

New Mexico Oil Conservation Division, District I
1625 N. French Drive
Hobbs, NM 88240

Form 3160-5
(April 2004)

RECEIVED

MAY 18 2010

HOBBSDO

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: March 31, 2007

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE- Other instructions on reverse side.

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other ☒

2. Name of Operator
COG Operating LLC

3a Address
550 W. Texas Ave., Suite 1300 Midland, TX 79701

3b Phone No (include area code)
432-685-4385

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

SHL: 330 FSL & 330 FWL SEC. 10, T15S, R31E, UNIT M
BHL: 990 FSL & 330 FEL SEC. 10, T15S, R31E, UNIT P

5 Lease Serial No.

SHL:NMNM-105885 BHL:State of NM

6. If Indian, Allottee or Tribe Name

N/A

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

N/A

8. Well Name and No.

Taurus 10 Federal Com #1

9. API Well No

30-005-28000

10. Field and Pool, or Exploratory Area

Wildcat; Wolfcamp

11. County or Parish, State

Chaves, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION

TYPE OF ACTION

☒ Notice of Intent

☐ Subsequent Report

☐ Final Abandonment Notice

☐ Acidize

☐ Alter Casing

☐ Casing Repair

☐ Change Plans

☐ Convert to Injection

☐ Deepen

☐ Fracture Treat

☐ New Construction

☐ Plug and Abandon

☐ Plug Back

☐ Production (Start/Resume)

☐ Reclamation

☐ Recomplete

☐ Temporarily Abandon

☐ Water Disposal

☐ Water Shut-Off

☐ Well Integrity

☒ Other Change Drilling Plan

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 recompleat 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 recompleat 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 Operating LLC respectfully requests permission to change the casing program to:

Type	Hole Size	Casing Type	Casing Weight/ft.	Setting Depth	Sacks of Cement	Est TOC
Surf	17.5	13.375	54.5	400	500	0
Int 1	12.25	9.625	40	4000	1300	0
Int 2	8.75	7	26	8000	1200	0
Prod	6.125	4.5	11.6	13450	0	0

COG proposes to drill 17-1/2" hole to 400' w/ fresh water mud system, wt. 8.5, vis 28, set 13-3/8" casing & cement to surf. Drill an 12.25" hole to 4000' w/ brine mud system, wt 10, vis 30, set 9-5/8" casing & cement to surf. Drill 8-3/4" hole to 8000' w/ cut brine mud system, wt 8.7, vis 29-32. Set 7" prod casing @ +/- 8000'. Drill 6-1/8" pilot hole thru Top Lower Abo to +/- 9000', run open hole logs. Spot +/- 250sxs C. Kick off plug from +/- 9000' to +/- 8000'. Drill 6-1/8" hole & kick off @ +/- 8300', building curve over +/- 450' horizontal section in a Easterly direction for +/- 4539' lateral to TD @ +/- 13450' MD, 8810' TVD. Run 4-1/2" prod liner in un-cemented open hole lateral & set isolation packers & liner top packer @ +/- 7900' MD.

COG respectfully requests permission for 100' liner overlap (reduced from 200' rule) to set pump as deep as possible.

14. I hereby certify that the foregoing is true and correct
Name (Printed/Typed)

Robyn M. Odum

Title Regulatory Analyst

Signature



Date

04/29/2010

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

MAY 20 2010

Approved by

/S/ DAVID R. GLASS

PETROLEUM ENGINEER

Date

MAY 05 2010

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

ROSWELL FIELD OFFICE

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.

(Instructions on page 2)



RECEIVED

MAY 18 2010

HOBBSOCD

COG Operating LLC

Chaves County

Taurus "10" Federal Com

#1

OH

Plan: Plan #1

Pathfinder X & Y Planning Report

30 April, 2010

PATHFINDER



Pathfinder
Pathfinder X & Y Planning Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1:
Project:	Chaves County	TVD Reference:	WELL @ 4433.50ft (18.5' KB Correction)
Site:	Taurus "10" Federal Com	MD Reference:	WELL @ 4433.50ft (18.5' KB Correction)
Well:	#1	North Reference:	Grid:
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

Project: Chaves County	
Map System:	US State Plane 1983
Geo Datum:	North American Datum 1983
Map Zone:	New Mexico Eastern Zone
System Datum:	Mean Sea Level

Site:	Taurus "10" Federal Com
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Site Position:		Northing:	736,670.600 ft	Latitude:	33° 1' 26.537 N
From:	Map	Easting:	699,556.000 ft	Longitude:	103° 49' 1.613 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	0.28 °

Well:	#1					
Well Position	+N/-S	0.00 ft	Northing:	736,670.600 ft	Latitude:	33° 1' 26.537 N
	+E/-W	0.00 ft	Easting:	699,556.000 ft	Longitude:	103° 49' 1.613 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,415.00 ft

Wellbore	OH
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Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF200510	04/30/2010	7.88	60.93	49,208

Design:	Plan #1
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Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00

Vertical Section	Depth From (TVD)	+N-S	+E/W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	81.39

Survey Tool Program		Date	04/30/2010		
From	To	Survey (Wellbore)	Tool Name	Description	
(ft)	(ft)				
0.00	13,225.50	Plan #1 (OH)			



Pathfinder
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Planned Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (%/100ft)	Northing (ft)	Easting (ft)	
0.00	0.00	0.00	0.00	-4,433.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
100.00	0.00	0.00	100.00	-4,333.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
200.00	0.00	0.00	200.00	-4,233.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
300.00	0.00	0.00	300.00	-4,133.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
400.00	0.00	0.00	400.00	-4,033.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
500.00	0.00	0.00	500.00	-3,933.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
600.00	0.00	0.00	600.00	-3,833.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
700.00	0.00	0.00	700.00	-3,733.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
800.00	0.00	0.00	800.00	-3,633.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
900.00	0.00	0.00	900.00	-3,533.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
1,000.00	0.00	0.00	1,000.00	-3,433.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
1,100.00	0.00	0.00	1,100.00	-3,333.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
1,200.00	0.00	0.00	1,200.00	-3,233.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
1,300.00	0.00	0.00	1,300.00	-3,133.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
1,400.00	0.00	0.00	1,400.00	-3,033.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
1,500.00	0.00	0.00	1,500.00	-2,933.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
1,600.00	0.00	0.00	1,600.00	-2,833.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
1,700.00	0.00	0.00	1,700.00	-2,733.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
1,800.00	0.00	0.00	1,800.00	-2,633.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
1,900.00	0.00	0.00	1,900.00	-2,533.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
2,000.00	0.00	0.00	2,000.00	-2,433.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
2,100.00	0.00	0.00	2,100.00	-2,333.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
2,200.00	0.00	0.00	2,200.00	-2,233.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
2,300.00	0.00	0.00	2,300.00	-2,133.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
2,400.00	0.00	0.00	2,400.00	-2,033.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
2,500.00	0.00	0.00	2,500.00	-1,933.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
2,600.00	0.00	0.00	2,600.00	-1,833.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	



Pathfinder
Pathfinder X & Y Planning Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1
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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

Planned Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)	
2,700.00	0.00	0.00	2,700.00	-1,733.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
2,800.00	0.00	0.00	2,800.00	-1,633.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
2,900.00	0.00	0.00	2,900.00	-1,533.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
3,000.00	0.00	0.00	3,000.00	-1,433.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
3,100.00	0.00	0.00	3,100.00	-1,333.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
3,200.00	0.00	0.00	3,200.00	-1,233.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
3,300.00	0.00	0.00	3,300.00	-1,133.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
3,400.00	0.00	0.00	3,400.00	-1,033.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
3,500.00	0.00	0.00	3,500.00	-933.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
3,600.00	0.00	0.00	3,600.00	-833.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
3,700.00	0.00	0.00	3,700.00	-733.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
3,800.00	0.00	0.00	3,800.00	-633.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
3,900.00	0.00	0.00	3,900.00	-533.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
4,000.00	0.00	0.00	4,000.00	-433.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
4,100.00	0.00	0.00	4,100.00	-333.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
4,200.00	0.00	0.00	4,200.00	-233.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
4,300.00	0.00	0.00	4,300.00	-133.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
4,400.00	0.00	0.00	4,400.00	-33.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
4,500.00	0.00	0.00	4,500.00	66.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
4,600.00	0.00	0.00	4,600.00	166.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
4,700.00	0.00	0.00	4,700.00	266.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
4,800.00	0.00	0.00	4,800.00	366.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
4,900.00	0.00	0.00	4,900.00	466.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
5,000.00	0.00	0.00	5,000.00	566.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
5,100.00	0.00	0.00	5,100.00	666.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
5,200.00	0.00	0.00	5,200.00	766.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
5,300.00	0.00	0.00	5,300.00	866.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	



Pathfinder
Pathfinder X & Y Planning Report



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Project:	Chaves County	TVD Reference:	WELL @ 4433.50ft (18.5' KB Correction)
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Well:	#1	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

Planned Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V- Sec (ft)	D Leg (°/100ft)	Northings (ft)	Easting (ft)	
5,400.00	0.00	0.00	5,400.00	966.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
5,500.00	0.00	0.00	5,500.00	1,066.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
5,600.00	0.00	0.00	5,600.00	1,166.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
5,700.00	0.00	0.00	5,700.00	1,266.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
5,800.00	0.00	0.00	5,800.00	1,366.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
5,900.00	0.00	0.00	5,900.00	1,466.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
6,000.00	0.00	0.00	6,000.00	1,566.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
6,100.00	0.00	0.00	6,100.00	1,666.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
6,200.00	0.00	0.00	6,200.00	1,766.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
6,300.00	0.00	0.00	6,300.00	1,866.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
6,400.00	0.00	0.00	6,400.00	1,966.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
6,500.00	0.00	0.00	6,500.00	2,066.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
6,600.00	0.00	0.00	6,600.00	2,166.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
6,700.00	0.00	0.00	6,700.00	2,266.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
6,800.00	0.00	0.00	6,800.00	2,366.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
6,900.00	0.00	0.00	6,900.00	2,466.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
7,000.00	0.00	0.00	7,000.00	2,566.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
7,100.00	0.00	0.00	7,100.00	2,666.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
7,200.00	0.00	0.00	7,200.00	2,766.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
7,300.00	0.00	0.00	7,300.00	2,866.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
7,400.00	0.00	0.00	7,400.00	2,966.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
7,500.00	0.00	0.00	7,500.00	3,066.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
7,600.00	0.00	0.00	7,600.00	3,166.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
7,700.00	0.00	0.00	7,700.00	3,266.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
7,800.00	0.00	0.00	7,800.00	3,366.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
7,900.00	0.00	0.00	7,900.00	3,466.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	
8,000.00	0.00	0.00	8,000.00	3,566.50	0.00	0.00	0.00	0.00	736,670.60	699,556.00	



Pathfinder
Pathfinder X & Y Planning Report



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8,100.00	0.00	0.00	8,100.00	3,666.50	0.00	0.00	0.00	0.00	0.00	736,670.60	699,556.00
8,200.00	0.00	0.00	8,200.00	3,766.50	0.00	0.00	0.00	0.00	0.00	736,670.60	699,556.00
8,272.50	0.00	0.00	8,272.50	3,839.00	0.00	0.00	0.00	0.00	0.00	736,670.60	699,556.00
8,275.00	0.30	81.39	8,275.00	3,841.50	0.00	0.01	0.01	12.00	736,670.60	699,556.01	
8,300.00	3.30	81.39	8,299.98	3,866.48	0.12	0.78	0.79	12.00	736,670.72	699,556.78	
8,325.00	6.30	81.39	8,324.89	3,891.39	0.43	2.85	2.88	12.00	736,671.03	699,558.85	
8,350.00	9.30	81.39	8,349.66	3,916.16	0.94	6.20	6.27	12.00	736,671.54	699,562.20	
8,375.00	12.30	81.39	8,374.21	3,940.71	1.64	10.83	10.96	12.00	736,672.24	699,566.83	
8,400.00	15.30	81.39	8,398.49	3,964.99	2.53	16.73	16.92	12.00	736,673.13	699,572.73	
8,425.00	18.30	81.39	8,422.42	3,988.92	3.61	23.87	24.14	12.00	736,674.21	699,579.87	
8,450.00	21.30	81.39	8,445.94	4,012.44	4.88	32.24	32.61	12.00	736,675.48	699,588.24	
8,475.00	24.30	81.39	8,468.99	4,035.49	6.33	41.82	42.29	12.00	736,676.93	699,597.82	
8,500.00	27.30	81.39	8,491.49	4,057.99	7.96	52.57	53.17	12.00	736,678.56	699,608.57	
8,525.00	30.29	81.39	8,513.40	4,079.90	9.76	64.48	65.21	12.00	736,680.36	699,620.48	
8,550.00	33.29	81.39	8,534.64	4,101.14	11.73	77.50	78.38	12.00	736,682.33	699,633.50	
8,575.00	36.29	81.39	8,555.17	4,121.67	13.87	91.60	92.65	12.00	736,684.47	699,647.60	
8,600.00	39.29	81.39	8,574.93	4,141.43	16.16	106.75	107.97	12.00	736,686.76	699,662.75	
8,625.00	42.29	81.39	8,593.85	4,160.35	18.61	122.90	124.30	12.00	736,689.21	699,678.90	
8,650.00	45.29	81.39	8,611.89	4,178.39	21.20	140.00	141.60	12.00	736,691.80	699,696.00	
8,675.00	48.29	81.39	8,629.01	4,195.51	23.93	158.01	159.82	12.00	736,694.53	699,714.01	
8,700.00	51.29	81.39	8,645.15	4,211.65	26.78	176.89	178.91	12.00	736,697.38	699,732.89	
8,725.00	54.29	81.39	8,660.26	4,226.76	29.76	196.57	198.81	12.00	736,700.36	699,752.57	
8,750.00	57.29	81.39	8,674.32	4,240.82	32.86	217.01	219.49	12.00	736,703.46	699,773.01	
8,775.00	60.29	81.39	8,687.27	4,253.77	36.06	238.15	240.87	12.00	736,706.66	699,794.15	
8,800.00	63.29	81.39	8,699.09	4,265.59	39.36	259.93	262.89	12.00	736,709.96	699,815.93	
8,825.00	66.29	81.39	8,709.73	4,276.23	42.74	282.29	285.51	12.00	736,713.34	699,838.29	
8,850.00	69.29	81.39	8,719.18	4,285.68	46.21	305.17	308.65	12.00	736,716.81	699,861.17	



Pathfinder
Pathfinder X & Y Planning Report



Company:	COG Operating LLC	Local Co-ordinate Reference	Well #1
Project:	Chaves County	TVD Reference:	WELL @ 4433.50ft (18.5' KB Correction)
Site:	Taurus "10" Federal Com	MD Reference:	WELL @ 4433.50ft (18.5' KB Correction)
Well:	#1	North Reference:	Gnd
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

Planned Survey										
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (%/100ft)	Northing (ft)	Easting (ft)
8,875.00	72.29	81.39	8,727.41	4,293.91	49.74	328.51	332.26	12.00	736,720.34	699,884.51
8,900.00	75.29	81.39	8,734.39	4,300.89	53.33	352.25	356.26	12.00	736,723.93	699,908.25
8,925.00	78.29	81.39	8,740.10	4,306.60	56.98	376.31	380.60	12.00	736,727.58	699,932.31
8,950.00	81.29	81.39	8,744.54	4,311.04	60.66	400.63	405.20	12.00	736,731.26	699,956.63
8,975.00	84.29	81.39	8,747.68	4,314.18	64.37	425.15	430.00	12.00	736,734.97	699,981.15
9,000.00	87.28	81.39	8,749.51	4,316.01	68.11	449.80	454.93	12.00	736,738.71	700,005.80
9,015.80	89.18	81.39	8,750.00	4,316.50	70.47	465.41	470.71	12.00	736,741.07	700,021.41
9,100.00	89.18	81.39	8,751.21	4,317.71	83.07	548.65	554.91	0.00	736,753.67	700,104.65
9,200.00	89.18	81.39	8,752.64	4,319.14	98.04	647.52	654.90	0.00	736,768.64	700,203.52
9,300.00	89.18	81.39	8,754.07	4,320.57	113.01	746.38	754.89	0.00	736,783.61	700,302.38
9,400.00	89.18	81.39	8,755.50	4,322.00	127.98	845.24	854.88	0.00	736,798.58	700,401.24
9,500.00	89.18	81.39	8,756.93	4,323.43	142.95	944.11	954.87	0.00	736,813.55	700,500.11
9,600.00	89.18	81.39	8,758.36	4,324.86	157.92	1,042.97	1,054.86	0.00	736,828.52	700,598.97
9,700.00	89.18	81.39	8,759.79	4,326.29	172.89	1,141.83	1,154.85	0.00	736,843.49	700,697.83
9,800.00	89.18	81.39	8,761.22	4,327.72	187.86	1,240.70	1,254.84	0.00	736,858.46	700,796.70
9,900.00	89.18	81.39	8,762.65	4,329.15	202.83	1,339.56	1,354.83	0.00	736,873.43	700,895.56
10,000.00	89.18	81.39	8,764.09	4,330.59	217.80	1,438.42	1,454.82	0.00	736,888.40	700,994.42
10,100.00	89.18	81.39	8,765.52	4,332.02	232.77	1,537.28	1,554.81	0.00	736,903.37	701,093.28
10,200.00	89.18	81.39	8,766.95	4,333.45	247.74	1,636.15	1,654.80	0.00	736,918.34	701,192.15
10,300.00	89.18	81.39	8,768.38	4,334.88	262.71	1,735.01	1,754.79	0.00	736,933.31	701,291.01
10,400.00	89.18	81.39	8,769.81	4,336.31	277.67	1,833.87	1,854.78	0.00	736,948.27	701,389.87
10,500.00	89.18	81.39	8,771.24	4,337.74	292.64	1,932.74	1,954.77	0.00	736,963.24	701,488.74
10,600.00	89.18	81.39	8,772.67	4,339.17	307.61	2,031.60	2,054.75	0.00	736,978.21	701,587.60
10,700.00	89.18	81.39	8,774.10	4,340.60	322.58	2,130.46	2,154.74	0.00	736,993.18	701,686.46
10,800.00	89.18	81.39	8,775.53	4,342.03	337.55	2,229.32	2,254.73	0.00	737,008.15	701,785.32
10,900.00	89.18	81.39	8,776.97	4,343.47	352.52	2,328.19	2,354.72	0.00	737,023.12	701,884.19
11,000.00	89.18	81.39	8,778.40	4,344.90	367.49	2,427.05	2,454.71	0.00	737,038.09	701,983.05



Pathfinder
Pathfinder X & Y Planning Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1:
Project:	Chaves County	TVD Reference:	WELL @ 4433.50ft (18.5' KB Correction)
Site:	Taurus "10" Federal Com	MD Reference:	WELL @ 4433.50ft (18.5' KB Correction)
Well:	#1	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

Planned Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	D Leg (°/100ft)	Northing (ft)	Easting (ft)	
11,100.00	89.18	81.39	8,779.83	4,346.33	382.46	2,525.91	2,554.70	0.00	737,053.06	702,081.91	
11,200.00	89.18	81.39	8,781.26	4,347.76	397.43	2,624.78	2,654.69	0.00	737,068.03	702,180.78	
11,300.00	89.18	81.39	8,782.69	4,349.19	412.40	2,723.64	2,754.68	0.00	737,083.00	702,279.64	
11,400.00	89.18	81.39	8,784.12	4,350.62	427.37	2,822.50	2,854.67	0.00	737,097.97	702,378.50	
11,500.00	89.18	81.39	8,785.55	4,352.05	442.34	2,921.36	2,954.66	0.00	737,112.94	702,477.36	
11,600.00	89.18	81.39	8,786.98	4,353.48	457.31	3,020.23	3,054.65	0.00	737,127.91	702,576.23	
11,700.00	89.18	81.39	8,788.41	4,354.91	472.27	3,119.09	3,154.64	0.00	737,142.87	702,675.09	
11,800.00	89.18	81.39	8,789.85	4,356.35	487.24	3,217.95	3,254.63	0.00	737,157.84	702,773.95	
11,900.00	89.18	81.39	8,791.28	4,357.78	502.21	3,316.82	3,354.62	0.00	737,172.81	702,872.82	
12,000.00	89.18	81.39	8,792.71	4,359.21	517.18	3,415.68	3,454.61	0.00	737,187.78	702,971.68	
12,100.00	89.18	81.39	8,794.14	4,360.64	532.15	3,514.54	3,554.60	0.00	737,202.75	703,070.54	
12,200.00	89.18	81.39	8,795.57	4,362.07	547.12	3,613.40	3,654.59	0.00	737,217.72	703,169.40	
12,300.00	89.18	81.39	8,797.00	4,363.50	562.09	3,712.27	3,754.58	0.00	737,232.69	703,268.27	
12,400.00	89.18	81.39	8,798.43	4,364.93	577.06	3,811.13	3,854.57	0.00	737,247.66	703,367.13	
12,500.00	89.18	81.39	8,799.86	4,366.36	592.03	3,909.99	3,954.56	0.00	737,262.63	703,465.99	
12,600.00	89.18	81.39	8,801.29	4,367.79	607.00	4,008.86	4,054.55	0.00	737,277.60	703,564.86	
12,700.00	89.18	81.39	8,802.73	4,369.23	621.97	4,107.72	4,154.54	0.00	737,292.57	703,663.72	
12,800.00	89.18	81.39	8,804.16	4,370.66	636.94	4,206.58	4,254.53	0.00	737,307.54	703,762.58	
12,900.00	89.18	81.39	8,805.59	4,372.09	651.91	4,305.45	4,354.52	0.00	737,322.51	703,861.45	
13,000.00	89.18	81.39	8,807.02	4,373.52	666.88	4,404.31	4,454.51	0.00	737,337.48	703,960.31	
13,100.00	89.18	81.39	8,808.45	4,374.95	681.84	4,503.17	4,554.50	0.00	737,352.44	704,059.17	
13,200.00	89.18	81.39	8,809.88	4,376.38	696.81	4,602.03	4,654.49	0.00	737,367.41	704,158.03	
13,225.50	89.18	81.39	8,810.25	4,376.75	700.63	4,627.25	4,679.99	0.00	737,371.23	704,183.25	

PBHL(Taurus 10 #1)



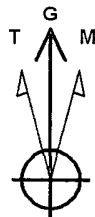
Pathfinder
Pathfinder X & Y Planning Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1
Project:	Chaves County	TVD Reference:	WELL @ 4433.50ft (18.5' KB Correction)
Site:	Taurus "10" Federal Com	MD Reference:	WELL @ 4433.50ft (18.5' KB Correction)
Well:	#1	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
PBHL(Taurus 10 #1)	0 00	0 00	8,810.00	700.40	4,627.28	737,371.000	704,183.284	33° 1' 33.239 N	103° 48' 7.222 W
- plan hits target center									
- Point									

Checked By: _____	Approved By: _____	Date: _____
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Azimuths to Grid North
True North: -0.28°
Magnetic North: 7.60°

Magnetic Field
Strength: 49207.6snT
Dip Angle: 60.93°
Date: 04/30/2010
Model: IGRF200510

PATHFINDER

Project: Chaves County
Site: Taurus "10" Federal Com
Well: #1
Wellbore: OH
Plan: Plan #1 (#1/OH)

WELL DETAILS: #1

Ground Elevation: 4415.00
RKB Elevation: WELL @ 4433.50ft (18.5' KB Correction)
Rig Name: 18.5' KB Correction

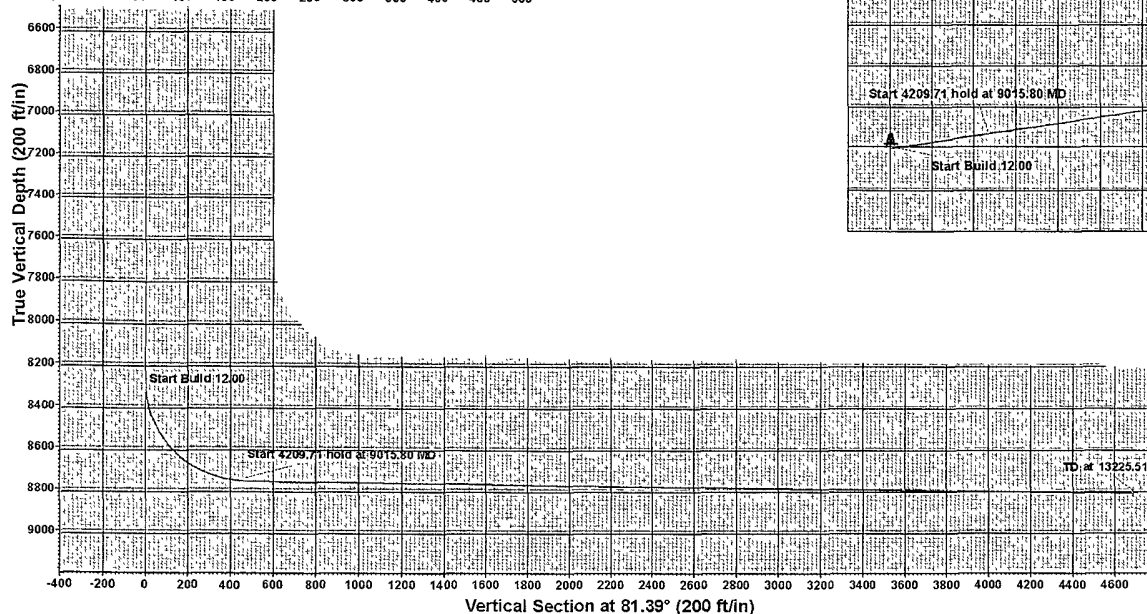
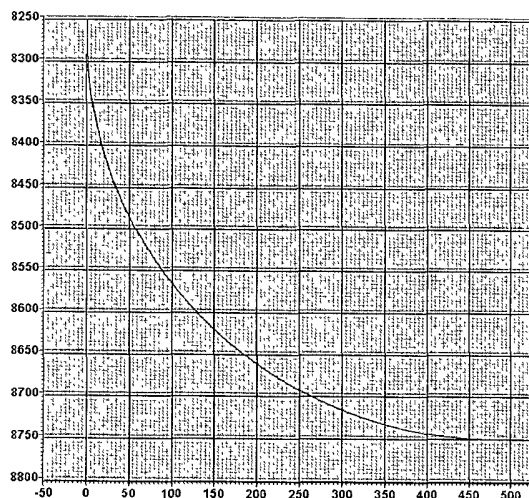
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	736670.600	699556.000	33° 1' 26.537 N	103° 49' 1.613 W	

SECTION DETAILS

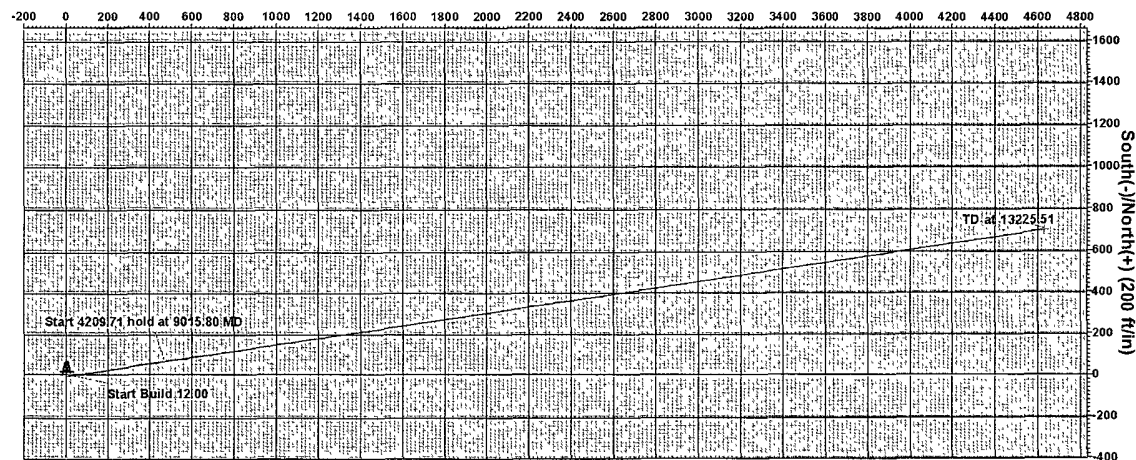
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	D Leg	T Face	V Sec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	8272.50	0.00	0.00	8272.50	0.00	0.00	0.00	0.00	0.00	
3	9015.80	89.18	81.39	8750.00	70.47	465.41	12.00	81.39	470.71	
4	13225.51	89.18	81.39	8810.25	700.63	4627.25	0.00	0.00	4679.99	PBHL(Taurus 10 #1)

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL(Taurus 10 #1)	8810.00	700.40	4627.28	737371.000	704183.284	Point



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



PROJECT DETAILS, Chaves County
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grid

Plan Plan #1 (#1/OH)

Created By: Nate Bingham Date: 14 27, April 30 2010

Checked: _____ Date: _____