

(July 1992)

**UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT**

(Other instructions on reverse side)

OMB NO. 1004-0136
Expires: February 28, 1995

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. TYPE OF WORK

DRILL ☒DEEPEN ☐

b. TYPE OF WELL

OIL WELL ☐GAS WELL ☒OTHER ☐SINGLE ZONE ☒MULTIPLE ZONE ☐

2. NAME OF OPERATOR

COG OPERATING, LLC.

(GREG WILKES 432-685-4341)

3. ADDRESS AND TELEPHONE NO.

550 WEST TEXAS AVENUE SUITE 1300 MIDLAND, TEXAS 79701

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)

At surface

890' FNL & 1090' FWL SECTION 33 T20S-R27E EDDY CO. NM

At proposed prod. zone SAME

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*

Approximately 15 miles North of Carlsbad New Mexico

15. DISTANCE FROM PROPOSED*

LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT.
(Also to nearest drlg. unit line, if any)

890'

16. NO. OF ACRES IN LEASE

1920

17. NO. OF ACRES ASSIGNED TO THIS WELL

320

18. DISTANCE FROM PROPOSED LOCATION*

TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.

2600'

19. PROPOSED DEPTH

11,100'

20. ROTARY OR CABLE TOOLS

ROTARY

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

3219' GR.

22. APPROX. DATE WORK WILL START*

WHEN APPROVED

23.

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
25"	Conductor	NA	40'	Cement to surface with Redi-mix
17½"	H-40 13 3/8"	48	450'	450 Sx. circulate cement to sur.
12½"	J-55 8 5/8"	32	2200'	700 Sx. " " "
7 7/8"	N-80/P-110 5½"	17	11,100'	600 Sx. estimate TOC 8000'

1. Drill 25" hole to 40'. Set 40' of 20" conductor pipe and cement to surface with Redi-mix.
2. Drill 17½" hole to 450'. Run and set 450' of 13 3/8" 48# H-40 ST&C casing. Cement with 450 Sx. of Class "C" cement + 2% CaCl₂ + ¼# Floccle/Sx. circulate cement to surface.
3. Drill 12½" hole to 2200'. Run and set 2200' of 8 5/8" 32# J-55 ST&C casing. Cement with 500 Sx. of Class "C" 50/50 POX light weight cement, tail in with 200 Sx. of Class "C" cement + additives, circulate cement to surface.
4. Drill 7 7/8" hole to 11,100'. Run and set 11,100' of 5½" casing as follows: 4000' of 5½" 17# P-110 LT&C, 6000' of 5½" 17# N-80 LT&C, 1100' of 5½" 17# P-110 LT&C casing. Cement with 600 Sx. of Class "H" Premium Plus cement + additives, estimate top of cement 8000'. Top of cement must be at least 500' above the uppermost pay interval.

Captain Controlled Water Basin

**APPROVAL SUBJECT TO
GENERAL REQUIREMENTS AND
SPECIAL STIPULATIONS**

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout prevention program, if any.

24.

SIGNED

TITLE Agent

DATE 01/04/05

(This space for Federal or State office use)

PERMIT NO.

APPROVAL DATE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
CONDITIONS OF APPROVAL, IF ANY:

/s/ Tony J. Herrell

APPROVED BY

TITLE

FIELD MANAGER

DATE

FEB 11 2005

*See Instructions On Reverse Side

APPROVAL FOR 1 YEAR

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations or to any matter within its jurisdiction.

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240

State of New Mexico
Energy, Minerals and Natural Resources Department

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

OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102
Revised JUNE 10, 2003
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code 70920	Pool Name AVALON-MORROW
Property Code	Property Name HANSON 33 FEDERAL	Well Number 4
OGRID No. 229137	Operator Name COG OPERATING, LLC.	Elevation 3219'

Surface Location

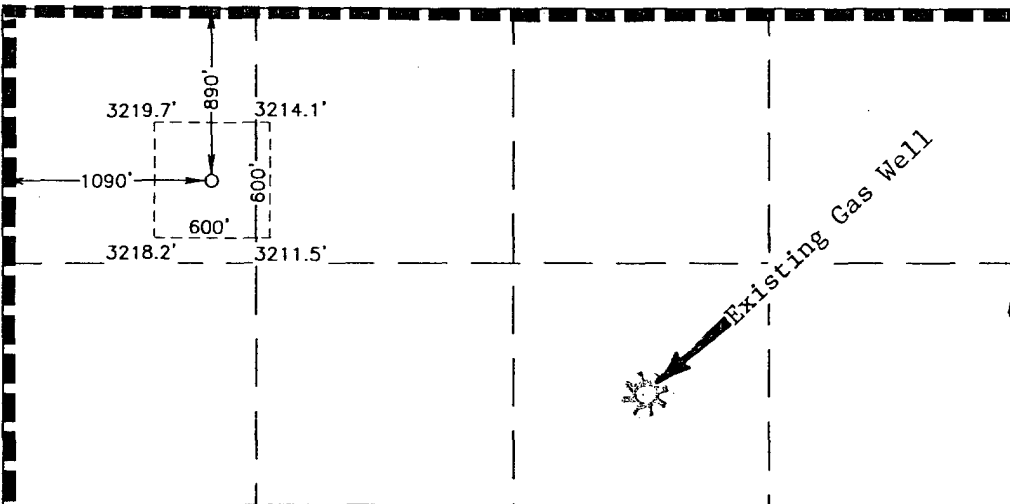
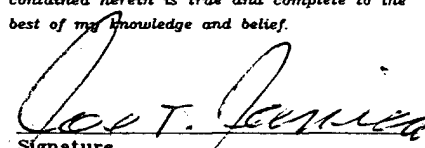
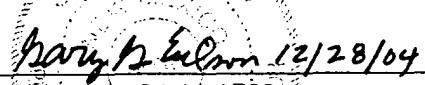
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	33	20-S	27-E		890	NORTH	1090	WEST	EDDY

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

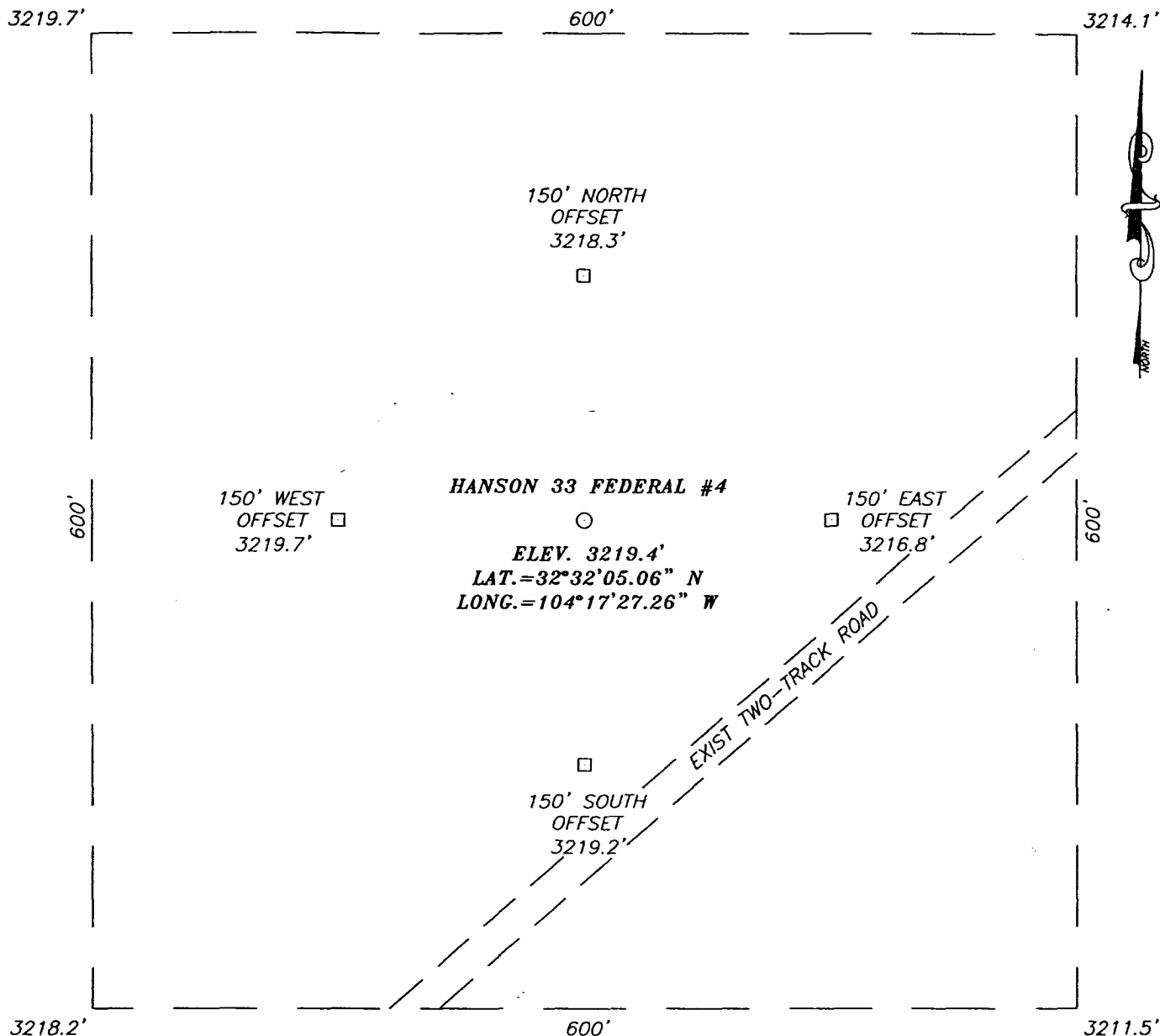
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

	OPERATOR CERTIFICATION I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.  Signature <u>Joe T. Janica</u> Printed Name <u>Agent</u> Title <u>01/04/05</u> Date
	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. DECEMBER 20, 2004 Date Surveyed Signature & Seal of Professional Surveyor  04.11.1729 Certificate No. GARY EDSON 12841

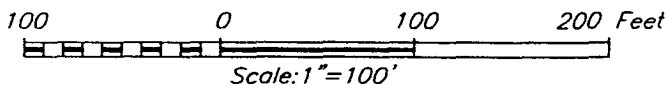
GEODETIC COORDINATES
NAD 27 NME
Y=558253.0 N
X=513075.8 E
LAT.=32°32'05.06" N
LONG.=104°17'27.26" W

SECTION 33, TOWNSHIP 20 SOUTH, RANGE 27 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

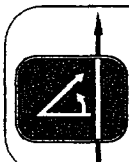
FROM THE INTERSECTION OF CO. RD. #206
(ILLINOIS CAMP RD.) AND CO. RD. #34 (LAKE RD.)
GO WEST ON CO. RD. #34 FOR APPROX. 0.8
MILES TO CO. RD. #601 (HIGH NOON RD.). GO
SOUTH ON CO. RD. #601 FOR APPROX. 0.6
MILES. TURN RIGHT (NW) AND GO APPROX. 3
MILES. PROPOSED LOCATION IS APPROX. 800'
SOUTH.



COG OPERATING, LLC.

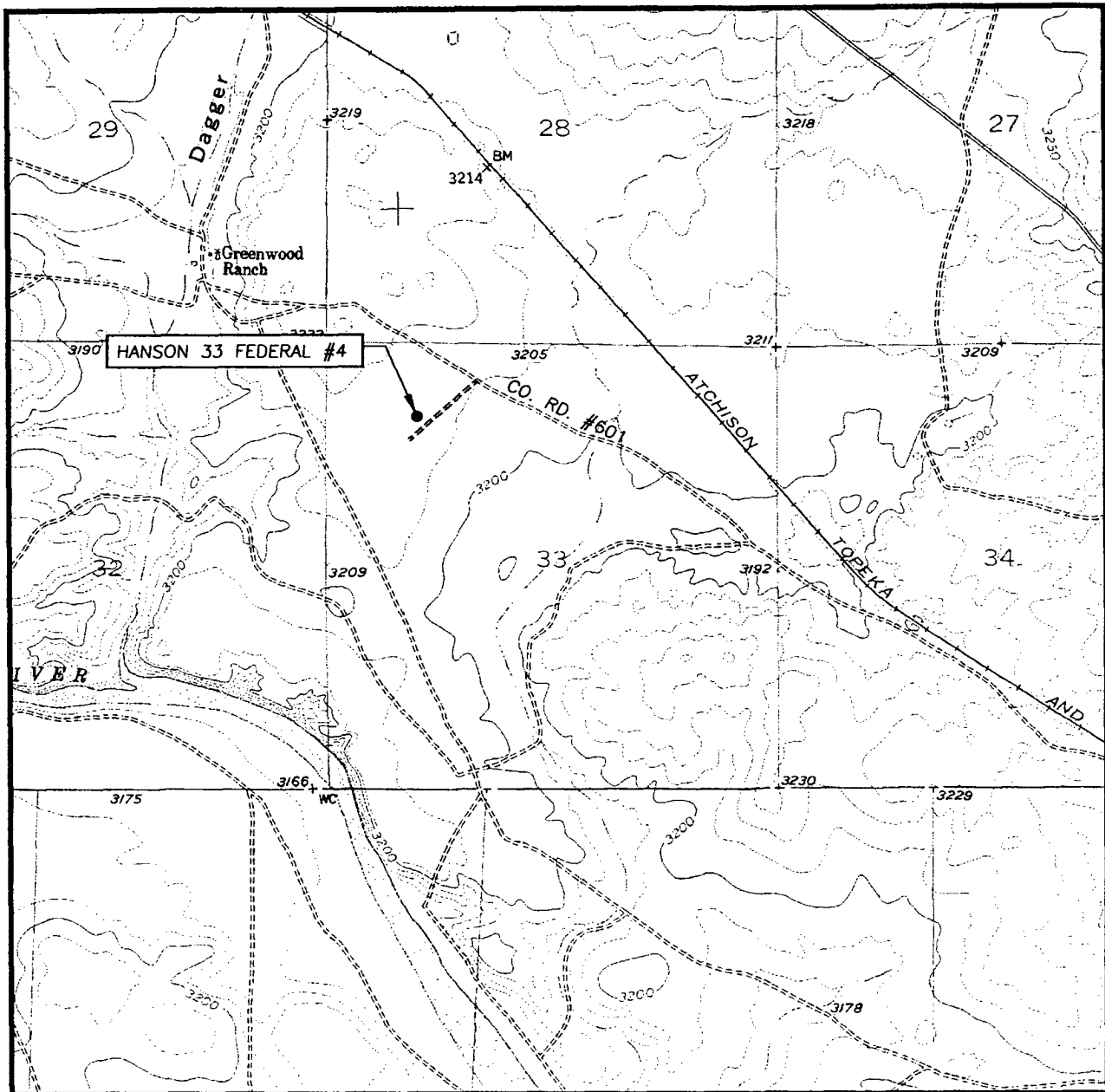
HANSON 33 FEDERAL #4 WELL
LOCATED 890 FEET FROM THE NORTH LINE
AND 1090 FEET FROM THE WEST LINE OF SECTION 33,
TOWNSHIP 20 SOUTH, RANGE 27 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.

Survey Date: 12/20/04		Sheet 1 of 1 Sheets	
W.O. Number: 04.11.1729		Dr By: J.R.	Rev 1:N/A
Date: 12/23/04	Disk: CD#10	04111729	Scale: 1"=100'



PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(505) 383-3117

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
LAKE McMILLAN SOUTH, N.M. - 10'

SEC. 33 TWP. 20-S RGE. 27-E

SURVEY N.M.P.M.

COUNTY EDDY

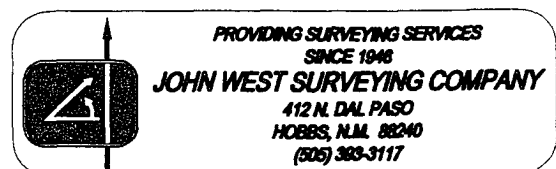
DESCRIPTION 890' FNL & 1090' FWL

ELEVATION 3219'

OPERATOR COG OPERATING, LLC.

LEASE HANSON 33 FEDERAL

U.S.G.S. TOPOGRAPHIC MAP
LAKE McMILLAN SOUTH, N.M.



APPLICATION TO DRILL

COG OPERATING, LLC.
HANSON "33" FEDERAL # 4
UNIT "D" SECTION 33
T20S-R27E EDDY CO. NM

In response to questions asked under Section II of Bulletin NTL-6 the following information on the above well is provided for your consideration.

1. Location of well: 890' FNL & 1090' FWL Section 33 T20S-R27E EDDY CO. NM
2. Ground Elevation above Sea Level: 3219' GR.
3. Geological age of surface formation: Quaternary Deposits:
4. Drilling tools and associated equipment: Conventional rotary drilling rig using drilling mud as a circulating medium to remove solids from hole.
5. Proposed drilling depth: 11,100'
6. Estimated tops of geological markers:

Seven Rivers	450'	Wolfcamp	8230'
Delaware	2250'	Strawn	9650'
Bone Spring	3875'	Atoka	9950'
1st Bone Spring	5750'	Morrow Clastics	10,530'
7. Possible mineral bearing formations:

Delaware	Oil	Atoka	Gas
Bone Spring	Oil	Morrow	Gas
8. Casing Program:

Hole Size	Interval	OD of Casing	Weight	Thread	Collar	Grade
25"	0-40'	20"	NA	NA	NA	Conductor
17½"	0-450'	13 3/8"	48#	8-R	ST&C	H-40
12½"	0-2200'	8 5/8"	32#	8-R	ST&C	J-55
7 7/8"	0-11,100'	5½"	17#	8-R	LT&C	P-110 & N-80

APPLICATION TO DRILL

COG OPERATING, LLC.
HANSON "33" FEDERAL # 4
UNIT "D" SECTION 33
T20S-R27E EDDY CO. NM

9. CEMENTING & SETTING DEPTH:

20"	Conductor	Set 40' of 20" conductor pipe and cement to surface with Redi-mix.
13 3/8"	Surface	Set 450' of 13 3/8" 48# H-40 ST&C casing. Cement with 450 Sx. of Class "C" cement + 2% CaCl, + 1/4# Flocele/Sx. Circulate cement to surface.
8 5/8"	Intermediate	Set 2200' of 8 5/8" 32# J-55 ST&C casing. Cement with 500 Sx. of Class "C" 50/50 POZ Light cement + additives, tail in with 200 Sx. of Class "C" cement + additives. Circulate cement to surface.
5 1/2"	Production	Set 11,100' of 5 1/2" casing as follows: 4000' of 5 1/2" 17# P-110 LT&C, 6000' of 5 1/2" 17# N-80 LT&C, 1100' of 17# P-110 LT&C casing. Cement with 600 Sx. of Class "H" Premium Plus cement + additives. Cement top estimate 8000'. Top of cement must be at least 500' above the upper most pay interval.

10. PRESSURE CONTROL EQUIPMENT: Exhibit "E" shows a 900 Series 3000 PSI working pressure B.O.P. consisting of an annular bag type preventor, middle blind rams, and bottom pipe rams. The B.O.P. will be nipped up on the 13 3/8" casing and tested to API specifications. The B.O.P. will be operated at least once in each 24 hour period and the blind rams will be operated when the drill pipe is out of hole on trips. Full opening stabbing valve and upper kelly cock will be utilized. Exhibit "E-1" shows a hydraulically operated closing unit and a 2" 3000 PSI choke manifold with dual adjustable chokes. No abnormal pressures or temperatures are expected in this well.

11. PROPOSED MUD CIRCULATING SYSTEM:

DEPTH	MUD WT.	VISC.	FLUID LOSS	TYPE SYSTEM
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SEE PAGE 2-A

Sufficient mud materials will be kept on location at all times in order to combat lost circulation, or unexpected kicks. In order to run DST's, open hole logs, & casing the viscosity and/or water loss may have to be adjusted to meet these needs.

APPLICATION TO DRILL

COG OPERATING, LLC.
 HANSON "33" FEDERAL # 4
 UNIT "D" SECTION 33
 T20S-R27E EDDY CO. NM

9. Proposed Mud Circulating System

<u>Interval</u>	<u>Mud Wt.</u>	<u>Visc.</u>	<u>FL</u>	<u>Type Mud System</u>
0'- 450'	8.4-8.8	28-35	NC	Fresh water native mud w/ paper for seepage and sweeps. Lime for PH
450'- 2200'	8.4-8.8	28-35	NC	Fresh water native mud w/ paper for seepage and sweeps. Lime for PH,
2200'- 5700'	8.4- 8.6	28-35	NC	Fresh water, lime for PH and paper for seepage and sweeps.
5700' – 8200'	8.6-9.2	NC	NC	Drill section with fresh water/cut brine circulating the reserve utilizing periodic sweeps of paper as needed for seepage control and solids removal.
8200' – 9900'	9.2-9.5	NC	NC	Increase weight with brine additions and utilize periodic sweeps of paper as needed for seepage control and solids removal.
9900' – 10500'	9.5 – 9.6	31-32	<20	Increase weight with brine additions and mud up with starch and XCD polymer circulating through steel pits.
10500' – 11100'	9.5 – 9.6	36-42	<8	Reduce Fluid loss w/ starch and XCD Polymer. Maintain properties to TD. Spot a high vis pill on bottom for logs.

APPLICATION TO DRILL

COG OPERATING, LLC.
HANSON "33" FEDERAL # 4
UNIT "D" SECTION 33
T20S-R27E EDDY CO. NM

12. LOGGING, CORING, AND TESTING PROGRAM:

- A. Open hole logs: Dual Laterolog, SNP, LDT, Gamma Ray, Caliper from TD back to 8 5/8" casing shoe.
- B. Run Gamma Ray, Neutron from 8 5/8" casing shoe back to surface.
- C. Mud logger may be rigged up on hole at Geologists direction and remain on hole to TD.
- D. No cores or DST's are planned at this time.

13. POTENTIAL HAZARDS:

No abnormal pressures or temperatures are expected. There is no known presence of H²S in this area. If H²S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP 5500 PSI, and Estimated BHT 190°.

14. ANTICIPATED STARTING DATE AND DURATION OF OPERATION:

Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon after BLM approval and as soon as a rig will be available. Move in operation and drilling is expected to take 38 days. If production casing is run then an additional 30 days will be needed to complete well and construct surface facilities and/or lay flowlines in order to place well on production.

15. OTHER FACETS OF OPERATIONS:

After running casing, cased hole Gamma Ray, Neutron Collar logs will be run from TD back to all possible productive zones. The Morrow formation will be perforated and stimulated in order to establish production. The well will be swab tested and potentialized as a gas well.

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

1. All Company and Contract personnel admitted on location must be trained by a qualified H₂S safety instructor to the following:
 - A. Characteristics of H₂S
 - B. Physical effects and hazards
 - C. Proper use of safety equipment and life support systems.
 - D. Principle and operation of H₂S detectors, warning system and briefing areas.
 - E. Evacuation procedure, routes and first aid.
 - F. Proper use of 30 minute pressure demand air pack.
2. H₂S Detection and Alarm Systems
 - A. H₂S detectors and audio alarm system to be located at bell nipple, end of blooie line (mud pit) and on derrick floor or doghouse.
3. Windsock and/or wind streamers
 - A. Windsock at mudpit area should be high enough to be visible.
 - B. Windsock at briefing area should be high enough to be visible.
 - C. There should be a windsock at entrance to location.
4. Condition Flags and Signs
 - A. Warning sign on access road to location.
 - B. Flags to be displayed on sign at entrance to location. Green flag, normal safe condition. Yellow flag indicates potential pressure and danger. Red flag, danger, H₂S present in dangerous concentration. Only emergency personnel admitted to location.
5. Well control equipment
 - A. See exhibit "E" & "E-1"
6. Communication
 - A. While working under masks chalkboards will be used for communication.
 - B. Hand signals will be used where chalk board is inappropriate.
 - C. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephoned will be available at most drilling foreman's trailer or living quarters.
7. Drillstem Testing
 - A. Exhausts will be watered.
 - B. Flare line will be equipped with an electric ignitor or a propane pilot light in case gas reaches the surface.
 - C. If the location is near to a dwelling a closed DST will be performed.

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

8. Drilling contractor supervisor will be required to be familiar with the effects H₂S has on tubular goods and other mechanical equipment.
9. If H₂S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H₂S scavengers if necessary.

SURFACE USE PLAN

COG OPERATING, LLC.
HANSON "33" FEDERAL # 4
UNIT "D" SECTION 33
T20-R27E EDDY CO. NM

1. EXISTING ROADS & PROPOSED ROADS: Area maps; Exhibit "B" is a reproduction of a County General Hi-way Map. Exhibit "C" is a reproduction of a USGS Topographic Map, showing existing and proposed roads. All existing roads will be maintained in a condition equal to or better than current conditions. Any new roads will be constructed to BLM specifications.
 - A. Exhibit "A" shows the proposed well site as staked.
 - B. From Hobbs New Mexico take U.S. Hi-way 62-180 West toward Carlsbad New Mexico Go approximately 68 miles to the junction of the Carlsbad By-pass road (CR-604) Take By-pass road North & West 4.5± miles to CR-206 follow CR-206 2.5 miles to CR-34 turn Left go .8± miles to CR-601 bear Left go .6± miles cross Railroad track turn Right (North go 3.2± miles to two track road turn Left go 800'± to location.
 - C. Exhibit "C" shows roads on a topographic map and directions to well R-O-W for flowlines will be submitted at a later date on a Sundry Report.
2. PLANNED ACCESS ROADS: Approximately 800' of new road will be constructed.
 - A. The access roads will be crowned and ditched to a 12' wide travel surface with a 40' Right-of-Way.
 - B. Gradient of all roads will be less than 5.00%.
 - C. If turn-outs are necessary they will be constructed.
 - D. If needed roads will be surfaced with a minimum of 4" of caliche. This material will be obtained from a local source.
 - E. Center-line for new roads will be flagged. Earth-work will be will be done as field conditions require.
 - F. Culverts will be placed in the access road if they are necessary. The roads will be constructed to utilize low water crossings for drainage as required by topography.
3. LOCATIONS OF EXISTING WELLS IN A ONE MILE RADIUS. EXHIBIT "A-1"
 - A. Water wells - One approximately .6 miles Northwest of loaction.
 - B. Disposal wells - None known
 - C. Drilling wells - None known
 - D. Producing wells - As shown on Exhibit "A-1"
 - E. Abandoned wells - As shown on Exhibit "A-1"

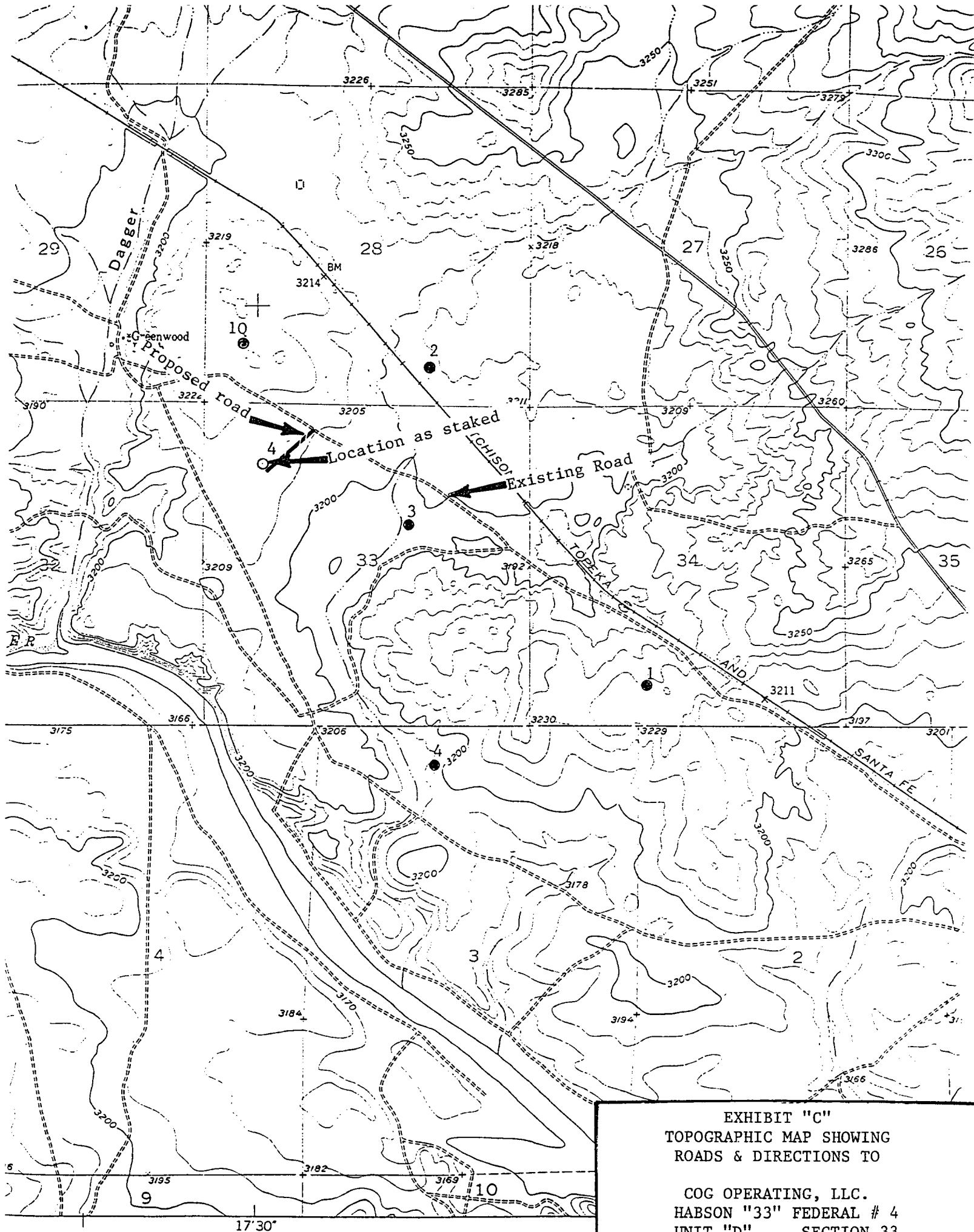
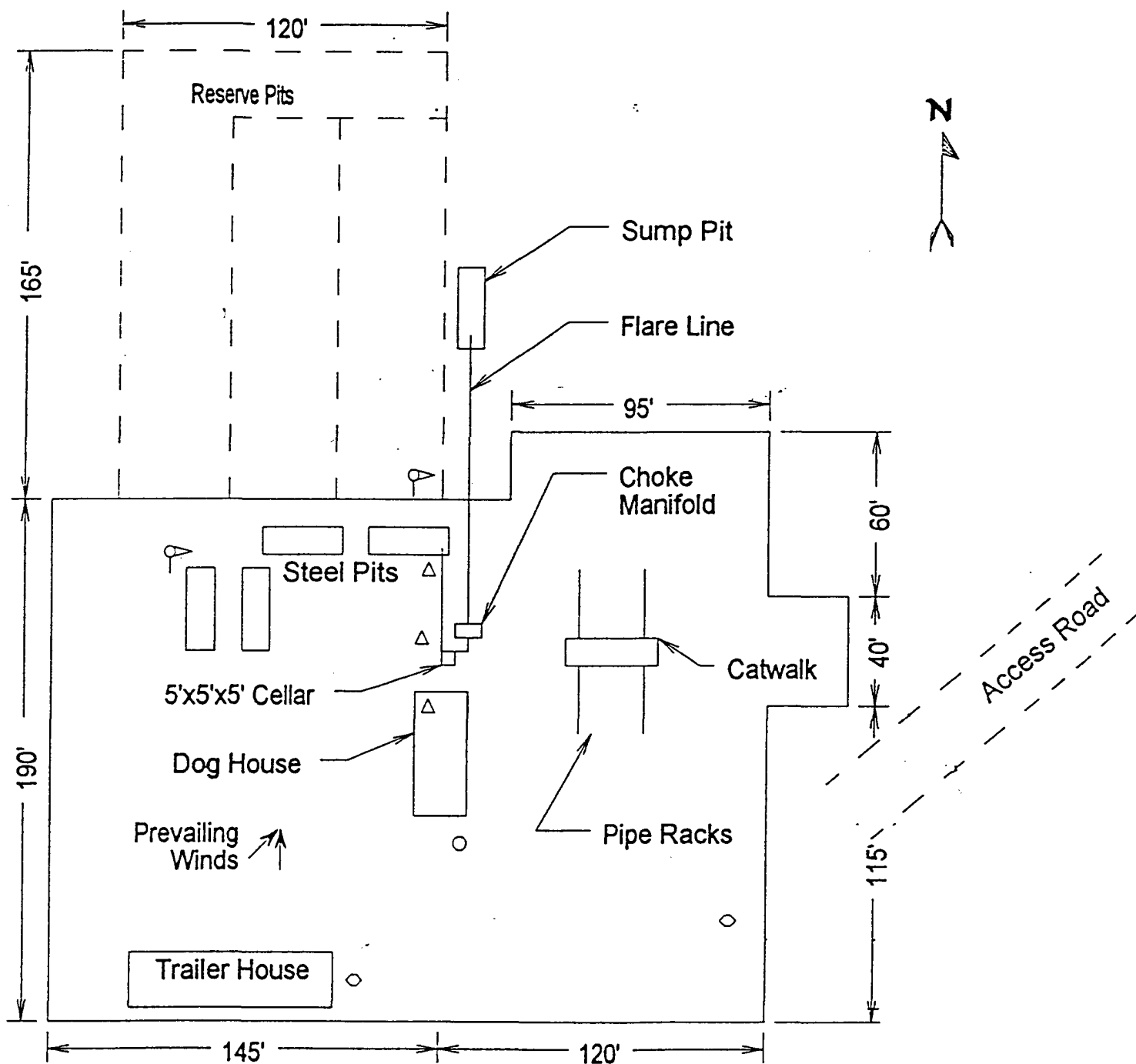


EXHIBIT "C"
TOPOGRAPHIC MAP SHOWING
ROADS & DIRECTIONS TO

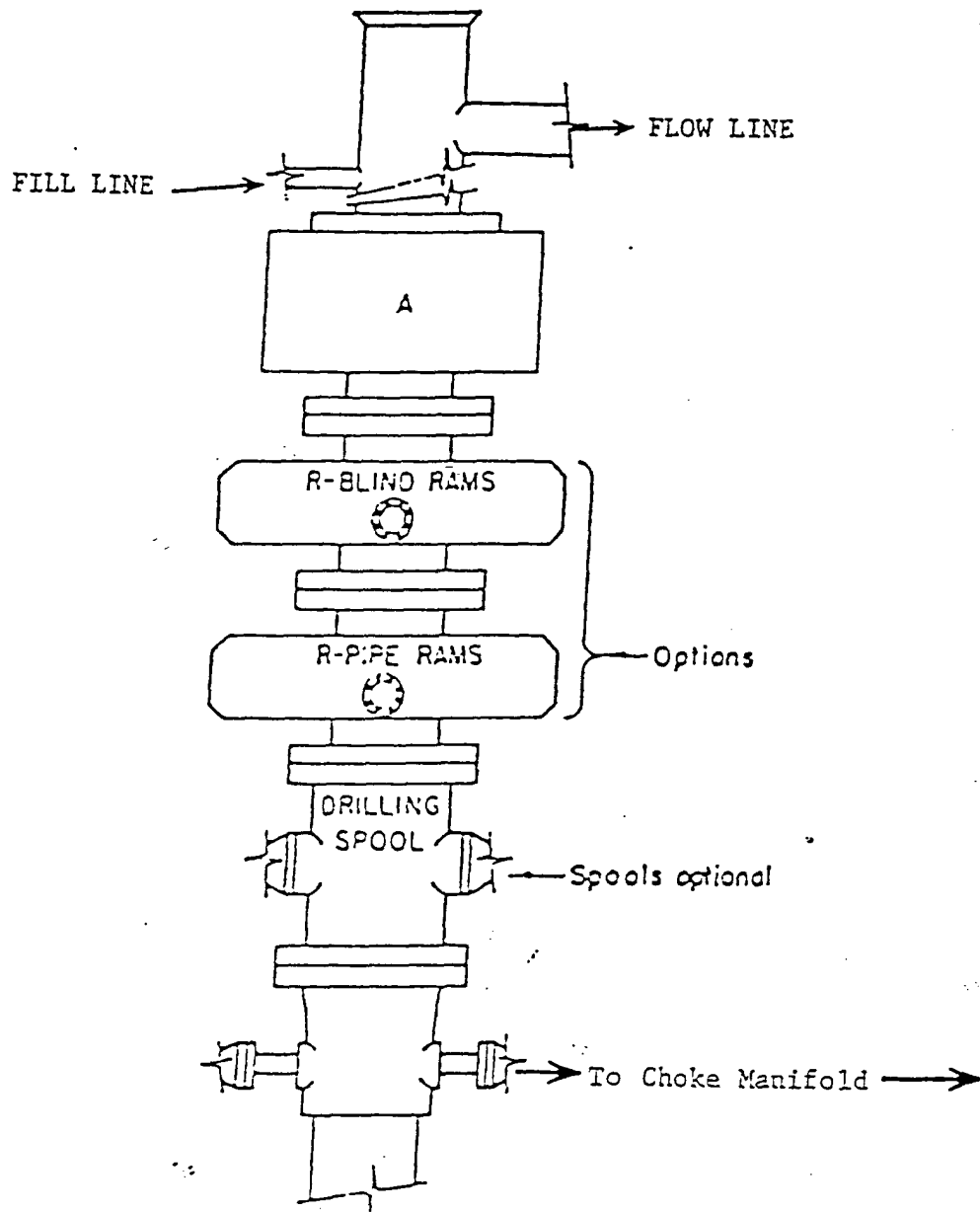
COG OPERATING, LLC.
HABSON "33" FEDERAL # 4
UNIT "D" SECTION 33
T20S-R27E EDDY CO. NM



- Wind Direction Indicators (wind sock or streamers)
- △ H2S Monitors (alarms at bell nipple and shale shaker)
- Briefing Areas
- Remote BOP Closing Unit
- Sign and Condition Flags

EXHIBIT "D"
RIG LAY OUT PLAT

COG OPERATING, LLC.
HANSON "33" FEDERAL # 4
UNIT "D" SECTION 33
T20S-R27E EDDY CO. NM

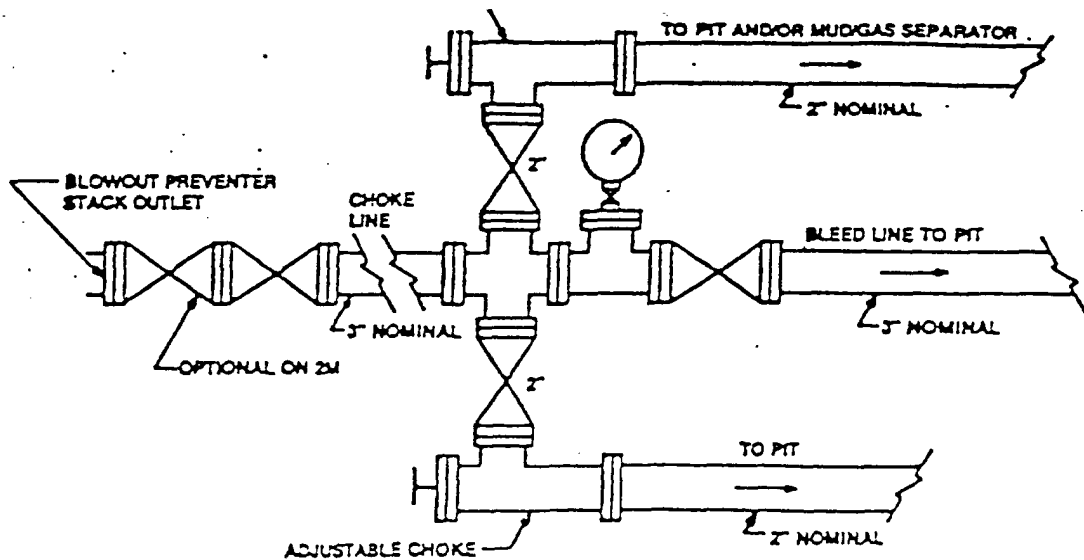


ARRANGEMENT SRRA

900 Series
3000 PSI WP

EXHIBIT "E"
SKETCH OF B.O.P. TO BE USED ON

COG OPERATING, LLC.
HANSON "33" FEDERAL # 4
UNIT "D" SECTION 33
T20S-R27E EDDY CO. NM



Typical choke manifold assembly for 3M WP system

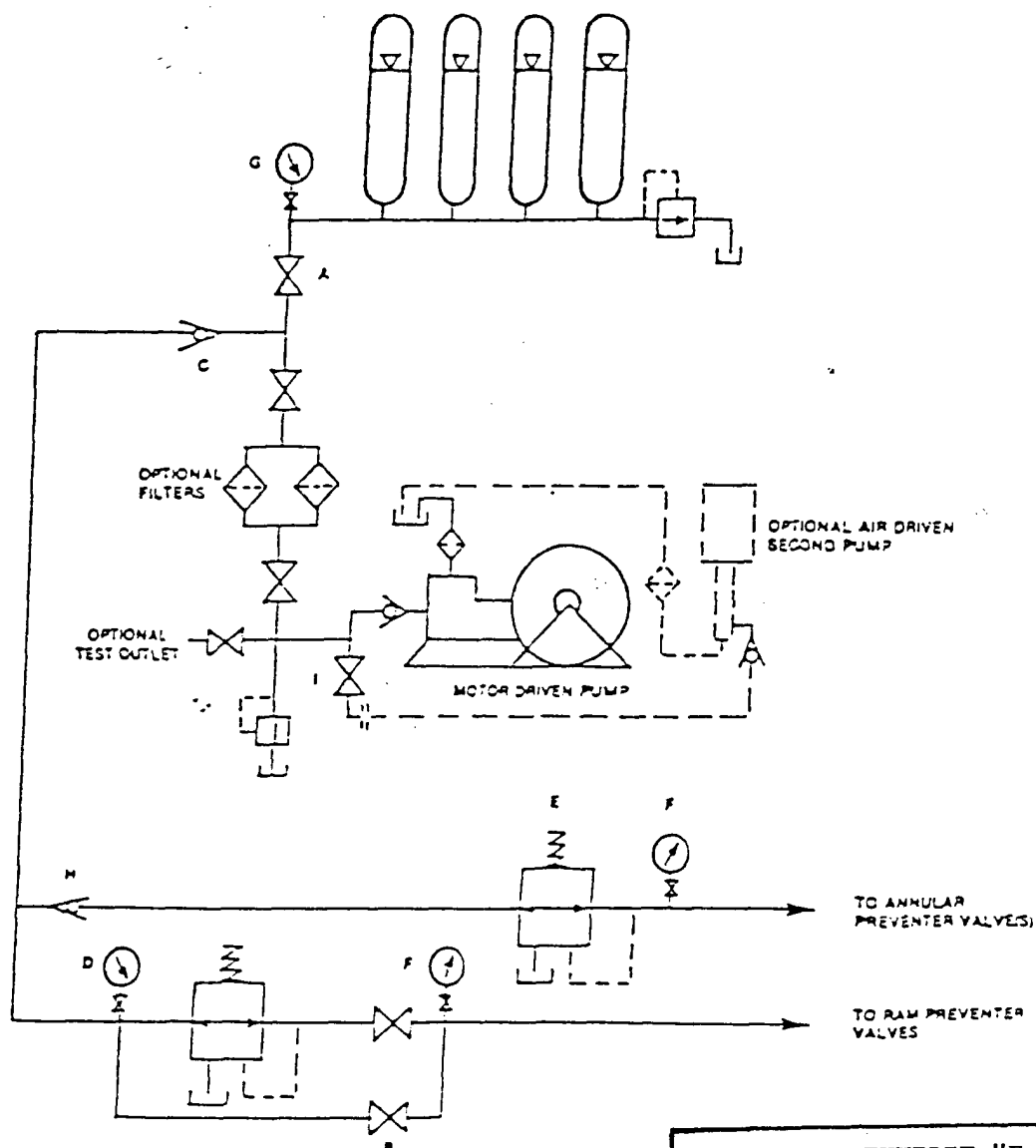


EXHIBIT "E-1"
CHOKE MANIFOLD & CLOSING UNIT

COG OPERATING, LLC.
HANSON "33" FEDERAL # \$
UNIT "D" SECTION 33
T20S-R27E EDDY CO. NM



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON

Governor

Joanna Prukop

Cabinet Secretary

Mark E. Fesmire, P.E.

Director

Oil Conservation Division

February 15, 2005
COG Operating, Inc.
550 West Texas Avenue, Suite 1300
Midland, TX 79701
Attn: Mr. Greg Wilkes

**RE: COG Operating, LLC: Hanson '33' Federal # 4, located in Unit D
(890' FNL & 1090' FWL) of Section 32, Township 20 South Range 27 East Eddy County,
New Mexico.**

Dear Mr. Wilkes,

In regards to conditions for approval of the above captioned well, the New Mexico Oil Conservation Division (NMOCD) will require the following:

This is for COG Operating, Inc. to take samples from the flow line of the drilling mud every 100' in order to determine the chloride levels from the surface casing setting depth of @ 450' to the projected 8 5/8" casing setting depth of @ 2200'.

In addition, COG Operating, Inc. is to drill said well with a 'fresh water mud' system from surface to the setting depth of @ 2200' as stated in your APD.

The results of this data are to be submitted to the NMOCD and the Bureau of Land Management.

Please call our office if you have any questions regarding this matter.

Respectfully yours,

Bryan G. Arrant

PES

CC: Tim Gum-District Supervisor-Artesia
Bureau of Land Management
Well File



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON

Governor

Joanna Prukop

Cabinet Secretary

Mark E. Fesmire, P.E.

Director

Oil Conservation Division

February 15, 2005
COG Operating, Inc.
550 West Texas Avenue, Suite 1300
Midland, TX 79701
Attn: Mr. Greg Wilkes

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Bureau of Land Management
Well File