

DATE IN 7/15	SUSPENSE	ENGINEER DB	LOGGED IN 7/15/11	TYPE NSL	APPROVING JHNTJ1119-55634
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ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
 - Engineering Bureau -
 1220 South St. Francis Drive, Santa Fe, NM 87505



COB
 Grave Digger StCom
 #341

ADMINISTRATIVE APPLICATION CHECKLIST

6535

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] TYPE OF APPLICATION - Check Those Which Apply for [A]

- [A] Location - Spacing Unit - Simultaneous Dedication
☒ NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

- [B] Commingling - Storage - Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

- [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
☐ WFX ☐ PMX ☐ SWD ☐ IPI ☐ EOR ☐ PPR

- [D] Other: Specify _____

[2] NOTIFICATION REQUIRED TO: - Check Those Which Apply, or ☒ Does Not Apply

INTEREST ARE THE SAME

- [A] ☐ Working, Royalty or Overriding Royalty Interest Owners
 [B] ☐ Offset Operators, Leaseholders or Surface Owner
 [C] ☐ Application is One Which Requires Published Legal Notice
 [D] ☐ Notification and/or Concurrent Approval by BLM or SLO
U S Bureau of Land Management - Commissioner of Public Lands, State Land Office
 [E] ☐ For all of the above, Proof of Notification or Publication is Attached, and/or,
 [F] ☐ Waivers are Attached

[3] SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.

[4] CERTIFICATION: I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Kelly J. Holly
 Print or Type Name

Signature

Permitting Tech
 Title

7-14-11
 Date

(432) 685-4384
 Phone Number

kholly@conchoresources.com
 E-mail Address

**Grave Digger State Com #3H
Eddy County, NM**

COG is requesting to horizontally drill a NW/4 NE/4 to SW/4 SE/4 120 acre spacing
N. Seven Rivers; Glorieta-Yeso oil well
Approximately: TVD 2750', MD 7209'

Non-standard Location:

SHL: 240' FNL & 1850' FEL	Sec 2, T20S, R25E, Unit 2
BHL: 330' FSL & 1980' FEL	Sec 2, T20S, R25E, Unit O

This well had to be staked at a non-standard location due to existing road and surface pipeline.

We won't know the exact perms until we drill & log it, but it will be very similar to the Grave Digger State Com #1H and is located at:

SHL: 330' FNL & 380' FWL	Section 2, T20S, R25E, Unit 4
BHL: 322' FSL & 384' FWL	Section 2, T20S, R25E, Unit M

Grave Digger State Com #1H has perms from: 2880' – 6880' overall, but broken up into 5 separate intervals, with 5 separate fracs:

1st Perf: 2880-3480',
acidized w/ 4861 gals, 15% NEFE; frac'd w/256764# sand & 516224 gal fluid

2nd Perf: 3730-4330',
acidized w/ 2521 gals, 15% NEFE; frac'd w/249468# sand & 511005 gal fluid

3rd Perf: 4580-5180',
acidized w/ 2427 gals, 15% NEFE; frac'd w/255948# sand & 519074 gal fluid

4th Perf: 5430-6030',
acidized w/ 3985 gals, 15% NEFE; frac'd w/250253# sand & 532321 gal fluid

5th Perf: 6266-6880',
acidized w/ 1506 gals, 15% NEFE; frac'd w/254588# sand & 512961 gal fluid

Attachment 1
Plat & Map

Attachment 2
Map & legend of offset wells.

Attachment 3
Updated land plat showing that COG Operating LLC owns the 100% of Section 35. The acreage we are encroaching on is the SW/4 SE/4 and SE/4 SE/4 of Section 35.

All interests are the same.

COG Operating LLC respectfully requests permission to have this NSL approved.

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
11885 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, New Mexico 87505

Form C-102
Revised July 16, 2010
Submit to Appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015- <u>39151</u>	Pool Code 97565	Pool Name N.Seven Rivers; Glorieta-Yeso
Property Code 308178	Property Name GRAVE DIGGER STATE COM	Well Number 3H
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 3453'

Surface Location

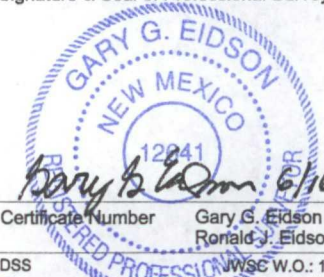
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
2	2	20-S	25-E		240	NORTH	1850	EAST	EDDY

Bottom Hole Location If Different From Surface

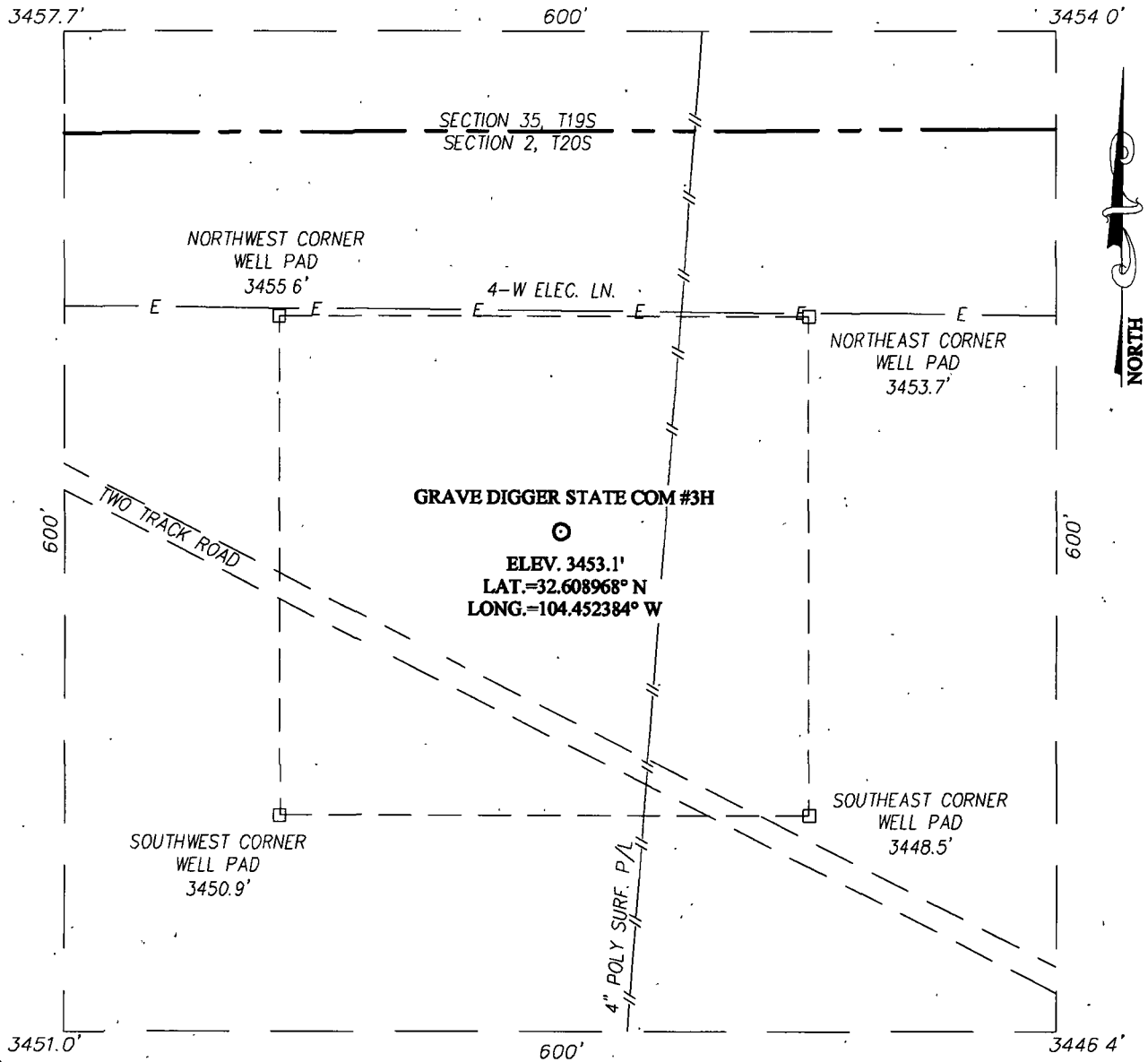
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	2	20-S	25-E		330	SOUTH	1980	EAST	EDDY

Dedicated Acres 160	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

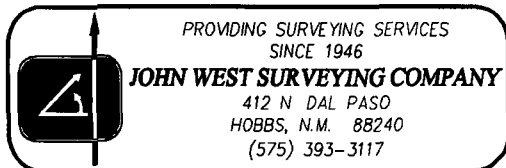
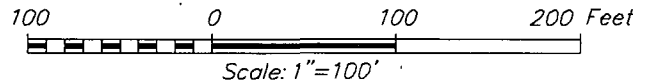
LOT 4 LOT 3 N: 585511.7 E: 462548.4 LOT 2 S.L. 240 SEE DETAIL LOT 1 N: 585516.2 E: 463869.6 1850' 3457.7' 3454.0' 3451.0' 3446.4' 600' 600' 330' 1980' N: 580253.0 E: 462532.4 N: 580241.0 E: 463855.1 Project Area Producing Area GRIR. AZ. - 181°43'37" HORZ. DIST. - 4701.0' B.H. GEODETIC COORDINATES NAD 27 NME. SURFACE LOCATION Y=585274.5 N X=463340.8 E LAT.=32.608968° N LONG.=104.452384° W BOTTOM HOLE LOCATION Y=580576.9 N X=463199.1 E	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. <u>Kelly J. Holly</u> 7-14-11 Signature Date Kelly J. Holly Printed Name kholly@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. MARCH 9, 2011 Date of Survey Signature & Seal of Professional Surveyor:  Certificate Number Gary G. Eidson 12641 Ronald J. Eidson 3239 DSS WSC W.O.: 11.13.1384
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SECTION 2, TOWNSHIP 20 SOUTH, RANGE 25 EAST, N.M.P.M.,
 EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF U.S. HWY. #285 (SEVEN RIVERS HWY) & CO. RD. #23 (ROCK DAISY) GO WEST ON CO. RD #23 FOR APPROX. 2.9 MILES. TURN LEFT AND GO SOUTH APPROX. 0.8 MILES. TURN LEFT AND GO SOUTHEAST APPROX. 0.3 MILES. VEER LEFT AND GO EAST APPROX. 0.3 MILES. TURN RIGHT AT TWO TRACK ROAD AND GO SOUTHWEST APPROX. 0.15 MILES. TURN LEFT AND GO SOUTHEAST APPROX. 500 FEET. THIS LOCATION IS APPROX. 120 FEET NORTH.



COG OPERATING, LLC

GRAVE DIGGER STATE COM #3H WELL
 LOCATED 240 FEET FROM THE NORTH LINE
 AND 1850 FEET FROM THE EAST LINE OF SECTION 2,
 TOWNSHIP 20 SOUTH, RANGE 25 EAST, N.M.P.M.,
 EDDY COUNTY, NEW MEXICO.

Survey Date 3/9/11	Sheet 1 of 1 Sheets
W.O. Number: 11.13.1384	Dr By: DSS
Date: 6/13/11	11131384
	Scale: 1"=100'



COG Operating LLC

Eddy County(NAD27)

Grave Digger

#3H

OH

Plan: Design #1

Pathfinder X & Y Planning Report

04 April, 2011

PATHFINDER
A Schlumberger Company



Pathfinder
Pathfinder X & Y Planning Report

PATHFINDER
A Schlumberger Company

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #3H
Project:	Eddy County(NAD27)	TVD Reference:	RKB-18.5' @ 3471.50usft. (Original Well Elev)
Site:	Grave Digger	MD Reference:	RKB-18.5' @ 3471.50usft. (Original Well Elev)
Well:	#3H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Design #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:	Grave Digger
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Site Position:		Northing:	585,274.500 usft	Latitude:	32° 36' 32.284 N
From:	Map	Easting:	463,340.800 usft	Longitude:	104° 27' 8.584 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.06 °

Well:		#3H				
Well Position	+N-S	0.00 usft	Northing:	585,274.500 usft	Latitude:	32° 36' 32.284 N
	+E-W	0.00 usft	Easting:	463,340.800 usft	Longitude:	104° 27' 8.584 W
Position Uncertainty	0.00 usft		Wellhead Elevation:	usft	Ground Level:	3,453.00 usft

Wellbore:	OH
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Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	04/04/11	8.04	60.39	48,768

Design:	Design #1
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Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/S	+E/W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	180 14

Survey Tool Program		Date: 04/04/11		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	7,208.93	Design #1 (OH)	MWD	MWD - Standard



Pathfinder
Pathfinder X & Y Planning Report

PATHFINDER
A Schlumberger Company

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #3H
Project:	Eddy County(NAD27)	TVD Reference:	RKB-18.5 @ 3471.50usft (Original Well Elev)
Site:	Grave Digger	MD Reference:	RKB-18.5 @ 3471.50usft (Original Well Elev)
Well:	#3H	North Reference:	Grid
Wellbore:	OH	Survey/Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DI Leg (°/100usft)	Northing (usft)	Easting (usft)	
0.00	0.00	0.00	0.00	3,471.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
100.00	0.00	0.00	100.00	3,371.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
200.00	0.00	0.00	200.00	3,271.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
300.00	0.00	0.00	300.00	3,171.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
400.00	0.00	0.00	400.00	3,071.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
500.00	0.00	0.00	500.00	2,971.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
600.00	0.00	0.00	600.00	2,871.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
700.00	0.00	0.00	700.00	2,771.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
800.00	0.00	0.00	800.00	2,671.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
900.00	0.00	0.00	900.00	2,571.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
1,000.00	0.00	0.00	1,000.00	2,471.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
1,100.00	0.00	0.00	1,100.00	2,371.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
1,200.00	0.00	0.00	1,200.00	2,271.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
1,300.00	0.00	0.00	1,300.00	2,171.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
1,400.00	0.00	0.00	1,400.00	2,071.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
1,500.00	0.00	0.00	1,500.00	1,971.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
1,600.00	0.00	0.00	1,600.00	1,871.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
1,700.00	0.00	0.00	1,700.00	1,771.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
1,800.00	0.00	0.00	1,800.00	1,671.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
1,900.00	0.00	0.00	1,900.00	1,571.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
2,000.00	0.00	0.00	2,000.00	1,471.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
2,100.00	0.00	0.00	2,100.00	1,371.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
2,200.00	0.00	0.00	2,200.00	1,271.50	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
2,237.50	0.00	0.00	2,237.50	1,234.00	0.00	0.00	0.00	0.00	585,274.50	463,340.80	
KOP-2237.50'MD;0.00°INC;0.00°AZI;2237.50'TVD											
2,250.00	1.50	180.14	2,250.00	1,221.50	-0.16	0.00	0.16	12.00	585,274.34	463,340.80	
2,275.00	4.50	180.14	2,274.96	1,196.54	-1.47	0.00	1.47	12.00	585,273.03	463,340.80	



Pathfinder
Pathfinder X & Y Planning Report

PATHFINDER
A Schlumberger Company

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well #3H
Project:	Eddy County (NAD27)	TVD Reference:	RKB-18.5' @ 3471.50usft (Original Well Elev)
Site:	Grave Digger	MD Reference:	RKB-18.5' @ 3471.50usft (Original Well Elev)
Well:	#3H	North Reference:	Grid:
Wellbore:	OH	Survey/Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	EDM 5000.1 Single User Db

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (%/100usft)	Northing (usft)	Easting (usft)
2,300.00	7.50	180.14	2,299.82	1,171.68	-4.08	-0.01	4.08	12.00	585,270.42	463,340.79
2,325.00	10.50	180.14	2,324.51	1,146.99	-7.99	-0.02	7.99	12.00	585,266.51	463,340.78
2,350.00	13.50	180.14	2,348.96	1,122.54	-13.19	-0.03	13.19	12.00	585,261.31	463,340.77
2,375.00	16.50	180.14	2,373.11	1,098.39	-19.66	-0.05	19.66	12.00	585,254.84	463,340.75
2,400.00	19.50	180.14	2,396.88	1,074.62	-27.38	-0.07	27.38	12.00	585,247.12	463,340.73
2,425.00	22.50	180.14	2,420.22	1,051.28	-36.34	-0.09	36.34	12.00	585,238.16	463,340.71
2,450.00	25.50	180.14	2,443.06	1,028.44	-46.51	-0.11	46.51	12.00	585,227.99	463,340.69
2,475.00	28.50	180.14	2,465.33	1,006.17	-57.85	-0.14	57.85	12.00	585,216.65	463,340.66
2,500.00	31.50	180.14	2,486.98	984.52	-70.35	-0.17	70.35	12.00	585,204.15	463,340.63
2,525.00	34.50	180.14	2,507.94	963.56	-83.96	-0.21	83.96	12.00	585,190.54	463,340.59
2,550.00	37.50	180.14	2,528.17	943.33	-98.66	-0.24	98.66	12.00	585,175.84	463,340.56
2,575.00	40.50	180.14	2,547.59	923.91	-114.39	-0.28	114.39	12.00	585,160.11	463,340.52
2,600.00	43.50	180.14	2,566.17	905.33	-131.11	-0.32	131.11	12.00	585,143.39	463,340.48
2,625.00	46.49	180.14	2,583.85	887.65	-148.78	-0.36	148.79	12.00	585,125.72	463,340.44
2,650.00	49.49	180.14	2,600.58	870.92	-167.36	-0.41	167.36	12.00	585,107.14	463,340.39
2,675.00	52.49	180.14	2,616.31	855.19	-186.78	-0.46	186.79	12.00	585,087.72	463,340.34
2,700.00	55.49	180.14	2,631.01	840.49	-207.01	-0.51	207.01	12.00	585,067.49	463,340.29
2,725.00	58.49	180.14	2,644.62	826.88	-227.97	-0.56	227.97	12.00	585,046.53	463,340.24
2,750.00	61.49	180.14	2,657.12	814.38	-249.62	-0.61	249.62	12.00	585,024.88	463,340.19
2,775.00	64.49	180.14	2,668.47	803.03	-271.89	-0.66	271.89	12.00	585,002.61	463,340.14
2,800.00	67.49	180.14	2,678.64	792.86	-294.72	-0.72	294.72	12.00	584,979.78	463,340.08
2,825.00	70.49	180.14	2,687.61	783.89	-318.06	-0.78	318.06	12.00	584,956.44	463,340.02
2,850.00	73.49	180.14	2,695.33	776.17	-341.83	-0.84	341.83	12.00	584,932.67	463,339.96
2,875.00	76.49	180.14	2,701.81	769.69	-365.97	-0.89	365.98	12.00	584,908.53	463,339.91
2,900.00	79.49	180.14	2,707.01	764.49	-390.42	-0.95	390.43	12.00	584,884.08	463,339.85
2,925.00	82.49	180.14	2,710.92	760.58	-415.11	-1.01	415.11	12.00	584,859.39	463,339.79
2,950.00	85.49	180.14	2,713.54	757.96	-439.97	-1.08	439.97	12.00	584,834.53	463,339.72



Pathfinder
Pathfinder X & Y Planning Report

PATHFINDER
A Schlumberger Company

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #3H
Project:	Eddy County(NAD27)	TVD Reference:	RKB-18.5' @ 3471.50usft (Original Well Elev)
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Well:	#3H	North Reference:	Grid:
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	EDM 5000.1 Single User Db

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	EW (usft)	V-Sec (usft)	DLeg (%/100usft)	Northing (usft)	Easting (usft)
2,975.00	88.49	180.14	2,714.85	756.65	-464.94	-1.14	464.94	12.00	584,809.56	463,339.66
2,983.58	89.52	180.14	2,715.00	756.50	-473.51	-1.16	473.52	12.00	584,800.99	463,339.64
EOC-2983.58°MD,89.52°INC,180.14°AZI,2715.00°TVD										
3,000.00	89.52	180.14	2,715.14	756.36	-489.93	-1.20	489.93	0.00	584,784.57	463,339.60
3,100.00	89.52	180.14	2,715.98	755.52	-589.93	-1.44	589.93	0.00	584,684.57	463,339.36
3,200.00	89.52	180.14	2,716.81	754.69	-689.93	-1.69	689.93	0.00	584,584.57	463,339.11
3,300.00	89.52	180.14	2,717.65	753.85	-789.92	-1.93	789.92	0.00	584,484.58	463,338.87
3,400.00	89.52	180.14	2,718.49	753.01	-889.92	-2.17	889.92	0.00	584,384.58	463,338.63
3,500.00	89.52	180.14	2,719.33	752.17	-989.91	-2.42	989.92	0.00	584,284.59	463,338.38
3,600.00	89.52	180.14	2,720.16	751.34	-1,089.91	-2.66	1,089.91	0.00	584,184.59	463,338.14
3,700.00	89.52	180.14	2,721.00	750.50	-1,189.91	-2.91	1,189.91	0.00	584,084.59	463,337.89
3,800.00	89.52	180.14	2,721.84	749.66	-1,289.90	-3.15	1,289.91	0.00	583,984.60	463,337.65
3,900.00	89.52	180.14	2,722.68	748.82	-1,389.90	-3.40	1,389.90	0.00	583,884.60	463,337.40
4,000.00	89.52	180.14	2,723.52	747.98	-1,489.90	-3.64	1,489.90	0.00	583,784.60	463,337.16
4,100.00	89.52	180.14	2,724.35	747.15	-1,589.89	-3.88	1,589.90	0.00	583,684.61	463,336.92
4,200.00	89.52	180.14	2,725.19	746.31	-1,689.89	-4.13	1,689.89	0.00	583,584.61	463,336.67
4,300.00	89.52	180.14	2,726.03	745.47	-1,789.88	-4.37	1,789.89	0.00	583,484.62	463,336.43
4,400.00	89.52	180.14	2,726.87	744.63	-1,889.88	-4.62	1,889.89	0.00	583,384.62	463,336.18
4,500.00	89.52	180.14	2,727.70	743.80	-1,989.88	-4.86	1,989.88	0.00	583,284.62	463,335.94
4,600.00	89.52	180.14	2,728.54	742.96	-2,089.87	-5.11	2,089.88	0.00	583,184.63	463,335.69
4,700.00	89.52	180.14	2,729.38	742.12	-2,189.87	-5.35	2,189.88	0.00	583,084.63	463,335.45
4,800.00	89.52	180.14	2,730.22	741.28	-2,289.86	-5.60	2,289.87	0.00	582,984.64	463,335.20
4,900.00	89.52	180.14	2,731.05	740.45	-2,389.86	-5.84	2,389.87	0.00	582,884.64	463,334.96
5,000.00	89.52	180.14	2,731.89	739.61	-2,489.86	-6.08	2,489.86	0.00	582,784.64	463,334.72
5,100.00	89.52	180.14	2,732.73	738.77	-2,589.85	-6.33	2,589.86	0.00	582,684.65	463,334.47
5,200.00	89.52	180.14	2,733.57	737.93	-2,689.85	-6.57	2,689.86	0.00	582,584.65	463,334.23
5,300.00	89.52	180.14	2,734.41	737.09	-2,789.85	-6.82	2,789.85	0.00	582,484.65	463,333.98



Pathfinder
Pathfinder X & Y Planning Report

PATHFINDER
A Schlumberger Company

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #3H
Project:	Eddy County(NAD27)	TVD Reference:	RKB-18.5 @ 3471.50usft (Original Well Elev)
Site:	Grave Digger	MD Reference:	RKB-18.5 @ 3471.50usft (Original Well Elev)
Well:	#3H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	EDM-5000:1 Single User Db

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V.Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
5,400.00	89.52	180.14	2,735.24	736.26	-2,889.84	-7.06	2,889.85	0.00	582,384.66	463,333.74
5,500.00	89.52	180.14	2,736.08	735.42	-2,989.84	-7.31	2,989.85	0.00	582,284.66	463,333.49
5,600.00	89.52	180.14	2,736.92	734.58	-3,089.83	-7.55	3,089.84	0.00	582,184.67	463,333.25
5,700.00	89.52	180.14	2,737.76	733.74	-3,189.83	-7.79	3,189.84	0.00	582,084.67	463,333.01
5,800.00	89.52	180.14	2,738.59	732.91	-3,289.83	-8.04	3,289.84	0.00	581,984.67	463,332.76
5,900.00	89.52	180.14	2,739.43	732.07	-3,389.82	-8.28	3,389.83	0.00	581,884.68	463,332.52
6,000.00	89.52	180.14	2,740.27	731.23	-3,489.82	-8.53	3,489.83	0.00	581,784.68	463,332.27
6,100.00	89.52	180.14	2,741.11	730.39	-3,589.82	-8.77	3,589.83	0.00	581,684.68	463,332.03
6,200.00	89.52	180.14	2,741.95	729.55	-3,689.81	-9.02	3,689.82	0.00	581,584.69	463,331.78
6,300.00	89.52	180.14	2,742.78	728.72	-3,789.81	-9.26	3,789.82	0.00	581,484.69	463,331.54
6,400.00	89.52	180.14	2,743.62	727.88	-3,889.80	-9.50	3,889.82	0.00	581,384.70	463,331.30
6,500.00	89.52	180.14	2,744.46	727.04	-3,989.80	-9.75	3,989.81	0.00	581,284.70	463,331.05
6,600.00	89.52	180.14	2,745.30	726.20	-4,089.80	-9.99	4,089.81	0.00	581,184.70	463,330.81
6,700.00	89.52	180.14	2,746.13	725.37	-4,189.79	-10.24	4,189.80	0.00	581,084.71	463,330.56
6,800.00	89.52	180.14	2,746.97	724.53	-4,289.79	-10.48	4,289.80	0.00	580,984.71	463,330.32
6,900.00	89.52	180.14	2,747.81	723.69	-4,389.78	-10.73	4,389.80	0.00	580,884.72	463,330.07
7,000.00	89.52	180.14	2,748.65	722.85	-4,489.78	-10.97	4,489.79	0.00	580,784.72	463,329.83
7,100.00	89.52	180.14	2,749.49	722.01	-4,589.78	-11.21	4,589.79	0.00	580,684.72	463,329.59
7,209.03	89.52	180.14	2,750.40	721.10	-4,698.80	-11.48	4,698.81	0.00	580,575.70	463,329.32

TD at 7209.03



Pathfinder
Pathfinder X & Y Planning Report

PATHFINDER
A Schlumberger Company

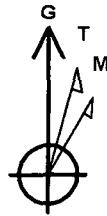
Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #3H
Project:	Eddy County(NAD27)	TVD Reference:	RKB-18.5' @ 3471.50usft (Original Well Elev)
Site:	Grave Digger	MD Reference:	RKB-18.5' @ 3471.50usft (Original Well Elev)
Well:	#3H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	EDM:5000.1 Single User Db

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		N/S (usft)	E/W (usft)	
2,237.50	2,237.50	0.00	0.00	KOP-2237.50°MD,0.00°INC,0.00°AZI,2237.50°TVD
2,983.58	2,715.00	-473.51	-1.16	EOC-2983.58°MD,89.52°INC,180 14°AZI,2715.00°TVD
7,209.03	2,750.40	-4,698.80	-11.48	TD at 7209.03

Checked By: _____ Approved By: _____ Date: _____



Project: Eddy County(NAD27)
 Site: Grave Digger
 Well: #3H
 Wellbore: OH
 Plan: Design #1 (#3H/OH)



Azimuths to Grid North
 True North: 0.06°
 Magnetic North: 8.11°

Magnetic Field
 Strength: 48767.7snT
 Dip Angle: 60.39°
 Date: 04/04/2011
 Model: IGRF2010

PATHFINDER
 A Schlumberger Company

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

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2237.50	0.00	0.00	2237.50	0.00	0.00	0.00	0.00	0.00	
2983.58	89.52	180.14	2715.00	-473.51	-1.16	12.00	180.14	473.52	
47209.03	89.52	180.14	2750.40	-4698.80	-11.48	0.00	0.00	4698.81	BHL (GraveDigger#3H)

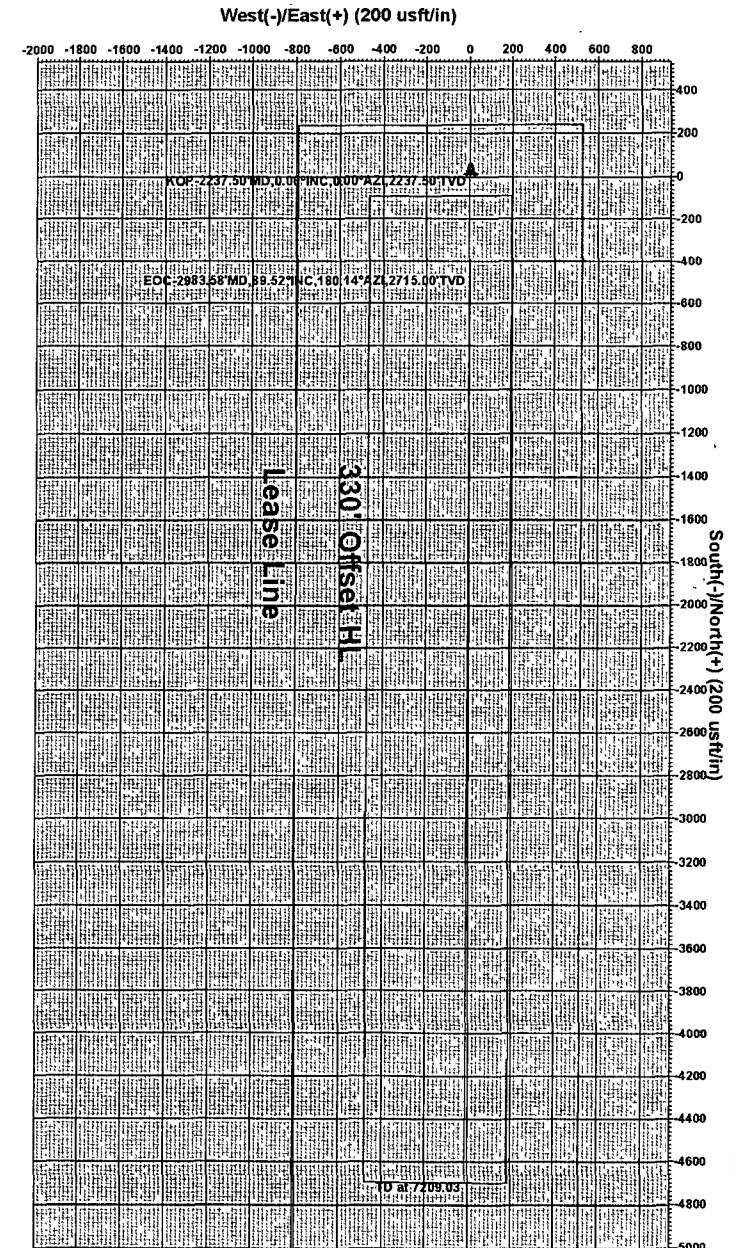
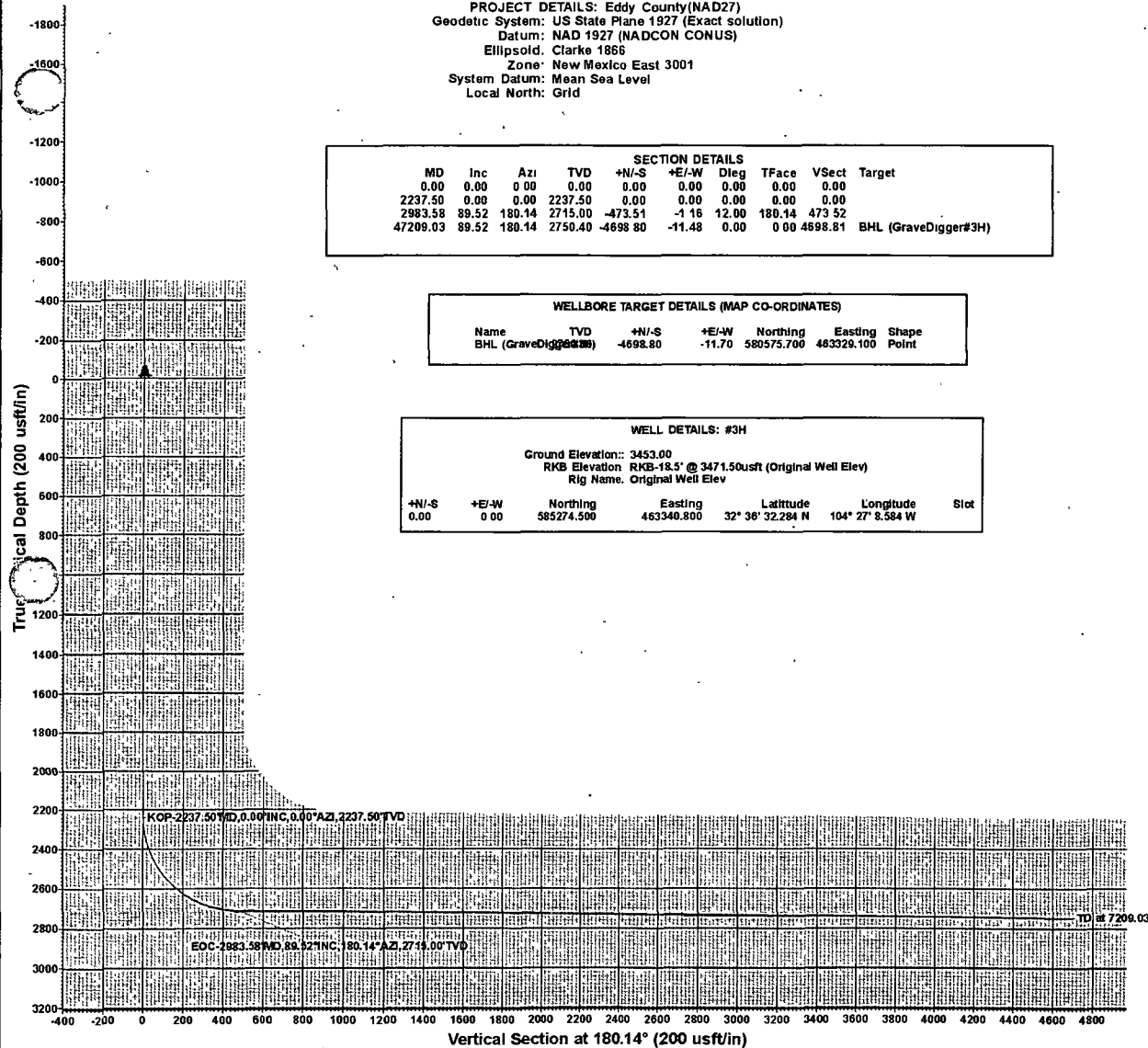
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
BHL (GraveDigger#3H)	2750.40	-4698.80	-11.70	580575.700	483329.100	Point

WELL DETAILS: #3H

Ground Elevation: 3453.00
 RKB Elevation: RKB-18.5' @ 3471.50usft (Original Well Elev)
 Rig Name: Original Well Elev

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Spot
0.00	0.00	585274.500	463340.800	32° 36' 32.284 N	104° 27' 8.584 W	



Plan Design #1 (#3H/OH)

Created By: Nate Bingham Date: 14 46, April 04 2011

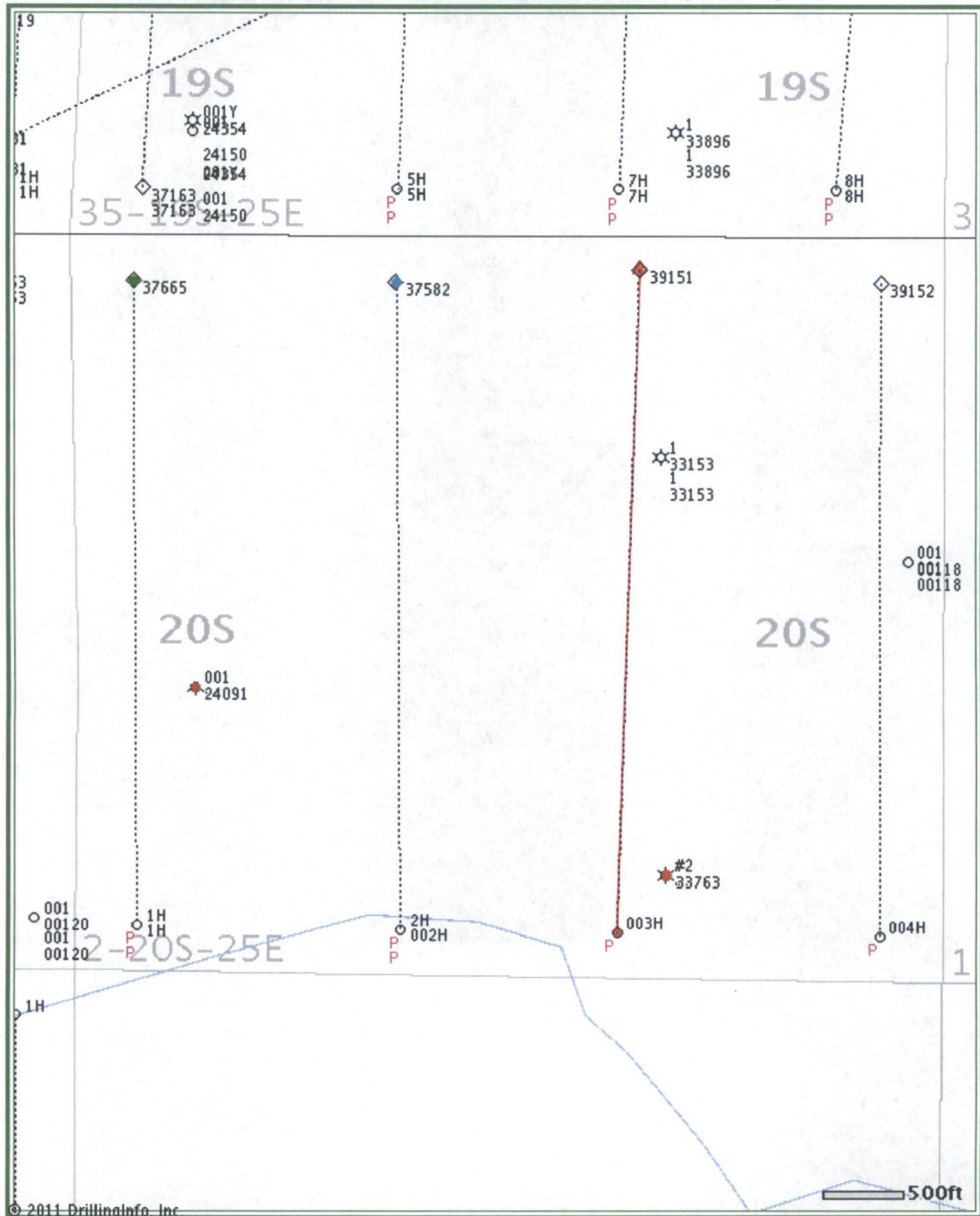
Checked: _____ Date: _____

Producing Wells in Sec 2, T20S, R25E, Eddy County

API#	Operator	Lease	Well#	County	Legal	Total Depth	Well Type	Well Status	First Prod.	Last Prod.	Avg. (BO/D)
30-015-24091	SANTA FE EXPLORATION CO	EXXON STATE COM	001	EDDY	S:2, T:20S, R:25E	9,838	G	Shut-in	Jan 1984	Jan 1993	0.00
30-015-37665	COG OPERATING LLC	GRAVE DIGGER FEDERAL	1H	EDDY	S:2, T:20S, R:25E	6,927	U	Active Permit	Jun 2010	May 2011	118.06
30-015-37582	COG OPERATING LLC	GRAVE DIGGER STATE COM	2H	EDDY	S:2, T:20S, R:25E	7,060	O	Active Permit	Oct 2010	May 2011	125.26
30-015-33763	MARBOB ENERGY CORP	CEMETARY 2	#2	EDDY	S:2, T:20S, R:25E	9,820	G	Active	Nov 2005	May 2011	

Grave Digger State Com #3H

Producing Wells in Sec 2, T20S, R25E, Eddy County



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Non Standard Location
COG Operating LLC
Operator
Sec. 35, Unit O-SWSE, Unit P-SESE
T-20S-R-25E, Eddy County, NM
Lease # NMNM - 111946

COG Operating LLC
Operator
Sec. 2, Unit B - NWNE
T-20S-R-25E, Eddy County, NM
Well Name: Grave Digger State Com #3H
Lease # V0-6203-00

