MIDLAND SAFETY HEALTH
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# HYDROGEN SULFIDE DRILLING OPERATIONS PLAN
FOR
# BROWNING OIL COMPANY, INC.
BYERS WELL NO. 1
LEA COUNTY, NEW MEXICO

## 1. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards and characteristics of hydrogen sulfide (H2S).

2. The proper use and maintenance of personal protective equipment and life support systems.

3. The proper use of H2S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.

4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas;

1. The effects of H2S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.

2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.

3. The contents and requirements of the H2S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H2S zone (within 3 days or 500 feet) and weekly H2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H2S Drilling Operations Plan at the well site. All personnel will be required to carry documentation that they have received the proper training.

II. H2S SAFETY EQUIPMENT AND SYSTEMS

NOTE: All H2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H2S.

1. WELL CONTROL EQUIPMENT

A. Flare line with electronic igniter or continuous pilot.

B. Choke manifold with a minimum of one remote choke.

C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.

D. Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head, and flare gun with flares.

2. PROTECTIVE EQUIPMENT FOR ESSENTIAL PERSONNEL

A. Self Contained Breathing Apparatus ( 2-30-minutes) located in the dog house and at briefing areas, as indicated on well site diagram.

3. H2S DETECTION AND MONITORING EQUIPMENT

A. At least two portable H2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 15 ppm are reached.

B. SO2 detector tubes available for monitoring around the flare.

4. VISUAL WARNING SYSTEMS

A. Wind direction indicators as shown on well site diagram.

B. Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a with visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate.

EXAMPLE: **WARNING**
POTENTIAL H2S DANGER
AUTHORIZED PERSONNEL ONLY
SMOKING IN DESIGNATED AREAS ONLY
BE WIND CONSCIOUS AT ALL TIMES

5. MUD PROGRAM

A. The mud program has been designed to minimize the volume of H2S circulated to the surface. Proper mud weight, safe drilling practices, and the use of H2S scavengers will minimize hazards when penetrating H2S bearing zones.

B. A mud-gas separator and an H2S gas buster will be utilized.

6. METALLURGY

A. All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.

B. All elastomers used for packing and seals shall be H2S trim.

7. COMMUNICATION

A. Radio communications in company vehicles including cellular telephone and two-way radio will be provided.

B. Land line (telephone) communications at field office will also be available.

8. WELL TESTING

A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity which are necessary to safely and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill stem testing operations conducted in an H2S environment will use the closed chamber method of testing.

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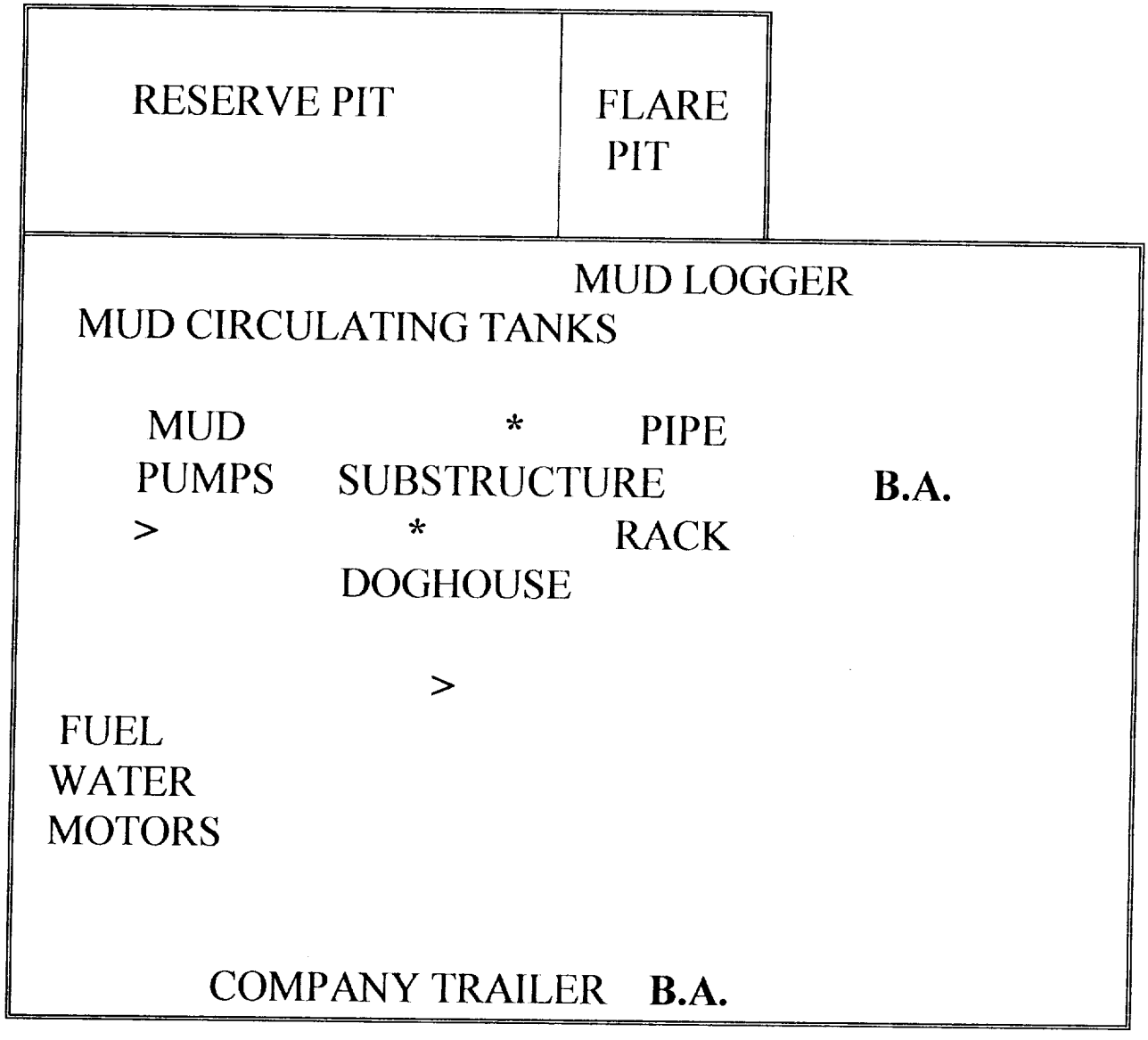
# DRILLING OPERATIONS
## SAFETY EQUIPMENT LAYOUT




* - H2S MONITORS > - WIND INDICATORS **B.A.** - BRIEFING AREAS