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H<sub>2</sub>S DRILLING OPERATIONS  
RADAR 24 FEDERAL #1

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. 30-minute air units located in the dog house and at briefing areas, as indicated on well site diagram.
3. H<sub>2</sub>S detection and monitoring equipment :
  - A. 2 – 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. 1 – portable SO<sub>2</sub> monitor positioned near flare line.
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 readable at a reasonable distance from the immediate location. Bilingual signs will be used when appropriate. See example attached.
5. Mud program :
  - A. 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.
  - B. A mud-gas separator and an H<sub>2</sub>S gas buster will be utilized.