

## 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 penetration the first zone containing or reasonable expected to contain H2S.

### 1. Well Control Equipment:

- A. Flare line.
- B. Choke manifold.
- 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 (if necessary) and rotating head.

### 2. Protective equipment for essential personnel:

- A. 5-minute escape units located in the dog house and 30-minute air units at briefing areas, as indicated on well site diagram.

### 3. H2S detection and monitoring equipment:

- A. 3 - portable H2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 PPM are reached.
- B. 1 - portable SO2 monitor positioned near flare line during H2S flaring operations.

### 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 high visibility yellow with black lettering of sufficient size to be a readable distance from the immediate location.

### 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 when necessary will minimize hazards when penetrating H2S bearing zones.
- B. A Mud-gas separator will be utilized.