

**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 Rd., Aztec, NM 87410  
Phone (505) 334-6178 Fax (505) 334-6170

**District IV**

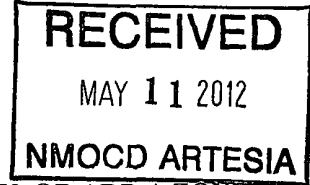
1220 S St Francis Dr., Santa Fe, NM 87505  
Phone (505) 476-3470 Fax (505) 476-3462

**State of New Mexico  
Energy, Minerals and Natural Resources**

**Oil Conservation Division  
1220 S. St Francis Dr.  
Santa Fe, NM 87505**

Form C-101  
August 1, 2011

Permit 148548



**APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE**

1 Operator Name and Address COG OPERATING LLC 550 W TEXAS MIDLAND, TX 79701		2 OGRID Number 229137
		3 API Number <i>30-015-40253</i>
4 Property Code 39212	5 Property Name SALADA VISTA 36 STATE	6 Well No 002H

**7. Surface Location**

UL - Lot	Section	Township	Range	Lot ldn	Feet From	N/S Line	Feet From	E/W Line	County
<i>D</i>	31	19S	31E	1	480	N	180	W	EDDY

**8. Pool Information**

GATUNA CANYON; BONE SPRING	96688
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**Additional Well Information**

9 Work Type New Well	10 Well Type OIL	11 Cable/Rotary	12 Lease Type State	13 Ground Level Elevation 3390
14 Multiple N	15 Proposed Depth 13736	16 Formation 2nd Bone Spring Sand	17 Contractor	18 Spud Date 5/16/2012
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

**19. Proposed Casing and Cement Program**

Type	Hole Size	Casing Type	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	17.5	13.375	54.5	425	350	
Int1	12.25	9.625	36	4000	1050	
Prod	7.875	5.5	17	13736	2000	3800

**Casing/Cement Program: Additional Comments**

Plan to drill a 17-1/2" hole to 425' with Fresh Water. Run 13-3/8", 54.5#, J-55 csg and cmt to surface. Drill 12-1/4" hole to 4000' with Brine, and run 9-5/8", 36#/40#, J55 and cement to surface in 2 stgs. Drill 7-7/8" vertical, curve and lateral with cut brine to approx 13,736' MD. Run 5-1/2", 17#, P-110 csg and cement to 3800' in 1 stage.

**Proposed Blowout Prevention Program**

Type	Working Pressure	Test Pressure	Manufacturer
DoubleRam	3000	3000	Cameron

I hereby certify that the information given above is true and complete to the best of my knowledge and belief I further certify that the drilling pit will be constructed according to NMOC D guidelines <input type="checkbox"/> , a general permit <input type="checkbox"/> , or an (attached) alternative OCD-approved plan <input type="checkbox"/> .	<b>OIL CONSERVATION DIVISION</b>	
	Approved By: <i>J.C. Shepard</i>	
	Printed Name: <i>J.C. Shepard</i>	Title: <i>65010 5151</i>
	Title:	Approved Date: <i>5/11/2012</i> Expiration Date: <i>5/11/2014</i>
Email Address:		

**RECEIVED**  
MAY 11 2012  
Form C-102  
NMOCG ARTESIA

**District I**  
1625 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 & Natural Resources Department  
**OIL CONSERVATION DIVISION**  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Revised October 1, 2009  
Submit one copy to appropriate  
District Office

AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

API Number <b>30-015-40253</b>	Pool Code <b>96688</b>	Pool Name <b>BATUNA CANYON, BOWE SPRING</b>
Property Code <b>39212</b>	Property Name <b>SALADA VISTA 36 STATE</b>	Well Number <b>2H</b>
OGRID No. <b>229137</b>	Operator Name <b>COG OPERATING, LLC</b>	Elevation <b>3389.9</b>

**Surface Location**

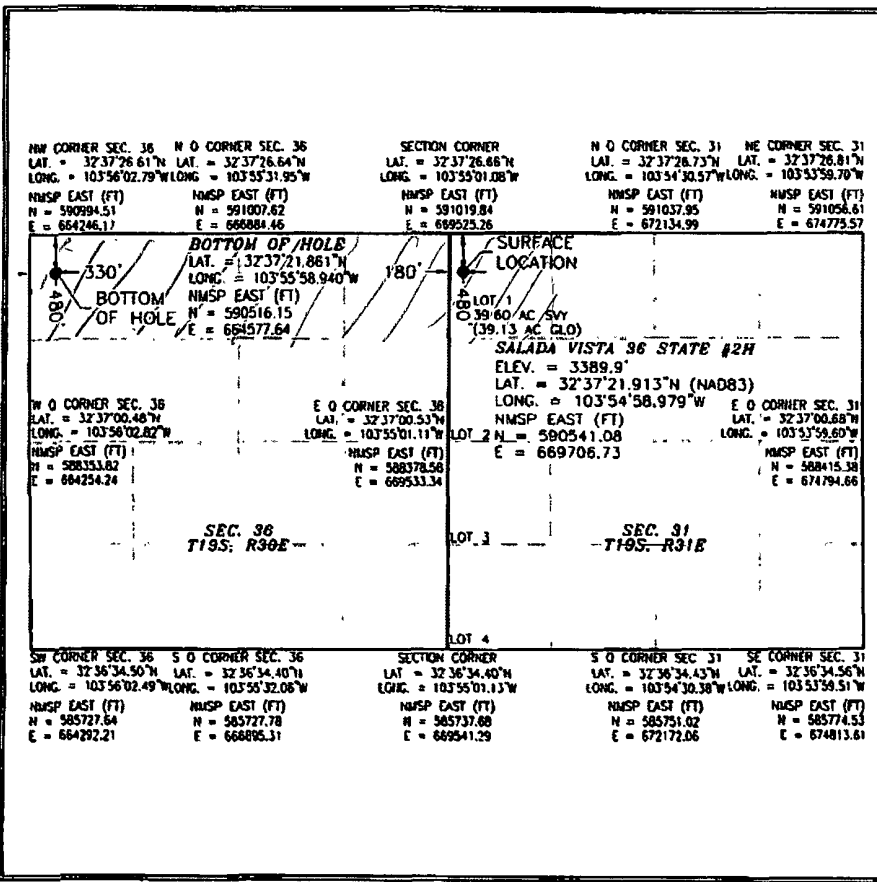
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	31	19 S	31 E		480	NORTH	180	WEST	EDDY

**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
D	36	19 S	30 E		480	NORTH	330	WEST	EDDY

Dedicated Acres	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.



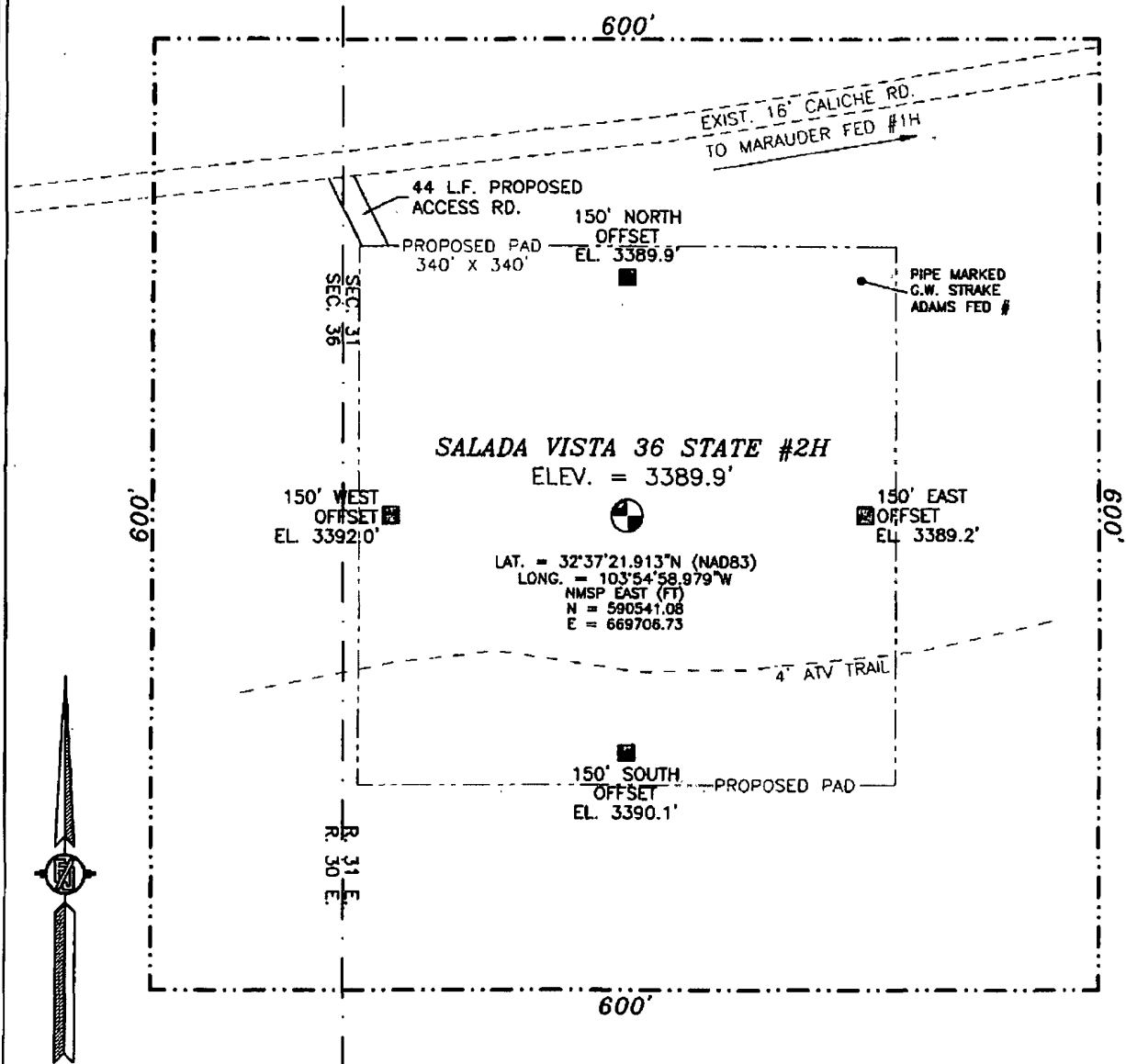
**17 OPERATOR CERTIFICATION**  
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right 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.

*Rand French* 4-30-12  
Signature Date  
Printed Name  
**Rand French**

**18 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.

APRIL 26 2012  
NEW MEXICO  
Date of Survey  
*Filmon F. Ramirez*  
Signature and Seal of Professional Surveyor  
Certification No. 11111, FILMON F. RAMIREZ, PLS 12797  
SURVEY NO. 977

SECTION 31, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO



LAT. = 32°37'21.913"N (NAD83)  
 LONG. = 103°54'58.979"W  
 NMSP EAST (FT)  
 N = 590541.08  
 E = 669706.73

SALADA VISTA 36 STATE #2H  
 ELEV. = 3389.9'

150' WEST  
 OFFSET  
 EL. 3392.0'

150' EAST  
 OFFSET  
 EL. 3389.2'

150' SOUTH  
 OFFSET  
 EL. 3390.1'

0 10 50 100 200  
 SCALE 1" = 100'

DIRECTIONS TO LOCATION  
 INTERSECTION BLUE STEM (STATE HWY 360) AND CR (222) SHUGART  
 GO EAST ON CR 222 3.2 MILES TURN LEFT ON CALICHE LEASE RD.  
 GO NORTH 0.7 MILES TURN RIGHT ON CALICHE LEASE RD. GO EAST  
 0.35 MILES SITE IS ABOUT 200 FT. ON RIGHT (SOUTH)

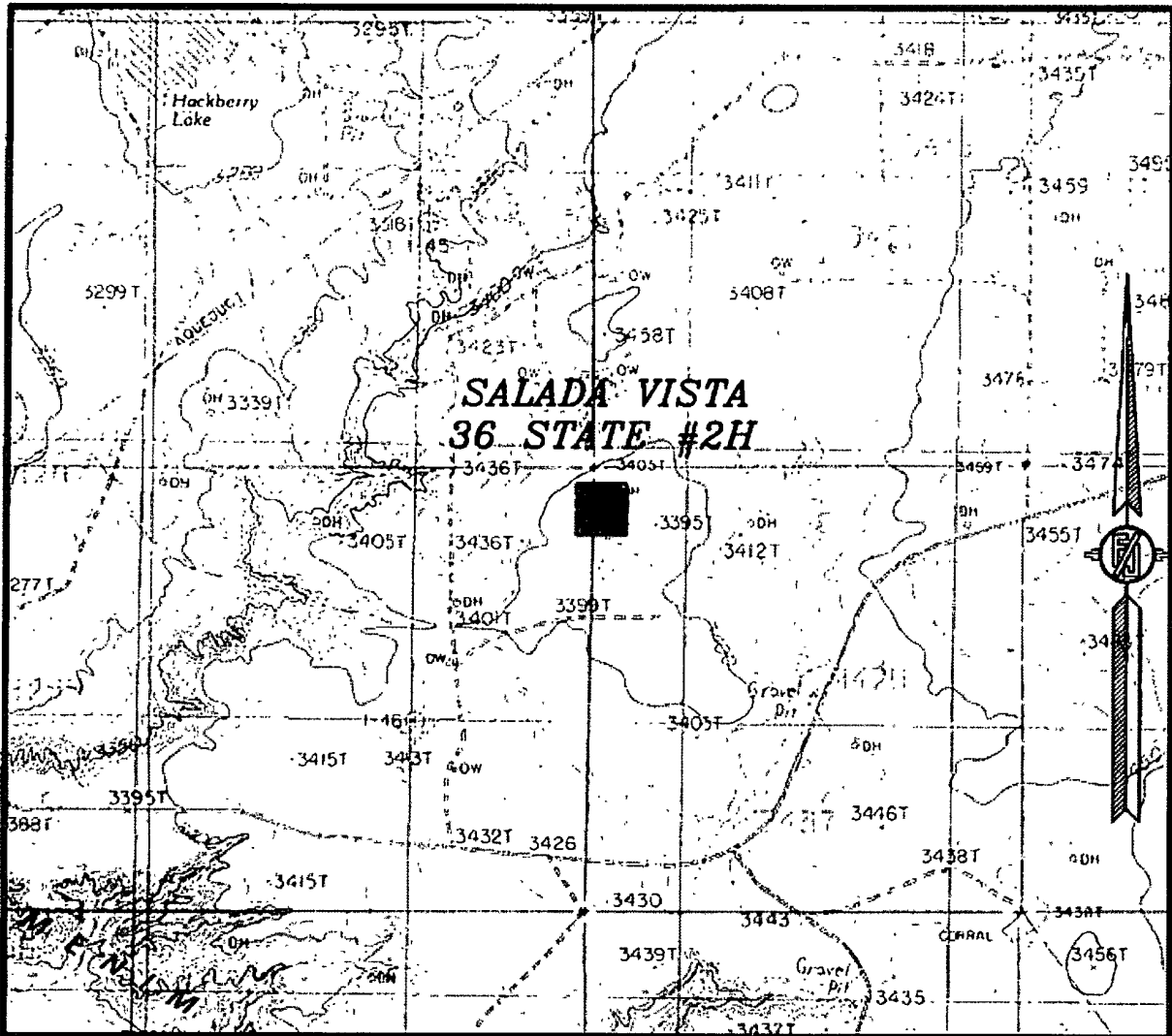
COG OPERATING LLC  
 SALADA VISTA 36 STATE #2H  
 LOCATED 480 FT. FROM THE NORTH LINE  
 AND 180 FT. FROM THE WEST LINE OF  
 SECTION 31, TOWNSHIP 19 SOUTH,  
 RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

SURVEY NO. 977

APRIL 26, 2012

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 31, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 LOCATION VERIFICATION MAP



USGS QUAD MAP:  
 TOWER HILL NORTH

NOT TO SCALE

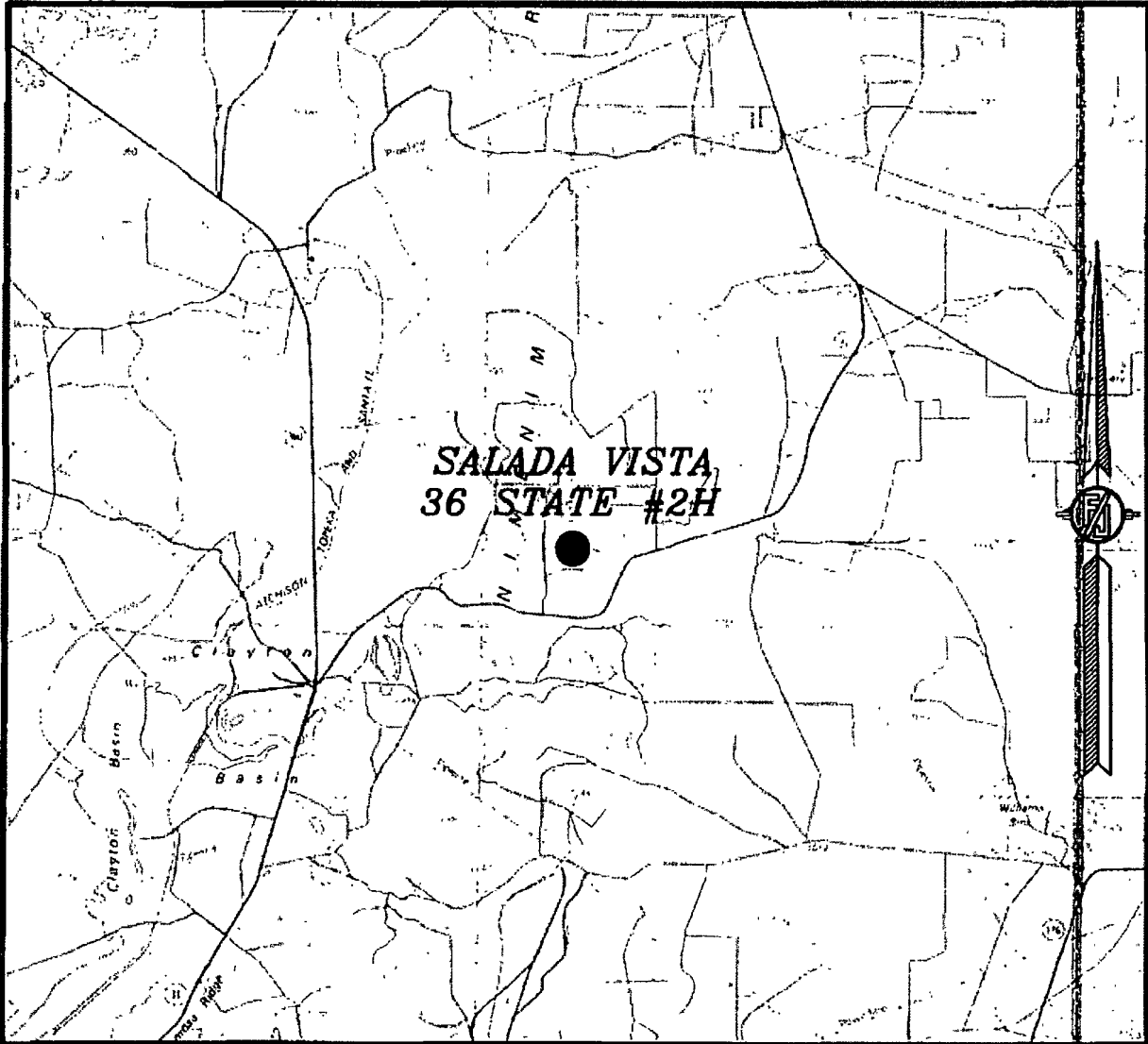
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EDDY COUNTY, STATE OF NEW MEXICO  
VICINITY MAP



NOT TO SCALE

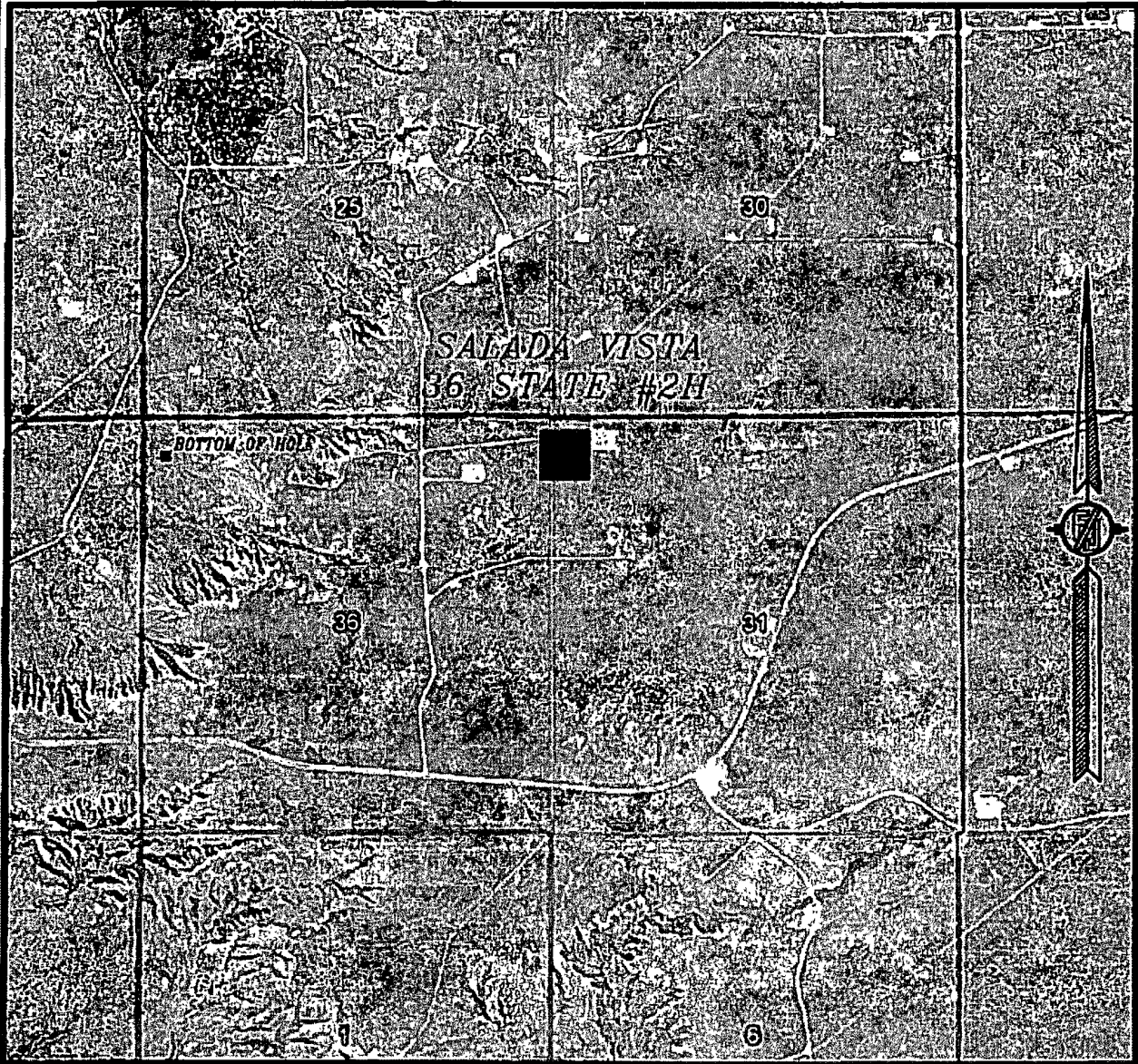
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EDDY COUNTY, STATE OF NEW MEXICO

APRIL 26, 2012

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MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO  
(575) 234-3341

SECTION 31, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
AERIAL PHOTO



NOT TO SCALE  
AERIAL PHOTO:  
GOOGLE EARTH  
MARCH 2012

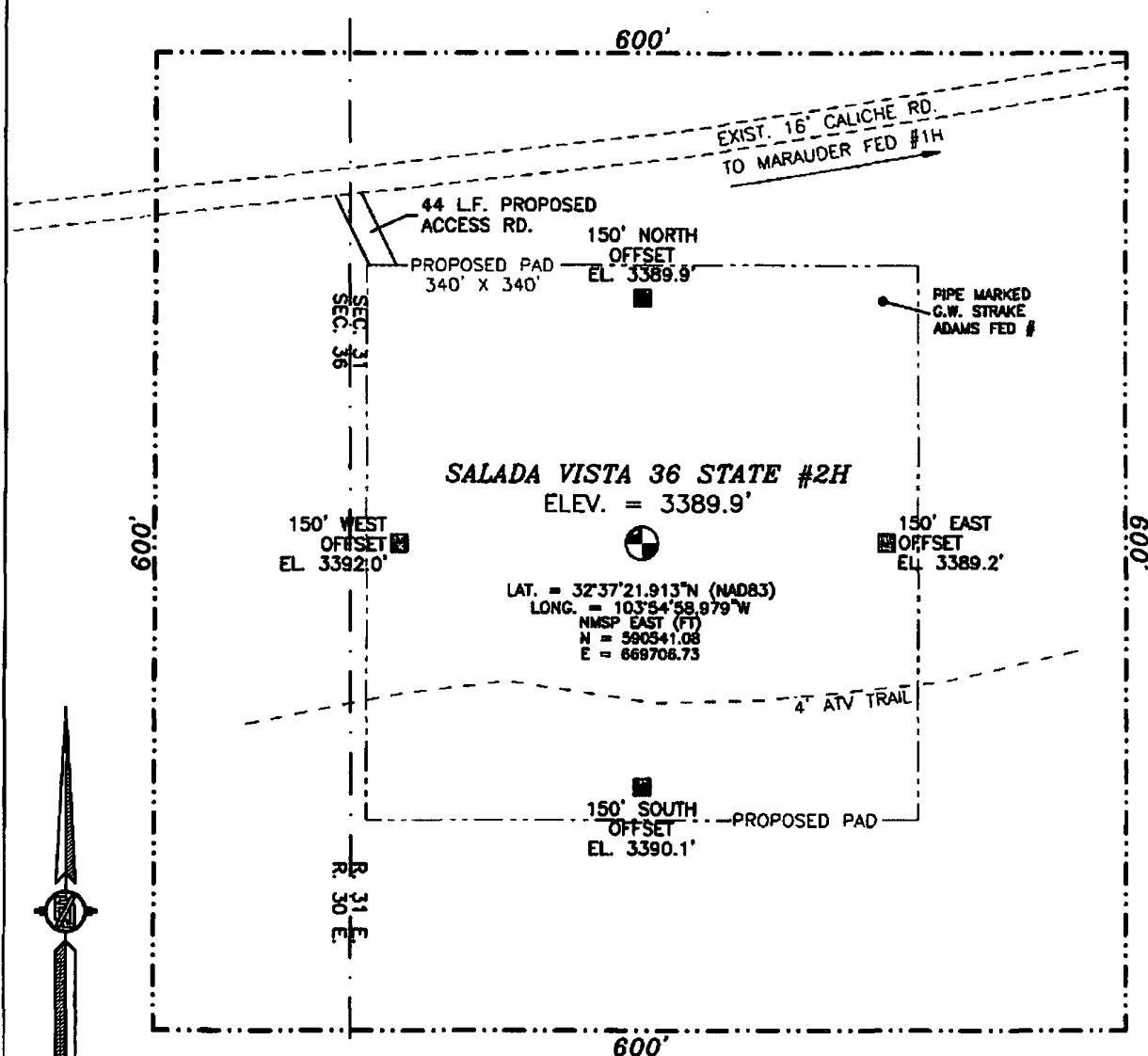
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SECTION 31, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO



LAT. = 32°37'21.913"N (NAD83)  
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 NAD83 EAST (FT)  
 N = 590341.08  
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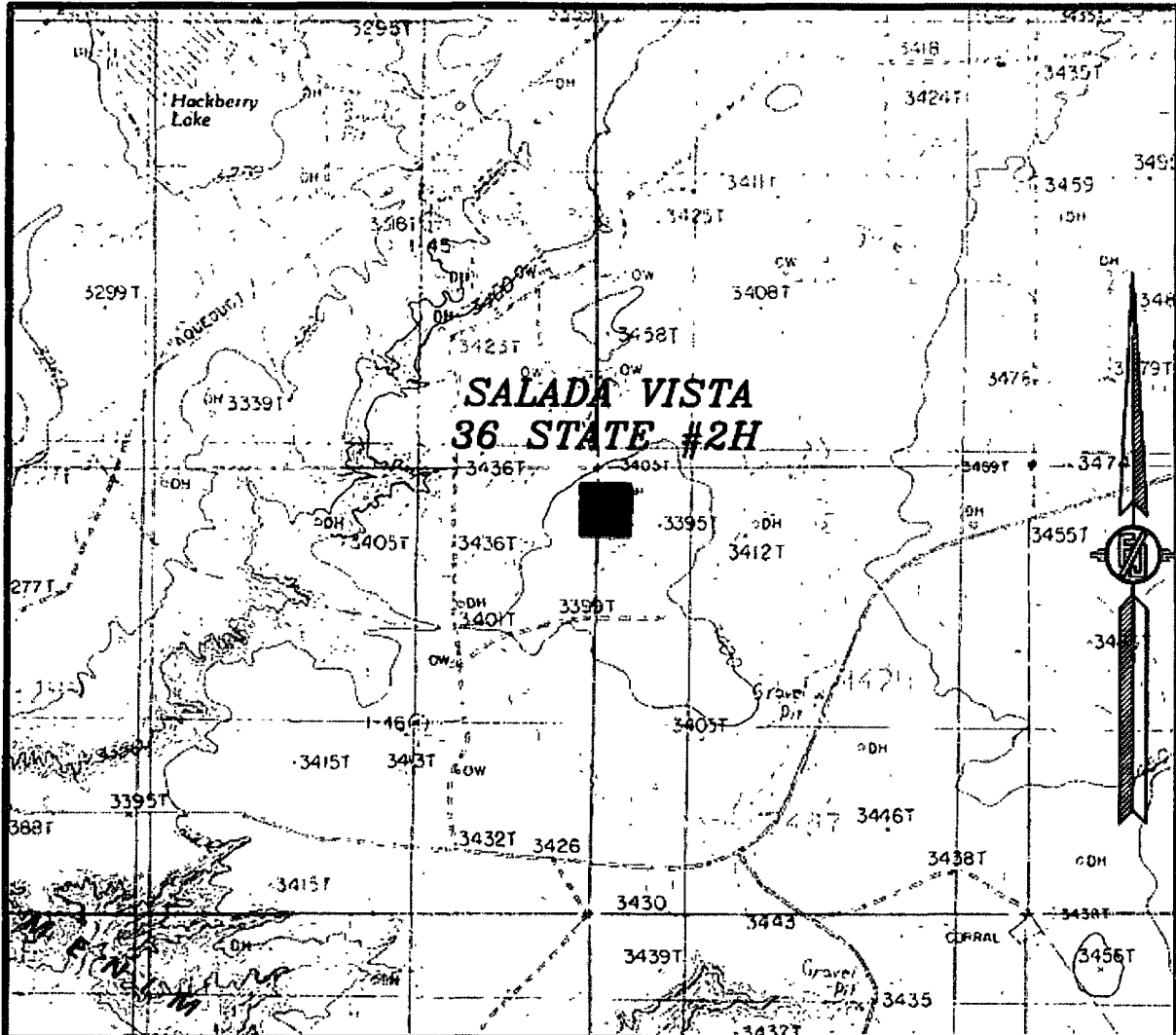


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 (575) 234-3341  
 APRIL 26, 2012

SECTION 31, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 LOCATION VERIFICATION MAP



USGS QUAD MAP:  
 TOWER HILL NORTH

NOT TO SCALE

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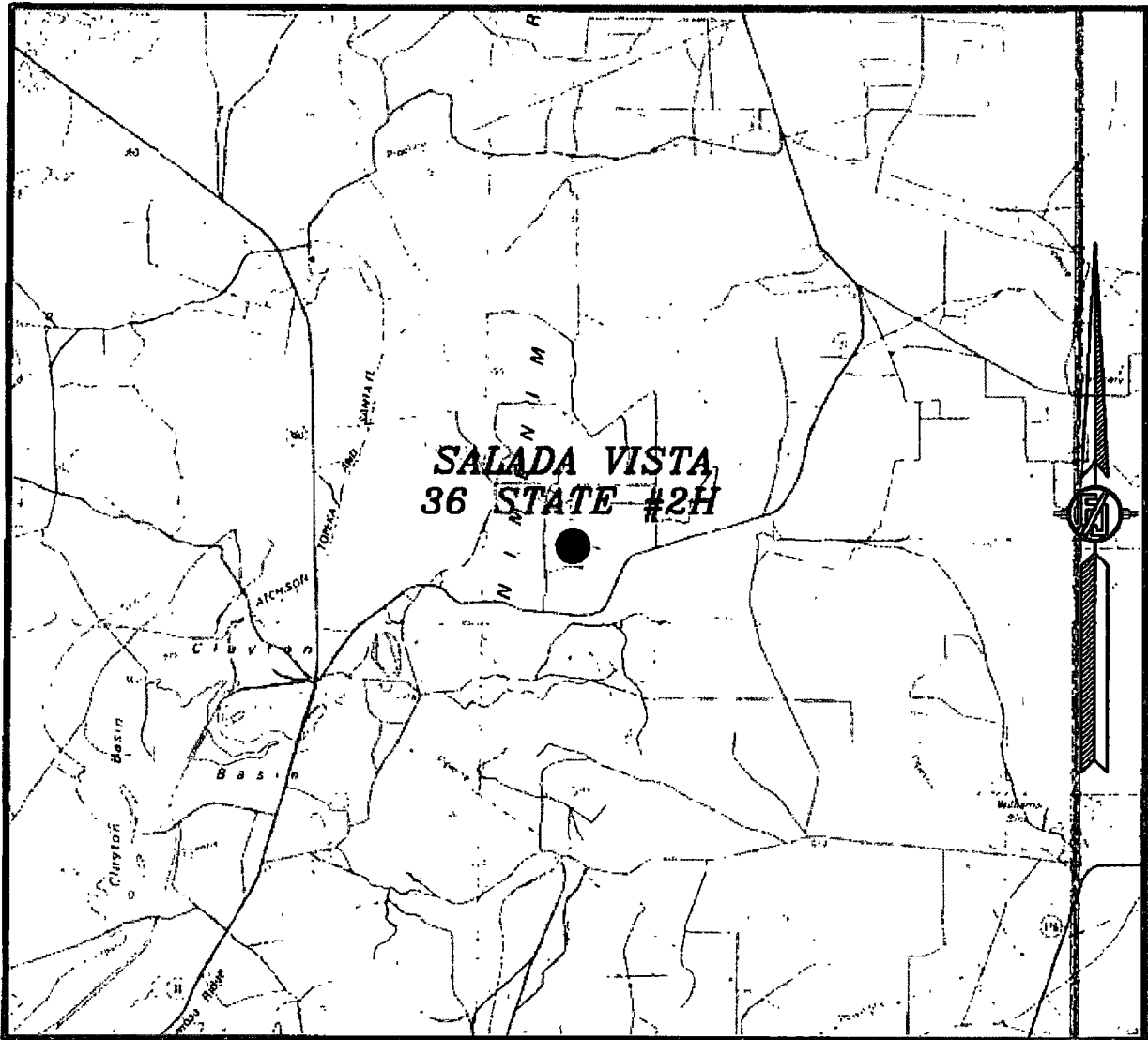
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 (575) 234-3341



**SECTION 31, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
VICINITY MAP**



NOT TO SCALE

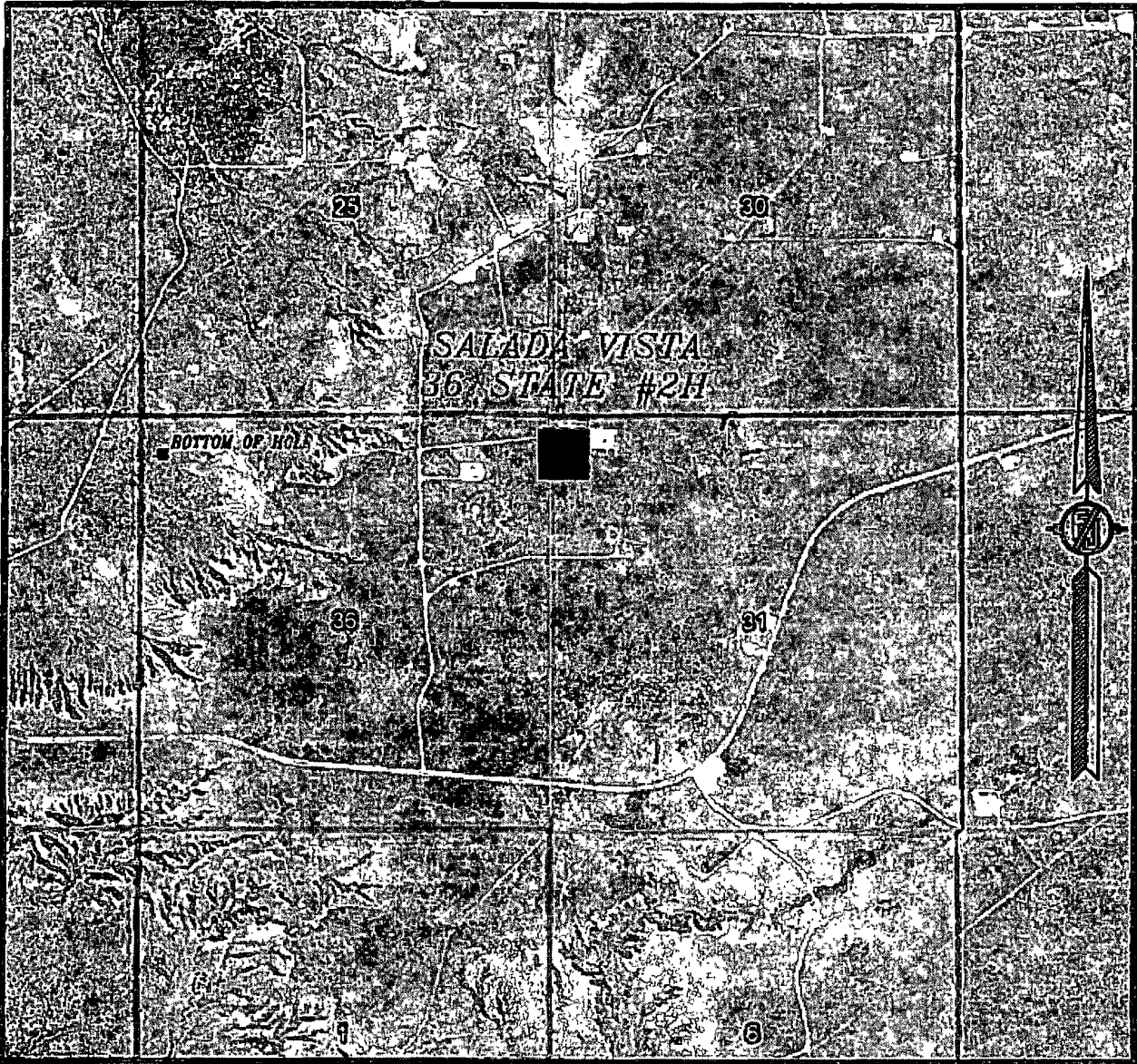
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AERIAL PHOTO



NOT TO SCALE  
AERIAL PHOTO:  
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MARCH 2012

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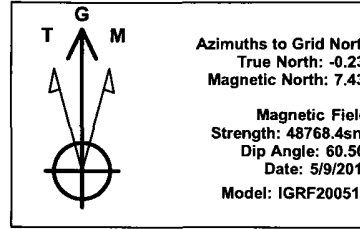
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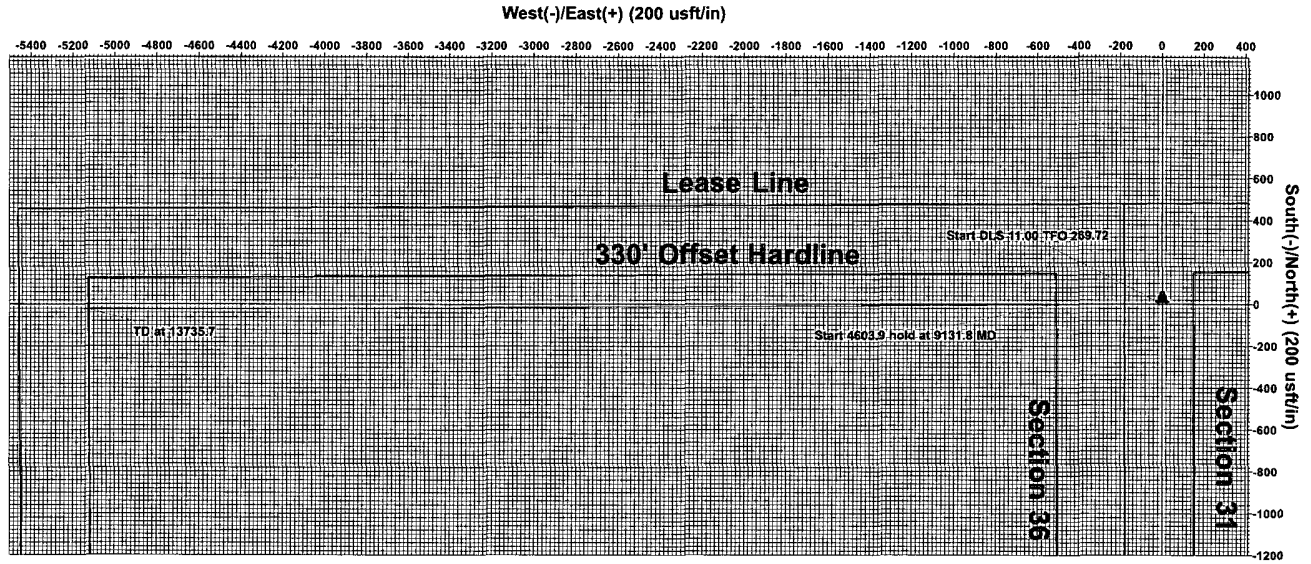
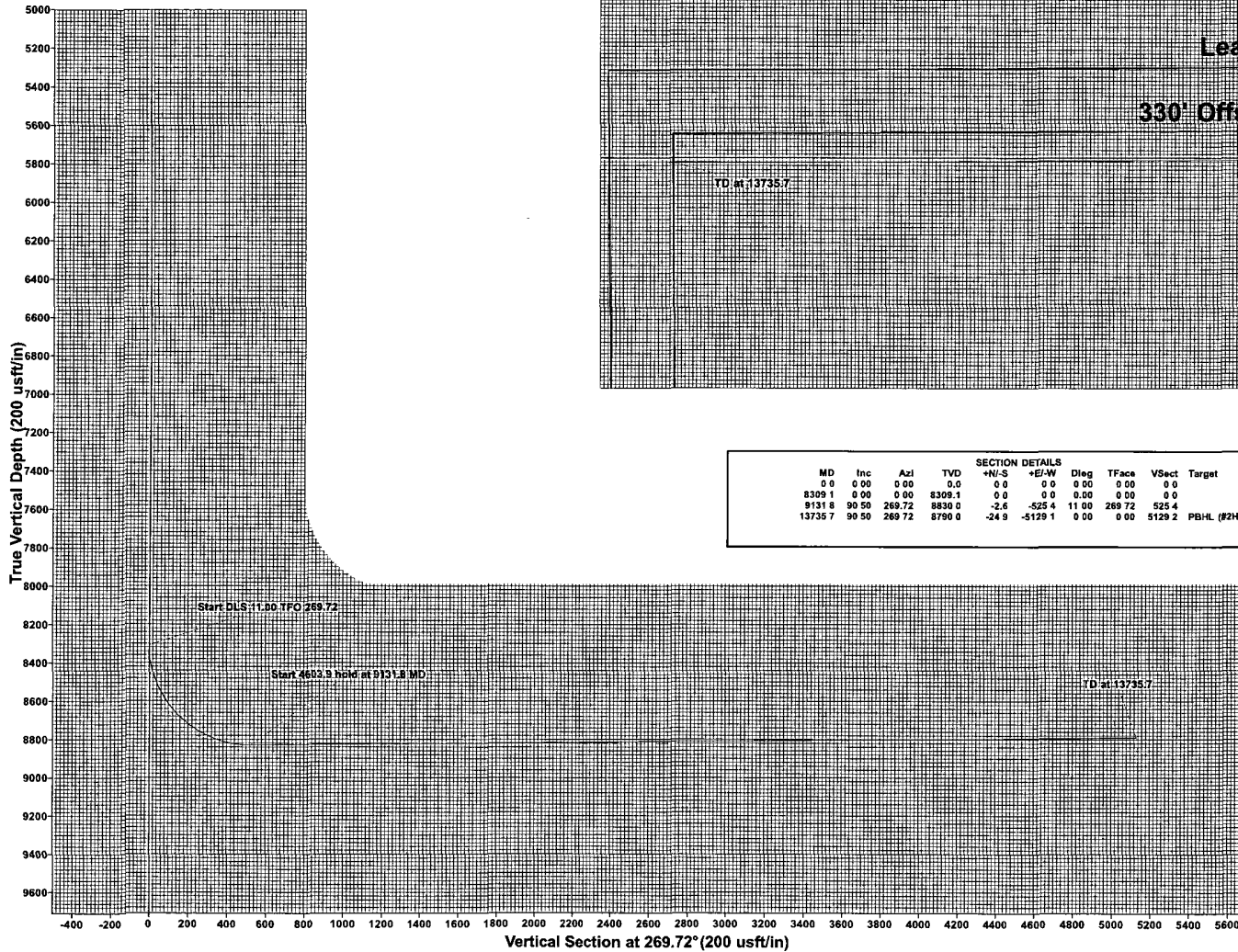
Project: Eddy County(NAD83)  
 Site: Salada Vista 36 State  
 Well: #2H  
 Wellbore: OH  
 Plan: Plan #1 (#2H/OH)



A Schlumberger Company

WELL DETAILS #2H						
Ground Elevation: 3389.9						
RKB Elevation: KB = 17 @ 3408 Susft (Original Well Elev)						
Rig Name: Original Well Elev						
+N-S	+E-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	590541.080	669706.730	32.623	-103.916	

DESIGN TARGET DETAILS					
Name	TVD	+N-S	+E-W	Northing	Easting
PBHL (#2H)	8790.0	-24.9	-5129.1	590516.150	664577.640



SECTION DETAILS									
MD	Inc	Az	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Target
9.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
8309.1	0.00	0.00	3309.1	0.0	0.0	0.00	0.00	0.0	
9131.8	90.50	269.72	8830.0	-2.6	-525.4	11.00	269.72	525.4	
13735.7	90.50	269.72	8790.0	-24.9	-5129.1	0.00	0.00	5129.2	PBHL (#2H)

PROJECT DETAILS: Eddy County(NAD83)  
 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 (#2H/OH)	
Created By: Michael Trout	Date: 10.08, May 09 2012
Checked: _____	Date: _____

©2012 Schlumberger LLC  
 All Rights Reserved  
 Original Well Log  
 Plan #1



## **COG Operating LLC**

Eddy County(NAD83)

Salada Vista 36 State

#2H

OH

Plan: Plan #1

## **Pathfinder X & Y Report**

09 May, 2012

The logo for PATHFINDER, with "PATH" in a bold, sans-serif font and "FINDER" in a larger, bold, sans-serif font. A stylized path line starts under "PATH" and curves under "FINDER". A registered trademark symbol (®) is located at the top right of "FINDER".

**PATHFINDER<sup>®</sup>**

A Schlumberger Company



Pathfinder  
Pathfinder X & Y Report



<b>Company:</b>	COG Operating LLC	<b>Local Co-ordinate Reference:</b>	Well #2H
<b>Project:</b>	Eddy County(NAD83)	<b>TVD Reference:</b>	KB = 17' @ 3406.9usft (Original Well Elev)
<b>Site:</b>	Salada Vista 36 State	<b>MD Reference:</b>	KB = 17' @ 3406.9usft (Original Well Elev)
<b>Well:</b>	#2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	EDM 5000.1 Single User Db

<b>Project</b>	Eddy County(NAD83)		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	New Mexico Eastern Zone		

<b>Site</b>	Salada Vista 36 State		
<b>Site Position:</b>		<b>Northing:</b>	587,816.480 usft
<b>From:</b>	Map	<b>Easting:</b>	669,205.010 usft
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "
		<b>Latitude:</b>	32.615
		<b>Longitude:</b>	-103.918
		<b>Grid Convergence:</b>	0.22 °

<b>Well</b>	#2H					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	590,541.080 usft	<b>Latitude:</b>	32.623
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	669,706.730 usft	<b>Longitude:</b>	-103.916
<b>Position Uncertainty</b>	0.0 usft		<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	3,389.9 usft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	5/9/2012	7.66	60.50	48,768

<b>Design</b>	Plan #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	269.72

<b>Survey Tool Program</b>	Date 5/9/2012			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	13,735.7	Plan #1 (OH)		



Pathfinder  
Pathfinder X & Y Report



<b>Company:</b>	COG Operating LLC	<b>Local Co-ordinate Reference:</b>	Well #2H
<b>Project:</b>	Eddy County(NAD83)	<b>TVD Reference:</b>	KB = 17' @ 3406.9usft (Original Well Elev)
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<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	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	-3,406.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
100.0	0.00	0.00	100.0	-3,306.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
200.0	0.00	0.00	200.0	-3,206.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
300.0	0.00	0.00	300.0	-3,106.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
400.0	0.00	0.00	400.0	-3,006.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
500.0	0.00	0.00	500.0	-2,906.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
600.0	0.00	0.00	600.0	-2,806.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
700.0	0.00	0.00	700.0	-2,706.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
800.0	0.00	0.00	800.0	-2,606.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
900.0	0.00	0.00	900.0	-2,506.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
1,000.0	0.00	0.00	1,000.0	-2,406.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
1,100.0	0.00	0.00	1,100.0	-2,306.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
1,200.0	0.00	0.00	1,200.0	-2,206.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
1,300.0	0.00	0.00	1,300.0	-2,106.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
1,400.0	0.00	0.00	1,400.0	-2,006.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
1,500.0	0.00	0.00	1,500.0	-1,906.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
1,600.0	0.00	0.00	1,600.0	-1,806.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
1,700.0	0.00	0.00	1,700.0	-1,706.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
1,800.0	0.00	0.00	1,800.0	-1,606.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
1,900.0	0.00	0.00	1,900.0	-1,506.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
2,000.0	0.00	0.00	2,000.0	-1,406.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
2,100.0	0.00	0.00	2,100.0	-1,306.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
2,200.0	0.00	0.00	2,200.0	-1,206.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
2,300.0	0.00	0.00	2,300.0	-1,106.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
2,400.0	0.00	0.00	2,400.0	-1,006.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
2,500.0	0.00	0.00	2,500.0	-906.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
2,600.0	0.00	0.00	2,600.0	-806.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	



Pathfinder  
Pathfinder X & Y Report



<b>Company:</b>	COG Operating LLC	<b>Local Co-ordinate Reference:</b>	Well #2H
<b>Project:</b>	Eddy County(NAD83)	<b>TVD Reference:</b>	KB = 17' @ 3406.9usft (Original Well Elev)
<b>Site:</b>	Salada Vista 36 State	<b>MD Reference:</b>	KB = 17' @ 3406.9usft (Original Well Elev)
<b>Well:</b>	#2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	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)	
2,700.0	0.00	0.00	2,700.0	-706.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
2,800.0	0.00	0.00	2,800.0	-606.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
2,900.0	0.00	0.00	2,900.0	-506.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
3,000.0	0.00	0.00	3,000.0	-406.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
3,100.0	0.00	0.00	3,100.0	-306.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
3,200.0	0.00	0.00	3,200.0	-206.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
3,300.0	0.00	0.00	3,300.0	-106.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
3,400.0	0.00	0.00	3,400.0	-6.9	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
3,500.0	0.00	0.00	3,500.0	93.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
3,600.0	0.00	0.00	3,600.0	193.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
3,700.0	0.00	0.00	3,700.0	293.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
3,800.0	0.00	0.00	3,800.0	393.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
3,900.0	0.00	0.00	3,900.0	493.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
4,000.0	0.00	0.00	4,000.0	593.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
4,100.0	0.00	0.00	4,100.0	693.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
4,200.0	0.00	0.00	4,200.0	793.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
4,300.0	0.00	0.00	4,300.0	893.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
4,400.0	0.00	0.00	4,400.0	993.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
4,500.0	0.00	0.00	4,500.0	1,093.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
4,600.0	0.00	0.00	4,600.0	1,193.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
4,700.0	0.00	0.00	4,700.0	1,293.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
4,800.0	0.00	0.00	4,800.0	1,393.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
4,900.0	0.00	0.00	4,900.0	1,493.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
5,000.0	0.00	0.00	5,000.0	1,593.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
5,100.0	0.00	0.00	5,100.0	1,693.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
5,200.0	0.00	0.00	5,200.0	1,793.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
5,300.0	0.00	0.00	5,300.0	1,893.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	



Pathfinder  
Pathfinder X & Y Report



<b>Company:</b>	COG Operating LLC	<b>Local Co-ordinate Reference:</b>	Well #2H
<b>Project:</b>	Eddy County(NAD83)	<b>TVD Reference:</b>	KB = 17' @ 3406.9usft (Original Well Elev)
<b>Site:</b>	Salada Vista 36 State	<b>MD Reference:</b>	KB = 17' @ 3406.9usft (Original Well Elev)
<b>Well:</b>	#2H	<b>North Reference:</b>	Grd
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	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	1,993.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
5,500.0	0.00	0.00	5,500.0	2,093.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
5,600.0	0.00	0.00	5,600.0	2,193.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
5,700.0	0.00	0.00	5,700.0	2,293.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
5,800.0	0.00	0.00	5,800.0	2,393.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
5,900.0	0.00	0.00	5,900.0	2,493.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
6,000.0	0.00	0.00	6,000.0	2,593.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
6,100.0	0.00	0.00	6,100.0	2,693.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
6,200.0	0.00	0.00	6,200.0	2,793.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
6,300.0	0.00	0.00	6,300.0	2,893.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
6,400.0	0.00	0.00	6,400.0	2,993.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
6,500.0	0.00	0.00	6,500.0	3,093.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
6,600.0	0.00	0.00	6,600.0	3,193.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
6,700.0	0.00	0.00	6,700.0	3,293.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
6,800.0	0.00	0.00	6,800.0	3,393.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
6,900.0	0.00	0.00	6,900.0	3,493.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
7,000.0	0.00	0.00	7,000.0	3,593.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
7,100.0	0.00	0.00	7,100.0	3,693.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
7,200.0	0.00	0.00	7,200.0	3,793.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
7,300.0	0.00	0.00	7,300.0	3,893.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
7,400.0	0.00	0.00	7,400.0	3,993.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
7,500.0	0.00	0.00	7,500.0	4,093.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
7,600.0	0.00	0.00	7,600.0	4,193.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
7,700.0	0.00	0.00	7,700.0	4,293.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
7,800.0	0.00	0.00	7,800.0	4,393.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
7,900.0	0.00	0.00	7,900.0	4,493.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	
8,000.0	0.00	0.00	8,000.0	4,593.1	0.0	0.0	0.0	0.00	590,541.08	669,706.73	





Pathfinder  
Pathfinder X & Y Report



<b>Company:</b>	COG Operating LLC	<b>Local Co-ordinate Reference:</b>	Well #2H
<b>Project:</b>	Eddy County(NAD83)	<b>TVD Reference:</b>	KB = 17' @ 3406.9usft (Original Well Elev)
<b>Site:</b>	Salada Vista 36 State	<b>MD Reference:</b>	KB = 17' @ 3406.9usft (Original Well Elev)
<b>Well:</b>	#2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	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)	
8,100.0	0.00	0 00	8,100.0	4,693.1	0.0	0.0	0.0	0 00	590,541.08	669,706.73	
8,200.0	0.00	0.00	8,200.0	4,793.1	0.0	0.0	0.0	0 00	590,541.08	669,706.73	
8,309.1	0.00	0.00	8,309.1	4,902.2	0.0	0.0	0.0	0 00	590,541.08	669,706.73	
8,350.0	4.50	269.72	8,350.0	4,943.1	0.0	-1.6	1.6	11.00	590,541.07	669,705.13	
8,400.0	10.00	269.72	8,399.5	4,992.6	0.0	-7.9	7.9	11.00	590,541.04	669,698.82	
8,450.0	15.50	269.72	8,448.3	5,041.4	-0.1	-18.9	18.9	11.00	590,540.99	669,687.79	
8,500.0	21.00	269.72	8,495.8	5,088.9	-0.2	-34.6	34.6	11.00	590,540.91	669,672.14	
8,550.0	26.50	269.72	8,541.5	5,134.6	-0.3	-54.7	54.7	11.00	590,540.81	669,652.01	
8,600.0	32.00	269.72	8,585.1	5,178.2	-0.4	-79.1	79.1	11.00	590,540.70	669,627.59	
8,650.0	37.50	269.72	8,626.2	5,219.3	-0.5	-107.6	107.6	11.00	590,540.56	669,599.10	
8,700.0	43.00	269.72	8,664.3	5,257.4	-0.7	-139.9	139.9	11.00	590,540.40	669,566.81	
8,750.0	48.50	269.72	8,699.2	5,292.3	-0.9	-175.7	175.7	11.00	590,540.23	669,531.01	
8,800.0	54.00	269.72	8,730.5	5,323.6	-1.0	-214.7	214.7	11.00	590,540.04	669,492.03	
8,850.0	59.50	269.72	8,757.9	5,351.0	-1.2	-256.5	256.5	11.00	590,539.83	669,450.23	
8,900.0	65.00	269.72	8,781.2	5,374.3	-1.5	-300.7	300.7	11.00	590,539.62	669,406.00	
8,950.0	70.50	269.72	8,800.1	5,393.2	-1.7	-347.0	347.0	11.00	590,539.39	669,359.74	
9,000.0	76.00	269.72	8,814.5	5,407.6	-1.9	-394.8	394.9	11.00	590,539.16	669,311.88	
9,050.0	81.50	269.72	8,824.2	5,417.3	-2.2	-443.9	443.9	11.00	590,538.92	669,262.86	
9,100.0	87.00	269.72	8,829.3	5,422.4	-2.4	-493.6	493.6	11.00	590,538.68	669,213.13	
9,131.8	90.50	269.72	8,830.0	5,423.1	-2.6	-525.4	525.4	11.00	590,538.53	669,181.35	
9,200.0	90.50	269.72	8,829.4	5,422.5	-2.9	-593.6	593.6	0.00	590,538.19	669,113.15	
9,300.0	90.50	269.72	8,828.5	5,421.6	-3.4	-693.6	693.6	0.00	590,537.71	669,013.16	
9,400.0	90.50	269.72	8,827.6	5,420.7	-3.9	-793.6	793.6	0.00	590,537.22	668,913.16	
9,500.0	90.50	269.72	8,826.8	5,419.9	-4.3	-893.6	893.6	0.00	590,536.74	668,813.17	
9,600.0	90.50	269.72	8,825.9	5,419.0	-4.8	-993.6	993.6	0.00	590,536.25	668,713.17	
9,700.0	90.50	269.72	8,825.0	5,418.1	-5.3	-1,093.6	1,093.6	0.00	590,535.76	668,613.18	
9,800.0	90.50	269.72	8,824.2	5,417.3	-5.8	-1,193.5	1,193.6	0.00	590,535.28	668,513.18	



Pathfinder  
Pathfinder X & Y Report



<b>Company:</b>	COG Operating LLC	<b>Local Co-ordinate Reference:</b>	Well #2H
<b>Project:</b>	Eddy County(NAD83)	<b>TVD Reference:</b>	KB = 17' @ 3406.9usft (Original Well Elev)
<b>Site:</b>	Salada Vista 36 State	<b>MD Reference:</b>	KB = 17' @ 3406.9usft (Original Well Elev)
<b>Well:</b>	#2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	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)	
9,900.0	90.50	269.72	8,823.3	5,416.4	-6.3	-1,293.5	1,293.6	0.00	590,534.79	668,413.19	
10,000.0	90.50	269.72	8,822.4	5,415.5	-6.8	-1,393.5	1,393.6	0.00	590,534.31	668,313.19	
10,100.0	90.50	269.72	8,821.5	5,414.6	-7.3	-1,493.5	1,493.6	0.00	590,533.82	668,213.20	
10,200.0	90.50	269.72	8,820.7	5,413.8	-7.7	-1,593.5	1,593.5	0.00	590,533.33	668,113.20	
10,300.0	90.50	269.72	8,819.8	5,412.9	-8.2	-1,693.5	1,693.5	0.00	590,532.85	668,013.21	
10,400.0	90.50	269.72	8,818.9	5,412.0	-8.7	-1,793.5	1,793.5	0.00	590,532.36	667,913.21	
10,500.0	90.50	269.72	8,818.1	5,411.2	-9.2	-1,893.5	1,893.5	0.00	590,531.88	667,813.22	
10,600.0	90.50	269.72	8,817.2	5,410.3	-9.7	-1,993.5	1,993.5	0.00	590,531.39	667,713.22	
10,700.0	90.50	269.72	8,816.3	5,409.4	-10.2	-2,093.5	2,093.5	0.00	590,530.90	667,613.22	
10,800.0	90.50	269.72	8,815.5	5,408.6	-10.7	-2,193.5	2,193.5	0.00	590,530.42	667,513.23	
10,900.0	90.50	269.72	8,814.6	5,407.7	-11.1	-2,293.5	2,293.5	0.00	590,529.93	667,413.23	
11,000.0	90.50	269.72	8,813.7	5,406.8	-11.6	-2,393.5	2,393.5	0.00	590,529.45	667,313.24	
11,100.0	90.50	269.72	8,812.9	5,406.0	-12.1	-2,493.5	2,493.5	0.00	590,528.96	667,213.24	
11,200.0	90.50	269.72	8,812.0	5,405.1	-12.6	-2,593.5	2,593.5	0.00	590,528.47	667,113.25	
11,300.0	90.50	269.72	8,811.1	5,404.2	-13.1	-2,693.5	2,693.5	0.00	590,527.99	667,013.25	
11,400.0	90.50	269.72	8,810.3	5,403.4	-13.6	-2,793.5	2,793.5	0.00	590,527.50	666,913.26	
11,500.0	90.50	269.72	8,809.4	5,402.5	-14.1	-2,893.5	2,893.5	0.00	590,527.02	666,813.26	
11,600.0	90.50	269.72	8,808.5	5,401.6	-14.5	-2,993.5	2,993.5	0.00	590,526.53	666,713.27	
11,700.0	90.50	269.72	8,807.7	5,400.8	-15.0	-3,093.5	3,093.5	0.00	590,526.04	666,613.27	
11,800.0	90.50	269.72	8,806.8	5,399.9	-15.5	-3,193.5	3,193.5	0.00	590,525.56	666,513.28	
11,900.0	90.50	269.72	8,805.9	5,399.0	-16.0	-3,293.4	3,293.5	0.00	590,525.07	666,413.28	
12,000.0	90.50	269.72	8,805.1	5,398.2	-16.5	-3,393.4	3,393.5	0.00	590,524.59	666,313.29	
12,100.0	90.50	269.72	8,804.2	5,397.3	-17.0	-3,493.4	3,493.5	0.00	590,524.10	666,213.29	
12,200.0	90.50	269.72	8,803.3	5,396.4	-17.5	-3,593.4	3,593.5	0.00	590,523.61	666,113.30	
12,300.0	90.50	269.72	8,802.5	5,395.6	-18.0	-3,693.4	3,693.5	0.00	590,523.13	666,013.30	
12,400.0	90.50	269.72	8,801.6	5,394.7	-18.4	-3,793.4	3,793.5	0.00	590,522.64	665,913.31	
12,500.0	90.50	269.72	8,800.7	5,393.8	-18.9	-3,893.4	3,893.5	0.00	590,522.16	665,813.31	



Pathfinder  
Pathfinder X & Y Report



<b>Company:</b>	COG Operating LLC	<b>Local Co-ordinate Reference:</b>	Well #2H
<b>Project:</b>	Eddy County(NAD83)	<b>TVD Reference:</b>	KB = 17' @ 3406.9usft (Original Well Elev)
<b>Site:</b>	Salada Vista 36 State	<b>MD Reference:</b>	KB = 17' @ 3406.9usft (Original Well Elev)
<b>Well:</b>	#2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	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)	
12,600.0	90.50	269.72	8,799.9	5,393.0	-19.4	-3,993.4	3,993.5	0.00	590,521.67	665,713.32	
12,700.0	90.50	269.72	8,799.0	5,392.1	-19.9	-4,093.4	4,093.5	0.00	590,521.18	665,613.32	
12,800.0	90.50	269.72	8,798.1	5,391.2	-20.4	-4,193.4	4,193.5	0.00	590,520.70	665,513.33	
12,900.0	90.50	269.72	8,797.3	5,390.4	-20.9	-4,293.4	4,293.4	0.00	590,520.21	665,413.33	
13,000.0	90.50	269.72	8,796.4	5,389.5	-21.4	-4,393.4	4,393.4	0.00	590,519.73	665,313.34	
13,100.0	90.50	269.72	8,795.5	5,388.6	-21.8	-4,493.4	4,493.4	0.00	590,519.24	665,213.34	
13,200.0	90.50	269.72	8,794.6	5,387.7	-22.3	-4,593.4	4,593.4	0.00	590,518.75	665,113.35	
13,300.0	90.50	269.72	8,793.8	5,386.9	-22.8	-4,693.4	4,693.4	0.00	590,518.27	665,013.35	
13,400.0	90.50	269.72	8,792.9	5,386.0	-23.3	-4,793.4	4,793.4	0.00	590,517.78	664,913.36	
13,500.0	90.50	269.72	8,792.0	5,385.1	-23.8	-4,893.4	4,893.4	0.00	590,517.30	664,813.36	
13,600.0	90.50	269.72	8,791.2	5,384.3	-24.3	-4,993.4	4,993.4	0.00	590,516.81	664,713.37	
13,700.0	90.50	269.72	8,790.3	5,383.4	-24.8	-5,093.4	5,093.4	0.00	590,516.32	664,613.37	
13,735.7	90.50	269.72	8,790.0	5,383.1	-24.9	-5,129.1	5,129.2	0.00	590,516.15	664,577.64	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_