

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010**SUNDRY NOTICES AND REPORTS ON WELLS** *OCDA Artesia*
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*5. Lease Serial No.
NMNM12559

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

8. Well Name and No.
COTTONMOUTH 23 FEDERAL COM 2H9. API Well No.
30-015-43015-00-X110. Field and Pool, or Exploratory
HAY HOLLOW11. County or Parish, and State
EDDY COUNTY, NM**SUBMIT IN TRIPLICATE - Other instructions on reverse side.**

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other2. Name of Operator
COG PRODUCTION LLCContact: MAYTE X REYES
E-Mail: mreyes1@concho.com3a. Address
2208 W MAIN STREET
ARTESIA, NM 882103b. Phone No. (include area code)
Ph: 575.748.6945

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 22 T26S R28E NENE 190FNL 330FEL
32.034516 N Lat, 104.067367 W Lon**12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity,
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomple horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

COG Production LLC, respectfully requests approval for the following drilling changes to the original approved APD.

- * Operator will follow the attached well plan.
- * Operator will drill to a total of 12,818? MD / 8,140? TVD.
- * Operator will drill 8-3/4? out from 9-5/8? casing to TD.
- * Operator will pump the extra cement volume to cover 35% excess for the 8-3/4? hole to tie back a minimum of 500? into the 9-5/8? casing string.

See attached.

NM OIL CONSERVATION
ARTESIA DISTRICT

JAN 04 2016

Accepted for record
NMOC

RECEIVED

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #327148 verified by the BLM Well Information System

For COG PRODUCTION LLC, sent to the Carlsbad

Committed to AFMSS for processing by PRISCILLA PEREZ on 12/22/2015 (16PP0033SE)

Name (Printed/Typed) MAYTE X REYES

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 12/22/2015

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

APPROVED

Approved By

Title

Date

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

DEC 23 2015
/s/ Chris Walls

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

CARLSBAD FIELD OFFICE

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****



COG Operating LLC

Site: Cottonmouth 23 Federal Com

Well: #2H

Wellbore: OH

Plan: Plan #2 Lower Tangent (#2H/OH)

WELL DETAILS: #2H

Ground Elevation: 2979.8

RKB Elevation: WELL @ 2997.8usft (Original Well Elev)

Rig Name: Original Well Elev

Northing
376384.20

Easting
582417.40

Latitude
32° 2' 4.257 N

Longitude
104° 4' 2.521 W

Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
2	4600.0	0.00	0.00	4600.0	0.0	0.0	0.00	0.00	0.0
3	5050.2	9.00	90.00	5048.3	0.0	35.3	2.00	90.00	9.2
4	7700.0	9.00	90.00	7685.5	0.0	450.0	0.00	0.00	117.7
5	7731.0	9.00	90.00	7696.1	0.0	454.9	0.00	0.00	119.0
6	8456.4	90.13	160.00	8143.0	-426.1	680.9	12.00	70.21	589.4
7	9106.3	90.13	173.00	8141.5	-1056.7	832.3	2.00	89.98	1237.6
8	12818.8	90.13	173.00	8133.0	-4741.6	1284.9	3.00	0.00	4912.6

WELL DETAILS: #2H

Azimuths to Grid North

True North: -0.14°

Magnetic North: 7.19°

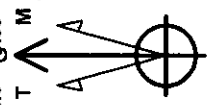
Magnetic Field

Strength: 47929.6snT

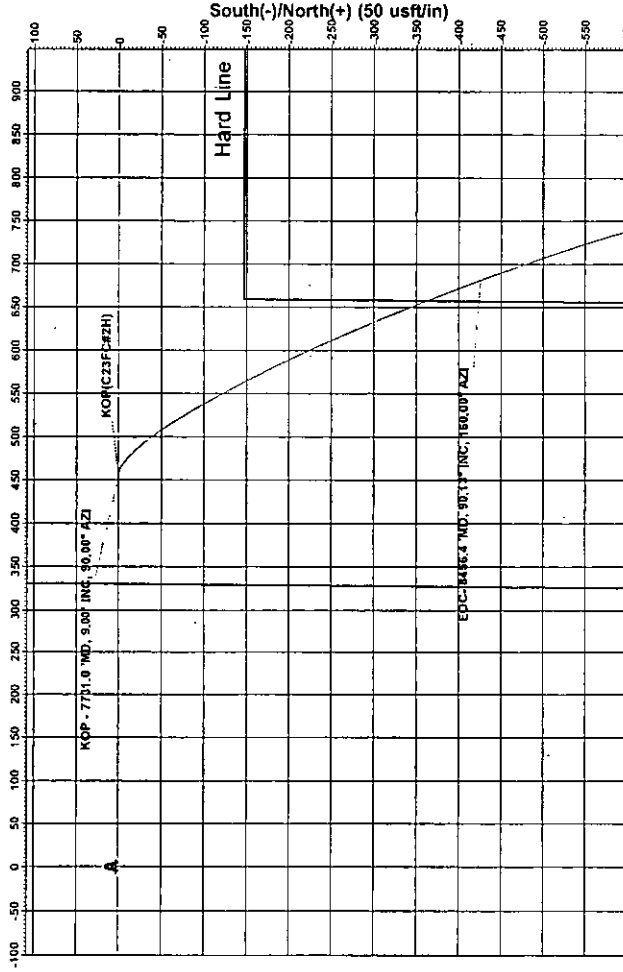
Dip Angle: 59.82°

Date: 12/13/2015

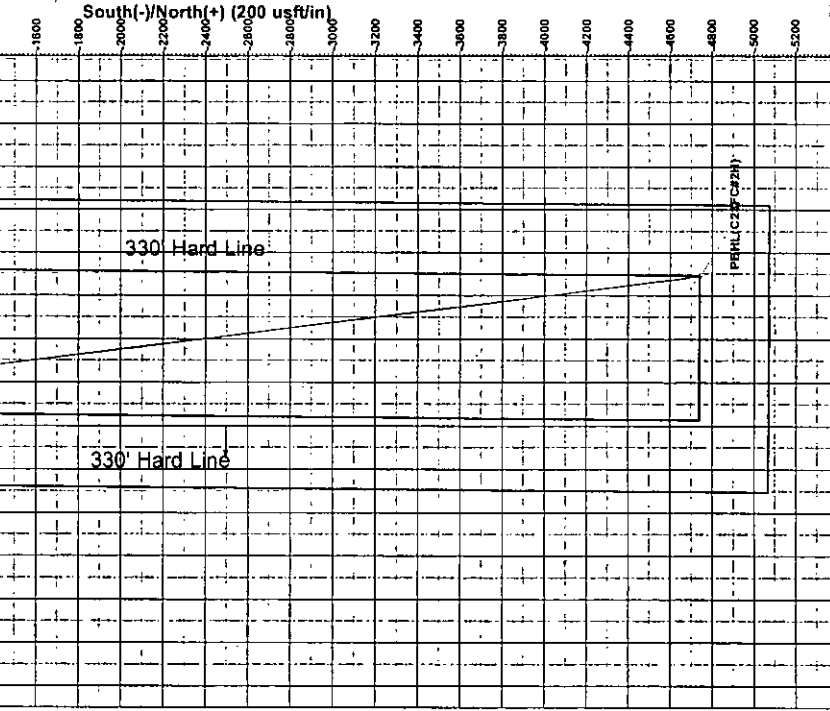
Model: IGRF2015



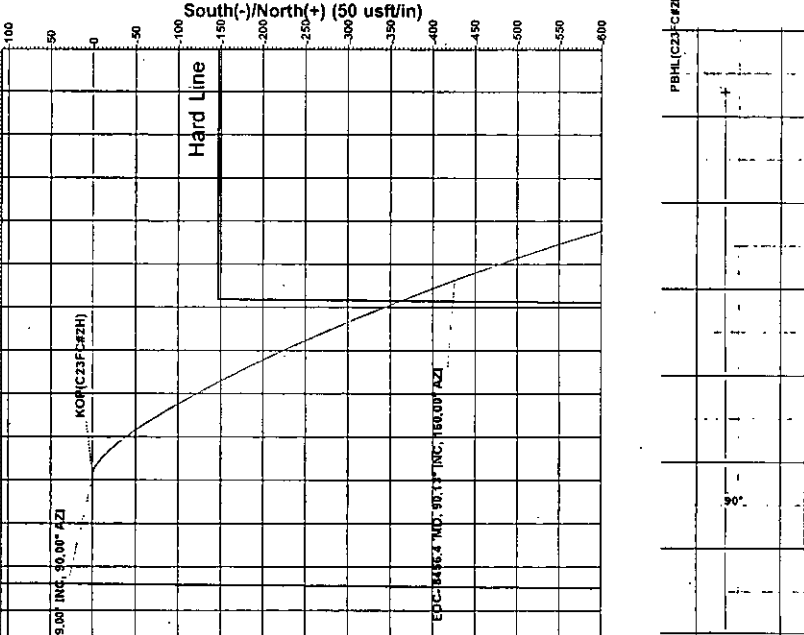
West(-)/East(+) (50 usft/in)



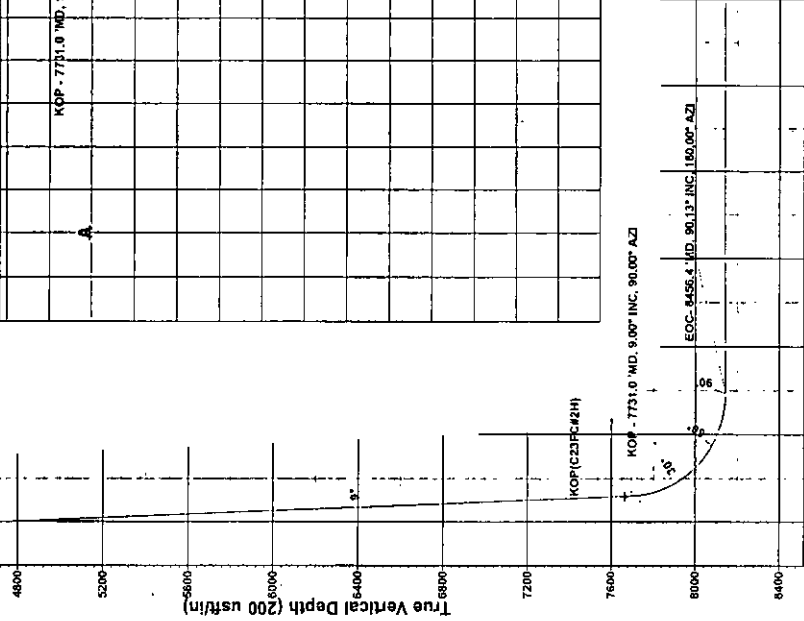
West(-)/East(+) (200 usft/in)



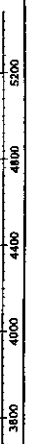
West(-)/East(+) (200 usft/in)



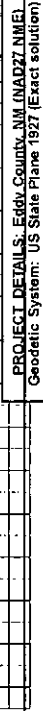
West(-)/East(+) (200 usft/in)



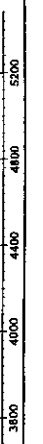
Vertical Section at 164.84° (200 usft/in)



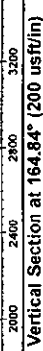
West(-)/East(+) (200 usft/in)



West(-)/East(+) (200 usft/in)



West(-)/East(+) (200 usft/in)



West(-)/East(+) (200 usft/in)



West(-)/East(+) (200 usft/in)



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West(-)/East(+) (200 usft/in)



COG Operating LLC

Eddy County, NM (NAD27 NME)

Cottonmouth 23 Federal Com

#2H

OH

Plan: Plan #2 Lower Tangent

Standard Planning Report

13 December, 2015



Wellplanning Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #2H
Company:	COG Operating LLC	TVD Reference:	WELL @ 2997.8usft (Original Well Elev)
Project:	Eddy County, NM (NAD27 NME)	MD Reference:	WELL @ 2997.8usft (Original Well Elev)
Site:	Cottonmouth 23 Federal Com	North Reference:	Grid
Well:	#2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 Lower Tangent		

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	Cottonmouth 23 Federal Com		
Site Position:	Map	Northing:	376,384.20 usft
From:		Easting:	582,417.40 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Grid Convergence:	0.14 °

Well:	#2H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	Ground Level:

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	12/13/2015	7.33
			59.82
			47,930

Design	Plan #2 Lower Tangent		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			164.84

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,050.2	9.00	90.00	5,048.3	0.0	35.3	2.00	2.00	0.00	90.00	
7,700.0	9.00	90.00	7,665.5	0.0	450.0	0.00	0.00	0.00	0.00	KOP(C23FC#2H)
7,731.0	9.00	90.00	7,696.1	0.0	454.9	0.00	0.00	0.00	0.00	
8,456.4	90.13	160.00	8,143.0	-426.1	680.9	12.00	11.18	9.65	70.21	
9,106.3	90.13	173.00	8,141.5	-1,056.7	832.3	2.00	0.00	2.00	89.98	
12,818.8	90.13	173.00	8,133.0	-4,741.6	1,284.9	0.00	0.00	0.00	0.00	PBHL(C23FC#2H)



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Company:	COG Operating LLC	TVD Reference:	WELL @ 2997.8usft (Original Well Elev)
Project:	Eddy County, NM (NAD27 NME)	MD Reference:	WELL @ 2997.8usft (Original Well Elev)
Site:	Cottonmouth 23 Federal Com	North Reference:	Grid
Well:	#2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 Lower Tangent		

Planned 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	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	2.00	90.00	4,700.0	0.0	1.7	0.5	2.00	2.00	0.00
4,800.0	4.00	90.00	4,799.8	0.0	7.0	1.8	2.00	2.00	0.00
4,900.0	6.00	90.00	4,899.5	0.0	15.7	4.1	2.00	2.00	0.00
5,000.0	8.00	90.00	4,998.7	0.0	27.9	7.3	2.00	2.00	0.00
5,050.2	9.00	90.00	5,048.3	0.0	35.3	9.2	2.00	2.00	0.00
5,100.0	9.00	90.00	5,097.5	0.0	43.1	11.3	0.00	0.00	0.00
5,200.0	9.00	90.00	5,196.3	0.0	58.7	15.4	0.00	0.00	0.00



Wellplanning Planning Report

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Company:	COG Operating LLC	TVD Reference:	WELL @ 2997.8usft (Original Well Elev)
Project:	Eddy County, NM (NAD27 NME)	MD Reference:	WELL @ 2997.8usft (Original Well Elev)
Site:	Cottonmouth 23 Federal Com	North Reference:	Grid
Well:	#2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 Lower Tangent		

Planned 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	9.00	90.00	5,295.1	0.0	74.4	19.5	0.00	0.00	0.00	
5,400.0	9.00	90.00	5,393.8	0.0	90.0	23.6	0.00	0.00	0.00	
5,500.0	9.00	90.00	5,492.6	0.0	105.7	27.6	0.00	0.00	0.00	
5,600.0	9.00	90.00	5,591.4	0.0	121.3	31.7	0.00	0.00	0.00	
5,700.0	9.00	90.00	5,690.1	0.0	137.0	35.8	0.00	0.00	0.00	
5,800.0	9.00	90.00	5,788.9	0.0	152.6	39.9	0.00	0.00	0.00	
5,900.0	9.00	90.00	5,887.7	0.0	168.3	44.0	0.00	0.00	0.00	
6,000.0	9.00	90.00	5,986.4	0.0	183.9	48.1	0.00	0.00	0.00	
6,100.0	9.00	90.00	6,085.2	0.0	199.6	52.2	0.00	0.00	0.00	
6,200.0	9.00	90.00	6,184.0	0.0	215.2	56.3	0.00	0.00	0.00	
6,300.0	9.00	90.00	6,282.7	0.0	230.9	60.4	0.00	0.00	0.00	
6,400.0	9.00	90.00	6,381.5	0.0	246.5	64.5	0.00	0.00	0.00	
6,500.0	9.00	90.00	6,480.3	0.0	262.2	68.6	0.00	0.00	0.00	
6,600.0	9.00	90.00	6,579.1	0.0	277.8	72.7	0.00	0.00	0.00	
6,700.0	9.00	90.00	6,677.8	0.0	293.5	76.8	0.00	0.00	0.00	
6,800.0	9.00	90.00	6,776.6	0.0	309.1	80.9	0.00	0.00	0.00	
6,900.0	9.00	90.00	6,875.4	0.0	324.8	85.0	0.00	0.00	0.00	
7,000.0	9.00	90.00	6,974.1	0.0	340.4	89.0	0.00	0.00	0.00	
7,100.0	9.00	90.00	7,072.9	0.0	356.1	93.1	0.00	0.00	0.00	
7,200.0	9.00	90.00	7,171.7	0.0	371.7	97.2	0.00	0.00	0.00	
7,300.0	9.00	90.00	7,270.4	0.0	387.4	101.3	0.00	0.00	0.00	
7,400.0	9.00	90.00	7,369.2	0.0	403.0	105.4	0.00	0.00	0.00	
7,500.0	9.00	90.00	7,468.0	0.0	418.7	109.5	0.00	0.00	0.00	
7,600.0	9.00	90.00	7,566.7	0.0	434.3	113.6	0.00	0.00	0.00	
7,700.0	9.00	90.00	7,665.5	0.0	450.0	117.7	0.00	0.00	0.00	
KOP(C23FC#2H)										
7,731.0	9.00	90.00	7,696.1	0.0	454.9	119.0	0.00	0.00	0.00	
KOP - 7731.0 'MD, 9.00° INC, 90.00° AZI										
7,750.0	10.01	102.44	7,714.9	-0.4	458.0	120.1	12.00	5.28	65.48	
7,775.0	11.87	114.89	7,739.4	-1.9	462.4	122.8	12.00	7.46	49.81	
7,800.0	14.13	123.72	7,763.8	-4.7	467.3	126.7	12.00	9.03	35.32	
7,825.0	16.62	130.06	7,787.9	-8.7	472.6	132.0	12.00	9.96	25.35	
7,850.0	19.25	134.75	7,811.7	-13.9	478.2	138.5	12.00	10.53	18.75	
7,875.0	21.98	138.33	7,835.1	-20.3	484.3	146.2	12.00	10.90	14.33	
7,900.0	24.76	141.15	7,858.0	-27.9	490.7	155.2	12.00	11.14	11.28	
7,925.0	27.59	143.43	7,880.4	-36.6	497.4	165.4	12.00	11.31	9.11	
7,950.0	30.45	145.31	7,902.3	-46.4	504.4	176.8	12.00	11.43	7.53	
7,975.0	33.33	146.90	7,923.5	-57.4	511.8	189.3	12.00	11.53	6.35	
8,000.0	36.23	148.26	7,944.1	-69.4	519.4	202.9	12.00	11.59	5.44	
8,025.0	39.14	149.44	7,963.8	-82.5	527.3	217.6	12.00	11.65	4.74	
8,050.0	42.06	150.48	7,982.8	-96.6	535.5	233.3	12.00	11.69	4.18	
8,075.0	44.99	151.42	8,000.9	-111.7	543.8	250.0	12.00	11.72	3.73	
8,100.0	47.93	152.26	8,018.2	-127.6	552.4	267.7	12.00	11.75	3.37	
8,125.0	50.87	153.02	8,034.4	-144.5	561.1	286.2	12.00	11.77	3.07	
8,150.0	53.82	153.73	8,049.7	-162.2	570.0	305.6	12.00	11.79	2.82	
8,175.0	56.77	154.38	8,063.9	-180.7	579.0	325.8	12.00	11.81	2.62	
8,200.0	59.73	155.00	8,077.1	-199.9	588.0	346.7	12.00	11.82	2.45	
8,225.0	62.69	155.57	8,089.1	-219.8	597.2	368.3	12.00	11.83	2.30	
8,250.0	65.65	156.12	8,100.0	-240.3	606.4	390.6	12.00	11.84	2.18	
8,275.0	68.61	156.64	8,109.7	-261.4	615.6	413.3	12.00	11.85	2.08	
8,300.0	71.57	157.14	8,118.2	-283.0	624.9	436.6	12.00	11.85	2.00	
8,325.0	74.54	157.62	8,125.5	-305.1	634.1	460.3	12.00	11.86	1.93	
8,350.0	77.50	158.09	8,131.6	-327.6	643.2	484.4	12.00	11.86	1.88	



Wellplanning Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #2H
Company:	COG Operating LLC	TVD Reference:	WELL @ 2997.8usft (Original Well Elev)
Project:	Eddy County, NM (NAD27 NME)	MD Reference:	WELL @ 2997.8usft (Original Well Elev)
Site:	Cottonmouth 23 Federal Com	North Reference:	Grid
Well:	#2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 Lower Tangent		

Planned 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)
8,375.0	80.47	158.55	8,136.3	-350.4	652.3	508.8	12.00	11.87	1.83
8,400.0	83.44	159.00	8,139.8	-373.4	661.2	533.4	12.00	11.87	1.80
8,425.0	86.40	159.44	8,142.1	-396.7	670.1	558.2	12.00	11.87	1.78
8,450.0	89.37	159.89	8,143.0	-420.2	678.7	583.1	12.00	11.87	1.77
8,456.4	90.13	160.00	8,143.0	-426.2	680.9	589.4	11.97	11.84	1.76
EOC- 8456.4 'MD, 90.13° INC, 160.00° AZI									
8,500.0	90.13	160.87	8,142.9	-467.2	695.5	632.9	2.00	0.00	2.00
8,600.0	90.13	162.87	8,142.7	-562.3	726.6	732.8	2.00	0.00	2.00
8,700.0	90.13	164.87	8,142.4	-658.3	754.4	832.7	2.00	0.00	2.00
8,800.0	90.13	166.87	8,142.2	-755.3	778.8	932.7	2.00	0.00	2.00
8,900.0	90.13	168.87	8,142.0	-853.1	799.8	1,032.6	2.00	0.00	2.00
9,000.0	90.13	170.87	8,141.8	-951.5	817.4	1,132.2	2.00	0.00	2.00
9,106.3	90.13	173.00	8,141.5	-1,056.7	832.3	1,237.6	2.00	0.00	2.00
9,200.0	90.13	173.00	8,141.3	-1,149.8	843.8	1,330.4	0.00	0.00	0.00
9,300.0	90.13	173.00	8,141.1	-1,249.0	855.9	1,429.4	0.00	0.00	0.00
9,400.0	90.13	173.00	8,140.8	-1,348.3	868.1	1,528.4	0.00	0.00	0.00
9,500.0	90.13	173.00	8,140.6	-1,447.5	880.3	1,627.4	0.00	0.00	0.00
9,600.0	90.13	173.00	8,140.4	-1,546.8	892.5	1,726.4	0.00	0.00	0.00
9,700.0	90.13	173.00	8,140.2	-1,646.0	904.7	1,825.3	0.00	0.00	0.00
9,800.0	90.13	173.00	8,139.9	-1,745.3	916.9	1,924.3	0.00	0.00	0.00
9,900.0	90.13	173.00	8,139.7	-1,844.5	929.1	2,023.3	0.00	0.00	0.00
10,000.0	90.13	173.00	8,139.5	-1,943.8	941.3	2,122.3	0.00	0.00	0.00
10,100.0	90.13	173.00	8,139.2	-2,043.0	953.5	2,221.3	0.00	0.00	0.00
10,200.0	90.13	173.00	8,139.0	-2,142.3	965.7	2,320.3	0.00	0.00	0.00
10,300.0	90.13	173.00	8,138.8	-2,241.5	977.8	2,419.3	0.00	0.00	0.00
10,400.0	90.13	173.00	8,138.5	-2,340.8	990.0	2,518.3	0.00	0.00	0.00
10,500.0	90.13	173.00	8,138.3	-2,440.1	1,002.2	2,617.2	0.00	0.00	0.00
10,600.0	90.13	173.00	8,138.1	-2,539.3	1,014.4	2,716.2	0.00	0.00	0.00
10,700.0	90.13	173.00	8,137.9	-2,638.6	1,026.6	2,815.2	0.00	0.00	0.00
10,800.0	90.13	173.00	8,137.6	-2,737.8	1,038.8	2,914.2	0.00	0.00	0.00
10,900.0	90.13	173.00	8,137.4	-2,837.1	1,051.0	3,013.2	0.00	0.00	0.00
11,000.0	90.13	173.00	8,137.2	-2,936.3	1,063.2	3,112.2	0.00	0.00	0.00
11,100.0	90.13	173.00	8,136.9	-3,035.6	1,075.4	3,211.2	0.00	0.00	0.00
11,200.0	90.13	173.00	8,136.7	-3,134.8	1,087.6	3,310.2	0.00	0.00	0.00
11,300.0	90.13	173.00	8,136.5	-3,234.1	1,099.7	3,409.1	0.00	0.00	0.00
11,400.0	90.13	173.00	8,136.3	-3,333.3	1,111.9	3,508.1	0.00	0.00	0.00
11,500.0	90.13	173.00	8,136.0	-3,432.6	1,124.1	3,607.1	0.00	0.00	0.00
11,600.0	90.13	173.00	8,135.8	-3,531.8	1,136.3	3,706.1	0.00	0.00	0.00
11,700.0	90.13	173.00	8,135.6	-3,631.1	1,148.5	3,805.1	0.00	0.00	0.00
11,800.0	90.13	173.00	8,135.3	-3,730.4	1,160.7	3,904.1	0.00	0.00	0.00
11,900.0	90.13	173.00	8,135.1	-3,829.6	1,172.9	4,003.1	0.00	0.00	0.00
12,000.0	90.13	173.00	8,134.9	-3,928.9	1,185.1	4,102.1	0.00	0.00	0.00
12,100.0	90.13	173.00	8,134.6	-4,028.1	1,197.3	4,201.0	0.00	0.00	0.00
12,200.0	90.13	173.00	8,134.4	-4,127.4	1,209.5	4,300.0	0.00	0.00	0.00
12,300.0	90.13	173.00	8,134.2	-4,226.6	1,221.7	4,399.0	0.00	0.00	0.00
12,400.0	90.13	173.00	8,134.0	-4,325.9	1,233.8	4,498.0	0.00	0.00	0.00
12,500.0	90.13	173.00	8,133.7	-4,425.1	1,246.0	4,597.0	0.00	0.00	0.00
12,600.0	90.13	173.00	8,133.5	-4,524.4	1,258.2	4,696.0	0.00	0.00	0.00
12,700.0	90.13	173.00	8,133.3	-4,623.6	1,270.4	4,795.0	0.00	0.00	0.00
12,800.0	90.13	173.00	8,133.0	-4,722.9	1,282.6	4,894.0	0.00	0.00	0.00
12,818.8	90.13	173.00	8,133.0	-4,741.6	1,284.9	4,912.6	0.00	0.00	0.00
TD at 12818.8 - PBHL(C23FC#2H)									



Wellplanning Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #2H
Company:	COG Operating LLC	TVD Reference:	WELL @ 2997.8usft (Original Well Elev)
Project:	Eddy County, NM (NAD27 NME)	MD Reference:	WELL @ 2997.8usft (Original Well Elev)
Site:	Cottonmouth 23 Federal Com	North Reference:	Grid
Well:	#2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 Lower Tangent		

Design Targets										
Target Name	hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Shape		(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
KOP(C23FC#2H)		0.00	0.01	7,665.5	0.0	450.0	376,384.20	582,867.40	32° 2' 4.246 N	104° 3' 57.293 W
- plan hits target center										
- Point										
PBHL(C23FC#2H)		0.00	0.00	8,133.0	-4,741.6	1,284.9	371,642.60	583,702.30	32° 1' 17.300 N	104° 3' 47.732 W
- plan hits target center										
- Point										

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(usft)	(usft)	+N/-S	+E/-W	Comment	
(usft)	(usft)	(usft)	(usft)		
7,731.0	7,696.1	0.0	0.0	KOP - 7731.0 'MD, 9.00° INC, 90.00° AZI	
8,456.4	8,143.0	0.0	35.3	EOC- 8456.4 'MD, 90.13° INC, 160.00° AZI	
12,818.8	8,133.0	0.0	450.0	TD at 12818.8	