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H2S CONTINGENCY PLAN  
DRILLING and COMPLETIONS  
OPERATIONS

Cross Bones Section 29  
North Lusk Area

AUG 06 2012

# **CONTINGENCY PLAN**

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2. Location Information / Map
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## **SCOPE & OBJECTIVE**

### **SCOPE**

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

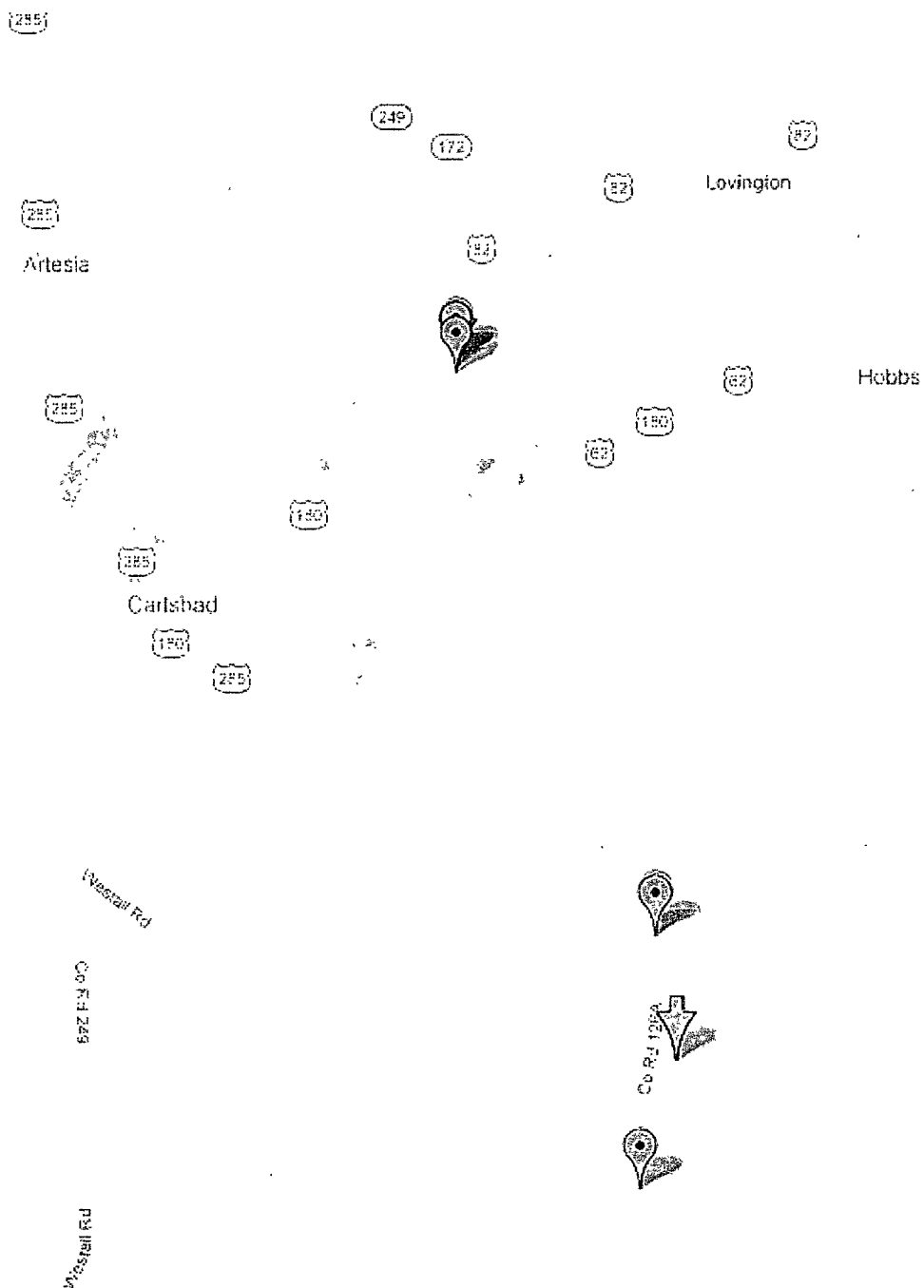
### **OBJECTIVE**

1. Prevent any and all accidents, and prevent the uncontrolled release of Hydrogen Sulfide into the atmosphere.
2. Provide proper evacuation procedures.
3. Provide immediate and adequate medical attention should an injury occur.

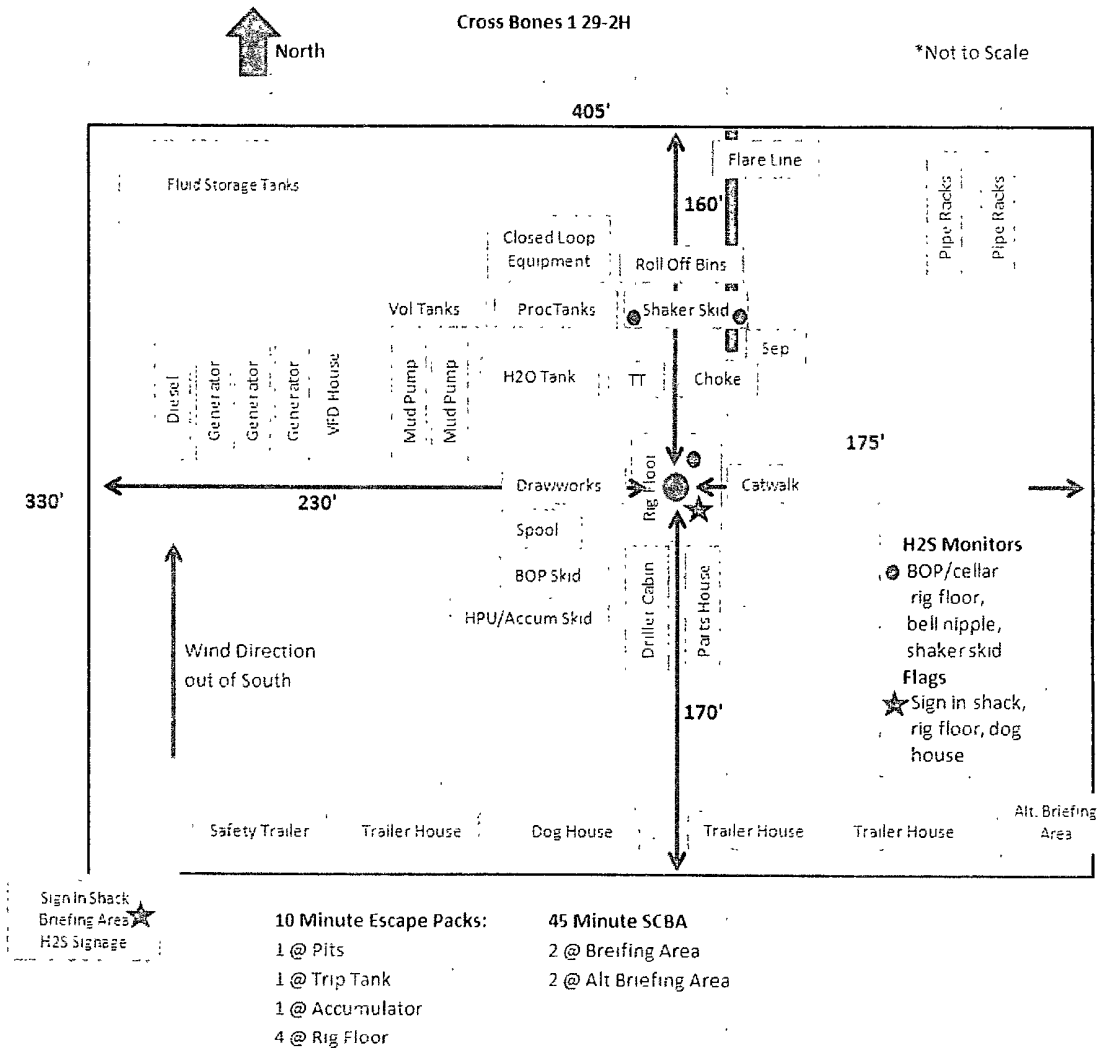
## **DIRECTIONS TO LOCATION**

From the intersection of State Highway #529 and CO Road #L126 (Maljamar Rd), go south on CO Road #L126 for approximately 5.7 miles. Follow the rig signs. The location stake is approximately 525 feet east.

# MAP (All well locations)

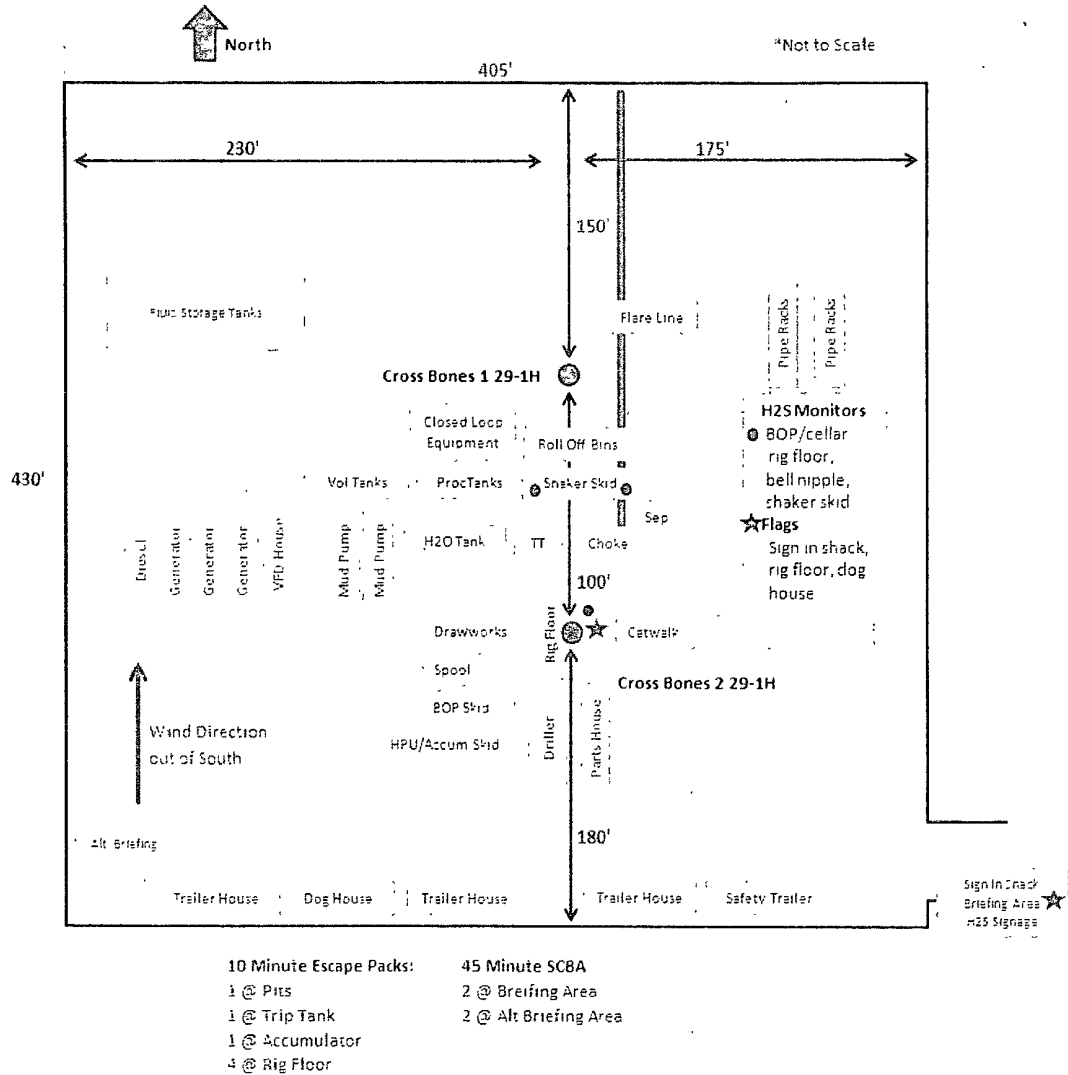


# LOCATION MAP



## Cross Bones 1 29-2H

# LOCATION MAP



## Cross Bones 2 29-1H & Cross Bones 1 29-1H





## **EMERGENCY PROCEDURES AND RESPONSIBILITIES**

It is the Chevron policy in all operations to do everything possible to insure the safety of its employees and the contractor's employees on the job site; additionally, to provide for the safety and comfort of persons near the operations by protecting the environment to the fullest degree possible.

The primary purpose of the procedures outlined herein is to guide the personnel on location in the event that Hydrogen Sulfide (H<sub>2</sub>S) reaches the surface.

**TO PROTECT THEIR OWN SAFETY AND THE SAFETY OF OTHERS,  
ALL PERSONNEL ON THE JOB SITE WILL RIGIDLY ADHERE TO  
THIS PLAN.**

Initial Suspected Problem Zone: Delaware Formation

Expected Concentration:  $\pm$  500 ppm

**ROE @ 100 ppm = 88 feet**

**ROE @ 500 ppm = 40 feet**

The plan should be implemented prior to spudding the well.

The cementing, casing and mud program are contained in the Chevron Drilling Well Design Program.

## **EMERGENCY NOTIFICATION / EVACUATION PLAN**

### **EVACUATION PLAN**

The following general plan has been developed in the event that any public evacuation becomes necessary.

1. Chevron has requested and has been assured the support of the various public safety entities in the area.
2. Any evacuation will be conducted by the Lea County Sheriff's Department and supported by the State Police Department, Highway Patrol Division.
3. Assistance from other public safety entities may be requested if required.
4. The included maps detail the area of the well site including the inventory of the public within the radius of exposure of the well.
5. In the event that there is any suspected problem on the well, the well site supervisor will notify the Lea County Sheriff's office 575-396-3611 for ALERT STATUS.
6. ALERT STATUS will require that available public support personnel will proceed to the Lea County Sheriff's office in Hobbs, NM and standby for instructions.
7. If isolation and evacuation are necessary, then units will be dispatched to points marked on the map with instructions to maintain road blocks.
8. Evacuation teams will then proceed to sectors to be evacuated. Evacuation procedure will follow appropriate consideration for wind conditions.
9. Personnel from on site will establish safe perimeters using H2S detectors.
10. The New Mexico Oil Conservation Division and other authorities will be notified as soon as possible.
11. Other supplemental contractors will be contacted and called in as needed.

## EMERGENCY NOTIFICATION / EVACUATION PLAN

### CHEVRON RESOURCES EMERGENCY COMMUNICATION LIST

In the event of communication failure, personnel contacted for well control incidents may be called in order as listed below until satisfactory communication is accomplished. Please give a reasonable amount of time for response before the next contact is called.

#### Drilling Operations

	Name	Title	Office Number	Home Number	Cell Phone	Pager
1.	Josh Veigel	Drilling Engineer	(713) 372-1548		(832) 494-7859	
2.	Dan Jovanovic	Superintendent	(713) 372-1402		(832) 319-4079	
5.	Kim McHugh	Drilling Manager	(713) 372-7591		(713) 204- 8550	
6.	Darrell Hammonds	Operations Manager	(713) 372-5747		(281) 352 2302	
7.	Bianca Keneally	D&C HES	(713) 372-7586		(713) 417-9428	
8.	Ivan Pinney	Completion Engineer	(713) 372 1949		(713) 818 0381	

## EMERGENCY NOTIFICATION / EVACUATION PLAN

### EMERGENCY CALL LIST

#### Medical Support

<u>Agency</u>	<u>Location</u>	<u>Telephone Number</u>
AXIOM Medical	Houston	1-877-502-9466
Carlsbad Medical Center	Carlsbad, NM	575-887-4100
Lea Regional Medical	Hobbs	575-492-5290
New Mexico Poison Center	New Mexico	800-222-1222

## EMERGENCY NOTIFICATION / EVACUATION PLAN

### EMERGENCY CALL LIST

#### Public Support

<u>Agency</u>	<u>Location</u>	<u>Telephone Number</u>
Permian Regional Medical Center	Andrews	432-464-2159
Lea Regional Medical Center	Hobbs	575-492-5290
Carlsbad Medical Center	Carlsbad	575-887-4100
Ambulance	Hobbs	575-397-9265
Fire Department	Hobbs	575-397-9265

## EMERGENCY NOTIFICATION / EVACUATION PLAN

### EMERGENCY CALL LIST

#### Supplemental Equipment

##### MUD COMPANY

Baroid	575-396-1565	Lovington, NM
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##### SAFETY COMPANY

Safety International	432-580-3770	Odessa
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DXP Safety	800-530-8693	Odessa
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DXP Safety	575-393-9188	Hobbs
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##### CEMENTING COMPANY

Halliburton	806-891-6582	Hobbs
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Schlumberger	575-393-6186	Hobbs
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##### PUMP TRUCKS / WATER HAULERS

Key Energy	575- 885-2053	Carlsbad
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Basic Energy	575-746-2217	Artesia
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# EMERGENCY NOTIFICATION / EVACUATION PLAN

## EMERGENCY CONDITIONS

### Operating Conditions

#### A. Emergency Procedures and Definition of Warning Flags.

1. Condition: YELLOW ---- NORMAL OPERATION
2. Condition: ORANAGE -- POTENTIAL DANGER--- CAUTION

##### a. Cause for condition:

- Circulating up drilling breaks
- Trip gas after trip
- Circulating out gas on choke
- Poisonous gas present, but below threshold concentrations

##### b. Safety actions:

- Check safety equipment and keep it with you
- Be alert for a change in conditions
- Follow instructions

#### 3. Conditions RED ----- EXTREME DANGER

##### a. Cause for conditions

- Uncontrolled flow from the well with lethal concentrations of H<sub>2</sub>S

##### b. Safety Actions

- Masks On. All personnel will have protective breathing equipment with them. All personnel will stay in safe briefing area unless instructed to do otherwise.
- 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:
  - i Human life is endangered
  - ii There is no hope of controlling the well under prevailing conditions.
- Order evacuation of local people within the danger zone.



## **EMERGENCY PROCEDURES AND RESPONSIBILITIES**

### **DRILLING CREW ACTIONS**

1. All personnel will don their protective breathing apparatus. The drilling crew will take necessary precaution as indicated in OPERATING PROCEDURES.
2. The Buddy System will be implemented. All personnel will act upon direction from the Operator's Representative.
3. If there are nonessential personnel on location, they will move off location.
4. Entrance to the location will be patrolled, and the proper condition flag will be displayed at the entrance to the location.

### **IN THE EVENT OF AN ACCIDENTAL RELEASE OF PTENTIALLY HAZARDOUSS VOLUME OF H2S, THE FOLLOWING PROCEDURES WILL BE TAKEN.**

1. All personnel on location will be accounted for and emergency search should begin for any missing.
2. All search missions will be conducted under fresh air masks in teams of two. Should the search team need to approach the well, safety harness and rope should be used.
3. All individual companies and agencies should be contacted according to the EMERGENCY CALL LIST.
4. An assigned crew member will blockade the entrance to the location. No unauthorized personnel will be allowed entry to the location.
5. The Operator's Representative will remain on location and attempt to regain control of the well.
6. The Company's designated representatives will begin evacuation of those persons in immediate danger.

## **EMERGENCY PROCEDURES AND RESPONSIBILITIES**

### **NOTE**

When Hydrogen Sulfide might be encountered, NO personnel on location will be permitted to sleep in vehicles.

## **EMERGENCY PROCEDURES AND RESPONSIBILITIES**

### **RESPONSIBILITY**

In the event of a release of potentially hazardous amounts of H<sub>2</sub>S, all personnel will immediately proceed upwind to the nearest designated safe area and don their protective breathing equipment. The Chevron representative will immediately, upon assessing the situation, set this plan into action by taking the proper procedures to contain the gas and notify the appropriate people and agencies.

If the Chevron representative is incapacitated or not on location, this responsibility will fall to the drilling toolpusher.

#### **Chevron**

1. In an emergency situation, the Drilling Representative 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. Advise the Drilling Superintendent when procedures as specified herein have been met, will inform of emergencies and deviation from the plan, and see that procedures are observed at all times.
3. Advise each contractor, Service Company, and all others entering the site that Hydrogen Sulfide may be encountered and the potential hazards that may exist.
4. Authorize the evacuation of local residents if Hydrogen Sulfide threatens their safety.
5. Keep the number of persons on location to minimum during hazardous operations.
6. Assess the situation when alarm sounds, and issue work orders. When conditions warrant, order all personnel to "Safe Briefing Areas".
7. Direct corrective actions to control flow of gas.
8. Has full responsibility for the decision to ignite the well. The decision will be made only as a last resort.

## **EMERGENCY PROCEDURES AND RESPONSIBILITIES**

### DRILLING COMPANY

1. The Toolpusher will assume all responsibilities of the Drilling Representative in an emergency situation in the event that the Drilling Representative becomes incapacitated.
2. The Toolpusher will order the Driller to secure the rig if time permits.

## **EMERGENCY PROCEDURES AND RESPONSIBILITIES**

### EQUIPMENT TO BE PROVIDED BY SAFETY COMPANY

1. One safety trailer containing an 8 bottle air cascade system
2. 750 feet of air line hose
3. Four breathing air manifolds
4. Four 30 minute rescue units
5. Five work/escape units
6. One filler hose for the work/escape and rescue units
7. One location sign with flags
8. Two briefing area signs
9. Two windsocks
10. One electronic monitor with three sensor heads, warning light and siren.

## **EMERGENCY PROCEDURES AND RESPONSIBILITIES**

### TEMPORARY SERVICE PERSONNEL

All service personnel, such as cementing crews, logging crews, specialists, mechanics and welders will furnish their own safety equipment as required to comply with OSHA and Chevron.

### VISITORS

Visitors and nonessential personnel will be prohibited from remaining in, or entering a contaminated area where Hydrogen Sulfide concentration in the atmosphere exceeds 10 ppm.

## IGNITING WELL INSTRUCTIONS

THE DECISION TO IGNITE THE WELL IS THE RESPONSIBILITY OF THE CHEVRON REPRESENTATIVE. In the event he is incapacitated or unavailable, it becomes the responsibility of the drilling rig superintendent.

The decision to ignite the well should be made only as a last resort and in the situation where it is clear that:

1. Human life is in danger
2. There is no hope of controlling the well under current conditions.

The Chevron Drilling Superintendent should be notified as soon as possible. The first phase of evacuation should be initiated immediately.

Once the decision has been made the following procedures should be followed:

1. Four people, wearing self-contained breathing apparatus will be needed for the actual lighting of the well. They must first establish the flammable parameter by using an explosion meter. This should be established at 30% to 40% of the lower flammable limits.
2. After the flammable perimeter has been established and everyone removed from the area, the ignition team should select a site upwind of the well, from which to ignite. The site should offer the maximum protection and have a clear path for retreat from the area.
3. The ignition team should have safety belts and lanyards attached and manned before attempting ignition. If the leak is not ignited on the first attempt, move in 20 to 30 feet and fire again. Continue to monitor with the explosion meter and never fire from an area with over 75% of the lower explosive limit (LEL). If having trouble igniting the well, try firing 40 degrees to 90 degrees on either side of the well.
4. After ignition or attempted ignition, the toxic perimeter must be established and evacuation continued until the well is contained.
5. All personnel will act only as directed by the person in charge of the operations.

# TRAINING PROCEDURES AND MATERIALS

## SAFETY TRAINING

1. Hydrogen Sulfide Safety Training will be provided to all personnel prior to rig up on location. The training sessions will cover, but will not be limited to the following.
  - a. General information on H<sub>2</sub>S and SO<sub>2</sub> gas
  - b. Hazards of H<sub>2</sub>S and SO<sub>2</sub> gas
  - c. Safety equipment on location
  - d. Proper use and care of personal protective equipment
  - e. Operational procedures in dealing with H<sub>2</sub>S gas
  - f. Evacuation procedures
  - g. Chemicals to be used in mud to control H<sub>2</sub>S
  - h. First aid, reviving and H<sub>2</sub>S victim, toxicity, etc.
  - i. Designated Safe Briefing Areas (S.B.A.)
  - j. Metallurgical considerations

NOTE: Once H<sub>2</sub>S Safety Procedures are established on location, no beards or facial hair which will interfere with face seal or mask will be allowed on location

2. When H<sub>2</sub>S alarm is activated:
  - a. Mask up
  - b. Raise tool joints above the rotary table and shut down pump
  - c. Close in hydrill
  - d. Go to Safe Briefing Area



## TRAINING PROCEDURES AND MATERIALS

### PHYSICAL EFFECTS OF HYDROGEN SULFIDE POISONING

#### The Principal Hazard Is Death by Inhalation

When the amount of gas absorbed into the bloodstream exceeds that which is readily oxidized, systemic poisoning results, with a general action on the nervous system. Labored respiration occurs shortly and respiratory paralysis may follow immediately at concentrations of 700 ppm and above. This condition may be reached almost without warning as the originally detected odor of H<sub>2</sub>S may have disappeared due to olfactory paralysis. Death then occurs from asphyxiation unless the exposed person is removed immediately to fresh air and breathing is stimulated by artificial respiration. Other levels of exposure may cause the following symptoms individually or in combination:

1. Headache
2. Dizziness
3. Excitement
4. Nausea or gastro-intestinal disturbances
5. Dryness and sensation of pain in nose, throat, and chest
6. Coughing
7. Drowsiness

All personnel should be alerted to the fact that detection of H<sub>2</sub>S solely by sense of smell is highly dangerous, as the sense of smell is rapidly paralyzed by the gas. 10 ppm of H<sub>2</sub>S detected should be treated as if it were 700 ppm.

## TRAINING PROCEDURES AND MATERIALS

### REMEMBER:

After the well is ignited, burning Hydrogen Sulfide ( $\text{H}_2\text{S}$ ) will convert to Sulfur Dioxide ( $\text{SO}_2$ ), which is also a highly toxic gas.

**DO NOT ASSUME THE AREA IS SAFE AFTER THE WELL IS IGNITED.**

## TRAINING PROCEDURES AND MATERIALS

### THE USE OF SELF CONTAINED BREATHING EQUIPMENT

1. Respirators shall be inspected frequently at random, to insure that they are properly used, cleaned and maintained.
2. Anyone who may use the respirators shall be trained in how to insure proper face piece to face seal. They shall wear respirators in normal air and then wear it in a test atmosphere. (Note: such items as facial hair – beard or sideburns – and eyeglass temple pieces will not allow a proper seal.) Anyone who may be reasonably 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 eye glasses. Contact lenses should not be allowed.
3. Maintenance and care of respirators:
  - a. A program for maintenance and care of respirators shall include the following:
    - Inspection for defects, including leaks checks
    - Cleaning and disinfecting
    - Repair
    - Storage
  - b. Inspection: Self contained breathing apparatus for emergency use shall be inspected monthly for the following and a permanent record kept of these inspections.
    - Fully charged cylinders
    - Regulator and warning device operations
    - Condition of face piece and connections
    - Elastic 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.
4. A person assigned a task that requires use of self contained breathing equipment should be certified, physically fit for breathing equipment usage by the local physician at least annually.
5. Respirators should be worn:
  - a. When breaking out any line where H<sub>2</sub>S can reasonably be expected.
  - b. When sampling air in areas to determine if toxic concentrations of H<sub>2</sub>S exist.
  - c. When working in areas where over 15 ppm H<sub>2</sub>S has been detected.
  - d. At any time there is a doubt as to the H<sub>2</sub>S concentration in the zone to be entered.

## **TRAINING PROCEDURES AND MATERIALS**

### TRAINING

Every person working in any capacity on the lease will be required to review the emergency procedures and will participate in the training program.

CHEVRON will provide personnel to direct the training program and indoctrinate all authorized persons on the lease in the proper use of the safety equipment.

The training personnel will work individually with each member until they are satisfied that the crew member is familiar with the emergency procedures and the training program. This should be accomplished prior to an individual's work operation.

Training will include hands on use of all equipment in order to familiarize the trainees with the safety equipment.

## **TRAINING PROCEDURES AND MATERIALS**

### TREATMENT OF HYDROGEN SULFIDE POISONING

#### Inhalation

As Hydrogen Sulfide in the blood oxidizes rapidly, symptoms of acute poisoning pass off when inhalation of the gas ceases. It is important, therefore, to get the victim of poisoning to fresh air as quickly as possible. He should be kept at rest and chilling should be prevented. If respiration is slow, labored or impaired, artificial respiration may be necessary.

Most persons overcome by Hydrogen Sulfide may be revived if artificial respiration is applied before heart action ceases. Victims of poisoning should be under the care of a physician as soon as possible. Irritation due to sub acute poisoning may lead to serious complications such as pneumonia. Under those conditions, treatment by the physician necessarily would be symptomatic. The patient should be kept in fresh air.

#### Contact with Eyes

Eye contact with liquid and / or gas containing Hydrogen Sulfide will cause painful irritation (conjunctivitis). Keep patient in a darkened room, apply ice compresses to eyes, put ice on forehead, and send for a physician. The irritation caused by exposure to Hydrogen Sulfide requires treatment by a physician, preferably an eye specialist. The prognosis for recovery in these cases is usually good.

#### Contact with Skin

Skin absorption is very low. Skin discoloration is possible after contact with liquids containing Hydrogen Sulfide. If such skin contact is suspected, the area should be thoroughly washed.

## **TRAINING PROCEDURES AND MATERIALS**

### EFFECTS OF HYDROGEN SULFIDE ON METAL

Hydrogen Sulfide dissolves in water to form a weak acid that can cause some pitting, particularly in the presence of oxygen and/or carbon dioxide. However, the most significant action of H<sub>2</sub>S is its contribution to a form of Hydrogen embrittlement known as Sulfide Stress Cracking. Sulfide Stress Cracking is a result of metals being subjected to high stress levels in a corrosive environment where H<sub>2</sub>S is present. The metal will often fail in a brittle manner. Sulfide Stress Cracking of steel is dependent upon and determined by:

1. Strength (hardness) of the steel – the higher the strength, the greater the susceptibility to sulfide stress cracking. Steels having yield strengths up to 95,000 psi and hardness up to Rc22 are generally resistant to sulfide stress cracking. These limitations can be extended slightly higher for properly quenched and tempered materials.
2. Total member stress (load) – higher the stress level (load) the greater the susceptibility to sulfide stress cracking.
3. Corrosive environment – corrosive reactions, acids, bacterial action, thermal degradation of low Ph fluid environment.

## **TRAINING PROCEDURES AND MATERIALS**

### **DRILLSITE LOCATION**

1. The drilling rig should be situated on location such that the prevailing winds blow across the rig toward the reserve pit or at right angles to a line from the rig to the reserve pit.
2. The entrance to the location should be designed so that it can be barricaded if Hydrogen Sulfide emergency conditions arise. An auxiliary exit (or entrance) should be available in case of a catastrophe; a shift in the wind direction would not preclude escape from the location. Appropriate warning signs and flags should be placed at all location entrances.
3. Once H<sub>2</sub>S safety procedures are established on location, no beards or facial hair which will interfere with face seal or mask will be allowed on location.
4. A minimum of two Briefing Areas will be established, not less than 250 feet from the wellhead and in such location that at least one area will be up-wind from the well at all times. Upon recognition of an emergency situation, all personnel should assemble at the designated briefing areas for instructions.
5. A safety equipment trailer will be stationed at one of the briefing areas.
6. Windssocks will be installed and wind streamers (6 to 8 feet above ground level) placed at the location entrance. Windssocks shall be illuminated for night time operations. Personnel should develop wind direction consciousness.
7. The mud logging trailer will be located so as to minimize the danger from gas that breaks out of the drilling fluid.
8. Shale shaker mud tanks will be located so as to minimize the danger from gas that breaks out of the drilling fluid.
9. Electric power plants will be located as far from the well bore as practical so that it may be used under condition where it otherwise would have to be shut down.
10. When approaching depth where Hydrogen Sulfide may be encountered, appropriate warning signs will be posted on all access roads to the location and at the floor of all stairways to the derrick floor.
11. Appropriate smoking areas will be designated and smoking will be prohibited elsewhere.

## **WELL LOCATION LAYOUT AND EQUIPMENT**

### **SPECIAL EQUIPMENT**

1. Flare lines should be as long as practical, securely staked in accordance with the Safe Work Practices Manual.
2. An electronic Hydrogen Sulfide monitor will be installed with a combination visual and audible alarm system located where it can be seen and/or heard throughout the drilling area.
3. The electronic Hydrogen Sulfide monitoring system will be calibrated to activate the low alarm (visual alarm) at a concentration of 10 ppm Hydrogen Sulfide in the atmosphere and the high alarm at a concentration of 15 ppm Hydrogen Sulfide in the atmosphere.
4. Extra equipment will be available if required to provide adequate respiratory protection for all personnel on location.



## **WELL LOCATION LAYOUT AND EQUIPMENT**

### **BLOWOUT PREVENTION EQUIPMENT**

1. A kill line of ample strength and length will be laid to safe point to allow pumping into the well in an emergency situation.
2. The closing unit should be located a safe distance from the well bore and positioned for maximum utilization based on the prevailing wind direction.
3. BOP equipment will be tested in accordance with standard company practice. (Safe Work Practices Book Section 13.9)

## **WELL LOCATION LAYOUT AND EQUIPMENT**

### **DRILL STEM TEST**

1. A drill stem tests of Hydrogen Sulfide zones will be approved by the NMOCD.
2. Drill stem testing of Hydrogen Sulfide zones will be permitted only during daylight hours.
3. All nonessential personnel will be moved to "Safe Briefing Areas".
4. Put on air masks before formation fluids are expected at the surface and continue "Masks On" until flare is ignited and work areas test no more than 10 ppm Hydrogen Sulfide and the area has been declared safe.

## **BLM ADDEDUM**

### HYDROGEN SULFIDE TRAINING

1. Hydrogen Sulfide Safety Training will be provided to all personnel prior to rig up on location. The training sessions will cover, but will not be limited to the following.
  - a. General information on H<sub>2</sub>S and SO<sub>2</sub> gas
  - b. Hazards of H<sub>2</sub>S and SO<sub>2</sub> gas
  - c. Safety equipment on location
  - d. Proper use and care of personal protective equipment
  - e. Operational procedures in dealing with H<sub>2</sub>S gas
  - f. Evacuation procedures
  - g. Chemicals to be used in mud to control H<sub>2</sub>S
  - h. First aid, reviving and H<sub>2</sub>S victim, toxicity, etc.
  - i. Designated Safe Briefing Areas (S.B.A.)
  - j. Metallurgical considerations

NOTE: Once H<sub>2</sub>S Safety Procedures are established on location, no beards or facial hair which will interfere with face seal or mask will be allowed on location

2. When H<sub>2</sub>S alarm is activated:
  - a. Mask up
  - b. Raise tool joints above the rotary table and shut down pump
  - c. Close in hydrill
  - d. Go to Safe Briefing Area
3. H<sub>2</sub>S and Well Control Drill shall be held weekly for all personnel in each crew.

### HYDROGEN SULFIDE EQUIPMENT AND SYSTEMS

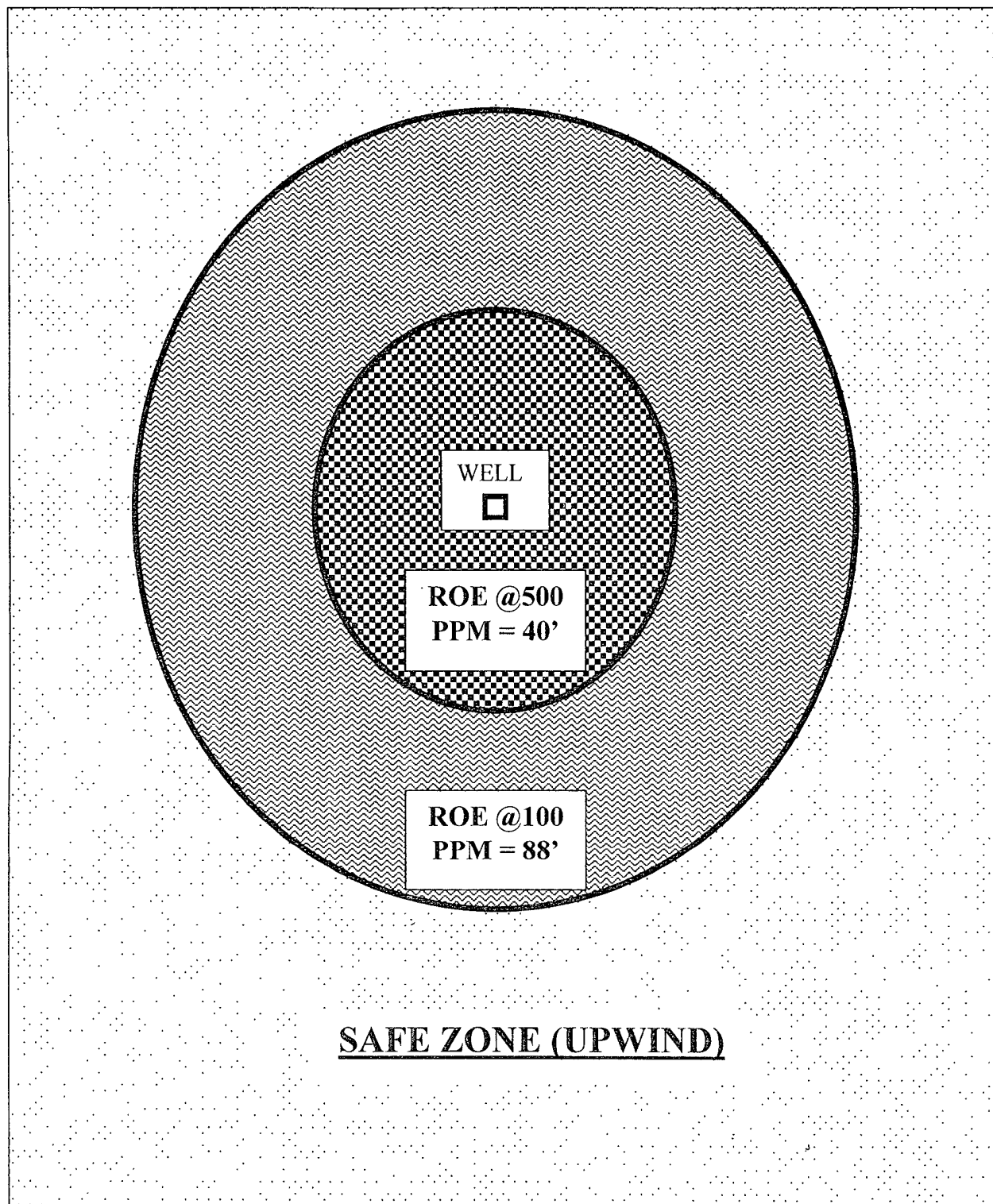
1. Well Control Equipment :
  - a. Flare Line
  - b. Choke Manifold
  - c. Blind rams and Pipe rams
  - d. Auxiliary equipment : annular preventer, mud-gas separator, rotating head
2. Protective Equipment for essential personnel
  - a. 5 EBA 10 minute escape packs (part number 975090)

- b. 4 Sperian Panther 45 minute SCBA work packs (part number 888888) with Type C supplied air respirator
- 3. H2S detection and monitoring equipment and visual warning signs:
  - a. 1 location sign with H2S flags
  - b. 2 briefing area signs
  - c. 2 windsocks
  - d. 1 electronic H2S monitor with three sensor heads, warning lights and siren.
- 4. Mud Program
  - a. The mud program has been designed to minimize the volume of H2S circulated to the surface.
- 5. Metallurgy
  - a. All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines and valves shall be suitable for H2S service.
- 6. Communication
  - a. Company vehicles equipped with cellular telephone.

### **Emergency Contact List**

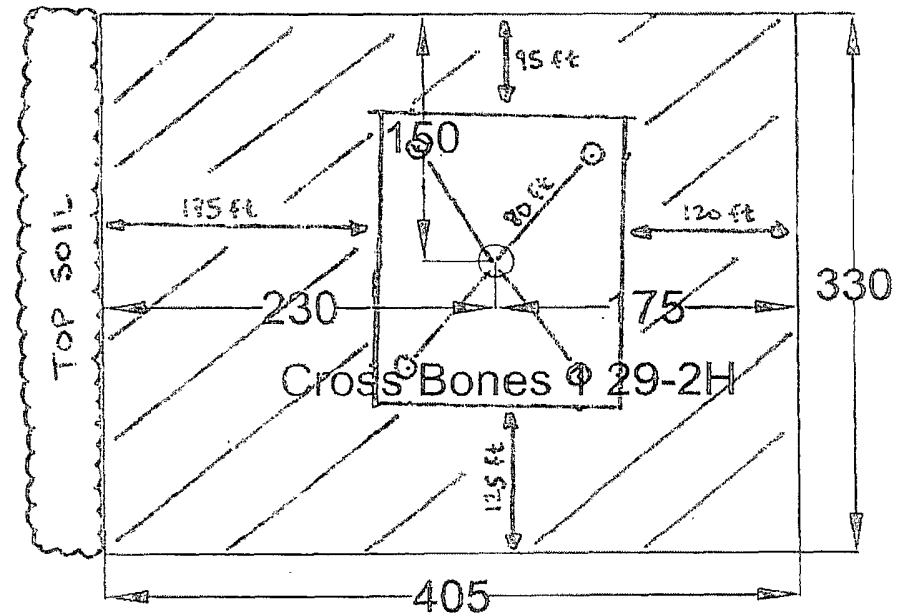
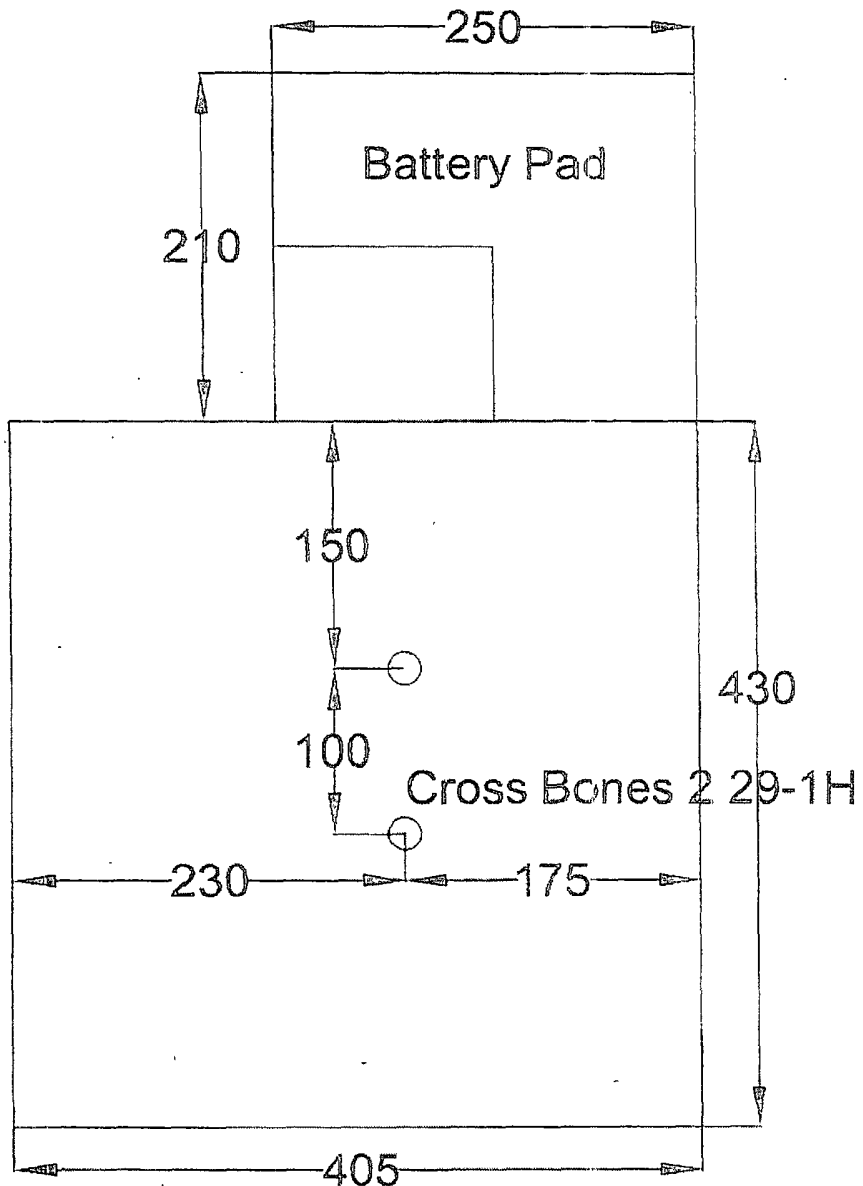
	Name	Title	Office Number	Cell Phone
1.	Josh Veigel	Drilling Engineer	(713) 372-1548	(832) 494-7859
2.	Dan Jovanovic	Superintendent	(713) 372-1402	(832) 319-4079
5.	Kim McHugh	Drilling Manager	(713) 372-7591	(713) 204- 8550
6.	Darrell Hammonds	Operations Manager	(713) 372-5747	(281) 352 2302
7.	Bianca Keneally	D&C HES	(713) 372-7586	(713) 417-9428
8.	Ivan Pinney	Completion Engineer	(713) 372 1949	(713) 818 0381

CROSSBONES SECTION 29 WELLS



- 6 -

INTERIM RECLAMATION MAP  
CROSSBONES 1 29 #2H



North Lusk