECEIVED

COG Operating LLC

Eddy County, NM (NAD27 NME)

Daisy 24 State Com

501H

OH / 64761

Design: Surveys (Pioneer84)

Standard Survey Report

17 June, 2019





Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well 501H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3076.00usft (Pioneer 84)
Site:	Daisy 24 State Com	MD Reference:	RKB @ 3076.00usft (Pioneer 84)
Well:	501H	North Reference:	Grid
Wellbore:	OH / 64761	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Pioneer84)	Database:	USA Compass

Project	Eddy 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	Daisy 24 State Com		
Site Position:		Northing:	408,073.20 usft
From:	Map	Easting:	556,552.70 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 7' 18.4004 N
		Longitude:	104° 9' 2.3776 W
		Grid Convergence:	0.10 °

Well	501H		
Well Position	+N/-S	0.00 usft	Northing: 408,073.20 usft
	+E/-W	0.00 usft	Easting: 556,552.70 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 7' 18.4004 N
		Longitude:	104° 9' 2.3776 W
		Ground Level:	3,051.00 usft

Wellbore	OH / 64761		
Magnetics	Model Name	Sample Date	Declination
			(°)
	MVHD	6/1/2019	7.09
		Dip Angle	Field Strength
		(°)	(nT)
		59.81	47,866.22071031

Design	Surveys (Pioneer84)		
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
			179.61

Survey Program	Date	6/17/2019		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
100.00	6,963.00	SDI Gyro Surveys (OH / 64761)	Scientific Keeper	Scientific Drilling Intl. Standard Wireline Keeper
7,013.00	17,973.00	Phoenix MWD Surveys (OH / 64761)	MWD+HRGM	OWSG MWD + HRGM

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.43	35.91	100.00	0.30	0.22	-0.30	0.43	0.43	0.00
125.00	0.46	28.10	125.00	0.47	0.32	-0.47	0.27	0.12	-31.24
150.00	0.44	20.50	150.00	0.65	0.40	-0.64	0.25	-0.08	-30.40
175.00	0.29	18.56	175.00	0.80	0.46	-0.79	0.60	-0.60	-7.76
200.00	0.39	30.17	200.00	0.93	0.52	-0.93	0.48	0.40	46.44
225.00	0.57	16.77	225.00	1.12	0.60	-1.12	0.84	0.72	-53.60
250.00	0.46	7.81	249.99	1.34	0.65	-1.34	0.54	-0.44	-35.84
275.00	0.47	29.95	274.99	1.53	0.71	-1.52	0.72	0.04	88.56
300.00	0.47	30.32	299.99	1.71	0.82	-1.70	0.01	0.00	1.48



Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well 501H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3076.00usft (Pioneer 84)
Site:	Daisy 24 State Com	MD Reference:	RKB @ 3076.00usft (Pioneer 84)
Well:	501H	North Reference:	Grid
Wellbore:	OH / 64761	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Pioneer84)	Database:	USA 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)	
325.00	0.44	27.64	324.99	1.88	0.91	-1.87	0.15	-0.12	-10.72	
350.00	0.30	38.30	349.99	2.02	1.00	-2.01	0.62	-0.56	42.64	
375.00	0.30	56.27	374.99	2.10	1.09	-2.10	0.37	0.00	71.88	
400.00	0.50	69.92	399.99	2.18	1.25	-2.17	0.88	0.80	54.60	
425.00	0.45	46.92	424.99	2.28	1.42	-2.27	0.78	-0.20	-92.00	
450.00	0.55	42.00	449.99	2.44	1.58	-2.43	0.43	0.40	-19.68	
475.00	0.74	43.98	474.99	2.64	1.77	-2.63	0.77	0.76	7.92	
500.00	0.81	43.86	499.99	2.89	2.00	-2.87	0.28	0.28	-0.48	
525.00	0.95	45.60	524.98	3.16	2.27	-3.15	0.57	0.56	6.96	
550.00	1.03	42.84	549.98	3.47	2.57	-3.45	0.37	0.32	-11.04	
575.00	0.96	38.63	574.97	3.80	2.86	-3.78	0.40	-0.28	-16.84	
600.00	0.87	35.36	599.97	4.12	3.10	-4.10	0.42	-0.36	-13.08	
625.00	0.93	44.08	624.97	4.42	3.35	-4.39	0.60	0.24	34.88	
650.00	1.10	48.34	649.96	4.72	3.67	-4.70	0.74	0.68	17.04	
675.00	0.99	38.77	674.96	5.05	3.98	-5.02	0.82	-0.44	-38.28	
700.00	0.95	34.79	699.96	5.39	4.24	-5.36	0.31	-0.16	-15.92	
725.00	0.90	37.36	724.95	5.72	4.47	-5.69	0.26	-0.20	10.28	
750.00	0.89	43.60	749.95	6.01	4.73	-5.98	0.39	-0.04	24.96	
775.00	0.89	42.58	774.95	6.30	4.99	-6.26	0.06	0.00	-4.08	
800.00	0.80	41.77	799.94	6.57	5.24	-6.53	0.36	-0.36	-3.24	
825.00	0.57	35.59	824.94	6.80	5.43	-6.76	0.96	-0.92	-24.72	
850.00	0.14	9.66	849.94	6.93	5.51	-6.89	1.79	-1.72	-103.72	
875.00	0.36	273.86	874.94	6.97	5.43	-6.93	1.60	0.88	-383.20	
900.00	0.59	254.73	899.94	6.94	5.23	-6.90	1.11	0.92	-76.52	
925.00	0.76	246.48	924.94	6.84	4.95	-6.80	0.78	0.68	-33.00	
950.00	0.56	243.94	949.94	6.72	4.69	-6.69	0.81	-0.80	-10.16	
975.00	0.67	255.42	974.94	6.63	4.44	-6.60	0.66	0.44	45.92	
1,000.00	0.67	248.25	999.93	6.54	4.16	-6.51	0.34	0.00	-28.68	
1,025.00	0.60	236.78	1,024.93	6.41	3.92	-6.38	0.58	-0.28	-45.88	
1,050.00	0.47	234.51	1,049.93	6.28	3.73	-6.25	0.53	-0.52	-9.08	
1,075.00	0.40	209.65	1,074.93	6.14	3.60	-6.12	0.80	-0.28	-99.44	
1,100.00	0.50	230.82	1,099.93	6.00	3.47	-5.98	0.77	0.40	84.68	
1,125.00	0.41	219.96	1,124.93	5.86	3.33	-5.84	0.50	-0.36	-43.44	
1,150.00	0.22	211.74	1,149.93	5.75	3.25	-5.73	0.78	-0.76	-32.88	
1,175.00	0.29	232.73	1,174.93	5.67	3.17	-5.65	0.46	0.28	83.96	
1,200.00	0.28	218.54	1,199.93	5.59	3.08	-5.57	0.28	-0.04	-56.76	
1,225.00	0.31	167.90	1,224.93	5.47	3.06	-5.45	1.02	0.12	-202.56	
1,250.00	0.27	166.56	1,249.93	5.35	3.09	-5.33	0.16	-0.16	-5.36	
1,275.00	0.08	226.88	1,274.93	5.28	3.09	-5.26	0.96	-0.76	241.28	
1,300.00	0.27	122.11	1,299.93	5.24	3.13	-5.22	1.20	0.76	-419.08	
1,325.00	0.51	108.09	1,324.93	5.17	3.28	-5.15	1.03	0.96	-56.08	
1,350.00	0.49	91.64	1,349.93	5.13	3.49	-5.11	0.58	-0.08	-65.80	
1,375.00	0.44	96.42	1,374.93	5.12	3.70	-5.10	0.25	-0.20	19.12	

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well 501H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3076.00usft (Pioneer 84)
Site:	Daisy 24 State Com	MD Reference:	RKB @ 3076.00usft (Pioneer 84)
Well:	501H	North Reference:	Grid
Wellbore:	OH / 64761	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Pioneer84)	Database:	USA 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)
1,400.00	0.71	96.94	1,399.92	5.09	3.94	-5.06	1.08	1.08	2.08
1,425.00	0.48	100.43	1,424.92	5.05	4.20	-5.02	0.93	-0.92	13.96
1,450.00	1.00	94.17	1,449.92	5.02	4.52	-4.99	2.10	2.08	-25.04
1,475.00	1.15	91.13	1,474.92	5.00	4.99	-4.96	0.64	0.60	-12.16
1,500.00	1.09	87.98	1,499.91	5.00	5.48	-4.96	0.34	-0.24	-12.60
1,525.00	1.30	85.15	1,524.91	5.03	6.00	-4.99	0.87	0.84	-11.32
1,550.00	1.37	81.85	1,549.90	5.10	6.58	-5.06	0.42	0.28	-13.20
1,575.00	1.16	83.06	1,574.89	5.17	7.12	-5.12	0.85	-0.84	4.84
1,600.00	1.22	87.15	1,599.89	5.22	7.64	-5.16	0.42	0.24	16.36
1,625.00	1.34	79.85	1,624.88	5.28	8.20	-5.23	0.81	0.48	-29.20
1,650.00	0.94	68.31	1,649.88	5.41	8.67	-5.35	1.84	-1.60	-46.16
1,675.00	0.96	76.80	1,674.87	5.53	9.07	-5.47	0.57	0.08	33.96
1,700.00	1.11	75.36	1,699.87	5.64	9.51	-5.58	0.61	0.60	-5.76
1,725.00	1.32	73.22	1,724.86	5.79	10.02	-5.72	0.86	0.84	-8.56
1,750.00	1.18	70.76	1,749.86	5.95	10.53	-5.88	0.60	-0.56	-9.84
1,775.00	1.16	74.49	1,774.85	6.11	11.02	-6.03	0.31	-0.08	14.92
1,800.00	1.19	79.16	1,799.85	6.22	11.52	-6.14	0.40	0.12	18.68
1,825.00	1.25	74.63	1,824.84	6.34	12.04	-6.26	0.45	0.24	-18.12
1,850.00	1.28	70.99	1,849.84	6.51	12.57	-6.42	0.34	0.12	-14.56
1,875.00	0.88	62.80	1,874.83	6.69	13.00	-6.60	1.71	-1.60	-32.76
1,900.00	0.45	40.59	1,899.83	6.85	13.23	-6.76	1.97	-1.72	-88.84
1,925.00	0.52	20.35	1,924.83	7.03	13.34	-6.94	0.74	0.28	-80.96
1,950.00	0.46	11.54	1,949.83	7.23	13.40	-7.14	0.38	-0.24	-35.24
1,975.00	0.39	13.33	1,974.83	7.41	13.44	-7.32	0.28	-0.28	7.16
2,000.00	0.39	0.22	1,999.83	7.58	13.46	-7.49	0.36	0.00	-52.44
2,025.00	0.96	314.86	2,024.82	7.82	13.31	-7.72	2.96	2.28	-181.44
2,050.00	1.34	299.01	2,049.82	8.10	12.91	-8.02	1.97	1.52	-63.40
2,075.00	1.47	299.43	2,074.81	8.40	12.37	-8.32	0.52	0.52	1.68
2,100.00	1.63	299.35	2,099.80	8.74	11.78	-8.66	0.64	0.64	-0.32
2,125.00	1.75	293.96	2,124.79	9.07	11.12	-8.99	0.80	0.48	-21.56
2,150.00	1.67	291.06	2,149.78	9.35	10.43	-9.28	0.47	-0.32	-11.60
2,175.00	1.71	289.51	2,174.77	9.61	9.74	-9.54	0.24	0.16	-6.20
2,200.00	1.64	294.00	2,199.76	9.88	9.06	-9.81	0.59	-0.28	17.96
2,225.00	1.68	293.68	2,224.75	10.17	8.40	-10.11	0.16	0.16	-1.28
2,250.00	1.74	290.05	2,249.74	10.45	7.71	-10.39	0.50	0.24	-14.52
2,275.00	1.65	290.55	2,274.73	10.70	7.02	-10.66	0.36	-0.36	2.00
2,300.00	1.57	294.47	2,299.72	10.97	6.37	-10.93	0.54	-0.32	15.68
2,325.00	1.70	296.05	2,324.71	11.28	5.72	-11.24	0.55	0.52	6.32
2,350.00	1.76	292.77	2,349.70	11.59	5.03	-11.55	0.46	0.24	-13.12
2,375.00	1.70	291.31	2,374.68	11.87	4.34	-11.84	0.30	-0.24	-5.84
2,400.00	1.66	292.20	2,399.67	12.14	3.65	-12.12	0.19	-0.16	3.56
2,425.00	1.48	296.25	2,424.66	12.42	3.03	-12.40	0.85	-0.72	16.20
2,450.00	1.75	295.35	2,449.65	12.73	2.39	-12.71	1.08	1.08	-3.60

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well 501H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3076.00usft (Pioneer 84)
Site:	Daisy 24 State Com	MD Reference:	RKB @ 3076.00usft (Pioneer 84)
Well:	501H	North Reference:	Grid
Wellbore:	OH / 64761	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Pioneer84)	Database:	USA 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)	
2,475.00	1.74	295.51	2,474.64	13.06	1.71	-13.04	0.04	-0.04	0.64	
2,500.00	1.76	292.40	2,499.63	13.37	1.01	-13.36	0.39	0.08	-12.44	
2,525.00	1.63	291.92	2,524.62	13.64	0.33	-13.64	0.52	-0.52	-1.92	
2,550.00	1.58	293.78	2,549.61	13.92	-0.32	-13.92	0.29	-0.20	7.44	
2,575.00	1.69	296.72	2,574.60	14.22	-0.96	-14.23	0.55	0.44	11.76	
2,600.00	1.90	294.57	2,599.59	14.56	-1.67	-14.57	0.88	0.84	-8.60	
2,625.00	1.77	291.80	2,624.57	14.87	-2.41	-14.89	0.63	-0.52	-11.08	
2,650.00	1.82	289.14	2,649.56	15.15	-3.14	-15.17	0.39	0.20	-10.64	
2,675.00	1.67	291.88	2,674.55	15.41	-3.85	-15.44	0.69	-0.60	10.96	
2,700.00	1.73	293.14	2,699.54	15.70	-4.54	-15.73	0.28	0.24	5.04	
2,725.00	1.77	293.66	2,724.53	16.00	-5.24	-16.04	0.17	0.16	2.08	
2,750.00	1.84	292.11	2,749.52	16.31	-5.96	-16.35	0.34	0.28	-6.20	
2,775.00	1.95	287.20	2,774.50	16.58	-6.74	-16.63	0.78	0.44	-19.64	
2,800.00	1.73	288.26	2,799.49	16.83	-7.51	-16.88	0.89	-0.88	4.24	
2,825.00	1.73	285.48	2,824.48	17.05	-8.23	-17.10	0.34	0.00	-11.12	
2,850.00	1.68	288.09	2,849.47	17.26	-8.94	-17.32	0.37	-0.20	10.44	
2,875.00	1.77	289.16	2,874.46	17.50	-9.65	-17.57	0.38	0.36	4.28	
2,900.00	1.80	290.08	2,899.44	17.76	-10.39	-17.83	0.17	0.12	3.68	
2,925.00	1.83	287.59	2,924.43	18.02	-11.14	-18.09	0.34	0.12	-9.96	
2,950.00	1.93	288.42	2,949.42	18.27	-11.92	-18.35	0.41	0.40	3.32	
2,975.00	1.88	286.79	2,974.40	18.52	-12.71	-18.61	0.29	-0.20	-6.52	
3,000.00	1.85	285.24	2,999.39	18.75	-13.49	-18.84	0.23	-0.12	-6.20	
3,025.00	1.66	289.99	3,024.38	18.98	-14.22	-19.07	0.96	-0.76	19.00	
3,050.00	1.81	290.50	3,049.37	19.24	-14.93	-19.34	0.60	0.60	2.04	
3,075.00	1.72	289.69	3,074.36	19.51	-15.65	-19.61	0.37	-0.36	-3.24	
3,100.00	1.84	290.99	3,099.34	19.78	-16.38	-19.89	0.51	0.48	5.20	
3,125.00	1.87	289.42	3,124.33	20.05	-17.14	-20.17	0.24	0.12	-6.28	
3,150.00	1.84	288.71	3,149.32	20.32	-17.91	-20.44	0.15	-0.12	-2.84	
3,175.00	1.87	286.90	3,174.30	20.57	-18.68	-20.69	0.26	0.12	-7.24	
3,200.00	1.83	285.41	3,199.29	20.79	-19.45	-20.92	0.25	-0.16	-5.96	
3,225.00	1.81	285.03	3,224.28	21.00	-20.22	-21.14	0.09	-0.08	-1.52	
3,250.00	1.76	285.54	3,249.27	21.20	-20.97	-21.35	0.21	-0.20	2.04	
3,275.00	1.70	287.90	3,274.25	21.42	-21.69	-21.57	0.37	-0.24	9.44	
3,300.00	1.76	288.94	3,299.24	21.66	-22.41	-21.81	0.27	0.24	4.16	
3,325.00	1.83	288.97	3,324.23	21.91	-23.15	-22.07	0.28	0.28	0.12	
3,350.00	1.87	286.68	3,349.22	22.16	-23.92	-22.32	0.34	0.16	-9.16	
3,375.00	1.78	292.31	3,374.21	22.43	-24.67	-22.59	0.80	-0.36	22.52	
3,400.00	1.55	305.20	3,399.19	22.77	-25.30	-22.94	1.75	-0.92	51.56	
3,425.00	1.61	334.30	3,424.19	23.28	-25.73	-23.45	3.18	0.24	116.40	
3,450.00	1.68	334.86	3,449.18	23.93	-26.04	-24.10	0.29	0.28	2.24	
3,475.00	1.69	332.49	3,474.16	24.59	-26.36	-24.77	0.28	0.04	-9.48	
3,500.00	1.69	328.28	3,499.15	25.23	-26.73	-25.41	0.50	0.00	-16.84	
3,525.00	1.61	332.05	3,524.14	25.85	-27.09	-26.03	0.54	-0.32	15.08	
3,550.00	1.75	331.10	3,549.13	26.50	-27.44	-26.68	0.57	0.56	-3.80	



Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well 501H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3076.00usft (Pioneer 84)
Site:	Daisy 24 State Com	MD Reference:	RKB @ 3076.00usft (Pioneer 84)
Well:	501H	North Reference:	Grid
Wellbore:	OH / 64761	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Pioneer84)	Database:	USA 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)
3,575.00	1.72	332.05	3,574.12	27.16	-27.80	-27.35	0.17	-0.12	3.80
3,600.00	1.63	328.22	3,599.11	27.79	-28.16	-27.99	0.57	-0.36	-15.32
3,625.00	1.51	334.73	3,624.10	28.39	-28.49	-28.59	0.86	-0.48	26.04
3,650.00	1.59	335.19	3,649.09	29.01	-28.77	-29.20	0.32	0.32	1.84
3,675.00	1.53	331.59	3,674.08	29.62	-29.08	-29.81	0.46	-0.24	-14.40
3,700.00	1.49	330.22	3,699.07	30.19	-29.40	-30.39	0.22	-0.16	-5.48
3,725.00	1.47	332.94	3,724.07	30.76	-29.71	-30.96	0.29	-0.08	10.88
3,750.00	1.50	328.62	3,749.06	31.32	-30.02	-31.53	0.46	0.12	-17.28
3,775.00	1.37	330.13	3,774.05	31.86	-30.34	-32.07	0.54	-0.52	6.04
3,800.00	1.27	336.35	3,799.04	32.38	-30.60	-32.58	0.70	-0.40	24.88
3,825.00	1.41	335.95	3,824.04	32.91	-30.84	-33.12	0.56	0.56	-1.60
3,850.00	1.41	328.01	3,849.03	33.45	-31.13	-33.66	0.78	0.00	-31.76
3,875.00	1.27	330.11	3,874.02	33.95	-31.43	-34.17	0.59	-0.56	8.40
3,900.00	1.36	335.38	3,899.02	34.46	-31.69	-34.68	0.60	0.36	21.08
3,925.00	1.47	333.19	3,924.01	35.02	-31.96	-35.24	0.49	0.44	-8.76
3,950.00	1.48	332.04	3,949.00	35.59	-32.25	-35.81	0.12	0.04	-4.60
3,975.00	1.95	336.11	3,973.99	36.26	-32.58	-36.49	1.94	1.88	16.28
4,000.00	2.76	348.93	3,998.97	37.24	-32.86	-37.47	3.85	3.24	51.28
4,025.00	3.08	346.69	4,023.93	38.49	-33.13	-38.71	1.36	1.28	-8.96
4,050.00	3.11	344.67	4,048.90	39.80	-33.47	-40.02	0.45	0.12	-8.08
4,075.00	3.02	347.06	4,073.86	41.09	-33.79	-41.32	0.63	-0.36	9.56
4,100.00	3.18	346.40	4,098.83	42.41	-34.11	-42.64	0.66	0.64	-2.64
4,125.00	3.14	344.86	4,123.79	43.74	-34.45	-43.98	0.38	-0.16	-6.16
4,150.00	2.96	346.12	4,148.75	45.03	-34.78	-45.27	0.77	-0.72	5.04
4,175.00	3.01	346.76	4,173.72	46.30	-35.09	-46.53	0.24	0.20	2.56
4,200.00	2.96	346.58	4,198.68	47.56	-35.39	-47.80	0.20	-0.20	-0.72
4,225.00	2.90	344.50	4,223.65	48.80	-35.71	-49.04	0.49	-0.24	-8.32
4,250.00	2.79	339.71	4,248.62	49.98	-36.09	-50.22	1.05	-0.44	-19.16
4,275.00	2.73	340.94	4,273.59	51.11	-36.49	-51.36	0.34	-0.24	4.92
4,300.00	2.82	339.63	4,298.56	52.25	-36.90	-52.50	0.44	0.36	-5.24
4,325.00	2.61	338.84	4,323.53	53.36	-37.32	-53.61	0.85	-0.84	-3.16
4,350.00	2.61	338.38	4,348.51	54.42	-37.73	-54.68	0.08	0.00	-1.84
4,375.00	2.62	342.78	4,373.48	55.49	-38.11	-55.75	0.80	0.04	17.60
4,400.00	2.61	338.96	4,398.46	56.57	-38.49	-56.83	0.70	-0.04	-15.28
4,425.00	2.41	339.27	4,423.43	57.59	-38.88	-57.86	0.80	-0.80	1.24
4,450.00	2.35	337.04	4,448.41	58.56	-39.26	-58.82	0.44	-0.24	-8.92
4,475.00	2.31	339.41	4,473.39	59.50	-39.64	-59.77	0.42	-0.16	9.48
4,500.00	2.33	335.63	4,498.37	60.44	-40.03	-60.71	0.62	0.08	-15.12
4,525.00	2.15	335.79	4,523.35	61.33	-40.43	-61.60	0.72	-0.72	0.64
4,550.00	2.15	340.54	4,548.33	62.20	-40.78	-62.47	0.71	0.00	19.00
4,575.00	2.11	338.88	4,573.32	63.07	-41.10	-63.35	0.29	-0.16	-6.64
4,600.00	2.04	337.71	4,598.30	63.91	-41.43	-64.19	0.33	-0.28	-4.68
4,625.00	2.09	335.14	4,623.28	64.73	-41.79	-65.02	0.42	0.20	-10.28

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well 501H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3076.00usft (Pioneer 84)
Site:	Daisy 24 State Com	MD Reference:	RKB @ 3076.00usft (Pioneer 84)
Well:	501H	North Reference:	Grid
Wellbore:	OH / 64761	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Pioneer84)	Database:	USA 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)	
4,650.00	2.10	336.97	4,648.27	65.57	-42.16	-65.86	0.27	0.04	7.32	
4,675.00	2.11	332.52	4,673.25	66.40	-42.56	-66.69	0.65	0.04	-17.80	
4,700.00	2.00	330.24	4,698.23	67.19	-42.99	-67.48	0.55	-0.44	-9.12	
4,725.00	2.00	333.09	4,723.22	67.95	-43.40	-68.25	0.40	0.00	11.40	
4,750.00	1.97	334.54	4,748.20	68.73	-43.78	-69.03	0.23	-0.12	5.80	
4,775.00	2.05	330.52	4,773.19	69.51	-44.19	-69.81	0.65	0.32	-16.08	
4,800.00	1.96	333.35	4,798.17	70.28	-44.60	-70.58	0.54	-0.36	11.32	
4,825.00	2.13	341.14	4,823.16	71.10	-44.94	-71.41	1.30	0.68	31.16	
4,850.00	2.90	354.46	4,848.13	72.17	-45.15	-72.48	3.85	3.08	53.28	
4,875.00	3.17	356.92	4,873.10	73.49	-45.25	-73.80	1.20	1.08	9.84	
4,900.00	3.23	358.93	4,898.06	74.88	-45.30	-75.19	0.51	0.24	8.04	
4,925.00	3.23	356.85	4,923.02	76.29	-45.35	-76.60	0.47	0.00	-8.32	
4,950.00	3.13	359.15	4,947.98	77.68	-45.40	-77.99	0.65	-0.40	9.20	
4,975.00	3.19	1.98	4,972.94	79.06	-45.39	-79.36	0.67	0.24	11.32	
5,000.00	3.18	3.10	4,997.90	80.44	-45.32	-80.75	0.25	-0.04	4.48	
5,025.00	3.50	2.96	5,022.86	81.90	-45.25	-82.20	1.28	1.28	-0.56	
5,050.00	3.71	5.30	5,047.81	83.47	-45.13	-83.77	1.03	0.84	9.36	
5,075.00	3.83	9.29	5,072.76	85.09	-44.92	-85.40	1.15	0.48	15.96	
5,100.00	3.91	8.67	5,097.70	86.76	-44.66	-87.06	0.36	0.32	-2.48	
5,125.00	3.93	9.71	5,122.64	88.45	-44.39	-88.75	0.30	0.08	4.16	
5,150.00	3.79	9.52	5,147.59	90.11	-44.11	-90.41	0.56	-0.56	-0.76	
5,175.00	3.71	13.64	5,172.53	91.71	-43.78	-92.00	1.12	-0.32	16.48	
5,200.00	3.82	10.47	5,197.48	93.31	-43.44	-93.61	0.94	0.44	-12.68	
5,225.00	3.72	10.64	5,222.42	94.93	-43.14	-95.22	0.40	-0.40	0.68	
5,250.00	3.57	8.83	5,247.37	96.50	-42.87	-96.79	0.76	-0.60	-7.24	
5,275.00	3.66	10.51	5,272.32	98.05	-42.60	-98.34	0.56	0.36	6.72	
5,300.00	3.66	10.45	5,297.27	99.62	-42.31	-99.90	0.02	0.00	-0.24	
5,325.00	3.57	10.28	5,322.22	101.17	-42.03	-101.45	0.36	-0.36	-0.68	
5,350.00	3.41	12.97	5,347.18	102.66	-41.72	-102.94	0.92	-0.64	10.76	
5,375.00	3.53	15.18	5,372.13	104.13	-41.35	-104.41	0.72	0.48	8.84	
5,400.00	3.53	13.28	5,397.08	105.62	-40.98	-105.90	0.47	0.00	-7.60	
5,425.00	3.45	13.63	5,422.04	107.10	-40.62	-107.37	0.33	-0.32	1.40	
5,450.00	3.36	11.63	5,446.99	108.55	-40.30	-108.82	0.60	-0.36	-8.00	
5,475.00	3.44	6.23	5,471.95	110.01	-40.07	-110.28	1.32	0.32	-21.60	
5,500.00	3.54	6.44	5,496.90	111.52	-39.90	-111.79	0.40	0.40	0.84	
5,525.00	3.70	5.48	5,521.85	113.09	-39.74	-113.36	0.68	0.64	-3.84	
5,550.00	3.82	3.48	5,546.80	114.73	-39.61	-114.99	0.71	0.48	-8.00	
5,575.00	3.77	2.44	5,571.74	116.38	-39.52	-116.65	0.34	-0.20	-4.16	
5,600.00	3.68	1.34	5,596.69	118.00	-39.47	-118.27	0.46	-0.36	-4.40	
5,625.00	3.54	1.76	5,621.64	119.58	-39.43	-119.84	0.57	-0.56	1.68	
5,650.00	3.55	359.87	5,646.59	121.12	-39.40	-121.39	0.47	0.04	-7.56	
5,675.00	3.48	359.02	5,671.55	122.65	-39.42	-122.92	0.35	-0.28	-3.40	
5,700.00	3.36	359.52	5,696.50	124.15	-39.44	-124.41	0.49	-0.48	2.00	

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well 501H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3076.00usft (Pioneer 84)
Site:	Daisy 24 State Com	MD Reference:	RKB @ 3076.00usft (Pioneer 84)
Well:	501H	North Reference:	Grid
Wellbore:	OH / 64761	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Pioneer84)	Database:	USA 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)	
5,725.00	3.29	1.16	5,721.46	125.60	-39.43	-125.86	0.47	-0.28	6.56	
5,750.00	3.32	1.11	5,746.42	127.04	-39.40	-127.30	0.12	0.12	-0.20	
5,775.00	3.14	358.99	5,771.38	128.44	-39.40	-128.71	0.86	-0.72	-8.48	
5,800.00	3.01	357.40	5,796.34	129.79	-39.44	-130.05	0.62	-0.52	-6.36	
5,825.00	2.97	0.55	5,821.31	131.09	-39.47	-131.35	0.68	-0.16	12.60	
5,850.00	3.13	358.59	5,846.27	132.42	-39.48	-132.68	0.76	0.64	-7.84	
5,875.00	3.28	353.56	5,871.23	133.81	-39.57	-134.08	1.27	0.60	-20.12	
5,900.00	3.30	352.57	5,896.19	135.24	-39.75	-135.50	0.24	0.08	-3.96	
5,925.00	3.37	352.30	5,921.15	136.68	-39.94	-136.95	0.29	0.28	-1.08	
5,950.00	3.32	351.53	5,946.11	138.12	-40.14	-138.39	0.27	-0.20	-3.08	
5,975.00	3.10	347.08	5,971.07	139.50	-40.40	-139.77	1.33	-0.88	-17.80	
6,000.00	2.94	345.81	5,996.03	140.78	-40.71	-141.05	0.69	-0.64	-5.08	
6,025.00	3.00	344.06	6,021.00	142.03	-41.05	-142.30	0.43	0.24	-7.00	
6,050.00	3.03	337.77	6,045.97	143.27	-41.48	-143.55	1.33	0.12	-25.16	
6,075.00	2.82	336.23	6,070.93	144.44	-41.97	-144.72	0.90	-0.84	-6.16	
6,100.00	2.83	336.50	6,095.90	145.57	-42.47	-145.86	0.07	0.04	1.08	
6,125.00	2.84	333.68	6,120.87	146.69	-42.99	-146.98	0.56	0.04	-11.28	
6,150.00	3.31	333.74	6,145.84	147.89	-43.58	-148.19	1.88	1.88	0.24	
6,175.00	3.58	330.48	6,170.79	149.22	-44.29	-149.52	1.33	1.08	-13.04	
6,200.00	3.43	329.59	6,195.74	150.55	-45.05	-150.85	0.64	-0.60	-3.56	
6,225.00	3.45	327.45	6,220.70	151.82	-45.83	-152.13	0.52	0.08	-8.56	
6,250.00	3.31	323.20	6,245.66	153.04	-46.67	-153.35	1.15	-0.56	-17.00	
6,275.00	3.06	321.10	6,270.62	154.13	-47.52	-154.45	1.10	-1.00	-8.40	
6,300.00	2.97	322.99	6,295.58	155.17	-48.33	-155.50	0.54	-0.36	7.56	
6,325.00	2.70	322.60	6,320.55	156.16	-49.08	-156.49	1.08	-1.08	-1.56	
6,350.00	2.44	325.37	6,345.53	157.06	-49.74	-157.40	1.15	-1.04	11.08	
6,375.00	2.32	327.41	6,370.51	157.92	-50.31	-158.26	0.59	-0.48	8.16	
6,400.00	2.09	326.03	6,395.49	158.73	-50.84	-159.07	0.94	-0.92	-5.52	
6,425.00	2.15	327.27	6,420.47	159.50	-51.35	-159.85	0.30	0.24	4.96	
6,450.00	2.21	334.14	6,445.45	160.33	-51.81	-160.68	1.07	0.24	27.48	
6,475.00	2.17	345.42	6,470.43	161.22	-52.14	-161.57	1.73	-0.16	45.12	
6,500.00	1.96	343.52	6,495.42	162.09	-52.38	-162.44	0.88	-0.84	-7.60	
6,525.00	1.57	346.17	6,520.41	162.83	-52.58	-163.19	1.59	-1.56	10.60	
6,550.00	1.23	347.78	6,545.40	163.43	-52.72	-163.78	1.37	-1.36	6.44	
6,575.00	0.69	325.35	6,570.39	163.81	-52.87	-164.17	2.59	-2.16	-89.72	
6,600.00	0.63	305.06	6,595.39	164.02	-53.06	-164.37	0.96	-0.24	-81.16	
6,625.00	0.79	317.88	6,620.39	164.22	-53.29	-164.58	0.90	0.64	51.28	
6,650.00	1.45	330.85	6,645.39	164.63	-53.56	-164.99	2.81	2.64	51.88	
6,675.00	1.73	325.43	6,670.38	165.21	-53.93	-165.58	1.27	1.12	-21.68	
6,700.00	1.97	325.30	6,695.36	165.88	-54.39	-166.24	0.96	0.96	-0.52	
6,725.00	2.78	339.87	6,720.34	166.80	-54.84	-167.17	4.02	3.24	58.28	
6,750.00	3.83	347.41	6,745.30	168.18	-55.23	-168.56	4.54	4.20	30.16	
6,775.00	4.44	348.93	6,770.24	169.95	-55.60	-170.32	2.48	2.44	6.08	
6,800.00	4.71	349.45	6,795.16	171.91	-55.97	-172.29	1.09	1.08	2.08	

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well 501H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3076.00usft (Pioneer 84)
Site:	Daisy 24 State Com	MD Reference:	RKB @ 3076.00usft (Pioneer 84)
Well:	501H	North Reference:	Grid
Wellbore:	OH / 64761	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Pioneer84)	Database:	USA 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)
6,825.00	4.56	348.81	6,820.07	173.89	-56.35	-174.27	0.63	-0.60	-2.56
6,850.00	4.25	345.79	6,845.00	175.76	-56.77	-176.15	1.55	-1.24	-12.08
6,875.00	4.09	342.90	6,869.93	177.52	-57.26	-177.90	1.06	-0.64	-11.56
6,900.00	3.77	342.67	6,894.87	179.15	-57.77	-179.54	1.28	-1.28	-0.92
6,925.00	3.61	339.70	6,919.82	180.67	-58.29	-181.07	1.00	-0.64	-11.88
6,950.00	3.55	336.91	6,944.77	182.12	-58.87	-182.52	0.74	-0.24	-11.16
6,963.00	3.40	338.81	6,957.75	182.85	-59.16	-183.25	1.45	-1.15	14.62
Tie In - Tie In									
7,013.00	4.13	351.10	7,007.64	186.02	-59.98	-186.42	2.17	1.46	24.58
First Phoenix MWD Survey									
7,044.00	4.81	356.84	7,038.55	188.42	-60.22	-188.82	2.62	2.19	18.52
7,121.00	3.01	358.95	7,115.37	193.66	-60.44	-194.07	2.34	-2.34	2.74
7,152.00	1.18	113.64	7,146.35	194.35	-60.16	-194.75	11.82	-5.90	369.97
7,184.00	5.08	154.83	7,178.30	192.93	-59.25	-193.33	13.32	12.19	128.72
7,216.00	8.92	158.87	7,210.06	189.33	-57.76	-189.72	12.09	12.00	12.63
7,247.00	12.34	158.22	7,240.52	184.02	-55.66	-184.39	11.04	11.03	-2.10
7,279.00	15.67	155.92	7,271.56	176.89	-52.63	-177.25	10.55	10.41	-7.19
7,288.00	16.69	156.76	7,280.21	174.59	-51.62	-174.94	11.68	11.38	9.39
FTP: 7288' MD									
7,310.00	19.21	158.46	7,301.14	168.32	-49.05	-168.65	11.68	11.43	7.70
7,342.00	22.37	160.56	7,331.05	157.68	-45.09	-157.99	10.14	9.88	6.56
7,374.00	24.20	163.38	7,360.44	145.65	-41.18	-145.93	6.69	5.72	8.81
7,405.00	26.20	163.70	7,388.49	133.00	-37.44	-133.25	6.47	6.45	1.03
7,437.00	27.52	167.12	7,417.04	119.01	-33.81	-119.23	6.35	4.13	10.69
7,500.00	32.98	170.44	7,471.44	87.88	-27.72	-88.07	9.06	8.67	5.27
7,532.00	36.65	170.99	7,497.71	69.86	-24.77	-70.02	11.51	11.47	1.72
7,563.00	39.63	173.81	7,522.09	50.88	-22.26	-51.03	11.13	9.61	9.10
7,595.00	41.48	178.76	7,546.41	30.14	-20.93	-30.28	11.60	5.78	15.47
7,627.00	44.72	180.34	7,569.77	8.28	-20.76	-8.42	10.67	10.13	4.94
7,658.00	48.26	180.34	7,591.11	-14.20	-20.90	14.06	11.42	11.42	0.00
7,690.00	51.33	180.12	7,611.77	-38.64	-20.99	38.50	9.61	9.59	-0.69
7,722.00	53.82	180.11	7,631.21	-64.05	-21.05	63.91	7.78	7.78	-0.03
7,753.00	55.08	180.32	7,649.24	-89.27	-21.14	89.13	4.10	4.06	0.68
7,785.00	55.89	180.51	7,667.37	-115.64	-21.33	115.49	2.58	2.53	0.59
7,817.00	58.98	181.03	7,684.59	-142.60	-21.70	142.45	9.75	9.66	1.63
7,848.00	62.94	181.86	7,699.63	-169.69	-22.38	169.53	12.99	12.77	2.68
7,880.00	65.47	182.61	7,713.56	-198.48	-23.51	198.31	8.18	7.91	2.34
7,911.00	68.39	184.03	7,725.71	-226.95	-25.16	226.77	10.32	9.42	4.58
7,942.00	71.08	182.57	7,736.44	-255.97	-26.83	255.79	9.74	8.68	-4.71
7,974.00	72.28	179.41	7,746.50	-286.34	-27.36	286.15	10.10	3.75	-9.88
8,006.00	73.41	177.04	7,755.94	-316.90	-26.41	316.71	7.91	3.53	-7.41
8,037.00	77.28	177.39	7,763.78	-346.85	-24.95	346.67	12.53	12.48	1.13
8,069.00	81.20	178.48	7,769.76	-378.26	-23.82	378.09	12.70	12.25	3.41

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well 501H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3076.00usft (Pioneer 84)
Site:	Daisy 24 State Com	MD Reference:	RKB @ 3076.00usft (Pioneer 84)
Well:	501H	North Reference:	Grid
Wellbore:	OH / 64761	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Pioneer84)	Database:	USA 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)
8,100.00	86.06	178.35	7,773.20	-409.05	-22.97	408.88	15.68	15.68	-0.42
8,132.00	88.17	178.46	7,774.81	-441.00	-22.08	440.83	6.60	6.59	0.34
8,164.00	88.45	178.36	7,775.75	-472.97	-21.19	472.81	0.93	0.88	-0.31
8,259.00	87.92	177.83	7,778.76	-567.87	-18.04	567.73	0.79	-0.56	-0.56
8,354.00	89.86	178.99	7,780.60	-662.81	-15.40	662.69	2.38	2.04	1.22
8,449.00	89.46	178.84	7,781.16	-757.79	-13.60	757.68	0.45	-0.42	-0.16
8,544.00	92.58	180.53	7,779.47	-852.76	-13.08	852.65	3.73	3.28	1.78
8,638.00	93.01	179.75	7,774.89	-946.64	-13.31	946.53	0.95	0.46	-0.83
8,733.00	90.90	179.61	7,771.65	-1,041.58	-12.78	1,041.47	2.23	-2.22	-0.15
8,828.00	87.86	179.44	7,772.68	-1,136.56	-11.99	1,136.45	3.20	-3.20	-0.18
8,923.00	87.51	179.10	7,776.51	-1,231.48	-10.78	1,231.37	0.51	-0.37	-0.36
9,018.00	87.37	178.52	7,780.76	-1,326.36	-8.81	1,326.27	0.63	-0.15	-0.61
9,113.00	87.46	177.90	7,785.04	-1,421.22	-5.85	1,421.14	0.66	0.09	-0.65
9,208.00	87.06	179.15	7,789.58	-1,516.07	-3.40	1,516.02	1.38	-0.42	1.32
9,303.00	88.32	179.59	7,793.41	-1,610.99	-2.36	1,610.94	1.40	1.33	0.46
9,398.00	92.31	181.37	7,792.89	-1,705.96	-3.15	1,705.90	4.60	4.20	1.87
9,492.00	90.02	180.79	7,790.98	-1,799.92	-4.93	1,799.84	2.51	-2.44	-0.62
9,587.00	89.80	180.33	7,791.13	-1,894.91	-5.85	1,894.83	0.54	-0.23	-0.48
9,682.00	89.51	179.22	7,791.70	-1,989.91	-5.48	1,989.83	1.21	-0.31	-1.17
9,777.00	89.31	178.38	7,792.68	-2,084.88	-3.49	2,084.81	0.91	-0.21	-0.88
9,873.00	91.36	178.73	7,792.12	-2,180.85	-1.07	2,180.79	2.17	2.14	0.36
9,968.00	91.31	178.01	7,789.90	-2,275.78	1.63	2,275.74	0.76	-0.05	-0.76
10,062.00	90.96	179.39	7,788.04	-2,369.74	3.76	2,369.71	1.51	-0.37	1.47
10,157.00	90.06	178.18	7,787.19	-2,464.71	5.78	2,464.69	1.59	-0.95	-1.27
10,252.00	89.19	180.37	7,787.82	-2,559.69	6.98	2,559.68	2.48	-0.92	2.31
10,347.00	90.56	180.75	7,788.02	-2,654.68	6.05	2,654.66	1.50	1.44	0.40
10,442.00	90.93	180.33	7,786.79	-2,749.67	5.15	2,749.64	0.59	0.39	-0.44
10,538.00	90.28	181.68	7,785.78	-2,845.65	3.47	2,845.61	1.56	-0.68	1.41
10,633.00	90.65	181.03	7,785.00	-2,940.62	1.22	2,940.56	0.79	0.39	-0.68
10,728.00	91.16	180.99	7,783.50	-3,035.59	-0.45	3,035.52	0.54	0.54	-0.04
10,775.00	89.54	180.52	7,783.22	-3,082.59	-1.07	3,082.51	3.59	-3.45	-1.00
10,869.00	89.32	180.13	7,784.15	-3,176.58	-1.60	3,176.49	0.48	-0.23	-0.41
10,964.00	90.27	180.21	7,784.49	-3,271.58	-1.88	3,271.49	1.00	1.00	0.08
11,059.00	91.37	180.47	7,783.13	-3,366.56	-2.45	3,366.47	1.19	1.16	0.27
11,152.00	90.51	180.10	7,781.61	-3,459.55	-2.91	3,459.45	1.01	-0.92	-0.40
11,243.00	90.95	180.15	7,780.45	-3,550.54	-3.11	3,550.44	0.49	0.48	0.05
11,335.00	90.55	179.82	7,779.24	-3,642.53	-3.08	3,642.43	0.56	-0.43	-0.36
11,429.00	90.21	179.10	7,778.62	-3,736.53	-2.20	3,736.42	0.85	-0.36	-0.77
11,521.00	88.55	178.92	7,779.61	-3,828.50	-0.61	3,828.41	1.81	-1.80	-0.20
11,612.00	89.24	178.45	7,781.37	-3,919.46	1.48	3,919.38	0.92	0.76	-0.52
11,704.00	89.70	178.06	7,782.22	-4,011.42	4.28	4,011.35	0.66	0.50	-0.42
11,796.00	90.42	177.99	7,782.12	-4,103.36	7.45	4,103.32	0.79	0.78	-0.08
11,887.00	88.96	178.30	7,782.62	-4,194.31	10.40	4,194.28	1.64	-1.60	0.34
11,978.00	89.49	178.72	7,783.85	-4,285.27	12.76	4,285.26	0.74	0.58	0.46



Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well 501H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3076.00usft (Pioneer 84)
Site:	Daisy 24 State Com	MD Reference:	RKB @ 3076.00usft (Pioneer 84)
Well:	501H	North Reference:	Grid
Wellbore:	OH / 64761	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Pioneer84)	Database:	USA 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)
12,073.00	88.42	178.96	7,785.58	-4,380.23	14.69	4,380.23	1.15	-1.13	0.25
12,168.00	88.75	179.16	7,787.93	-4,475.19	16.24	4,475.20	0.41	0.35	0.21
12,263.00	89.39	179.44	7,789.47	-4,570.17	17.40	4,570.18	0.74	0.67	0.29
12,358.00	90.18	179.62	7,789.82	-4,665.17	18.18	4,665.18	0.85	0.83	0.19
12,453.00	90.78	179.14	7,789.03	-4,760.16	19.21	4,760.18	0.81	0.63	-0.51
12,547.00	90.13	179.42	7,788.28	-4,854.14	20.39	4,854.17	0.75	-0.69	0.30
12,642.00	90.63	179.62	7,787.65	-4,949.14	21.19	4,949.17	0.57	0.53	0.21
12,737.00	91.49	179.77	7,785.89	-5,044.12	21.69	5,044.15	0.92	0.91	0.16
12,832.00	91.17	179.44	7,783.69	-5,139.09	22.35	5,139.13	0.48	-0.34	-0.35
12,927.00	90.09	179.40	7,782.65	-5,234.08	23.31	5,234.12	1.14	-1.14	-0.04
13,022.00	90.43	179.92	7,782.21	-5,329.08	23.87	5,329.12	0.65	0.36	0.55
13,117.00	89.95	179.75	7,781.90	-5,424.08	24.15	5,424.11	0.54	-0.51	-0.18
13,211.00	89.89	179.31	7,782.03	-5,518.07	24.92	5,518.11	0.47	-0.06	-0.47
13,306.00	90.90	179.60	7,781.38	-5,613.06	25.82	5,613.11	1.11	1.06	0.31
13,401.00	90.86	179.63	7,779.92	-5,708.05	26.46	5,708.10	0.05	-0.04	0.03
13,496.00	91.25	179.46	7,778.17	-5,803.03	27.21	5,803.08	0.45	0.41	-0.18
13,588.00	89.69	178.63	7,777.41	-5,895.01	28.75	5,895.07	1.92	-1.70	-0.90
13,619.00	88.33	178.15	7,777.95	-5,925.99	29.62	5,926.06	4.65	-4.39	-1.55
13,714.00	88.96	178.14	7,780.19	-6,020.92	32.69	6,021.00	0.66	0.66	-0.01
13,809.00	89.93	178.29	7,781.11	-6,115.87	35.65	6,115.97	1.03	1.02	0.16
13,904.00	89.37	178.17	7,781.69	-6,210.82	38.59	6,210.94	0.60	-0.59	-0.13
13,999.00	89.58	178.31	7,782.57	-6,305.77	41.50	6,305.91	0.27	0.22	0.15
14,094.00	90.87	178.68	7,782.19	-6,400.73	44.00	6,400.89	1.41	1.36	0.39
14,189.00	90.10	179.33	7,781.39	-6,495.72	45.65	6,495.88	1.06	-0.81	0.68
14,284.00	88.02	179.82	7,782.95	-6,590.69	46.35	6,590.86	2.25	-2.19	0.52
14,379.00	87.71	180.04	7,786.49	-6,685.63	46.47	6,685.79	0.40	-0.33	0.23
14,473.00	88.61	180.46	7,789.50	-6,779.58	46.06	6,779.73	1.06	0.96	0.45
14,568.00	89.52	180.75	7,791.05	-6,874.56	45.06	6,874.71	1.01	0.96	0.31
14,663.00	90.34	180.92	7,791.17	-6,969.55	43.67	6,969.68	0.88	0.86	0.18
14,758.00	89.57	179.71	7,791.24	-7,064.54	43.15	7,064.67	1.51	-0.81	-1.27
14,853.00	89.79	179.21	7,791.78	-7,159.54	44.04	7,159.67	0.58	0.23	-0.53
14,947.00	90.66	179.63	7,791.41	-7,253.53	45.00	7,253.67	1.03	0.93	0.45
15,042.00	91.47	179.56	7,789.64	-7,348.51	45.67	7,348.65	0.86	0.85	-0.07
15,137.00	90.71	179.35	7,787.83	-7,443.49	46.57	7,443.63	0.83	-0.80	-0.22
15,232.00	91.09	179.61	7,786.34	-7,538.47	47.43	7,538.62	0.48	0.40	0.27
15,327.00	91.95	180.00	7,783.82	-7,633.44	47.76	7,633.59	0.99	0.91	0.41
15,422.00	91.00	179.87	7,781.38	-7,728.41	47.86	7,728.55	1.01	-1.00	-0.14
15,517.00	89.48	179.32	7,780.98	-7,823.40	48.54	7,823.55	1.70	-1.60	-0.58
15,612.00	89.62	178.96	7,781.72	-7,918.39	49.96	7,918.54	0.41	0.15	-0.38
15,707.00	90.58	179.50	7,781.56	-8,013.37	51.24	8,013.54	1.16	1.01	0.57
15,802.00	89.32	179.13	7,781.64	-8,108.37	52.37	8,108.53	1.38	-1.33	-0.39
15,897.00	89.04	179.10	7,783.00	-8,203.34	53.84	8,203.52	0.30	-0.29	-0.03
15,991.00	89.81	179.17	7,783.94	-8,297.33	55.26	8,297.51	0.82	0.82	0.07

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well 501H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3076.00usft (Pioneer 84)
Site:	Daisy 24 State Com	MD Reference:	RKB @ 3076.00usft (Pioneer 84)
Well:	501H	North Reference:	Grid
Wellbore:	OH / 64761	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Pioneer84)	Database:	USA 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)
16,086.00	90.06	178.78	7,784.05	-8,392.31	56.96	8,392.51	0.49	0.26	-0.41
16,181.00	90.85	178.68	7,783.30	-8,487.29	59.06	8,487.49	0.84	0.83	-0.11
16,276.00	90.92	177.47	7,781.83	-8,582.22	62.26	8,582.44	1.28	0.07	-1.27
16,371.00	90.98	176.00	7,780.25	-8,677.05	67.67	8,677.31	1.55	0.06	-1.55
16,465.00	89.88	175.81	7,779.55	-8,770.81	74.38	8,771.11	1.19	-1.17	-0.20
16,560.00	90.63	176.36	7,779.13	-8,865.58	80.86	8,865.93	0.98	0.79	0.58
16,655.00	90.58	176.57	7,778.12	-8,960.40	86.72	8,960.78	0.23	-0.05	0.22
16,750.00	90.31	176.23	7,777.39	-9,055.21	92.69	9,055.63	0.46	-0.28	-0.36
16,844.00	91.25	176.38	7,776.11	-9,149.00	98.74	9,149.46	1.01	1.00	0.16
16,939.00	91.95	179.27	7,773.45	-9,243.88	102.35	9,244.37	3.13	0.74	3.04
17,034.00	92.88	179.86	7,769.45	-9,338.80	103.07	9,339.28	1.16	0.98	0.62
17,129.00	93.38	179.80	7,764.26	-9,433.65	103.35	9,434.14	0.53	0.53	-0.06
17,224.00	93.83	180.04	7,758.29	-9,528.46	103.48	9,528.95	0.54	0.47	0.25
17,319.00	94.19	180.52	7,751.65	-9,623.23	103.02	9,623.71	0.63	0.38	0.51
17,414.00	93.95	180.40	7,744.90	-9,717.99	102.26	9,718.46	0.28	-0.25	-0.13
17,509.00	92.10	181.19	7,739.89	-9,812.84	100.94	9,813.30	2.12	-1.95	0.83
17,604.00	91.10	181.33	7,737.24	-9,907.78	98.85	9,908.22	1.06	-1.05	0.15
17,699.00	89.34	180.53	7,736.87	-10,002.76	97.31	10,003.19	2.04	-1.85	-0.84
17,794.00	89.32	180.70	7,737.98	-10,097.75	96.29	10,098.17	0.18	-0.02	0.18
17,889.00	90.05	181.29	7,738.51	-10,192.73	94.64	10,193.14	0.99	0.77	0.62
Final Phoenix MWD Survey									
17,923.00	90.05	181.29	7,738.48	-10,226.72	93.88	10,227.13	0.00	0.00	0.00
LTP: 17923' MD									
17,973.00	90.05	181.29	7,738.43	-10,276.71	92.75	10,277.11	0.00	0.00	0.00
Projection to TD									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,963.00	6,957.75	182.85	-59.16	Tie In
6,963.00	6,957.75	182.85	-59.16	Tie In
7,013.00	7,007.64	186.02	-59.98	First Phoenix MWD Survey
7,288.00	7,280.21	174.59	-51.62	FTP: 7288' MD
17,889.00	7,738.51	-10,192.73	94.64	Final Phoenix MWD Survey
17,923.00	7,738.48	-10,226.72	93.88	LTP: 17923' MD
17,973.00	7,738.43	-10,276.71	92.75	Projection to TD