

H₂S Drilling Operations Plan

- a. All personnel will be trained in H_2S working conditions as required by Onshore Order 6 before drilling out of the surface casing.
- b. Two briefing areas will be established. Each will be at least 150' from the wellhead, perpendicular from one another, and easily entered and exited. See H₂S page 5 for more details.
- c. H₂S Safety Equipment/Systems:
 - i. Well Control Equipment
 - Flare line will be ≥ 150 ' from the wellhead and ignited by a flare gun.
 - Beware of SO₂ created by flaring.
 - Choke manifold will include a remotely operated choke.
 - Mud gas separator
 - ii. Protective Equipment for Essential Personnel
 - Every person on site will be required to wear a personal H_2S and SO_2 monitor at all times while on site. Monitors will not be worn on hard hats. Monitors will be worn on the front of the waist or chest.
 - One self-contained breathing apparatus (SCBA) 30-minute rescue pack will be at each briefing area. Two 30-minute SCBA packs will be stored in the safety trailer.
 - Four work/escape packs will be on the rig floor. Each pack will have a long enough hose to allow unimpaired work activity.
 - Four emergency escape packs will be in the doghouse for emergency evacuation.
 - Hand signals will be used when wearing protective breathing apparatus.
 - Stokes litter or stretcher
 - Two full OSHA compliant body harnesses
 - A 100 foot long x 5/8 inch OSHA compliant rope
 - One 20 pound ABC fire extinguisher.
 - iii. H₂S Detection & Monitoring Equipment
 - Every person on site will be required to wear a personal H₂S and SO₂ monitor at all times while on site. Monitors will not be worn on hard hats. Monitors will be worn on the front of the waist or chest.
 - A stationary detector with three sensors will be in the doghouse.



- Sensors will be installed on the rig floor, bell nipple, and at the end of the flow line or where drilling fluids are discharged.
- Visual alarm will be triggered at 10 ppm.
- Audible alarm will be triggered at 10 ppm.
- Calibration will occur at least every 30 days. Gas sample tubes will be kept in the safety trailer.

iv. Visual Warning System

- Color-coded H₂S condition sign will be set at the entrance to the pad.
- Color-coded condition flag will be installed to indicate current H₂S conditions.
- Two wind socks will be installed that will be visible from all sides.

v. Mud Program

- A water based mud with a pH of ≥ 10 will be maintained to control corrosion, H₂S gas returns to the surface, and minimize sulfide stress cracking and embrittlement.
- Drilling mud containing H_2S gas will be degassed at an optimum location for the rig configuration.
- This gas will be piped into the flare system.
- Enough mud additives will be on location to scavenge and/or neutralize H₂S where formation pressures are unknown.

vi. Metallurgy

- All equipment that has the potential to be exposed to H_2S will be suitable for H_2S service.
- Equipment that will meet these metallurgical standards include the drill string, casing, wellhead, BOP assembly, casing head and spool, rotating head, kill lines, choke, choke manifold and lines, valves, mud-gas separators, DST tools, test units, tubing, flanges, and other related equipment (elastomer packings and seals).

vii. Communication from well site

- Cell phones and/or two-way radios will be used to communicate from the well site.
- d. A remote controlled choke, mud-gas separator, and a rotating head will be installed before drilling or testing any formation expected to contain H_2S .



Company	<u>Personnel</u>	to k	oe l	Notified

Buddie Livingston, Drilling Manager Mobile: (918) 633-3490

or

John Maxey, Engineer Office: (575) 623-0438

Local & County Agencies

Monument Fire Department 911 or (575) 393-4339

Hobbs Fire Marshal (575) 391-8185

Lea County Sheriff (Lovington) 911 (575) 396-3611

Lea County Emergency Management (Lovington) (575) 396-8602

Lea Regional Medical Center Hospital (Hobbs) (575) 492-5000

State Agencies

NM State Police (Hobbs) (575) 392-5588

NM Oil Conservation (Hobbs) (575) 370-3186

NM Oil Conservation (Santa Fe) (505) 476-3440

NM Dept. of Transportation (Roswell) (575) 637-7201

Federal Agencies

BLM Carlsbad Field Office (575) 234-5972

BLM Hobbs Field Station (575) 393-3612

National Response Center (800) 424-8802

US EPA Region 6 (Dallas) (800) 887-6063

(214) 665-6444

Veterinarians

Dal Paso Animal Hospital (Hobbs)

(575) 397-2286

Hobbs Animal Clinic & Pet Care (Hobbs)

(575) 392-5563

Great Plains Veterinary Clinic & Hospital (Hobbs)

(575) 392-5513

Residents within 2 miles

There are no residents within 2 miles.

Air Evacuation

Med Flight Air Ambulance (Albuquerque)

(800) 842-4431

Lifeguard (Albuquerque)

(888) 866-7256







