

# ConocoPhillips

## Drilling Operations

### H<sub>2</sub>S Plan

30-025-39789

ConocoPhillips, Inc. will comply with Onshore Order No. 2 and No. 6 for working in an H<sub>2</sub>S environment or a potential H<sub>2</sub>S environment.

#### I. Hydrogen Sulfide Training

All contractors and subcontractors employed by ConocoPhillips will receive or have received training from a qualified instructor within the last twelve months 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. Safety precautions.
3. Operations of safety equipment and life support systems.

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

1. The effect of H<sub>2</sub>S on metal components in the system, especially where high tensile strength tubulars are to be used.
2. Corrective action and shutdown procedures when drilling or reworking a well, blowout prevention and well control procedures, if the nature of the work involves these items.
3. The contents and requirements of the contingency plan when such plan is required.

#### II. H<sub>2</sub>S Equipment and Systems

##### 1. Safety Equipment

The following minimum safety equipment will be on location:

- a. Wind direction indicators placed near rig floor/mud return lines and at points along the perimeter of the location to allow visibility of at least one indicator from any point on location.
- b. Automatic H<sub>2</sub>S detection alarm equipment (both audio and visual).
- c. Clearly visible warning signs. Signs will use the words "POISON GAS" and "CAUTION" with a strong color contrast.
- d. Protective breathing equipment will be located in the doghouse and at briefing areas on location.

##### 2. Well Control Systems

###### a. Blowout Prevention Equipment

- Flare lines will be 6" flanged steel lines with electronic ignition, boom will be at least 150' from the wellbore.
- Choke is to be remotely controlled.
- Flare gun and flares will not be used.
- Mud gas separator will be used and a rotating head (if well is exploratory).

###### b. Communication

The rig contractor will be required to have two-way communication capability. ConocoPhillips will have either, land-line, satellite phone, microwave phone, or mobile (cellular) telephone capabilities.

c. Mud Program

The mud program has been designed to minimize the volume of  $H_2S$  circulated to surface. Proper mud weight, safe drilling practices and the use of  $H_2S$  scavengers when appropriate will minimize hazards when penetrating  $H_2S$  bearing zones.

d. Drill stem tests

Any planned drill stem test will be cancelled if  $H_2S$  is detected prior to such test. In the event that  $H_2S$  is detected during testing, the test will be terminated immediately.



### H<sub>2</sub>S Contingency Plan

H<sub>2</sub>S Contingency Plan Holders:

Attached is an H<sub>2</sub>S Contingency Plan for COPC Permian Drilling working in the West Texas and Southeastern New Mexico areas operated by ConocoPhillips Company.

If you have any questions regarding this plan, please call Tom Samarraipa at ConocoPhillips Company, 432.368.1210.

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# **HYDROGEN SULFIDE (H<sub>2</sub>S) OPERATIONS**

Contingency Plan  
For  
Permian Drilling Operations

ConocoPhillips Company  
Mid-Continent Business Unit  
Permian Asset Area

## **I. PURPOSE**

The purpose of this Contingency Plan is to provide an organized plan of action for alerting and protecting the public following the release of a potentially hazardous volume of hydrogen sulfide. This plan prescribes mandatory safety procedures to be followed in the event of a release of H<sub>2</sub>S into the atmosphere from exploration and production operations included in the scope of this plan. The extent of action taken will be determined by the supervisor and will depend on the severity and extent of H<sub>2</sub>S release. Release of H<sub>2</sub>S must be reported to the Drilling Superintendent and documented on the IADC and in Wellview.

## **II. SCOPE**

This Contingency plan shall cover the West Texas and Southeastern New Mexico areas, which contain H<sub>2</sub>S gas and could result in a release where the R.O.E. is greater than 100 ppm at 50' and less than 3000' and does not include a public area and 500 ppm R.O.E. does not include a public road. Radius of exposure is defined as the maximum distance from the source of release that a specified calculated average concentration of H<sub>2</sub>S could exist under specific weather conditions.

### III. PROCEDURES

#### First Employee on Scene

\_\_\_\_\_ Assess the incident and ensure your own safety.

Note the following:

- \_\_\_\_\_ Location of the incident.
- \_\_\_\_\_ Nature of the incident.
- \_\_\_\_\_ Wind direction and weather conditions.
- \_\_\_\_\_ Other assistance that may be needed.

\_\_\_\_\_ Call local supervisory personnel (refer to Section V: Emergency Call List) until personal contact is made with a person on the list.

\_\_\_\_\_ Perform emergency assessment and response as needed. The response may include rescue and/or evacuation of personnel, shutting in a system and/or notification of nearby residents/public (refer to Section VII: Public Notification/Evacuation).

\_\_\_\_\_ Secure the site.

\_\_\_\_\_ Follow the direction of the On-scene Incident Commander (first ConocoPhillips supervisor arriving on-scene).

#### First Supervisor on Scene (ConocoPhillips On-scene Incident Commander)

\_\_\_\_\_ Becomes ConocoPhillips' On-scene Incident Commander upon arrival to location.

\_\_\_\_\_ Follow the principles of the **D.E.C.I.D.E.** process below to assess the incident. (Note wind direction and weather conditions and ensure everyone's safety).

**DETECT** the problem  
**ESTIMATE** likely harm without intervention  
**CHOOSE** response objectives  
**IDENTIFY** action options  
**DO** the best option  
**EVALUATE** the progress

\_\_\_\_\_ Complete the Preliminary Emergency Information Sheet (refer to Section VIII: Forms/Reports).

\_\_\_\_\_ Call your supervisor (refer to Section V: Emergency Call List).

- Perform emergency response as necessary. (This may include notification & evacuation of all personnel and/or nearby residents/public (refer to Section VII: Public Notification/Evacuation), requesting assistance from ConocoPhillips personnel or outside agencies (refer to Section V: Emergency Call List) and obtaining any safety equipment that may be required (refer to Section IV: Emergency Equipment and Maintenance).
- Notify appropriate local emergency response agencies of the incident as needed. Also notify the appropriate regulatory agencies. (refer to Section V: Emergency Call List).
- Ensure site security.
  - Set barricades and /or warning signs at or beyond the calculated 100 ppm H<sub>2</sub>S radius of exposure (ROE). All manned barricades must be equipped with an H<sub>2</sub>S monitor and a 2-way radio.
  - Set roadblocks and staging area as determined.
- Establish the Incident Command Structure by designating appropriate on-scene response personnel as follows:

|                            |       |
|----------------------------|-------|
| Recording Secretary        | _____ |
| Public Information Officer | _____ |
| Safety/Medical Officer     | _____ |
| Decontamination Officer    | _____ |
- Have the "Recording Secretary" begin documenting the incident on the "Incident Log" (refer to Section VIII: Forms/Reports).
- If needed, request radio silence on all channels that use your radio tower stating that, until further notice, the channels should be used for emergency communications only.
- Perform a Site Characterization and designate the following:

|           |    |                                    |
|-----------|----|------------------------------------|
| Hot Zone  | -- | Hazardous Area                     |
| Warm Zone | -- | Preparation & Decontamination Area |
| Cold Zone | -- | Safe Area                          |

AND

|                                |             |
|--------------------------------|-------------|
| On-Scene Incident Command Post | (Cold Zone) |
| Public Relations Briefing Area | (Cold Zone) |
| Staging Area                   | (Cold Zone) |
| Triage Area                    | (Cold Zone) |
| Decontamination Area           | (Warm Zone) |

\_\_\_\_\_ Refer all media personnel to ConocoPhillips' On-Scene Public Information Officer (refer to Section VI: Public Media Relations).

\_\_\_\_\_ Coordinate the attempt to stop the release of H<sub>2</sub>S. You should consider closing upstream and downstream valves to shut-off gas supply sources, and/or plugging or clamping leaks. Igniting escaping gas to reduce the toxicity hazard should be used **ONLY AS A LAST RESORT**. (It must first be determined if the gas can be safely ignited, taking into consideration if there is a possibility of a widespread flammable atmosphere.)

\_\_\_\_\_ Once the emergency is over, return the situation to normal by:

Confirming the absence of H<sub>2</sub>S and combustible gas throughout the area,

Discontinuing the radio silence on all channels, stating that the emergency incident is over,

Removing all barricades and warning signs,

Allowing evacuees to return to the area, and

Advising all parties previously notified that the emergency has ended.

\_\_\_\_\_ Ensure the proper regulatory authorities/agencies are notified of the incident (refer to Section V: Emergency Call List).

\_\_\_\_\_ Clean up the site. (Be sure all contractor crews have had appropriate HAZWOPER training.)

\_\_\_\_\_ Report completion of the cleanup to the Asset Environmentalist.  
(Environmentalism will report this to the proper State and/or Federal agencies.)

\_\_\_\_\_ Fill out all required incident reports and send originals to the Safety Department.  
(Keep a copy for your records.)

- Company employee receiving occupational injury or illnesses.
- Company employee involved in a vehicle accident while driving a company vehicle.
- Company property that is damaged or lost.
- Accident involving the public or a contractor; includes personal injuries, vehicle accidents, and property damage. Also includes any situation, which could result in a claim against the Company.
- Hazardous Material Spill/Release Report Form
- Emergency Drill Report

\_\_\_\_\_ Assist the Safety Department in the investigation of the incident. Review the factors that caused or allowed the incident to occur, and modify operating, maintenance, and/or surveillance procedures as needed. Make appropriate repairs and train or retrain employees in the use and operation of the system.

\_\_\_\_\_ If this incident was simulated for practice in emergency response, complete the Emergency Drill Report found in Section VIII: Forms/Reports and submit a copy to the Drilling Manager. (Keep one copy in area files to document exercising of the plan.)

## **Emergency Procedures**

### **Responsibility**

In the event of a release of potentially hazardous amounts of H<sub>2</sub>S, all personnel will immediately proceed upwind/ crosswind to the nearest designated briefing area. The COPC Drilling Rep. will immediately, upon assessing the situation, set this into action by taking the proper procedures to contain the gas and notify appropriate people and agencies.

1. In an emergency situation, the Drilling Rep. on duty will have complete responsibility and will take whatever action is deemed necessary in an emergency situation to insure the personnel's safety, to protect the well and to prevent property damage.
2. The Toolpusher will assume all responsibilities of the Drilling Rep. in an emergency situation in the event the Drilling Rep. becomes incapacitated.
3. Advise each contractor, service company, and all others entering the site that H<sub>2</sub>S may be encountered and the potential hazards that may exist.
4. Authorize the evacuation of local residents if H<sub>2</sub>S threatens their safety.
5. Keep the number of persons on location to a minimum during hazardous operations.
6. Direct corrective actions to control the flow of gas.
7. Has full responsibility for igniting escaping gas to reduce the toxicity hazard.  
This should be used **ONLY AS A LAST RESORT**.

#### **IV. EMERGENCY EQUIPMENT and MAINTENANCE**

##### **Emergency Equipment Suppliers**

##### **Total Safety US Odessa, Tx/ Hobs, NM**

432.561.5049 Odessa, Tx.

575.392.2973 Hobbs, NM

H<sub>2</sub>S monitors

Breathing air includes cascade systems

Fire fighting equipment

First aid and medical supplies

Safety equipment

##### **Safety International – Odessa, Tx.**

432.580.3770

H<sub>2</sub>S monitors

Breathing air includes cascade systems

First aid and medical supplies

Safety equipment

H<sub>2</sub>S Specialist

##### **Indian Fire & Safety – Hobbs, NM**

575.393.3093

H<sub>2</sub>S monitors

Breathing air including cascade systems trailer mounted

30 minute air packs

Safety Equipment

##### **Leek Fire & Equipment Company – Odessa, Tx.**

432.332.1693

H<sub>2</sub>S monitors

Fire fighting equipment

First aid and medical supplies

Safety equipment

## **Emergency Equipment and Maintenance (continued)**

### **General Information**

Materials used for repair should be suitable for use where H<sub>2</sub>S concentrations exceed 100 ppm. In general, carbon steels having low-yield strengths and a hardness below RC-22 are suitable. The engineering staff should be consulted if any doubt exists on material specifications.

Appropriate signs should be maintained in good condition at location entrance and other locations as specified in Texas Rule 36 and NMOCD Rule 118.

All notification lists should be kept current with changes in names, telephone numbers, etc.

All shutdown devices, alarms, monitors, breathing air systems, etc., should be maintained in accordance with applicable regulations.

All personnel working in H<sub>2</sub>S areas shall have received training on the hazards, characteristics, and properties of H<sub>2</sub>S, and on procedures and safety equipment applicable for use in H<sub>2</sub>S areas.

## H2S Safety Equipment and Monitoring Systems

An H2S emergency response package will be maintained at locations requiring H2S monitoring. The package will contain at a minimum the following:

3 – Fixed H2S sensors located as follows:

- 1 – on the rig floor
- 1 – at the Bell Nipple
- 1 – at the Shale Shaker or Flowline

1 – Entrance Warning Sign located at the main entrance to the location, with warning signs and colored flags to determine the current status for entry into the location.

2 – Windsocks that are clearly visible.

1 – Audible warning system located on rig floor

2 – Visual warning systems (Beacon Lights)

- 1 – located at the rig floor
- 1 – located in the mud mixing room

**Note: All alarms (audible and visual) should be set to alarm at 10 ppm.**

2 - Briefing areas clearly marked

- 2 - SCBA's at each briefing area
- 1- SCBA located at the Drilling Reqs office

**Note:**

- 1. All SCBA's must be **positive pressure** type only!!!
- 2. All SCBA's must either be **Scott or Drager** brand.
- 3. All SCBA's face pieces should be **size large**, unless otherwise specified by the Drilling Supervisor.

5 – Emergency Escape Paks located at Top Doghouse.

Note: Ensure provisions are included for any personnel working above rig floor in derrick.

1 – Tri or Quad gas monitor located at the Drilling Reqs office. This will be used to determine if the work area is safe to re-enter prior to returning to work following any alarm.

## **V. EMERGENCY CALL LIST:**

The following is a priority list of personnel to contact in an emergency situation:

| <b>Supervisory Personnel</b>                              | <b>Office No.</b> | <b>Home</b>  | <b>Cellular</b> |
|-----------------------------------------------------------|-------------------|--------------|-----------------|
| <b>R.W. "Cotton" Hair</b><br>Permian Drilling Supt.       | 432.368.1302      | 432.563.9467 | 432.556.9116    |
| <b>Tom Samarraipa</b><br>WSER                             | 423.368.1263      | 432.367.4961 | 432.556.9113    |
| <b>David Cook</b><br>Permian Asset Operations Manager     | 432.368.1100      |              | 432.978.9804    |
| <b>Leo Gatson</b><br>Safety and Environmental Coordinator | 432.368.1248      |              | 432.631.066     |
| <b>Lynn Dooley</b><br>Drilling Coordinator                | 832.486.2567      | 281.225.8063 | 281.435.3517    |

### **EMERGENCY CALL LIST: State Officials**

#### **Regulatory Agencies**

**Texas Railroad Commission (District 8)**  
Midland, Texas

Office: 432.684.5581

**New Mexico Oil Conservation Commission**  
P. O. Box 1980  
Hobbs, New Mexico 88240-1980

Office: 575.393.6161

**Bureau of Land Mngt.**  
Carlsbad Field Office  
620 E. Greene St.  
Carlsbad, NM 88220

Office: 575.234.5972  
Fax: 575.885.9264

### **EMERGENCY CALL LIST: Local Officials**

#### **Refer to the Location Information Sheet**

**Note: The LIS should include any area residents (i.e. rancher's house, etc)**

## **VI. Public Media Relations**

The **Public Information Officer** becomes the ConocoPhillips on-scene contact (once designated by the Phillips On-Scene Incident Commander).

Confers with Houston Office's Human Relations Representative, who is responsible for assisting in the coordination of local public relations duties.

Answer media questions honestly and **only with facts**, do not speculate about the cause, amount of damage, or the potential impact of the incident of the community, company, employees, or environment. (This information will be formally determined in the incident investigation.)

If you are comfortable answering a question or if you are unsure of the answer, use terms such as the following:

- "I do not know. I will try to find out."
- I am not qualified to answer that question, but I will try to find someone who can."
- "It is under investigation."

**Note:**

**Do Not Say "No Comment."** (This implies a cover-up.)

**Do Not Disclose Names of Injured or Dead!** Confer with the Houston Office's Human Relations Representative, who is responsible for providing that information.

## VII. Public Notification/Evacuation

### Alert and/or Evacuate People within the Exposure Area

1. Public Notification – If the escape of gas could result in a hazard to area residents, the general public, or employees, the person **first** observing the leak should take **immediate** steps to cause notification of any nearby residents. The avoidance of injury or loss of life should be of prime consideration and given top priority in all cases. If the incident is of such magnitude, or at such location as to create a hazardous situation, local authorities will be requested to assist in the evacuation and roadblocks of the designated area until the situation can be returned to normal.

Note: Bilingual employees may be needed to assist in notification of residents.

2. Evacuation Procedures – Evacuation will proceed upwind from the source of the release of H<sub>2</sub>S. Extreme caution should be exercised in order to avoid any depressions or low-lying areas in the terrain. The public area within the radius of exposure should be evacuated in a southwesterly and southeasterly direction so as to avoid the prevailing southern wind direction.

Roadblocks and the staging area should be established as necessary for current wind conditions.

**Note:** In all situations, consideration should be given to wind direction and weather conditions. H<sub>2</sub>S is heavier than air and can settle in low spots. Shifts in wind direction can also change the location of possible hazardous areas.

## **VIII. FORMS & REPORTS**

- I. Incident Log
- II. Preliminary Emergency Information Sheet
- III. Emergency Drill Report
- IV. Onshore Hazardous Material Spill/Release Report Form
- V. Immediate Report of Occupational Injury or Illness
  - Report of Accident-Public Contractor
  - Report of Loss or Damage to Company Property
  - Report of Automotive Incident