

NOV 10 2014

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Hydrogen Sulfide Drilling Operations Permit

Paduca Federal SWD #3

300' FNL &amp; 1760' FWL

Sec. 23, T25S-R32E, Lea Co.

3D-025-42253

1. All personnel admitted on location must be trained to the following:
  - A. Characteristics of H<sub>2</sub>S.
  - B. Physical effects and hazards.
  - C. Proper use of safety equipment and life support systems.
  - D. Principle and operation of H<sub>2</sub>S detectors, warning system and briefing areas.
  - E. Evacuation procedure, routes and first aid
  - F. Proper use of 30 minute pressure demand air pack.
2. H<sub>2</sub>S Detection and Alarm Systems:
  - A. H<sub>2</sub>S detectors and audio alarm system to be located at bell nipple, end of flow line (mud pit) and on derrick floor or doghouse.
3. Windsock and/or wind streamers:
  - A. Windsock at mudpit area should be high enough to be visible.
  - B. Windsock at briefing area should be high enough to be visible.
4. Condition Flags and Signs:
  - A. Warning sign on access road to location.
  - B. Flags to be displayed on sign at entrance to location. Green flag indicates normal safe condition. Yellow flag indicates potential pressure and danger. Red flag indicates danger (H<sub>2</sub>S present in dangerous concentration). Only emergency personnel admitted to location.
5. Well control equipment:
  - A. Flare line 150' (see Exhibit 4, page 17)
  - B. Choke manifold will have a remotely operated adjustable choke system.
  - C. Blind rams and pipe rams to accomodate all pipe sizes with properly sized closing unit.
  - D. Auxiliary equipment may include, if applicable: annular preventer and rotating head.

Also see Exhibit 2, page 12, Exhibit 3, and page 12-A above.
6. Communications:
  - 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 radio will be used to communicate off location in case emergency help is required. In most cases cellular telephones will be available at most drilling foreman's trailer or living quarters.
7. Drillstem Testing:

No DSTs or cores are planned at this time.
8. Drilling contractor supervisor will be required to be familiar with the effects H<sub>2</sub>S has on tubular goods and other mechanical equipment.
9. If H<sub>2</sub>S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H<sub>2</sub>S scavengers if necessary.

H<sub>2</sub>S Contingency Plan  
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Emergency Procedures

In the event of a release of gas containing H<sub>2</sub>S, the first responder(s) must:

- ★ Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- ★ Evacuate any public places encompassed by the 100 ppm ROE.
- ★ Be equipped with H<sub>2</sub>S monitors and air packs in order to control the release.
- ★ Use the "buddy system" to ensure no injuries occur during the response.
- ★ Take precautions to avoid personal injury during this operation.
- ★ Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- ★ Have received training in the:
  - ◆ Detection of H<sub>2</sub>S, and
  - ◆ Measures for protection against the gas,
  - ◆ Equipment used for protection and emergency response.

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to sulfur dioxide (SO<sub>2</sub>). Intentional ignition must be coordinated with the NM OCD and local officials. Additionally, the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas.

Characteristics of H<sub>2</sub>S and SO<sub>2</sub>

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen sulfide	H <sub>2</sub> S	1.189 Air-1.0	10 ppm	100 ppm/hr	600 ppm
Sulfur dioxide	SO <sub>2</sub>	2.21 Air -1.0	2 ppm	N/A	1000 ppm

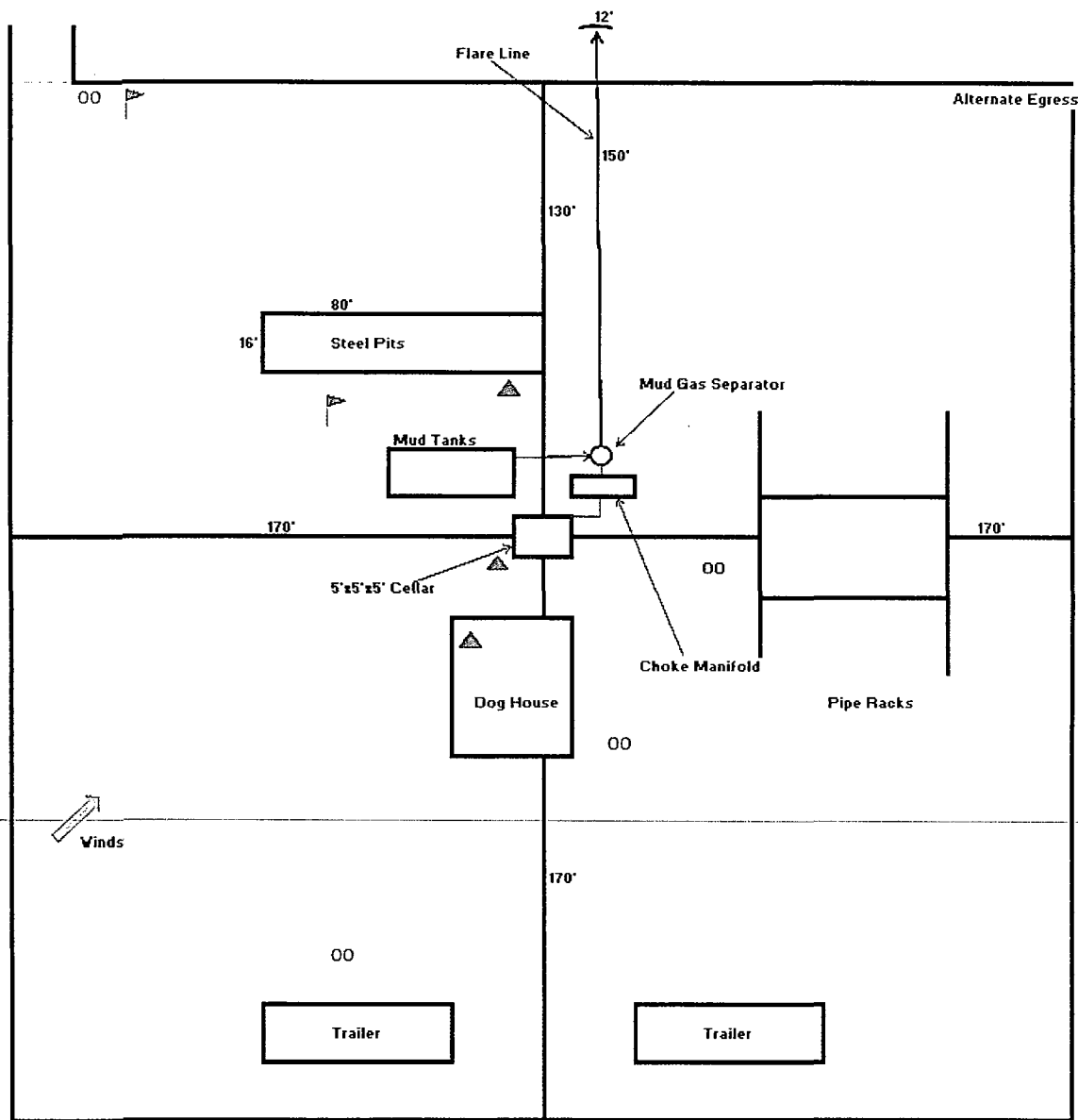
Contacting Authorities




Mesquite SWD, Inc personnel must liaise with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible, but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. Mesquite SWD, Inc's response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

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## Exhibit 2

### H<sub>2</sub>S Location Layout



-  Wind Direction Indicator  
(wind sock or streamers)
-  Briefing Areas
-  H<sub>2</sub>S Monitors  
(alarms at bell nipple and shale shaker)



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### **EMERGENCY CALL LIST**

Mesquite SWD, Inc.	575-706-1840
Clay Wilson	575-706-1840
Riley Neatherlin	575-706-7288
Kay Havenor	575-626-4518

### **EMERGENCY RESPONSE NUMBERS**

State Police	575-748-9718
State Police Lea Co.	575-392-5588
Eddy County Sheriff	575-746-2701
Lea County Sheriff	575-396-3611
Emergency Medical Services	911 or 575-746-2701
Artesia Fire and Ambulance	575-746-5050
Maljamar Fire and Ambulance	575-674-4100
Artesia General Hospital	
702 N. 13th St. Artesia	575-748-3333
Carlsbad Medical Center	
2430 West Pierce Street	575-887-4100
Lea County Emergency Response	575-396-8602
Lea County Ambulance Eunice	911 or 575-396-8602
Carlsbad Police Department	575-885-2111
Eddy County Emergency Management	575-887-9511
Carlsbad Fire Department	575-885-3125

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