

MAY 10 2013

**H2S Emergency Procedures****RECEIVED**

In the case 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. Additionally the first responder(s) must evacuate any public places encompassed by the 100 ppm ROE. First responder(s) must take care not to injure themselves during this operation. Marshall and Winston Inc. and/or local officials must be contacted to aid in this operation. Evacuation of the public should be beyond the 100 ppm ROE.

All responders must have training in the detection of H<sub>2</sub>S, measures for protection against the gas, equipment used for protection and emergency response. Additionally, responders must 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 during the 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 NMOCD 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**

ICA Energy LLC personnel must liaison 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. The following call list of essential and potential responders has been prepared for use during a release. Marshall and Winston Inc.'s response must be in coordination with the State of New Mexico's Hazardous Materials Emergency Response Plan (HMER).

<b>ICA Energy Operating LLC</b>		
<b>POB 2712</b>		
<b>Odessa, TX 79760 (432) 580-5722</b>		
<b>Company Personnel</b>		
<b>Tom Becker</b>	<b>Drilling Consultant</b>	<b>(432) 664-6712</b>
<b>Debbie Curry</b>	<b>Secretary</b>	<b>(432) 580-5722</b>
<b>Kenny Beaty</b>	<b>Field Operations</b>	<b>(432) 634-9933</b>

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## HYDROGEN SULFIDE DRILLING OPERATIONS PLAN PERMIAN BASIN

This Hydrogen Sulfide Drilling Operations Plan shall be implemented prior to drilling out from under casing (surface or intermediate) set above potential H<sub>2</sub>S bearing formations.

### I. 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:

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

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

1. 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.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan.

All personnel entering a location posted with the potential of Hydrogen Sulfide shall be required to carry documentation that they have received the proper training. (Training certificate typically valid for 1 year after training)

### II. Site Specific Information:

Upon installation of H<sub>2</sub>S Safety Equipment and Systems on a well, and prior to drilling out of casing above potential Hydrogen Sulfide bearing formations a briefing with all personnel on location shall be held. The briefing should include a review of H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan. This briefing should include site specific elements such as:

- Identification of the briefing areas.
- Discussion of rig orientation and prevailing wind direction.

- Identification of access roads, including secondary egress.
- Confirmation that all personnel have current training.
- Formation tops of potential H<sub>2</sub>S bearing formations.

The H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan shall be available at the well site.

I. H<sub>2</sub>S Safety Equipment and Systems

- Well Control Equipment that will be installed prior to drilling out of casing above potential Hydrogen Sulfide bearing formations:
  - Choke manifold with a minimum of one adjustable choke.
  - At least one choke line must be directed away from the drilling unit and secured at the end. (For closed-loop operations this should be directed to containment bin at the back edge of the location.)
  - Blind rams and pipe rams to accommodate all pipe sizes
  - Annular preventor
  - Properly sized closing unit.
- Well control equipment to be available to install as needed should H<sub>2</sub>S be encountered;
  - Flare line with electronic igniter or continuous pilot.
  - Mud gas separator
  - Flare gun with flares.
  - One portable S<sub>0</sub>2 monitor positioned near flare line.
- Protective equipment for essential personnel:
  - 30-minute air pack units located in the dog house and at briefing areas.
- H<sub>2</sub>S detection and monitoring equipment:
  - Two portable H<sub>2</sub>S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H<sub>2</sub>S levels of 20 ppm are reached.
- Visual warning systems:
  - Wind direction indicators.
  - 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.

5. Mud program:
  - A. The mud program shall be designed to minimize the volume of H<sub>2</sub>S circulated to the surface. Proper mud weight, safe drilling practices, and the use of H<sub>2</sub>S scavengers will minimize hazards when penetrating H<sub>2</sub>S-bearing zones.
  - B. A mud-gas separator and an H<sub>2</sub>S gas buster will be utilized as required if H<sub>2</sub>S is encountered.
  
6. Metallurgy:
  - A. All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H<sub>2</sub>S service.
  - B. All elastomers used for packing and seals shall be H<sub>2</sub>S trim.
  
7. Communication:
  - A. Communications shall be available on the rig site and in company vehicles. Communications equipment may include one or more of the following: land lines, satellite phones, cellular telephone and 2-way radios.

**Additional Contacts regarding the H2S Contingency and Public Protection Plan:**

**EMERGENCY CONTACTS FOR PUBLIC PROTECTION PLAN**

**ICA Energy Operating, LLC**

432-580-5722

**Company Personnel**

Tom Becker	Drilling Consultant	432-664-6712
Debbie Curry	ICA Energy	432-580-5722
Kenny Beaty	Field Operations	432-634-9933

**HOBBS, NM**

Ambulance	911
State Police	575-392-5588
City Police	575-397-9265
Sheriff's Office	575-396-3611
Fire Department	575-397-9308
N.M. O.C. D	575-393-6161
Hobbs BLM	575-393-3612

**TATUM, NM**

Ambulance	911
City Police	575-398-4444
Sheriff's Office	575-398-4444
Fire Department	575-398-5555

**PORTALES, NM**

Ambulance	911
State Police	575-356-5139
City Police	575-356-4404
Sheriff's Office	575-356-4408
Fire Department	575-356-4406

Roswell BLM	575-627-0272
Flight for Life (Lubbock, TX)	806-743-9911
Aerocare (Lubbock, TX)	806-747-8923
Med flight air Ambulance (Albuq NM)	505-842-4433
SB air Med Services (Albuq NM)	505-842-4949

Wild Well Control	281-784-4700 (24 Hour Number)
Boots & Coots IWC	800-256-9688 or 281-931-8884
Cudd Pressure Control	915-699-0139 or 915-563-3356
BJ Services (Artesia NM)	575-746-3569
(Hobbs NM)	575-392-5556

New Mexico Emergency Response Commission (Santa Fe)	505-476-9600
24 Hour	505-827-9126
New Mexico State Emergency Operations Center	505-476-9635