## 1. Well Control Equipment:

- A. Choke manifold with a minimum of one remote choke.
- B. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
- C. Auxiliary equipment to include annular preventer, mud-gas separator, rotating head, and flare gun with flares.
- 2. Protective equipment for essential personnel:
  - A. Mark II Surviveair 30-minute units located in the dog house and at briefing areas.
- 3. H<sub>2</sub>S detection and monitoring equipment:
  - A. Two portable H<sub>2</sub>S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H<sub>2</sub>S levels of 20 ppm are reached.
  - B. One portable S02 monitor positioned near flare line.
- 4. Visual warning systems:
  - A. Wind direction indicators.
  - B. Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high 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.
- 5. Mud program:

The mud program has been designed to minimize the volume of H<sub>2</sub>S circulated to the surface. Proper mud weight, safe drilling practices, and the use of H<sub>2</sub>S scavengers will minimize hazards when penetrating H<sub>2</sub>S-bearing zones.

- 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 H<sub>2</sub>S service.
  - B. All elastomers used for packing and seals shall be H<sub>2</sub>S trim.