

Submit 1 Copy To Appropriate District Office
 District I
 1625 N French Dr, Hobbs, NM 88240
 District II
 1301 W Grand Ave., 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

Form C-103
 October 13, 2009

OIL CONSERVATION DIVISION
 1220 South St. Francis Dr.
 Santa Fe, NM 87505

WELL API NO. 30-015-38072
5. Indicate Type of Lease STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas Lease No.
7. Lease Name or Unit Agreement Name SRO State Unit
8. Well Number 10H
9. OGRID Number 217955
10. Pool name or Wildcat Red Bluff; Bone Spring, South
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 2950'

SUNDRY NOTICES AND REPORTS ON WELLS
 (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well: Oil Well Gas Well Other

2. Name of Operator
COG Production LLC

3. Address of Operator
2208 W. Main Street, Artesia, NM 88210

4. Well Location
 Unit Letter D : 660 feet from the North line and 330 feet from the West line
 Section 3 Township 26S Range 28E NMPM Eddy County

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

<p>NOTICE OF INTENTION TO:</p> <p>PERFORM REMEDIAL WORK <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/></p> <p>TEMPORARILY ABANDON <input type="checkbox"/> CHANGE PLANS <input type="checkbox"/></p> <p>PULL OR ALTER CASING <input type="checkbox"/> MULTIPLE COMPL <input type="checkbox"/></p> <p>DOWNHOLE COMMINGLE <input type="checkbox"/></p> <p>OTHER: BHL Change <input checked="" type="checkbox"/></p>	<p>SUBSEQUENT REPORT OF:</p> <p>REMEDIAL WORK <input type="checkbox"/> ALTERING CASING <input type="checkbox"/></p> <p>COMMENCE DRILLING OPNS. <input type="checkbox"/> P AND A <input type="checkbox"/></p> <p>CASING/CEMENT JOB <input type="checkbox"/></p> <p>OTHER: <input type="checkbox"/></p>
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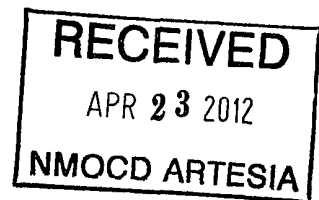
13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

COG Operating LLC respectfully requests approval for the following changes to the original APD.

BHL From: 660' FNL & 330' FEL UL: A Section 3-26S-28E
 To: 2310' FNL & 420' FWL UL: E Section 10-26S-8E

Attached is a new directional plan & well plats.

Updated TD is: 14,819' MD and 8070' TVD.
 Casing and cmtg program will remain the same.



Spud Date:

Rig Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Mayte Reyes TITLE: Regulatory Analyst DATE: 4/23/12

Type or print name: Mayte Reyes E-mail address: mreyes1@conchoresources.com PHONE: (575) 748-6945

APPROVED BY: J.C. Shepard TITLE: Geologist DATE: 4/23/2012
 Conditions of Approval (if any):

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 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 Road, 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

RECEIVED Form C-102
Revised August 1, 2011
APR 20 2012
Submit a copy to appropriate District Office
NMOC D ARTESIA
AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-38072	Pool Code 5101	Pool Name Red Bluff; Bone Spring, South
Property Code 37898	Property Name SRO STATE UNIT COM	Well Number 10H
OGRID No. 217955	Operator Name COG PRODUCTION, LLC	Elevation 2950'

Surface Location

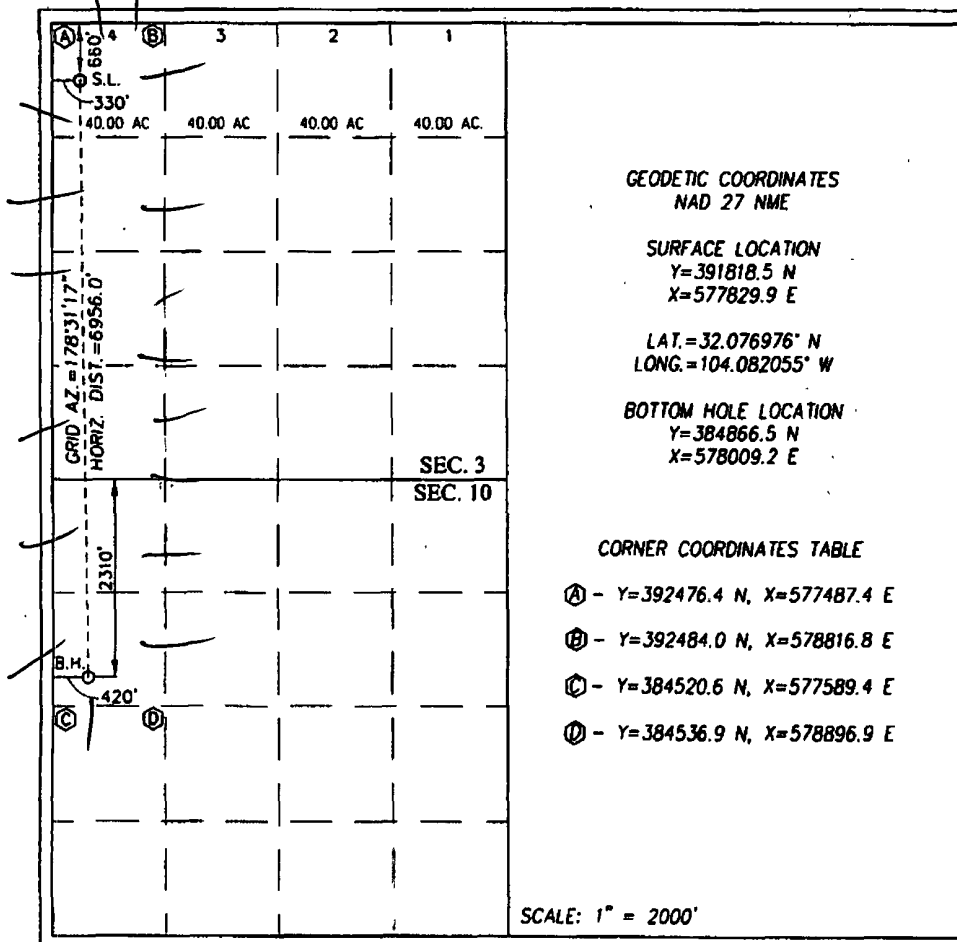
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
4	3	26-S	28-E		660	NORTH	330	WEST	EDDY

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
E	10	26-S	28-E		2310	NORTH	420	WEST	EDDY

Dedicated Acres 240	Joint or Infill	Consolidation Code	Order No.
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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



GEODETIC COORDINATES
NAD 27 NME

SURFACE LOCATION
Y=391818.5 N
X=577829.9 E

LAT.=32.076976° N
LONG.=104.082055° W

BOTTOM HOLE LOCATION
Y=384866.5 N
X=578009.2 E

CORNER COORDINATES TABLE

- Ⓐ - Y=392476.4 N, X=577487.4 E
- Ⓑ - Y=392484.0 N, X=578816.8 E
- Ⓒ - Y=384520.6 N, X=577589.4 E
- Ⓓ - Y=384536.9 N, X=578896.9 E

SCALE: 1" = 2000'

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.

Melanie Parker 4/23/12
Signature Date
Melanie J. Parker
Printed Name
m.parker@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.

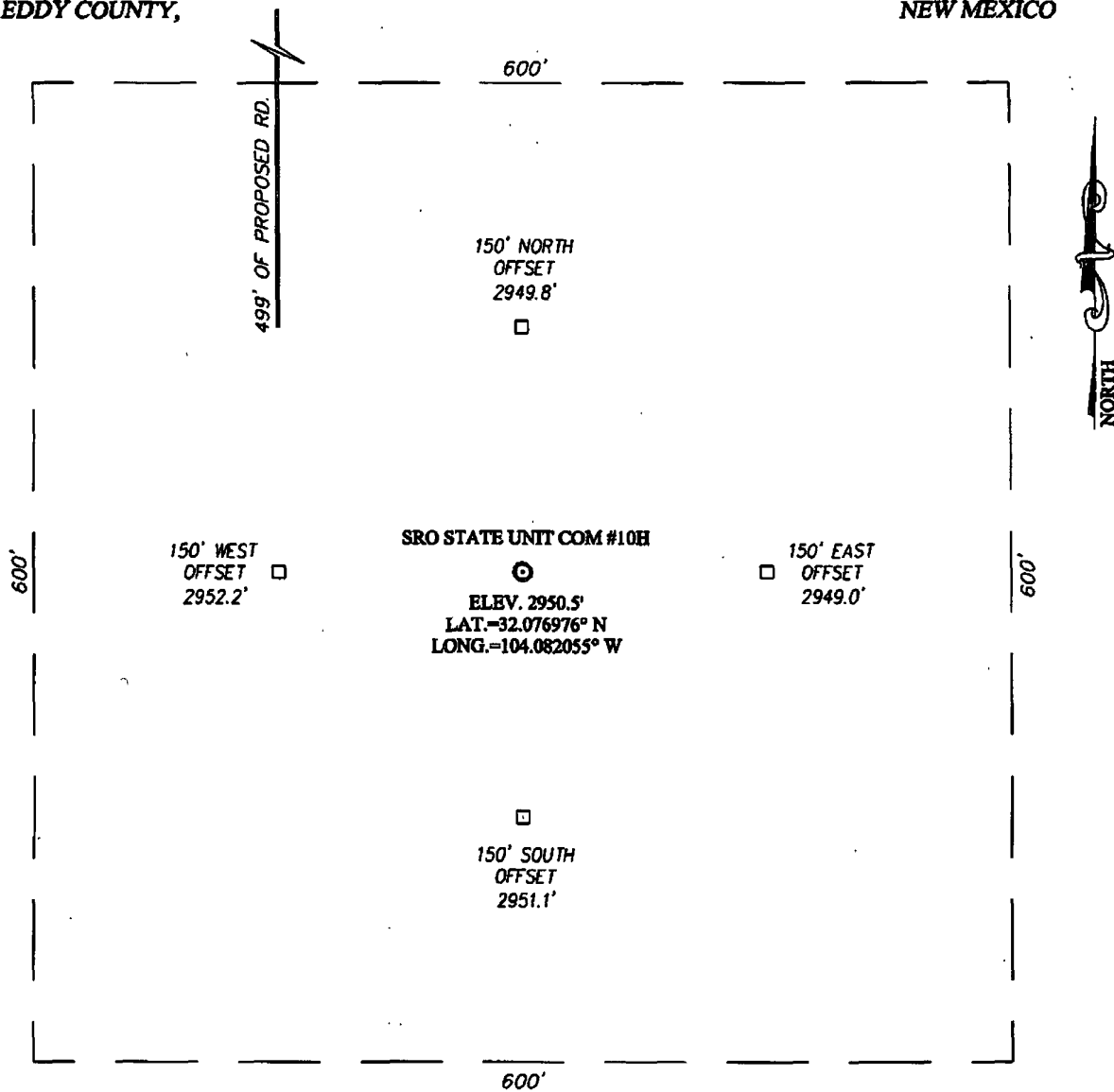
JULY 20, 2010

Date of Survey
Signature & Seal of Registered Surveyor:

Donald J. Eidson 7/18/2010
Certification No. 3239
Name: Donald J. Eidson
ID: 12641
DSS Ref. W.O. 1013
FWSC W.O.: 12.13.0748

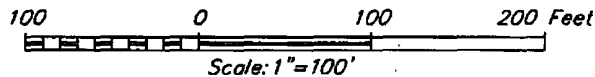
Sp. 93127

**SECTION 3, TOWNSHIP 26 SOUTH, RANGE 28 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO**



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF U.S. HWY. #285 AND CO. RD. #724 (WHITE CITY), GO WEST ON WHITE CITY RD. FOR APPROX. 1.8 MILES. TURN RIGHT AND GO NORTH APPROX. 1.1 MILES. TURN RIGHT AND GO EAST APPROX. 1.1 MILES TO A PROPOSED ROAD SURVEY. FOLLOW ROAD SURVEY SOUTH 499 FEET TO THE NORTHWEST CORNER OF THIS LOCATION.



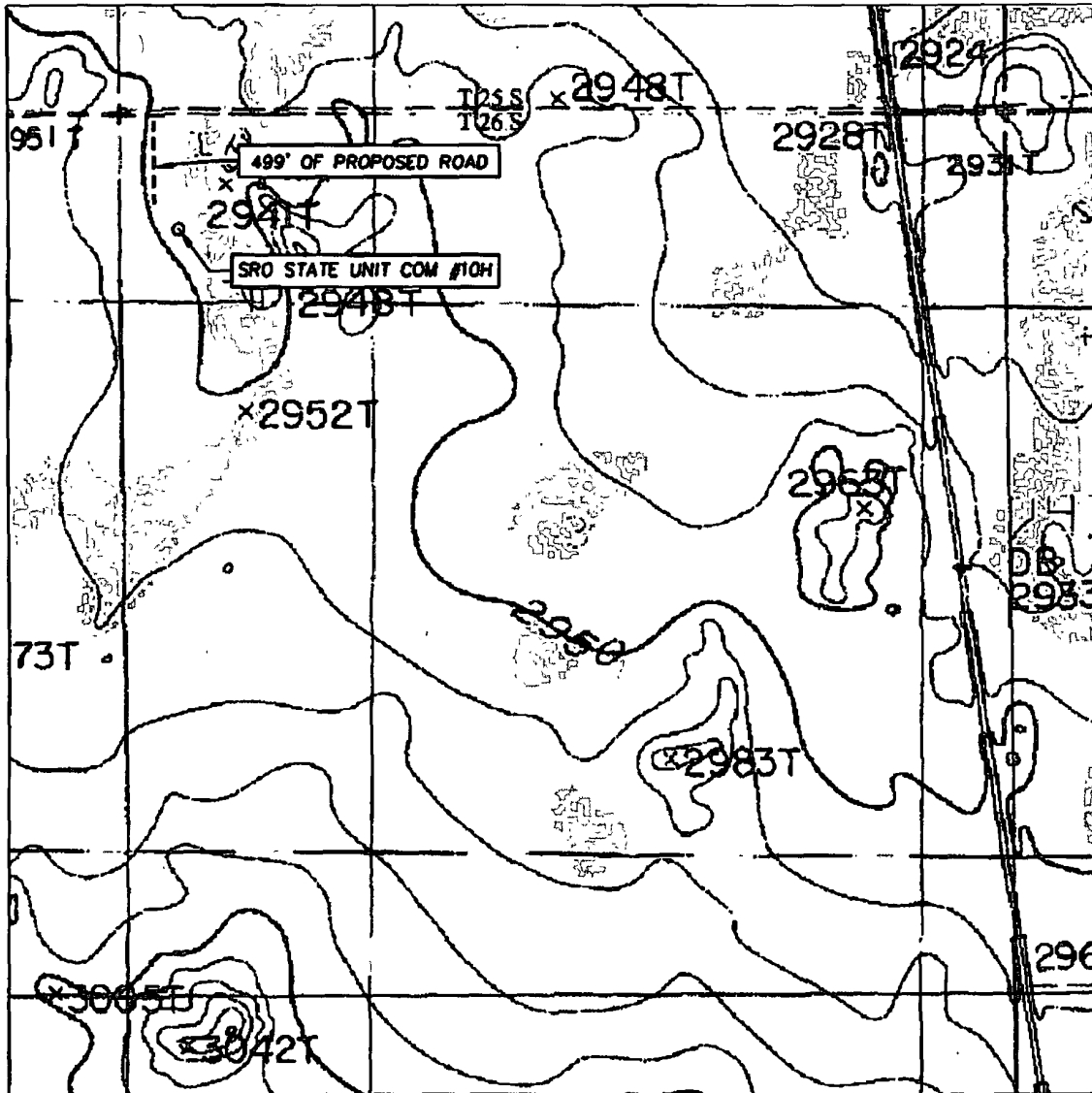
COG PRODUCTION, LLC

**SRO STATE UNIT COM #10H WELL
LOCATED 660 FEET FROM THE NORTH LINE
AND 330 FEET FROM THE WEST LINE OF SECTION 3,
TOWNSHIP 26 SOUTH, RANGE 28 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.**

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117 www.jwsc.biz

Survey Date: 7/20/10	CAD Date: 4/18/12	Drawn By: DSS
W.O. No.: 12130748	Rev. :	Rel. W.O.: 10131187
		Sheet 1 of 1

LOCATION VERIFICATION MAP



SCALE: 1" = 1000'

CONTOUR INTERVAL:
RED BLUFF, N.M. - 10'

SEC. 3 TWP. 26-S RGE. 28-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 660' FNL & 330' FWL

ELEVATION 2950'

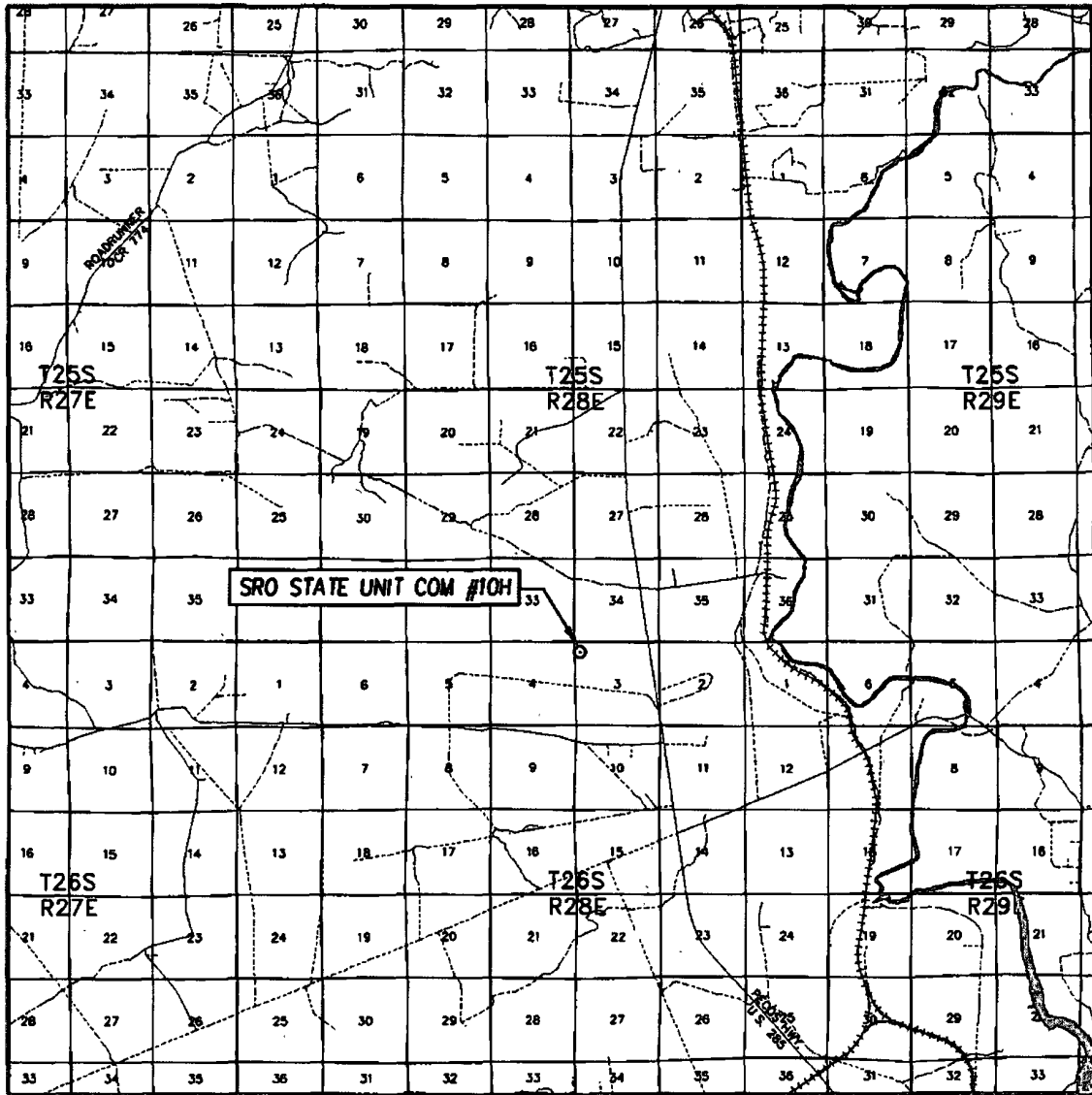
OPERATOR COG PRODUCTION, LLC

LEASE SRO STATE UNIT COM

U.S.G.S. TOPOGRAPHIC MAP
RED BLUFF, N.M.

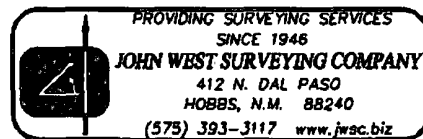
PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBBS, N.M. 88240
(575) 393-3117 www.jwsc.biz

VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 3 TWP. 26-S RGE. 28-E
 SURVEY N.M.P.M.
 COUNTY EDDY STATE NEW MEXICO
 DESCRIPTION 660' FNL & 330' FWL
 ELEVATION 2950'
 OPERATOR COG PRODUCTION, LLC
 LEASE SRO STATE UNIT COM





Project: Eddy County(NAD27)
 Site: SRO State Unit
 Well: #10H
 Wellbore: OH
 Plan: Plan #1 (#10H/OH)



Azimuths to Grid North
 True North: -0.13°
 Magnetic North: 7.57°

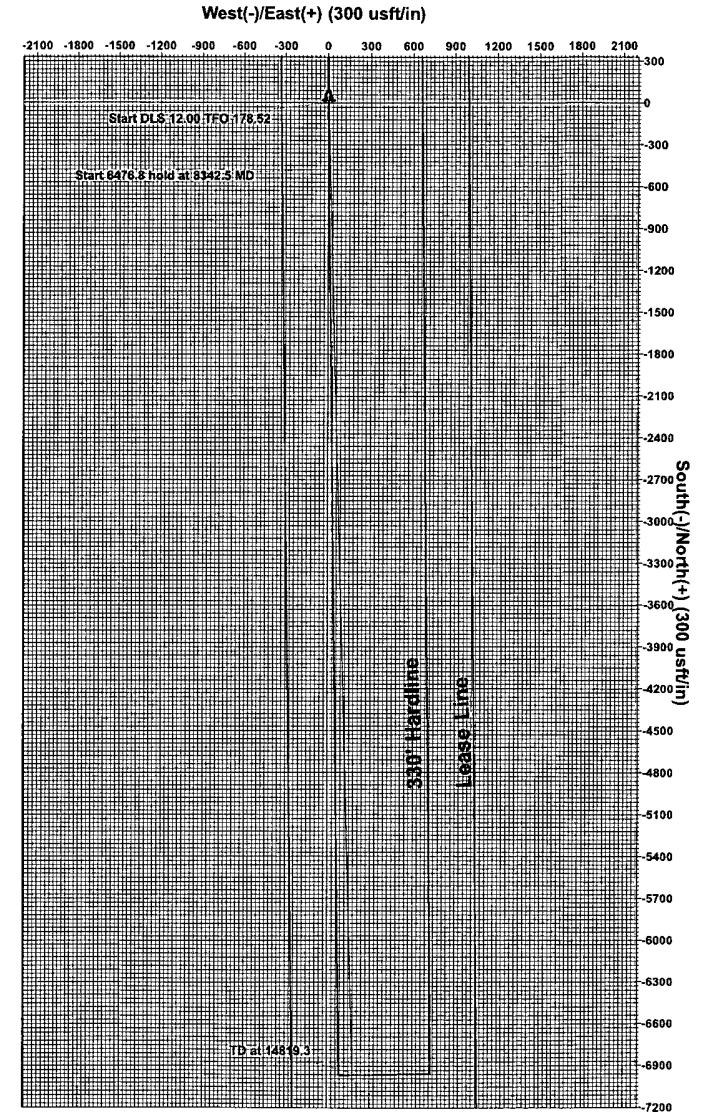
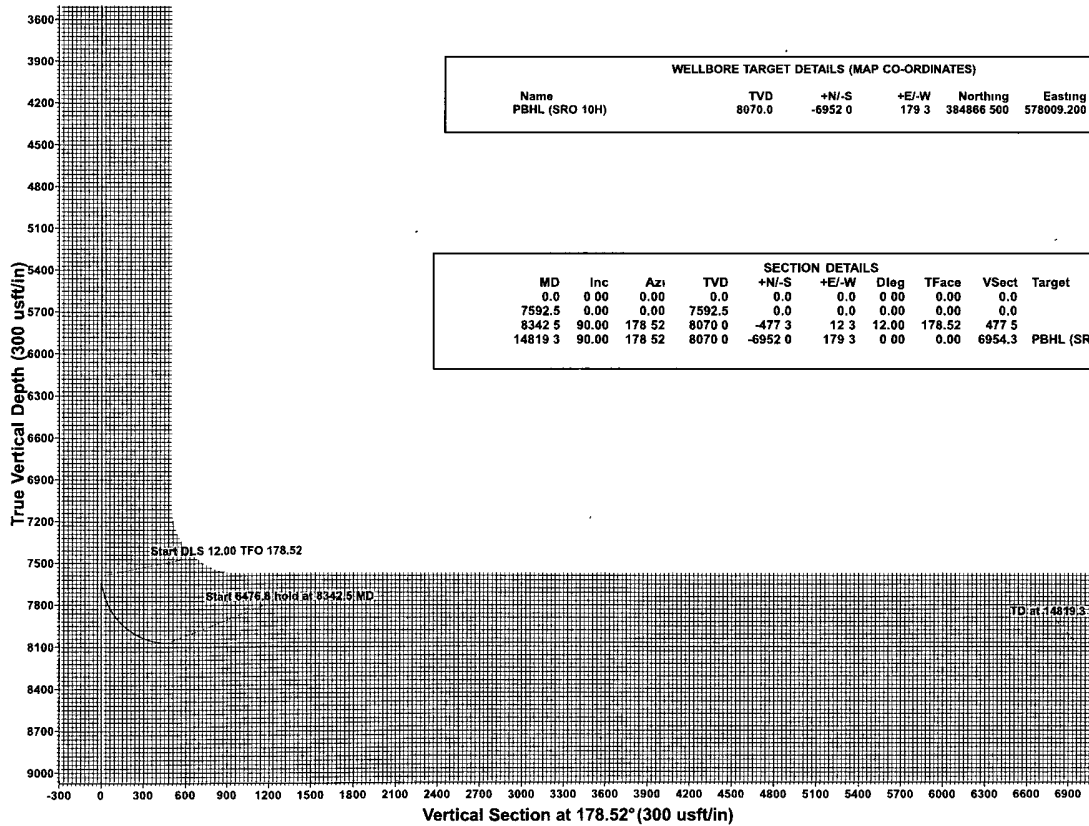
Magnetic Field
 Strength: 48389.5nT
 Dip Angle: 59.94°
 Date: 4/19/2012
 Model: IGRF2010

PROJECT DETAILS: Eddy County(NAD27)
 Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: New Mexico East 3001
 System Datum: Mean Sea Level
 Local North: Grid

WELL DETAILS, #10H						
Ground Elevation 2950.0						
RKB Elevation, KB = 17' @ 2967.0usft (Original Well Elev)						
Rig Name Original Well Elev						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	391818.500	577828.900	32.077	-104.082	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL (SRO 10H)	8070.0	-6952.0	179.3	384866.500	578009.200	Point

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
7592.5	0.00	0.00	7592.5	0.0	0.0	0.00	0.00	0.0	
8342.5	90.00	178.52	8070.0	-477.3	12.3	12.00	178.52	477.5	
14819.3	90.00	178.52	8070.0	-6952.0	179.3	0.00	6954.3		PBHL (SRO 10H)



Plan Plan #1 (#10H/OH)
 Created By Michael Trout Date 17 01, April 19 2012
 Checked _____ Date _____

COG Operating LLC
 Eddy County(NAD27)
 SRO State Unit
 #10H
 Original Well Elev
 OH
 Plan #1



COG Operating LLC

Eddy County(NAD27)

SRO State Unit

#10H

OH

Plan: Plan #1

Pathfinder X & Y Report

19 April, 2012



PATHFINDER[®]

A Schlumberger Company



Pathfinder
Pathfinder X & Y Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #10H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 17' @ 2967.0usft (Original Well Elev)
Site:	SRO State Unit	MD Reference:	KB = 17' @ 2967.0usft (Original Well Elev)
Well:	#10H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000 1 Single User Db

Project	Eddy County(NAD27)		
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	SRO State Unit				
Site Position:		Northing:	392,802.300 usft	Latitude:	32.080
From:	Map	Easting:	572,599.400 usft	Longitude:	-104.099
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.12 °

Well	#10H					
Well Position	+N/-S	0.0 usft	Northing:	391,818.500 usft	Latitude:	32.077
	+E/-W	0.0 usft	Easting:	577,829.900 usft	Longitude:	-104.082
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	2,950.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	4/19/2012	7.70	59.94	48,389

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	178.52

Survey Tool Program	Date	4/19/2012		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
0 0	14,819.3	Plan #1 (OH)		



Pathfinder
Pathfinder X & Y Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #10H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 17' @ 2967.0usft (Original Well Elev)
Site:	SRO State Unit	MD Reference:	KB = 17' @ 2967.0usft (Original Well Elev)
Well:	#10H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000 1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
0.0	0.00	0.00	0.0	-2,967.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
100.0	0.00	0.00	100.0	-2,867.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
200.0	0.00	0.00	200.0	-2,767.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
300.0	0.00	0.00	300.0	-2,667.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
400.0	0.00	0.00	400.0	-2,567.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
500.0	0.00	0.00	500.0	-2,467.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
600.0	0.00	0.00	600.0	-2,367.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
700.0	0.00	0.00	700.0	-2,267.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
800.0	0.00	0.00	800.0	-2,167.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
900.0	0.00	0.00	900.0	-2,067.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
1,000.0	0.00	0.00	1,000.0	-1,967.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
1,100.0	0.00	0.00	1,100.0	-1,867.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
1,200.0	0.00	0.00	1,200.0	-1,767.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
1,300.0	0.00	0.00	1,300.0	-1,667.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
1,400.0	0.00	0.00	1,400.0	-1,567.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
1,500.0	0.00	0.00	1,500.0	-1,467.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
1,600.0	0.00	0.00	1,600.0	-1,367.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
1,700.0	0.00	0.00	1,700.0	-1,267.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
1,800.0	0.00	0.00	1,800.0	-1,167.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
1,900.0	0.00	0.00	1,900.0	-1,067.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
2,000.0	0.00	0.00	2,000.0	-967.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
2,100.0	0.00	0.00	2,100.0	-867.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
2,200.0	0.00	0.00	2,200.0	-767.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
2,300.0	0.00	0.00	2,300.0	-667.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
2,400.0	0.00	0.00	2,400.0	-567.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
2,500.0	0.00	0.00	2,500.0	-467.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	
2,600.0	0.00	0.00	2,600.0	-367.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90	



Pathfinder
Pathfinder X & Y Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #10H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 17' @ 2967.0usft (Original Well Elev)
Site:	SRO State Unit	MD Reference:	KB = 17' @ 2967.0usft (Original Well Elev)
Well:	#10H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Single User Db

Planned Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
2,700.0	0.00	0.00	2,700.0	-267.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
2,800.0	0.00	0.00	2,800.0	-167.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
2,900.0	0.00	0.00	2,900.0	-67.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
3,000.0	0.00	0.00	3,000.0	33.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
3,100.0	0.00	0.00	3,100.0	133.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
3,200.0	0.00	0.00	3,200.0	233.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
3,300.0	0.00	0.00	3,300.0	333.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
3,400.0	0.00	0.00	3,400.0	433.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
3,500.0	0.00	0.00	3,500.0	533.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
3,600.0	0.00	0.00	3,600.0	633.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
3,700.0	0.00	0.00	3,700.0	733.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
3,800.0	0.00	0.00	3,800.0	833.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
3,900.0	0.00	0.00	3,900.0	933.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
4,000.0	0.00	0.00	4,000.0	1,033.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
4,100.0	0.00	0.00	4,100.0	1,133.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
4,200.0	0.00	0.00	4,200.0	1,233.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
4,300.0	0.00	0.00	4,300.0	1,333.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
4,400.0	0.00	0.00	4,400.0	1,433.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
4,500.0	0.00	0.00	4,500.0	1,533.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
4,600.0	0.00	0.00	4,600.0	1,633.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
4,700.0	0.00	0.00	4,700.0	1,733.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
4,800.0	0.00	0.00	4,800.0	1,833.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
4,900.0	0.00	0.00	4,900.0	1,933.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
5,000.0	0.00	0.00	5,000.0	2,033.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
5,100.0	0.00	0.00	5,100.0	2,133.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
5,200.0	0.00	0.00	5,200.0	2,233.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90
5,300.0	0.00	0.00	5,300.0	2,333.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90



Pathfinder
Pathfinder X & Y Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #10H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 17' @ 2967 0usft (Original Well Elev)
Site:	SRO State Unit	MD Reference:	KB = 17' @ 2967 0usft (Original Well Elev)
Well:	#10H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Single User Db

Planned Survey												
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)		
5,400.0	0.00	0.00	5,400.0	2,433.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
5,500.0	0.00	0.00	5,500.0	2,533.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
5,600.0	0.00	0.00	5,600.0	2,633.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
5,700.0	0.00	0.00	5,700.0	2,733.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
5,800.0	0.00	0.00	5,800.0	2,833.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
5,900.0	0.00	0.00	5,900.0	2,933.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
6,000.0	0.00	0.00	6,000.0	3,033.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
6,100.0	0.00	0.00	6,100.0	3,133.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
6,200.0	0.00	0.00	6,200.0	3,233.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
6,300.0	0.00	0.00	6,300.0	3,333.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
6,400.0	0.00	0.00	6,400.0	3,433.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
6,500.0	0.00	0.00	6,500.0	3,533.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
6,600.0	0.00	0.00	6,600.0	3,633.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
6,700.0	0.00	0.00	6,700.0	3,733.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
6,800.0	0.00	0.00	6,800.0	3,833.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
6,900.0	0.00	0.00	6,900.0	3,933.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
7,000.0	0.00	0.00	7,000.0	4,033.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
7,100.0	0.00	0.00	7,100.0	4,133.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
7,200.0	0.00	0.00	7,200.0	4,233.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
7,300.0	0.00	0.00	7,300.0	4,333.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
7,400.0	0.00	0.00	7,400.0	4,433.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
7,500.0	0.00	0.00	7,500.0	4,533.0	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
7,592.5	0.00	0.00	7,592.5	4,625.5	0.0	0.0	0.0	0.00	391,818.50	577,829.90		
7,600.0	0.90	178.52	7,600.0	4,633.0	-0.1	0.0	0.1	12.00	391,818.44	577,829.90		
7,625.0	3.90	178.52	7,625.0	4,658.0	-1.1	0.0	1.1	12.00	391,817.39	577,829.93		
7,650.0	6.90	178.52	7,649.9	4,682.9	-3.5	0.1	3.5	12.00	391,815.04	577,829.99		
7,675.0	9.90	178.52	7,674.6	4,707.6	-7.1	0.2	7.1	12.00	391,811.39	577,830.08		



Pathfinder
Pathfinder X & Y Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #10H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 17' @ 2967.0usft (Original Well Elev)
Site:	SRO State Unit	MD Reference:	KB = 17' @ 2967 0usft (Original Well Elev)
Well:	#10H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
7,700.0	12.90	178.52	7,699.1	4,732.1	-12.0	0.3	12.1	12.00	391,806.45	577,830.21	
7,725.0	15.90	178.52	7,723.3	4,756.3	-18.3	0.5	18.3	12.00	391,800.24	577,830.37	
7,750.0	18.90	178.52	7,747.2	4,780.2	-25.7	0.7	25.7	12.00	391,792.77	577,830.56	
7,775.0	21.90	178.52	7,770.6	4,803.6	-34.4	0.9	34.5	12.00	391,784.06	577,830.79	
7,800.0	24.90	178.52	7,793.5	4,826.5	-44.4	1.1	44.4	12.00	391,774.13	577,831.04	
7,825.0	27.90	178.52	7,815.9	4,848.9	-55.5	1.4	55.5	12.00	391,763.02	577,831.33	
7,850.0	30.90	178.52	7,837.7	4,870.7	-67.7	1.7	67.8	12.00	391,750.75	577,831.65	
7,875.0	33.90	178.52	7,858.8	4,891.8	-81.1	2.1	81.2	12.00	391,737.36	577,831.99	
7,900.0	36.90	178.52	7,879.2	4,912.2	-95.6	2.5	95.6	12.00	391,722.89	577,832.37	
7,925.0	39.90	178.52	7,898.8	4,931.8	-111.1	2.9	111.2	12.00	391,707.37	577,832.77	
7,950.0	42.90	178.52	7,917.5	4,950.5	-127.7	3.3	127.7	12.00	391,690.84	577,833.19	
7,975.0	45.90	178.52	7,935.4	4,968.4	-145.1	3.7	145.2	12.00	391,673.36	577,833.64	
8,000.0	48.90	178.52	7,952.3	4,985.3	-163.5	4.2	163.6	12.00	391,654.96	577,834.12	
8,025.0	51.90	178.52	7,968.2	5,001.2	-182.8	4.7	182.9	12.00	391,635.71	577,834.61	
8,050.0	54.90	178.52	7,983.1	5,016.1	-202.9	5.2	202.9	12.00	391,615.65	577,835.13	
8,075.0	57.90	178.52	7,997.0	5,030.0	-223.7	5.8	223.7	12.00	391,594.83	577,835.67	
8,100.0	60.90	178.52	8,009.7	5,042.7	-245.2	6.3	245.3	12.00	391,573.32	577,836.22	
8,125.0	63.90	178.52	8,021.3	5,054.3	-267.3	6.9	267.4	12.00	391,551.18	577,836.79	
8,150.0	66.90	178.52	8,031.7	5,064.7	-290.0	7.5	290.1	12.00	391,528.46	577,837.38	
8,175.0	69.90	178.52	8,040.9	5,073.9	-313.3	8.1	313.4	12.00	391,505.22	577,837.98	
8,200.0	72.90	178.52	8,048.9	5,081.9	-337.0	8.7	337.1	12.00	391,481.54	577,838.59	
8,225.0	75.90	178.52	8,055.6	5,088.6	-361.0	9.3	361.1	12.00	391,457.47	577,839.21	
8,250.0	78.90	178.52	8,061.0	5,094.0	-385.4	9.9	385.5	12.00	391,433.09	577,839.84	
8,275.0	81.90	178.52	8,065.2	5,098.2	-410.1	10.6	410.2	12.00	391,408.45	577,840.48	
8,300.0	84.90	178.52	8,068.1	5,101.1	-434.9	11.2	435.0	12.00	391,383.62	577,841.12	
8,325.0	87.90	178.52	8,069.6	5,102.6	-459.8	11.9	460.0	12.00	391,358.68	577,841.76	
8,342.5	90.00	178.52	8,070.0	5,103.0	-477.3	12.3	477.5	12.00	391,341.20	577,842.21	



Pathfinder
Pathfinder X & Y Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #10H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 17' @ 2967.0usft (Original Well Elev)
Site:	SRO State Unit	MD Reference:	KB = 17' @ 2967.0usft (Original Well Elev)
Well:	#10H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
8,400.0	90.00	178.52	8,070.0	5,103.0	-534.8	13.8	535.0	0.00	391,283.71	577,843.69	
8,500.0	90.00	178.52	8,070.0	5,103.0	-634.8	16.4	635.0	0.00	391,183.75	577,846.27	
8,600.0	90.00	178.52	8,070.0	5,103.0	-734.7	18.9	735.0	0.00	391,083.78	577,848.85	
8,700.0	90.00	178.52	8,070.0	5,103.0	-834.7	21.5	835.0	0.00	390,983.81	577,851.43	
8,800.0	90.00	178.52	8,070.0	5,103.0	-934.7	24.1	935.0	0.00	390,883.85	577,854.01	
8,900.0	90.00	178.52	8,070.0	5,103.0	-1,034.6	26.7	1,035.0	0.00	390,783.88	577,856.58	
9,000.0	90.00	178.52	8,070.0	5,103.0	-1,134.6	29.3	1,135.0	0.00	390,683.91	577,859.16	
9,100.0	90.00	178.52	8,070.0	5,103.0	-1,234.6	31.8	1,235.0	0.00	390,583.95	577,861.74	
9,200.0	90.00	178.52	8,070.0	5,103.0	-1,334.5	34.4	1,335.0	0.00	390,483.98	577,864.32	
9,300.0	90.00	178.52	8,070.0	5,103.0	-1,434.5	37.0	1,435.0	0.00	390,384.01	577,866.90	
9,400.0	90.00	178.52	8,070.0	5,103.0	-1,534.5	39.6	1,535.0	0.00	390,284.05	577,869.48	
9,500.0	90.00	178.52	8,070.0	5,103.0	-1,634.4	42.2	1,635.0	0.00	390,184.08	577,872.05	
9,600.0	90.00	178.52	8,070.0	5,103.0	-1,734.4	44.7	1,735.0	0.00	390,084.11	577,874.63	
9,700.0	90.00	178.52	8,070.0	5,103.0	-1,834.4	47.3	1,835.0	0.00	389,984.15	577,877.21	
9,800.0	90.00	178.52	8,070.0	5,103.0	-1,934.3	49.9	1,935.0	0.00	389,884.18	577,879.79	
9,900.0	90.00	178.52	8,070.0	5,103.0	-2,034.3	52.5	2,035.0	0.00	389,784.21	577,882.37	
10,000.0	90.00	178.52	8,070.0	5,103.0	-2,134.3	55.0	2,135.0	0.00	389,684.24	577,884.94	
10,100.0	90.00	178.52	8,070.0	5,103.0	-2,234.2	57.6	2,235.0	0.00	389,584.28	577,887.52	
10,200.0	90.00	178.52	8,070.0	5,103.0	-2,334.2	60.2	2,335.0	0.00	389,484.31	577,890.10	
10,300.0	90.00	178.52	8,070.0	5,103.0	-2,434.2	62.8	2,435.0	0.00	389,384.34	577,892.68	
10,400.0	90.00	178.52	8,070.0	5,103.0	-2,534.1	65.4	2,535.0	0.00	389,284.38	577,895.26	
10,500.0	90.00	178.52	8,070.0	5,103.0	-2,634.1	67.9	2,635.0	0.00	389,184.41	577,897.84	
10,600.0	90.00	178.52	8,070.0	5,103.0	-2,734.1	70.5	2,735.0	0.00	389,084.44	577,900.41	
10,700.0	90.00	178.52	8,070.0	5,103.0	-2,834.0	73.1	2,835.0	0.00	388,984.48	577,902.99	
10,800.0	90.00	178.52	8,070.0	5,103.0	-2,934.0	75.7	2,935.0	0.00	388,884.51	577,905.57	
10,900.0	90.00	178.52	8,070.0	5,103.0	-3,034.0	78.2	3,035.0	0.00	388,784.54	577,908.15	
11,000.0	90.00	178.52	8,070.0	5,103.0	-3,133.9	80.8	3,135.0	0.00	388,684.58	577,910.73	



Pathfinder
Pathfinder X & Y Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #10H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 17' @ 2967.0usft (Original Well Elev)
Site:	SRO State Unit	MD Reference:	KB = 17' @ 2967.0usft (Original Well Elev)
Well:	#10H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
11,100.0	90.00	178.52	8,070.0	5,103.0	-3,233.9	83.4	3,235.0	0.00	388,584.61	577,913.31	
11,200.0	90.00	178.52	8,070.0	5,103.0	-3,333.9	86.0	3,335.0	0.00	388,484.64	577,915.88	
11,300.0	90.00	178.52	8,070.0	5,103.0	-3,433.8	88.6	3,435.0	0.00	388,384.68	577,918.46	
11,400.0	90.00	178.52	8,070.0	5,103.0	-3,533.8	91.1	3,535.0	0.00	388,284.71	577,921.04	
11,500.0	90.00	178.52	8,070.0	5,103.0	-3,633.8	93.7	3,635.0	0.00	388,184.74	577,923.62	
11,600.0	90.00	178.52	8,070.0	5,103.0	-3,733.7	96.3	3,735.0	0.00	388,084.78	577,926.20	
11,700.0	90.00	178.52	8,070.0	5,103.0	-3,833.7	98.9	3,835.0	0.00	387,984.81	577,928.78	
11,800.0	90.00	178.52	8,070.0	5,103.0	-3,933.7	101.5	3,935.0	0.00	387,884.84	577,931.35	
11,900.0	90.00	178.52	8,070.0	5,103.0	-4,033.6	104.0	4,035.0	0.00	387,784.88	577,933.93	
12,000.0	90.00	178.52	8,070.0	5,103.0	-4,133.6	106.6	4,135.0	0.00	387,684.91	577,936.51	
12,100.0	90.00	178.52	8,070.0	5,103.0	-4,233.6	109.2	4,235.0	0.00	387,584.94	577,939.09	
12,200.0	90.00	178.52	8,070.0	5,103.0	-4,333.5	111.8	4,335.0	0.00	387,484.98	577,941.67	
12,300.0	90.00	178.52	8,070.0	5,103.0	-4,433.5	114.3	4,435.0	0.00	387,385.01	577,944.24	
12,400.0	90.00	178.52	8,070.0	5,103.0	-4,533.5	116.9	4,535.0	0.00	387,285.04	577,946.82	
12,500.0	90.00	178.52	8,070.0	5,103.0	-4,633.4	119.5	4,635.0	0.00	387,185.08	577,949.40	
12,600.0	90.00	178.52	8,070.0	5,103.0	-4,733.4	122.1	4,735.0	0.00	387,085.11	577,951.98	
12,700.0	90.00	178.52	8,070.0	5,103.0	-4,833.4	124.7	4,835.0	0.00	386,985.14	577,954.56	
12,800.0	90.00	178.52	8,070.0	5,103.0	-4,933.3	127.2	4,935.0	0.00	386,885.18	577,957.14	
12,900.0	90.00	178.52	8,070.0	5,103.0	-5,033.3	129.8	5,035.0	0.00	386,785.21	577,959.71	
13,000.0	90.00	178.52	8,070.0	5,103.0	-5,133.3	132.4	5,135.0	0.00	386,685.24	577,962.29	
13,100.0	90.00	178.52	8,070.0	5,103.0	-5,233.2	135.0	5,235.0	0.00	386,585.28	577,964.87	
13,200.0	90.00	178.52	8,070.0	5,103.0	-5,333.2	137.5	5,335.0	0.00	386,485.31	577,967.45	
13,300.0	90.00	178.52	8,070.0	5,103.0	-5,433.2	140.1	5,435.0	0.00	386,385.34	577,970.03	
13,400.0	90.00	178.52	8,070.0	5,103.0	-5,533.1	142.7	5,535.0	0.00	386,285.38	577,972.61	
13,500.0	90.00	178.52	8,070.0	5,103.0	-5,633.1	145.3	5,635.0	0.00	386,185.41	577,975.18	
13,600.0	90.00	178.52	8,070.0	5,103.0	-5,733.1	147.9	5,735.0	0.00	386,085.44	577,977.76	
13,700.0	90.00	178.52	8,070.0	5,103.0	-5,833.0	150.4	5,835.0	0.00	385,985.47	577,980.34	



Pathfinder
Pathfinder X & Y Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #10H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 17' @ 2967.0usft (Original Well Elev)
Site:	SRO State Unit	MD Reference:	KB = 17' @ 2967.0usft (Original Well Elev)
Well:	#10H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1.	Database:	EDM 5000.1 Single User Db

Planned Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
13,800.0	90 00	178.52	8,070.0	5,103.0	-5,933.0	153.0	5,935.0	0.00	385,885.51	577,982.92
13,900.0	90 00	178.52	8,070.0	5,103.0	-6,033.0	155.6	6,035.0	0.00	385,785.54	577,985.50
14,000.0	90 00	178.52	8,070.0	5,103.0	-6,132.9	158.2	6,135.0	0.00	385,685.57	577,988.08
14,100.0	90.00	178.52	8,070.0	5,103.0	-6,232.9	160.8	6,235.0	0.00	385,585.61	577,990.65
14,200.0	90.00	178.52	8,070.0	5,103.0	-6,332.9	163.3	6,335.0	0.00	385,485.64	577,993.23
14,300.0	90 00	178.52	8,070.0	5,103.0	-6,432.8	165.9	6,435.0	0.00	385,385.67	577,995.81
14,400.0	90.00	178.52	8,070.0	5,103.0	-6,532.8	168.5	6,535.0	0.00	385,285.71	577,998.39
14,500.0	90 00	178.52	8,070.0	5,103.0	-6,632.8	171.1	6,635.0	0.00	385,185.74	578,000.97
14,600.0	90.00	178.52	8,070.0	5,103.0	-6,732.7	173.6	6,735.0	0.00	385,085.77	578,003.54
14,700.0	90.00	178.52	8,070.0	5,103.0	-6,832.7	176.2	6,835.0	0.00	384,985.81	578,006.12
14,800.0	90.00	178.52	8,070.0	5,103.0	-6,932.7	178.8	6,935.0	0.00	384,885.84	578,008.70
14,819.3	90.00	178.52	8,070.0	5,103.0	-6,952.0	179.3	6,954.3	0.00	384,866.50	578,009.20

Checked By: _____ Approved By: _____ Date: _____