

# **TOM BROWN, INC.**

Legals:

**MEAD #5**

30-015-33149

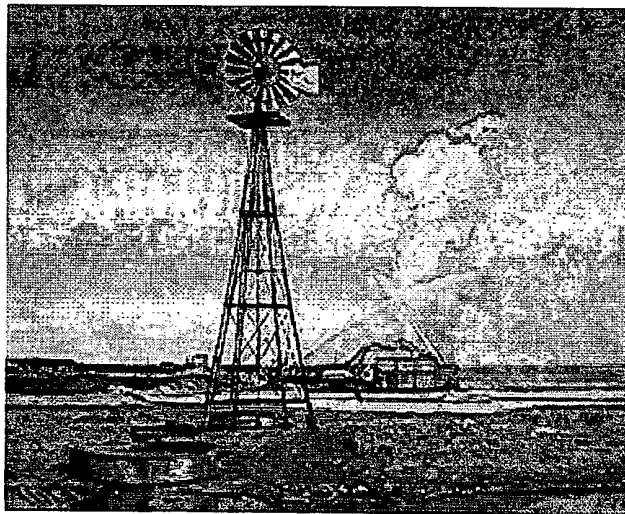
**12,000' MORROW WELL  
SECTION 5, T-22-S, R-27-E  
660' FSL 660' FEL  
EDDY COUNTY, NEW MEXICO**

**RECEIVED**

**JAN 15 2004**

**OCD-ARTESIA**

## **"CONTINGENCY PLAN"**



**CALLAWAY SAFETY EQUIPMENT CO., INC.  
3229 N. INDUSTRIAL DR.  
HOBBS, NEW MEXICO 88240  
(505) 392-2973**

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## I. H2S CONTINGENCY PLAN SECTION

### Scope

This contingency plan establishes guidelines for all company employees and contract employees whose work activities may involve exposure to Hydrogen Sulfide gas (H<sub>2</sub>S).

### Objective

1. Prevent any and all accidents and prevent the uncontrolled release of H<sub>2</sub>S into the atmosphere.
2. Provide proper evacuation procedures to cope with emergencies.
3. Provide immediate and adequate medical attention should an injury occur.

### Discussion of Plan

Implementation: This plan, with all details, is to be fully implemented prior to drilling below 1000'.

Emergency Response Procedure: This section outlines the conditions and denotes steps to be taken in the event of an emergency.

Emergency Equipment and Procedure: This section outlines the safety and emergency equipment that will be required for the drilling of this well.

Training Provisions: This section outlines the training provisions that must be adhered to prior to drilling into the Morrow Formation.

Emergency Call Lists: Included are the telephone numbers of all persons that would need to be contacted should an emergency occur.

Briefing: This section deals with the briefing of all people involved in the drilling operation.

Public Safety: Public Safety Personnel will be made aware of the drilling of this well.

Check Lists: Status Check Lists and Procedural Check Lists have been included to insure adherence to the plan.

General Information: A general information section has been included to supply support information.

## II. EMERGENCY PROCEDURES SECTION

### Emergency Procedures

- I. In the event of any evidence of H<sub>2</sub>S level above 10 ppm, take the following steps immediately:
  - A. Secure breathing apparatus.
  - B. Order non-essential personnel out of the danger zone.
  - C. Take steps to determine if the H<sub>2</sub>S level can be corrected or suppressed and if so, proceed with normal operations.
- II. If uncontrollable conditions occur, proceed with the following:
  - A. Take steps to protect and / or remove any public downwind of the rig including partial evacuation or isolation. Notify necessary public Safety personnel and Tom Brown Inc., Drilling Engineer, Brian Franks of the situation.
  - B. Remove all personnel to the Safe Briefing Area.
  - C. Notify public safety personnel for help with maintaining roadblocks and implementing evacuation.
  - D. Determine and proceed with the best possible plan to regain control of the well. Maintain tight security and safety procedures.
- III. Responsibility
  - A. The Company Approved Supervisor shall be responsible for the total implementation of the plan.
  - B. The Company Approved Supervisor shall be in complete command during any emergency.
  - C. The Company Approved Supervisor shall designate a back up Supervisor in the event that he / she is not available.

## **Emergency Reaction Steps**

### **I. Drilling or Tripping**

#### **A. All Personnel**

1. When alarm sounds, don escape unit and report to upwind Safe Briefing Area
2. Check status of other personnel (Buddy System).
3. Secure breathing apparatus.
4. Await order from Supervisor

#### **B. Drilling Foreman**

1. Report to the upwind Safe Briefing Area.
2. Don breathing apparatus and return to the point of release with the Tool Pusher or Driller (Buddy System).
3. Determine the concentration of H<sub>2</sub>S.
4. Assess the situation and take appropriate control measures.

#### **C. Tool Pusher**

1. Report to the upwind Safe Briefing Area.
2. Don breathing apparatus and return to the point of release with the Drilling Foreman or Driller (Buddy System).
3. Determine the concentration of H<sub>2</sub>S.
4. Assess the situation and take appropriate control measures.

#### **D. Driller**

1. Don escape unit.
2. Check monitor for point of release.
3. Report to the Safe Briefing Area.
4. Check the status of other personnel (in a rescue attempt, always use the buddy system).
5. Assign the least essential person to notify the Drilling Foreman and Tool Pusher, in the event of their absence.
6. Assume the responsibility of the Drilling Foreman and Tool Pusher until they arrive, in the event of their absence.

- E. Derrick Man
  - 1. Remain in the Safe Briefing Area until otherwise instructed by Supervisor.
- F. Mud Engineer
  - 1. Report to Safe Briefing Area.
  - 2. When instructed, begin check of mud for pH level and H2S level.
- G. Safety Personnel
  - 1. Don appropriate breathing apparatus.
  - 2. Check status of all personnel.
  - 3. Await instructions from Drilling Foreman
- II. Taking a Kick
  - A. All personnel report to Safe Briefing Area.
  - B. Follow standard BOP procedures.
- III. Open Hole Logging
  - A. All unnecessary personnel should leave the rig floor.
  - B. Drilling Foreman and Safety personnel should monitor the conditions and make necessary safety equipment recommendations.
- IV. Running Casing or Plugging
  - A. Follow "Drilling or Tripping" procedures.
  - B. Assure that all personnel have access to protective equipment.

### Simulated Blowout Control Drills

All drills will be initiated by activating alarm devices (air horn). One long blast, on air horn, for Actual and Simulated Blowout Control Drills. The Drilling Foreman or Tool Pusher will perform this operation at least one time per week for each of the following conditions, with each crew:

- |         |                     |
|---------|---------------------|
| Drill 1 | Bottom Drilling     |
| Drill 2 | Tripping Drill Pipe |

In each of these drills, the initial reaction time to shutting in the well shall be timed as well as the total time for the crew to complete its entire pit drill assignment. The times must be recorded on the IADC Driller's Log as "Blowout Control Drill".

Drill No.: \_\_\_\_\_

Reaction time to shut-in: \_\_\_\_\_ minutes, \_\_\_\_\_ seconds.

Total time to complete assignment: \_\_\_\_\_ minutes, \_\_\_\_\_ seconds.

#### I. Drill Overviews

##### A. Drill No. 1--Bottom Drilling

1. Sound the alarm immediately
2. Stop the rotary and hoist the kelly joint above the rotary table.
3. Stop the circulatory pump.
4. Close drill pipe rams.
5. Record casing and drill pipe shut-in pressures and pit volume increases.

##### B. Drill No. 2--Tripping Drill Pipe

1. Sound the alarm immediately
2. Position the upper tool joint just above the rotary table and set slips.
3. Install a full opening valve or inside blowout preventer tool in order to close the drill pipe.
4. Close the drill pipe rams.
5. Record the shut-in annular pressure.



## VIII. EVACUATION PLAN SECTION

### General Plan

The direct lines of action prepared by CALLAWAY SAFETY EQUIPMENT CO., INC. to protect the public from hazardous gas situations are as follows:

1. When the company approved supervisor (Drilling Foreman, Tool Pusher, Driller) determine Hydrogen Sulfide gas cannot be limited to the well location and the public will be involved, he will activate the evacuation plan. Escape routes are noted on the Area map.
2. Company safety personnel or designee will notify the appropriate local government agency that a hazardous condition exists and evacuation needs to be implemented.
3. Company approved safety personnel that have been trained in the use of Hydrogen Sulfide detection equipment and self-contained breathing equipment will be utilized.
4. Law Enforcement personnel (State Police, Sheriff's Department, local Police Department and local Fire Department) will be called to aid in setting up and maintaining roadblocks. Also, they will aid in evacuation of the public if necessary.

**NOTE:** Law enforcement personnel will not be asked to come into a contaminated area. Their assistance will be limited to uncontaminated areas. Constant radio contact will be maintained with them.

5. After the discharge of gas has been controlled, "Company" safety personnel will determine when the area is safe for re-entry.

See Emergency Reaction Plan

**RESIDENCE WITHIN R.O.E.  
(Radius of Exposure)**

Resident Name: **Elaine Murphy**  
Address: **701 E. Green Street**  
Phone Number: **(505) 885-3087 (home)**  
**(505) 706-3380 (cell)**  
Children in Residence: **None**  
Evacuation Assistance Req. **No**

Mrs. Murphy was contacted on December 29, 2003, by Callaway Safety Equipment Company employee, Larry Thomas. Mr. Thomas will be providing Mrs. Murphy with H2S training and an H2S pamphlet regarding evacuation steps to be taken in case of a release.

## EMERGENCY ASSISTANCE TELEPHONE LIST

### PUBLIC SAFETY

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Carlsbad P.D.	(505) 885-2111 or 911
Eddy County Sheriff's Department	(505) 887-7551 or 911
New Mexico State Police	(505) 885-3137 or 911
Carlsbad Fire Department	(505) 885-3125 or 911
New Mexico OCD (Tim Gum)	(505) 748-1283
New Mexico D.O.T.	(505) 827-5100
U.S. Dept. of Labor	(505) 248-5302

### TOM BROWN INC.

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Hal Lee	Drilling Manager	(432) 688-9345 (office)
		(432) 664-9040 (mobile)
		(432) 685-6073 (home)
Brian Franks	Drilling Engineer	(432) 688-9598 (office)
		(432) 664-9134 (mobile)
		(432) 683-6397 (home)

### COMPANY MAN

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J.C. Wilson	(432) 238-7760 (mobile)
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### PATTERSON DRILLING RIG #46

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David Hines	Tool Pusher	(505) 631-2375
Rig Phone		(432) 664-9227

### SAFETY CONTRACTOR

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Callaway Safety Equipment	(505) 392-2973 (Hobbs)
	(432) 561-5049 (Odessa)

**Affected Public Notification List**

(within a 65' radius of exposure @ 100 ppm)

The geologic zones that will be encountered during drilling are known to contain hazardous quantities of H<sub>2</sub>S. The accompanying map illustrates the affected areas of the community. The residents within this radius will be notified via a hand delivered written notice describing the activities, potential hazards, and conditions of evacuation, evacuation drill siren alarms and other precautionary measures.

**Evacuee Description:** Residents

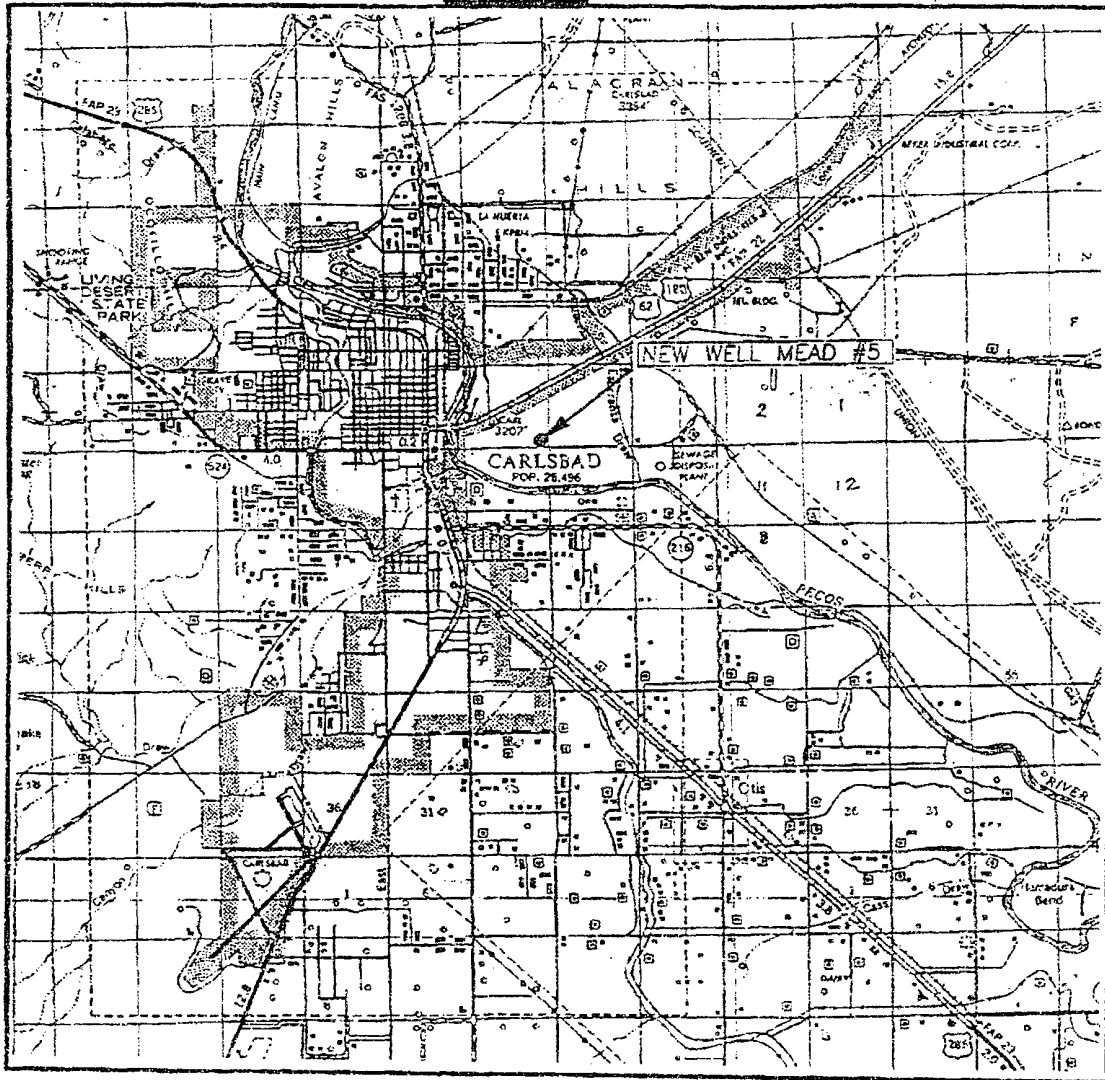
**Notification Process:** A continuous siren audible to all residents will be activated; signaling evacuation of previously notified and informed residents.

**Evacuation Plan:** All evacuees will migrate lateral to the wind direction.

The Oil Company will identify all homebound or highly susceptible individuals and make special evacuation preparations, interfacing with the local fire and emergency medical services as necessary.

IX. MAPS AND PLATS SECTION.

## VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 5 TWP. 22-S RGE. 27-ESURVEY N.M.P.M.COUNTY EDDYDESCRIPTION 660' FSL & 660' FELELEVATION 3119'OPERATOR PURE RESOURCES, L.P.LEASE NEW WELL MEADDIRECTIONS TO LOCATION

FROM INTERSECTION OF HWY 62-108 AND THE PECOS RIVER GO EAST 0.7 MILES TURN RIGHT ON CALICHE RD. GO SOUTHEAST APPROXIMATELY 0.2 MILES TO A TWO TRACK TRAIL RD DOWN EL PASO BPL. TURN RIGHT & GO WEST 0.2 MILES. THE PROPOSED LOCATION IS APPROXIMATELY 300' TO THE SOUTH.

JOHN WEST SURVEYING  
HOBBS, NEW MEXICO  
(505) 393-3117

X. GENERAL INFORMATION SECTION

DISTRICT I  
P.O. Box 1980, Hobbs, NM 88241-1980

DISTRICT II  
P.O. Drawer D0, Artesia, NM 88211-0719

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV  
P.O. Box 2988, Santa Fe, N.M. 87504-2988

State of New Mexico  
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

Form C-102  
Revised February 10, 1994  
Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number		Pool Code	Pool Name
Property Code	Property Name NEW WELL MEAD		Well Number 5
OGRID No.	Operator Name PURE RESOURCES, L.P.		Elevation 3119'

Surface Location

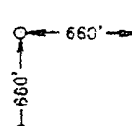
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	5	22-S	27-E		660	SOUTH	660'	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

LOT 4	LOT 3	LOT 2	LOT 1				
		GEODETIC COORDINATE NAD 27 NME Y = 515229.9 N X = 539673.0 E LAT. = 32°24'59.10"N LONG. = 104°120'17.17"W					
							
				<b>OPERATOR CERTIFICATION</b>  I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.  Signature _____  Printed Name _____  Title _____  Date _____			
				<b>SURVEYOR CERTIFICATION</b>  I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my belief.  NOVEMBER 25, 2003  Date Surveyed _____ AWB Signature & Seal of Professional Surveyor _____  12/3/03 03.17.1308  Certificate No. GARY EIDSON 12841			



## Callaway Safety Equipment

[illegible]

3229 Industrial Drive  
Hobbs, NM 88240  
505-392-2973

Callaway Safety Technician\_\_\_\_\_

Lost well drilled

Callaway Safety Equipment Co., Inc.

3219 INDUSTRIAL DR.  
HOBBS, NEW MEXICO 86240

505 392-2973

H<sub>2</sub>S SURVEY REPORT

SAND CALLAWAY  
PRODUCT

Pat. No. 2,111,111  
Copyright

MEAD # 4  
Eddy, NM

Date 12-18-03

Gunbarrel



Breathing Zone \_\_\_\_\_  
Lip of Hatch \_\_\_\_\_  
Vapor Space \_\_\_\_\_  
Tank Size \_\_\_\_\_

Stock Tank



Breathing Zone \_\_\_\_\_  
Lip of Hatch \_\_\_\_\_  
Vapor Space \_\_\_\_\_  
Tank Size \_\_\_\_\_

Stock Tank



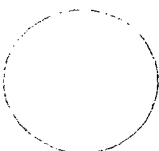
Breathing Zone \_\_\_\_\_  
Lip of Hatch \_\_\_\_\_  
Vapor Space \_\_\_\_\_  
Tank Size \_\_\_\_\_

Stock Tank



Breathing Zone \_\_\_\_\_  
Lip of Hatch \_\_\_\_\_  
Vapor Space \_\_\_\_\_  
Tank Size \_\_\_\_\_

Brine Tank



Breathing Zone \_\_\_\_\_  
Lip of Hatch \_\_\_\_\_  
Vapor Space \_\_\_\_\_  
Tank Size \_\_\_\_\_

Please add any additional tanks to chart as needed.

PPM  
H<sub>2</sub>S

12,813,000 flow Rate

## Toxic Effects of Hydrogen Sulfide Poisoning

Hydrogen Sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 20 ppm, which is .002% by volume. Hydrogen Sulfide is heavier than air (specific gravity - 1.192) and colorless. It forms an explosive mixture with air between 4.3 and 46.0 percent by volume. Hydrogen Sulfide is almost as toxic as Hydrogen Cyanide and is between five and six times more toxic than Carbon Monoxide. Toxicity data for Hydrogen Sulfide and various other gases are compared below in Table I. Physical effects at various Hydrogen Sulfide levels are shown in Table II.

**Table I**  
Toxicity of Various Gases

Common Name	Chemical Formula	Specific Gravity	Threshold Limit (A)	Hazardous Limit (B)	Lethal Concentration (C)
Hydrogen Cyanide	HCN	0.94	10 ppm	150 ppm/hr	300 ppm
Hydrogen Sulfide	H <sub>2</sub> S	1.18	10 ppm (D) 20 ppm (E)	250 ppm/hr	600 ppm
Sulfur Dioxide	SO <sub>2</sub>	2.21	5 ppm		1000 ppm
Chlorine	CL <sub>2</sub>	2.45	1 ppm	4 ppm/hr	1000 ppm
Carbon Monoxide	CO	0.97	50 ppm	400 ppm/hr	1000 ppm
Carbon Dioxide	CO <sub>2</sub>	1.52	5000 ppm	(5 %)	(10 %)
Methane	CH <sub>4</sub>	0.55	90,000 ppm	(9 %)	Combustible Above 5% in air

- 
- A. **Threshold Limit** - Concentration at which it is believed that all workers may be repeatedly exposed day after day without adverse effects.
  - B. **Hazardous Limit** - Concentration that may cause death.
  - C. **Lethal Concentration** - Concentration that will cause death with short-term exposure.
  - D. **Threshold Limit (10 ppm)** - 1972 ACGIH (American Conference of Governmental Industrial Hygienists).
  - E. **Threshold Limit (20 ppm)** - 1966 ANSI acceptable ceiling concentration for eight-hour exposure (based on 40 hour week) is 20 ppm. OSHA Rules and Regulations (Federal Register, Volume 37, No. 202, Part II, dated 10/18/72)

**Table II**  
Physical Effects of Hydrogen Sulfide

Percent (%)	ppm	Physical Effects
0.001	10	Obvious and unpleasant odor
0.002	20	Safe for 8 hrs. exposure
0.01	100	Kills smell in 3-5 minutes; may sting eyes & throat
0.02	200	Kills smell shortly; stings eyes and throat
0.03	300	IDLH (Immediate Danger to Life and Health) Level
0.05	500	Dizziness; breathing ceases in a few minutes
0.07	700	Unconscious quickly; death will result if not rescued
0.10	1000	Unconscious at once; followed by death within minutes

\* CAUTION: Hydrogen Sulfide is a colorless and transparent gas and is highly flammable. It is heavier than air and may accumulate in low places.

## Use of Self-Contained Breathing Apparatus

(SCBA)

- I. Written procedures shall be prepared covering safe use of respirators in dangerous atmospheric situations, which might be encountered in normal operations or in emergencies. Personnel shall be familiar with these procedures and the available respirators.
- II. Respirators shall be inspected frequently, at random, to insure that they are properly used, cleaned and maintained.
- III. Anyone who may use respirators shall be trained in how to properly seal the face piece. They shall wear respirators in normal air and then in a test atmosphere. **(NOTE: Such items as facial hair (beard or sideburns) and eyeglass temple pieces will not allow a proper seal).** Anyone that may be expected to wear respirators should have these items removed before entering a toxic atmosphere. A special mask must be obtained for anyone who must wear eyeglasses. Contact lenses should not be allowed.
- IV. Maintenance and care of Respirators
  - A. A program of maintenance and care of respirators shall include the following:
    1. Inspection for defects, including leak checks.
    2. Cleaning and disinfecting.
    3. Repair
    4. Storage
  - B. Inspection: Self Contained Breathing Apparatus (SCBA) for emergency use shall be inspected monthly and records maintained for the following:
    1. Fully charged cylinders.
    2. Regulator and warning device operation.
    3. Condition of face piece and connection.
    4. Elastomer or rubber parts shall be stretched or massaged to keep them pliable and prevent deterioration.
  - C. Routinely used respirators shall be collected, cleaned and disinfected as frequently as necessary to insure proper protection is provided.
- V. Persons assigned tasks that require the use of Self Contained Breathing Equipment shall be certified physically fit for breathing equipment usage by the local company physician at least annually.
- VI. Respirators should be worn during the following conditions:
  - A. Any employee who works near the top or on the top of any tank unless tests reveal less than 20 ppm of H<sub>2</sub>S.
  - B. When breaking out any line where H<sub>2</sub>S can reasonably be expected.
  - C. When sampling air in areas to determine if toxic concentrations of H<sub>2</sub>S exist.
  - D. When working in areas where over 20 ppm H<sub>2</sub>S has been detected.
  - E. At any time there is a doubt as to the H<sub>2</sub>S level in the area to be entered.

## Rescue-First Aid for Hydrogen Sulfide Poisoning

**DO NOT PANIC !!!!**

**Remain Calm -- THINK**

1. Hold your breath (Do not inhale; stop breathing) and go to Briefing Area.
2. Put on breathing apparatus.
3. Remove victim(s) to fresh air as quickly as possible. (Go upwind from the source or at right angles to the wind; **NOT** downwind).
4. Briefly apply chest pressure-arm lift method of artificial respiration to clear the victim's lungs and to avoid inhaling any toxic gas directly from the victim's lungs.
5. Provide for prompt transportation to the hospital and continue giving artificial respiration if needed.
6. Hospital(s) or medical facilities need to be informed, beforehand, of the possibility of H<sub>2</sub>S gas poisoning, no matter how remote the possibility.
7. Notify emergency room personnel that the victim(s) have been exposed to H<sub>2</sub>S gas.

Besides basic first aid, everyone on location should have a good working knowledge of artificial respiration, as well as first aid for eyes and skin contact with liquid H<sub>2</sub>S. Everyone needs to master these necessary skills.