

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM 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 ☐ Other2. Name of Operator
COG Operating LLC3a Address
550 W. Texas Ave., Suite 1300 Midland, TX 797013b Phone No. (include area code)
432-685-4340

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

SHL: 330' FNL & 330' FEL, Section 30, T16S, R28E, UL A
BHL: 330' FNL & 330' FWL, Section 30, T16S, R28E, UL D

5. Lease Serial No.

SHL: NM-54856, BHL: NM 103872

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.

Donner 30 Federal Com #4

9. API Well No.

30-015-35715

10. Field and Pool, or Exploratory Area

Dog Canyon; Wolfcamp

11. County or Parish, State

Eddy, NM

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 SHL change
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

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 respectfully requests permission to change the SHL to: SHL: NM-104675 BHL: NM 103872 120 acre spacing OK J. Paul 2-22-10
660 FNL & 1470 FEL, Section 30, T16S, R28E, UL B.

The attached amended plat and directional plan denote that the Wolfcamp penetration point of 628 FNL & 1852 FEL is standard.

COG respectfully requests permission to make the following changes to the drill plan:

Hole Size Interval OD of Casing Weight Thread Collar Grade
17-1/2" 0' - +/-500' 13-3/8" 54.5# New STC J/K-55 Collapse sf - 2.98, Burst sf - 2.33, Tension sf - 13.42
Lead: 200sx C w/ 2% CaCL2, 4% gel 13.5 ppg, 1.74 cf/sk. Tail: 300sx C w/ 2% CaCL2 14.8 ppg, 1.35 cf/sk.
8-3/4" 0' - +/-5800' 7" 26# New LTC P-110 Collapse sf - 2.18, Burst sf - 1.53, Tension sf - 4.37
Lead: 1100sx C w/ 4% gel 13.5 ppg, 1.72 cf/sk. Tail: 200sx C w/ 0.35% R-3 14.8 ppg, 1.33 cf/sk.
6-1/8" 5700' - +/-9735' MD 4-1/2" 11.6# New LTC P-110 Collapse sf - 2.47, Burst sf - 1.64, Tension sf - 4.48

1-1/2 liner uncemented, separation achieved with external packers and liner hanger packer

If more integrity cannot be maintained, then the 8-3/4" hole will be reamed out to 12-1/4" and new 9-5/8" casing contingency will be run as follows:

12-1/4" 0' - +/-1800' 9-5/8" 40# New LTC J/K-55 Collapse sf - 2.86, Burst sf - 1.42, Tension sf - 7.22

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)

Phyllis A. Edwards

Title Permitting Tech

Signature

Date

01/28/2010

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

/s/ Don Peterson

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

CARLSBAD 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)

DISTRICT I

1626 N. French Dr., Hobbs, NM 88240

DISTRICT II

1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV

1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources DepartmentForm C-102
Revised October 15, 2009Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-35715	Pool Code 17970	Pool Name DOG CANYON; WOLFCAMP
Property Code 36630	Property Name DONNER "30" FEDERAL	Well Number 4
GRID No. 229137	Operator Name COG OPERATING LLC	Elevation 3545'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	30	16 S	28 E		660	NORTH	1470	EAST	EDDY

Bottom Hole Location If Different From Surface

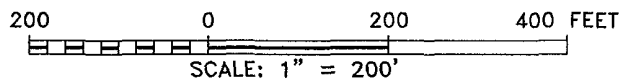
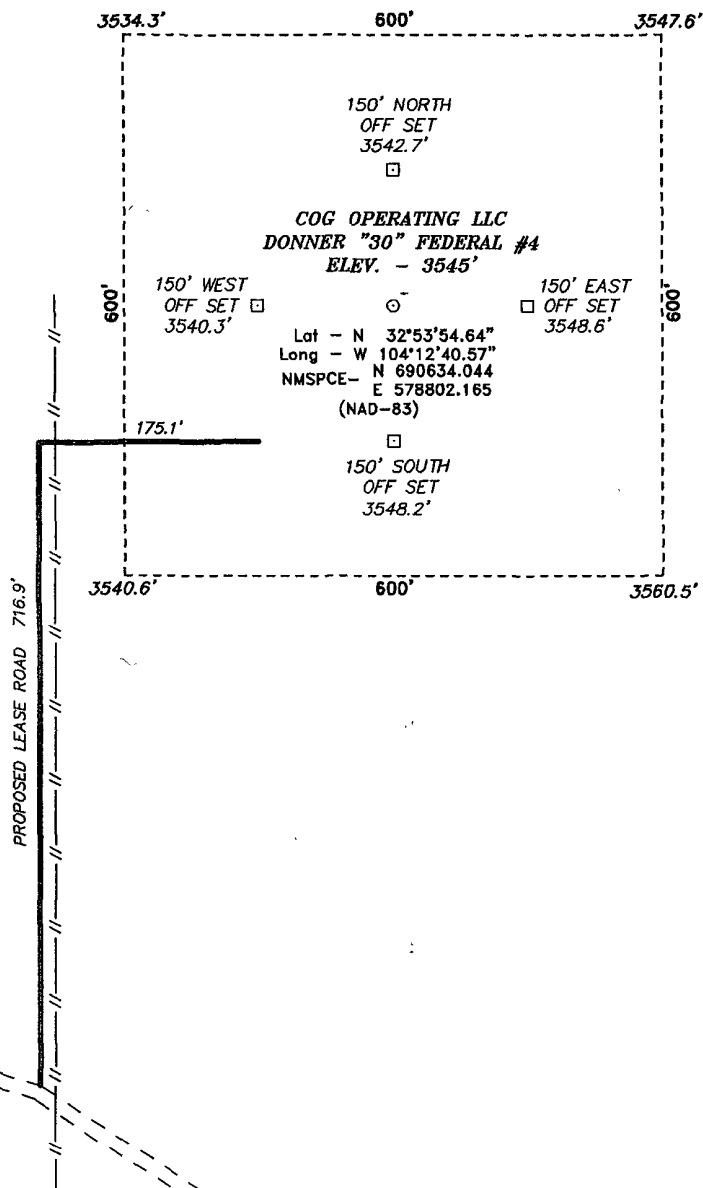
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	30	16 S	28 E		330	NORTH	330	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
120			

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

		OPERATOR CERTIFICATION I hereby certify that the information contained 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 a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <u>Phyllis A. Edwards</u> ^{1/21/10} Signature Date <u>PHYLLIS A. EDWARDS</u> Printed Name <u>PERMITTING TECH</u>
PROPOSED BOTTOM HOLE LOCATION Lat - N 33°53'57.63" Long - W 104°13'21.83" NMSPCE- N 690932.213 E 575284.422 (NAD-83)	SURFACE LOCATION Lat - N 32°53'54.64" Long - W 104°12'40.57" NMSPCE- N 690634.044 E 578802.165 (NAD-83)	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. Date Surveyed <u>JANUARY 2010</u> Signature <u>GARY L. JONES</u> Seal of Professional Surveyor Certificate No. <u>Gary L. Jones 7977</u> BASIN SURVEYS

SECTION 30, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



Directions to Location:

FROM THE JUNCTION OF US HWY 82 AND SOUTHERN UNION, GO NORTH ON SOUTHERN UNION FOR 3.58 MILES TO LEASE ROAD, ON LEASE ROAD GO NORTH 2.8 MILES THENCE EAST ON LEASE ROAD FOR 0.1 MILES TO PROPOSED LEASE ROAD.

BASIN SURVEYS P.O. BOX 1786-HOBBS, NEW MEXICO

COG OPERATING LLC

REF: DONNER "30" FEDERAL #4 / WELL PAD TOPO

THE DONNER "30" FEDERAL #4 LOCATED 660'

FROM THE NORTH LINE AND 1470' FROM THE EAST LINE OF

SECTION 30, TOWNSHIP 16 SOUTH, RANGE 28 EAST,

N.M.P.M., EDDY COUNTY, NEW MEXICO.

W.O. Number: 22260

Drawn By: J. SMALL

Date: 1-20-2010

Disk: ERB 22260

Survey Date: 1-20-2010

Sheet 1 of 1 Sheets



DONNER "30" FEDERAL #4
 Located 660' FNL and 1470' FEL
 Section 30, Township 16 South, Range 28 East,
 N.M.P.M., Eddy County, New Mexico.

**basin
surveys**

focused on excellence
in the oilfield

P.O. Box 1786
 1120 N. West County Rd.
 Hobbs, New Mexico 88241
 (575) 393-7316 - Office
 (575) 392-2206 - Fax
 basinsurveys.com

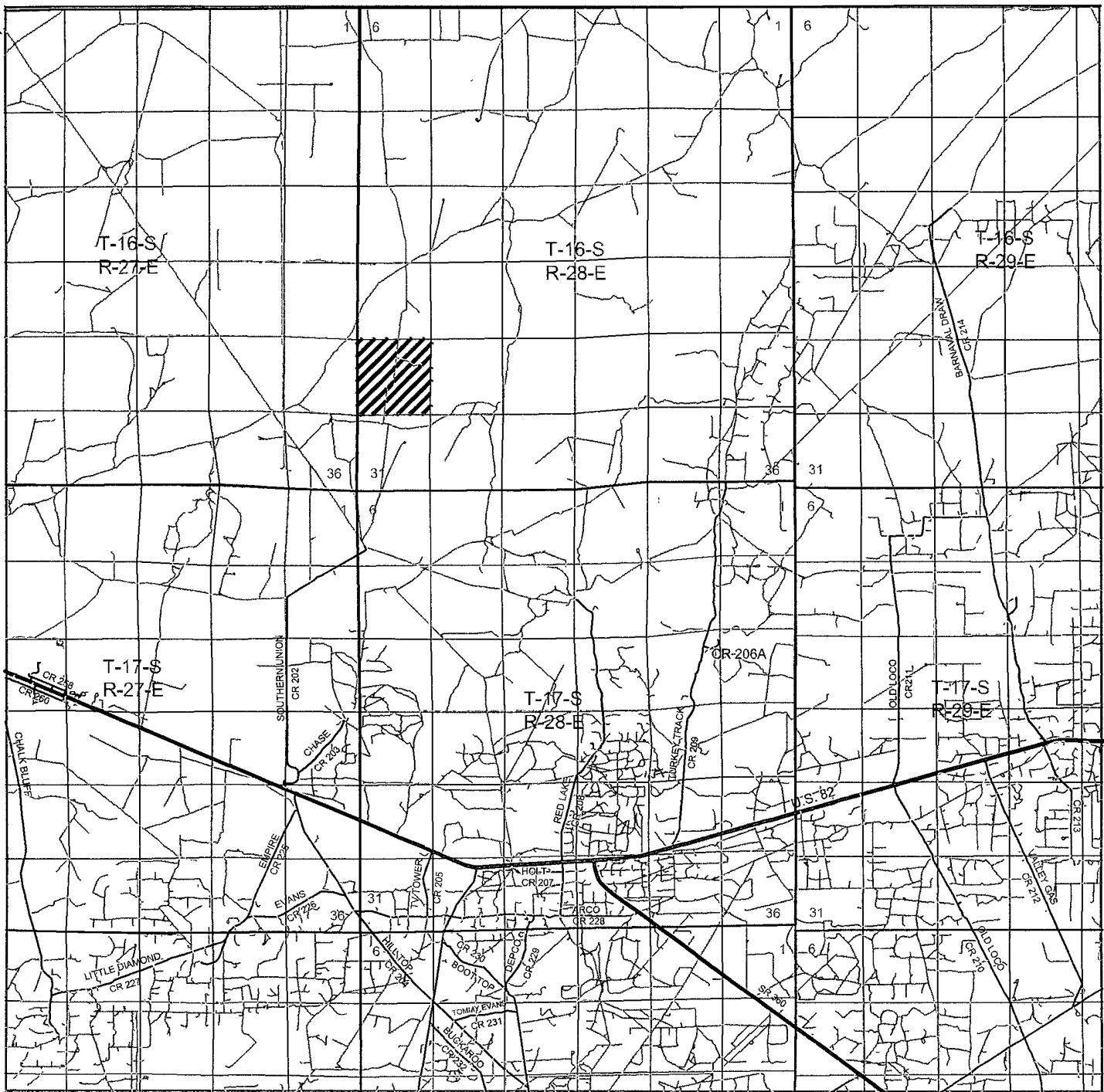
W.O. Number: ERB 22260

Survey Date: 1-20-2010

Scale: 1" = 2000'

Date: 1-20-2010

**COG
OPERATING
LLC**



DONNER "30" FEDERAL #4
 Located 660' FNL and 1470' FEL
 Section 30, Township 16 South, Range 28 East,
 N.M.P.M., Eddy County, New Mexico.

basin
surveys
 focused on excellence
 in the oilfield

P.O. Box 1786
 1120 N. West County Rd.
 Hobbs, New Mexico 88241
 (575) 393-7316 - Office
 (575) 392-2206 - Fax
 basinsurveys.com

W.O. Number: ERB 22260

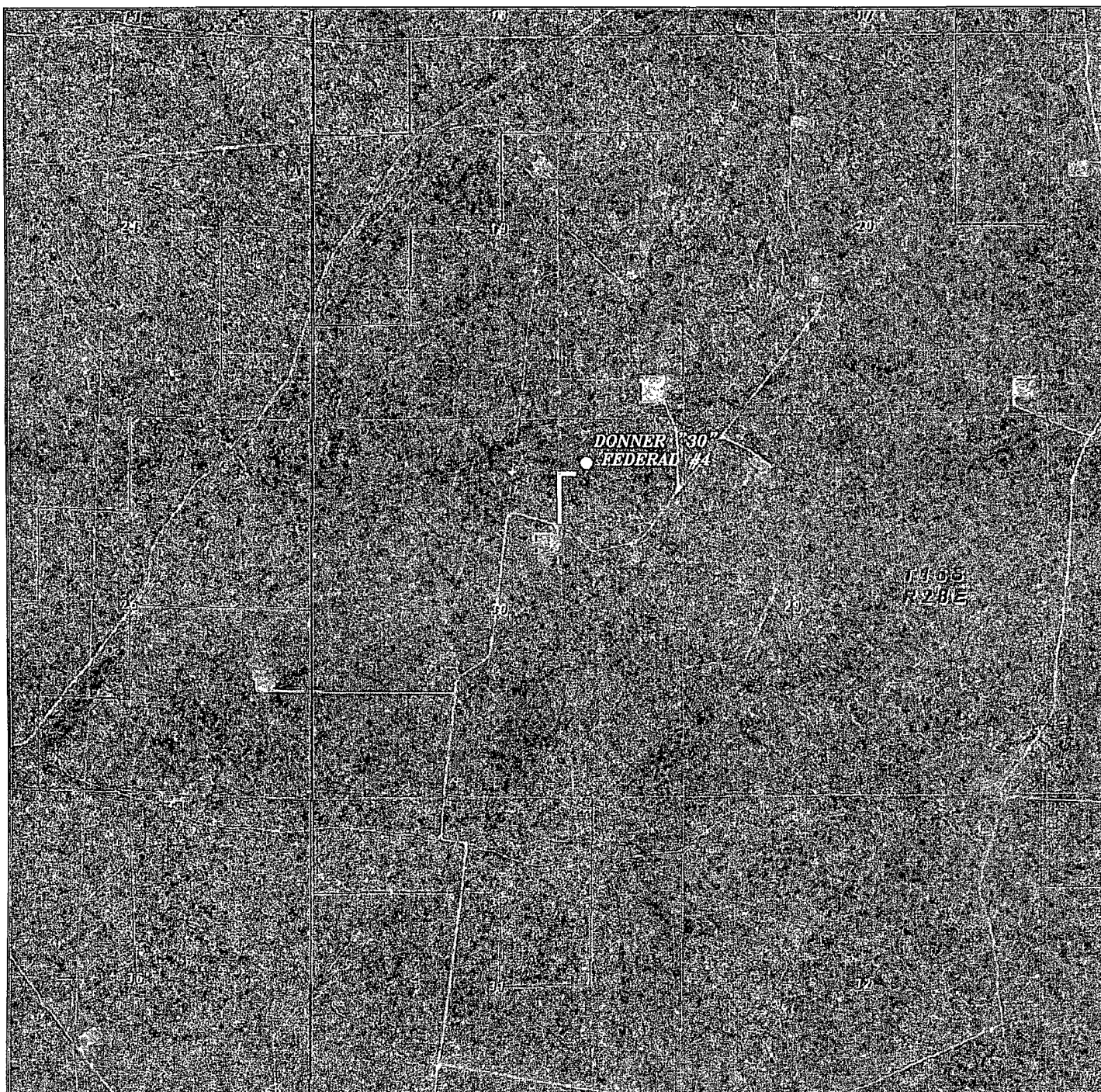
Survey Date: 1-20-2010

Scale: 1" = 2000feet

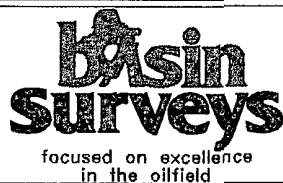
Date: 1-20-2010



COG
OPERATING
LLC



DONNER "30" FEDERAL #4
Located 660' FNL and 1470' FEL
Section 30, Township 16 South, Range 28 East,
N.M.P.M., Eddy County, New Mexico.



P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number: ERB 22260

Scale: 1" = 2000'

YELLOW TINT - USA LAND
BLUE TINT - STATE LAND
NATURAL COLOR - FEE LAND



COG
OPERATING
LLC



COG Operating LLC

Eddy County

Donner 30 Fed

#4

OH

Plan: Plan #1

Pathfinder X & Y Planning Report

27 January, 2010

PATHFINDER



Pathfinder Energy Services
Pathfinder X & Y Planning Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #4
Project:	Eddy County	TVD Reference:	WELL @ 3570.00ft (Permian #6)
Site:	Donner, 30, Fed.	MD Reference:	WELL @ 3570.00ft (Permian #6)
Well:	#4	North Reference:	Grd
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

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

Site:	Donner, 30, Fed.
-------	------------------

Site Position:		Northing:	690,634.044 ft	Latitude:	32° 53' 54.639 N
From:	Map	Easting:	578,802.165 ft	Longitude:	104° 12' 40.571 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	0.07 °

Well		#4				
Well Position	+N/-S	0.00 ft	Northing:	690,634.044 ft	Latitude:	32° 53' 54.639 N
	+E/-W	0.00 ft	Easting:	578,802.165 ft	Longitude:	104° 12' 40.571 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	3,545.00 ft

Wellbore:	OH
-----------	----

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	01/27/2010	8.10	60.73	49,088

Design:	Plan #1
---------	---------

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	274.84

Survey Tool Program		Date: 01/27/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	9,735.48	Plan #1 (OH)		



Pathfinder Energy Services
Pathfinder X & Y Planning Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well #4
Project:	Eddy County	TVD Reference:	WELL @ 3570.00ft (Permian #6)
Site:	Donner 30 Fed	MD Reference:	WELL @ 3570.00ft (Permian #6)
Well:	#4	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)	
0 00	0.00	0.00	0.00	-3,570.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
100.00	0.00	0.00	100.00	-3,470.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
200.00	0.00	0.00	200.00	-3,370.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
300.00	0.00	0.00	300.00	-3,270.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
400.00	0.00	0.00	400.00	-3,170.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
500.00	0.00	0.00	500.00	-3,070.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
600.00	0.00	0.00	600.00	-2,970.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
700.00	0.00	0.00	700.00	-2,870.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
800.00	0.00	0.00	800.00	-2,770.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
900.00	0.00	0.00	900.00	-2,670.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
1,000.00	0.00	0.00	1,000.00	-2,570.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
1,100.00	0.00	0.00	1,100.00	-2,470.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
1,200.00	0.00	0.00	1,200.00	-2,370.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
1,300.00	0.00	0.00	1,300.00	-2,270.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
1,400.00	0.00	0.00	1,400.00	-2,170.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
1,500.00	0.00	0.00	1,500.00	-2,070.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
1,600.00	0.00	0.00	1,600.00	-1,970.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
1,700.00	0.00	0.00	1,700.00	-1,870.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
1,800.00	0.00	0.00	1,800.00	-1,770.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
1,900.00	0.00	0.00	1,900.00	-1,670.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
2,000.00	0.00	0.00	2,000.00	-1,570.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
2,100.00	0.00	0.00	2,100.00	-1,470.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
2,200.00	0.00	0.00	2,200.00	-1,370.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
2,300.00	0.00	0.00	2,300.00	-1,270.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
2,400.00	0.00	0.00	2,400.00	-1,170.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
2,500.00	0.00	0.00	2,500.00	-1,070.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
2,600.00	0.00	0.00	2,600.00	-970.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	



Pathfinder Energy Services
Pathfinder X & Y Planning Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #4
Project:	Eddy County	TVD Reference:	WELL @ 3570.00ft. (Permian #6)
Site:	Donner, 30 Fed	MD Reference:	WELL @ 3570.00ft. (Permian #6)
Well:	#4	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)	DLeg (%/100ft)	Northing (ft)	Easting (ft)	
2,700.00	0.00	0.00	2,700.00	-870.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
2,800.00	0.00	0.00	2,800.00	-770.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
2,900.00	0.00	0.00	2,900.00	-670.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
3,000.00	0.00	0.00	3,000.00	-570.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
3,100.00	0.00	0.00	3,100.00	-470.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
3,200.00	0.00	0.00	3,200.00	-370.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
3,300.00	0.00	0.00	3,300.00	-270.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
3,400.00	0.00	0.00	3,400.00	-170.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
3,500.00	0.00	0.00	3,500.00	-70.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
3,600.00	0.00	0.00	3,600.00	30.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
3,700.00	0.00	0.00	3,700.00	130.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
3,800.00	0.00	0.00	3,800.00	230.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
3,900.00	0.00	0.00	3,900.00	330.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
4,000.00	0.00	0.00	4,000.00	430.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
4,100.00	0.00	0.00	4,100.00	530.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
4,200.00	0.00	0.00	4,200.00	630.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
4,300.00	0.00	0.00	4,300.00	730.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
4,400.00	0.00	0.00	4,400.00	830.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
4,500.00	0.00	0.00	4,500.00	930.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
4,600.00	0.00	0.00	4,600.00	1,030.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
4,700.00	0.00	0.00	4,700.00	1,130.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
4,800.00	0.00	0.00	4,800.00	1,230.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
4,900.00	0.00	0.00	4,900.00	1,330.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
5,000.00	0.00	0.00	5,000.00	1,430.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
5,100.00	0.00	0.00	5,100.00	1,530.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
5,200.00	0.00	0.00	5,200.00	1,630.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	
5,300.00	0.00	0.00	5,300.00	1,730.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17	



Pathfinder Energy Services Pathfinder X & Y Planning Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #4
Project:	Eddy County	TVD Reference:	WELL @ 3570.00ft (Permian #6)
Site:	Donner 30 Fed	MD Reference:	WELL @ 3570.00ft (Permian #6)
Well:	#4	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)	DLeg (%/100ft)	Northing (ft)	Easting (ft)
5,400.00	0.00	0.00	5,400.00	1,830.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17
5,500.00	0.00	0.00	5,500.00	1,930.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17
5,600.00	0.00	0.00	5,600.00	2,030.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17
5,700.00	0.00	0.00	5,700.00	2,130.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17
5,800.00	0.00	0.00	5,800.00	2,230.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17
5,900.00	0.00	0.00	5,900.00	2,330.00	0.00	0.00	0.00	0.00	690,634.04	578,802.17
5,932.50	0.00	0.00	5,932.50	2,362.50	0.00	0.00	0.00	0.00	690,634.04	578,802.17
5,950.00	2.10	274.85	5,950.00	2,380.00	0.03	-0.32	0.32	12.00	690,634.07	578,801.85
5,975.00	5.10	274.85	5,974.94	2,404.94	0.16	-1.88	1.89	12.00	690,634.20	578,800.28
6,000.00	8.10	274.85	5,999.78	2,429.78	0.40	-4.75	4.76	12.00	690,634.45	578,797.42
6,025.00	11.10	274.85	6,024.42	2,454.42	0.76	-8.90	8.93	12.00	690,634.80	578,793.27
6,050.00	14.10	274.85	6,048.82	2,478.82	1.22	-14.33	14.38	12.00	690,635.26	578,787.83
6,075.00	17.10	274.85	6,072.89	2,502.89	1.78	-21.03	21.11	12.00	690,635.83	578,781.14
6,100.00	20.10	274.85	6,096.59	2,526.59	2.46	-28.97	29.08	12.00	690,636.50	578,773.19
6,125.00	23.10	274.85	6,119.83	2,549.83	3.24	-38.14	38.28	12.00	690,637.28	578,764.02
6,150.00	26.10	274.85	6,142.56	2,572.56	4.12	-48.51	48.68	12.00	690,638.16	578,753.66
6,175.00	29.10	274.85	6,164.71	2,594.71	5.10	-60.05	60.26	12.00	690,639.14	578,742.12
6,200.00	32.10	274.85	6,186.23	2,616.23	6.17	-72.73	72.99	12.00	690,640.21	578,729.44
6,225.00	35.10	274.85	6,207.05	2,637.05	7.34	-86.51	86.82	12.00	690,641.38	578,715.66
6,250.00	38.10	274.85	6,227.12	2,657.12	8.60	-101.36	101.72	12.00	690,642.64	578,700.81
6,275.00	41.10	274.85	6,246.38	2,676.38	9.95	-117.23	117.65	12.00	690,643.99	578,684.93
6,300.00	44.10	274.85	6,264.78	2,694.78	11.38	-134.09	134.57	12.00	690,645.42	578,668.07
6,325.00	47.10	274.85	6,282.27	2,712.27	12.89	-151.89	152.43	12.00	690,646.93	578,650.28
6,350.00	50.10	274.85	6,298.80	2,728.80	14.47	-170.57	171.18	12.00	690,648.52	578,631.60
6,375.00	53.09	274.85	6,314.33	2,744.33	16.13	-190.09	190.77	12.00	690,650.17	578,612.08
6,400.00	56.09	274.85	6,328.81	2,758.81	17.85	-210.39	211.14	12.00	690,651.90	578,591.78
6,425.00	59.09	274.85	6,342.21	2,772.21	19.64	-231.42	232.25	12.00	690,653.68	578,570.75



Pathfinder Energy Services
Pathfinder X & Y Planning Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #4
Project:	Eddy County	TVD Reference:	WELL @ 3570.00ft (Permian #6)
Site:	Donner 30 Fed.	MD Reference:	WELL @ 3570.00ft (Permian #6)
Well:	#4	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)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
6,450.00	62.09	274.85	6,354.48	2,784.48	21.48	-253.12	254.03	12.00	690,655.52	578,549.05
6,475.00	65.09	274.85	6,365.60	2,795.60	23.37	-275.42	276.41	12.00	690,657.41	578,526.74
6,500.00	68.09	274.85	6,375.53	2,805.53	25.31	-298.28	299.35	12.00	690,659.35	578,503.88
6,525.00	71.09	274.85	6,384.25	2,814.25	27.29	-321.63	322.78	12.00	690,661.33	578,480.54
6,550.00	74.09	274.85	6,391.73	2,821.73	29.31	-345.39	346.64	12.00	690,663.35	578,456.77
6,575.00	77.09	274.85	6,397.94	2,827.94	31.35	-369.52	370.85	12.00	690,665.40	578,432.65
6,600.00	80.09	274.85	6,402.89	2,832.89	33.43	-393.93	395.35	12.00	690,667.47	578,408.23
6,625.00	83.09	274.85	6,406.54	2,836.54	35.52	-418.57	420.08	12.00	690,669.56	578,383.59
6,650.00	86.09	274.85	6,408.90	2,838.90	37.62	-443.37	444.96	12.00	690,671.66	578,358.79
6,675.00	89.09	274.85	6,409.95	2,839.95	39.73	-468.26	469.94	12.00	690,673.78	578,333.91
6,685.74	90.38	274.85	6,410.00	2,840.00	40.64	-478.96	480.68	12.00	690,674.68	578,323.21
6,686.10	90.38	274.84	6,410.00	2,840.00	40.67	-479.32	481.04	2.00	690,674.71	578,322.85
6,700.00	90.38	274.84	6,409.91	2,839.91	41.84	-493.17	494.94	0.00	690,675.89	578,309.00
6,800.00	90.38	274.84	6,409.25	2,839.25	50.29	-592.81	594.94	0.00	690,684.33	578,209.36
6,900.00	90.38	274.84	6,408.59	2,838.59	58.73	-692.45	694.93	0.00	690,692.78	578,109.72
7,000.00	90.38	274.84	6,407.94	2,837.94	67.18	-792.09	794.93	0.00	690,701.22	578,010.08
7,100.00	90.38	274.84	6,407.28	2,837.28	75.62	-891.73	894.93	0.00	690,709.67	577,910.44
7,200.00	90.38	274.84	6,406.63	2,836.63	84.07	-991.37	994.93	0.00	690,718.11	577,810.80
7,300.00	90.38	274.84	6,405.97	2,835.97	92.51	-1,091.01	1,094.93	0.00	690,726.55	577,711.15
7,400.00	90.38	274.84	6,405.32	2,835.32	100.95	-1,190.65	1,194.92	0.00	690,735.00	577,611.51
7,500.00	90.38	274.84	6,404.66	2,834.66	109.40	-1,290.29	1,294.92	0.00	690,743.44	577,511.87
7,600.00	90.38	274.84	6,404.00	2,834.00	117.84	-1,389.93	1,394.92	0.00	690,751.89	577,412.23
7,700.00	90.38	274.84	6,403.35	2,833.35	126.29	-1,489.57	1,494.92	0.00	690,760.33	577,312.59
7,800.00	90.38	274.84	6,402.69	2,832.69	134.73	-1,589.21	1,594.91	0.00	690,768.78	577,212.95
7,900.00	90.38	274.84	6,402.04	2,832.04	143.18	-1,688.85	1,694.91	0.00	690,777.22	577,113.31
8,000.00	90.38	274.84	6,401.38	2,831.38	151.62	-1,788.50	1,794.91	0.00	690,785.66	577,013.67
8,100.00	90.38	274.84	6,400.73	2,830.73	160.06	-1,888.14	1,894.91	0.00	690,794.11	576,914.03



Pathfinder Energy Services
Pathfinder X & Y Planning Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well #4:
Project:	Eddy County	TVD Reference:	WELL @ 3570.00ft (Permian #6)
Site:	Donner 30 Fed	MD Reference:	WELL @ 3570.00ft (Permian #6)
Well:	#4	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)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
8,200.00	90.38	274.84	6,400.07	2,830.07	168.51	-1,987.78	1,994.91	0.00	690,802.55	576,814.39
8,300.00	90.38	274.84	6,399.41	2,829.41	176.95	-2,087.42	2,094.90	0.00	690,811.00	576,714.75
8,400.00	90.38	274.84	6,398.76	2,828.76	185.40	-2,187.06	2,194.90	0.00	690,819.44	576,615.11
8,500.00	90.38	274.84	6,398.10	2,828.10	193.84	-2,286.70	2,294.90	0.00	690,827.89	576,515.47
8,600.00	90.38	274.84	6,397.45	2,827.45	202.29	-2,386.34	2,394.90	0.00	690,836.33	576,415.83
8,700.00	90.38	274.84	6,396.79	2,826.79	210.73	-2,485.98	2,494.90	0.00	690,844.77	576,316.19
8,800.00	90.38	274.84	6,396.13	2,826.13	219.17	-2,585.62	2,594.89	0.00	690,853.22	576,216.54
8,900.00	90.38	274.84	6,395.48	2,825.48	227.62	-2,685.26	2,694.89	0.00	690,861.66	576,116.90
9,000.00	90.38	274.84	6,394.82	2,824.82	236.06	-2,784.90	2,794.89	0.00	690,870.11	576,017.26
9,100.00	90.38	274.84	6,394.17	2,824.17	244.51	-2,884.54	2,894.89	0.00	690,878.55	575,917.62
9,200.00	90.38	274.84	6,393.51	2,823.51	252.95	-2,984.18	2,994.88	0.00	690,887.00	575,817.98
9,300.00	90.38	274.84	6,392.86	2,822.86	261.40	-3,083.82	3,094.88	0.00	690,895.44	575,718.34
9,400.00	90.38	274.84	6,392.20	2,822.20	269.84	-3,183.46	3,194.88	0.00	690,903.88	575,618.70
9,500.00	90.38	274.84	6,391.54	2,821.54	278.28	-3,283.11	3,294.88	0.00	690,912.33	575,519.06
9,600.00	90.38	274.84	6,390.89	2,820.89	286.73	-3,382.75	3,394.88	0.00	690,920.77	575,419.42
9,700.00	90.38	274.84	6,390.23	2,820.23	295.17	-3,482.39	3,494.87	0.00	690,929.22	575,319.78
9,735.48	90.38	274.84	6,390.00	2,820.00	298.17	-3,517.74	3,530.36	0.00	690,932.21	575,284.42
PBHL(DON4)										



Pathfinder Energy Services
Pathfinder X & Y Planning Report



Company:	COG Operating LLC	Local/Co-ordinate Reference:	Well #4
Project:	Eddy County	TVD Reference:	WELL @ 3570.00ft (Permian #6)
Site:	Donner 30 Fed.	MD Reference:	WELL @ 3570.00ft (Permian #6)
Well:	#4	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 (ft)	+N/S (ft)	+E/W (ft)	Northing (ft)	Easting (ft)	Latitude Longitude
PBHL(DON4)	- plan hits target center - Point	0 00	0 00	6,390.00	298 17	-3,517.74	690,932.213	575,284.422	32° 53' 57 628 N 104° 13' 21.827 W

Checked By: _____ Approved By: _____ Date: _____



Azimuths to Grid North
True North: -0.07°
Magnetic North: 8.03°

Magnetic Field
Strength: 49087.8snT
Dip Angle: 60.73°
Date: 01/27/2010
Model: IGRF2010

PATHFINDER

Project: Eddy County
Site: Donner 30 Fed
Well: #4
Wellbore: OH
Plan: Plan #1 (#4/OH)

WELL DETAILS #4

Ground Elevation: 3545.00
RKB Elevation: WELL @ 3570.00R (Permian #6)
Rig Name: Permian #6

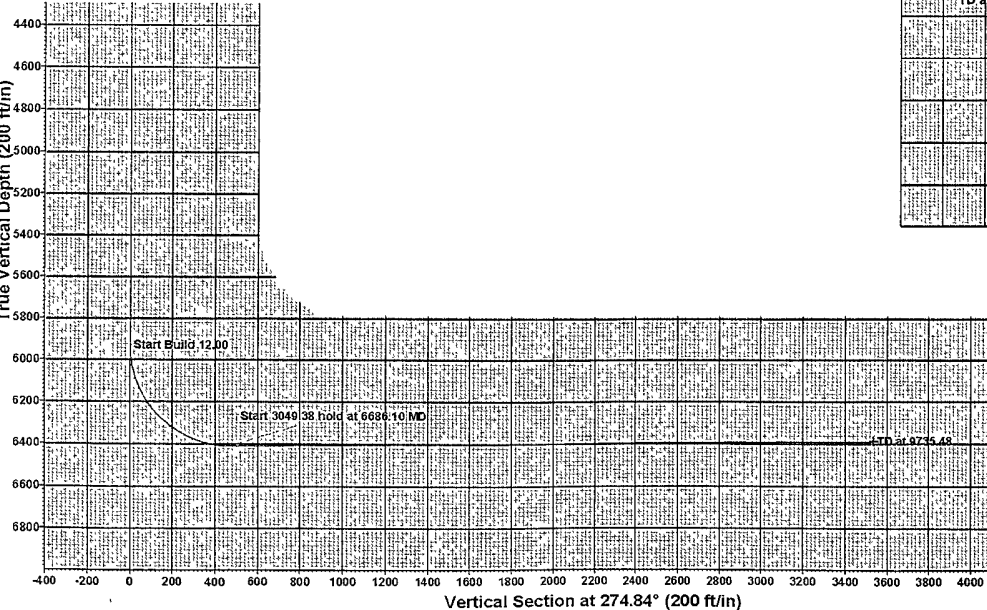
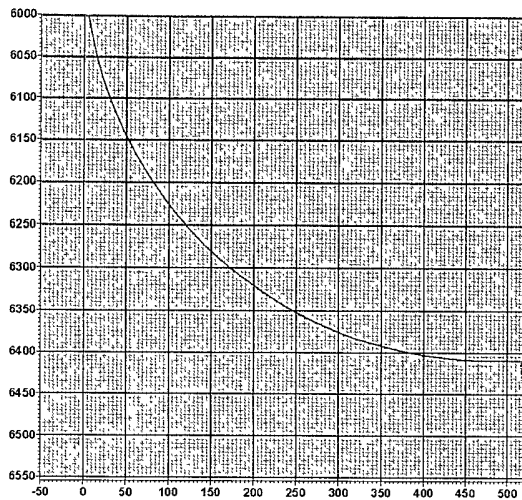
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Spot
0.00	0.00	690634.044	578902.165	32° 53' 54.639 N	104° 12' 40.571 W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5932.50	0.00	0.00	5932.50	0.00	0.00	0.00	0.00	0.00	
3	6685.74	90.38	274.85	6410.00	40.64	-478.96	12.00	274.85	480.68	
4	6686.10	90.38	274.84	6410.00	40.67	-479.32	2.00	-125.75	481.04	
5	9735.48	90.38	274.84	6390.00	298.17	-3517.74	0.00	0.00	3530.36	PBHL(DON4)

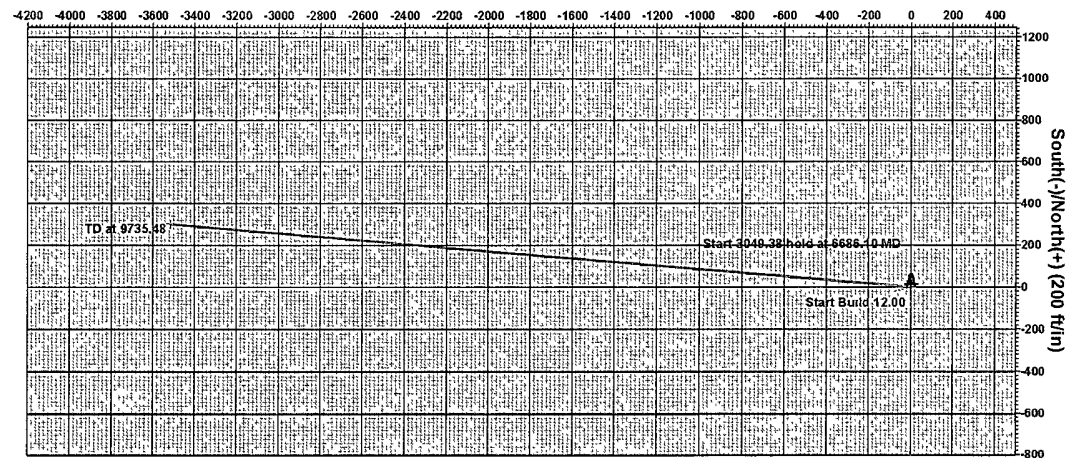
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL(DON4)	6390.00	298.17	-3517.74	690932.213	575284.422	Point



Vertical Section at 274.84° (200 ft/in)

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



PROJECT DETAILS: Eddy 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 (#4/OH)

Created By: Nate Bingham Date: 16:59, January 27 2010

Checked: _____ Date: _____

**PECOS DISTRICT
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	COG Operating LLC
LEASE NO.:	NM-54856
WELL NAME & NO.:	Donner 30 federal Com #4
SURFACE HOLE FOOTAGE:	330' FNL & 330' FEL
BOTTOM HOLE FOOTAGE	330' FNL & 330' FWL
LOCATION:	Section 30, T. 16 S., R 28 E., NMPM
COUNTY:	Eddy County, New Mexico

I. DRILLING

A. CASING

1. The 13-3/8 inch surface casing shall be set at **approximately 500 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the 7 inch intermediate casing is:
 - ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.
3. Cement not required on the 4-1/2" liner. **Packer system being used**

MAK 022210