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Hydrogen Sulfide (H_2S)
Contingency Plan

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PREFACE

An effective and viable Contingency Plan is intended to provide prior planning and guidance in responding to emergency incidents. The primary considerations in its development are protection of personnel, the public, company and private property and the environment.

Although the plan addresses varied emergency situations which may occur, it recognizes that flexibility and the use of the organization's knowledge and experience is critical to safe resolution of emergency incidents. Response actions outlined in the plan provide a framework, which may be forced into operation without confusion. These actions promote quick and decisive actions during the critical initial period and immediately following an emergency. As the response progresses, additional guidelines and procedures may need to be implemented as the situation dictates. In addition, all emergency incidents must be properly reported per state and federal requirements, etc.

This Contingency Plan is intended for use on (HEYCO) projects, such as drilling, critical well work, completions, etc.

A copy of the Plan shall be maintained in the Top Dog House, Rig Manager's trailer, and Company Representative's trailer, if applicable.

WELL AND SITE DESCRIPTION

Mesquite 2 State #6

Possible zone containing H₂S Grayburg, San Andres, Bonespring and possible Wolfcamp. In this well we will have mud wt of 9.0-9.6ppg, vis of 34-36, wl at 10-15cc and PH of 10-11.

H₂S monitoring, emergency response equipment, windsocks and warning signs will be installed and tested prior to drilling out the shoe of the 8 5/8" casing at 2769'.

Site Description

The well location is located approximately 3 miles east of state road 222 and 4 miles south of US highway 529. Location is build in the sand dunms. The road will come in from the south of location with 0.2 miles new road.

Radius of Exposure

500 ppm radius of exposure = 12'

300 ppm radius of exposure = 16'

100 ppm radius of exposure = 26'

EMERGENCY RESPONSE ACTIVATION AND GENERAL RESPONSIBILITIES

Activation of Emergency Action Plan

In the event of any emergency situation, all personnel on location should first ensure that the following items are initiated. After that, they should refer to the appropriate Specific Emergency Guidance sections on eleven (11) through thirteen (13) in this document for further responsibilities:

- A. Notify the senior ranking contact representative on site.
- B. Notify HEYCO representative in charge.
- C. Notify civil authorities if the HEYCO Representative cannot be contacted and the situation dictates.
- D. Perform rescue and first aid as required (without jeopardizing additional personnel).

General Responsibilities

HEYCO PERSONNEL

- A. **Drilling Superintendent:** The HEYCO Drilling Engineer or contract personnel serving in that capacity will serve as Operations Chief Officer for all emergency incidents. The Operations Chief Officer is responsible for:
 - 1. Notification to HEYCO management
 - 2. Sole control of all tactical activities directed toward reducing the immediate hazard, establishing situational control and restoring the operations to a non-emergency state.
 - 3. Coordinating with the Drilling Foreman for notification and incident control.
 - 4. Establishing and managing the overall incident command structure and response from inception through restoration of normal activities in the area.
- B. **Drilling Foreman** (or his designate) is responsible for reporting to the incident as soon as reasonably possible, to provide support to the response effort as required by the Operations Chief Officer.

C. **Contract Drilling Personnel** will immediately report to their assigned stations and perform their duties as outlined in the appropriate Specific Emergency Guidance sections on pages eleven (11) through thirteen (13) in this document.

D. **Other Contractor Personnel** will report to the safe briefing area to assist HEYCO personnel and civil authorities as requested when it is safe to do so and if they have been adequately trained in their assigned duties.

CIVIL AUTHORITIES (Law Enforcement, Fire, and EMS) will be responsible for:

1. Establishing membership in the Unified Incident Command.
2. As directed by the Incident Commander and the Unified Command, control site access, re-route traffic, and provide escort services for response personnel.
3. Perform all fire control activities in coordination with the Unified Command.
4. Initiate public evacuation plans as instructed by the Incident Commander.
5. Perform rescue or recovery activities with coordination from the Unified Command.
6. Provide Medical assistance as dictated by the situation at hand.

H₂S RELEASE

The following procedures and responsibilities will be implemented on activation of the H₂S siren and lights:

All Personnel:

1. On alarm, don escape unit (if available) and report to upwind briefing area.

Rig Manager / Tool Pusher:

1. Check that all personnel are accounted for and their condition.
2. Administer or arrange for first aid treatment, and/or call EMTs as needed.
3. Identify two people best suited to secure well and perform rescue, and instruct them to don SCBA.
4. Notify Contractor management and HEYCO representative.
5. Remain at the briefing area, assess and monitor personnel and overall situation for hazards or conditions that might warrant a change in the action plan.

Two People Responsible For Shut-in and Rescue:

1. Don SCBA and acquire tools to secure well and perform rescue, i.e., wrenches, retrieval ropes, etc.
2. Utilize the buddy system to secure well and perform rescue(s).
3. Return to the briefing area and stand by for further instructions.

All Other Personnel:

1. 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. Teams will be organized to stop traffic on highway 222 and prevent entry into the ROE.
2. First responder(s) must take care not to injure themselves during this operation.
Company and/or local officials must be contacted to aid in this operation.
Evacuation of the public should be beyond the 100 ppm ROE. In the event of a release of gas containing H₂S the first responder must secure the area and prevent entry of other persons into the 100 ppm radius of exposure (ROE). The ROE should be recalculated and any public places within the ROE must be evacuated.

HEYCO Representative:

1. Remain at the briefing area, assess and monitor personnel and overall situation for hazards or conditions that might warrant a change in the action plan.
2. Notify Drilling Engineer/Operations Chief Officer, and Police, Fire Department or other local emergency services as required.

Training

There will be an initial training session prior to encountering a known or probable H₂S zone (within 3 days or 500 feet) and weekly H₂S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H₂S Drilling Operations Plan and the Public Protection Plan (Contingency Plan). This plan shall be available at the well site. All personnel will be required to carry documentation that they have received proper training.

Ignition of Gas Source

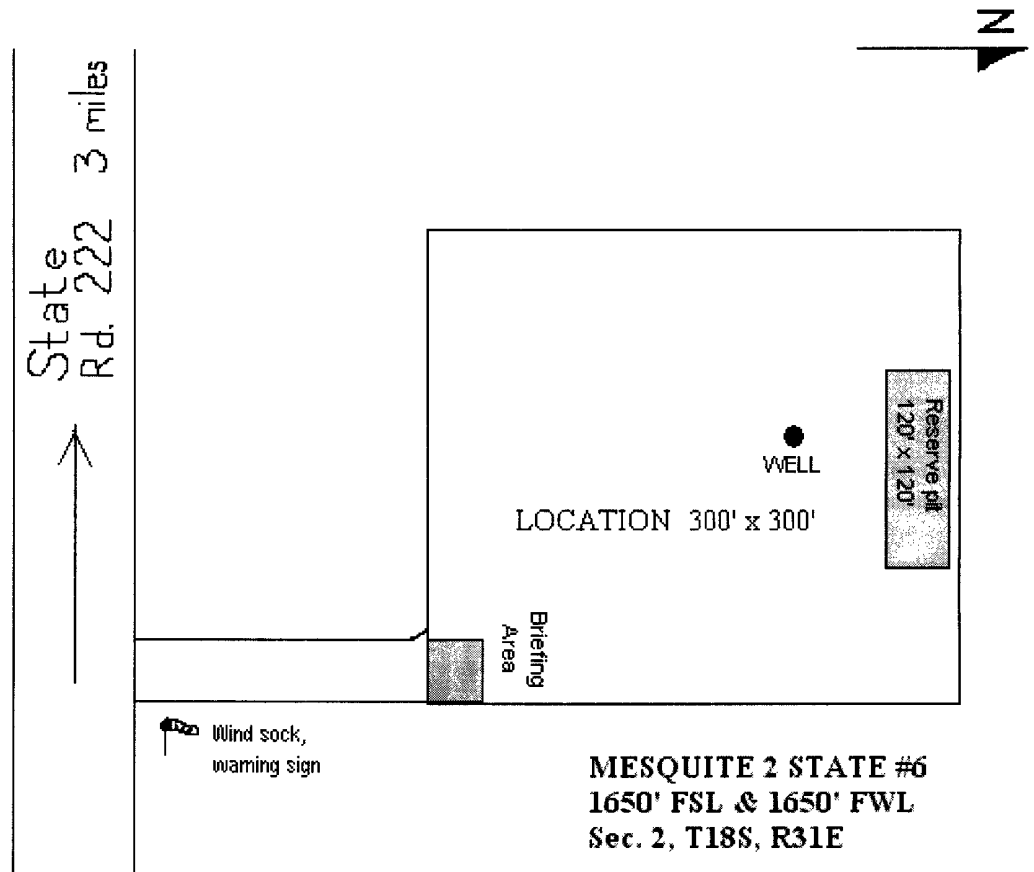
Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO₂). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police shall be the Incident Command of any major release.

Characteristics of H₂S and SO₂

NAME	Chemical Formula	S.G. Air =1.0*	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H ₂ S	1.89	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO ₂	2.21	2 ppm		1000 ppm

***CAUTION - Gases are heavier than air and will concentrate in low confined areas.**

Location Layout



CONTACTING AUTHORITIES

HEYCO personnel must liason 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. This response plan must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

<u>LOCATION</u>	<u>ENTITY</u>	<u>PHONE NUMBER:</u>
Artesia	Sheriff's Office	(505) 746-9888
Artesia	State Police	(505) 748-9718
Artesia	New Mexico Oil Conservation Division	(505) 748-1283
	Ambulance	911
Loco Hills	Fire Department	(505) 677-2349
Artesia	Fire Department	(505) 746-2701
Carlsbad	Local Emergency Planning Committee	(505) 887-3798
Roswell	Harvey E. Yates Company	Off. (505)623-6601
	Bob Williams, Operations Mgr.	Cell (505)390-9035
	Keith Cannon, Drlg Superintendent	Cell (505)746-7771
	Clay Stevens, Safety Man	Cell (505)365-7697
<u>OTHER CONTACTS</u>		
Artesia	BJ Services	(505) 746-3140
Artesia	Crockett Construction	(505) 365-2200
Hobbs		(505)
Artesia	Indian Fire & Safety, Inc.	(505) 746-4660
Odessa, TX	Wild Well Control, Inc.	(432) 550-6202
Odessa, TX	Cudd Pressure Control, Inc.	(432) 563-3356
Lubbock, TX	Flight for Life	(806) 743-9911
Albuquerque, NM	Med Flight Air Ambulance	(505) 842-4433

WELL CONTROL

The following procedures will be implemented when a loss of primary control is indicated. Indicators of loss of primary control are flow from the well; an increase in pit volume; or when the drilling fluid used to fill the hole in trips is less than the calculated pipe displacement volume. The emergency signal for well control procedures will be a single long blast of the rig air horn.

Kick While Drilling – Procedures and Responsibilities

Driller:

1. Stop the rotary and hoist the kelly above the rotary table.
2. Stop the mud pump(s).
3. Check for flow.
4. If flowing, sound the alarm immediately.
5. Ensure that all crew members fulfill their responsibilities to secure the well.
6. Record drill pipe and casing shut-in pressures and pit volume increase and begin kill sheet.

Derrickman:

1. Go to BOP/Choke manifold area.
2. Open choke line valve on BOP.
3. Signal to Floorman #1 that the choke line is open.
4. Close chokes after annular or pipe rams are closed.
5. Record shut-in casing pressure and pit volume increase.
6. Report readings and observations to Driller.
7. Verify actual mud weight in suction pit and report to Driller.
8. Be readily available as required for additional tasks.

Floorman #1:

1. Go to accumulator control station and await signal from Derrickman.
2. Close annular preventer and HCR on signal (if available, if not then close pipe rams).
3. Record accumulator pressures and check for leaks in the BOP or accumulator system.
4. Report to Driller, and be readily available as required for additional tasks.

Floorman #2:

1. Start water on motor exhausts.
2. Notify Contractor Tool Pusher or Rig Manager of well control situation.
3. Check location for ignition sources and extinguish or turn off, and stop any welding in progress.
4. Report to Driller, and be readily available as required for additional tasks.

Floorman #3:

1. Stand-by with Driller and be readily available, as required, for additional tasks.

Tool Pusher/Rig Manager:

1. Notify HEYCO Representative and report to rig floor.
2. Review and verify all pertinent information.
3. Communicate information to HEYCO Representative, and confer on an action plan.
4. Finalize well control worksheets, calculations and preparatory work for action plan.
5. Initiate and ensure the action plan is carried out.
6. Communicate any changes in well or site conditions, or any indications that the action plan needs to be revised to the HEYCO Representative.

HEYCO Representative:

1. Notify Drilling Engineer/Operations Chief Officer, and Police, Fire Department, or other local emergency services as required.

Kick While Tripping – Procedures and Responsibilities

Driller:

1. Sound the alarm immediately when pipe displacement volume is less than 75% of calculated.
2. Position the upper tool joint just above rotary table and set slips.
3. Check for flow.
4. Ensure that all crew members fill their responsibilities to secure the well.

5. Record drill pipe and casing shut-in pressures and pit volume increase, and begin kill sheets.

Derrickman: (Same as while drilling).

Floor Man #1:

1. Install full opening valve (with help from Floorman #2) in top drill string connection.
2. Tighten valve with make up tongs.
3. Go to accumulator control station and await signal from Derrickman.
4. Close annular preventer and HCR valve on signal (if available, if not then close pipe rams).
5. Record accumulator pressures and check for leaks in the BOP and accumulator system.
6. Report to Driller, and be readily available as required for additional tasks.

Floor Man #2:

1. Assist installing full opening valve in drill string.
2. Position back-up tongs for valve make-up.
3. Start water on motor exhausts.
4. Notify Contractor Tool Pusher or Rig Manager of well control situation.
5. Check location for ignition sources and extinguish or turn off, and stop any welding in progress.
6. Report to Driller, and be readily available as required for additional tasks.

Floor Man #3, Rig Manager/Tool Pusher, and HEYCO Representative: (Same as while drilling).

PUBLIC RELATIONS

HEYCO recognizes that the news media have a legitimate interest in incidents at HEYCO facilities that could affect the public. It is to the company's benefit to cooperate with the news media when incidents occur because these media are our best liason with the public.

Our objective is to see that all reports of any emergency or factual and representative is the most reliable guarantee that this objective will be met.

All contact and HEYCO employees are instructed **NOT** to make any statement to the media concerning the emergency incident. If a media representative contacts any employee, they should refer them to the designated Emergency Command Center where they should contact the Incident Commander or his designated relief for any information concerning the incident.

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