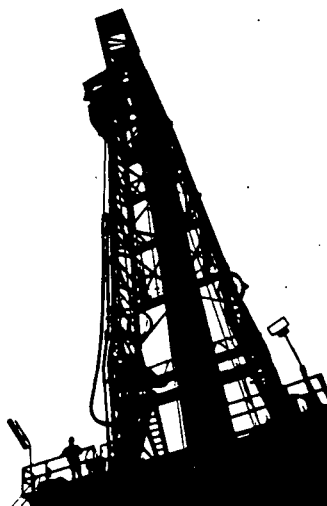


# Appendix W

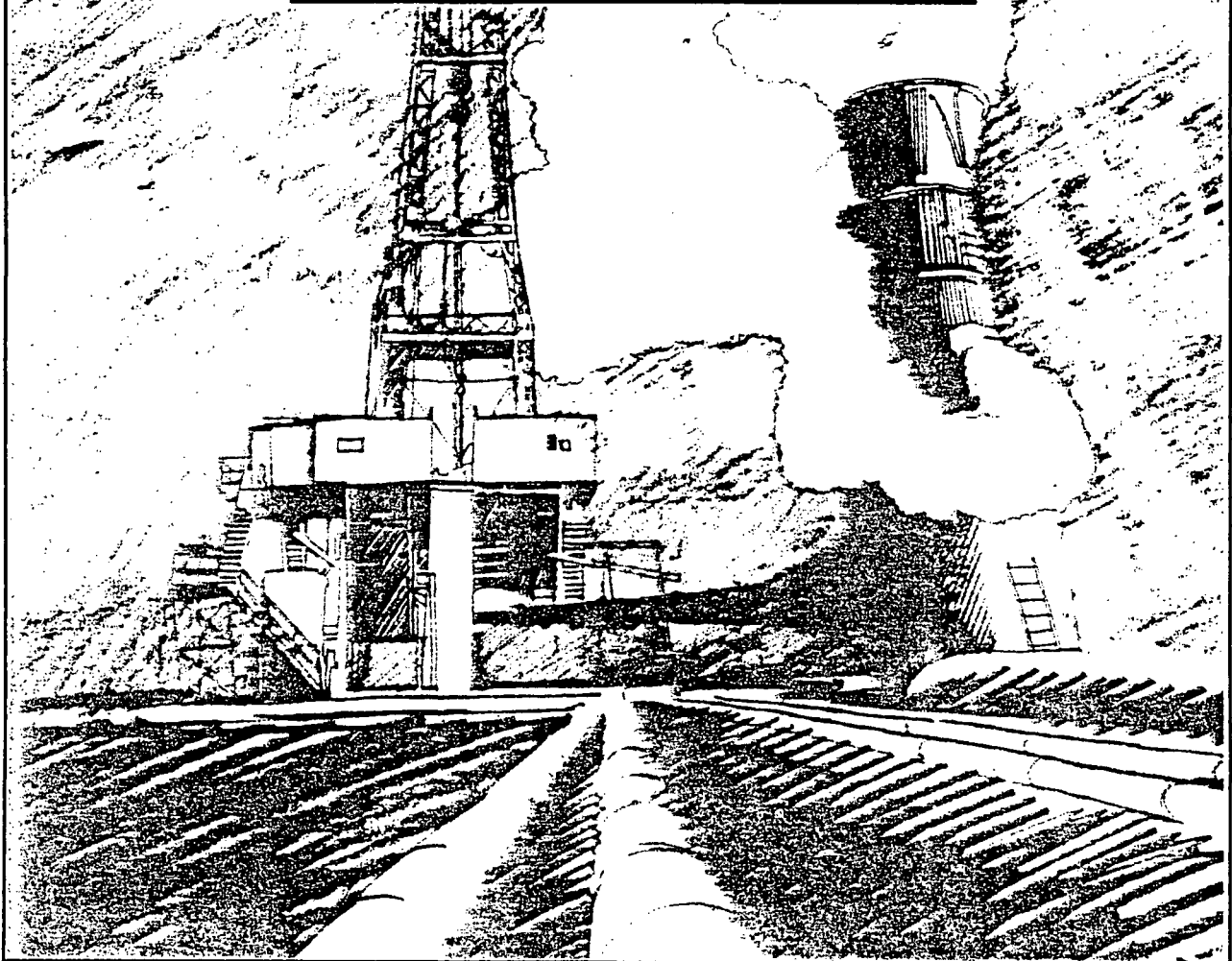


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## Site Safety Manual

APP 100-1  
U.S. Department  
of  
Energy

**SALTON SEA  
SCIENTIFIC  
DRILLING PROGRAM**



***Health and Safety Manual***

September 1985



Copy 37

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## INTRODUCTION

Maintenance of health and safety at the Salton Sea Scientific Drilling Project site is a prime consideration in the conduct of this project. Considerable planning and effort have occurred to provide a safe working environment that conforms with all applicable Federal, State, and local regulations. It is the responsibility of each individual, however, to know and follow the safety procedures presented in the manual. Only your personal commitment and continued attentiveness to the few simple requirements presented here will make the plan work effectively.

The plan contains five sections which outline procedures for safe operation and response to emergencies:

- Section I Site Health and Safety Procedures summarizes what to expect in terms of safety procedures and equipment at the site.
- Section II Personnel Safety Procedures explains what is required of each individual in order to protect his or her health and safety and that of others at the site.
- Section III Safety Action Plan governs safety requirements for subcontractors at the site.
- Section IV Emergency Contingency Plan describes a contingency plan for action in case of a loss of well control or other major accident.
- Section V Emergency Telephone Numbers are listed for quick reference.

For health and safety questions not specifically addressed in these plans, the Bechtel Safety Procedures Manual, issued by Bechtel's Labor Relations and Safety Department, is the primary source of further information. A copy is available in the Field Office Trailer.

Any update or revision of these procedures will be documented in writing, with replacement pages distributed to all holders of the manual. The changes will be explained by the Site Manager or his designee at the following safety meeting.

## SECTION I

### Site Health and Safety Procedures

The design and operation of the site incorporate a variety of health and safety requirements.

1. The site will be secured with chain link fence at least six feet high to isolate members of the general public from hazardous areas.
2. There will be gates across the entrances. Gates will be locked when all project personnel are absent from the site, such as during the standby period.
3. Signs will be posted at the entrance and along the perimeter fence stating that the site is one of limited access with entrance by permission only.
4. Holding ponds and mud pits will be enclosed with a chain link fence and marked.
5. Dangerous supplies and materials such as acids, flammable liquids, explosive gases in pressure tanks, etc., will be properly marked and stored under proper conditions in a clearly designated, secure, off-limits, authorized-personnel-only location.
6. All bare on-site piping containing high temperature/high pressure brine and/or steam will be roped off and clearly marked as such and posted "Danger, Keep Away." Pipe close to working areas will be insulated to ensure satisfactory personnel protection.
7. All high risk areas within the site will be appropriately marked, and access to these areas will be limited to those with need only.
8. The location of buried utilities will be indicated with signs or other markers.
9. Area lighting will be adequate to assure visibility of any unauthorized entry and to assure safe night operations.
10. Portable fire extinguishers will be placed within 75 feet of every working area and posted so as to be easily located. Each fire extinguisher will be rated for use on Types A, B, and C fires. Fire extinguishers will be kept fully charged and maintained. They will be inspected monthly.
11. First aid kits will be maintained and clearly posted in at least three trailers. A clearly posted first aid station will be maintained in the office trailer containing a first aid kit, including a snake bite kit, a fire blanket, a stretcher, and an emergency eye wash bottle. A first aid log will be maintained as part of the Bechtel On-Site Manager's Daily Log.

12. At least one member of Bechtel's staff or its subcontractors' staff with first aid training, CPR training, and a current Red Cross first aid certificate, or equivalent, will be on-site during each working shift.
13. The list of emergency telephone numbers included in this plan will be posted in a conspicuous location near every telephone on the site.
14. In the event of an emergency of any kind immediately notify either the:
  - o Site Manager, David Rabb
  - o Site Manager's designee
  - o On-Site Science Manager, John Sass
  - o Drilling Supervisor, Gerald Reich
  - o Rig Supervisor
  - o Kennecott, Larry Grogan

That person will promptly telephone the appropriate authorities and notify the Site Manager, David Rabb. Rabb will notify the Bechtel Project Manager, Charles Harper, Larry Grogan of Kennecott, and the DOE Project Manager, Anthony Adduci, by telephone of any health or safety incident. Rabb will follow up with a detailed written report. He will also report to the San Diego district office of CAL/OSHA any accident or illness causing serious injury or death of an employee.

15. The cause of every accident will be investigated. A plan of corrective action will be implemented following every health or safety incident.
16. A record will be kept of every health or safety incident at the site, regardless of the nature or severity.
17. Safety meetings will be held at least once every week for all personnel routinely working at the site.
18. Additional safety meetings will be held prior to each site activity except routine billing. These meetings will be chaired by the Site Manager and attended by the Site Coordination Committee and others who will take part in the activity. The activity schedule and personnel duties and responsibilities for the activity will be discussed. The goal of the meetings is conducting site activities safely and efficiently.
19. A site Fire Brigade will be established under the Site Manager. Training sessions will be held at least once per month.
20. The Site Manager will be responsible for once-a-week inspections which will be made of every structure and work area for fire and safety hazards. The results of the inspections will be reviewed with site supervisors who will be responsible for correcting any hazardous conditions observed.
21. Local fire and police officials will be notified of site activities including type, duration, etc., and their potential hazards.

22. A CAL/OSHA Safety & Health on the Job poster will be posted in a conspicuous location on the site. Other safety posters outlining safety and emergency procedures will be posted at appropriate locations on the site.
23. A log will be kept of all persons entering and leaving the site with name, affiliation, and time of entry and exit.
24. An adequate supply of potable water will be available on-site and so marked. Nonpotable water will be so labeled.
25. On-site sanitary facilities will be provided for men and women. They will be clearly marked and serviced frequently.

## SECTION II

### Personnel Safety Procedures

Safety is everybody's personal responsibility. Beyond the use of common sense, the following health and safety procedures must be observed by visitors and workers at the site.

1. The Bechtel Site Manager or his designated representative is the sole responsible authority for all safety and health related issues at the site. Subcontractors, such as the drilling contractor, are responsible for safe operation of those activities under their direct control.
2. All persons who refuse to follow instructions of the Bechtel Site Manager or his representative or of any subcontractor supervisor regarding any health-safety matter may be asked to leave the site as a result of their noncompliance. This applies to any and all persons regardless of affiliation.
3. All persons who will be on the site for more than one day will receive a copy of this Health and Safety Plan Manual. They will be required to sign for it thus indicating their understanding and willingness to abide by these rules and procedures.

Day visitors will be assigned to an on-site sponsor who will be responsible for familiarizing them with safety rules and procedures. A condensed safety plan will be provided for their quick orientation.

4. Workers will also be given instructions regarding specific job hazards before starting work at the site.
5. Hard hats will be worn by all personnel at all times, except within buildings.
6. Steel-toed safety shoes or boots will be worn by all personnel working on and near the rig and other operating equipment.
7. Trousers (not shorts) and shirts (long or short sleeved) will be worn in work areas by all personnel at all times.
8. Safety glasses or a face shield will be worn in certain areas of the site or when conducting certain operations as determined by the Site Manager.
9. An appropriate type of gloves must be worn when working in an area where there is a potential for burns, cuts, etc.
10. All persons must wear ID that identifies them by name and affiliation. Ideally, this will be shown on the hard hat.



11. No one will be permitted on the rig floor or the active work areas immediately around the drilling rig without the permission of the Drilling Supervisor and the Rig Supervisor (Tool Pusher). All persons in this area must follow safety instructions of the Rig Supervisor.
12. Potentially dangerous machinery and equipment will be operated only by qualified personnel. Concentrate on doing your job well and permit others to do theirs.
13. Drugs, alcohol, and firearms are not permitted on site. No one will be permitted into high risk working areas if they are clearly under the influence of drugs or alcohol and, in the judgment of the Site Manager, could constitute a safety hazard to themselves or others.
14. Contractor and government vehicles will be driven only by licensed and authorized persons. Seat belts must be worn at all times. California and local laws must be obeyed. Vehicles will be driven for official use only.
15. Contact the Bechtel Site Manager with any questions about safety conditions or procedures.

## SECTION III

### Subcontractor Safety Action Plan

This Project Safety Action Plan outlines the Bechtel Research & Development (referred to as "Bechtel") recommendations regarding the safety-related obligations and responsibilities of the various entities performing services for the U.S. Department of Energy (referred to as the "owner"), at which Bechtel is acting as the owner's construction manager.

#### RESPONSIBILITIES

This Safety Action Plan contains Bechtel's recommendations regarding the project safety requirements to which each subcontractor's safety program must comply, as required by the general condition entitled "Safety." Notice of Bechtel's authority to monitor that safety program plus the subcontractor's general obligations regarding safety will be given to each subcontractor in the appropriate general conditions.

#### CONTRACTOR SAFETY OBLIGATIONS

Each subcontractor working on the Salton Sea Scientific Drilling Project shall be contractually obligated to comply with all statutory and DOE safety requirements and the Project Safety Action Plan. These combined safety requirements constitute the minimum safety performance acceptable from them.

#### Subcontractor Safety Program

Each subcontractor will be notified in the bid documents of the requirement to include in their proposal a written safety program which includes detail commensurate with the work to be performed. The subcontractors' project safety requirements will be reviewed during the preaward meeting.

#### Designation of Safety Representative

Each subcontractor shall appoint a qualified safety representative within 5 days of mobilization. Subcontractor's notification of its designated safety representative shall include a brief statement of qualifications.

The designated safety representative shall have authority to initiate corrective action for operations or activities in noncompliance with the Project Safety Action Plan.

#### Recordkeeping and Reporting

Each subcontractor shall maintain accurate accident and injury records and shall furnish to Bechtel a monthly summary of its work related injuries and illnesses and manhours worked on the forms provided by Bechtel. Fatal or serious injuries must be immediately reported to Bechtel. Bechtel will notify DOE and will submit reports in accordance with DOE requirements.

### Compliance with Safety Program

Each subcontractor and its subcontractors are required to comply with all of the safety, health, and fire provisions of the subcontract and the Safety Action Plan.

### Noncompliance with Safety, Health, or Fire Requirements

Bechtel will monitor the safety performance of subcontractors working on the project. If violations of the statutory safety requirements, Project Safety Action Plan, or the owner's safety requirements are observed, the responsible subcontractor must be informed verbally, if possible, and a written notice must be delivered using standard project subcontract procedures (Notice to Contractors). Violations observed must be identified, and a brief description of the violation and the exact location must be included. The subcontractor must be given a reasonable amount of time to evaluate and correct the conditions. However, the response time should reflect the seriousness of the violation and must not exceed 3 days.

If a subcontractor fails to correct the conditions described in any Notice to Contractors within the time specified, a meeting shall be scheduled with the subcontractor superintendent, Bechtel management, and the field contract administrator. This meeting should result in a documented agreement detailing the subcontractor's intended corrective action and abatement.

Failure to reach agreement or failure to correct the violation must be documented, and the matter referred to the appropriate Bechtel construction manager or project manager for resolution with the subcontractor's senior management.

### Subcontractor's Failure to Correct Nonconformance

If a subcontractor fails to correct the unsafe conditions, Bechtel may impose appropriate contractual sanctions.

### SUBCONTRACTOR'S PROJECT SAFETY REQUIREMENTS

The subcontractor shall prepare and submit to Bechtel for approval its project safety and health program that fully describes the subcontractor's commitments for meeting its obligations to provide safe and healthful working conditions for its employees, and generally contribute to and enhance safety at the project site.

The subcontractor's program shall reference DOE safety standards, CAL/OSHA regulations, the Project Safety Action Plan, and any other rules and regulations applicable to construction activities in the State of California. The subcontractor's project safety and health program shall include, but not be limited to, the subjects identified in the following paragraphs:

### New-Hire Safety Orientation Program

The subcontractor shall provide safety orientation for all new hires, which shall include as a minimum the topics outlined below. The subcontractor shall familiarize all its employees with the requirements of the subcontractor's safety program.

Each new or reassigned employee of the subcontractor shall receive a thorough safety orientation. This gives the employee basic information about the subcontractor's project safety and health program, Federal and State OSHA, the Project Safety Action Plan, the owner's safety requirements, and other applicable safety rules and regulations. If necessary, the subcontractor shall provide additional safety instructions at a later date for the performance of hazardous or unfamiliar tasks. Employee attendance shall be required, and records kept on file in subcontractor's office for review by Bechtel.

The subcontractor's new-hire safety orientation shall include, but not be limited to, the following topics:

- o Subcontractor and employee responsibilities under the Safety Action Plan
- o Eye protection
- o Head protection
- o Hearing protection
- o Respiratory protection
- o Safety belts and lifelines
- o Perimeter guarding and floor covering
- o Housekeeping
- o Fire protection
- o First aid facilities and emergency procedures
- o Hazardous and toxic substances
- o Material handling, rigging procedures, and crane safety
- o Electrical safety
- o Special project requirements and procedures

### Weekly Tool Box Safety Meetings

The subcontractor shall conduct weekly tool box safety meetings to give its employees up-to-date safety information. Employee attendance shall be

mandatory and records shall be kept on file in the subcontractor's office for review by Bechtel.

#### Supervisors' Safety Meetings

The subcontractor shall schedule supervisors' safety meetings on a monthly basis. Topics discussed at these meetings must be chosen to assist each supervisor in supervising for safety. Attendance at these meetings shall be mandatory, and attendance records shall be kept on file for review by Bechtel.

#### Supervisors' Safety Orientation

The subcontractor must familiarize all its supervisory personnel with the subcontractor's safety responsibilities by conducting a supervisor's safety orientation with each supervisor upon promotion or assignment. Each such orientation must cover as a minimum all the subjects outlined below. Orientation records shall be kept on file in the subcontractor's office for review by Bechtel.

- o Subcontractor's Safety Program. The subcontractor shall review its safety program and the Project Safety Action Plan in detail with each supervisor.
- o Safe Work Areas. The subcontractor shall require each of its supervisors to be familiar with the conditions in each area of the project to which employees of each supervisor's crew or group are assigned. The subcontractor shall direct its supervisors to correct, when possible, unsafe conditions that exist in the work area before work begins. Otherwise, the problem shall be brought to the attention of the next higher level of supervision for resolution.
- o Safe Work Practices. The subcontractor shall require each supervisor, when making work assignments, to inform the crew or group involved of the safety practices, work methods, and personal protective equipment required. Each supervisor shall be responsible for determining that each worker has the proper protective equipment and suitable tools for the work assignment.
- o Supervising for Safety. The subcontractor and its supervisors shall constantly review the safe practices and procedures used by their crews and initiate corrective action when necessary.
- o Tool Box Meetings. The subcontractor shall require each supervisor to conduct a tool box safety meeting with his entire crew or group at the time specified, using subject material provided by the subcontractor.
- o Emergency Procedures. The subcontractor shall familiarize all supervisors with the emergency procedures developed for the project so that they may exercise the leadership required to cope with serious injuries, fires, evacuations, and similar situations.

- o Accident Investigations. The subcontractor shall require each supervisor to participate actively in the investigation of any accident that results in (a) personal injury to a member of that supervisor's crew or group, (b) equipment or property damage in that supervisor's area of responsibility, or (c) near misses that had a potential for serious injury or death.
- o First Aid. The subcontractor shall require each supervisor to notify all employees under his or her supervision of their obligation to report immediately all injuries, however minor, in accordance with established project procedures.
- o Fire Protection and Prevention. The subcontractor shall require its supervisors to maintain a constant awareness of any fire potential in their areas of responsibility. If a potential fire hazard is noted, the supervisor must initiate corrective action and notify Bechtel.

#### Incident Reporting

The subcontractor shall cooperate with the DOE and/or Bechtel in investigating any safety-related incidents. Additionally, the subcontractor shall immediately investigate and submit to Bechtel written reports of any accident wherein disabling injuries or fatalities occur, or which results in damage to property or fire loss in excess of \$500.

#### Safety Meetings

The subcontractor's designated safety representative shall attend scheduled project-wide safety meetings.

#### Safety Inspections

The subcontractor's designated representative shall participate in periodic general safety inspection tours conducted by a member or members of the Bechtel Safety Department and Bechtel's Subcontract Department assigned to the subcontractor. During these inspections, the subcontractor's safety representative must identify and record safety violations and list such items for action and immediate correction by the subcontractor. If the subcontractor has any subcontractors, a representative of each subcontractor may accompany the inspection. The subcontractor must provide Bechtel with a list of items designated for correction.

#### Barricades

The subcontractor shall be responsible for erecting and maintaining any and all required barricades that may be needed to protect its employees.

#### Safety Signs

The subcontractor shall be responsible for posting any signs or requirements that will advise its employees of unsafe areas or conditions.

### Confined Spaces

The subcontractor shall have a confined space entry procedure. This procedure shall include posting, testing, monitoring, and recordkeeping.

### Respiratory Protection

The subcontractor shall have a respiratory protection program.

### Hearing Protection

The subcontractor shall monitor noise levels in its work area and post signs and issue hearing protection to employees as required.

### Crane Safety and Material Handling Program

The subcontractor shall comply with the project crane safety and material handling program. The subcontractor shall not bring equipment or machinery intended for material or personnel handling on-site without filing with Bechtel written proof of a current annual inspection. The subcontractor shall renew any annual inspection report prior to expiration. Failure to maintain current inspection will result in shutdown of the equipment.

### Radiography

The subcontractor, if involved in radiography, shall have and implement safe operating procedures for radiological activities as required by all applicable regulations.

### Occupational Health

The subcontractor shall take all reasonable steps and precautions to protect health and minimize danger from all hazards to life and property. Bechtel may conduct, or may require the subcontractor to conduct, occupational health monitoring.

### First Aid

The first aid facility will be adequately equipped, strategically located, and clearly identified.

### Employee Sanctions

The subcontractor shall advise its employees that any employee who jeopardizes his or her health or safety, or the health or safety of others, will receive disciplinary action as specified in the Project Disciplinary Warning Procedures.

### Reports

The subcontractor shall comply with Bechtel and DOE reporting requirements.

### Recordkeeping

The subcontractor must complete and maintain OSHA Form 200 for all safety-related incidents, and have the form available for inspection and review by Bechtel.

### Hazardous Waste Management

The subcontractor shall have a hazardous waste management program and shall comply with all project hazardous waste requirements.

### Construction Tagging

The subcontractor shall have a construction tagging procedure.

### Fire Protection and Prevention

The subcontractor's operations shall be conducted in such a manner as to (a) not create any fire hazards, and (b) comply with the project fire protection, prevention, and suppression requirements.

The subcontractor shall provide fire extinguishers adequate for potential hazards that may be encountered during its operations and shall instruct its employees in the proper use of such equipment.

The subcontractor may be required to provide manpower for the Project Fire Brigade. Employees assigned to the Project Fire Brigade will be required to attend training sessions and practice drills.



## SECTION IV

### Emergency Contingency Plan

While every possible emergency cannot be fully anticipated, a general response plan has been prepared based on a scenario where an uncontrolled discharge of high temperature geothermal brine occurs.

The most likely potential cause of a large spill is loss of well control. The following action plan will be implemented in the event of loss of well control:

#### Large Spill Contingency Plan

In the event of loss of well control immediate action must be taken to meet these objectives:

- 1st Priority - Protection of human life and health.
- 2nd Priority - Protection of the environment, particularly prevention of contamination of the Salton Sea with geothermal brine.
- 3rd Priority - Regaining well control.

#### Personnel Actions

1. Remove any injured person to an area out of immediate danger from the well. Notify the person on-site who is trained in first aid or a supervisor immediately. Help with first aid and evacuation of the injured person, if needed.
2. Any person not involved in first aid or otherwise directly helping in the emergency must immediately leave the site through the nearest gate. Go to Davis Road upwind of the site and wait there for pickup and further instructions.

#### Actions by Site Manager

The primary feature for environmental protection in case of loss of well control is the 6 ft high dike which surrounds the site, except on the east edge of the drill site next to Davis Road. The original capacity of this impoundment was roughly 100 million gallons, when the dike was complete all the way around.

During daylight hours, prevailing moderate winds averaging 8 to 12 miles an hour blow from the Salton Sea inland\*. At night, light winds averaging

\* Final Salton Sea Anomaly Master Environmental Impact Report and Magma Power Plant #3, prepared by Westech Services, Inc., December 1981.

3.5 miles per hour prevail blowing from the land towards the Salton Sea. These winds tend to displace the plume of brine from an out-of-control well.

A set of plans showing structures, materials, pressure and drain lines, valves, and other information useful in combating a blowout and other emergencies will be kept at the site in an area away from the well.

With this background, the Site Manager, or his designee will take the following actions.

Meet with personnel on Davis Road and verify that all persons who have been logged as being on site have evacuated the site. If anybody is left on site, the first priority is that person's safety.

Notify the Imperial County Fire Department via 911 of the emergency. Also notify the California Division of Oil and Gas. If telephones on the site are not available, he will dispatch someone to Niland to make these calls.

Use a back-hoe, or front-end loader if available, or shovels to dam the drainage ditches on both sides of Davis Road between the site and the Salton Sea. Build a berm across Davis Road, if necessary, to prevent drainage from the plume towards the Salton Sea.

Contact Masters Construction Company at 344-7400 to immediately dispatch a bulldozer and operator to the site to reinforce the drainage dams or erect any other temporary dikes or berms to contain run-off within the immediate area. If no alternative is available, contact a well service company to send a team to the site to regain control of the well.

When the well has been controlled, contact Ryerson Concrete, Inc. at 352-4341 for vacuum trucks to remove brine collected within the berms and dikes. The collected brine will be removed to an approved hazardous waste disposal area.

When the brine has been removed, conduct a survey of the soil affected by the spill. Have samples analysed for any potential hazardous materials, such as arsenic, that might be present in the surface soil. If soil has been contaminated, remove the contaminated portion with a bulldozer and send it to an approved hazardous waste disposal area.

SECTION V

Emergency Telephone Numbers

\* \* \* \* \*

IN EMERGENCIES:

Fire and Rescue

Highway Patrol

Police DIAL 911

Sheriff

Ambulance

\* \* \* \* \*

for Local Doctor

Dr. William Wilson  
135 Main Street  
Brawley, CA  
344-1820

Dr. Nathan Wolf  
126 Main Street  
Brawley, CA  
344-1841

Dr. Robert Chapman  
608 "G" Street  
Brawley, CA  
344-1442

Dr. Milton Strenter  
179 West Legion Rd.  
Brawley, CA  
344-1511

for Toxic Chemical and Oil Spills Dial 1+800 424-8802

for Poison Control Center Dial 1+294-6000

for CAL/OSHA San Diego Office Dial 1+619 237-7325