

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 H_2S 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 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.
 - 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 H_2S condition sign will be set at the entrance to the pad.
- Color-coded condition flag will be installed to indicate current H_2S 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 H_2S 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 .



PROVIDING PERMITS for LAND USERS

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<u>Company Personnel to be Notified</u>		
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		
State Agencies		
<u>State Agencies</u> NM State Police (Hobbs)	(575) 392-5588	
	(575) 392-5588 (575) 370-3186	
NM State Police (Hobbs)		
NM State Police (Hobbs) NM Oil Conservation (Hobbs)	(575) 370-3186	
NM State Police (Hobbs) NM Oil Conservation (Hobbs) NM Oil Conservation (Santa Fe)	(575) 370-3186 (505) 476-3440	
NM State Police (Hobbs) NM Oil Conservation (Hobbs) NM Oil Conservation (Santa Fe)	(575) 370-3186 (505) 476-3440	
NM State Police (Hobbs) NM Oil Conservation (Hobbs) NM Oil Conservation (Santa Fe) NM Dept. of Transportation (Roswell)	(575) 370-3186 (505) 476-3440	
NM State Police (Hobbs) NM Oil Conservation (Hobbs) NM Oil Conservation (Santa Fe) NM Dept. of Transportation (Roswell) Federal Agencies	(575) 370-3186 (505) 476-3440 (575) 637-7201	
NM State Police (Hobbs) NM Oil Conservation (Hobbs) NM Oil Conservation (Santa Fe) NM Dept. of Transportation (Roswell) Federal Agencies BLM Carlsbad Field Office	(575) 370-3186 (505) 476-3440 (575) 637-7201 (575) 234-5972	
NM State Police (Hobbs) NM Oil Conservation (Hobbs) NM Oil Conservation (Santa Fe) NM Dept. of Transportation (Roswell) <u>Federal Agencies</u> BLM Carlsbad Field Office BLM Hobbs Field Station	(575) 370-3186 (505) 476-3440 (575) 637-7201 (575) 234-5972 (575) 393-3612	



<u>Veterinarians</u>

Dal Paso Animal Hospital (Hobbs)	(575)	397-2286
Hobbs Animal Clinic & Pet Care (Hobbs)	(575)	392-5563
Great Plains Veterinary Clinic & Hospital (Hobb	s)	(575) 392-5513

Residents within 2 miles

There are no residents within 2 miles.

Air Evacuation

Med Flight Air Ambulance (Albuquerque)

Lifeguard (Albuquerque)

(800) 842-4431 (888) 866-7256



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