

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENTSUBMIT IN  
(See other instructions on  
reverse side)Form approved. *C15K*

## 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  
DEVON ENERGY CORPORATION (NEVADA)  
3. ADDRESS AND TELEPHONE NO.  
20 N. BROADWAY, SUITE 1500, OKC, OK 73102 (405) 552-45114. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)\*  
At surface 1170' FSL & 2310' FEL, Unit "O"  
At top proposed prod. zone (SAME)14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\*  
Approximately 6 miles southeast of Artesia, NM15. DISTANCE FROM PROPOSED LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. 1170'  
(Also to nearest drilg. unit line if any)

18. DISTANCE FROM PROPOSED LOCATION\* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.

16. NO. OF ACRES IN LEASE  
48219. PROPOSED DEPTH  
4500'21. ELEVATIONS (Show whether DF, RT, GR, etc.)  
GR 3506'12. COUNTY OR PARISH  
Eddy County13. STATE  
New Mexico17. NO. OF ACRES ASSIGNED TO THIS WELL  
4020. ROTARY OR CABLE TOOLS\*  
Workover Rig22. APPROX. DATE WORK WILL START\*  
September 1, 1999

## 23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12 1/4"	8 5/8" J-55	24	1184' existing	550 sxs
7 7/8"	5 1/2" J-55	15.5	2649' existing	500 sxs
4 3/4"	4"	10.46	2550'-4500'	150 sxs

Devon Energy plans to TA San Andres perfs @ 1576'-2360' by squeezing w/ a polymer. The well will then be deepened to  $\pm$ 4500' to the Yeso Formation. After logging, a 4" liner will be run and cemented from 2550'-4500'. Plans are to perforate, stimulate, and pump test the Yeso. After approval of our downhole commingling application, the polymer plug across the San Andres perforations will be dissolved by pumping an enzyme breaker and the Yeso and San Andres zones will be downhole commingled.

The road and location were previously archeologically cleared in 1997 when the well was drilled so no new Surface Use Plan is included. Programs to adhere to onshore oil and gas regulations are outlined in the following exhibits and attachments.

Deepening Program  
Current & Proposed wellbore schematics  
Exhibit #1 - Blowout Prevention Equipment  
Exhibit #2 - Location and Elevation Plat  
H<sub>2</sub>S Operating Plan

Bond Coverage: Nationwide BLM Bond File No.: CO-1104

APPROVAL SUBJECT TO  
GENERAL REQUIREMENTS AND  
SPECIAL STIPULATIONS  
ATTACHED

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 preventer program, if any.

24.

SIGNED

*E. L. Buttross, Jr.*

TITLE

E. L. BUTTROSS, JR.  
DISTRICT ENGINEER

DATE June 30, 1999

\*(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:

APPROVED BY (ORIG. SGD.) ALEXIS C. SWOBODA

TITLE

PETROLEUM ENGINEER

DATE

JUL 08 1999

See Instructions On Reverse Side

RECEIVED

JUL 06 '89

BLM  
ROSWELL, NM

## DEEPENING PROGRAM

Attached to Form 3160-3  
Devon Energy Corporation  
Hawk 90 Federal #17  
1170' FSL & 2310' FEL  
Section 9-T18S-R27E  
Eddy County, New Mexico

1. Geologic Name of Surface Formation:

Permian

2. Estimated Tops of Important Geologic Markers:

Queen	834'
Grayburg	1235'
San Andres	1536'
Glorieta	3100'
Yeso	3200'

3. Estimated Depths of Anticipated Fresh Water, Oil or Gas:

Water

Possible small amounts of fresh water from surface to 1130'.

Oil

San Andres:	1576'-2360' (Existing perfs)
Yeso:	3200'

No other formations are expected to yield oil or gas in measurable volumes. The surface water sands are protected by the 8 5/8" casing at 1184' that was cemented to surface. The San Andres is isolated by the 5-1/2" casing set at 2649' that was cemented to surface.

The Yeso will be isolated by the 4" liner set and cemented from 2550'-4500'.

4. Casing Program:

<u>Hole Size</u>	<u>Interval</u>	<u>Csg OD</u>	<u>Weight, Grade, Type</u>
4-3/4"	2550' - 4500'	4"	10.46# J-55 FL4S Liner
<u>Burst</u> <u>(SF)</u>	<u>Collapse</u> <u>(SF)</u>	<u>Tension</u> <u>(SF)</u>	
6300 psi (2.0)	6590 psi (3.51)	153,000# (13.29)	

Cementing Program:

4" Liner @ 2550'- 4500': Cemented with 150 sxs Class C + 5% salt + .5% fluid loss additive + 1/4 lb/sx cellophane flakes.

The above cement volumes could be revised pending the caliper measurement from the open hole logs. The top of cement is designed to reach the liner top.

5. Minimum Specifications for Pressure Control:

The blowout preventor equipment (BOP) shown in Exhibit #1 will consist of a (2M system) double ram type (2000 psi WP). The unit will be manually operated and will be equipped with blind rams on top and 2-7/8" drill pipe rams on bottom. Depending on availability, a 3000 psi WP BOP may be utilized instead of the 2000 psi WP BOP. The BOP will be installed when the workover rig is rigged up and utilized continuously until total depth is reached. Prior to drilling out the 5-1/2" casing shoe, the BOP's will be tested with the rig pump to 1000 psi.

Pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These functional tests will be documented on the daily driller's log.

6. Types and Characteristics of the Proposed Mud System:

Produced water will be used to deepen the well to total depth. The proposed properties of the drilling fluid are as follows:

<u>Depth</u>	<u>Type</u>	<u>Weight (ppg)</u>	<u>Viscosity (1/sec)</u>	<u>Water Loss (cc)</u>
2649' - TD	Salt Water	9.0-9.2	28-32	No Control

The necessary mud products for weight addition and fluid loss control will be on location at all times.

7. Auxiliary Well Control and Monitoring Equipment:

- A. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.

8. Logging, Testing and Coring Program:

- A. No drillstem tests are planned.
- B. The open hole electrical logging program will be:
- |                 |  |
|-----------------|--|
| T. D. to 2649': | Dual Lateral-Micro SFL with Gamma Ray, and Caliper           |
| T. D. to 2649': | Compensated Neutron-Litho Density with Gamma Ray and Caliper |
- C. No cores are planned.

9. Abnormal Pressures, Temperatures and Potential Hazards:

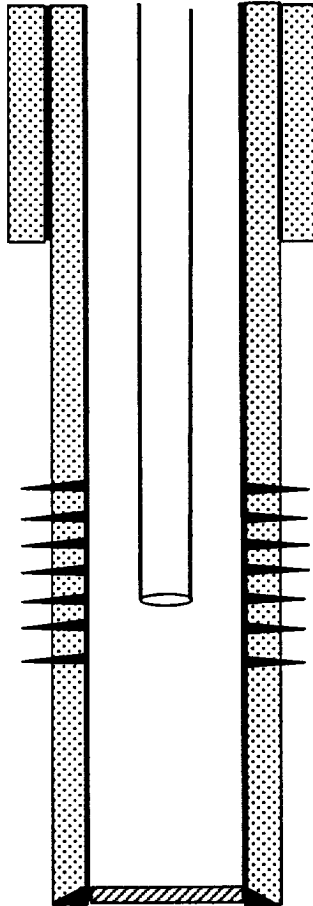
No abnormal pressures or temperatures are foreseen. The anticipated bottom hole temperature at total depth is 95 degrees and maximum bottom hole pressure is 900 psig. No major loss circulation intervals have been encountered in adjacent wells. An H<sub>2</sub>S Drilling Operations Plan is included .

10. Anticipated Starting Date and Duration of Operations:

The anticipated starting date for the deepening is September 1, 1999. The deepening should take approximately 7 days. If the well is deemed productive, completion operations will require an additional 30 days .

# DEVON ENERGY CORPORATION - WELLBORE SCHEMATIC

WELL NAME: Hawk 90 Federal #17			FIELD: Red Lake			
LOCATION: 1170' FSL & 2310' FEL, Section 9-18S-27E			COUNTY: Eddy			STATE: NM
ELEVATION: GL = 3506', KB 3515'			SPUD DATE: 4/23/97		COMP DATE: 5/17/97	
API#: 30-015-29484		PREPARED BY: T. Rutelonis			DATE: 6/30/99	
	DEPTH	SIZE	WEIGHT	GRADE	THREAD	HOLE SIZE
CASING:	0' - 1184'	8-5/8"	24#	J-55		12-1/4"
CASING:	0' - 2649'	5 1/2"	15.5#	J-55		7-7/8"
CASING:						
TUBING:	0' - 2157'	2-7/8"	6.5#	J-55	8RD EUE	
TUBING:						



CURRENT



PROPOSED

OPERATOR: DEVON ENERGY CORPORATION

8-5/8" Casing, Set @ 1184' w/ 550 sxs cmt. TOC @ surface

SAN ANDRES PERFORATIONS:

1576'- 2360' (30 holes, .40", U. SAN ANDRES, "A", "B", "C", & "D")

2-7/8" tbg w/ SN @ 2157'

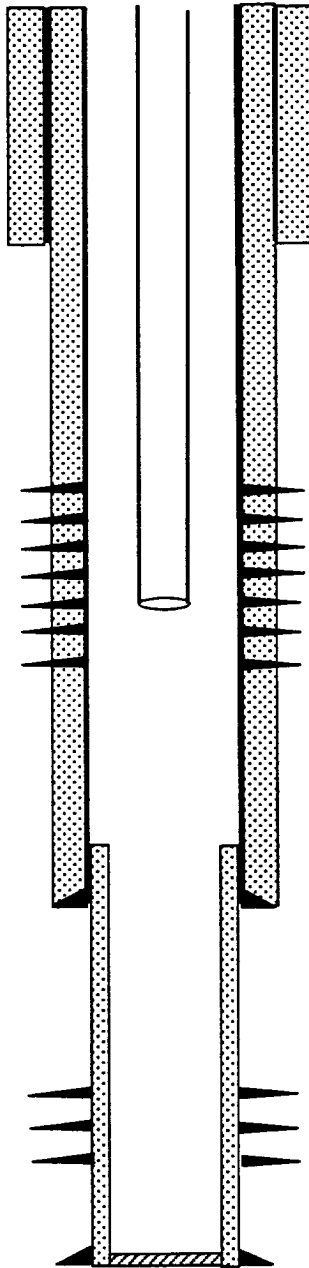
PBTD @ 2611'

5 1/2" 15.5# J-55 Casing Set @ 2649' w/ 500 sxs cmt. TOC @ surf.

TD @ 2650'

# DEVON ENERGY CORPORATION - WELLBORE SCHEMATIC

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CASING:	0' - 2649'	5 1/2"	15.5#	J-55		7-7/8"
LINER:	2550'-4500'	4"	10.46#	J-55	FL4S	4-3/4"
TUBING:	0' - 2157'	2-7/8"	6.5#	J-55	8RD EUE	
TUBING:						



☐ CURRENT

☒ PROPOSED

OPERATOR: DEVON ENERGY CORPORATION

8-5/8" Casing, Set @ 1184' w/ 550 sxs cmt. TOC @ surface

## SAN ANDRES PERFORATIONS:

1576'- 2360' (30 holes, .40", U. SAN ANDRES, "A", "B", "C", & "D")  
(PERFS SQZ'D W/ POLYMER & TA'D)

2-7/8" tbg w/ SN @ 2157'

TOL @ 2550'

5 1/2" 15.5# J-55 Casing Set @ 2649' w/ 500 sxs cmt. TOC @ surf.

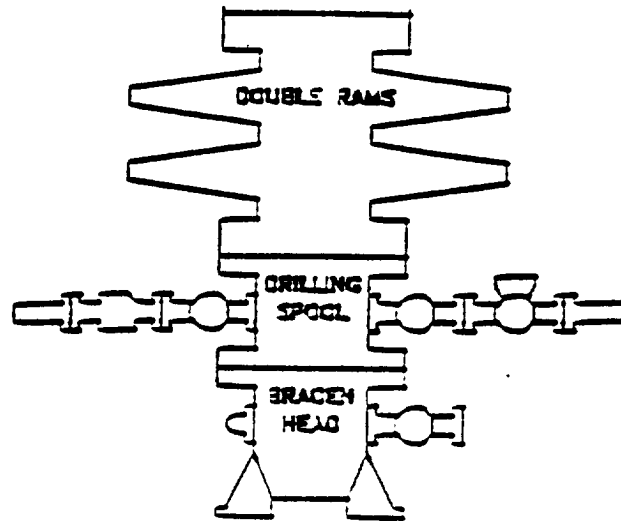
## YESO PERFORATIONS:

+3200' - +3600' (20 HOLES, .38")

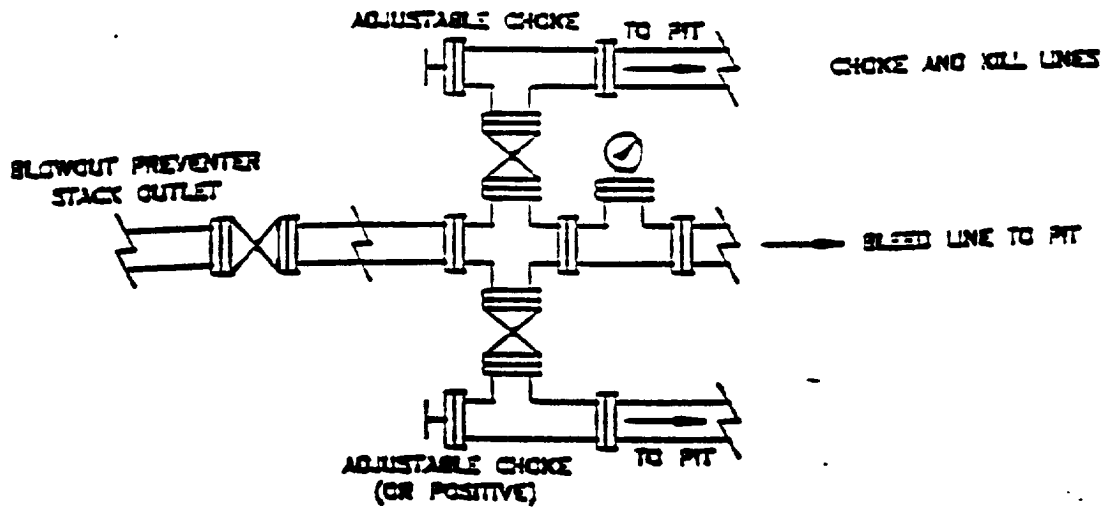
PBTD @ 2611'

4" 10.46# J-55 FL4S liner set @ 2550'-4500' (TOC @ TOL)

TD @ 2650'



# CHOKE MANIFOLD REQUIREMENT (2000 psi WP)



*devcon*

WEST RED LAKE AREA

BLOWOUT PREVENTOR

Q/L PROJECTS COMPANY

DATE	
BY	
CHECKED	
APPROVED	



DISTRICT I  
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II  
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico  
Energy, Minerals and Natural Resources Department

Exhibit 2

Form C-102  
Revised February 10, 1994  
Instruction on back  
Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

OIL CONSERVATION DIVISION

P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name Red Lake (Q-GB-SA) <i>Red Lake; Glorieta-Vesque, NE</i>
Property Code	Property Name Hawk 9-0-Federal	Well Number 17
OGRID No.	Operator Name Devon Energy Corporation	Elevation 3506'

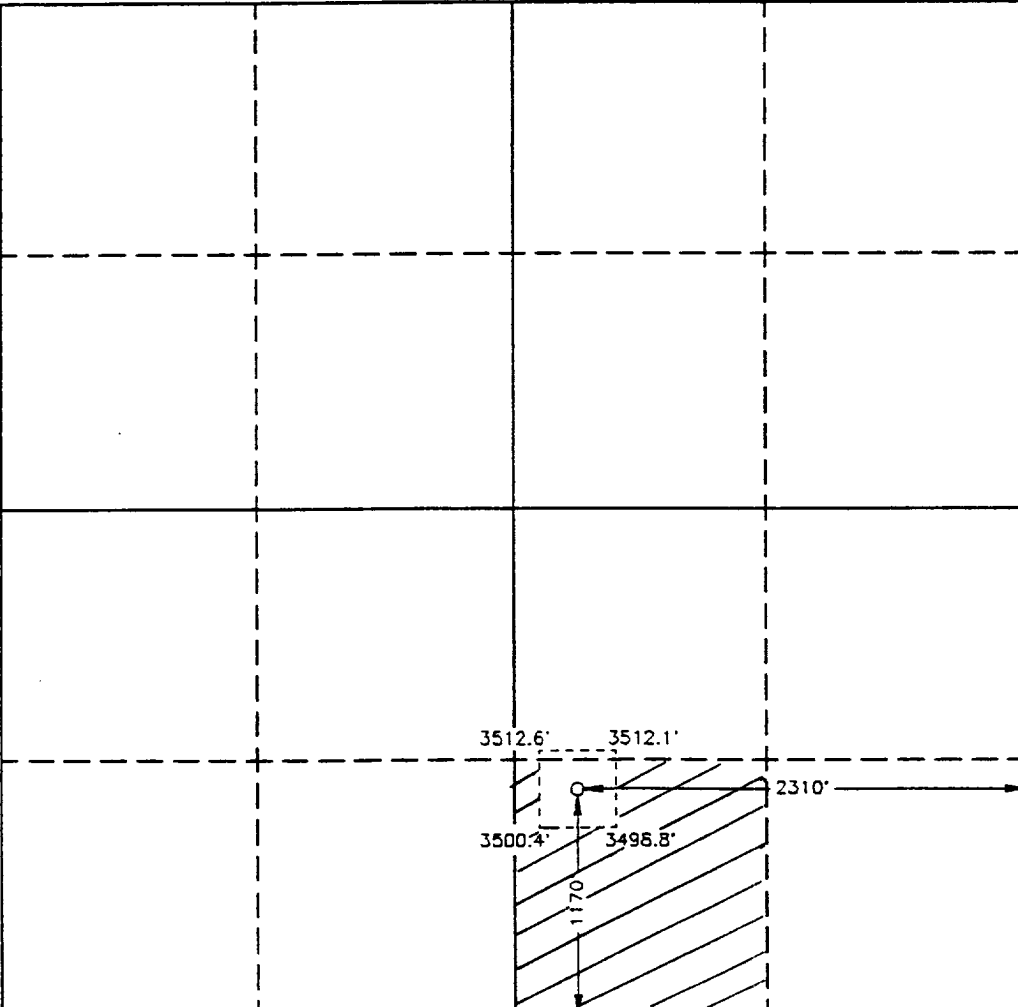
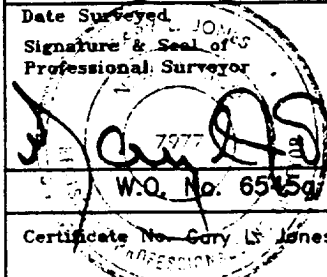
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	9	18 S	27 E		1170	South	2310	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
Dedicated Acres	Joint or Infill	Consolidation Code	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

	<b>OPERATOR CERTIFICATION</b>  I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.  <u>E. L. Buttross, Jr.</u> Signature <u>E. L. Buttross, Jr.</u> Printed Name <u>District Engineer</u> Title <u>February 27, 1997</u> Date
	<b>SURVEYOR CERTIFICATION</b>  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.  <u>February 15, 1997</u> Date Surveyed <u>Gary L. Jones</u> Signature & Seal of Professional Surveyor  <u>7977</u> Certificate No. <u>Gary L. Jones</u> 7977 BASIN SURVEYS

# **DEVON ENERGY CORPORATION**

## **HYDROGEN SULFIDE DRILLING OPERATIONS PLAN**

### **A. Hydrogen Sulfide Training**

All rig crews and company personnel will receive training from a qualified instructor in the following areas prior to penetrating any hydrogen sulfide bearing formations during drilling operations:

1. The hazards and characteristics of hydrogen sulfide (H<sub>2</sub>S).
2. The proper use and maintenance of the H<sub>2</sub>S safety equipment and of personal protective equipment to be utilized at the location such as H<sub>2</sub>S detection monitors, alarms and warning systems, and breathing equipment. Briefing areas and evacuation procedures will also be discussed and established.
3. Proper rescue techniques and procedures will be discussed and established.

In addition to the above, supervisory personnel will be trained in the prevention of oil and gas well blowouts in accordance with Minerals Management Service Standards Subpart - 0 - 250 - 212.

Prior to penetrating any known H<sub>2</sub>S bearing formation, H<sub>2</sub>S training will be required at the rig sight for all rig crews and company personnel that have not previously received such training. This instruction will be provided by a qualified instructor with each individual being required to pass a 20 question test regarding H<sub>2</sub>S safety procedures. All contract personnel employed on an unscheduled basis will be required to have received appropriate H<sub>2</sub>S training.

This Hydrogen Sulfide Drilling And Operations Plan shall be available at the wellsite during drilling operations.

### **B. H<sub>2</sub>S Safety Equipment And Systems**

All H<sub>2</sub>S safety equipment and systems will be installed, tested, and operational when drilling operations reach a depth approximately 500' above any known or probable H<sub>2</sub>S bearing formation. The safety systems to be utilized during drilling operations are as follows:

1. Well Control Equipment

- (a) Double ram BOP with a properly sized closing unit and pipe rams to accommodate all pipe sizes in use.
- (b) A choke manifold with a minimum of one remote choke.

2. H2S Detection And Monitoring Equipment

- (a) Three (3) H2S detection monitors will be placed in service at the location. One monitor will be placed near the bell nipple on the rig floor; one will be placed at the rig substructure; and, one will be at the working mud pits or shale shaker. This monitoring system will have warning lights and audible alarms that will alert personnel when H2S levels reach 10 ppm.
- (b) One (1) Sensidyne Pump with the appropriate detection tubes will also be available to perform spot checks for H2S concentrations in any remote or isolated areas.

3. Protective Equipment For Essential Personnel

Protective equipment will consist of the following:

- (a) Four (4) - five minute escape packs located at strategic points around the rig.
- (b) Two (2) - thirty minute rescue packs to be located at the designated briefing areas.

4. Visual Warning System

Visual warning system will consist of the following:

- (a) Two wind direction indicators.
- (b) One condition / warning sign which will be posted on the road - providing direct access to the location. The sign will contain lettering of sufficient size to be readable at a reasonable distance from the immediate location. The sign will inform the public that a hydrogen sulfide gas environment could be encountered at the location.

**5. Mud Program**

- (a) The mud program has been designed to minimize the volume of H<sub>2</sub>S circulated to surface. Proper mud weight and safe drilling practices (for example, keeping the hole filled during trips) will minimize hazards when drilling in H<sub>2</sub>S bearing formations.

**6. Metallurgy**

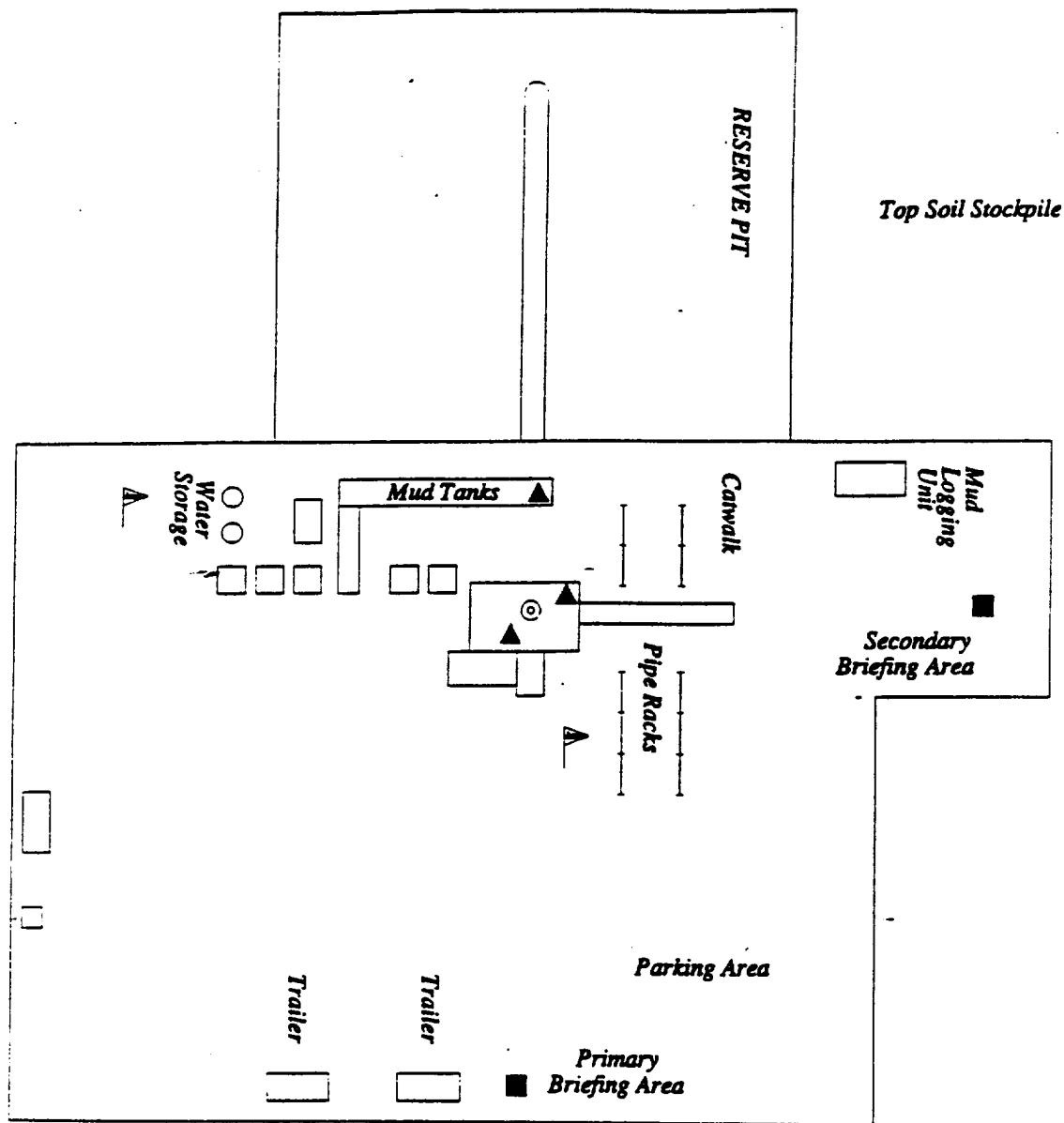
- (a) All drill strings, casings, tubing, wellhead, blowout preventers, drilling spools, kill lines, choke manifold and lines, and valves shall be suitable for H<sub>2</sub>S service.

**7. Communication**

- (a) Two way radio and cellular telephone communication will be available in company vehicles.

**C. Diagram of Drilling Location**

- 1. Attached is a diagram representing a typical location layout as well as the location of H<sub>2</sub>S monitors, briefing areas, and wind direction indicators.



- ▲ H2S MONITORS WITH ALARMS AT THE BELL NIPPLE, SUBSTRUCTURE, AND SHALE SHAKER
- ☐ WIND DIRECTION INDICATORS
- SAFE BRIEFING AREAS WITH CAUTION SIGNS AND PROTECTIVE BREATHING EQUIPMENT



**devon**

**WEST RED LAKE AREA**

EDDY COUNTY, NEW MEXICO

**H2S PLAN**

Scale in Feet

25 0 25 50 75 100