

Submit 3 Copies 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
May 27, 2004

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

WELL API NO. 30-015-37770
5. Indicate Type of Lease STATE ☒ FEE ☐
6. State Oil & Gas Lease No. N/A
7. Lease Name or Unit Agreement Name Hatfield State
8. Well Number 9
9. OGRID Number 229137
10. Pool name or Wildcat 96610 Empire; Glorieta-Yeso, East

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 Operating LLC

3. Address of Operator

550 W. Texas Ave., Suite 1300

Midland, TX 79701

4. Well Location

Unit Letter **L** : **2310'** feet from the **South** line and **330'** feet from the **West** line
Section **8** Township **17S** Range **29E** NMPM County **EDDY**

11. Elevation (Show whether DR, RKB, RT, GR, etc.)

3644' GR

Pit or Below-grade Tank Application ☐ or Closure ☐

Pit type _____ Depth to Groundwater _____ Distance from nearest fresh water well _____ Distance from nearest surface water _____

Pit Liner Thickness: _____ Below-Grade Tank: Volume _____ bbls; Construction Material _____

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

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐
TEMPORARILY ABANDON ☐ CHANGE PLANS ☐
PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐

OTHER: **Change Casing Program** ☒

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐
COMMENCE DRILLING OPNS. ☐ P AND A ☐
CASING/CEMENT JOB ☐

OTHER: ☐

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 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

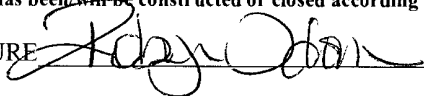
COG Operating LLC respectfully requests permission to change the casing program to:

Type	Hole Size	Casing Type	Casing Weight/ft.	Setting Depth	Sacks of Cement	Est TOC
Surf	17.5	13.375	48	300	400	0
Int 1	12.25	9.625	40	900	400	0
Int 2	8.75	7	29	3950	600	0
Prod	6.125	4.5	13.5	5851 MD 4125 TVD	0	0

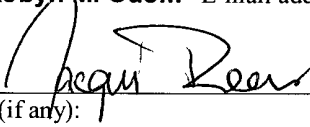
COG proposes to drill 17-1/2" hole to 300' w/ fresh water mud system, wt. 8.5, vis 28, set 13-3/8" casing & cement to surf. Drill an 12.25" hole to 900' w/ brine mud system, wt 10, vis 30, set 9-5/8" casing & cement to surf. Drill 8-3/4" hole to 3950' w/ cut brine mud system, wt 8.7, vis 29-32. Set 7" prod casing @ +/- 3950'. Drill 6-1/8" hole & kick off @ +/- 3598', building curve over +/- 450' horizontal section in an Easterly direction for +/- 1980' lateral to TD @ +/- 5851' MD, 4125' TVD. Run 4-1/2" prod liner in un-cemented open hole lateral & set isolation packers & liner top packer @ +/- 3850' MD.

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

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☒, a general permit ☐ or an (attached) alternative OCD-approved plan ☐.

SIGNATURE  TITLE **Regulatory Analyst** DATE **08-04-2010**

Type or print name **Robyn M. Odom** E-mail address: **rodome@conchoresources.com** Telephone No. **432-685-4385**
For State Use Only

APPROVED BY:  TITLE **Geologist** DATE **8/11/2010**
Conditions of Approval (if any): COX

District I
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State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Frances Dr.
Santa Fe, NM 87505

Form C-102
Revised October 15, 2009
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number 30-015-37770	2 Pool Code 96610	3 Pool Name EMPIRE; GLORIETA-YESO, EAST
4 Property Code 37902	5 Property Name HATFIELD STATE	6 Well Number 9
7 OGRID No 229137	8 Operator Name COG OPERATING LLC	9 Elevation 3644.6

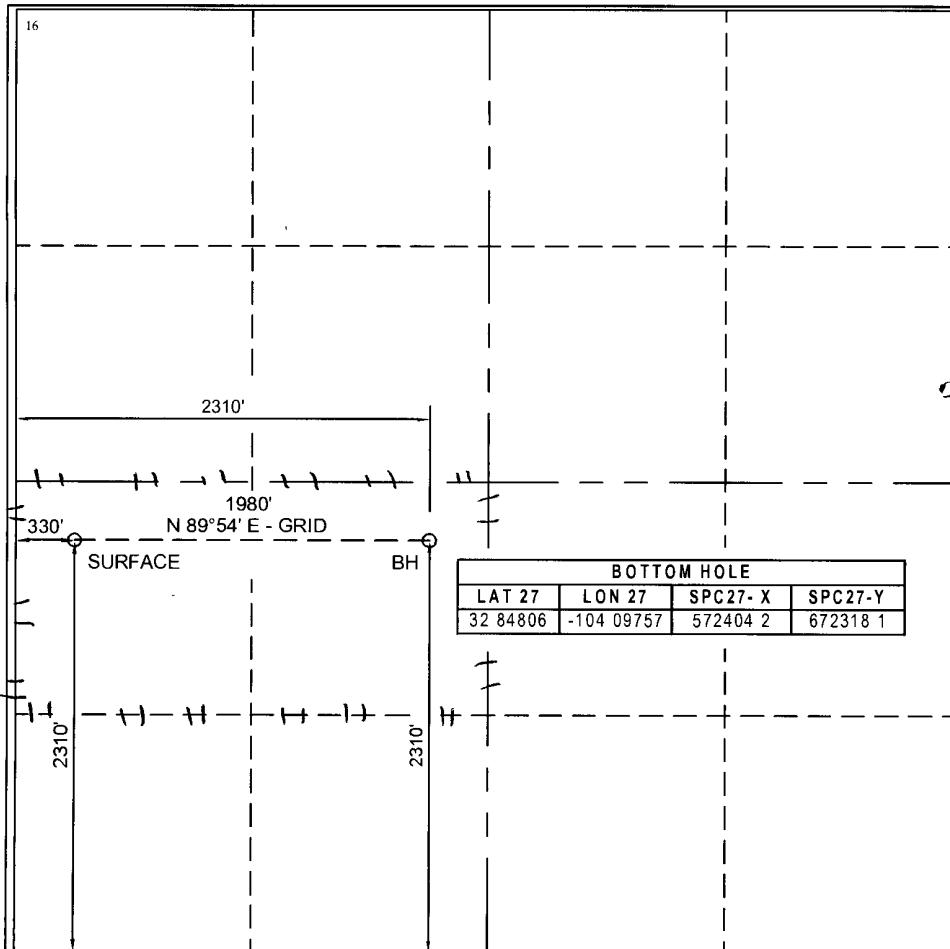
10 Surface Location

UL or lot L	Section 8	Township 17 S	Range 29 E	Lot Idn	Feet from the 2310	North/South line SOUTH	Feet from the 330	East/West line WEST	County EDDY
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11 Bottom Hole Location If Different From Surface

UL or lot K	Section 8	Township 17 S	Range 29 E	Lot Idn	Feet from the 2310	North/South line SOUTH	Feet from the 2310	East/West line WEST	County EDDY
12 Dedicated Acres 80	13 Joint or Infill	14 Consolidation Code	15 Order No						

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 enter by the division.

Robyn Odom 8/2/2010
Signature Date

Robyn Odom
Printed Name

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.

02/23/2010

Date of Survey

Signature and Seal of Professional Surveyor



NAD27 GEOGRAPHIC COORDINATES

LAT 32.84807

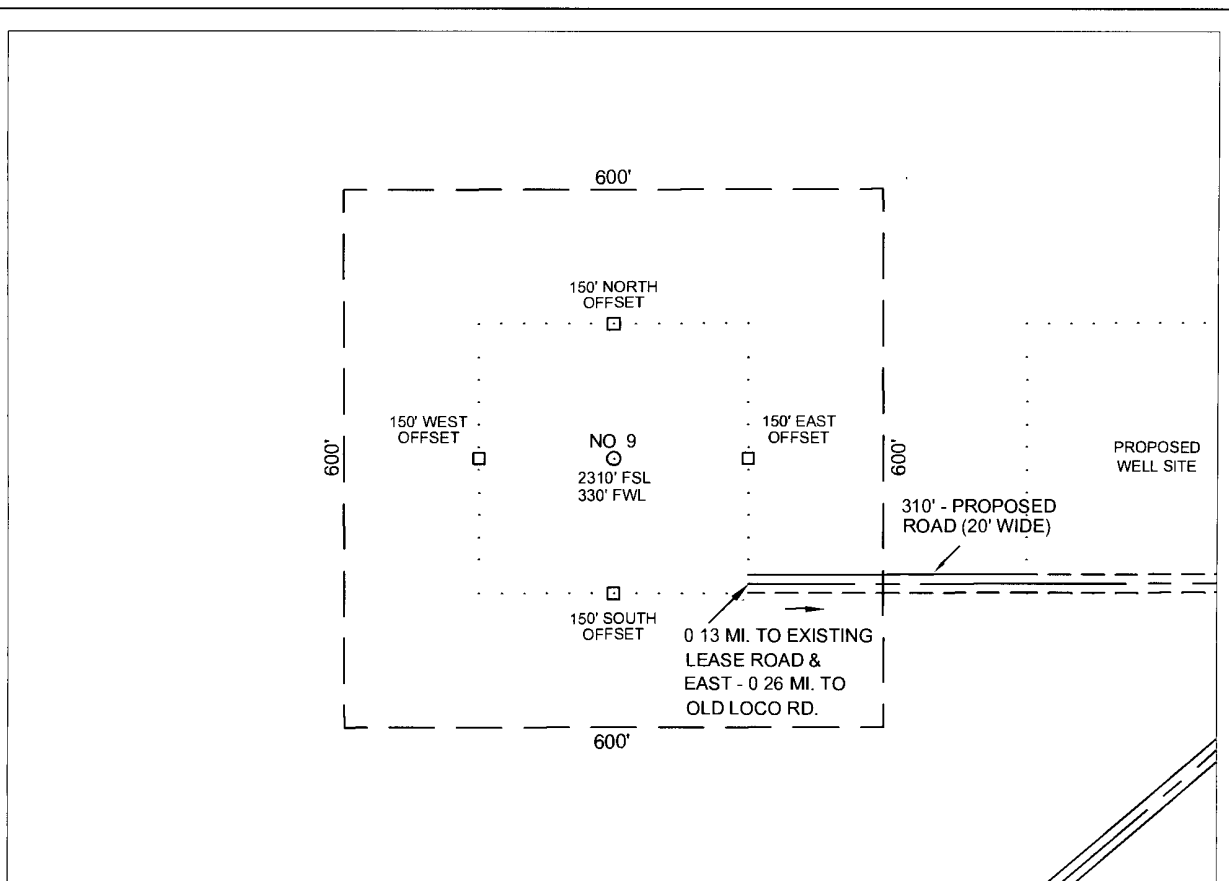
LON: -104.10402

NAD27 SPC - NM EAST

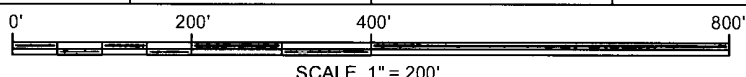
X = 570424 1

Y = 672314 7

Bruce R. Pennell
Certificate Number 9062



NAD27 GEOGRAPHIC COORDINATES		NAD83 GEOGRAPHIC COORDINATES	
LAT. 32.84807	LON. -104.10402	LAT. 32°50'53.457" N	LON 104°06'16.309" W.



DATUM NEW MEXICO EAST ZONE - NAD83 (HARN)

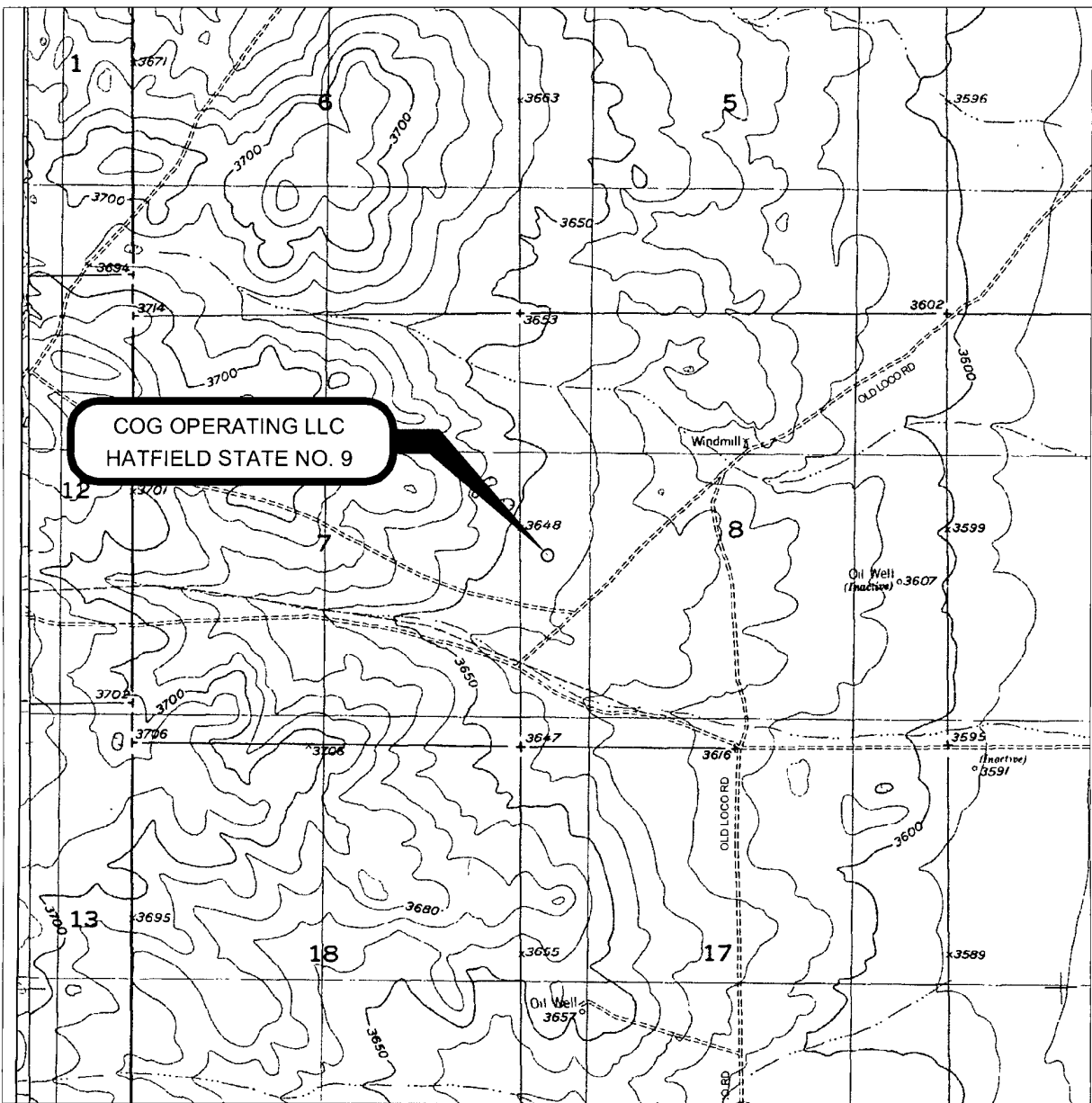
DIRECTIONS TO LOCATION

1. FROM THE INTERSECTION OF U.S. HIGHWAY 82 AND STATE ROAD 360 (14 MILES EAST OF ARTESIA, NEW MEXICO)
2. THEN EAST ON U.S. HWY 82, 4.22 MILES TO THE "T" INTERSECTION OF OLD LOCO ROAD ON THE LEFT;
3. THEN NORTHERLY ON OLD LOCO ROAD, AT 2.05 MILES, PASS THE SE CORNER OF THE HATFIELD LEASE, 30' ON THE LEFT, CONTINUING 2.46 MILES IN ALL TO A "T" INTERSECTION OF AN EXISTING LEASE ROAD ON THE LEFT,
4. THEN WESTERLY ON SAID LEASE ROAD, CROSSING THE HATFIELD NO. 6 PROPOSED WELL SITE, AT 0.14 MILES, CROSS THE HATFIELD NO. 11 PROPOSED WELL SITE, 0.26 MILES IN ALL TO THE "T" INTERSECTION OF A PROPOSED LEASE ROAD ON THE RIGHT
5. THEN WEST, ON THE SAID PROPOSED LEASE ROAD, CROSSING THE HATFIELD NO. 4 PROPOSED WELL SITE, 0.13 MILES TO THE PROPOSED SE CORNER OF THE HATFIELD NO. 9 WELL SITE.

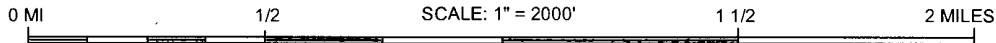
AEF A. E. FULLER & ASSOCIATES
 LAND SURVEYORS
 AL FULLER
 Cell - (432) 559-6718
 Email - al@aefuller.com
 Fax. (817) 594-8437
 3600 W Baumann
 Midland, TX 79703

www.aefuller.com

COG OPERATING LLC
 HATFIELD STATE NO. 9
 SECTION 8 - TOWNSHIP 17 S - RANGE 29 E
 EDDY COUNTY, NM
 N 88 E - 17.3 MILES FROM ARTESIA, NM
 DATE: 03/31/2010
 USGS
 QUAD RED LAKE, SE



NAD27 GEOGRAPHIC COORDINATES		NAD27 SPC - NM EAST	
LAT: 32.84807	LON: -104.10402	X = 570424.1	Y = 672314.7



DATUM NEW MEXICO EAST ZONE - NAD83 (HARN)

A E F A. E. FULLER & ASSOCIATES
 LAND SURVEYORS
 AL FULLER
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 3600 W Baumann
 Midland, TX 79703

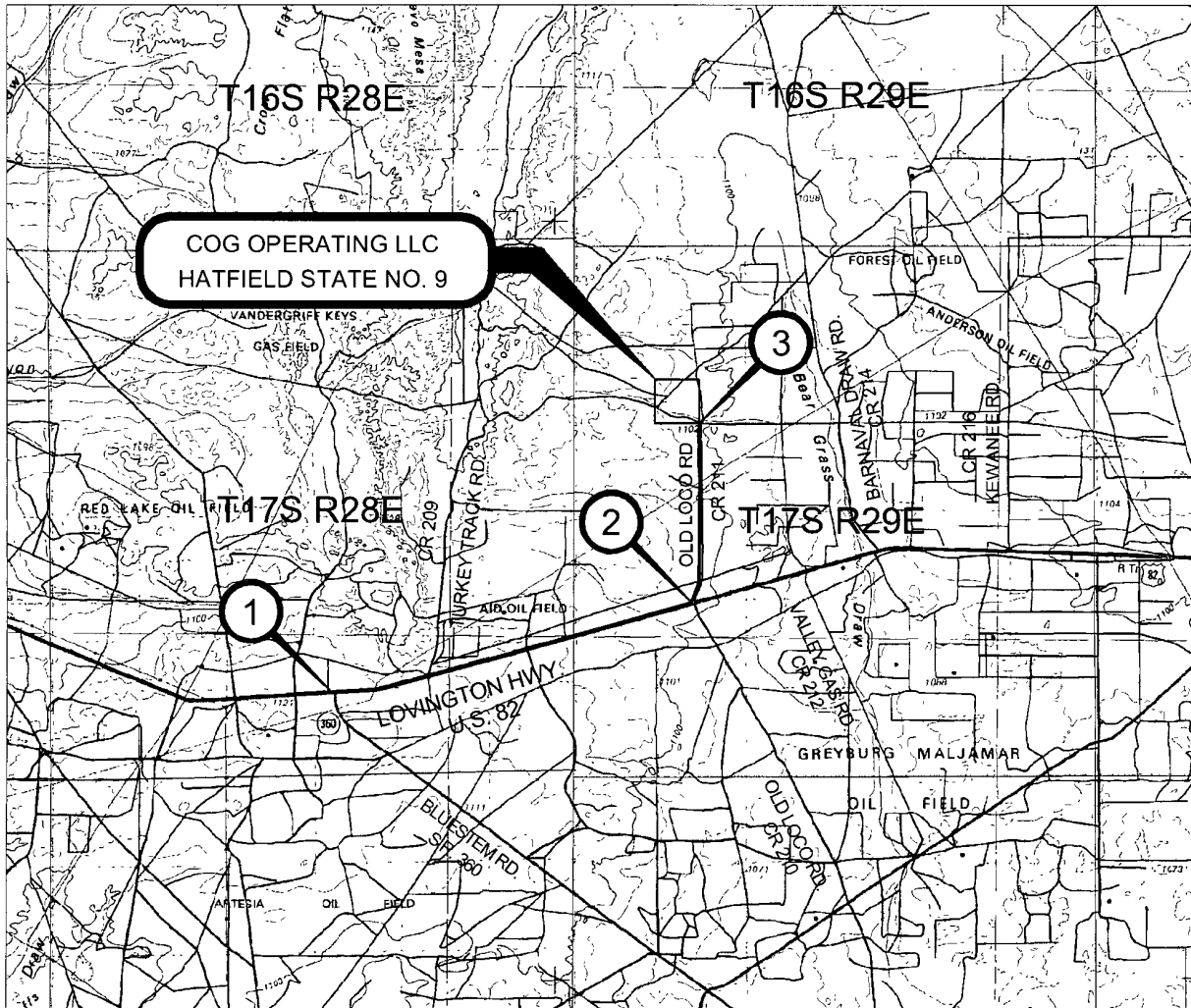
TOPOGRAPHIC MAP
 COG OPERATING LLC
 HATFIELD STATE NO. 9
 SECTION 8 - TOWNSHIP 17 S - RANGE 29 E
 EDDY COUNTY, NM
 N 88 E - 17.3 MILES FROM ARTESIA, NM

DATE: 02/23/2010	USGS QUAD RED LAKE, SE
------------------	------------------------

www.aefuller.com

DIRECTIONS TO LEASE

1. FROM THE INTERSECTION OF U.S. HIGHWAY 82 AND STATE ROAD 360 (14 MILES EAST OF ARTESIA, NEW MEXICO)
2. THEN EAST ON U S HWY 82, 4.22 MILES TO THE "T" INTERSECTION OF OLD LOCO ROAD ON THE LEFT,
3. THEN NORTHERLY ON OLD LOCO ROAD, AT 2.05 MILES TO THE SEc OF THE HATFIELD LEASE, 30' ON THE LEFT



NAD27 GEOGRAPHIC COORDINATES

NAD27 SPC - NM EAST

LAT: 32.84807

LON: -104.10402

X = 570424.1

Y = 672314.7



0 MI

SCALE: 1" = 2 MILES

4 MILES

DATUM NEW MEXICO EAST ZONE - NAD83 (HARN)

IMAGE ARTESIA, NM - 1:100,000 SERIES



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LAND SURVEYORS

AL FULLER

Cell - (432) 559-6718

Email - al@aefuller.com

Fax (817) 594-8437
3600 W. Baumann
Midland, TX 79703

www.aefuller.com

VICINITY MAP

COG OPERATING LLC

HATFIELD STATE NO. 9

SECTION 8 - TOWNSHIP 17 S - RANGE 29 E

EDDY COUNTY, NM

N 88 E - 17.3 MILES FROM ARTESIA, NM

DATE: 02/23/2010

USGS
QUAD RED LAKE, SE



COG Operating LLC

Eddy County(NAD27)

Hatfield State

#9

OH

Plan: Plan #1

Pathfinder X & Y Planning Report

03 August, 2010

PATHFINDER



Pathfinder
Pathfinder X & Y Planning Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #9
Project:	Eddy County(NAD27)	TVD Reference:	WELL @ 3663 60ft (19' KB)
Site:	Hatfield State	MD Reference:	WELL @ 3663 60ft (19' KB)
Well:	#9	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

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	Hatfield State
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Site Position:		Northing:	672,314.700 ft	Latitude:	32° 50' 53.044 N
From:	Map	Easting:	570,424.100 ft	Longitude:	104° 6' 14.470 W
Position Uncertainty:	0 00 ft	Slot Radius:	"	Grid Convergence:	0.12 °

Well	#9					
Well Position	+N/-S	0.00 ft	Northing:	672,314.700 ft	Latitude:	32° 50' 53.044 N
	+E/-W	0 00 ft	Easting:	570,424 100 ft	Longitude:	104° 6' 14 470 W
Position Uncertainty		0 00 ft	Wellhead Elevation:	ft	Ground Level:	3,644.60 ft

Wellbore	OH
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	08/03/2010	7 98	60.69	49,017

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

Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0 00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0 00	0.00	89 90

Survey Tool Program	Date	08/03/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0 00	5,851 13	Plan #1 (OH)	MWD	MWD - Standard



Pathfinder
Pathfinder X & Y Planning Report



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Site:	Hatfield State	MD Reference:	WELL @ 3663 60ft (19' KB)
Well:	#9	North Reference:	Grd
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)
0 00	0.00	0 00	0 00	-3,663.60	0 00	0 00	0.00	0 00	672,314.70	570,424.10
100 00	0.00	0 00	100 00	-3,563.60	0 00	0 00	0.00	0 00	672,314.70	570,424.10
200 00	0 00	0 00	200 00	-3,463.60	0 00	0 00	0.00	0 00	672,314.70	570,424.10
300 00	0.00	0 00	300 00	-3,363.60	0 00	0 00	0.00	0 00	672,314.70	570,424.10
400 00	0.00	0 00	400 00	-3,263.60	0 00	0 00	0.00	0 00	672,314.70	570,424.10
500 00	0 00	0 00	500 00	-3,163.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10
600 00	0 00	0 00	600 00	-3,063.60	0 00	0 00	0.00	0 00	672,314.70	570,424.10
700 00	0.00	0 00	700 00	-2,963.60	0 00	0 00	0.00	0 00	672,314.70	570,424.10
800 00	0 00	0 00	800 00	-2,863.60	0 00	0 00	0.00	0 00	672,314.70	570,424.10
900 00	0 00	0 00	900 00	-2,763.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10
1,000 00	0.00	0 00	1,000 00	-2,663.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10
1,100 00	0.00	0 00	1,100 00	-2,563.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10
1,200 00	0.00	0 00	1,200 00	-2,463.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10
1,300 00	0.00	0 00	1,300 00	-2,363.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10
1,400 00	0 00	0 00	1,400 00	-2,263.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10
1,500 00	0 00	0 00	1,500 00	-2,163.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10
1,600 00	0.00	0 00	1,600 00	-2,063.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10
1,700 00	0.00	0 00	1,700 00	-1,963.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10
1,800 00	0.00	0 00	1,800 00	-1,863.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10
1,900 00	0.00	0 00	1,900 00	-1,763.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10
2,000 00	0.00	0 00	2,000 00	-1,663.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10
2,100 00	0.00	0 00	2,100 00	-1,563.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10
2,200 00	0.00	0 00	2,200 00	-1,463.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10
2,300 00	0.00	0 00	2,300 00	-1,363.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10
2,400 00	0 00	0 00	2,400 00	-1,263.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10
2,500 00	0 00	0 00	2,500 00	-1,163.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10
2,600 00	0 00	0 00	2,600 00	-1,063.60	0 00	0 00	0.00	0.00	672,314.70	570,424.10



Pathfinder
Pathfinder X & Y Planning Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #9
Project:	Eddy County(NAD27)	TVD Reference:	WELL @ 3663 60ft (19' KB)
Site:	Hatfield State	MD Reference:	WELL @ 3663 60ft (19' KB)
Well:	#9	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	-963.60	0.00	0.00	0.00	0.00	672,314.70	570,424.10
2,800.00	0.00	0.00	2,800.00	-863.60	0.00	0.00	0.00	0.00	672,314.70	570,424.10
2,900.00	0.00	0.00	2,900.00	-763.60	0.00	0.00	0.00	0.00	672,314.70	570,424.10
3,000.00	0.00	0.00	3,000.00	-663.60	0.00	0.00	0.00	0.00	672,314.70	570,424.10
3,100.00	0.00	0.00	3,100.00	-563.60	0.00	0.00	0.00	0.00	672,314.70	570,424.10
3,200.00	0.00	0.00	3,200.00	-463.60	0.00	0.00	0.00	0.00	672,314.70	570,424.10
3,300.00	0.00	0.00	3,300.00	-363.60	0.00	0.00	0.00	0.00	672,314.70	570,424.10
3,400.00	0.00	0.00	3,400.00	-263.60	0.00	0.00	0.00	0.00	672,314.70	570,424.10
3,500.00	0.00	0.00	3,500.00	-163.60	0.00	0.00	0.00	0.00	672,314.70	570,424.10
3,597.50	0.00	0.00	3,597.50	-66.10	0.00	0.00	0.00	0.00	672,314.70	570,424.10
3,600.00	0.30	89.90	3,600.00	-63.60	0.00	0.01	0.01	11.99	672,314.70	570,424.11
3,625.00	3.30	89.90	3,624.98	-38.62	0.00	0.79	0.79	11.99	672,314.70	570,424.89
3,650.00	6.30	89.90	3,649.89	-13.71	0.01	2.88	2.88	11.99	672,314.71	570,426.98
3,675.00	9.29	89.90	3,674.66	11.06	0.01	6.27	6.27	11.99	672,314.71	570,430.37
3,700.00	12.29	89.90	3,699.22	35.62	0.02	10.95	10.95	11.99	672,314.72	570,435.05
3,725.00	15.29	89.90	3,723.49	59.89	0.03	16.91	16.91	11.99	672,314.73	570,441.01
3,750.00	18.29	89.90	3,747.42	83.82	0.04	24.13	24.13	11.99	672,314.74	570,448.23
3,775.00	21.29	89.90	3,770.94	107.34	0.06	32.60	32.60	11.99	672,314.76	570,456.70
3,800.00	24.28	89.90	3,793.99	130.39	0.07	42.28	42.28	11.99	672,314.77	570,466.38
3,825.00	27.28	89.90	3,816.50	152.90	0.09	53.15	53.15	11.99	672,314.79	570,477.25
3,850.00	30.28	89.90	3,838.41	174.81	0.11	65.19	65.19	11.99	672,314.81	570,489.29
3,875.00	33.28	89.90	3,859.66	196.06	0.14	78.35	78.35	11.99	672,314.84	570,502.45
3,900.00	36.28	89.90	3,880.19	216.59	0.16	92.61	92.61	11.99	672,314.86	570,516.71
3,925.00	39.28	89.90	3,899.95	236.35	0.19	107.92	107.92	11.99	672,314.89	570,532.02
3,950.00	42.27	89.90	3,918.88	255.28	0.22	124.25	124.25	11.99	672,314.92	570,548.35
3,975.00	45.27	89.90	3,936.93	273.33	0.25	141.54	141.54	11.99	672,314.95	570,565.64
4,000.00	48.27	89.90	3,954.05	290.45	0.28	159.75	159.75	11.99	672,314.98	570,583.85



Pathfinder
Pathfinder X & Y Planning Report



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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)	
4,025.00	51.27	89.90	3,970.19	306.59	0.31	178.84	178.84	11.99	672,315.01	570,602.94	
4,050.00	54.27	89.90	3,985.32	321.72	0.35	198.74	198.74	11.99	672,315.05	570,622.84	
4,075.00	57.26	89.90	3,999.38	335.78	0.38	219.41	219.41	11.99	672,315.08	570,643.51	
4,100.00	60.26	89.90	4,012.34	348.74	0.42	240.78	240.78	11.99	672,315.12	570,664.88	
4,125.00	63.26	89.90	4,024.17	360.57	0.46	262.80	262.80	11.99	672,315.16	570,686.90	
4,150.00	66.26	89.90	4,034.83	371.23	0.50	285.41	285.41	11.99	672,315.20	570,709.51	
4,175.00	69.26	89.90	4,044.29	380.69	0.54	308.55	308.55	11.99	672,315.24	570,732.65	
4,200.00	72.26	89.90	4,052.53	388.93	0.58	332.15	332.15	11.99	672,315.28	570,756.25	
4,225.00	75.25	89.90	4,059.52	395.92	0.62	356.15	356.15	11.99	672,315.32	570,780.25	
4,250.00	78.25	89.90	4,065.25	401.65	0.66	380.48	380.48	11.99	672,315.36	570,804.58	
4,275.00	81.25	89.90	4,069.70	406.10	0.71	405.08	405.08	11.99	672,315.41	570,829.18	
4,300.00	84.25	89.90	4,072.85	409.25	0.75	429.88	429.88	11.99	672,315.45	570,853.98	
4,325.00	87.25	89.90	4,074.71	411.11	0.79	454.80	454.81	11.99	672,315.49	570,878.90	
4,332.20	88.11	89.90	4,075.00	411.40	0.81	462.00	462.00	11.99	672,315.51	570,886.10	
4,400.00	88.11	89.90	4,077.24	413.64	0.92	529.76	529.76	0.00	672,315.62	570,953.86	
4,500.00	88.11	89.90	4,080.53	416.93	1.10	629.71	629.71	0.00	672,315.80	571,053.81	
4,600.00	88.11	89.90	4,083.83	420.23	1.27	729.65	729.65	0.00	672,315.97	571,153.75	
4,700.00	88.11	89.90	4,087.13	423.53	1.45	829.60	829.60	0.00	672,316.15	571,253.70	
4,800.00	88.11	89.90	4,090.43	426.83	1.62	929.54	929.54	0.00	672,316.32	571,353.64	
4,900.00	88.11	89.90	4,093.73	430.13	1.80	1,029.49	1,029.49	0.00	672,316.50	571,453.59	
5,000.00	88.11	89.90	4,097.02	433.42	1.97	1,129.43	1,129.44	0.00	672,316.67	571,553.53	
5,100.00	88.11	89.90	4,100.32	436.72	2.15	1,229.38	1,229.38	0.00	672,316.85	571,653.48	
5,200.00	88.11	89.90	4,103.62	440.02	2.32	1,329.33	1,329.33	0.00	672,317.02	571,753.43	
5,300.00	88.11	89.90	4,106.92	443.32	2.49	1,429.27	1,429.27	0.00	672,317.19	571,853.37	
5,400.00	88.11	89.90	4,110.22	446.62	2.67	1,529.22	1,529.22	0.00	672,317.37	571,953.32	
5,500.00	88.11	89.90	4,113.51	449.91	2.84	1,629.16	1,629.16	0.00	672,317.54	572,053.26	
5,600.00	88.11	89.90	4,116.81	453.21	3.02	1,729.11	1,729.11	0.00	672,317.72	572,153.21	



Pathfinder
Pathfinder X & Y Planning Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #9
Project:	Eddy County(NAD27)	TVD Reference:	WELL @ 3663.60ft (19' KB)
Site:	Hatfield State	MD Reference:	WELL @ 3663.60ft (19' KB)
Well:	#9	North Reference:	Grd
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)
5,700.00	88.11	89.90	4,120.11	456.51	3.19	1,829.05	1,829.06	0.00	672,317.89	572,253.15
5,800.00	88.11	89.90	4,123.41	459.81	3.37	1,929.00	1,929.00	0.00	672,318.07	572,353.10
5,851.13	88.11	89.90	4,125.10	461.50	3.46	1,980.10	1,980.10	0.00	672,318.16	572,404.20
PBHL(H#9)										

Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PBHL(H#9) - plan hits target center - Point	0.00	0.00	4,125.00	3.40	1,980.10	672,318.100	572,404.200	32° 50' 53.034 N	104° 5' 51.259 W

Checked By: _____	Approved By: _____	Date: _____
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Azimuths to Grid North
True North: -0.12°
Magnetic North: 7.86°

Magnetic Field
Strength: 49016.6snT
Dip Angle: 60.69°
Date: 08/03/2010
Model: IGRF2010

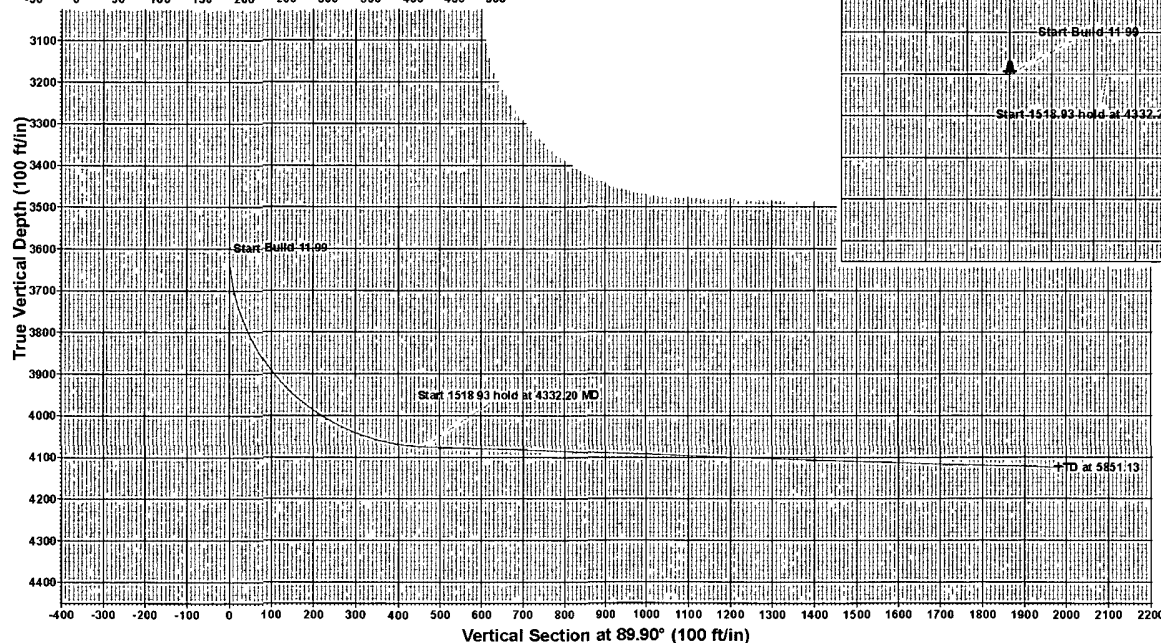
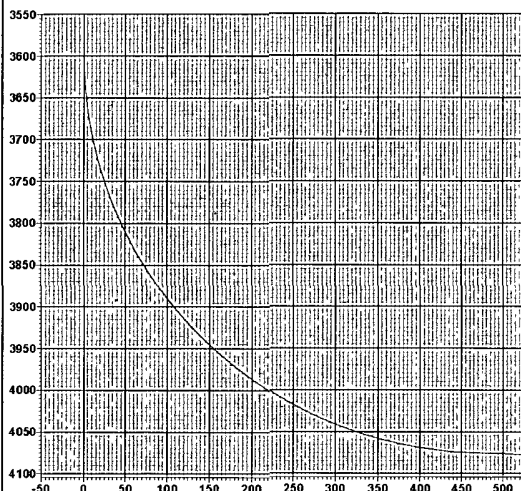
PATHFINDER

Project: Eddy County(NAD27)
Site: Hatfield State
Well: #9
Wellbore: OH
Plan: Plan #1 (#9/OH)

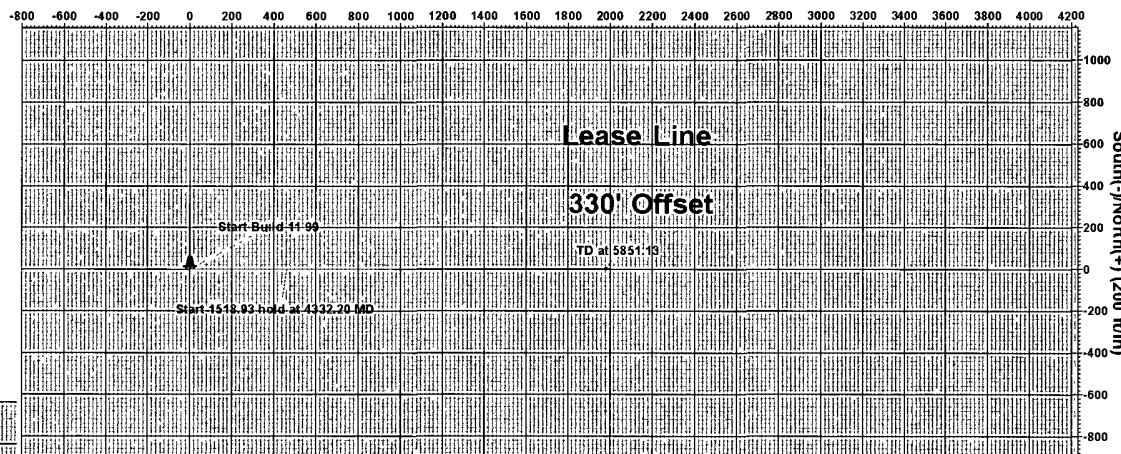
WELL DETAILS #9						
Ground Elevation: 3844.60						
RKB Elevation: WELL @ 3663 60ft (19' KB)						
Rig Name: 19' KB						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Spot
0.00	0.00	672314 700	570424 100	32° 50' 53.044 N	104° 6' 14.470 W	

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	3597.50	0.00	0.00	3597.50	0.00	0.00	0.00	0.00	0.00	
3	4332.20	88.11	89.90	4075.00	0.81	462.00	11.99	89.90	462.00	
4	5851.13	88.11	89.90	4125.10	3.46	1980.10	0.00	0.00	1980.10	PBHL(H#9)

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL(H#9)	25.00	3.40	1980.10	672318 100	572404 200	Point



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



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

Plan Plan #1 (#9/OH)	
Created By Nate Bingham	Date 15 04, August 03 2010
Checked _____	Date _____