Hydrogen Sulfide Drilling Operations Plan
Cave Lion 5 Federal WC #5H
Surface: 185' FSL & 480' FWL, UL "M"
Sec. 5-T26S-R35E
BHL: 330' FNL & 330' FWL, UL "D"
Sec. 5-T26S-R35E
Lea County, New Mexico

1. Company and contract personnel admitted on location should be trained by a qualified H_2S safety instructor to the recognize and handle following:
   A. Characteristics of H_2S gas
   B. Physical effects and hazards
   C. Proper use of safety equipment and life support systems
   D. Principle and operation of H_2S detectors, warning system and briefing knowledge
   E. Evacuation procedure, routes and first aid support
   F. Proper use of 30 minutes Pressure-on-Demand Air Pack

2. Supervisory personnel will be trained in the following areas:
   A. Effects of H2S on metal components.
   B. Corrective action and shut in procedures, blowout prevention, and well control procedure.
   C. Contents of Hydrogen Sulfide Drilling Operations Plan.

3. H_2S Detection and Alarm Systems (will be in place after setting surface casing and will not drill ahead without alarm system working)
   A. H_2S detectors and audio alarm system to be located at bell nipple, shale shaker and on derrick floor or doghouse installed and maintained by a third party safety company.
   B. Thirty minute self-contained work unit located in dog house and at briefing areas.

3. Windsock and/or Wind Streamers
   A. Windsock at mud pit area (high enough to be visible)
   B. Windsock on dog house (high enough to be visible)

4. Condition Flags and Signs
   A. H_2S warning signs on lease access road into location
   B. Flags displayed on sign at location entrance
      1. Green flag indicates "Normal Safe Conditions"
      2. Yellow Flag indicates "Potential Pressure and Danger"
      3. Red Flag indicates "Danger - H_2S Present in High Concentrations" *admit only emergency personnel*

5. Well Control Equipment
   A. See BOP, Choke, and Mud/Gas Separator exhibit.
   B. Blow out preventers will be equipped with blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit. Annular type blowout preventer will also be in place. Supplemental fuel will be provided for flaring noncombustible gas.

6. Communication
   A. While working under masks chalkboards will be used for communication
   B. Hand signals will be used where chalk board is inappropriate
   C. Two -way radios or cell phones used to communicate off location or minimally in Drilling Foreman's trailer or living quarters

7. Drillstem Testing (**not planned**)
    A. Exhausts watered
    B. Flare line equipped with electric Igniter/propane pilot light in case gas reaches surface
    C. If location near dwelling closed DST will be performed

9. If H_2S encountered, mud system shall be addressed to maintain control of formation. A mud gas separator will be brought into service along with H_2S scavengers, if necessary. pH will be maintained at 10, to minimize h2S in the system. Hydrogen sulfide scavengers will also be used to minimize hazards while drilling the well.

10. Mud program: pH of 10 will be maintained with additives to minimize hazards of H2S. H2S scavengers will also be used to minimize effects on tubulars and well control equipment and control effects of H2S on metallurgy.