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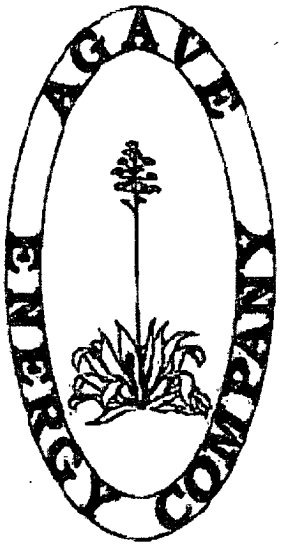

H_2S Contingency Plan

THIS CONTINGENCY PLAN WAS WRITTEN SPECIFICALLY FOR:

Agave Energy Company
Red Hills AGI #1
Section 13, T24S, R33E
Lea County, NM

PREPARED BY:
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1.0 LOCATION LAYOUT

1.1 DESCRIPTION

1. The drilling rig will be situated on location such that the prevailing winds blow from the doghouse and crew trailers. At the first site of any emergency due to gasses, the Bureau of Land Management (BLM) and New Mexico Oil Conservation Division (NMOCD) will be notified.

2. The entrance to the location will be designated so that it can be barricaded if hydrogen sulfide (H_2S) emergency conditions arise. An auxiliary exit (or entrance) will be available so that, in case of a catastrophe, a shift in wind direction would not preclude escape from the location.

3. A minimum of two BRIEFING AREAS will be established not less than 100 feet or as practical from the well head and in such a location that at least one area will be upwind of the well at all time. Upon recognition of an emergency situation, all personnel should assemble at the designated BRIEFING AREA for instructions and account for all site personnel.

4. A SAFETY EQUIPMENT TRAILER will be stationed on Agave Energy's (Agave) Red Hills Plant Site as a briefing area. The trailer will consist of a cascade air supply of five air cylinders, low pressure air line hose, three low pressure manifolds, five air line masks with escape cylinders, four 30-minute self-contained units, first aid kit, stretcher, fire extinguisher, resuscitator, flare gun, and hand pump with current-dated gas detection tubes.

5. An H_2S detector, with a light and siren, will be installed with heads that will be located at the bell nipple, one on the shale shaker, one on the rig floor, one at flare and pit area, and one at living quarters.

6. The mud logging trailer will be located away from the shale shaker mud tank and as far as possible from the wellbore.

7. Shale shaker mud tanks will be located so as to minimize the danger from H_2S that may break out of the drilling fluid.

8. Electric power plant(s) will be located as far from the wellbore as practical so that it may be used under conditions where it would otherwise be shut down.

9. All windbreakers and rig curtains will be removed from around the derrick floor and monkey board when any H_2S reaches the surface.

10. Appropriate smoking areas will be designated and smoking will be prohibited elsewhere.

11. Emergency phone numbers will be posted on the rig bulletin board and also in the SAFETY EQUIPMENT TRAILER.

12. Reliable 24-hour radio and/or telephone communications will be available at the rig.

13. Safety equipment will be located at the following areas:

    A. Five ESCAPE UNITS will be placed on the rig floor for the convenience of normal drilling operations and for emergency situations.

B. Five WORK AND ESCAPE UNITS will be located in the safety trailer with hose lines and manifolds. (Some Work Units with pressured hose lines may be located on rig floor for wells that are considered "Wildcat")

C. Two Self-Contained Breathing Apparatuses (SCBAs) at Primary Briefing Area.

D. Two SCBAs at Secondary Briefing Area

E. Windsocks will be at the appropriate locations for visibility:

   a) Out the V-door
   b) In-between the mud hoppers and generating plant.

The well site diagram on the following page (Figure 1) shows the following:

a) Drill rig orientation
b) Prevailing wind direction
c) Terrain of surrounding area
d) Location of all briefing areas
e) Location of access road
f) Location of flare line and pit
g) Location of caution/danger signs
h) Location of wind direction indicators

Figure 1:
Site Layout

2.0 SAFETY EQUIPMENT

2.1 SAFETY EQUIPMENT LIST

Hydrogen sulfide trailer complete with:

A. 8-300 cu. Ft. grade D/E breathing air cylinders

B. Five Scott Ska-packs with escape cylinders (work units)

C. Four Scott SCBAs with stands

D. Bendix hand pump with detector tubes

E. Stainless steel flexible cut proof high pressure line and all necessary pigtails and tee blocks

F. High/low pressure regulators

G. Three and five man outlets or manifolds

H. High pressure refill hose

I. Low pressure rubber hose lines for use with the work units

J. Flare pistol with flares

K. Condition sign with appropriate flags; no smoking, authorized personnel only, and briefing area signs

L. Two windsocks or streamers

M. First Aid station

N. Emergency eye wash station

O. Fire extinguisher

2.2 TYPE OF EQUIPMENT

Self-Contained Breathing Apparatus (SCBA):

A. Location discussed in previous section

B. List of equipment in safety trailer

2.3 MAINTENANCE RESPONSIBILITIES

A. Agave shall and will be responsible for cleaning and maintaining the personal protective equipment (PPE) on a weekly basis.

B. The drill crew can clean SCBA mask with warm soapy water if necessary.

2.4 PREVENTOR STACK ARRANGEMENT

All Blowout Preventer (BOP) equipment shall meet API specifications as to materials acceptable for H_2S service. All parts of the BOP that may contact H_2S will be corrosion-resistant per NACE MR0175/ISO

2.5 OTHER EQUIPMENT

A. Flare stack
B. Flow sensor
C. Pit Volume Totalizer (PVT) System
D. De-gasser
E. De-silter
F. Mud/Gas separator

3.0 OPERATING PROCEDURES

3.1 BLOWOUT PREVENTION DRILLS

Blowout prevention drills should be held with each crew until they are proficient in closing the well in. Drills should be held on a regular basis with at least one drill per crew each week continuously from 1,000 feet above the expected H_2S formation to total depth (TD).

3.2 BLOWOUT PREVENTOR TESTING

BOP equipment will be tested at 1,000 feet prior to the H2S zone at a 3,000 pound per square inch (PSI) working pressure on initial installation and routinely thereafter (not to exceed a two-week period) between testing) and at any time a seal has been broken.

3.3 SAFETY TRAINING

H_2S safety training will be given to all personnel working at 1,000 feet above the expected H_2S formation unless employees have already been trained. The training sessions will cover, but will not be limited to the following:

A. General information on H_2S and sulphur dioxide (SO_2) gas
B. Hazards of those gases
C. Safety equipment on location
D. Proper use and care of PPE
E. Operational procedures in dealing with H_2S gas
F. Evacuation procedures
G. First aid, reviving an H_2S victim (toxicity, etc.)
H. Buddy system (working in pairs)
I. Designated safe briefing area (SBA)

When an alarm is activated:

A. Mask up
B. Raise tool joint above rotary table and shut down pump
C. Close in hydril
D. Go to briefing area that is upwind
E. Designate two individuals to mask up and scout the area for persons in distress, then sample for H_2S

3.4 OUTSIDE PERSONNEL RESPONSIBILITIES

All outside personnel, service companies, subcontractors, etc. will be notified by an on-site company representative of the potential of H_2S gas on location. All outside personnel will have H_2S protective equipment and H_2S training.

3.5 MUD PROGRAM AND TREATING

A. It is important that the mud be closely monitored for detection of H_2S and reliability of the H_2S treating chemicals.

B. Identification and analysis of sulfides in the mud and mud filtrate will be monitored regularly.

C. The mud system will be pre-treated with H_2S treating chemicals prior to drilling into the H_2S bearing formation. Continue maintaining residual concentration of 2 to 3 PPM by monitoring. Increase residual concentration if needed to control larger influxes of H_2S. Mud PH will be held at 10 or above within 1,000 ft. of H_2S producing zone to total depth.

4.0 EMERGENCY PROCEDURES AND DEFINITION OF WARNING FLAGS

4.1 CONDITIONS AND SAFETY ACTIONS

CONDITION: POTENTIAL DANGER, CAUTION (LESS THAN 10 PPM)

A. Cause for condition:

a. Circulating up drilling breaks
b. Trip gas after trip
c. Circulating out gas on choke
d. Poisonous gas present but below threshold concentrations

B. Safety actions:

a. Check safety equipment and keep it with you
b. Be alert for change in condition
c. Follow instructions

CONDITION: ORANGE – MODERATE DANGER (GREATER THAN 10 PPM)

A. Cause for condition:

a. Circulating up drilling breaks
b. Trip gas after trip
c. Circulating out gas on choke
d. Poisonous gas present but below threshold concentrations

B. Safety actions:

a. Check safety equipment and keep it with you, wear mask if on floor
b. Be alert for change in condition
c. Follow instructions

CONDITION: RED – EXTREME DANGER (GREATER THAN 100 PPM, I.D.L.H.)

A. Safety actions:

a. Mask up, all personnel will have personal protective breathing equipment (PPBE) with them. All personnel will stay in safe briefing area unless instructed otherwise

b. The decision to ignite the well is the responsibility of the company representative and should be made only as a last resort when it is clear that:

- Human life is endangered
- There is no hope of controlling the well under prevailing conditions

c. The NMOCD shall be notified as follows if the contingency plan is activated:

- 12 hours in advance of an intentional release or as soon as decision is made to release if such decision could not reasonably have been made more than 12 hours prior to the release
- Immediately in the case of an accident release
- As soon as possible before or after an unplanned intentional release made in an emergency situation to prevent a possible uncontrolled release
- The retention of the emergency plan shall be as follows:

1. The plan shall be available for NMOCD inspection at the location indicated on the certificate of compliance.

2. Release of and accidents related to H_2S – The operator shall furnish a written report to the NMOCD district office with 10 days of any accidental release of H_2S gas of sufficient volume to present a hazard and of any H2S related accident, whether it be from an accidental or intentional release.

4.2 EVACUATION OF LOCAL PEOPLE

Order the evacuation of local people within the danger zone. Request help from local authorities, State Police, Sheriff's Department, District NMOCD, and Service Representative.

4.3 CIRCULATING OUT KICK

A. If it is suspected that H_2S is present with the gas, whenever a kick is taken, the driller's method of eliminating gas and raising the mud will be followed.

B. The driller's method is maintaining sufficient back pressure on the annulus to keep any additional gas from coming into the hole while circulating gas bubble up to surface.

C. After the gas is eliminated, raise the fluid weight to control bottomhole pressure, and circulate around maintaining back pressure on the annulus until the well is dead.

D. If a kick has occurred, the standard blowout procedure will be followed and the driller's method will be used to kill the well. When the well has been put on the choke and circulation has been established the following safety procedures must be established:

a. Determine when gas is anticipated to reach the surface.
b. All non-essential personnel must be moved to safe briefing area.
c. All remaining personnel will check out and keep with them their PPBE
d. Mud man will see that the proper amount of H_2S scavenging chemical is in the mud and record times checked.
e. Make sure ignition flare is burning and valves are open to designated flare stacks.
f. Should anything develop where additional personnel are required, the on-site representative will immediately proceed to a safe briefing area to assist the crew with donning their breathing equipment.

4.4 CORING OPERATIONS IN H_2S BEARING ZONES

PPBE will be worn during the removal and packaging of all cores. For additional safety, PPBE will be worn from 20 stands in advance of the core barrel extraction from the well. Cores to be transported should be sealed and marked for the presence of H_2S.

4.5 DRILL STEM TEST

Should a decision be made to have a drill stem test, an appropriate drilling prognosis will be applied and the following will apply:

A. Drill stem testing of H_2S zones will be permitted only in daylight hours.

B. The necessary authorities will be notified of the intention to conduct a drill stem test of a formation suspected of containing, or known to contain, H_2S.

C. All non-essential personnel will be moved to Safe Briefing Area.

D. Put on air mask before formation fluids are expected to reach the surface and continue with MASK ON until flares are lighted and work areas test no more than 10 PPM H_2S and the area has been declared safe.

4.6 EMERGENCY TELEPHONE NUMBERS AND COMMUNICATION METHODS

EMERGENCY SERVICES

AGENCY	TELEPHONE #
Lovington Fire Department	(575) 369-2359
Jal Fire Department	(575) 395-2221
Artesia Fire Department	(575) 746-5050
Hobbs Fire Department	(575) 397-9308
Loco Hills Fire Department	(575) 677-2349
Ambulance Services Hobbs	(575)397-9308
Artesia	(575) 746-5050
Carlsbad	(575) 885-2111
Lovington	(575) 396-2359
Hospitals	
Artesia General	(575) 748-3333
Carlsbad Medical Center	(575) 887-4100
Lovington-Nor Lea	(575) 396-6611
Hobbs- Lea Regional	(575) 392-6581
Lubbock University Medical Center (UMC) Level I Trauma Center	(806)775-8200
State Police (HMER) Lea County	(575) 396-3611
Poison Control (Albuquerque)	(800) 222-1222
Helicopter Services	
Lifeguard (Albuquerque)	1-888-866-7256
Southwest Medivac (Hobbs)	1-800-971-4348
AeroCare (Lubbock)	1-800-823-1991
Air Med (El Paso)	(915) 772-9292

GOVERNMENT AGENCIES

AGENCY	TELEPHONE #
Oil Conservation Division, Santa Fe, NM (OCD) Oil Conservation District Office (Hobbs) Air Quality Bureau, Santa Fe, NM	(505) 476-3440 (575) 393-6161 (505) 827-1494
US BLM (Carlsbad District Office)	(575) 887-6544
Local Emergency Planning Committee (LEPC)	(575) 887-9511
National Response Center (NRC)	1-800-424-8802

OPERATORS AND CONTRACTORS

COMPANY	SERVICE	CONTACT	PHONE
B&H Construction	Construction/Maint.	Mike Wright	505-887-9755
Cooper Cameron Valves	Valve Repair	Dean Bohannon	432-362-1151
Cubix Corp.	Emissions Testing	Marc McDaniel	512-243-0202
Desert X-Ray	X-Ray Services	Elic Brymer	432-363-0669
E. D. Walton Const.	Construction Services	Wade Lancaster	800-657-9190
Environmental Plus	Spill Remediation	Gabino Rosa	505-394-3481
Ferguson Const.	Construction Services	Mark Wieser	505-396-3689
Fite Fire & Safety	Safety Services	Tim Nolen	432-689-6492
Gandy Corp.	Oilfield Service	Larry Gandy	505-396-4948
Hanover Compression	Compression Service	Vicki Egan	281-447-8787
Hughes Services	Vacuum Service	Donnie Mathews	505-677-3113
Industrial Insulation	Insulation Service	Scott Fulton	432-332-8203
Kenemore Welding	Welding Service	George Kenemore	505-676-2332
Mark's Crane & Rigging	Crane Services	David Landreth	432-337-1538
Mobile Labs	Laboratory Service	Jenny Linley	432-337-4744
Permian Valve Repair	Valve Repair	Raymond Tucker	432-381-1313
Plant Maint. Services	Chemical Cleaning	Dale Carter	432-580-5900
BJ-Coiltec	Nitrogen Services	Stephen Baugh	432-683-1887
Smith & Son's	Construction Service	Randy Smith	505-397-1852
Southwest Safety	Safety Services	Scott Magness	505-392-8080
TWS, Inc.	Crane, Man Lift Service	Randy Gandy	505-398-3811

(Other contractors may be added as required)

PUBLIC

N/A There are no residences within the 100 ppm ROE. The plant is located in a very isolated area.

AGAVE INTERNAL CALL LIST

NAME	TITLE	Office #	Cell #	Home #
	24 Hour Emergency Number	(505) 238-3588		
J. B. Smith	President	(575) 748-4528		
Ivan Villa	Engineering Manager/Incident Commander	(575) 748-4528	(575)-365-4888	

AGAVE INTERNAL CALL LIST (CONT'D)

NAME	TITLE	Office #	Cell #	Home #
Jennifer Knowlton, P.E.	Environmental Manager	(575)-748-4471	(505) 238-3588	

5.0 NAMES AND DUTIES OF PERSONS WITH PRIME RESPONSIBILITIES

COMPANY	NAME	PHONE
Agave Field Services, LLC	Ivan Villa	(575) 748-4528
Geolex, Inc. (Geologic and Engineering – Supervision & Reporting)	Alberto A. Gutierrez	(505) 842-8000
Drilling Company	Not yet determined	
Tool Pushers	Not yet determined	

6.0 H_2S INFORMATION AND HAZARDS

H_2S is a potential hazard to employees in the petroleum industry. This gas can paralyze and/or kill sense of smell quickly, paralyze respiratory system and kill quickly. In order to minimize the potential exposure, proper training of employees for hazards, symptoms, characteristics, safe practices, treatment and use of PPE is required.

6.1 H_2S HAZARDS

The principal hazard to personnel is asphyxiation or poisoning by inhalation. H_2S is a colorless, flammable gas having an offensive odor and a sweetish taste. It is highly toxic and doubly hazardous because it is heavier than air (specific gravity 1.19). Its offensive odor, like that of a rotten egg, has been used as an indicator by many old times in the oil fields, but this is not a reliable warning of the presence of gas in a dangerous concentration because people differ greatly in their ability to detect smells. Where high concentrations are encountered, the olfactory nerves are rapidly paralyzed losing the sense of smell as a warning indicator. A concentration of a few hundredths of one percent higher than that causing irritation can cause asphyxia and or death. In other words, there is a narrow margin between consciousness and unconsciousness, and between unconsciousness and DEATH!

Where high concentration can cause respiratory paralysis, spontaneous breathing does not return unless artificial respiration is applied. Although breathing is paralyzed, the heart may continue to beat for minutes after the initial attack.

6.2 PHYSIOLOGICAL SYMPTOMS

ACUTE: Results in almost instantaneous asphyxia, along with respiratory paralysis. Acute poisoning or strangulation may occur after even a few seconds of inhalation at high concentration and results in panting respiration, pallor, cramps, paralysis, and almost immediate loss of consciousness with loss of speech, and no other warning than a cry. Death may soon follow due from respiratory and cardiac paralysis. One breath of a sufficiently high concentration may have this result.

SUB-ACUTE: Results in irritation, principally of the eyes, persistent cough, tightening or burning in the chest and skin irritation followed by depression of the central nervous system. The eye irritation ranges in severity from mild conjunctivitis to swelling and bulging of the conjunctiva, photophobia (abnormal intolerance of light, and temporary blindness.

6.3 TREATMENT

A. Victim should be removed to fresh air immediately by rescuers, wearing respiratory protective equipment. Protect yourself while attempting a rescue.

B. If the victim is not breathing, begin immediately to apply artificial respiration. If a resuscitator is available, let another employee get it and prepare for use.

C. Treat the victim for shock, keep warm and dry.

D. Call EMS in all cases, victims poisoning should be examined by a physician.

6.4 CHARACTERISTICS OF H_2S

A. Extremely toxic (refer to chart for toxicity H_2S).

B. Heavier than air – specific gravity 1.19.

C. Colorless, has odor of rotten eggs.

D. Burns with a blue flame and produces SO_2, which is very irritating to eyes and lungs. The SO_2 is also toxic and can cause serious injury.

E. H_2S forms explosive mixture with air between 4.3% and 46% by volume.

F. Produces irritation to eyes, throat and respiratory tract.

G. Threshold Limit Value (TLV): Maximum of eight hours exposure without protective respiratory equipment – 10 ppm

6.5 SAFE PRACTICES

If you are faced with an H_2S problem in your operations, the following safe practices are recommended:

A. Be sure all concerned personnel are familiar with the hazards concerning H_2S and how to avoid it.

B. All employees should know how to operate and maintain resuscitator and respiration equipment.

C. All employees should be able to give and demonstrate artificial respiration.

D. Post areas where there is a poisonous gas with suitable warning signs.

E. Be sure all new employees are thoroughly trained before they are sent to the field.

F. Teach all personnel to avoid gas whenever possible – work on the upwind side and have a fresh air mask available.

G. Do not let bad judgment guide you – wear respiratory equipment when gauging tanks, etc. Do not try to hold your breath in order to enter a contaminated atmosphere.

H. In areas of high concentration, or when levels are above the IDLH (100ppm), a two-man operation is mandatory.

I. Never enter a tank, cellar or other enclosed place where gas can accumulate without proper respiratory protective equipment and a full body harness secured to a lifeline held by another person outside.

J. Always first check out danger areas with and H_2S detector before allowing anyone to enter the area. Do not try to determine the presence of gas by its odor.

K. Wear proper respiratory equipment for the job on hand. Never take a chance with equipment with which you are unfamiliar. If in doubt, consult with your supervisor.

L. Carry out practice drills every month with emergency and maintenance equipment. Telling or showing a group how to operate the equipment is not satisfactory, make them show you.

M. Maximum care should be taken to prevent the escape of fumes into the air of working places by leaks, etc.

N. Intrinsically safe communications such as radios and telephones should be provided for those people employed where H_2S may be present above the lower explosion level (LEL).

6.6 PROPERTIES OF GASES

The produced gas will probably be a mixture of carbon dioxide (CO_2), H_2S, and methane.

CO_2 is usually considered inert and is commonly used to extinguish fires. It is heavier than air (1.5 times) and CO_2 will concentrate in low areas of calm air. Humans cannot breathe air containing more than 10% CO_2 without losing consciousness. Air containing 5% CO_2 will cause disorientation if breathed for 30 minutes or more and air containing 10% CO_2 will cause disorientation in a few minutes. Continued exposure to CO_2 after being affected will cause convulsions, coma, and respiratory failure.

The TLV of CO_2 is 5,000 ppm. Short-term exposure to 50,000 ppm (5%) is reasonable. The gas is colorless and odorless and can be tolerated in relatively high concentrations.

Table 1 (Toxicity of Various Gases):

COMMON NAME	CHEMICAL FORMULA	SPECIFIC GRAVITY	THRESHOLD LIMIT (1)	HAZARDOUS LIMIT (2)	LETHAL CONCENTRATION (3)
Hydrogen Cyanide	HCN	0.94	10 ppm	150 ppm/hr.	300 ppm
Hydrogen Sulfide	H_2S	1.19	10 ppm	250 ppm/hr.	600 ppm
Sulfur Dioxide	SO_2	2.21	5 ppm		1000 ppm
Chlorine	Cl_2	2.45	1 ppm	4 ppm/hr.	1000 ppm
Carbon Monoxide	CO	0.87	50 ppm	400 ppm/hr.	1000 ppm
Carbon Dioxide	CO_2	1.52	5000 ppm	5%	10%
Methane	CH_4	0.55	90,000 ppm	Combustible above 5% in air	

1. Threshold – Concentration at which it is believed that all workers may be repeatedly exposed, day after day, without adverse effect.
2. Hazardous – Concentration that may cause death.
3. Lethal – Concentrations that will cause death with short-term exposure.

Table 2 (Physical Effects of H_2S):

%	PPM	GR/100 SCF	EFFECTS
0.001	10	0.65	Obvious and unpleasant odor – safe for 8 hours exposure
0.01	100	6.48	Kills smell in 3 to 15 minutes, may sting eyes and throat – I.D.L.H
0.02	200	12.98	Kills smell shortly, stings eyes and throat – I.D.L.H.
0.05	500	32.98	Dizziness, breathing ceases in a few minutes; unconscious after short exposure; need artificial respiration
0.07	700	45.36	Unconscious quickly, death will result if not rescued quickly
0.10	1000	64.8	Unconscious at once, followed by death within minutes
1	10,000		

Note: H2S itself is a colorless and transparent gas and is flammable. It is heavier than air and, hence, may accumulate in low places.

6.7 THE USE OF BREATHING AIR EQUIPMENT

A. Procedures shall be reviewed covering safe use of respirators in dangerous atmospheres that might be encountered in normal operations or in emergencies. Personnel shall be familiar with these procedure and the available respirators. Fit testing shall be required.

B. Respirators shall be inspected frequently to insure that they are properly cleaned and maintained.

C. Anyone who is to use a respirator shall be trained in how to insure a proper face seal. Respirators shall be tested in normal air before entering toxic atmosphere. Note: Such items as facial hair (beards or sideburns) and eyeglasses with temple pieces will not allow a proper seal. Anyone that may be reasonable 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.

D. Maintenance and care of respirators:

A program for maintenance and care of respirators shall include the following:

a. Inspection for defects, including leak checks
b. Cleaning and disinfecting
c. Repair
d. Storage

Inspection: Self-contained breathing apparatus for emergency use shall be inspected monthly for the following and a permanent record kept of these inspections:

a. Fully charged cylinders
b. Regulator and warning device operation
c. Condition of face piece and connections
d. Elastomer or rubber parts shall be stretched or massaged to keep them pliable and prevent deterioration

Routinely used respirators shall be collected, cleaned and disinfected as frequently as necessary to insure proper protection is provided.

E. Respirators shall be worn when:

a. Any employee works near the top or on top of any tank unless test reveal less than 10 ppm of H_2S
b. When breaking out any line where H_2S can reasonably be expected
c. When sampling air in areas to determine if toxic concentrations of H_2S exist
d. When working in areas where over 10 ppm H_2S has been detected
e. At any time there is a doubt a to the H_2S level in the area to be entered.