

**COG OPERATING LLC**  
**HYDROGEN SULFIDE DRILLING OPERATIONS PLAN**

HOBBS OCD

SEP 06 2013

**1. HYDROGEN SULFIDE TRAINING**

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

RECEIVED

- a. The hazards and characteristics of hydrogen sulfide (H<sub>2</sub>S).
- b. The proper use and maintenance of personal protective equipment and life support systems.
- c. The proper use of H<sub>2</sub>S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
- d. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

- a. The effects of H<sub>2</sub>S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
- b. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
- c. The contents and requirements of the H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H<sub>2</sub>S zone (within 3 days or 500 feet) and weekly H<sub>2</sub>S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

**2. H<sub>2</sub>S SAFETY EQUIPMENT AND SYSTEMS**

Note: All H<sub>2</sub>S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H<sub>2</sub>S.

- a. Well Control Equipment:
  - Flare line.
  - Choke manifold with remotely operated choke.
  - Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
  - Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head.

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- b. Protective equipment for essential personnel:  
Mark II Surviveair 30-minute units located in the dog house and at briefing areas.
- c. H2S detection and monitoring equipment:  
2 - portable H2S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 ppm are reached.
- d. Visual warning systems:  
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.
- e. Mud Program:  
The mud program has been designed to minimize the volume of H2S circulated to the surface.
- f. Metallurgy:  
All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.
- g. Communication:  
Company vehicles equipped with cellular telephone.

COG OPERATING LLC has conducted a review to determine if an H2S contingency plan is required for the above referenced well. We were able to conclude that any potential hazardous volume would be minimal. H2S concentrations of wells in this area from surface to TD are low enough; therefore, we do not believe that an H2S contingency plan is necessary.

# **W A R N I N G**

**YOU ARE ENTERING AN H<sub>2</sub>S AREA  
AUTHORIZED PERSONNEL ONLY**

- 1. BEARDS OR CONTACT LENSES NOT ALLOWED***
- 2. HARD HATS REQUIRED***
- 3. SMOKING IN DESIGNATED AREAS ONLY***
- 4. BE WIND CONSCIOUS AT ALL TIMES***
- 5. CK WITH COG OPERATING LLC FOREMAN AT MAIN OFFICE***

**COG OPERATING LLC**

**1-575-748-6940**

## **EMERGENCY CALL LIST**

|                          | <b><u>OFFICE</u></b> | <b><u>MOBILE</u></b> |
|--------------------------|----------------------|----------------------|
| COG OPERATING LLC OFFICE | 575-748-6940         |                      |
| SHERYL BAKER             | 575-748-6940         | 432-934-1873         |
| KENT GREENWAY            | 575-746-2010         | 432-557-1694         |
| SETH WILD                | 575-748-6940         | 432-528-3633         |
| WALTER ROYE              | 575-748-6940         | 432-934-1886         |

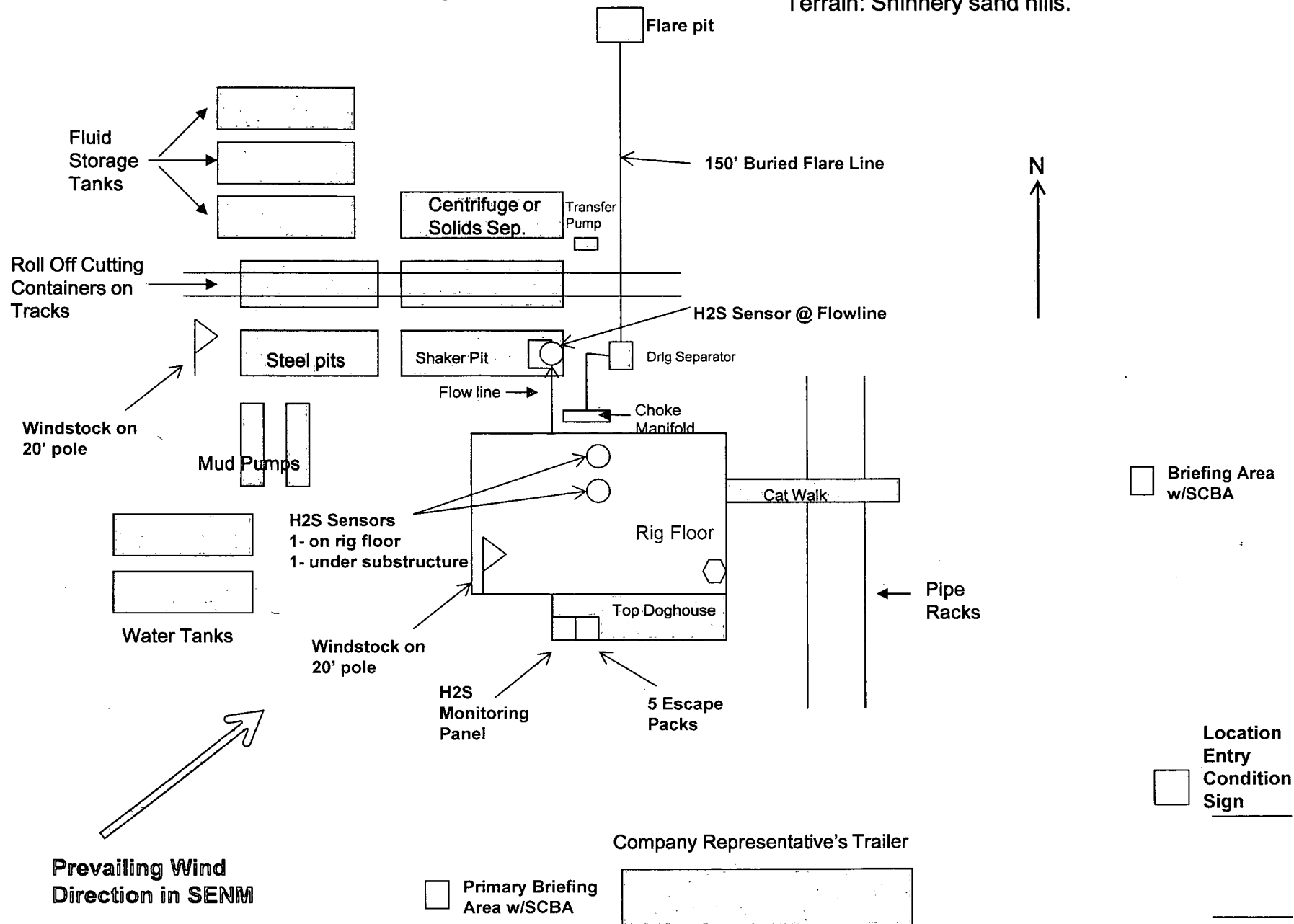
## **EMERGENCY RESPONSE NUMBERS**

|  | <b><u>OFFICE</u></b> |
|--|----------------------|
| STATE POLICE                                     | 575-748-9718         |
| EDDY COUNTY SHERIFF                              | 575-746-2701         |
| EMERGENCY MEDICAL SERVICES (AMBULANCE)           | 911 or 575-746-2701  |
| EDDY COUNTY EMERGENCY MANAGEMENT (HARRY BURGESS) | 575-887-9511         |
| STATE EMERGENCY RESPONSE CENTER (SERC)           | 575-476-9620         |
| CARLSBAD POLICE DEPARTMENT                       | 575-885-2111         |
| CARLSBAD FIRE DEPARTMENT                         | 575-885-3125         |
| NEW MEXICO OIL CONSERVATION DIVISION             | 575-748-1283         |
| INDIAN FIRE & SAFETY                             | 800-530-8693         |
| HALLIBURTON SERVICES                             | 800-844-8451         |

Secondary egress.

Well pad will be 340' X 340'  
with cellar in center of pad

COG Operating LLC  
H<sub>2</sub>S Equipment Schematic  
Terrain: Shinnery sand hills.





COG Operating LLC  
2208 West Main  
Artesia, NM 88210

# Production Facility Layout

Crazy Horse Federal Com #2H  
Section 18-T19S-R32E

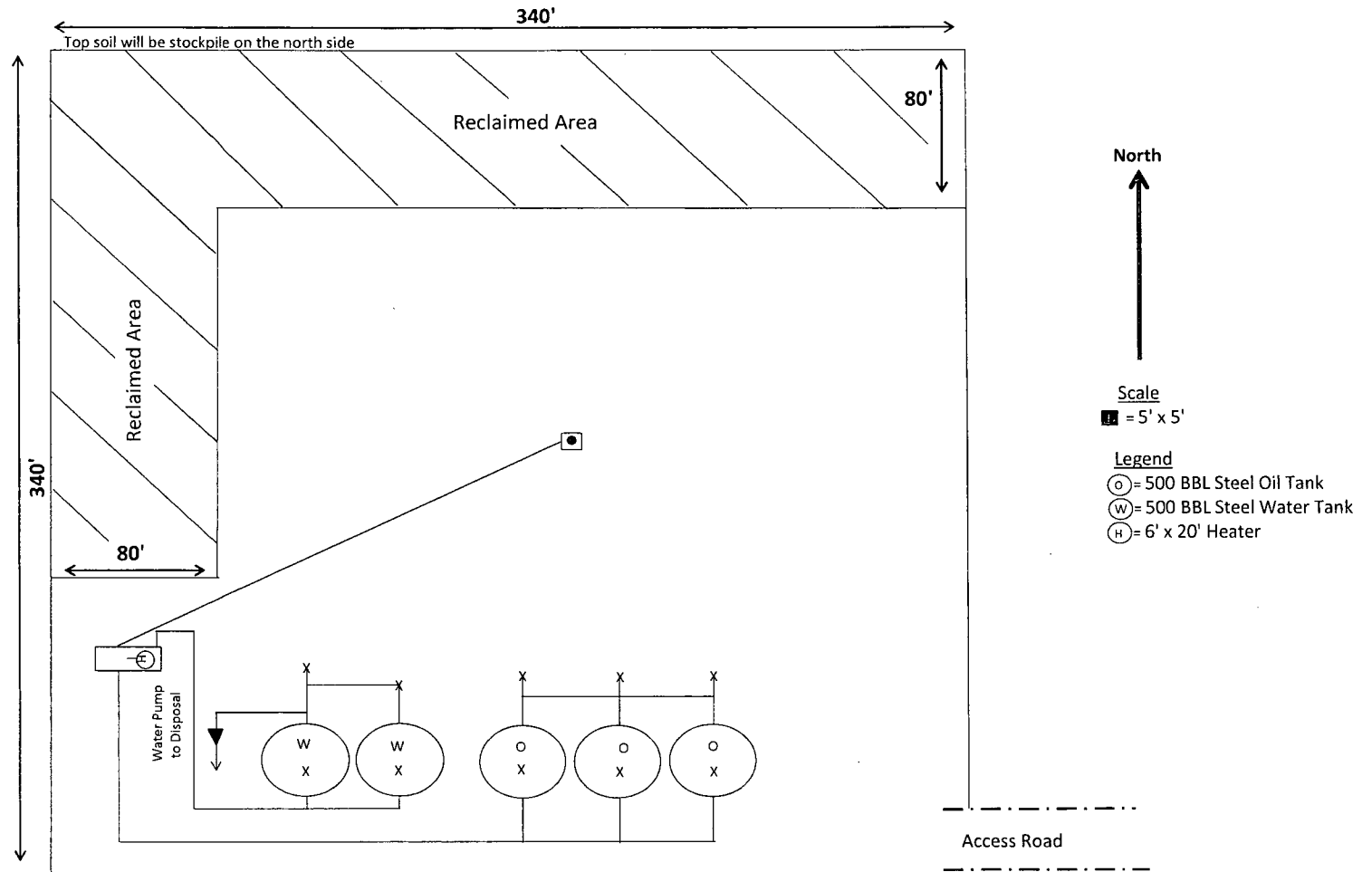


Exhibit 3