

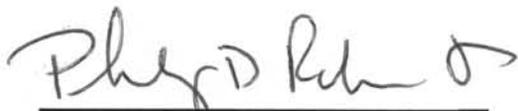
**SAFETY PROCEDURES ON BOARD THE *SEDCO/BP-471*
(*JOIDES RESOLUTION*)**

**OCEAN DRILLING PROGRAM
TEXAS A&M UNIVERSITY**

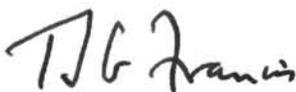
Technical Note 22

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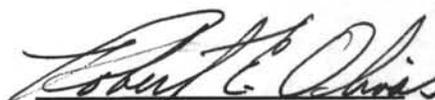
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FOREWORD

Texas A&M University is constantly endeavoring to maintain safe working conditions for the protection of its employees.

Maintenance of a safe environment on board the SEDCO/BP-471 (*JOIDES Resolution*) is an ongoing concern of the Ocean Drilling Program and SEDCO FOREX. Both organizations stress education for all permanent employees; each new scientific party is introduced to the overall safety program and informed of practices pertinent to their specific working areas.

SEDCO FOREX has established thorough hazard identification, accident prevention and safety orientation and training systems in its many years of rig operation. The ODP incorporates these and many other safety features, unique to the scientific shipboard environment, into the daily operation of the drilling vessel. All equipment aboard the ship is installed and operated in accordance with applicable marine laws and approved by ODP and SEDCO FOREX. Regulations concerning the use of heavy machinery and chemicals have been expanded to include equipment encountered in the Lab Stack and the Fantail; ODP technical staff members have also been incorporated into the shipboard fire-fighting/emergency response team. Rules and procedures outlining various levels of safety policy, from general shipboard information to lab-specific plans, are available for reference in various locations on the ship.

The varied nature of the work requires the services of skilled, trained, and responsible personnel who are aware of the hazards and know that this work can be done safely if it is done correctly. Good operating practice is likewise safe practice. It is recognized that new conditions are constantly encountered and it is impossible to set forth procedures covering all situations. It is necessary, therefore, to be ever on the alert and to exercise good judgment.

While aboard ship the Captain is responsible for the ultimate safety of the personnel and the drill ship and has primary command during emergency situations affecting safety of life at sea. The Operations Superintendent as the senior representative of the Program and Laboratory Officer(s) have the responsibility and authority to assure that these procedures are followed. When in doubt, contact them.

Please read this book carefully and become thoroughly acquainted with safety procedures contained herein.

Remember: Safety is only as good as you make it. Use your head--be concerned for your own safety and the safety of your co-workers.

ACKNOWLEDGMENTS

We thank all who have helped in compiling this publication. We especially appreciate the efforts of the Marine Laboratory Specialists, who provided us with valuable information contained in this book. We are grateful to the Laboratory Officers, Captain Oonk, and the mates on the SEDCO/BP-471 who have given invaluable assistance in improving the contents of this book.

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SECTION I

SAFETY PROCEDURES - GENERAL

IN CASE OF EMERGENCY

In case of emergency try to remain calm and immediately contact the Bridge. Clear thinking will help prevent injuries and may even save a life.

Emergency Numbers

Bridge	(Dial 26)
ODP Operations Superintendent	(Dial 15)
SEDCO Drilling Superintendent	(Dial 22)
Lab Officer	(Dial 14)
SEDCO FOREX Medical Officer	(Dial 50)
Paging	(Dial 81, and announce location and nature of emergency)

Chemical Emergency

Use appropriate emergency first aid advice for the various chemicals, electrical equipment, and mechanical equipment used.

For chemical emergencies such as skin/eye contact and burn, consult the pertinent section of Material Safety Data Sheets (MSDS) in the Lab. Contact the ship's medical officer immediately.

Refer to Section II of this booklet for use of hydrofluoric acid.

For hazardous chemical spills, refer to Section III of this booklet.

Medical Emergency

For serious injuries immediately contact the ship's physician.

EMERGENCY SIGNALS

**General
Emergency
Alarm**

<p>Fire, Blow out, Gas condition, Collision</p>	<ul style="list-style-type: none"> * Continuous sounding of whistle and General Alarm Bells for at least 10 seconds * Announce type and location of emergency and instructions over the PA system
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**Abandon Ship
Alarm**

<ul style="list-style-type: none"> * More than 6 short blasts followed by one long blast * Abandon ship command and instructions over the PA system

TYPES OF FIRE

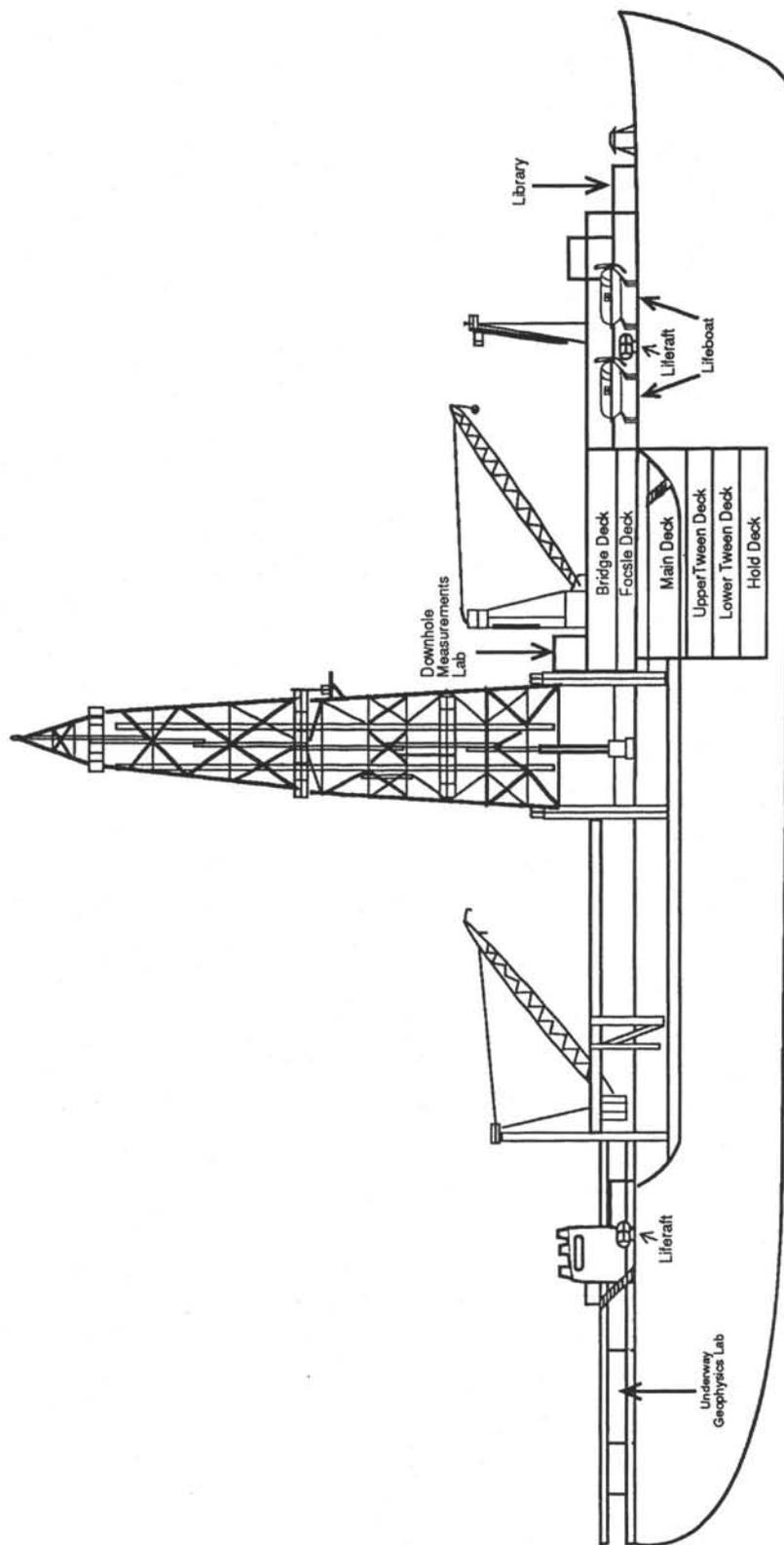
Class A Fire

Class B Fire

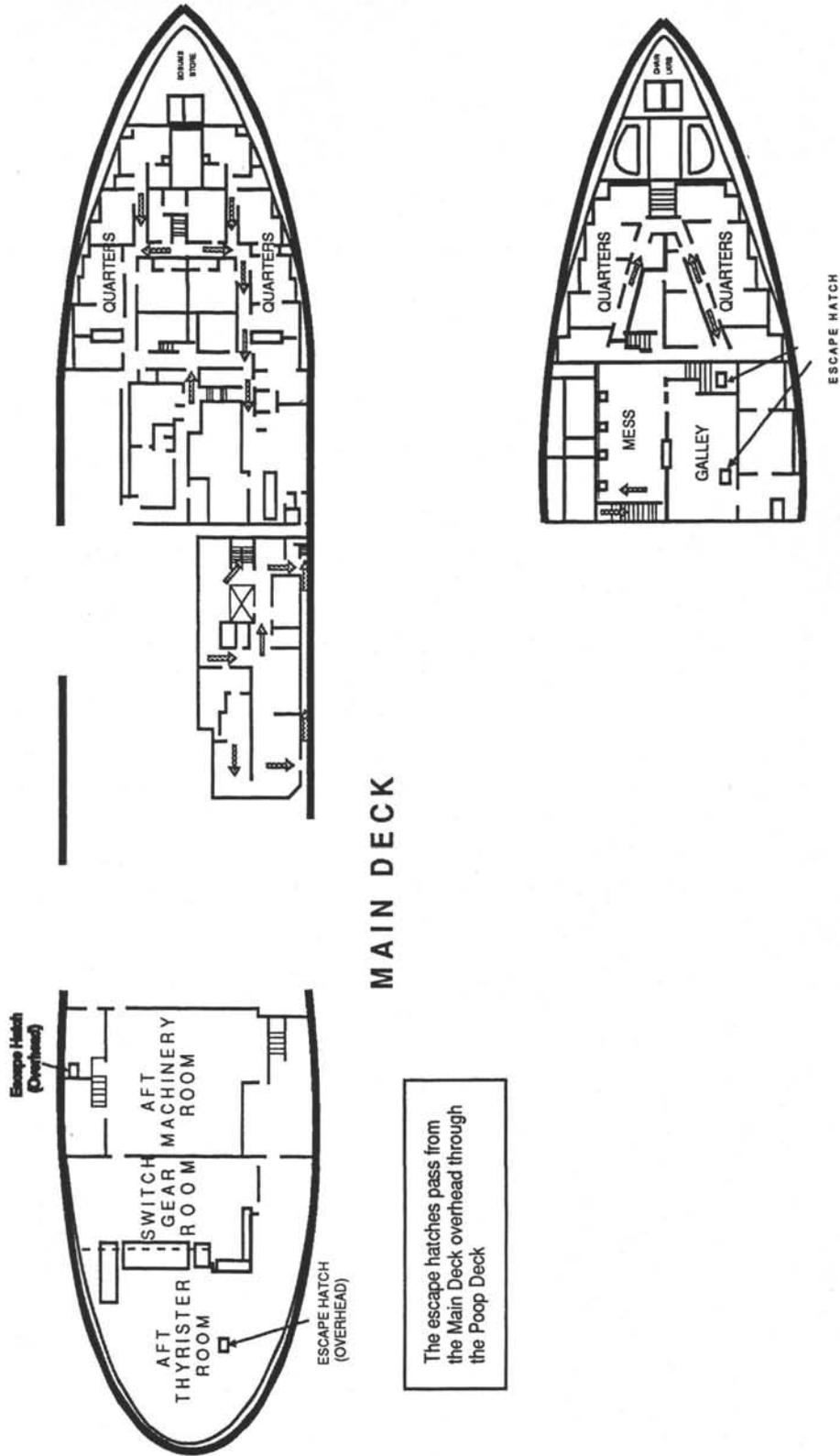
Class C Fire

Class D Fire

Materials	Extinguishing Agent
Wood, rags, paper, plastics, rubbish	Dry Chemical, Water
Flammable liquids: paint, oil, thinners, helicopter fuel, grease Flammable gases	Dry Chemical, CO ₂
Electrical wiring, lighting, equipment and appliances	Dry Chemical, CO ₂ , Halon
Combustible metals	Not available on ship

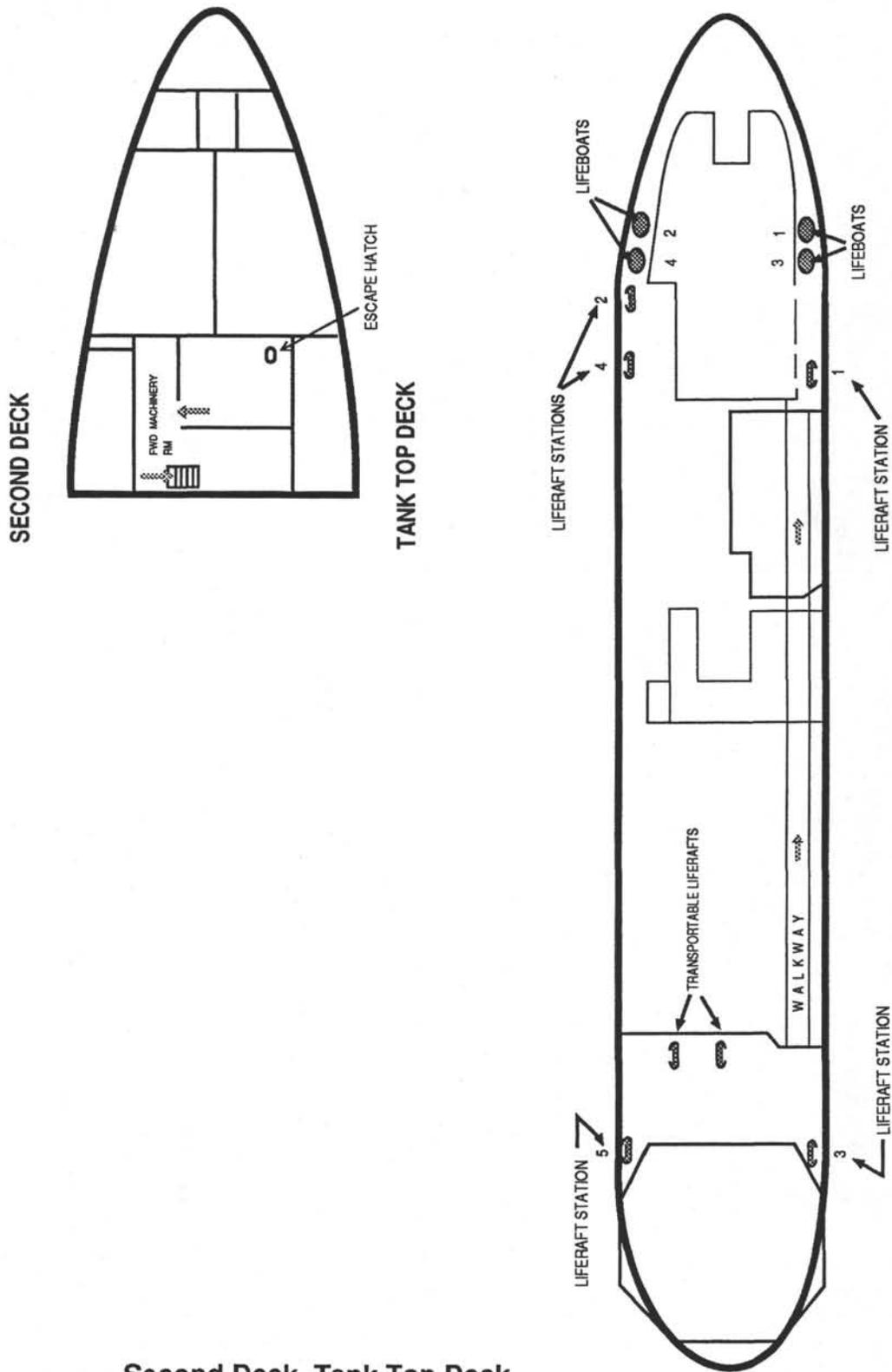


Location of laboratories, life boats, and life rafts

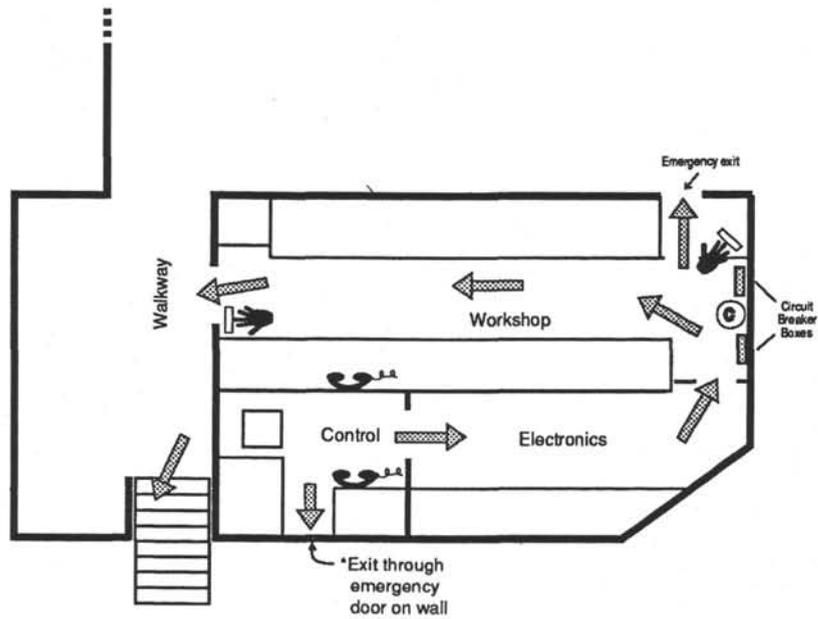


The escape hatches pass from the Main Deck overhead through the Poop Deck

Main Deck
Escape Hatches



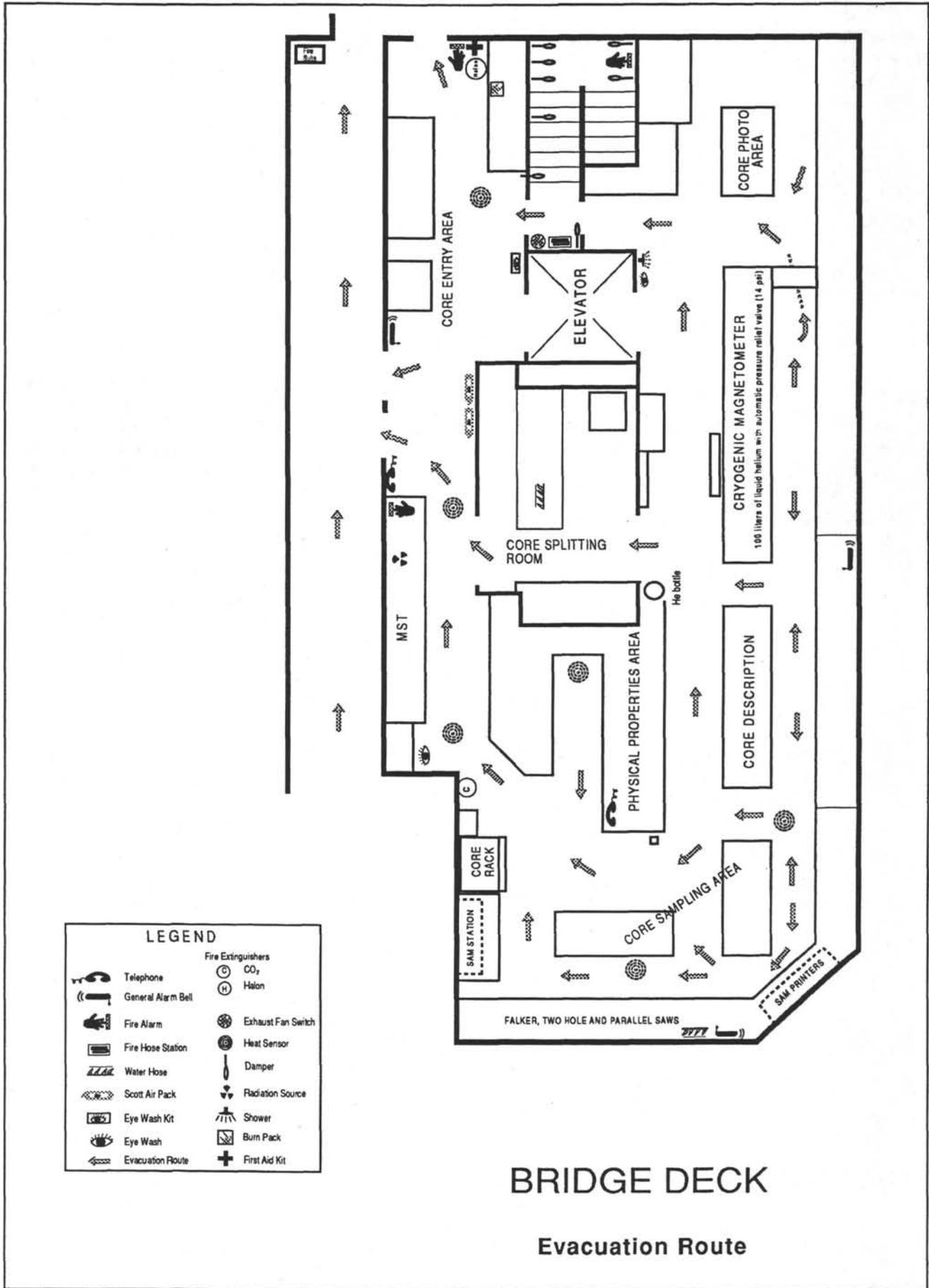
**Second Deck, Tank Top Deck
Escape Hatches and Lifeboat Stations**



LEGEND	
	Telephone
	CO ₂ Fire Extinguisher
	Fire Alarm
	Evacuation Route

DOWNHOLE MEASUREMENTS LAB

Evacuation Route

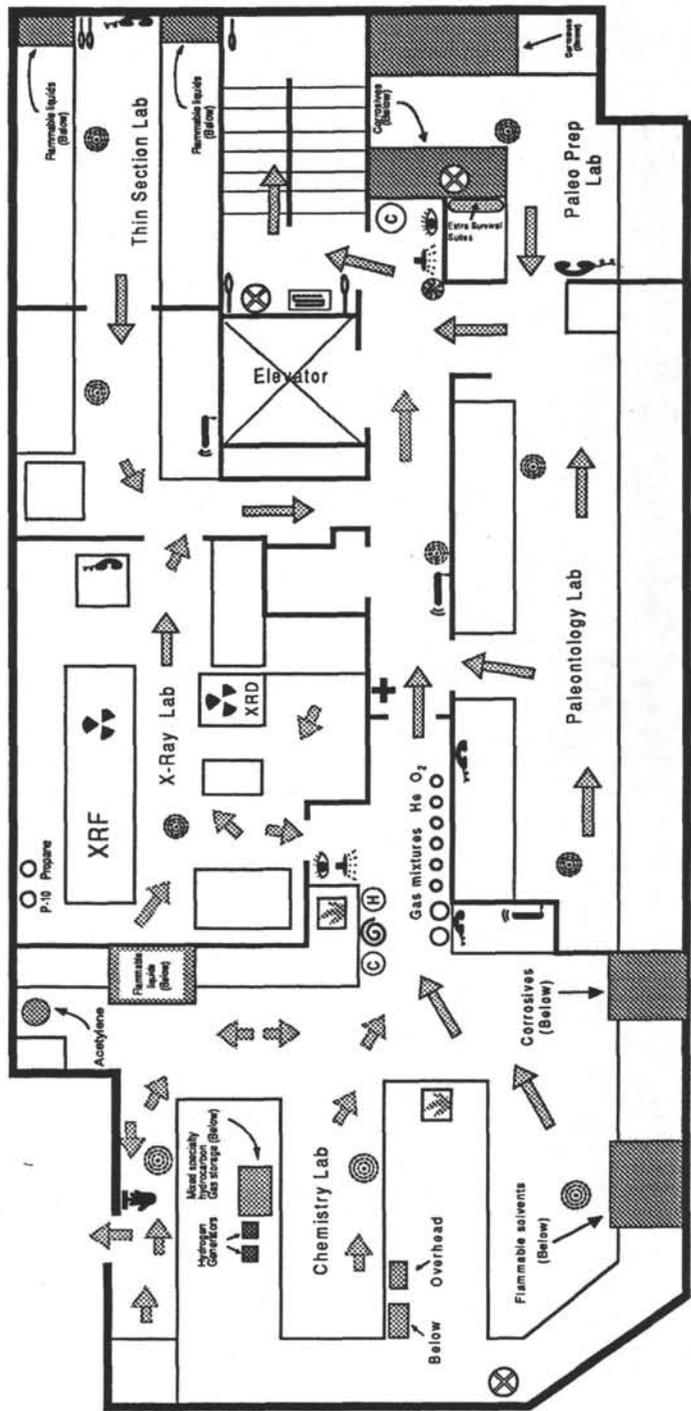


LEGEND	
	Telephone
	General Alarm Bell
	Fire Alarm
	Fire Hose Station
	Water Hose
	Scott Air Pack
	Eye Wash Kit
	Eye Wash
	Evacuation Route
	Fire Extinguishers
	CO ₂
	Halon
	Exhaust Fan Switch
	Heat Sensor
	Damper
	Radiation Source
	Shower
	Burn Pack
	First Aid Kit

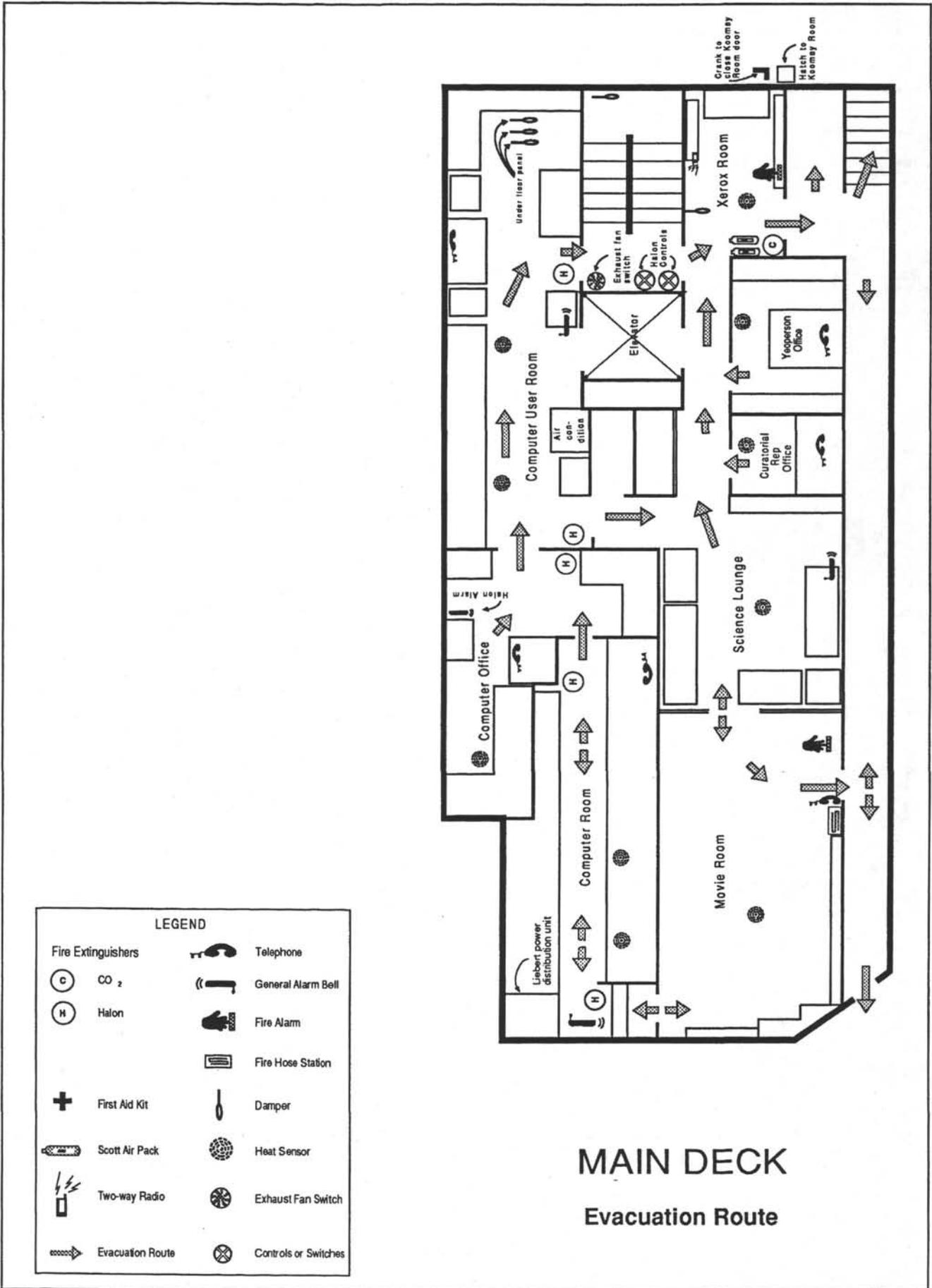
BRIDGE DECK

Evacuation Route

LEGEND	
Fire Extinguishers	Telephone
(C) CO ₂	General Alarm Bell
(H) Halon	Fire Alarm
Eye Wash	Fire Hose Station
Shower	Damper
+	Heat Sensor
First Aid Kit	Exhaust Fan Switch
Fire Blanket	Controls or Switches
Radiation Source	Burn Pack
Evacuation Route	



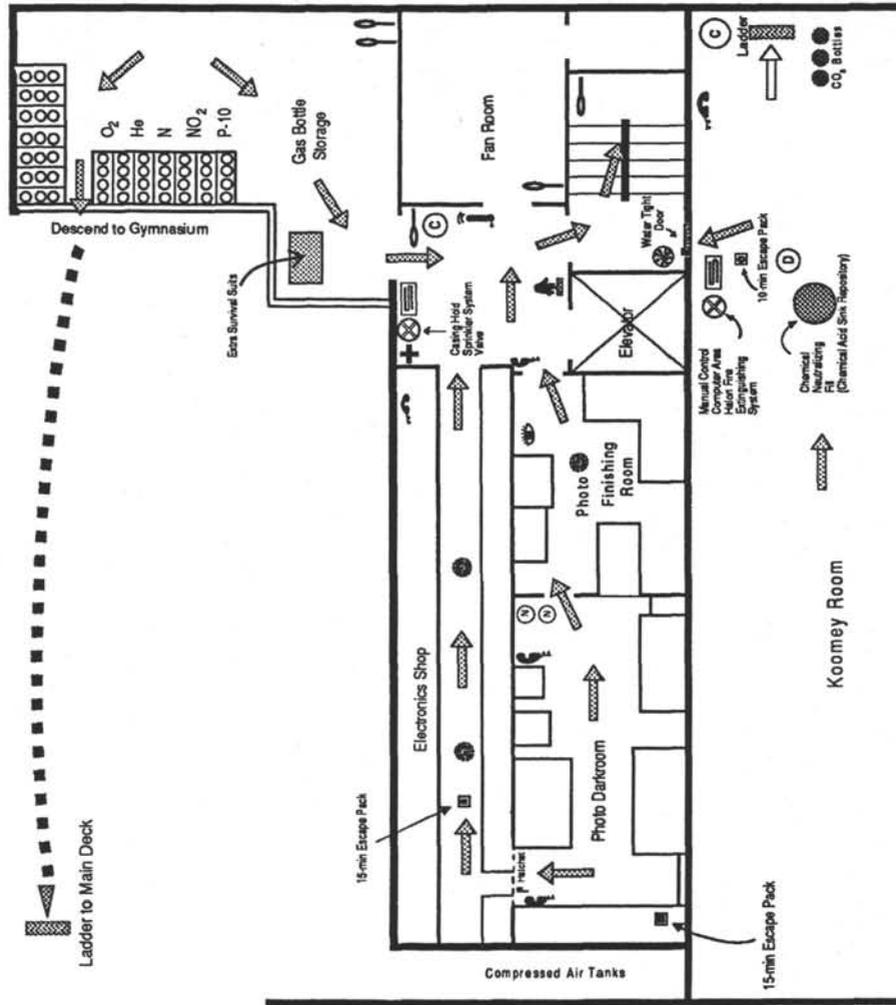
FOCSLE DECK
Evacuation Route



LEGEND

- | | | |
|---------------------|--|----------------------|
| Fire Extinguishers | | Telephone |
| (C) CO ₂ | | General Alarm Bell |
| (H) Halon | | Fire Alarm |
| + First Aid Kit | | Fire Hose Station |
| | | Damper |
| | | Heat Sensor |
| | | Exhaust Fan Switch |
| | | Controls or Switches |

MAIN DECK
Evacuation Route

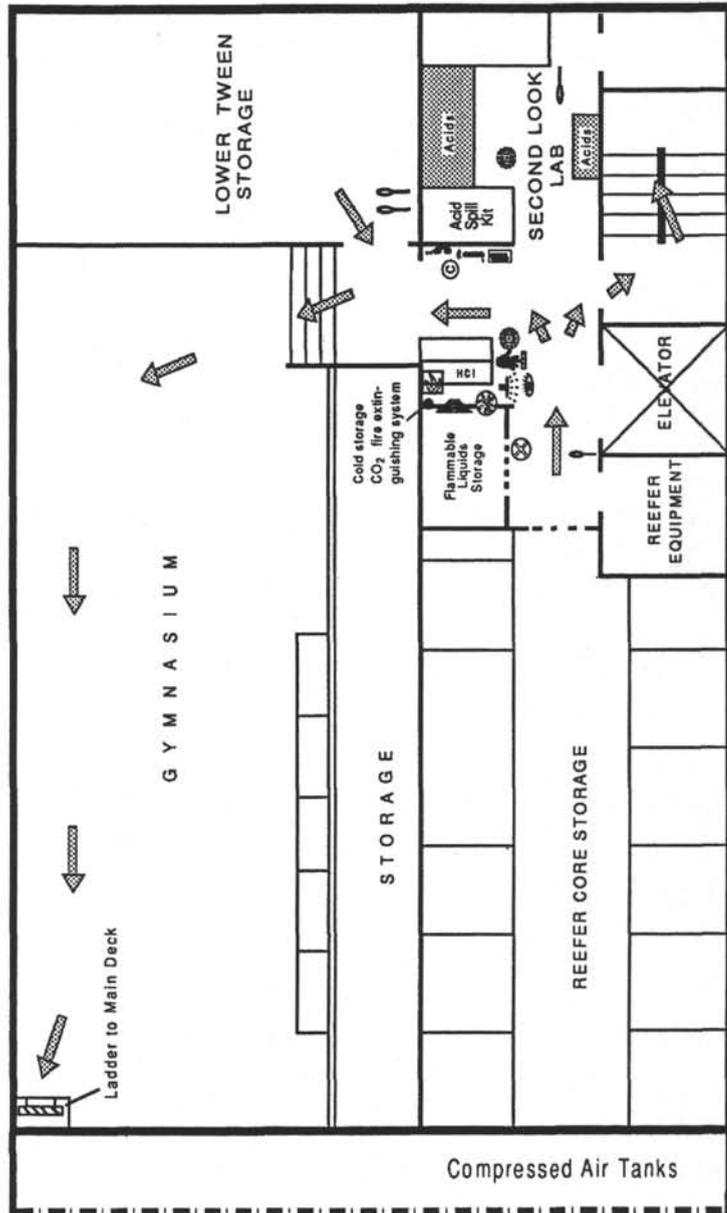


UPPER TWEEN DECK

LEGEND	
Fire Extinguishers	Telephone
(C) CO ₂	General Alarm Bell
(D) Dry Chemical	Fire Alarm
(N) Nitrogen Bottle	Fire Hose Station
+ First Aid Kit	Damper
Emergency Exit	Heat Sensor
Controls or Switches	Exhaust Fan Switch

UPPER TWEEN DECK

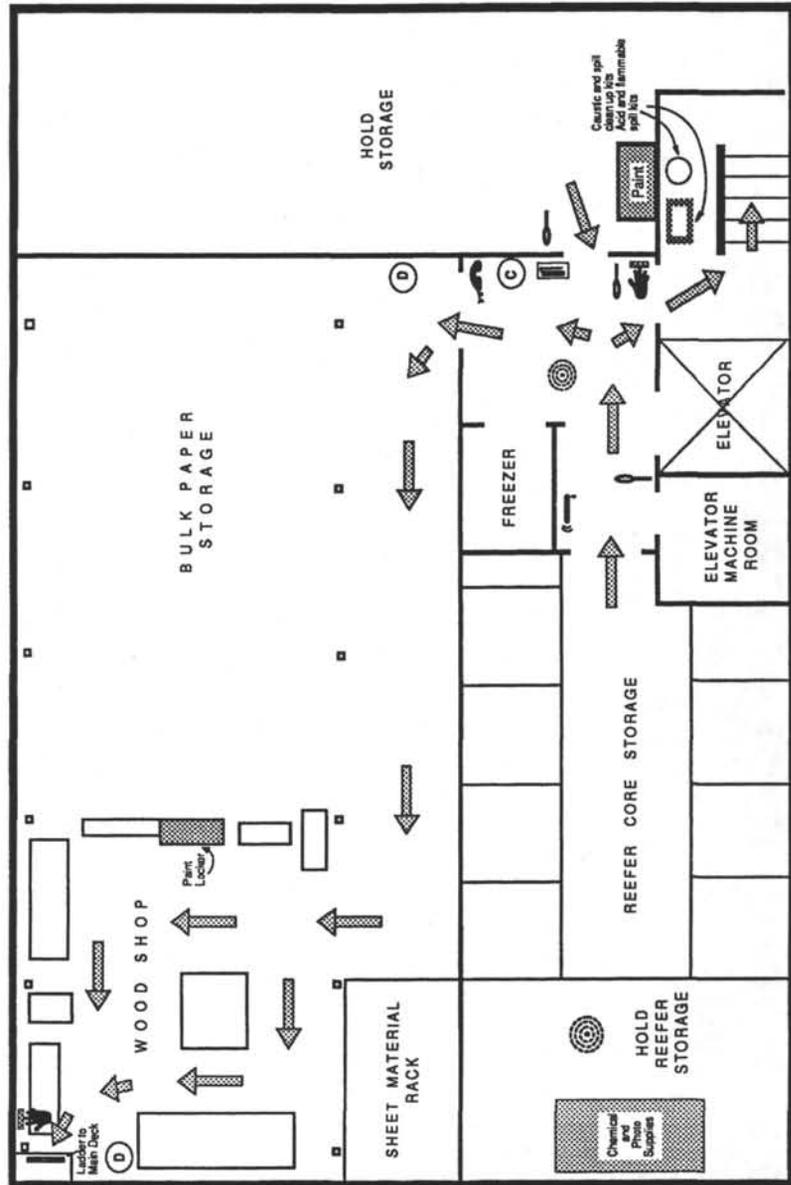
Evacuation Route



LEGEND	
Fire Extinguisher	Telephone
(C) CO ₂	General Alarm Bell
Shower	Fire Alarm
Eye Wash	Fire Hose Station
Heat Sensor	Damper
Controls or Switches	Vent
Evacuation Route	Exhaust Fan Switch
	Bum Pack

LOWER TWEEN DECK

Evacuation Route



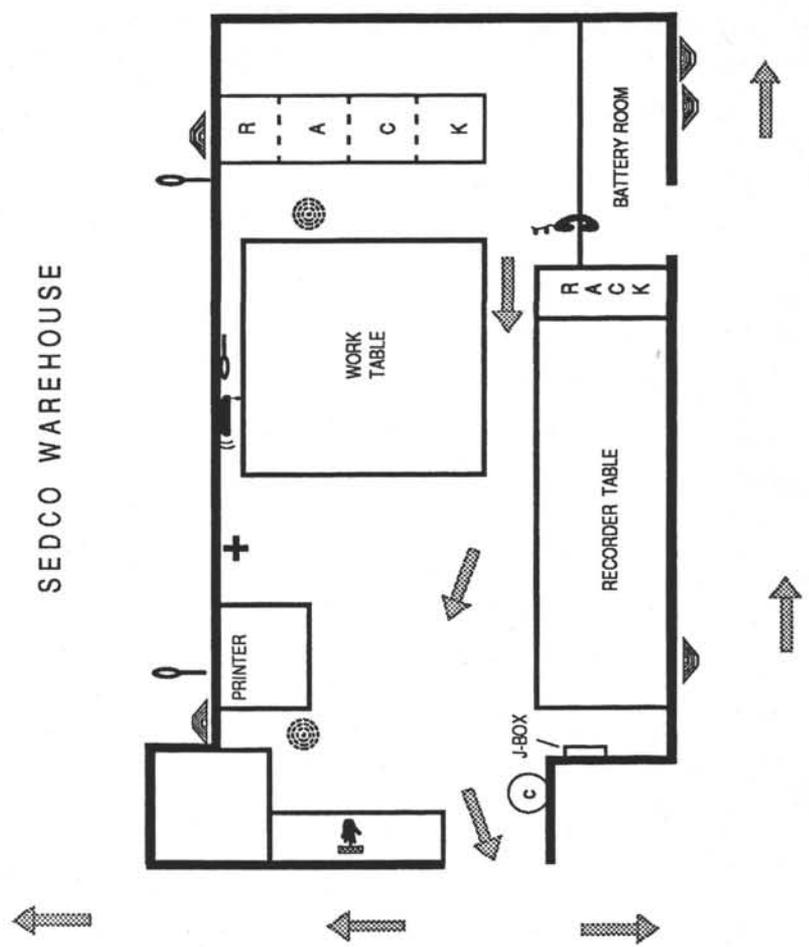
LEGEND

Fire Extinguishers		Telephone
(C) CO ₂		General Alarm Bell
(D) Dry		Fire Alarm
		Fire Hose Station
		Damper
		Heat Sensor

HOLD DECK

Evacuation Route

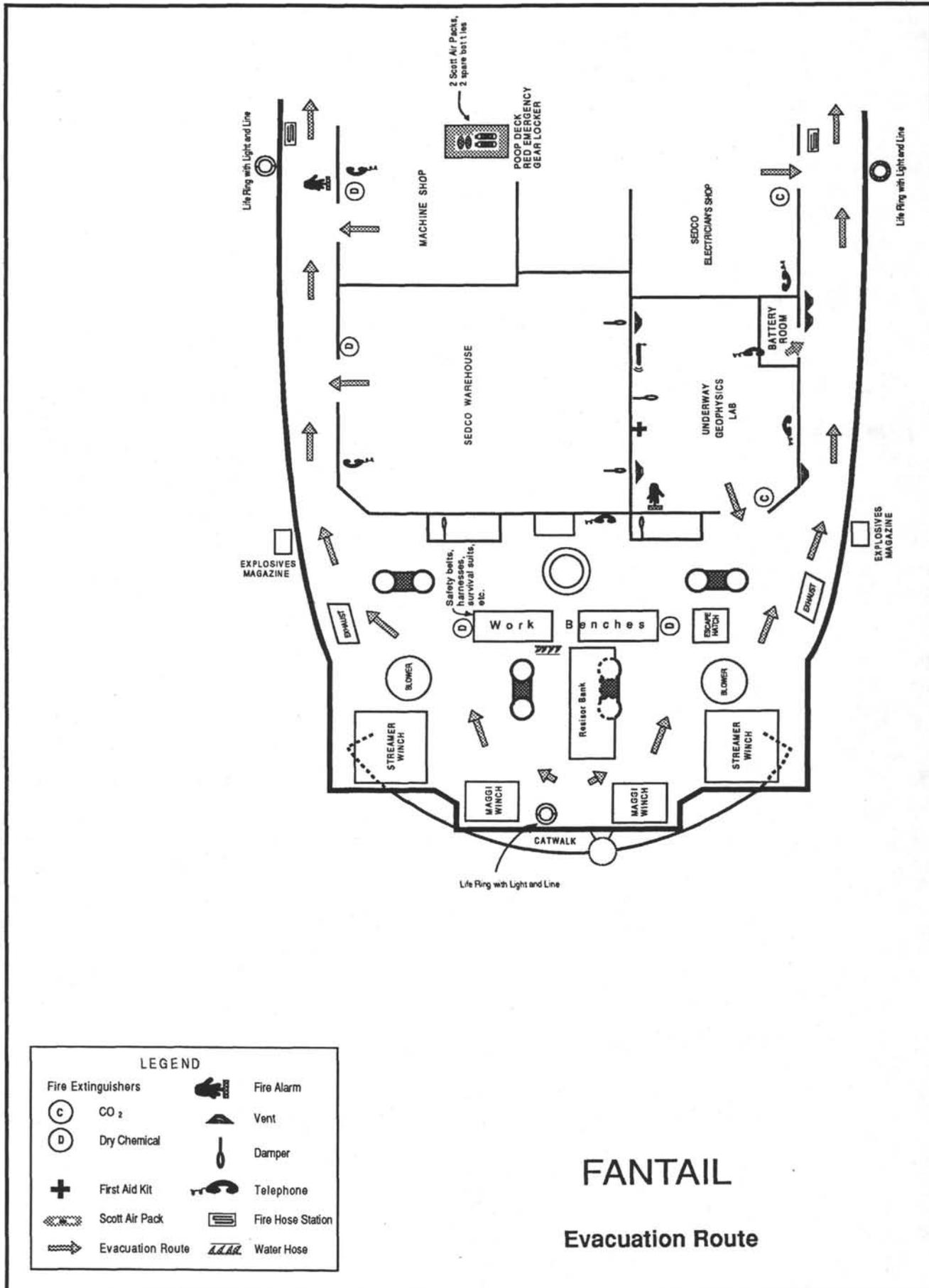
SEDCO WAREHOUSE



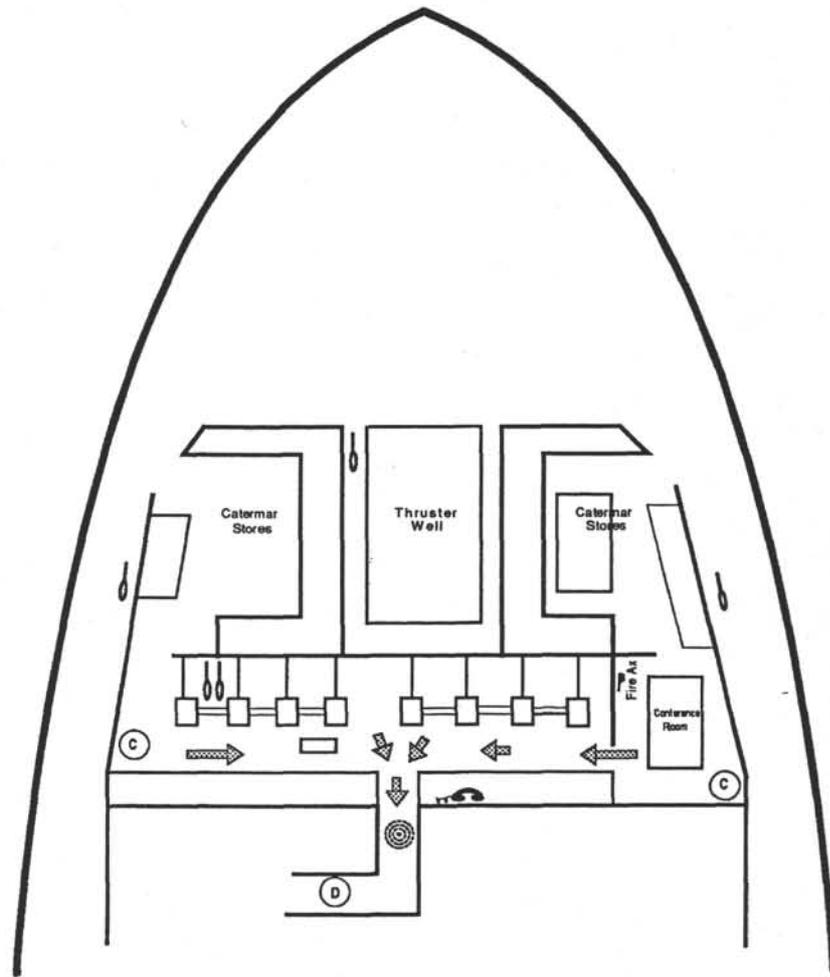
LEGEND			
	CO ₂ Fire Extinguisher		First Aid Kit
	Fire Alarm		Vent
	Telephone		Damper
	Evacuation Route		Heat Sensor

UNDERWAY GEOPHYSICS LAB

Evacuation Route



LEGEND	
Fire Extinguishers	Fire Alarm
(C) CO ₂	Vent
(D) Dry Chemical	Damper
+ First Aid Kit	Telephone
Scott Air Pack	Fire Hose Station
Evacuation Route	Water Hose



LEGEND

Fire Extinguishers			
(C)	CO ₂		Damper
(D)	Dry Chemical		Heat Sensor
	Evacuation Route		Telephone

LIBRARY

Evacuation Route

General Safety awareness for all personnel

Emergency procedures and boat station bills are posted throughout the ship; each individual is expected to know his/her lifeboat station and assigned function.

Fire and boat drills are held weekly; attendance is mandatory unless prior exemption has been authorized.

In case of fire, sound fire alarm, notify the Bridge (Dial 26) immediately and specify the location.

Extinguish the fire, if possible, and close doors and ventilation to the space. If conditions permit, stay and direct the emergency squad to the fire; if not, report to your lifeboat station.

Do not use the elevator in an emergency!!

Personal Safety Regulations

Personal safety is addressed with the following regulations:

- a. **Hard hats** are to be worn at all times by personnel aft of the immediate deck house or laboratory structure (including walking to/from the fantail).

ODP provides permanent and temporary seagoing personnel with hard hats while on board.

- b. **Steel-toed safety shoes** must be worn in all areas presenting the possibility for toe injuries. This includes the drill floor, in an area where supplies are being handled, and particularly in the dock area when cranes are in use. ODP provides permanent seagoing personnel with steel-toed boots.

- c. **Proper clothing** should be worn during operation of particularly hazardous equipment to reduce the possibility of accidents.

- d. **Eye and hearing protection** is provided for use in potentially dangerous areas such as the core lab and fantail.

- e. Use of **radioactive sources** is governed by applicable Texas A&M University regulations; ODP supplies TAMU Radiological Safety Office radiation badges for all persons working with or near radioactive sources.

- f. Ship's **machinery**, including cranes, air tuggers, most winches, welding equipment, etc., should be operated only by appropriate SEDCO FOREX crew members. Certain ODP machinery, such as seismic survey equipment and downhole instrumentation, is to be operated by trained ODP technicians.

Safety protocol and equipment requirements for various areas of the ship are as follows:

- a. **Rig floor access** is prohibited unless an individual has specific business in this extremely dangerous region of the ship. Most scientific personnel, with the exception of the co-chiefs and downhole specialists, should not go on the rig floor without permission. The driller on duty should be notified if he himself has not granted permission.

Hard hats and safety shoes are a "must" on the rig floor.

The rig floor should not be used as a "short-cut" to other parts of the vessel!

- b. The **Derrick** may not be climbed unless permission has been granted by the ODP Operations Superintendent, who clears the request with the SEDCO FOREX drilling supervisor on duty.
- c. Non-essential personnel *should not visit the bridge or forward area during heavy ship traffic*, unusual weather conditions, while entering or leaving port, or any time a pilot is on board.
- d. The captain may, at any time, place *certain areas of the ship off-limits* due to rough seas, hazardous repair work, and cargo/drilling equipment handling. Notices to this effect will be posted in the appropriate areas.
- e. These rules are to be followed during port calls or cargo/ personnel transfers while at sea:
 - 1) Safety shoes and hard hats must be worn by individuals in areas, including the dock during crane use, where cargo is being handled.
 - 2) Stay off the main deck as much as possible while cranes are in operation.
 - 3) Forklift operators are responsible for looking out for those working about them and for operating their equipment in a safe and controlled manner.
 - 4) Personnel should not invite visitors on board unless they can escort them around the ship in a safe manner.
- f. SEDCO FOREX personnel will provide instructions for lifeboat and small (inflatable) boat safety; permission to lower the ODP Zodiac dinghy must be secured from the Captain.

No alcohol or other mind-altering substances shall be consumed on board the vessel.

<p>Supervisory responsibilities</p>	<p>PHYSICAL SAFETY ASPECTS</p> <p>Supervisors shall ensure that instructions and guidance in proper work procedures are given to all employees under their supervision. In addition, the Lab Officer is responsible for training scientists and technicians in correct work procedures.</p> <p>Supervisors shall regularly inspect equipment, tools, and working conditions to determine that no obvious safety hazards exist.</p> <p>Supervisors shall enforce all regulations which apply to operations for which they are responsible.</p>
<p>Employee responsibilities</p>	<p>Each ODP employee shall abide by the rules for shipboard department, incorporating applicable SEDCO FOREX regulations, set forth by the Ocean Drilling Program.</p> <p>Any questions concerning job procedure or the safety involved should be presented to the employee's supervisor prior to continuation of the project.</p> <p>An employee should correct or report any unsafe condition or practice she/he observes to her/his supervisor.</p> <p>All employees should, in the course of their work, keep tools, equipment, facilities, and work areas clean and orderly.</p>
<p>General safety features</p>	<p>In addition to boat station bills and emergency procedures posted throughout the ship, safety handbooks, manuals, and video tapes are available for further study from several SEDCO FOREX and ODP sources.</p> <p>Hard hats, life jackets, and survival suits are provided in accommodations cabins for each member of the shipboard party; additional life jackets are kept beneath the life raft stations.</p> <p>Safety features, fire fighting equipment, and hazardous regions in the Lab Stack, Fantail, and Library ("ODP areas") are detailed in the "METS Lab Stack Emergency Fire Fighting Procedures" section.</p> <p>Emergency response equipment, rescue and aid stations, and escape routes on each deck of the Lab Stack and Library are presented in the "METS Lab Stack Emergency Fire Fighting Procedures" section.</p>

LAB-SPECIFIC PROCEDURES

<p>Chemicals</p>	<p>Guidelines for chemical use, storage, and transport:</p> <p>Chemicals shall be handled with caution and according to directions. In case of doubt over proper procedures, a supervisor and/or reference materials should be consulted.</p> <p>Use of solvents and other volatile chemicals is restricted to work areas having a fume hood.</p> <p>Two people should be present when working with volatile and hazardous solvents or chemicals. The location and proper use of safety showers and spill neutralization kits should be known.</p> <p>Chemically resistant gloves and safety glasses should be worn when handling large quantities of chemicals or when working with concentrated acids and other hazardous compounds.</p> <p>Liquids used for heavy mineral separations must be used in a fume hood.</p> <p>Use of hydrofluoric acid and carbon tetrachloride is expressly prohibited except in special circumstances and <u>only</u> if written permission is given by the ODP Chief Scientist prior to the start of the leg. See section on "Use of Hydrofluoric Acid."</p> <p>Containers of acids and other corrosive chemicals should be transported in a plastic bucket.</p> <p>If possible, chemicals should be stored in their original shipping boxes.</p> <p>Solvents, acids, and flammable and other hazardous chemicals should be stored in such a way to eliminate the chance of breakage or spillage. Unbreakable, non-reactive containers of one gallon or less capacity are preferred.</p> <p>All shipboard chemical containers should be checked and cleaned by the chemist(s) at least once per leg to detect and/or prevent possible deterioration and possible leakage.</p> <p>Chemical and hazardous material storage areas and containers should be marked clearly and thoroughly.</p>
<p>Material Safety Data Sheets (MSDS)</p>	<p>Material safety data sheets for all chemicals on board are available in each Lab and in the Lab Officer's files.</p>
<p>Computer Room</p>	<p>Fire fighting guidelines for the Computer Room, presented in detail in the "METS Lab Stack Emergency Fire Fighting Procedures" section of this report, include specific instructions for the activation of the Halon Deluge System incorporated into this area.</p>
<p>Paleo-magnetics Lab</p>	<p>Emergency procedures for the cryogenic magnetometer in the Paleomagnetism Lab have been refined after several years of seagoing experience with this sensitive instrument. An excerpt from the Paleomagnetism Laboratory Manual delineating steps taken in event of fire, impact, rapid boiloff, electrical power failure and chill water supply failure is also in the "METS Lab Stack Emergency Fire Fighting Procedures."</p>

Fantail	<p>Safety on the Fantail is enforced by these rules:</p> <ol style="list-style-type: none">a. Bridge and Underway Geophysics Lab personnel must be notified before seismic or magnetic survey gear is deployed or retrieved.b. Deployment and retrieval of survey gear will be performed under the supervision of the Lab Officer or his designated representative.c. Life jackets and safety harnesses will be worn while deploying or retrieving gear from the catwalk.d. With few exceptions, no geophysical gear shall be deployed or retrieved at speeds greater than 5-6 knots.
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MAJOR HAZARDS AND SAFETY PRECAUTIONS

<p>Fire</p>	<p><i>Do not smoke</i> in the labs. Kerosene and Acetone easily ignite, and container could explode upon ignition.</p> <p>If anyone enters the labs while they are smoking, ask them to extinguish the cigarette or leave the lab immediately.</p>
<p>Chemicals</p>	<p><i>Acids:</i> Cause burns. Wear rubber gloves, protective clothing, and safety glasses. Always use a fume hood to vent fumes. An Acid Spill clean up kit is kept in the Chemistry Lab and Second Look Lab.</p> <p><i>Hydrogen Peroxide:</i> Hydrogen Peroxide is a strong oxidant that can cause burns to the skin, mucous membranes, and eyes. When filling small bottles from gallon jugs, always wear rubber gloves, protective clothing, and safety glasses.</p> <p><i>Kerosene and Acetone:</i> Kerosene and Acetone can explode upon ignition. Always use a fume hood to vent vapors. NEVER smoke or have any source of heat or flame near these chemicals. These chemicals must be stored in the Safety Storage Cabinet except for small amounts.</p> <p><i>Mounting Media:</i> Always use in fume hoods to vent any vapors.</p>
<p>Ultrasonic Tank</p>	<p>Enclose ultrasonic tank in its case when in use. Do not put your hands into the tank when in use.</p>
<p>Mechanical Tools</p>	<p>Wear safety glasses when using mechanical tools.</p>
<p>Failed Equipment</p>	<p>If equipment breaks or malfunctions, notify the Laboratory Officer so that the equipment can be fixed or replaced as necessary.</p>
<p>Other Considerations</p>	<p>If you see any situation in the lab that may be a potential hazard or feel that a particular lab procedure may be unsafe, discuss the problem with the Lab Officer.</p> <p>Any injury must be reported to the Lab Officer and ODP Operations Superintendent.</p>

<p><u>Chemistry Lab</u></p>	<p style="text-align: center;">CHEMICALS USED ON THE JOIDES RESOLUTION</p> <p>2-Acetamide-4-methylthiazole 98% Acetanilide Acetazolamide Acetic Acid, Glacial Acetone Acetylene Acid Spill Cleanup Kit Alizarin Reds Alkaline liquid, nos. NA1719 Alumina, activated Alumina, absorption Aluminum Potassium Sulfate, Dodecahydrate Aluminum Chloride Aluminum Reference Standard Solution, 1000 ppm 2-Amino-2-Methyl-1, 3-Propanediol Ammonia Nitrogen #2 (contains Mercury) Ammonium Acetate Ammonium Chloride Ammonium Hydroxide Ammonium Molybdate Ammonium Para-Molybdate Ammonium Vanadate, Meta Antimony Potassium Tartrate Antimony Reference Standard Solution, 1000 ppm Argon Gas Arsenic Reference Standard Solution, 1000 ppm Ascarite II (Sodium Hydrate-silicate) Ascorbic Acid</p> <p>Barium Chloride Barium Hydroxide 1,3-Benzenedisulfonic Acid (see 4,5-Dihydroxy-1,3-Benzenedisulfonic Acid Disodium Salt) S-Benzylthiuronium Boric Acid Brasso Bromoform Buffer Dry Salt Mixture (Potassium Phosphate Monobasic) Buffer Solutions, pH 9.0 to 11.0 Buffer Solution, pH 4.00 Buffer solution, pH 7.00 Buffer solution, pH 10.00 Buffer salt, dry, pH 4.01 Buffer salt, dry, pH 6.86 Buffer salt, dry, pH 7.41 1-Butanol n-Butyl Alcohol</p> <p>Cadmium Chloride, Anhydrous Cadmium Chloride, Hydrated Cadmium Metal Cadmium Nitrate Cadmium Reference Standard Solution, 1000 ppm Calcium Reference Standard Solution, 1000 ppm</p>
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<u>Chemistry Lab (Cont'd)</u>	<p> Calcium Carbonate Calcium Chloride Caustic Spill Kit Cesium Chloride 1-Chloro-2,4-Dinitrobenzene Chloramine T 5 Chloro-4 hydroxy-3 methoxy benzylisothiourea phosphate Standard Chloride Standard, 100 ppm Chloroform Cholestane Chromerge Clayton Yellow Cleaning Solution (Chromic Acid-Sulfuric Acid) Cobalt Chloride Compressed Gas NOS (FLAM) Copper Reference Standard Solution, 1000 ppm Coulometer - Acid Dichromate on Silocel (Potassium Dichromate) Coulometer - Anode Solution Coulometer - Cathode Solution Cupric Sulfate Cupric Oxide Cuprin Wire form Curcumin (Turmeric Yellow) </p> <p> n-Decane Dehydrated Alcohol USP, Ethyl Alcohol Deionizer Bag Denatured Alcohol (see Reagent Alcohol) 2,3-Diaminopropionic Acid 4,5-Dihydroxy-1,3-Benzene-Disulfonic Acid Disodium Salt Dimethyl Glyoxime, Disodium Salt n-n-Dimethyl-p-Phenylene-Diamine Diphenylamine Sulfonic Acid Sodium Salt Dri-Slide 4.8, 32 fl oz; 1.5 gal; 100, 350# Dri-Slide Aerosol, 5.25 oz Drierite </p> <p> Eriochrome Black T Ethylenebis-(oxyethylenenitrilo) Tetraacetic Acid Ethylenediamine Tetraacetic Acid Disodium Salt (Humus Test Solution) </p> <p> Fenantrene Additivato Standard Ferric Chloride, Hexahydrate Ferric Chloride, Trihydrate Ferrothane - Plastic Finish with Red Hand Formaldehyde, Solution, 37% (contains 15% Methanol) Form-a-Thread </p> <p> Glycerin Glyoxal Bis2 Hydroxyanil (GHA) </p> <p> Hydrochloric Acid, 36%-37% </p>
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<u>Chemistry Lab (Cont'd)</u>	<p>Hydroxylamine Hydrochloride Instant Ocean Iodine Iron Reagent #1 Iron Reference Standard Solution, 1000 ppm Isothiourea Standard (see 5 Chloro-4 hydroxy-3 methoxy benzylisothiourea phosphate std.)</p> <p>Kerosene</p> <p>Lanthanum Chloride, Heptahydrate Lanthanum Nitrate, Hexahydrate Lead Reference Standard Solution, 1000 ppm LiChrosorb Si60 Lithium Meta-Borate Lithium Chloride Lithium Reference Standard Solution, 1000 ppm Lithium Tetraborate (Flux Grade)</p> <p>Magnesium Chloride, Hexahydrate Magnesium Perchlorate Magnesium Reagent #1 Magnesium Reference Standard Solution, 1000 ppm Magnesium Sulfate Manganese Reference Standard Solution, 1000 ppm Manganese Dioxide Manganese Reagent #1 Mercuric Chloride Mercury (see Ammonia Nitrogen #2) Methane Methanol 4-Methylaminophenol Sulfate Methylene Chloride Micro Molecular Sieves 3 A Molybdenum Reference Standard Solution, 1000 ppm Monohydrochloride, 99%</p> <p>n-(1-Naphthyl) Ethylenediamine Dihydrochloride Nitrate Standard, 100 ppm Nitric Acid Nitrogen Nitrous Oxide</p> <p>Oxalic Acid Oxygen</p> <p>2,4-Pentanedione (Acetyl Acetone) Phenanthrene 1,10-Phenanthroline Phenol Liquified Phenol Red, Sodium Salt m-Phenylenediamine Dihydrochloride Phosphate Standard, 100 ppm o-Phosphoric Acid</p>
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Chemistry Lab (Cont'd)

Potassium Bromate
 Potassium Bromide
 Potassium Carbonate
 Potassium Chlorate
 Potassium Chloride
 Potassium Chromate
 Potassium Dichromate (see Coulometer - Acid Dichromate on Silocel)
 Potassium Dichromate (Crystals)
 Potassium Ferricyanide
 Potassium Hydroxide (Potash)
 Potassium Iodide
 Potassium Nitrate
 Potassium Phosphate Monobasic (see Buffer Dry Salt Mixture)
 Potassium Reference Standard Solution, 1000 ppm
 Potassium Thiocyanate
 2-Propanol

 Quartz Wool

 Reagent Alcohol (90% Ethyl, 5% Methyl, 5% Isopropyl Alcohol)
 Red Hand Filler Paste (Curing Agent)
 Red Hand Filler Paste, Red Base (Epoxy Resin)

 Scotchkote
 Scott Gases (Butane, Ethane, Methane and Propane- any two in Nitrogen)
 Scott Gases (n-Butane)
 Scott Gases (C₁- C₇ n-Paraffins)
 Scott Gases (C₂-C₆ Olefins)
 Scott Gases (Carbon Monoxide, Carbon Dioxide, Methane, Ethane, Ethylene and Acetylene in Nitrogen)
 Scott Gases (Cyclo Olefins In Nitrogen)
 Scott Gases (n-Hexane)
 Scott Gases (Hydrogen Sulfide)
 Scott Gases (Methane, Ethane, Propane, Isobutane, n-Butane, n-Pentane)
 Scott Gases (Methyl Methane - same as Ethane)
 Scott Gases (Methy-1-Olefins in Nitrogen)
 Scott Gases (Methy 1-2-Olefins)
 Scott Gases (Nitrogen)
 Scott Gases (1-Olefins plus C₂H₂ In Nitrogen)
 Scott Gases (n-Pentane)
 Scott Gases (Propane)
 Silica Gel
 Silicon Oxide
 Silicon Reference Solution, 1000 ppm
 Silver Nitrate
 Silver Nitrate Solution
 Silver Reference Standard Solution, 1000 ppm
 Sodium Azide
 Sodium Bicarbonate
 Sodium Carbonate (Washing Soda)
 Sodium Chloride
 Sodium Citrate Dihydrate
 Sodium Fluoride, Solid
 Sodium Hexafluorosilicate

<u>Chemistry Lab (Cont'd)</u>	<p> Sodium Hydroxide (Caustic Soda, Lye) Sodium Hydrosulfite Sodium Iodide Sodium Nitrate Sodium Nitrite Sodium Nitroprusside Sodium Oxalate Sodium Phosphate, Monobasic Sodium Metaphosphate Sodium Reference Standard Solution, 1000 ppm Sodium Silicofluoride Sodium Sulfide, Nonahydrate Sodium Sulfate Sodium Thiosulfate Sodium Sulfite Solvent Spill Kit Stannous Chloride Dihydrate Starch, soluble Strontium Chloride Strontium Chloride Hexahydrate Strontium Reference Standard Solution, 1000 ppm Styrene Divinylbenzene Copolymer Beads Succinic Acid Sulfanilamide Sulfate Standard, 100 ppm Sulfate Test Reagent Sulfuric Acid Tartaric Acid Tetrabutylammonium Hydroxide, 25% Tetrabutylammonium Hydroxide, 55% Tham® Thioglycolic Acid Thiourea Tiron (see 4,5-Dihydroxy-1,3-Benzenedisulfonic Acid Disodium Salt) Tiron Indicator Titanium Reference Standard Solution, 1000 ppm Toluene 1,1,1-Trichloroethane Tris (Hydroxymethyl Amino Methane) Tungsten Trioxide on Alumina Granules Tungstic Acid Vanadium Pentoxide WD-40, Bulk Liquid WD-40, Spray Can Xylenes Zinc Acetate Zinc Chloride Zinc Reference Standard Solution </p>
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<u>Paleontology Lab</u>	<p>Acetone Alizarin Reds Canada Balsam Clove Oil Glycerin Hydrochloric Acid (36%-37%) Hydrofluoric Acid (52%) Hydrogen Peroxide, 30% Hyrax Kerosene Methylene Blue Micro Norland Optical Adhesive Permout Piccolyte Mounting Media Potassium Hydroxide Sodium Carbonate Sodium Metaphosphate Tragacanth Gum Zinc Chloride</p>
<u>Thin Section Lab</u>	<p>Acetone Cleaning Fluids Epoxy Grinding/polishing compounds: Diamond Alumina Silicon Carbide Lubricant, Struers DP Propanol Toluene</p>
<u>X-Ray Lab</u>	<p>Acetone Boric Acid Ethylene Glycol Liquid Binder: Chemplex Grinding/Binding Additive Polymeric binder Lithium Tetraborate, Anhydrous Methanol Propanol</p>
<u>Core Lab</u>	<p>Acetone Epoxies Helium Hydrochloric Acid Mounting Media Propanol Xylenes</p>

<p><u>Photo Lab</u></p>	<p>Pre-bleach Bleach Bleach Starter Color Developer E-6, Kodak Conditioner Replenisher E-6, Kodak Developer and Replenisher, Ilford D2000 Developer Starter, First, E-6, Kodak Developer Starter, Color E-6, Kodak Developer, Film, HC110, Kodak Developer, Kodalith, A&B Dust Off II Extender Base, Silkscreen First Developer E-6, Kodak Fixer/Replenisher, Kodak, E-6 Fixer/Replenisher, Ilford Speed 2000 Fixer, Rapid with Hardener, Kodak Ink, Silkscreen Permawash Photo F10 Replenisher, HC110 Reversal Bath Sodium Hydroxide Stabilizer E-6, Kodak Stop Bath System Cleaner</p>
<p><u>Fantail</u></p>	<p>Aerosol Cleaners Contact Cleaners Decane Eel Oil Lubricants Paints Osph (phosphoric acid)</p>
<p><u>Other</u></p>	<p>Adhesives Cleaning Agents Epoxies Lubricants Oils Paints Solvents (e.g., paint thinner) Varnish</p>

RELATED REFERENCES	
<u>TITLE</u>	<u>LOCATION</u>
Committee on Hazardous Substances in the Laboratory, Commission on Physical Sciences, Mathematics and Resources, and National Research Council, 1983. <u>Prudent Practices for Disposal of Chemicals from Laboratories.</u>	L.O. Office
Defense Logistics Agency, 1984. <u>Hazardous Materials Storage and Handling Pocketbook.</u>	L.O. Office
Red Cross. First Aid	Library
Safety Booklet --Red cover	Bridge, L.O. Office, Yeoperson, Library
Safety Booklet, SEDCO FOREX --White cover	Distributed to all shipboard participants
Safety Booklet, SEDCO FOREX --Japanese translation (Translated by M. Hitchcox)	Distributed to all Japanese shipboard participants
Safety Material Data Sheets (MDSF)	Pertinent data sheets in respective Lab, complete set in the L.O.'s Office
Stricoff, R.S., Partridge, L.J. and Macinson, F.W., 1978. <u>NIOSH/OSHA Pocket Guide to Chemical Hazards.</u>	L.O. Office

SECTION II

HYDROFLUORIC ACID (HF)

USE ABOARD THE SEDCO/BP-471

(JOIDES Resolution)

USE OF HYDROFLUORIC ACID (HF)

Hydrofluoric acid (HF) is a strong acid that palynologists and paleontologists use to dissolve material in sediment and rock samples.

The following procedures have been adopted and will be used whenever HF is used aboard the ship.

HF will not be used on the *JOIDES Resolution* unless burn treatment medical supplies and acid spill clean up chemicals are available in sufficient quantities. ODP will coordinate with the SEDCO Medical Officer to ensure medical supplies are available.

ODP should be notified in advance of anticipated HF use on a leg.

Before anyone uses HF, they must sign a copy of the policy stating they have read, understand, and will abide by this policy. The signed statement will be filed by the Laboratory Officer.

Samples should be processed in groups (10-20 samples) to minimize safety risks. The scientist using HF will wear safety gloves, apron, and a full face shield.

HF will not be used when ship motion limits normal handling.

Approximately 10 liters of concentrated acid will be stocked aboard the vessel. HF will be stored in clearly labeled plastic containers, as supplied by the vendor, in an approved acid storage area (i.e., the acid storage cabinets in the Second Look Lab and under the HF fume hood in the Paleo Prep Lab).

Used HF will be stored in clearly labeled plastic containers. When a container (20 liter) contains 7 liters of used acid, the Lab Officer/or delegate will neutralize the used acid to a 1% concentration by adding it (with stirring) to cold water and aqueous sodium hydroxide.

Caution should be taken not to store discarded HF for extended periods of time since HF will embrittle all plastic materials. Polyethylene is the preferred plastic due to its unusual resistance to HF.

Neutralized HF will be taken off the ship during scheduled port calls and turned over to local authorities for disposal.

In the event of a failure of the normal operation of the HF fume hood ventilation system, all HF containers will be immediately capped and the hood sash will be closed.

In the event that HF acid (even dilute concentrations) contacts skin or clothing, immediately immerse the affected area with cold water; remove contaminated clothing as rapidly as possible. Summon the Shipboard Physician, preferably without interrupting the cold water wash.

Emergency showers and eye washes are available in the hallway immediately outside of the Paleo Prep Lab.

In the event of a HF acid spill, the labstack deck should be vacated by all except the emergency cleanup crew.

Crew members responding to the spill will wear chemical protective suits and breathing apparatuses.

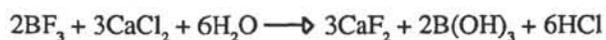
Spill kits are located in the Paleo Prep Lab and in the stair well at the hold level.

METHOD OF DISPOSAL

Hydrogen fluoride can cause serious burns, with the risk from aqueous solutions increasing with concentration. Waste aqueous hydrofluoric acid can be added slowly to a stirred solution of excess slaked lime to precipitate calcium fluoride, which is chemically inert and has little or no toxic hazard. If no more than about 100 g of calcium fluoride is formed, the suspension can be washed down the drain; larger amounts should be separated and sent to a landfill.

As an alternative, hydrofluoric acid can be diluted to about 1% concentration by adding it with stirring to cold water in a polyethylene or borosilicate glass vessel, neutralizing the acid with aqueous sodium hydroxide, and precipitating calcium fluoride by addition of excess calcium chloride solution.

Soluble metal fluorides such as sodium and potassium fluorides are highly poisonous. They can be converted into calcium fluoride by treating aqueous solutions with calcium chloride solution. Boron trifluoride can be dissolved in water and the fluoride ion precipitated as calcium fluoride by adding calcium chloride solution. The calcium fluoride is filtered and sent to a landfill, and the filtrate is flushed down the drain.



(From Prudent Practices for Disposal of Chemicals from Laboratories, p. 46.)

SECTION III

PROCEDURES FOR HAZARDOUS CHEMICAL SPILLS

	PROCEDURES FOR HAZARDOUS CHEMICAL SPILLS
<p>General Procedure</p>	<p>This section explains the proper procedure for handling a spill of Acids, Alkali, or Flammable solvents that could cause injury on contact or by inhalation.</p> <p>If the liquid has spilled on a person, immediately get to a safety shower and wash off the chemical. The showers are located on each landing as well as the Chemistry Lab and in the hall near the Paleo Lab on the Focsle Deck; at the Photo Table and near Physical Properties Lab on the Bridge Deck. Remove clothing if necessary and notify the Physician.</p> <p>Be sure the immediate area is clear of personnel.</p> <p>Notify the Lab Officer and/or Bridge of the spill.</p> <p>Isolate the area of the spill. This can be done by closing the doors and fire vents. However, do not enter a fume filled area to close the vents without a Scott Airpack.</p> <p>Put on the proper gear for the clean up. This gear includes the white plastic suit, rubber or plastic gloves, and a Scott Airpack.</p> <p>Use the proper spill kit (detailed below) to neutralize, clean up, and dispose of the spilled chemical. Special attention must be paid for pieces of glass from the broken bottle. If the spill kits have not arrived, contain and isolate the spill to prevent spreading. This may also be done at the time of the spill and before putting on the gear if the area is extremely well ventilated. Remember the acid fumes will very quickly damage your lungs.</p> <p>Wash the area with soap and water to ensure that all of the neutralizing materials have been cleaned up.</p> <p>Ventilate area thoroughly before allowing general use.</p>
<p>Location of Emergency Equipment</p>	<p>The nearest <i>Air Packs</i> are located near the main Deck copier, in the Core Entry area next to the Core Rack, and in the Tool Pusher's Office.</p> <p><i>Clean-up Suits</i> are located in the locker in the L.O.'s office.</p> <p><i>Neutralizing and absorbent kits</i> are located at the bottom of the stairs on the Hold Deck in the Lab Stack. The Fisher kits are equipped with glasses, plastic gloves, and scoops. The Baker kits contain scoops.</p>
<p>Acids Baker Liquid "Neutrasol"</p>	<p style="text-align: center;">INSTRUCTIONS FOR USE OF CLEAN-UP KITS</p> <p>There are two types of kits for the neutralization and absorption of an acid spill. These are the 2.5-gallon plastic jugs containing the blue liquid. This liquid should not be used on oxidizing acids such as fuming nitric. The 2.5-gallon jug should neutralize 2.5 litres of acid. Concentrated sulfuric acid will be 94% neutralized.</p> <ol style="list-style-type: none"> 1) If acid concentration is over 50%, dilute with water. 2) Apply liquid around perimeter of the spill. 3) Gradually mix neutralizer with acid. Foaming and a color change from blue to pink are indicators that neutralization has started. 4) Add more neutralizer as needed until mixture retains blue color. 5) Clean up blue liquid with shop-vac or by using clay absorbent. Dispose of neutralized acid and/or clay in plastic sacks. 6) Wash spill area thoroughly. Clean shop-vac and any other tools used.

<p>Fisher S-104 Neutralizer/ Absorber</p>	<p>Located in a large cardboard barrel outlined with green paint.</p> <p>Use scoops included in the barrel. Seven scoops of neutralizer will neutralize 4 pints 38% HCl; 1.5 pints 98% H₂SO₄; 1 pint 85% H₃PO₄.</p> <ol style="list-style-type: none"> 1) Sprinkle contents around (thereby containing the spill) and into spill. 2) Thoroughly mix powder with spill until color change of pink to blue occurs. In order to aid the neutralization, water may be added to the slurry. 3) Continue adding powder (and water) to the spill, if needed. 4) Scoop up mixture and place in plastic bags. 5) Dispose of mixture properly. 6) Clean scoop and return to barrel. 7) Wash spill area.
<p>Alkalis Baker Neutrakit-2 (blue box)</p>	<ol style="list-style-type: none"> 1) Using scoop in box, apply powder around and into liquid spill containing the spill. 2) If liquid concentration is greater than 40%, add cold water to dilute. 3) A yellow to blue color change indicates spill is still caustic. 4) If absorption rate seems slow, add cold water. 5) Mix slurry until yellow or yellow-green. 6) Add more mix (or water) as needed. 7) Pick up and dispose of slurry. 8) Clean spill area thoroughly. 9) Clean scoop and return to barrel.
<p>Fisher S-105</p>	<ol style="list-style-type: none"> 1) Dilute liquid alkali spills (over 50% concentration) with equal parts water. 2) Sprinkle contents of S-105A (box inside barrel) around and into spill, containing the spill if possible. 3) Add cold water to control heat, if necessary. 4) Color change of slurry from blue to pink indicates neutralization. 5) Add more neutralizer as needed. 6) Absorb liquid with clay absorbent (S-105B) in barrel. 7) Dispose of absorbent. 8) Clean area thoroughly.
<p>Flammable Solvents Fisher S-106</p>	<p>The flammable solvents that can be cleaned by this kit include, but are not limited to, Acetone, Alcohols, Decane, and Hexane.</p> <p>Seven scoops (scoop located in barrel) of this material will absorb 1 pint of solvent.</p> <p>NOTE: <u>Do not use paper towels or rags to mop up a flammable spill as this can speed the evaporation of the material and thereby increase the potential hazard.</u></p> <ol style="list-style-type: none"> 1) Identify type of solvent and estimated volume. 2) Sprinkle contents of barrel around and into spill. 3) Mix thoroughly until liquid is completely absorbed, adding more absorbent until area is dry. 4) Scoop up dry mixture. 5) Dispose of mixture. 6) Clean tools and return to box.

SECTION IV
POTENTIAL SOURCES OF HAZARD
AND
EMERGENCY EQUIPMENT
IN LABORATORIES

Area	Potential Source of Hazard	Emergency Equipment	Remarks
<u>BRIDGE DECK</u>			
Catwalk/Core Entry Area:	Acetone	General Alarm Bell, Fire Alarm,	Helium in Cryogenic magnetometer could blow out from both ends under extreme heat.
Paleomagnetism Lab:	Helium, Cryogenic Magnetometer	Heat Sensors, CO ₂ Extinguishers,	Expansion rate from liquid -> gas is 700:1.
Physical Properties Lab:	GRAPE Source, MST, Lab equipment	Emergency Shower, Eye Wash Stations,	Vaporized helium will result in great heat loss and displacement of air.
Core Splitting Room:	Core Splitting Machine, Saw	Water Hoses, Elevator Alarm, First Aid Kit	Try to keep MST radioactive source cool if the area is on fire. Cordon off areas if housing is damaged by flames. Check radiation leak with detection instruments. If radiation leak is found, store the source securely in an isolated place until disposal. The MST's source is radioactive, it is, however, relatively weak.
Core Sampling Area:	Saws		
Core Description Area:	HCl, acetic acid, Xylene (minor amount), Mounting Media	Scott air pack Burn pack Halon Extinguisher	
LANDING		Fire Dampers, Fire Hose, Exhaust Fan Switch	

Area	Potential Source of Hazard	Emergency Equipment	Remarks
<p><u>FOCSLE DECK</u></p> <p>Chemistry Lab:</p> <p>X-Ray Lab:</p> <p>Thin Section Lab:</p> <p>Paleontology Lab:</p> <p>LANDING</p>	<p>Acids, Flammable Solvents, Corrosive Chemicals, Hydrogen Generator, Acetylene, Gas Bottles (He, O₂), Lab equipment</p> <p>X-ray source (XRF, XRD), Gas bottles (propane, P-10)</p> <p>Acetone, Lab Equipment</p> <p>Oxidizer, Mounting Media, Lab equipment</p>	<p>General Alarm Bell, Fire Alarm, Gas Alarm, Acid Spill Kit, Eye Wash Stations, Emergency Showers, Burn Pack, Fire Blanket, CO₂ Extinguishers, Heat Sensors, Exhaust Fan Switch, Switch Controls, Elevator Alarm, First Aid Kit, Halon Extinguisher (in Chem Lab)</p> <p>Fire Dampers, Fire Hose, Switch Control</p>	<p>In event of fire:</p> <ol style="list-style-type: none"> 1) Sound Fire Alarm, 2) Shut down fume and heat hoods, 3) Shut off hydrogen generators in Chem Lab, 4) Turn off gas cylinders in X-ray and Chem Labs, 5) Shut down XRD and XRF radiation source, 6) Shut ventilation dampers, 7) Prevent fire from spreading to flammable chemicals.

Area	Potential Source of Hazard	Emergency Equipment	Remarks
<u>UPPER TWEEN DECK</u>			
Mezzanine:	Gas Bottles (He, O ₂ , N ₂ , NO ₂ , P-10)	General Alarm Bell, Fire Alarm, Fire Dampers,	Spare helium, nitrogen, NO ₂ , oxygen and P-10 bottles stored on Mezzanine.
Photo Lab:	Photo Chemicals, N ₂ , Photo Lab equipment	Fire Hose, Heat Sensors, Eye Wash Station, CO ₂ Extinguishers, First Aid Kit,	Extra survival Suits stored on Mezzanine deck.
E.T. Shop:	Electronics equipment and parts	15-min Escape Pack (in Photo Lab)	
Koomey Room:		Fire Hose, Manual Halon Extinguisher System, CO ₂ bottles, CO ₂ Extinguishers, Chemical Neutralizing Fill (Acid Sink Repository), 10-min Escape Pack, 1 Escape Trunk, Dry Chemical Extinguisher	Koomey Room door has an automatic button and a hand operated crank. Fire Dampers, Sprinkler System Valve (for Casing Hold), Ladder

Area	Potential Source of Hazard	Emergency Equipment	Remarks
<p><u>LOWER TWEEN DECK</u></p> <p>Acid cabinet: Oxidizer cabinet:</p> <p>Second Look Lab:</p> <p>Flammables Cold Storage:</p>	<p>Acids and oxidizers Oxidizers</p> <p>Acids</p> <p>Flammable Liquids</p>	<p>General Alarm Bell, Fire Alarm, Burn Pack, Acid Spill Kit, Emergency Shower, Eye Wash Station, Cold Storage CO₂ Fire Extinguishing System, Exhaust Fan Switch, Heat Sensors, CO₂ Extinguisher, Fire Dampers, Sprinkler System Valve (for Casing Hold), Ladder</p>	<p>Highly flammable solvent in refrigerated locker.</p> <p>Before opening the flammable storage locker door, turn on the exhaust fan for at least 1 minute.</p> <p>CO₂ system operates automatically when temperature exceeds the critical point.</p> <p>After CO₂ is released, do not enter a compartment until it has been well ventilated and had its O₂ content tested.</p>

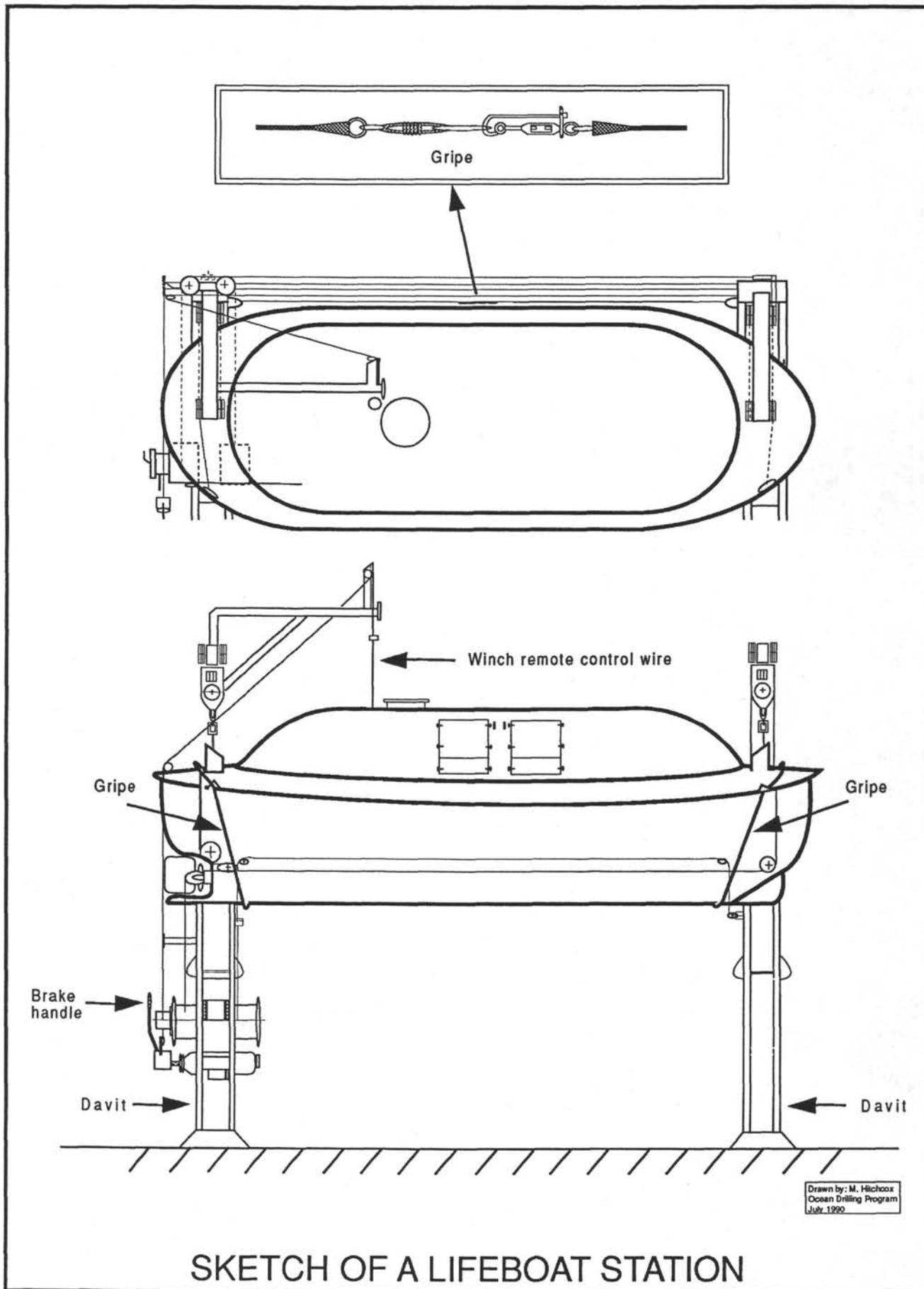
Area	Potential Source of Hazard	Emergency Equipment	Remarks
<p><u>HOLD DECK</u></p> <p>Cold Core Storage:</p> <p>Casing Hold Storage Area:</p> <p>Casing Hold Shop Area:</p> <p>Elevator Machine Room:</p> <p>At bottom of Stairs:</p>	<p>Paint Chem Lab chemicals, Photo chemicals, Paper Products, Plastic Products, Mounting media</p> <p>Paper products</p> <p>Paint, Wood, Shop machinery</p> <p>High pressure overhead air tanks</p>	<p>General Alarm Bell, Fire Alarm, Fire Hose, CO₂ Extinguisher, Heat Sensors, Fire Dampers, Dry chemical Extinguisher Escape Ladder</p> <p>Acid Spill Kit</p>	<p>The Hold Deck is potentially a dangerous area for the following reasons:</p> <ol style="list-style-type: none"> 1) wooden floor, 2) large amount of cardboard and paper products stored, 3) possible sawdust accumulation, 4) paint stored in the shop. <p>Overhead Air Tanks must be kept cool and emptied in the event of fire.</p> <p>Elevator control switch on aft wall in Elevator Machine Room.</p>

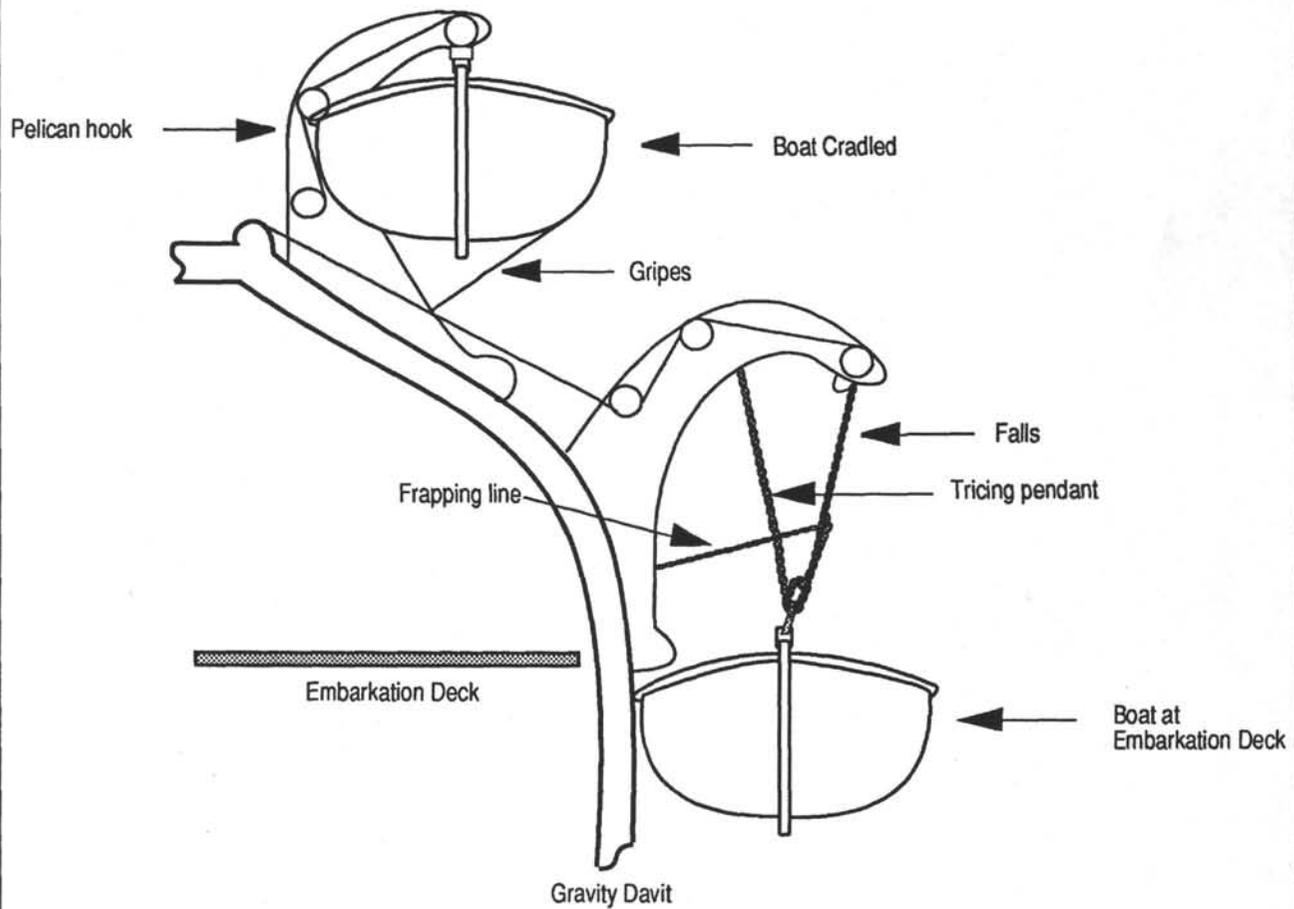
Area	Potential Source of Hazard	Emergency Equipment	Remarks
<u>DOWNHOLE MEASUREMENTS</u> <u>LAB</u>	Electronics Equipment, Computers	Fire Alarms, CO ₂ Extinguisher	An extra emergency exit on the forward wall.

Area	Potential Source of Hazard	Emergency Equipment	Remarks
<p><u>UNDERWAY</u> <u>GEOPHYSICS LAB</u></p>	<p>Electronics Equipment, Computers</p>	<p>General Alarm Bell, Fire Alarm, CO₂ Extinguisher, Fire Damper, Heat Sensor</p>	<p>Turn off lab electrical power-- switch 8SP-20 in Aft Thyrig Room.</p> <p>Do not use water to fight fire in this lab!</p>

Area	Potential Source of Hazard	Emergency Equipment	Remarks
<u>LIBRARY</u>	Books (combustible) Computers	CO ₂ Extinguishers, Fire Dampers, Heat Sensors	Forward Portside door to Catermar Stores in Conference Room and Starboard door to Catermar stores are locked.

SECTION V
LIFEBOAT OPERATIONS





LIFEBOAT TERMINOLOGY

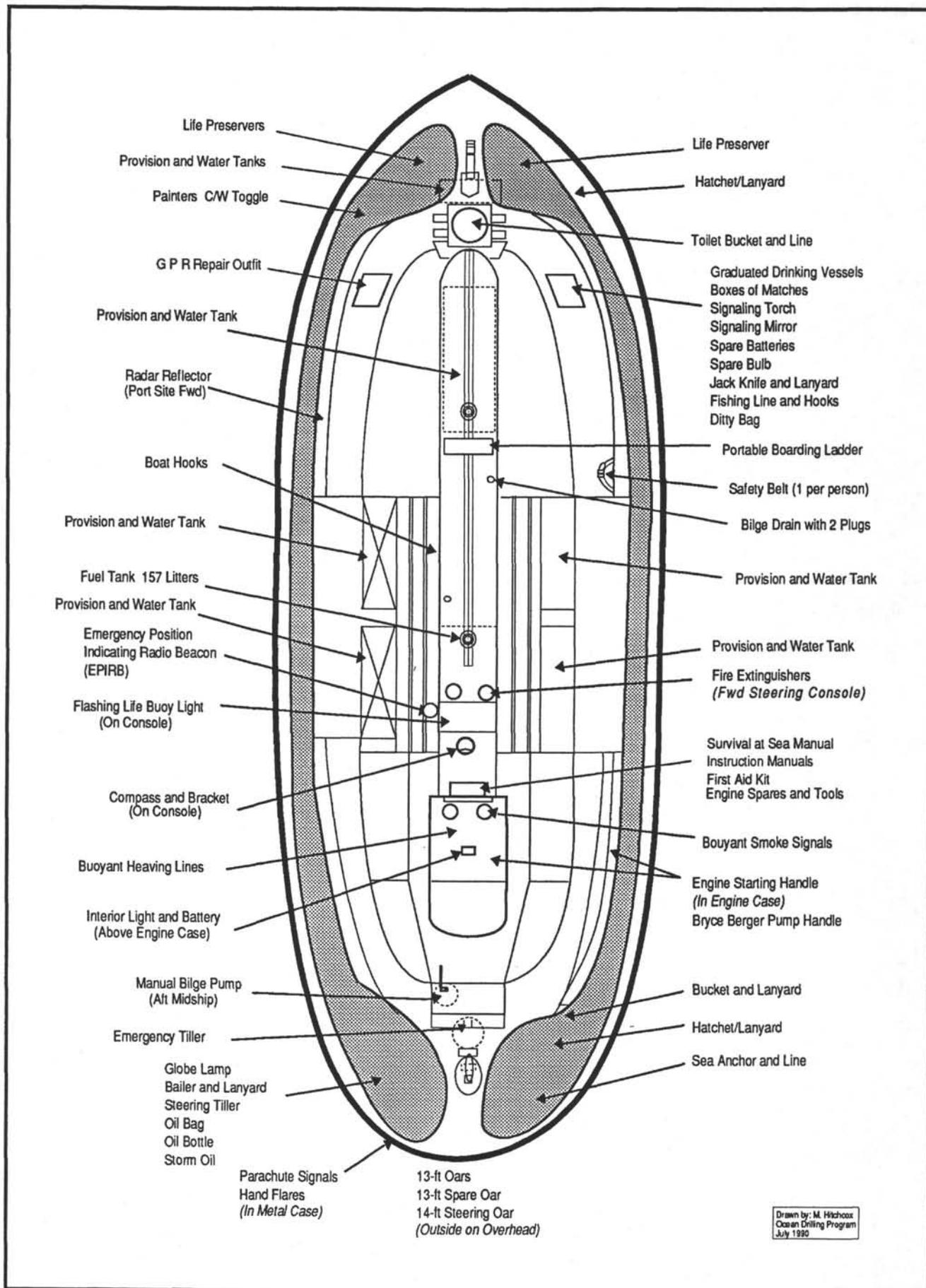
	<p>The following is a list of nautical terms used in the Lifeboat operations. See sketches on p. VI-1 and VI-2.</p> <p>GRIPES</p> <p>The gripes are the cables that hold the lifeboat securely in the davit cradle. The boat is released from the cradle by releasing the gripe ends that are secured together by a pelican hook.</p> <p>PELICAN HOOK</p> <p>A pelican hook is a marine quick release fastener used to hold lines together. Sliding a locking ring off the articulated fastener easily releases the two lines even when there is tension on the lines. This type fastener secures the gripe ends together and the tricing pendants to the lifeboat.</p> <p>TRICING PENDANTS</p> <p>The tricing pendants are heavy lines attached to the davits and, by pelican hooks, to the life boat. As the boat is lowered the tricing pendants take up some of the load of the lifeboat and bring the boat in against the side of the ship at the embarkation level. The tricing pendant pelican hooks can be released by someone at the embarkation level who gets onto the lifeboat or by someone inside, reaching out of a porthole at each end of the enclosed lifeboat.</p> <p>FRAPPING LINES</p> <p>The frapping lines are light lines that are passed around the falls and used to stabilize or secure the falls and control the swinging of the lifeboat in rough sea conditions.</p> <p>FALLS</p> <p>The falls are generally the primary wire cables, pulleys, and release hooks used to lower (or raise) the lifeboat. The falls hooks are released from within the lifeboat when a release handle inside the craft is pulled as the craft enters the water.</p> <p>PAINTER</p> <p>The painter is typically a lifeboat bow line that is secured to the ship and passes inside the falls. It keeps the lifeboat alongside the ship after the falls are released.</p> <p>JACOB'S LADDER</p> <p>The Jacob's ladder is a rope or chain and wood rung ladder secured at the ship rail and unrolled to the water.</p>
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LIFEBOAT OPERATING INSTRUCTIONS

	<p>The lifeboats hang between gravity davits which are designed to lower the boat quickly and effortlessly under adverse conditions. The ship's crew is experienced in the safe and rapid handling of the boats and davits and, in most cases, will do all the work required in lowering the boats. However, all shipboard personnel should be familiar with the lowering procedure of a lifeboat as described below.</p>
<p>Release the Gripes</p>	<p><u>LAUNCHING A LIFEBOAT</u></p> <p>Release the pelican hook on the Bridge Deck rail at the middle of the boat. This releases the gripes that have secured the boat in the life boat cradle. (Life Boats 1, 2 and 3).</p> <p>Release two gripes whose ends are attached to the accommodation structure. (Life Boat 4).</p>
<p>Untie the tag line</p>	<p>Untie a light tag line tied to the rail at each end of the life boat. This line falls to the boat deck and sometimes needs tugging to insure release of the cradle hooks on the davits.</p>
<p>Lower the boat to the embarkation deck</p>	<p>The boat is now ready to be lowered to the embarkation deck.</p>
<p>Release the brake</p>	<p>Release the brake by pulling the red handle on the brake winch. The life boat begins to roll down the trackway on the back of the davit until the craft is hanging overboard. The boat continues lowering down to the Embarkation Deck where the tricing pendants begin taking the weight of the lifeboat and swing it in to the ship's side. The brakeman is cautioned not to put the full weight of the boat on the tricing pendants or the release of the pelican hooks will be quite difficult and abrupt.</p>
<p>Secure the frapping lines</p>	<p>Secure the frapping lines around the falls to keep the lifeboat from swinging and secure the painter to the rail forward on the Focsle Deck. Do not use forward or aft painter if it is necessary to keep hatches closed because of gas or fire on the water. Do not pay out aft painter unless necessary due to danger of fouling the propeller.</p> <p>Lower the Jacob's ladder over side.</p>
<p>Embark</p>	<p>All personnel embark. Go to either side of the lifeboat to keep it roughly balanced.</p>
<p>Fasten seat belt</p>	<p>Fasten seat belt.</p>
<p>Close openings</p>	<p>Close all doors, ventilators, and hatches from the inside.</p>
<p>Plug the Drain</p>	<p>Plug the lifeboat drain.</p>
<p>Release the tricing pendants</p>	<p>Release the tricing pendants through the fore and aft port holes and slack the frapping lines.</p>
<p>Start the engine</p>	<p>The engine can be started while the craft is still hanging in the davits or being lowered to the water. (Refer to the "Engine Operation" section below for instructions.)</p>

<p>Lower the Boat to the water</p>	<p>The tricing pendants must be released at either end of the lifeboat before the helmsman pulls on a winch remote control wire over the lifeboat control console.</p> <p>The boat will lower at a controlled speed of approximately 120 feet per minute. Tension must be kept on the winch control wire to continue descent as lowering stops immediately when tension is released.</p> <p>This feature gives full control of the lifeboat descent and may be utilized to control the time of entry into the water.</p>
<p>Pull the hook release</p>	<p>The boat must be waterborne for the hooks to be released. Any tension at either end will cause that hook to remain attached, with potentially disastrous results.</p> <p>A designated person, on the order of the coxswain, pulls the Mills releasing hook handle to give simultaneous release of forward and aft lifting hooks. (The painter holds the lifeboat alongside the ship as long as desired.)</p> <p>Ideally, the hooks are released while the boat is on the crest of a swell. This handle is located on the port side of the coxswain's stand and is painted red. The warning "<u>DANGER: LEVER RELEASES HOOKS</u>" is printed next to the handle.</p>
<p>Move away from the danger area</p>	<p>Immediately after the lifeboat is waterborne and falls released, the helmsman should take the necessary action to maneuver the boat away from the danger area.</p>
<p>Start the Spray Curtain, if necessary</p>	<p>Should the boat be operating in an oil fire or a highly toxic environment, the water spray and air supply systems should be utilized as necessary. (Refer to the "Air Supply and Water Spray Operation" section below.)</p> <p><u>ENGINE OPERATION</u></p> <p>The lifeboat is equipped with a Lister HRWM model 2 cylinder diesel engine with a hydraulic starting system.</p>
<p>Start the Engine</p>	<ol style="list-style-type: none"> 1. Verify that fuel supply line valves located at fuel tank and at engine fuel lift pump are open (normally open). 2. Verify that keel cooler hull penetration valves, located under the engine on starboard side are fully open (normally open). 3. Check hydraulic pressure indicator located on starboard side of engine. The indicator should show at least three rings (approximately 4,000 psi). If necessary, the unit may be pumped up using the handle provided (starboard side of coxswain's stand). Verify decompression levers are facing forward (painted red on starboard side of motor). 4. Advance throttle setting by pushing knob down and pushing throttle forward to the full throttle position. 5. Pull the starting lever up (starboard side of coxswain's stand), until the slack is out of cable. Then pull smartly up to start engine. 6. After engine starts and comes up to speed, place throttle in desired position.

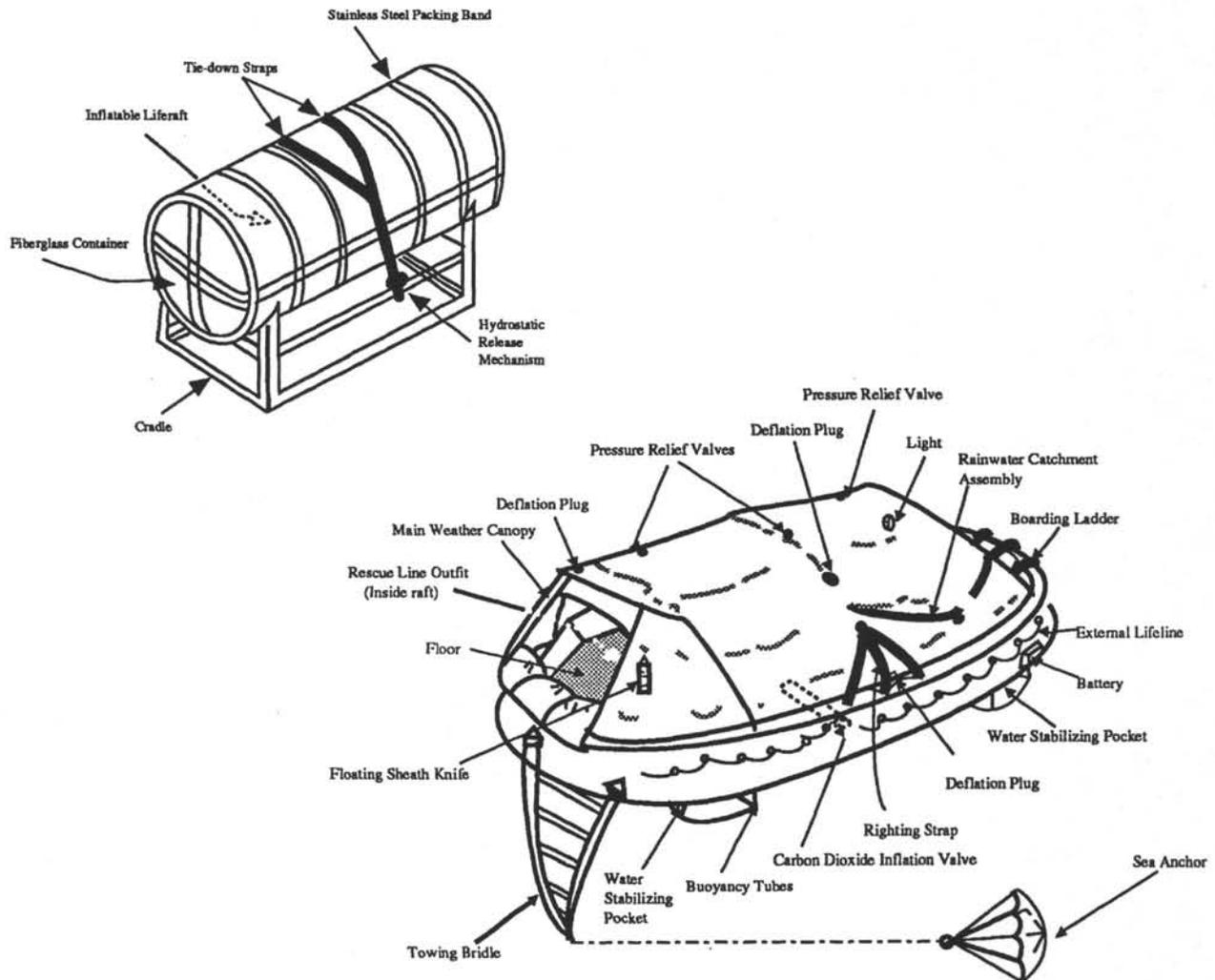
<p>Manually Start the Engine</p> <p>Stop the Engine</p>	<p>7. To operate the boat ahead, push the control lever forward. Initial movement will operate the transmission and shift into forward gear. Further movement will increase engine speed. Operation astern is the same except that the control lever is pulled back toward the helmsman.</p> <p>The engine may be started manually by means of a crank at the aft end of the engine. In this case, the decompression levers must first be facing aft. While one person cranks the engine at a steady rate, someone else must push the decompression levers ahead (simultaneously) to start the engine.</p> <ol style="list-style-type: none"> 1. Place throttle/gear shift lever in the neutral position. 2. Pull back on the fuel cut out handle on the port side of the engine. <p><u>HYDRAULIC STARTER OPERATION</u></p> <p>The engine in this lifeboat is fitted with a Bryce Berger Handraulic hydraulic starting system. To initially put the hydraulic starting system into operation, the accumulator must be manually pumped up using the following procedure:</p> <ol style="list-style-type: none"> 1. Insert the pump handle provided onto the lever provided, which is located on the forward end of the engine's starboard side, behind the indicator. 2. Operate the pump until the pressure gauge indicates 4,000 psi minimum (three rings on the indicator). This is adequate pressure to start the engine. Once the accumulator has been manually pressurized sufficiently to start the engine, the engine may be operated.
<p>Air Supply System</p>	<p><u>AIR SUPPLY AND WATER SPRAY OPERATION</u></p> <p>When operating the lifeboat in a fire or toxic environment with all hatches, doors, and vents closed, it is necessary to utilize the internal air supply to provide sufficient oxygen for engine combustion and passenger respiration. The air released into the compartment also operates the water spray system to cool the outer shell of the craft.</p> <p>The air supply system consists of compressed air cylinders, pressure gauge, relief valve, and shut-off valves configured to provide the safe release of air at the proper rate.</p> <p>In order to operate the system open the regulator flow as desired with the air supply valve. With a full charge of air the system will operate for approximately 8 minutes, allowing the craft to cover a distance of approximately 1 mile which should be sufficient to clear the hazardous area.</p> <p>Operation of the cabin air system at full pressure will automatically cause the water spray system to activate, covering the outer shell of the lifeboat with a water spray. Ensure that all openings are securely dogged down. The pump is automatically lubricated. To check this, oil drops should be visible in the sight glass at the top of the pump. A slight overpressure can be maintained in the cabin by not opening the air valve fully, should the water spray not be desired.</p>



Drawn by: M. Hitchcox
 Ocean Drilling Program
 July 1990

SECTION VI
LIFE RAFT OPERATIONS

INFLATABLE LIFE RAFT PARTS

REQUIRED EQUIPMENT FOR LIFERAFTS

- | | |
|------------------------------------|--|
| 1 boarding ladder | 6 red hand-held flares |
| 100-ft buoyant heaving line | 2 bailers |
| 3 can openers or "approved knives" | 2 hand-held parachute flares |
| 1 instructional manual | 1 first aid kit |
| 1 jack knife | 1 three-cell flashlight |
| 1 festooned lifeline | 6 dated flashlight batteries |
| 2 paddles (4 feet long) | 2 spare flashlight bulbs |
| 1 painter (100 feet long) | 1 watertight container for batteries and bulbs |
| 1 inflation/deflation pump | 2 signaling mirrors |
| 2 sea anchors w/50 ft 1/4" line | 1 repair kit |
| 2 sponges | 1 whistle with lanyard |
| 1 fishing kit | Provisions as required |
| 3 pints of water per person | Desalting kit substitutes for 1 pt. of water |
| 6 seasickness tablets per person | 1 copy of the lifesaving signals |
| 1 inside lifeline | 1 flexible plastic cup graduated in ounces |

DUNLUP INFLATABLE LIFERAFT LOWERING INSTRUCTIONS



1

TYPICAL STORAGE. PAINTER SECURED TO STRONG POINT. DO NOT PULL OUT PAINTER.
To free the raft lashings for launching by hand, operate the manual release. If the Dunlop Hydrostatic release is incorporated and the emergency does not permit manual launching, the raft will be released automatically as the ship sinks.



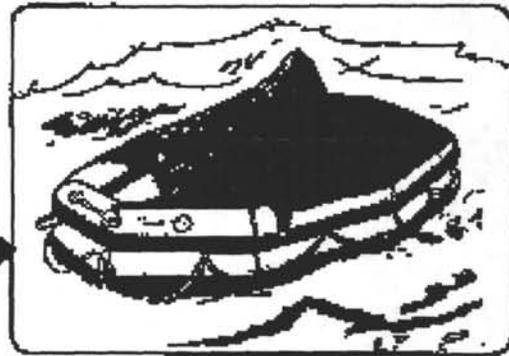
2

LAUNCHING THE RAFT OVER-BOARD. THE PAINTER HAS, IF NECESSARY, BEEN MADE FAST TO A NEW STRONGPOINT BEFORE LAUNCHING. CONTAINER WILL FLOAT.



3

THE RAFT STARTING TO INFLATE.
The painter has been pulled out to full length and then given a sharp jerk to start inflation of the raft. There is 80 ft (24 m) to pull out before this happens.



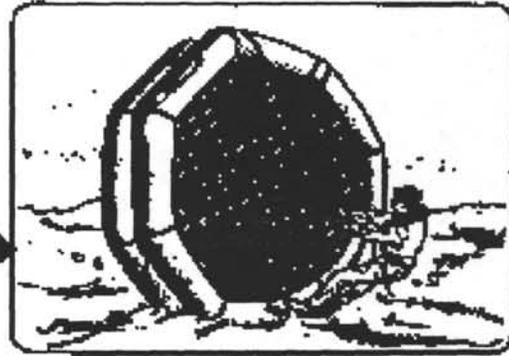
4

THE RAFT PARTIALLY INFLATED AND BOARDABLE.
The raft may be boarded at this stage. It will be necessary to crawl under the canopy, as sitting on the top of it may delay inflation.



5

BOARDING THE RAFT.
Boarding may be possible directly from a ship's ladder into the raft. When boarding from the sea, place one foot firmly on a rung of the ladder, grasp the hand holds provided on the top of the buoyancy tube; heave the body up and slide head-first into the raft. The raft in this condition can also be jumped on to with safety, but not from too great a height. Jump into entrance and get clear. Do not jump onto canopy.



6

In the unlikely event of a raft inflating on its side it can easily be righted by one person if the correct procedure is followed:
Turn the raft with canopy into wind.
Hold on to the cylinder and use the righting handholds as shown. Lean well back, and, as the raft comes over, 'swim from under'.

SECTION VII

EXPLOSIVES HANDLING CHECK LIST

EXPLOSIVES HANDLING CHECKLIST (Page 1 of 2)

<input type="checkbox"/>	1.	HOLD A SPOT SAFETY MEETING WITH CAPTAIN, MATE-IN-COMMAND, TOOL PUSHER, ODP, AND EXPLOSIVES HANDLING PERSONNEL.
<input type="checkbox"/>	2.	DISCUSS RIG SAFETY AND ANY EXISTING HAZARDOUS CONDITIONS INCLUDING DESIGNATED SMOKING AREAS
	3.	**** WELDING EQUIPMENT ****
		INFORM WELDER AND DRILLING ENGINEER SHUT OFF CIRCUIT BREAKERS FOR:
<input type="checkbox"/>	(A)	FORWARD WELDING MACHINE
<input type="checkbox"/>	(B)	AFT WELDING MACHINE
<input type="checkbox"/>	(C)	ELECTRICIANS STUD WELDER
	4.	**** RADAR ****
<input type="checkbox"/>	(A)	REMOVE POWER FROM RADAR "A", MATE POST SIGN
<input type="checkbox"/>	(B)	REMOVE POWER FROM RADAR "B", MATE POST SIGN
	5.	**** RADIO / TRANSMITTERS ****
<input type="checkbox"/>	(A)	RADIO OPERATOR, REMOVE POWER FROM SATELLITE COMMUNICATION SYSTEM
<input type="checkbox"/>	(B)	RADIO OPERATOR: ALL TRANSMITTERS POWER DOWN
<input type="checkbox"/>	(C)	SEDCO: COUNT AND LOCK IN RADIO ROOM ALL HAND-HELD VHF'S. RADIO OPERATOR TO VERIFY. DRILLING SUPERINTENDENT, CAPTAIN, AND TOOL PUSHER TO BRING VHF'S TO RADIO ROOM
<input type="checkbox"/>	(D)	ODP: COUNT AND LOCK IN RADIO ROOM ALL HAND-HELD VHF'S. RADIO OPERATOR TO VERIFY. ODP PERSON TO BRING VHF'S TO RADIO ROOM
<input type="checkbox"/>	(E)	DP OPERATOR: REMOVE FUSE FROM VHF POWER SUPPLY IN D.P.
<input type="checkbox"/>	(F)	HAM SHACK: ALL RADIOS AND TRANSMITTERS, POWER OFF. MATE VERIFY DOOR IS LOCKED AND POST SIGN
<input type="checkbox"/>	(G)	RIG FLOOR HEAD SETS: COUNT AND LOCK IN RADIO ROOM. TOOL PUSHER TO BRING TO RADIO ROOM

EXPLOSIVES HANDLING CHECKLIST (Page 2 of 2)

	6.	**** VESSEL PROTECTION DEVICES ****
<input type="checkbox"/>	(A)	POWER DOWN CATHODIC PROTECTION DEVICES, REMOVE FUSES, ELECTRICIAN ON DUTY TO REMOVE FUSES AND REPORT TO MATE-IN-COMMAND
<input type="checkbox"/>	(B)	POWER DOWN ELINCAL ANTI-FOULING SYSTEM, REMOVE FUSES. ELECTRICIAN ON DUTY TO REMOVE FUSES AND REPORT TO MATE-IN-COMMAND
<input type="checkbox"/>	7.	REVIEW "HIGH ENERGY ENGINEERING" SEVERING TOOL INSTRUCTION MANUALS AND THE ** CAUTION ** AREAS
<input type="checkbox"/>	8.	IF ELECTRICAL STORMS ARE DEVELOPING, POSTPONE HANDLING THE EXPLOSIVES
<input type="checkbox"/>	9.	AFTER THE CHECK LIST HAS BEEN COMPLETED AND VERIFIED, PROPER HANDLING AND ASSEMBLY OF EXPLOSIVE CHARGES MAY PROCEED WITH THE APPROVAL OF THE MATE-IN-COMMAND
<input type="checkbox"/>	10.	PERSON RESPONSIBLE FOR LOADING SEVERING TOOL TO HAVE KEY TO SHOOTING PANEL IN HIS POCKET
<input type="checkbox"/>	11.	NO BYSTANDERS WILL BE IN AREA DURING TESTING AND LOADING OF EXPLOSIVES IN SEVERING TOOL, ALSO WHILE TOOL IS BEING PUT IN DRILL PIPE

SECTION VIII

MARINE EMERGENCY TECHNICAL SQUAD (METS)

LAB STACK EMERGENCY FIRE FIGHTING PROCEDURES

IN CASE OF EMERGENCY OR FIRE**Medical
Emergency**

Use appropriate emergency first aid advice for the various chemicals, electrical equipment, and mechanical equipment used. For chemical emergencies, see specific sections on Material Safety Data Sheets.

For serious injuries immediately contact the ship's physician.

Fire

In general, METS will respond to two types of fires, those in the lab stack and those on other parts of the ship.

When there is an emergency in the lab stack, they will probably be the first fire fighting squad at the scene. Notify bridge initially; the METS will alert personnel in the immediate area of an emergency or fire.

All non-essential personnel will be evacuated. A fire alarm will be pulled and the bridge will be notified first of the extent of the emergency or fire and what backup help is needed.

The technician at the site should immediately try to fight the fire.

The majority of fires encountered will be small trash can type fires. Fire extinguishers are located in key spots and can be easily obtained.

The MET members responding to the scene should bring walkie talkies for communications. Fire hoses are in the stair wells. Remember, a quick, thought-out attack of a fire will confine most fires. Help is only minutes away. In the event that primary fire fighting does not confine the blaze, proceed with secondary measures.

The elevator is to be sent to the hold deck to prevent the personnel from getting trapped inside.

Evacuate all personnel from the Lab Stack. Remove all wounded and injured that are transportable, and the doctor should be brought in to tend to those that can not be moved. First aid boxes are located throughout the Lab Stack.

All fire dampers should be pulled to prevent smoke from spreading through the Lab Stack and to confine the fire and heat and prevent an input of oxygen.

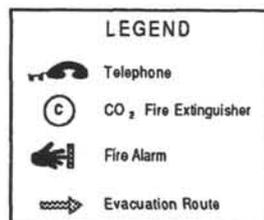
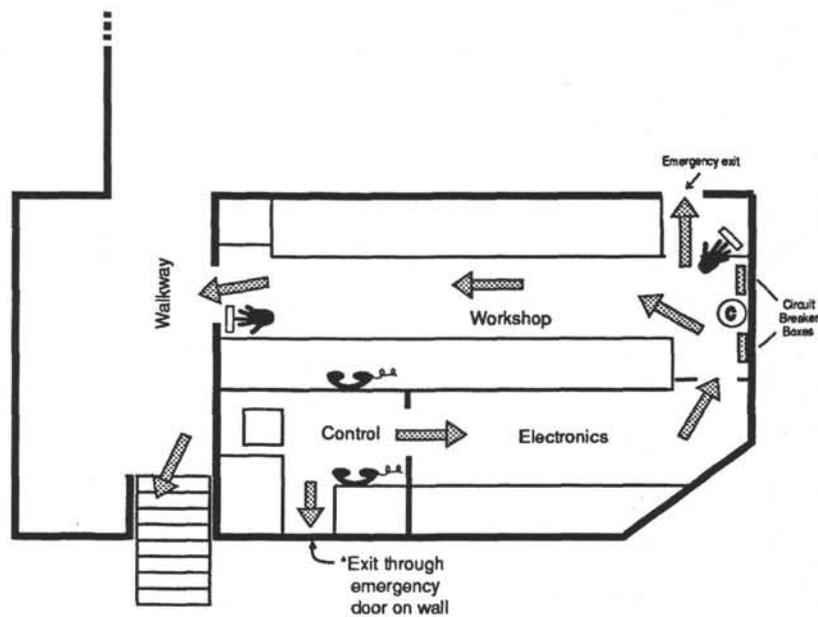
All fume hoods and heat hoods should be shut off for the same reason. Carbon dioxide or dry fire extinguishers should be used throughout the Lab Stack.

All areas in the Lab Stack are filled with electrical plugs and water should only be used in a last ditch effort.

In the Chemistry Lab and in other laboratories with chemicals, one should only enter while wearing a Scott air pack.

CHECK LIST

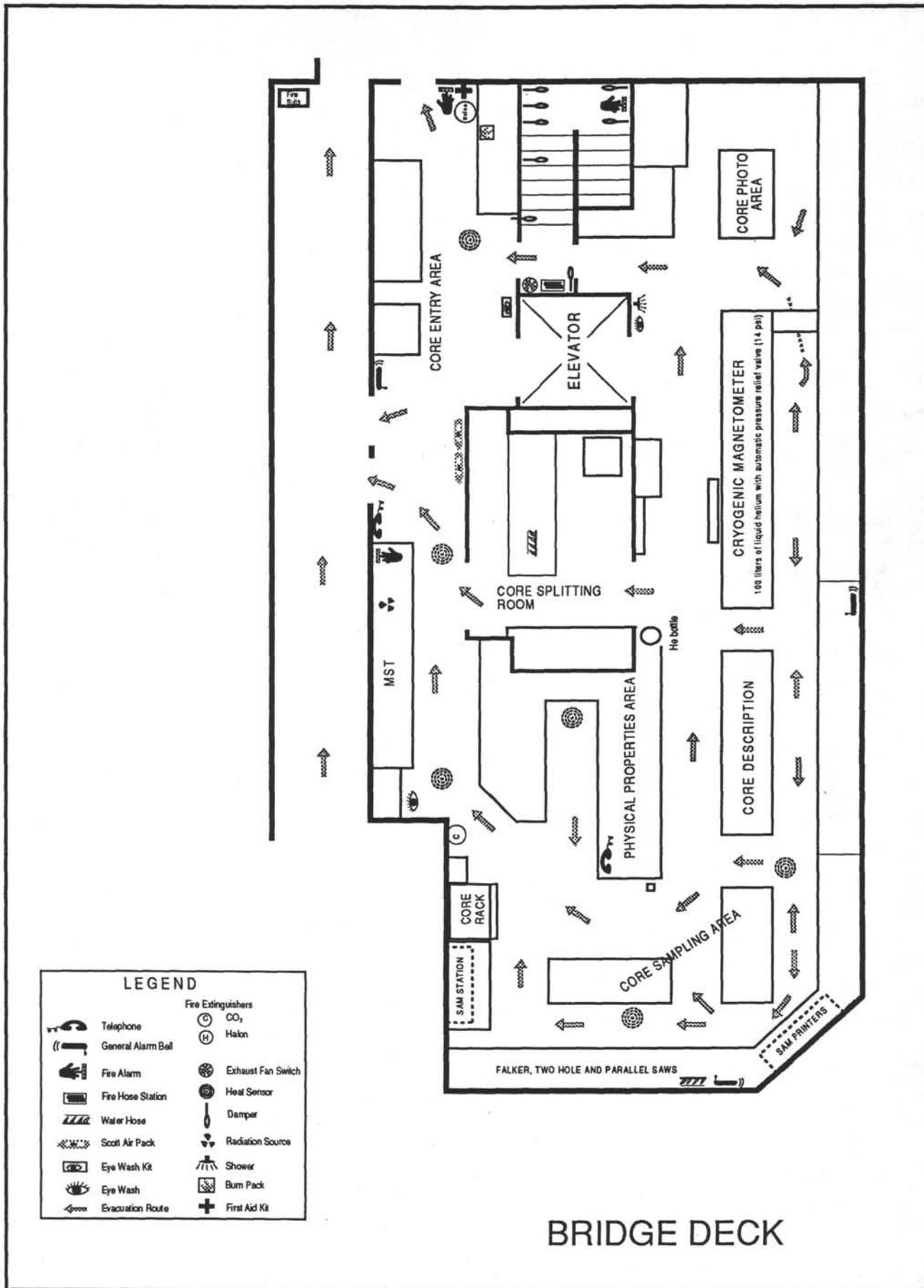
Captain	On Bridge	In command; decides if necessary to close watertight doors and ventilation and prepare to change heading and move ship.
Chief Mate	In charge at	Responsible for directing crew. Set up scene teams as close as possible to the fire.
Second Mate	At scene	Assist chief mate.
Third Mate	At scene	Assist chief mate.
Doctor		Standby in Hospital or at scene when ordered.
Engineer		If fire is in engine compartment, more men of the Engine Room will be at the scene.
Crane Operator / Roustabouts		To the briefing area. Bring equipment including Breathing Apparatus (B.A.) and spare bottles, Extinguishers, Fireman's suits, and Stretcher.
Warehouseman	Communication	Bring walkie talkie.
Electrician		Trip ventilation and electrical equipment.
Mechanics		Close ventilation dampers and fill up B.A. bottles.
ET	To scene	
MET Squad		Bring B.A. sets from Lab Stack and gear to briefing area. In case of fire in the Lab Stack, start extinguishment, evacuate Lab Stack, shut down ventilation.
Oiler	To scene	
Welder	To scene	
D.P. Operator		Tune DP VHF radio to Channel 6. Listen to the progress of the fire fighting effort. Be prepared to respond to requests for heading changes or to compensate for loss of thrusters, DMS, or ventilation to Thyrig Rooms. If a fire is in a Thyrig Room, minimize motor amps (heat) generated in that space.



DOWNHOLE MEASUREMENTS LAB

DOWNHOLE MEASUREMENTS LAB

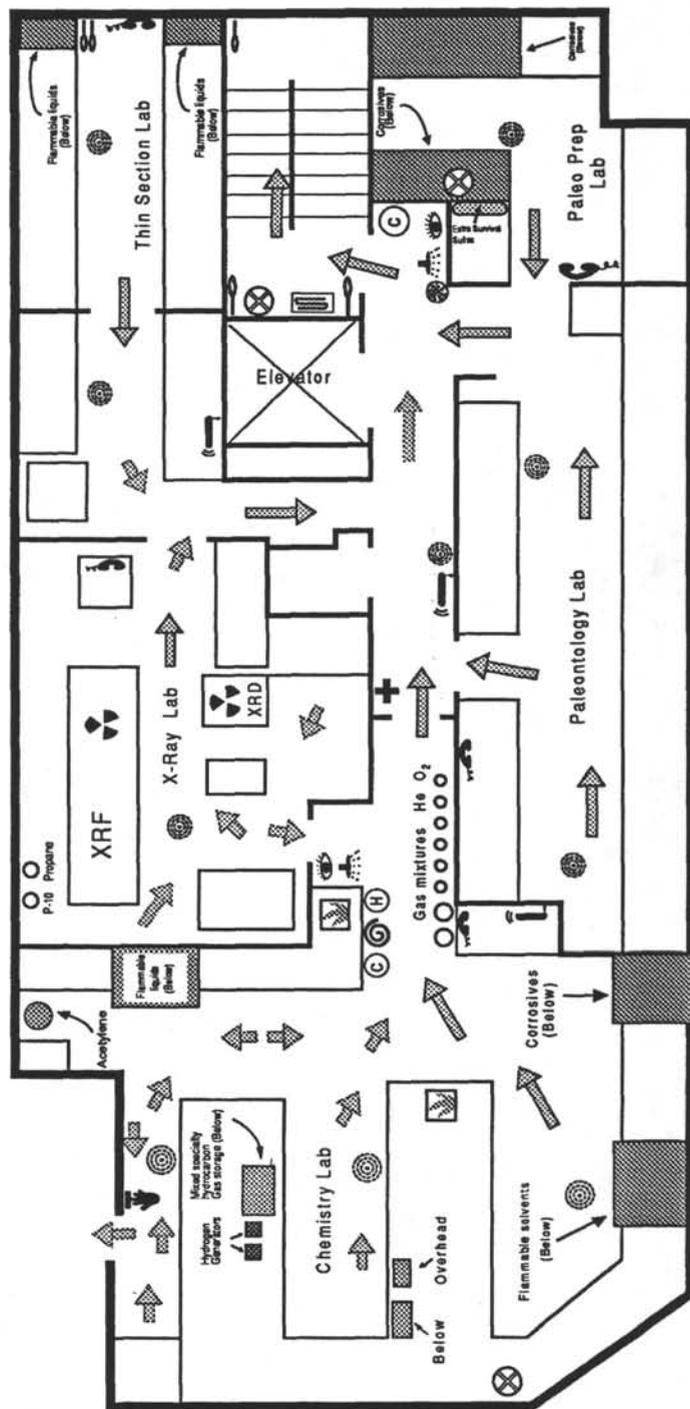
The Downhole Measurements Lab is located on top of the core lab roof. Access to it is up the stairs at the aft end of the catwalk just outside the core lab. Another access is from the DP deck on the forward end and walk between core liner storage boxes. It is a small lab composed of a control lab, an electronics section, and the workshop. There is an exit on the port side and an emergency exit on the forward wall at the starboard end. If there was an emergency, one could leave the deck by going down the stairs and crossing the rig floor, going along the catwalk, or going by the DP deck. Inside there are two fire alarms and a CO₂ fire extinguisher.



<p>In case of Fire</p> <p>MST</p> <p>Cryogenic Magnetometer</p>	<p>BRIDGE DECK</p> <p>The Core Lab, Physical Properties, and the Paleomagnetism Labs occupy the entire bridge deck level of the Lab Stack. The Core Lab has seven entrances. One to the catwalk on the forward wall, two others to the catwalk on the port side. There are also two entrances to the interior stairwell and two to the elevator. There are one shower and two eye wash stations.</p> <p>In the event of an emergency or a fire, the elevator must be brought to the hold level and secured. There are flammable liquids like mounting media against the starboard wall and a flammable liquids cabinet in the Core Splitting Room. There is a helium bottle in the Physical Properties area that should be turned off. The dampers for the ventilation system are located halfway down the stairs in the stairwell. The fire hose is also located in the stairwell but due to the large number of electrical outlets, should only be used in a last ditch effort. There is a CO₂ extinguisher against the wall in the Physical Properties area.</p> <p>There are two other areas of concern: the MST and cryogenic magnetometer.</p> <p>The MST includes a small Cs₁₃₇ gamma ray source which is housed in a steel body. Keep this area as cool as possible in case of fire. If the housing is damaged by flames, check for radiation leak. If a leak is detected, secure and/or isolate it until proper disposal.</p> <p>The cryogenic magnetometer is filled with liquid helium which will vaporize and increase in pressure if it is heated. There are automatic pressure relief valves which would help dissipate the pressure. If the electricity is lost, it would take at least 3 days for the liquid helium to boil off. But if heat is applied, the expansion rate in going from a liquid to a gas phase is 700:1. If the helium should vaporize, there would be a tremendous amount of heat loss, formation of ice, and a lot of noise with the escaping pressure, and with the expansion, the air would be displaced. With the helium displacing the air, the fire would go out, but a fire fighter could not breathe in there. If the magnetometer should ever warm uncontrollably, the two ends are the most dangerous since they are attached rather loosely. The pressure would most likely blow out both sides. Keep the fire and heat away from this area as much as possible.</p>
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EMERGENCY PROCEDURES FOR CRYOGENIC MAGNETOMETER	
Electrical Fire	<p>Sound a Fire Alarm. Notify the Bridge.</p> <p>Use a suitable Class C (e.g., CO₂) fire extinguisher immediately outside the Paleomagnetism Lab by the water fountain. Other CO₂ extinguishers are on the focsle deck at the forward end of the passageway and at the entrance to the Chemistry Lab. Notify the Paleomagnetism Lab Technician.</p>
Major Fire	<p>Prevent the cryogenic magnetometer vessel (in the mu-metal cylinder) from overheating. If the instrument is subjected to direct flames or intense heat, try to keep it cool with a CO₂ extinguisher. Use of salt water is a last resort.</p> <p>Overheating may lead to rapid boil-off.</p> <p>Impact</p> <p>Aside from major impacts from things coming through the bulkhead from the rig, minor impacts may cause critical damage to vulnerable areas such as the exposed plumbing and the three oscillation damper cylinders mounted atop the main mu-metal cylinder. Any crack or leak to the liquid helium vessel may lead to rapid boil-off.</p> <p>Rapid Boil-off</p> <p>Notify the Bridge of the situation.</p> <p>If, because of impact, overheating, or some mishandling of the instrument, rapid boil-off occurs, it presents a DANGER OF EXPLOSION OF THE HELIUM VESSEL.</p> <p>If a gas plume of cold helium is evident and it cannot be stopped immediately, EVACUATE THE BRIDGE DECK OF THE LAB MODULE.</p> <p>If a minor leak occurs or is suspected and cannot be controlled, monitor the pressure of the liquid helium vessel.</p> <p>In the event of rising pressure, be on your guard. If the pressure as read on the helium vessel pressure gauge (mounted atop the mu-metal cylinder) reaches 10 psig, EVACUATE THE BRIDGE DECK OF THE LAB MODULE. If personnel are in the vicinity of a voluminous helium boil-off, they should breathe close to the floor to avoid asphyxiation.</p>
Danger of Explosion	<p>The liquid helium dewar (superinsulated storage vessel) is normally at a few psi over atmospheric pressure and the liquid boils off at a rate of less than a litre per day. The dewar can hold 100 liters (about 25 gal) of liquid helium.</p> <p>Helium remains liquid only at the extremely low temperature of 4.2°K (-268.8°C or -451.8°F) and it is very sensitive to changes in pressure. A sudden pressure drop (caused perhaps by a break in the pressurized system) will cause the helium to "flash" into a boil. Since a volume of liquid helium evolves 683 times that volume in gaseous helium (at room temperature) the result could be explosive. 100 liters (a full tank) of liquid will evolve 68,300 liters of gas. This is about 1.5 times the volume of the Paleomagnetism Lab.</p> <p>The manufacturer believes that if the vessel were to explode the end caps of the cylinder would simply pop off, since they are held in place by the superinsulation vacuum.</p>

LEGEND	
Fire Extinguishers	Telephone
(C) CO ₂	General Alarm Bell
(H) Halon	Fire Alarm
Eye Wash	Fire Hose Station
Shower	Damper
First Aid Kit	Heat Sensor
Fire Blanket	Exhaust Fan Switch
Radiation Source	Controls or Switches
Evacuation Route	Burn Pack



FOCSLE DECK

FOCSLE DECK

The forecastle, or focsle, deck in the laboratory stack is the center for the analytical laboratories on the SEDCO BP-471/*JOIDES Resolution*. Consequently, this deck has the potential of being extremely hazardous in the event of a fire. The analytical laboratories contain numerous pieces of electrical equipment, highly flammable gases, and chemicals which are flammable, corrosive, and yield toxic fumes. Hazardous chemicals and/or gases located on other decks normally are isolated and contained in special storage cabinets. On the focsle deck, chemicals and gases are in every laboratory and in constant use, greatly increasing the potential hazards.

In case of fire

Sound a Fire Alarm. If no alarm has been sounded, set off the most accessible alarm and contact the bridge immediately. A hand pull fire alarm is located in the chemistry lab next to the emergency exit, port wall.

Shut Down Fume and Heat Hoods. The illuminated on/off switch for all the fume hoods is located in the stairwell, foc'sle deck level. An identical switch for the heat hood is positioned on the aft wall, starboard side of the chemistry lab. A green light indicates the hoods are on.

Shut Off Hydrogen Generators in Chemistry Lab. Because hydrogen is an explosive gas and burn invisibly, it is important the generators are shut down. Two generators are located center aisle, port side, on a shelf farthest aft. Normally only one generator will be in use at a time, and can be identified by an illuminated green light on the front of the generator. Simply throw the on/off toggle switch on the front of the generator to the off position.

Turn Off Gas Cylinders in Chemistry and X-ray Labs. Cylinders containing propane and an argon gas mixture (P10) are located in the XRF/XRD lab against the port wall farthest aft. Cylinders containing oxygen, helium, and a gas mixture line the starboard wall in the entrance of the Chemistry Lab. Also in the forward port corner of the Chemistry Lab is a small cylinder of acetylene which is turned off with the wrench hanging above it. All other aforementioned cylinders should be turned off by the knob on the top of the cylinder.

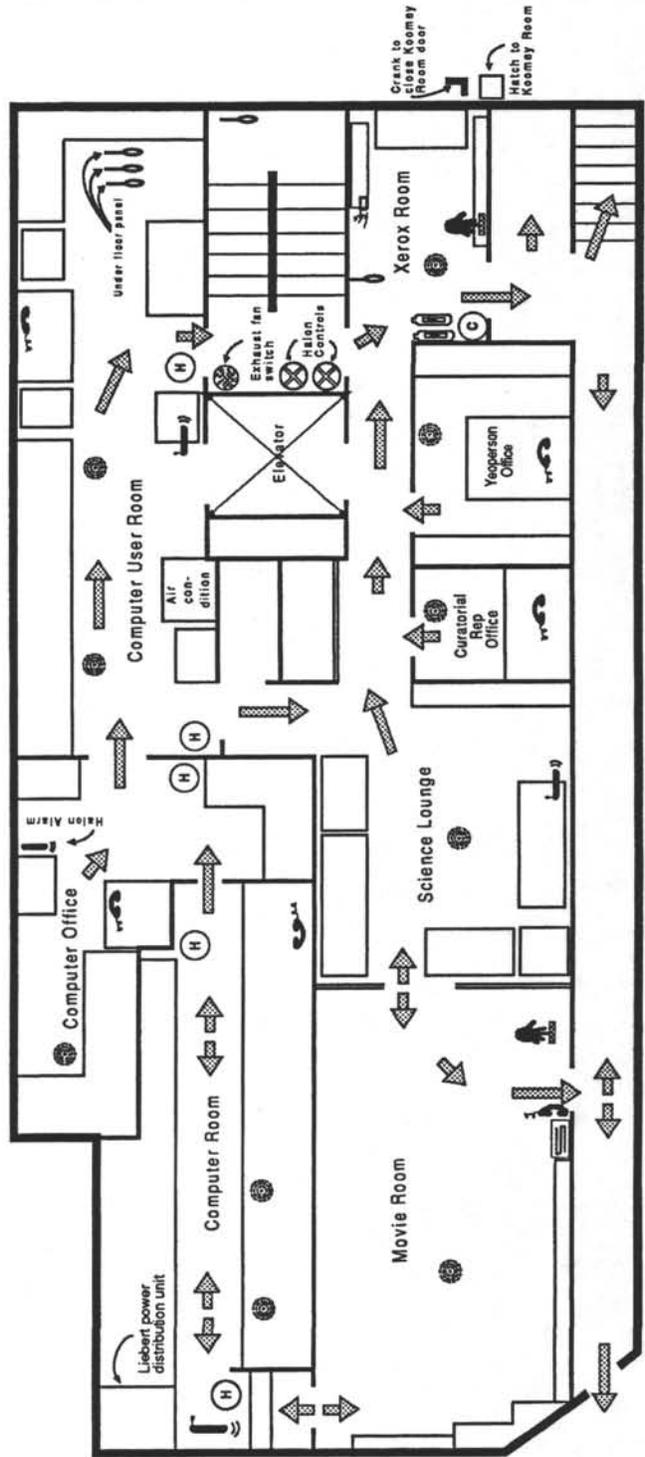
Shut Down Radiation Source in XRD and XRF Units. The XRF unit, positioned along the port wall, has a very clearly labeled, large, red button on the forward corner of the unit. The shut down button for the XRD unit is located across the front of the unit marked by the word "generator" above it.

Shut Ventilation Dampers. Dampers are in the Thin Section Lab and can be shut by pulling down on the two thin cable loops hanging in the upper port corner, forward wall. Other dampers are between floors in the stairwell and controlled by the labeled lever.

Prevent the Fire From Spreading to Flammable Chemicals. Flammable chemicals are normally stored beneath sinks and fume hoods. These cabinets are clearly labeled. Prevent the fire from reaching these storage cabinets with the aid of the available fire extinguishers. There are two CO₂ extinguishers located on the focsle deck. One in the hall next to the stairwell door, and the other in the Chemistry Lab, forward, port corner. Remember, these laboratories are filled with expensive electronics/ electrical equipment so do not use water to fight the fire if at all possible. Also, many of the chemicals in the labs can be corrosive and have toxic fumes. Use extreme caution when dealing with these chemicals. Avoid contact with chemicals you are unfamiliar with and wear a Scott Air pack when entering a lab where chemicals may already be exposed.

<p>Additional Emergency Equipment</p>	<p>Spill Kits. Helpful for preventing the spread and clean up of hazardous chemical spills. Located in the Chemistry Lab, above the sink farthest aft, starboard side.</p> <p>Eye Wash, Emergency Shower, Burn Kit. To be used in the immediate treatment of a person having contact with corrosive chemicals. Eye wash and showers are located on the focsle deck from the stairwell. An emergency exit is located in the Chemistry Lab on the port wall. An escape ladder is outside, forward of the exit.</p> <p>Fire Station/Water Hose. One is located on the focsle deck level in the stairwell. It should be manned and readied but it should be used with discretion due to the large amount of electrical equipment located on the focsle deck.</p> <p>Fire Blanket. A clearly labeled fire blanket is in the Chemistry Lab, directly aft of the entrance by approximately 10 feet.</p>
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LEGEND	
Fire Extinguishers	Telephone
(C) CO ₂	General Alarm Bell
(H) Halon	Fire Alarm
+	First Aid Kit
Scott Air Pack	Fire Hose Station
Two-way Radio	Damper
Evacuation Route	Heat Sensor
	Exhaust Fan Switch
	Controls or Switches



MAIN DECK

MAIN DECK

The main deck of the Lab Stack is composed of the System Manager office, computer users room, lounge, xerox area, the Curatorial Technician's office, and the Yeoperson's offices.

There are six exits on this deck: Two exit into the stairwell and two are for the elevator and two are to the starboard passageway. The aft starboard door can only be opened from inside.

In the xerox area there are two Scott air packs and a CO₂ fire extinguisher. The heat detectors are placed throughout the Main Deck: the Xerox machine area, the Curatorial Technician's and the Yeoperson's offices, Science Lounge, the Movie Room, the Computer User Room and the System Manager's office. An alarm is in the lounge area and a fire hose is on the aft starboard wall in the movie room.

The computer area is protected with a Halon system. The Halon fire extinguisher system is used for fighting class A, B, and C fires. It is intended to smother the fire in an area that is susceptible to damage from other fire systems. The vapors have a low level of toxicity but when heated to temperatures greater than 900°F, decompose into products that have a much greater potential toxicity problem. Consequently, in the case of fire, evacuate all personnel. The vapors have a characteristic acrid smell, even in concentrations as low as a few parts per million. There are five hand-held halon extinguishers in the Computer area, a halon alarm in the Computer Users room, and fire alarms in the Computer Machine room and in the Computer User Room. The gas is stored as a liquid in cylinders that are connected to a pull discharge control valve. The cylinders are under pressure and when discharging, will exhibit a smooth fan shaped pattern. The control box is mounted in the stairwell just outside the door to the computer users room. Under orders from Captain, Chief Engineer, or Mate-in-Charge, break the glass and pull the handle of the valve control pull box. Also break the glass and pull the handle of the cylinder control pull box. The alarm will sound for 30 seconds before discharge to warn personnel to evacuate the space. There are three dampers under the floor panel at the forward end of the computer users room. It is marked and there is a panel-removing device to aid in getting to the damper. Other dampers are in the stairwell. Louvers in three doors should also be closed in the event of a fire.

FIRE FIGHTING PROCEDURES IN COMPUTER ROOM**First Actions**

Raise Alarm. Pull station located at Main Deck entrance to Lab Stack.

Notify Bridge of fire. State class, location, and size of fire.

Use the five portable halon fire extinguishers (aft end of the Computer machine room, forward section of the Computer machine room, the Computer office, near the aft exit to the User room, and next to the forward exit in the User room) to fight the fire until the fire team arrives.

**Fire Fighting Team's Actions
Chief Mate in Command**

Evacuate and secure Lab Stack.

Trip Lab Stack ventilation shut down from Bridge.

Shut all fire dampers below false floor and in fan room. Shut louvers in the door.

Disable elevator.

Disable power to computers (Liebert switch).

Four crew members who are familiar with the space and equipped with protective clothing, B.A. sets and portable CO₂ extinguishers (the MET squad are the first to start fighting the fire) enter the Lab Stack and proceed to extinguish the fire.

Four crew members who are familiar with the space and equipped with protective clothing, and B.A. sets back up the MET squad.

Two crew members run out fire hoses. Do not use water in the Lab Stack unless the portable CO₂ and halon extinguishers fail to put out fire.

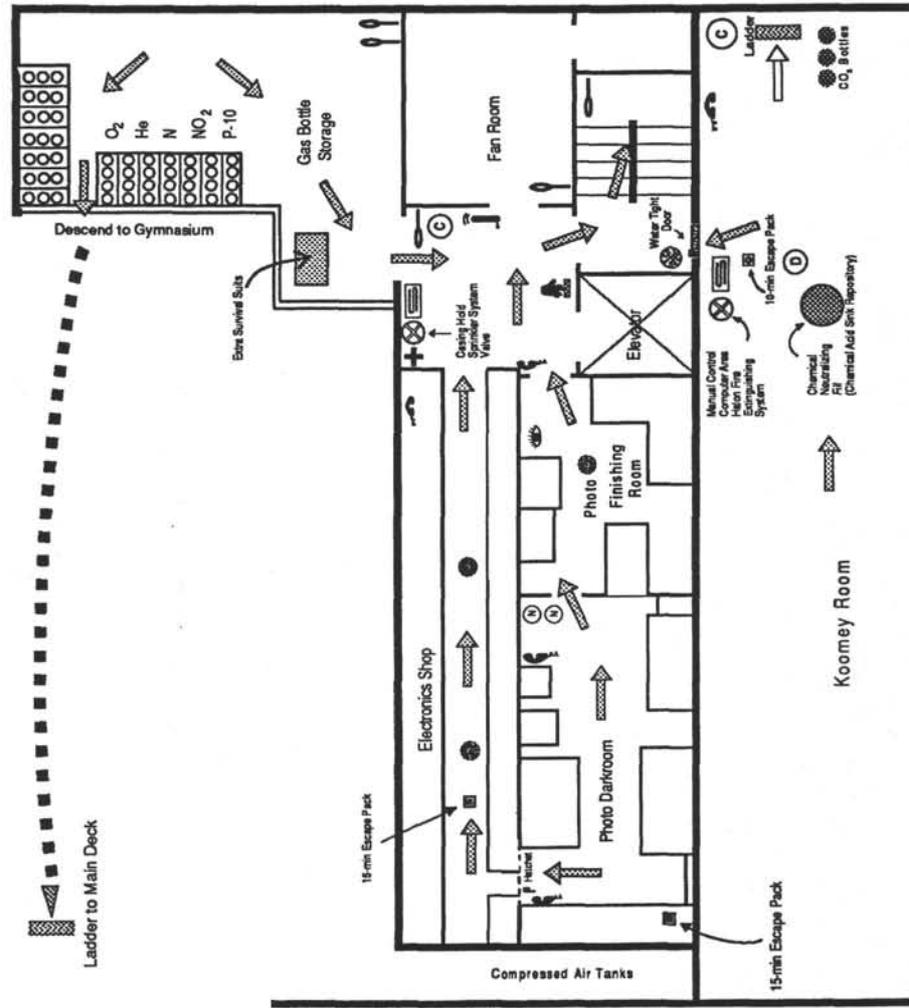
Two crew members supply stretcher, spare B.A. bottles, and portable CO₂ extinguishers.

If fire is out of control, evacuate the space and make sure that all ventilation is secured. Take a head count and await orders from the Captain and/or Chief Engineer to activate the fixed halon deluge system.

Wait a specific amount of time for halon to extinguish the fire.

Have two qualified men in protective clothing and B.A. sets for standby.

After fire is extinguished, be sure that acid exhaust vents are restarted.



LEGEND	
Fire Extinguishers	☎ Telephone
(C) CO ₂	🔔 General Alarm Bell
(D) Dry Chemical	👤 Fire Alarm
(N) Nitrogen Bottle	🚒 Fire Hose Station
+ First Aid Kit	🔧 Damper
➡ Emergency Exit	🔥 Heat Sensor
⊗ Controls or Switches	⊗ Exhaust Fan Switch

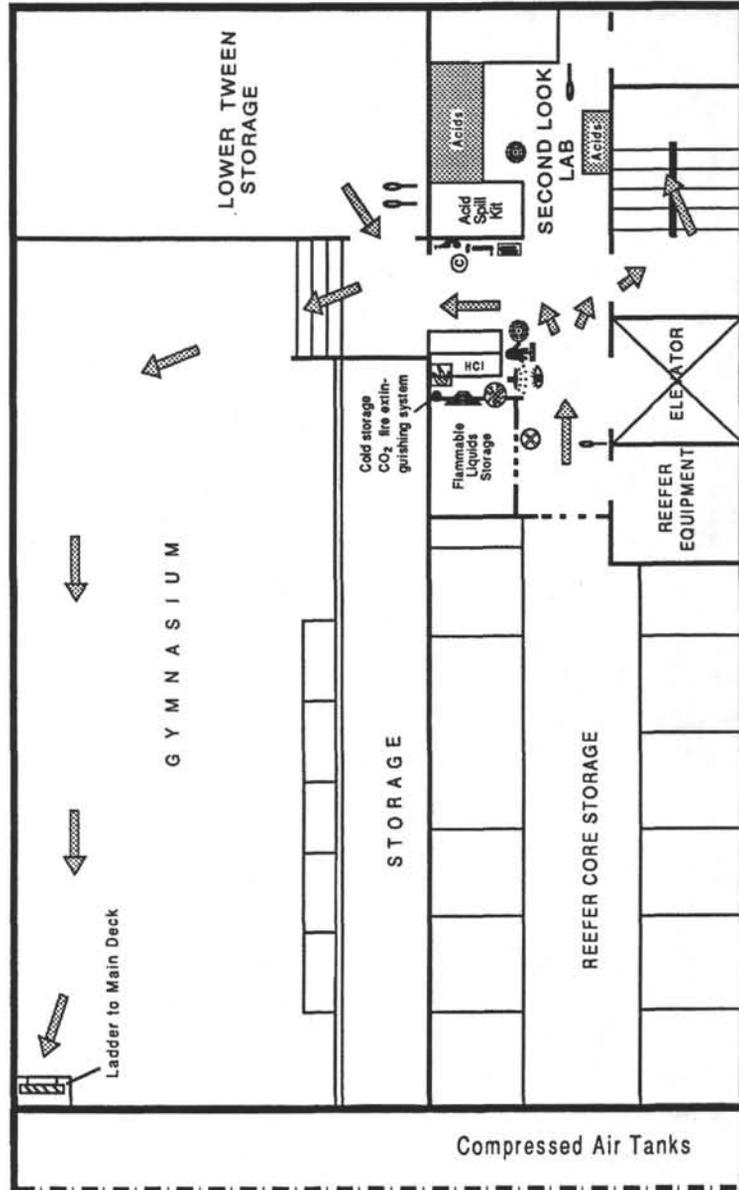
UPPER TWEEN DECK

UPPER TWEEN DECK

The Upper Tween Deck includes the photo lab, the electronics shop, the fan room and the mezzanine landing. There is an exit to the stairwell, to the elevator, and a ladder at the aft starboard corner of the hold which can be accessible from the Gym on the Lower Tween Deck.

Just outside of the elevator in the landing area, there are a CO₂ fire extinguisher, a fire hose, a damper, a fire alarm and a first aid station.

In the stairwell there is a water tight door to the Koomey Room. This has both an automatic button and a hand-operated crank. It is also connected to the bridge and in an emergency the captain can close the door from the bridge. Caution must be used around it. There are CO₂ and Halon bottles in the Koomey Room. There are dampers in the mezzanine area. The spare helium, nitrogen, oxygen, and P-10 bottles are stored on the Mezzanine deck.



LEGEND

Fire Extinguisher		Telephone	
CO ₂		General Alarm Bell	
Shower		Fire Alarm	
Eye Wash		Fire Hose Station	
Heat Sensor		Damper	
Controls or Switches		Vent	
Evacuation Route		Exhaust Fan Switch	
		Bum Pack	

LOWER TWEEN DECK

LOWER TWEEN DECK

The Lower Tween Deck is composed of a reefer storage area which has a caged area where chemicals are stored. The other cold storage is a solvent locker equipped with a CO₂ fire extinguishing system. The fire potential in the reefer is kept down by a cool temperature and controlled humidity. The second look lab has acid storage cabinets. There also is a storage closet in the second look lab.

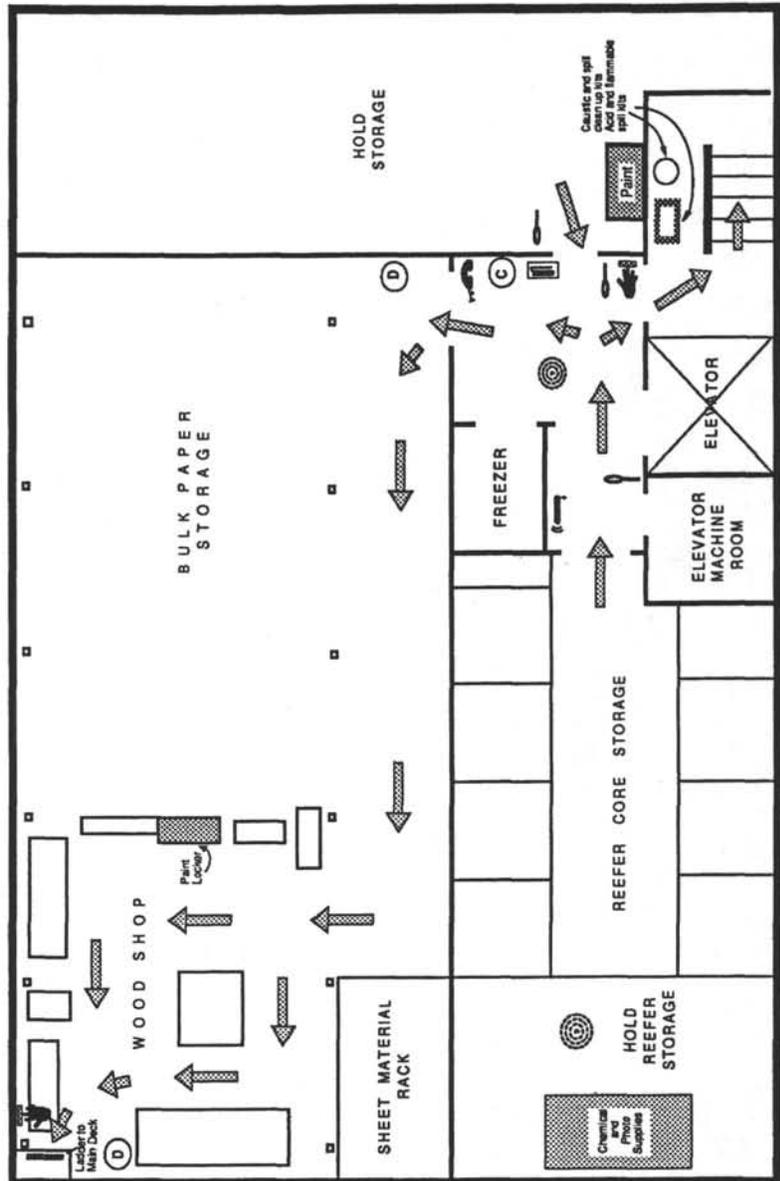
A refrigerated solvent locker is in the landing in front of the elevator. Because these solvents are highly flammable, the exhaust fan connected to the locker must be operated at least 1 minute prior to opening the door in order to vent any flammable vapors. The vapors exhaust to the roof. Also in the landing area are corrosives lockers (hydrogen peroxide and HCl).

There is a spill center for the chemicals.

There are a CO₂ fire extinguisher, a nozzle that is attached to the CO₂ system fire hose, fire alarm, a damper, and an eye wash station in the landing area. The CO₂ system can be operated either automatically or manually. Carbon dioxide is heavier than air and will smother a fire and reduce the heat with its cooling effect. Since a person will suffocate in an atmosphere of carbon dioxide, caution must be exercised before entering the locker. The carbon dioxide is stored as a liquid in cylinders connected to the discharge control valve assembly. The system will operate automatically when the temperature in the locker rises to the critical point. When this point is reached, the fire detector activates the discharge valve. The system can also be activated manually by breaking the glass on the control valve on the front of the locker and pulling the lever or by pulling out the pins on the individual cylinders.

If there was a fire, do not enter the area without a Scott air pack.

The exits from this deck are similar to those from the Upper Tween: an exit to the stairwell, an exit to the elevator, and a ladder at the aft starboard accessible from the Gym.



LEGEND

Fire Extinguishers		Telephone	
(C) CO ₂		General Alarm Bell	
(D) Dry		Fire Alarm	
		Fire Hose Station	
		Damper	
		Heat Sensor	

HOLD DECK

	<p>HOLD DECK</p> <p>The hold deck is the lowermost level of the Lab Stack. It is composed of a refrigerated stores, the freezer, the hold stores, and what's left of the casing hold which is known as the hold storage. The exits are to the stairwell or up the ladder at the aft port end or the elevator which would not be used in an emergency.</p> <p>In the staging area, there are dampers, a CO₂ fire extinguisher, a fire alarm, and a fire hose.</p> <p>The elevator machine room is adjacent to the elevator. On the aft wall of the machine room, there are controls which are switched off to secure the elevator.</p> <p>This is potentially a dangerous area because 1) the floor is made of wooden planks, 2) large amounts of cardboard and paper products are stored here, and 3) sawdust from the saws can accumulate. Care must be taken to insure that the drains are not clogged with sawdust.</p> <p>There are two fire extinguishers, a foam and a dry chemical, in the hold storage area. High pressure air storage tanks are placed overhead, which must be kept cool or emptied in the event of a fire.</p> <p>The Hold Deck is equipped with a sprinkler system, which will be triggered in case of fire.</p> <p><u>FIRE FIGHTING PROCEDURES - HOLD DECK</u></p> <p>First Actions</p> <p><i>Raise Alarm.</i> Pull station(s) located near door leading from stairwell to Casing Hold on Hold, Upper Tween, and Lower Tween Decks.</p> <p><i>Notify Bridge of fire.</i> State class, location and size of fire.</p> <p><i>Use portable fire extinguishers.</i> Dry chemical and AFFF extinguishers on Hold Deck and CO₂ extinguishers on each level in space between Casing Hold and stairwell.</p> <p>Fire Fighting Team's Actions</p> <p>Chief Mate in Command</p> <p><i>Evacuate and secure Lab Stack.</i></p> <p><i>Trip ventilation in both Casing Hold and Lab Stack.</i></p> <p><i>Secure elevator.</i> Turn off switch on top of elevator.</p> <p><i>Shut all fire dampers, doors, and hatches leading to Casing Hold.</i></p> <p>Four crew members who are familiar with the space and equipped with protective clothing, B.A. sets and portable CO₂ extinguishers (the MET squad are probably the first to start fighting the fire) enter the Lab Stack and proceed to extinguish the fire.</p> <p>Four crew members who are familiar with the space and equipped with protective clothing, and B.A. sets back up the MET squad. This team will also use a 1-1/2 inch hose to cool the Casing Hold Deck (a fuel tank top) and the air receivers on the port and aft bulkheads. Caution should also be used concerning the paint storage cabinet in the wood workshop on the Hold Deck. No water is to be used overhead due to high voltage wires running through Casing Hold. Report back to Chief Mate.</p> <p>Two crew members who are familiar with the bottled gases stored in the Upper Tween Deck and equipped with B.A. sets and protective clothing to use 1-1/2 hose from the Upper Tween Deck to</p>
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cool the pressurized bottles. Report back to Chief Mate if help is needed to transport bottles to safe area.

Two crew members run out fire hoses. Do not use water in the Lab Stack unless the portable CO₂ and halon extinguishers fail to put out fire.

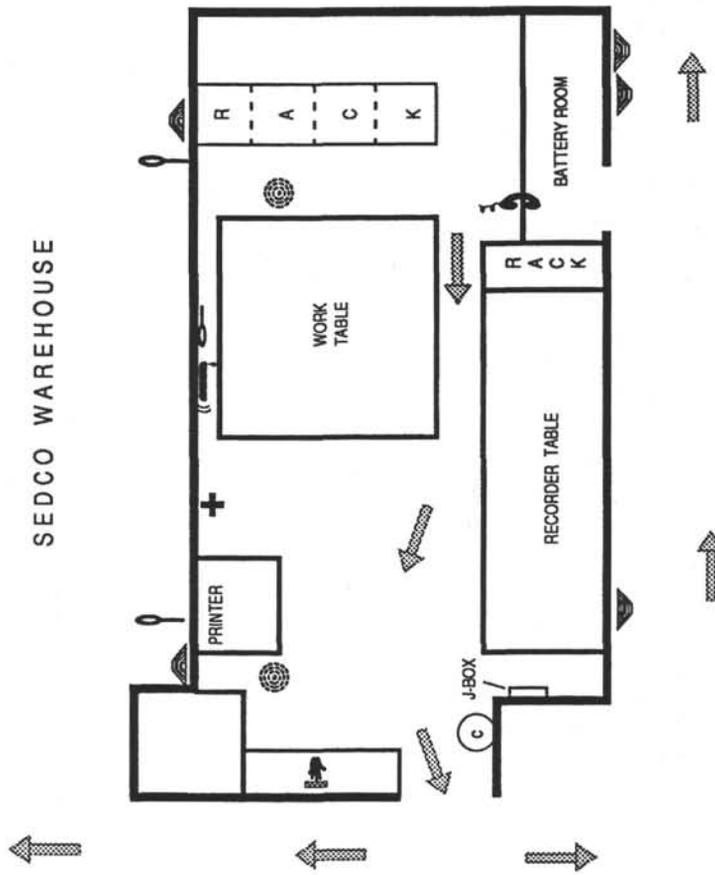
Two crew members to supply stretcher, spare B.A. bottles, and fog applicator.

If fire is out of control, evacuate the space and make sure that all ventilation is secured. Take a head count and await orders from the Captain and/or Chief Engineer to activate the fixed halon deluge system.

Have engineer start bilge pump.

When fire has been extinguished, have two men in protective clothing stand by in case of reflash.

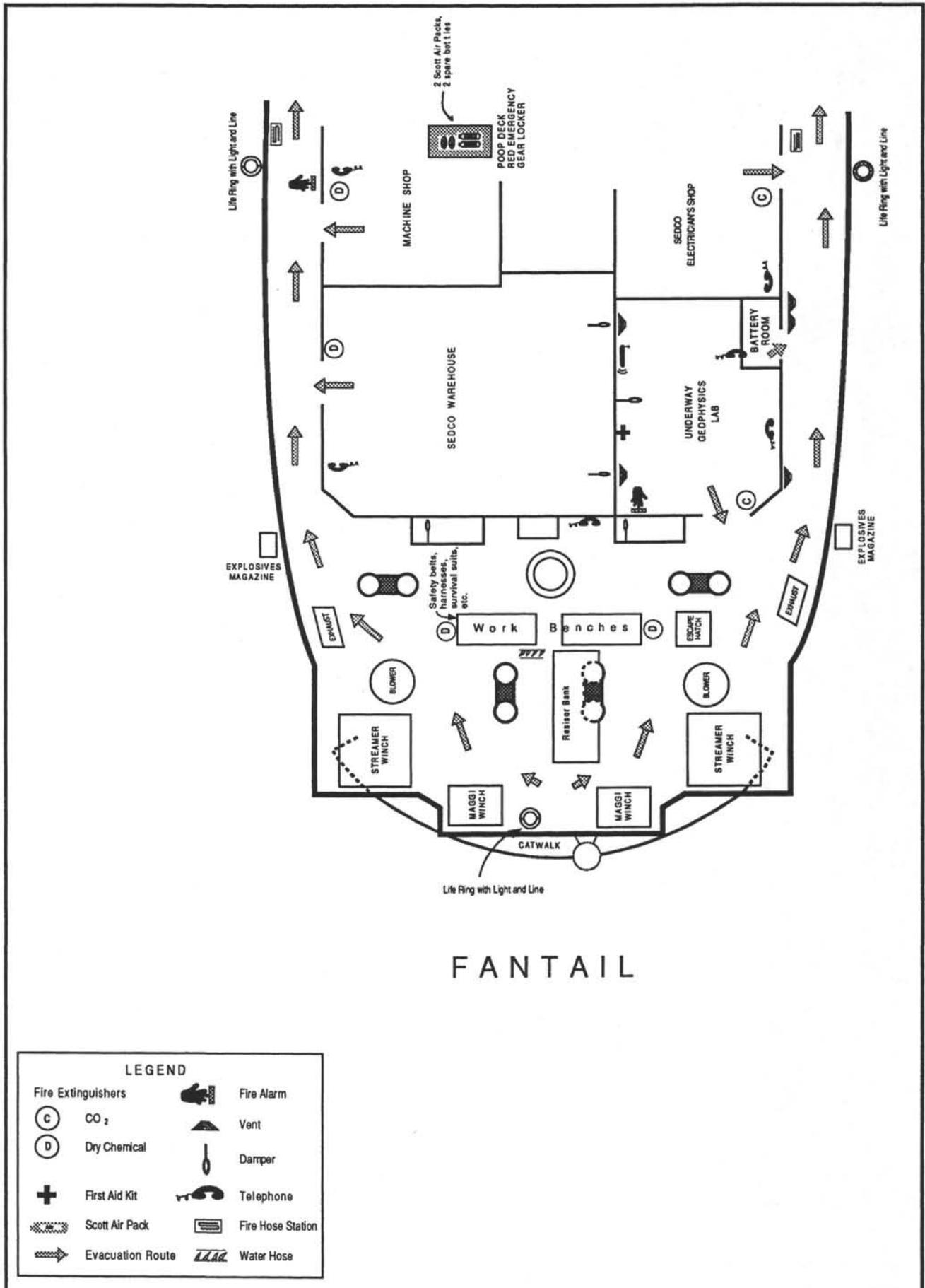
Restart ventilation.



LEGEND			
	CO ₂ Fire Extinguisher		First Aid Kit
	Fire Alarm		Vent
	Telephone		Damper
	Evacuation Route		Heat Sensor

UNDERWAY GEOPHYSICS LAB

	<p style="text-align: center;">UNDERWAY GEOPHYSICS LAB</p> <p>The large amount of electronic equipment located in the Underway Geophysics Lab prohibits the use of water to extinguish a fire in that compartment. Electrical fires, as well as fires of another nature, are to be extinguished preferably with CO₂ or with dry chemical fire extinguishers. A CO₂ fire extinguisher is located directly to the right inside the water-tight door leading into the lab. A pull-type fire alarm is located directly below the E.T. work bench. This alarm should be activated immediately upon the discovery of a fire. A general alarm bell is mounted on the inboard wall and adjacent to it is the wire handle for closing the labs' fire damper. This damper, when closed, will shut off all outside ventilation to the lab. Two fire dampers located in the Warehouse will isolate the Underway Geophysics Lab from the Warehouse. If the Warehouse is unmanned, a key to the door is found in the Mechanic's Shop. The power switch for shutting off the exhaust fans for all Raytheon recorders is located in the corner behind the Analog recorders. This switch should be placed in the off position in the event of a fire. Electrical power to the lab can be shut off by throwing switch 8SP-20 which is located on the power distribution panel in the Aft Thyrig Room.</p> <p>In case of fire</p> <p>If a fire should occur in the battery compartment adjacent to the Underway Geophysics Lab, the exhaust for that compartment should be shut off immediately and the outside vents plugged. There are plugs for these vents located near the vents themselves.</p> <p>The occurrence of any fire, no matter how small and controllable it may initially appear, is reason enough to activate the fire alarm located in the lab. The first person on the scene should activate this alarm and begin to immediately fight the fire with the CO₂ fire extinguisher located in the lab.</p> <p>Caution</p> <p><i>Do not use water to fight the fire in this laboratory, for doing so may result in a severe electrical shock!</i></p>
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FANTAIL

LEGEND

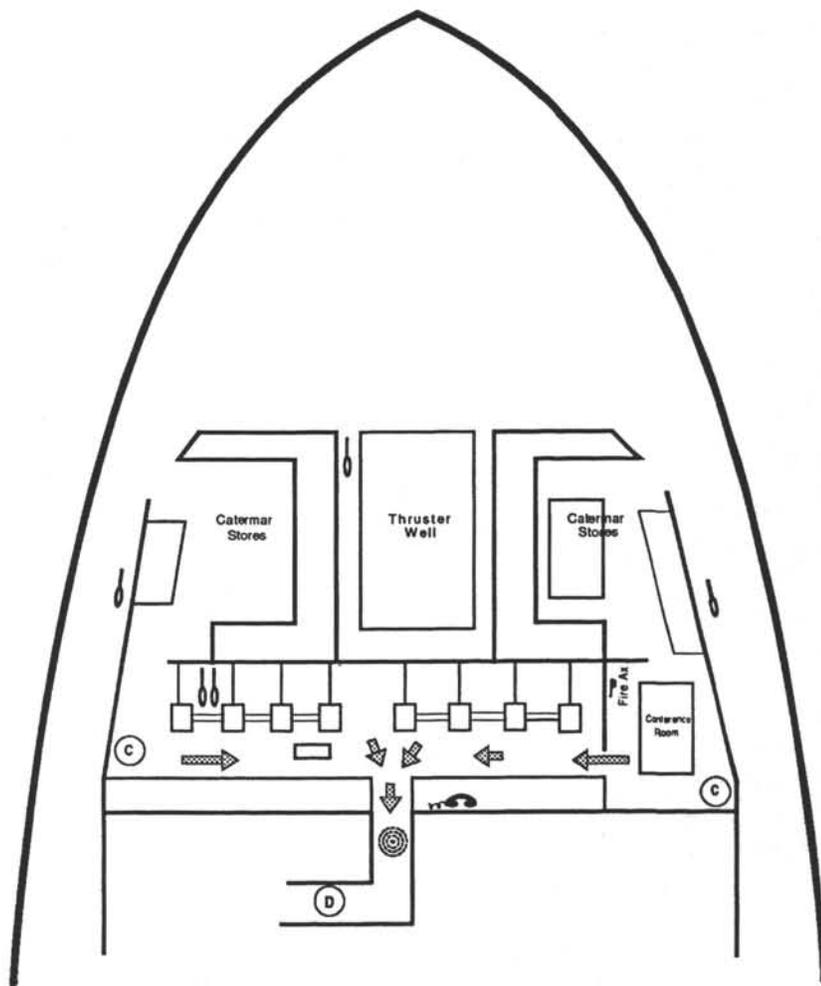
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|---------------------|------------------|-------------------|--|
| Fire Extinguishers | | Fire Alarm | |
| (C) CO ₂ | | Vent | |
| (D) Dry Chemical | | Damper | |
| + | First Aid Kit | Telephone | |
| | Scott Air Pack | Fire Hose Station | |
| | Evacuation Route | Water Hose | |

FANTAIL

There are several important concerns to be aware of when working on the fantail with regards to fire. The hydrophone jacket is made of polypropylene and will burn vigorously once ignited. Compounding this problem is the flammable nature of the eel oil inside the jacket. Once the eel oil is on fire it would be very difficult to extinguish.

Two dry chemical fire extinguishers are located at the end of each gray work bench. A general alarm bell is located on an overhead beam amidships near the boom power supply unit. There is also a large resistor bank located between the two hydrophone winches. This resistor bank produces a great deal of heat when operating and care should be exercised never to introduce water into it at any time. This could cause the bank to short-out and possibly produce sparks and flame. There are main power cut-off switches to all fantail booms and winches located on the bulkhead above the boom power supply unit. These should be turned off in the event of a fire.

Should a fire occur on the fantail, the first person on the scene should immediately activate the fire alarm in the Underway Geophysics Lab and call the bridge to disclose the nature of the fire. The individual should then cut off all power to the booms and winches and begin to fight the fire with the dry chemical fire extinguishers located at the end of each work bench. The last ditch effort is to cast over the explosives lockers on both sides and the helicopter fuel pods on the starboard side. Also located on the helipad overhead are foam and water hoses which could be stretched down the fantail area.



LIBRARY

LEGEND

Fire Extinguishers			
(C)	CO ₂		Damper
(D)	Dry Chemical		Heat Sensor
	Evacuation Route		Telephone

LIBRARY

The library is located in the forward unit of the ship on the focsle deck. It has two caterer storehouses just forward of it. They are connected with the library by two doors but are always locked and not considered exits. Instead the only exit is near the center of the library.

At either end of the library are two CO₂ fire extinguishers. There is a smoke alarm and a dry chemical fire extinguisher in the hall leading to the library. There is a fire alarm directly above the telephone. There also are two dampers in the library and one outside on either side of the caterer's stores.

SECTION IX
EMERGENCY FIRE FIGHTING AND LIFE SAVING
EQUIPMENT AND LOCATIONS ON
SEDCO/BP-471

The following pages summarize location and quantity of the emergency Fire Fighting and other life saving equipment provided on board the SEDCO/BP-471.

Additional information can be found on the life saving plans posted on each deck in the accommodation and in the Engine Control Room (ECR).

LIFE SAVING AND EVACUATION EQUIPMENT		
Life Boats	2	Forward Starboard (#1 and #3)
	2	Forward Port (#2 and #4)
Life Rafts	3	Focsle Deck
	4	Poop Deck
Embarkation Ladders ("Jacobs Ladder")		At each life boat station and life raft location
Life Buoys		<ol style="list-style-type: none"> 1. Bridge Wing Starboard (MOB Light + Smoke) 2. Bridge Wing Port (MOB Light + Smoke) 3. Focsle Deck Port (Light) 4. Focsle Deck Starboard (Light) 5. Main Deck Port Forward--Crane #1 (Line) 6. Main Deck Starboard Forward--Module A (Line) 7. Main Deck Port Aft--Crane #3 (Light) 8. Main Deck Starboard Aft--Crane #2 (Light) 9. Poop Deck Port 10. Poop Deck Starboard 11. Fantail 12. Moonpool

EMERGENCY AND FIRE FIGHTING GEAR LOCATIONS

Mate's Locker (Starboard Bridge Deck)	3 Fireman's Overcoats with Gloves in Pockets 3 pairs of Rubber Boots 3 Helmets with Nomax Hoods 2 Scott Air Packs 3 Spare Air Bottles 1 10-min. Escape Pack 6 Hand-held Lights 1 Hatchet 2 Fireproof Safety Lines 1 Proximity Suit
CO₂ Room (Port Aft Main Deck)	3 Fireman's Overcoats with Gloves in Pockets 3 Pair of Rubber Boots 3 Helmets with Nomax Hoods 2 Scott Air Packs 2 Spare Air Bottles in B.A. Box 3 1-1/2" Hoses with Nozzles 3 Stretchers (Stoke's-Miller-Ferno) 2 Gel Fire Blankets 1 5-gal. Container of Ansul Dry Chemical 1 Shovel to Spread Dry Chemical 1 5-gal. Container of AFFF (3%) 2 Mechanical Foam Nozzle (In-line Proportioner) 1 International Shore Connection
Red Emergency Gear Locker (Poop Deck, Midship)	2 Scott Air Packs 2 Spare Air Bottles 2 Hatchets 2 Fireproof Safety Lines 2 Proximity Suits

MISCELLANEOUS GEAR

4	4' Fog Applicators	Port/Stbd Main Deck in Aqua Chem and at Engine Room Level Fwd/Stbd
2	12' Fog Applicators	Helicopter Deck Inboard Funnels
1	Gel Fire Blanket	S Deck Galley
1	Fire Blanket	Fwd Machinery Room
1	Fire Blanket	Galley
1	Fire Blanket	Lab Stack Focsle Deck Chem Lab
1	Fire Ax	Bridge Deck by Coffee Machine
1	Fire Ax	S Deck near Showers
1	Fire Ax	Focsle Deck near Hospital
1	Fire Ax	Main Deck near SEDCO Library
1	Fire Ax	Main Deck Fwd Port near M15
1	Fire Ax	Focsle Deck ODP Library Conference Room
1	Hatchet	Upper Tween Deck ODP Photo Lab

FIREMAN'S SUITS	
Mate's Locker	3 Fireman's outfits 1 Proximity suit
CO₂ Room	3 Fireman's outfits
Red Emergency Locker	2 Proximity suits
Lab Stack Bridge Deck Catwalk	8 Fireman's outfits
L.O.'s Locker	4 Chemical Spill Suits
BREATHING APPARATUS (SCOTT AIR PACKS)	
Mate's Locker	2 Breathing Apparatus and 4 Spare Bottles
CO₂ Room	2 Breathing Apparatus and 2 spare bottles
Red Emergency Locker	2 Breathing Apparatus and 2 Spare Bottles
Xerox Area (Lab Stack Main Deck)	2 Breathing Apparatus
SEDCO's Office (Bridge Deck)	2 Breathing Apparatus
Core Entry Area (Lab Stack Bridge Deck)	2 Breathing Apparatus

ESCAPE PACKS	
10-Minute Escape Packs	2 in Engine Control Room (ECR) by forward door 1 SS Generator Room by phone 1 Motor Room, portside by phone 1 Koomey Room landing 1 Mate's Locker
15-Minute Escape Packs	1 ET Shop 1 Photo Lab
OXYGEN SET	
ECR Hospital	1 set 1 set
STRETCHERS	
CO₂ ROOM	1 Stokes Basket 1 Miller Full Body 1 Ferno Casualty Carrier
Auxiliary Warehouse	1 Stokes Basket 1 Miller Full Body
Drill Floor	1 Stokes Basket
Hospital	1 Scoop Stretcher 1 Miller half back with vertical lift, helmet harness, and transport poles

FIRE STATIONS				
No.	Location	Fire Hose	Ax	Fog Appl.
1	Bridge Deck by Coffee Maker	1.5" x 75'	X	
2	Poop Deck Port by Machine Shop	2.5 x 100		12'
3	Poop Deck Starboard by Helicopter Fuel Tanks	2.5 x 100		12'
4	Focsle Deck Port under Life Boat #2	2.5 x 100		
5	Focsle Deck Starboard under Life Boat #1	2.5 x 100		
6	Main Deck Port Aft Machinery Room near CO ₂ Room	1.5 x 75		4'
7	Main Deck Starboard Aft Machinery Room	1.5 x 75		4'
8	Main Deck Starboard by Crane #2	2.5 x 100		
9	Main Deck Port Forward Auxiliary Warehouse	2.5 x 100		
10	Main Deck Port by Crane #1	2.5 x 100		
11	Main Deck Science Lounge	1.5 x 75		
12	Main Deck Quarters Forward of Laundry Room	1.5 x 75	X	
13	Main Deck Quarters Forward End of Accommodations	1.5 x 75		
14	SS Generator Room port side	1.5 x 75	X	
15	Engine Room Port Bottom of Ladderway	1.5 x 75		4'
16	Engine Room Starboard Bottom of Ladderway	1.5 x 75		4'
17	Cement Pump Room Aft Behind Pump	1.5 x 75		
18	Scientific Stores Inboard Bulkhead	1.5 x 75		
19	Koomey Room by Landing	1.5 x 75		
20	Galley Forward Port	1.5 x 75	X	
21	Second Deck Quarters Fwd End of Accommodations	1.5 x 75		
22	Motor Room Aft Between Motors, Centerline	1.5 x 75		
23	Mud Pump Room Between Mud Pumps	1.5 x 75		
24	Forward Machinery Room near Thyrig Door	1.5 x 75		
25	Helicopter Deck Port	D. M. T.*		
26	Helicopter Deck Starboard	D. M. T.*		
27	Helicopter Deck Starboard	2.5 x 100		
28	Focsle Deck Module A Ladderway Landing	1.5 x 75		
29	Bridge Deck Module A Top of Ladderway	1.5 x 75		
30	Downhole Logging Outside Forward	2.5 x 100		
31	Lab Stack Hold Deck Outside of Hold Storage	1.5 x 75		
32	Lab Stack Lower Tween Deck Outside of Second Look Lab	1.5 x 75		
33	Lab Stack Upper Tween Deck Outside of ODP ET Shop	1.5 x 75		

* D.M.T. = Direct Manual Turret

WHEELED EXTINGUISHERS

Dry Chemical Type

- 1 Aft Machine Space
- 1 Generator Room
- 1 Motor Room
- 1 Engine Room
- 2 CO₂ Room

CO₂ Type

- 1 Forward Machinery Room
- 1 Aft Thyrig Room

PORTABLE FIRE EXTINGUISHERS		
No.	Type	Location
1	10 lb Ansul	Pilothouse
1A	10 lb Ansul	Pilothouse
2	10 lb Ansul	Bridge Deck Port
3	10 lb Ansul	Bridge Deck Starboard
4	20 lb Ansul	Drill Floor Starboard
5	10 lb Ansul	Drill Floor Port
6	10 lb Ansul	PED Crane No. 2
7	10 lb Ansul	PED Crane No. 3
8	10 lb Ansul	PED Crane No. 1
9	10 lb Ansul	Focsle Deck Port
10	10 lb Ansul	Focsle Deck Starboard
11	10 lb Ansul	Main Deck Port
12	10 lb Ansul	Main Deck Starboard
13	10 lb Ansul	Boiler Room
14	10 lb Ansul	ECR
15	10 lb Ansul	ECR
16	10 lb CO ₂	Thyrig Room Aft
17	10 lb Ansul	Second Deck Port
18	10 lb Ansul	Second Deck Starboard
19	15 lb CO ₂	Galley
20	10 lb Ansul	Sack Storage Port
21	10 lb Ansul	SEDCO Store
22	10 lb Ansul	Cement Pump Room
23	10 lb Ansul	Electrical Store
24	20 lb Ansul	Mud Pump Room
25	150 lb General	Engine Room
26	10 lb Ansul	Generator Room
27	15 lb CO ₂	Generator Room
28	10 lb CO ₂	Thyrig Room Forward
29	10 lb General	Forward Machinery Room
30	10 lb Ansul	Aux. Pump Room Port
31	10 lb Ansul	Aux. Pump Room Starboard
32	30 lb Ansul	Koomey Room
33	10 lb Ansul	Warehouse
34	10 lb Ansul	Mechanic's Shop
35	20 lb Ansul	Boiler Room
36	10 lb Ansul	Boiler Room
37	10 lb Ansul	Fan Room
38	10 lb Ansul	AC Equipment Room
39	20 lb Ansul	Emergency Generator Room
40	20 lb Ansul	Forward Machinery Room
41	10 lb Ansul	Bosum Locker
42	10 lb Ansul	Dry Stores
43	15 lb CO ₂	ET Shop
44	15 lb CO ₂	Electrical Shop
45	150 lb General	Generator Room
46	150 lb General	Motor Room
47	9 lb Halon	Schlumberger Logging Unit
48	10 lb General	Battery Room
49	10 lb Ansul	Schlumberger Shop
50	10 lb Ansul	Mud Mix House

PORTABLE FIRE EXTINGUISHERS - Continued		
No.	Type	Location
51	10 lb Ansul	ODP Heavy Stores
52	15 lb CO ₂	Koomey Room
53	10 lb Ansul	Compressor Room Port Aft
54	10 lb Ansul	Engine Room
55	10 lb Ansul	Engine Room
56	10 lb Ansul	Engine Room
57	10 lb Ansul	Engine Room
58	10 lb Ansul	Engine Room
59	10 lb Ansul	Engine Room
60	10 lb Ansul	Motor Room
61	10 lb Ansul	Motor Room
62	10 lb Ansul	Motor Room
63	10 lb Ansul	Motor Room
64	15 lb Halon	ECR
65	20 lb Ansul	Steering Gear Room
66	10 lb Ansul	SEDCO Lounge
67	10 lb Ansul	SEDCO Movie Room
68	10 lb Ansul	Hospital
69	20 lb Ansul	Aux. Warehouse
70	20 lb Ansul	Paint Locker
71	10 lb Ansul	Laundry
72	10 lb Ansul	Change Room
73	10 lb Ansul	Galley
74	15 lb Halon	D.P. Room
75	150 lb Ansul	Boiler Room
76	150 lb Ansul	CO ₂ Room
77	150 lb Ansul	CO ₂ Room
78	10 lb Ansul	Mud Pit Area
79	10 lb Ansul	Casing Hold Aft
80	10 lb Ansul	Riser Hold
81	5 lb Halon	Computer Room
82	2.5 lb Halon	Computer User Room
83	10 lb CO ₂	Heli Deck
84	2.5 lb Halon	Computer Office
85	2.5 lb Halon	Computer User Room
86	30 lb Ansul	Welders Shop
87	10 lb Ansul	Welders Shop
88	15 lb CO ₂	Radio Room
89	15 lb CO ₂	DP Equipment Room
90	15 lb CO ₂	Thyrig Room Aft
91	50 lb Nitrogen	CO ₂ Room (Refill for General)
92	50 lb Nitrogen	CO ₂ Room (Refill for General)
93	50 lb Nitrogen	CO ₂ Room (Refill for General)
94	2.7 kg Halon	Radio Room
95	10 lb Ansul	Entrance to CO ₂ Room
96	10 lb Ansul	Entrance to CO ₂ Room
97	15 lb CO ₂	DP Control Room
98	15 lb CO ₂	Lab Stack Bridge Deck
99	15 lb CO ₂	Underway Geophysics Lab
100	15 lb CO ₂	Core Tech Shop
101	15 lb CO ₂	Downhole Logging

PORTABLE FIRE EXTINGUISHERS - Continued		
No.	Type	Location
102	15 lb CO ₂	Lab Stack Focsle Deck
103	15 lb CO ₂	Lab Stack Focsle Deck
104	15 lb CO ₂	Lab Stack Main Deck
105	15 lb CO ₂	Lab Stack Upper Tween Deck
106	15 lb CO ₂	Lab Stack Lower Tween Deck
107	15 lb CO ₂	Lab Stack Hold Deck
108	15 lb CO ₂	Science Library Starboard
109	15 lb CO ₂	Science Library Port
110	2.5 lb Halon	Computer Room
111	2.5 lb Halon	Chem Lab
112	2.5 lb Halon	Core Lab Forward Port
113	10 lb Ansul	Casing Hold Forward Port
114	10 lb General	Fantail Starboard
115	10 lb General	Fantail Port
116	10 lb Ansul	Penthouse Aft
117	10 lb Ansul	Penthouse Forward
118	50 lb CO ₂	Forward Machinery Room
119	50 lb CO ₂	Aft Thyrig Room
	5 lb Ansul	Lifeboat No. 1
	5 lb Ansul	Lifeboat No. 1
	5 lb Ansul	Lifeboat No. 2
	5 lb Ansul	Lifeboat No. 2
	5 lb Ansul	Lifeboat No. 3
	5 lb Ansul	Lifeboat No. 3
	5 lb Ansul	Lifeboat No. 4
	5 lb Ansul	Lifeboat No. 4

EYE STATIONS	
	I. FIXED STATIONS
Lab Module	<ol style="list-style-type: none"> 1. Bridge Deck - Port side aft, near Physical Properties Lab 2. Bridge Deck - Starboard, Core Description Area 3. Focsle Deck - Forward, near Door 4. Focsle Deck - Aft, Chemistry Lab entrance 5. Lower Tween Deck - Hallway front of Elevator
Hospital	<ol style="list-style-type: none"> 1. Bathroom
	II. PORTABLE (BOTTLES)
Lab Module	<ol style="list-style-type: none"> 1. Bridge Deck - Core Description area starboard bulkhead 2. Bridge Deck - Core Entry near elevator 3. Focsle Deck - Palco Prep Lab, three 16-oz acid/alkali bottles 4. Upper Tween Deck - Photo Lab 5. Upper Tween Deck - Electronics Shop 6. Hold Deck - Aft, in Storeroom
Forward 1.	Galley
Amidships	<ol style="list-style-type: none"> 1. Driller's Shack 2. Core Tech Shop 3. Mud Mix House - Main starboard, on bulkhead aft of Hoppers 4. Cement Pump Room - First level, on I-beam forward of Cement Pump 5. Mud Pit Space - First level, through red door on Control Panel 6. Mud Pump Room - Hold Deck, starboard bulkhead at foot of ladder
Aft	<ol style="list-style-type: none"> 1. Welders Shop - Port, below #3 crane 2. Underway Geophysics Lab - Poop Deck, starboard 3. Electrical Shop - Poop Deck, starboard 4. ET Shop - Poop Deck, around corner from Electrical Shop 5. Schlumberger Workshop - Poop Deck, between ET and Mechanics Shops 6. Paint Locker - Main Deck, next to ECR door on port side 7. Boiler Room - Centerline, forward of Parker boiler 8. Boiler Room - Starboard, near Fan Room entrance 9. Engine Room - Port, Aft bulkhead 10. Ship's Service Generator Room - Aft of Engine Room on Battery Locker bulkhead

EMERGENCY SHOWER STATIONS

Lower Tween Deck
Focsle Deck

Front of elevator
Forward near door
Aft , Chemistry Lab entrance

Bridge Deck

Starboard, Core Description Area
Port side aft, near Physical Properties Lab

GENERAL ALARM BELLS			
Contact makers Total (5)	Bridge ODP Office	Drill Floor Engine Control Room	Heli Deck
10" Bells Total (68)	Bridge F Deck Starboard F Deck Cardroom M Deck Starboard M Deck Forward S Deck Starboard Aux Pump Room Port ODP Storeroom Mud Mix House Forward Aux Warehouse Forward Mud Pump Room Forward Mud Pit Room Aft Electrical Store Engine Control Room CO ₂ Room Entrance Mechanics Shop Poop Deck Stbd Helicopter Deck Port Downhole Logging Core Lab Aft Chem Lab (behind books) Science Lounge Upper Tween Lower Tween Bulk Storage Port Drill Floor Paint Locker	Bridge Deck Aft F Deck Port F Deck Science Library M Deck Port S Deck Port Aux Pump Room Starboard Koomey Room Sack Storage Aux Warehouse Inside Aft Mud Pump Room Aft Mud Pit Room Forward Fan Room Starboard Aft Forward Thyrig Room Motor Room Port Schlumberger Shop Fantail above Capstan U/W Geophysics Lab Core Lab Port Thin Section Lab Paleontology Lab Computer User Room ET Shop Casing Hold Bulk Storage Starboard Riser Hold	F Deck Midship F Deck SEDCO Lounge M Deck Laundry S Deck Galley Lower Sack Storage Cement Pump Room SEDCO Heavy Tools Store Steering Gear Room Emergency Generator Room Motor Room Starboard Poop Deck Port Warehouse Core Tool Shop Core Lab Starboard Computer Room Penthouse
Horn Total (5)	Aft Thyrig Room Port Crane No. 2 Pedestal Entrance Aft Mach Room Starboard	Aft Thyrig Room Starboard Crane No. 3 Pedestal	
Horn and Light Total (6)	Forward Machine Room Port Forward Machine Room Starboard Engine Room	Aft Machine Room Midship Compressor Room SS Generator Room	

FIRE ALARM CONTACT MAKERS

Bridge Deck Starboard + Port Door	(2)	Steering Gear Room	(2)
Focsle Deck Starboard + Port Door	(2)	SS Generator Room	(2)
Poop Deck	(2)	Engine Room	(2)
Emergency Generator Room	(1)	Cement Pump Room	(1)
Galley	(2)	Port Auxiliary Pump Room	(1)
Main Deck Accommodation	(2)	Starboard Auxiliary Pump Room	(1)
S Deck Accommodation	(2)	Forward Machinery Room	(1)
Koomey Room	(1)	Mud Pump Room	(2)
SEDCO Heavy Store	(1)	Motor Room	(2)
Bulk Store Port	(1)	Lab Stack Bridge Deck	(2)
Bulk Store Starboard	(1)	Lab Stack Focsle Deck	(1)
Mud Mix House	(1)	Lab Stack Stairwell F-Deck	(1)
Lower Sack Store	(1)	Lab Stack Main Deck Lounge	(1)
Electrical Store	(1)	Lab Stack Main Deck Forward	(1)
Compressor Room	(1)	Lab Stack Upper Tween Deck	(2)
Aft Mach Rm Port/Starboard Door	(2)	Lab Stack Lower Tween Deck	(1)
ECR	(2)	Lab Stack Hold Deck	(1)
Aft Thyrig Room	(1)	Lab Stack Casing Hold Work Shop	(1)
ODP Storeroom	(1)	Underway Geophysics Lab	(1)
Mud Pit Area	(1)	Downhole Logging Lab	(2)
Sack Store	(1)	Core Tech Shop	(1)
Dry Store Starboard Forward Focsle	(1)	Dry Store Port Forward Focsle	(1)

FUEL AND VENT SHUTDOWNS	
Bridge	<ol style="list-style-type: none"> 1. Push button to close suction valves on Day Tanks + Settling Tanks (Dead Ship). 2. Push button to stop all vents in Lab Stack. 3. Push button to stop Forward vents, Accommodation, Thruster pods 1, 2, and 3. 4. Push button to stop vents Midship / Drilling Area. 5. Push button to stop vents Aft, Machinery spaces, and Thruster Pods.
Aft Machinery Room	<ol style="list-style-type: none"> 1. Push button to stop vents Aft, Machinery spaces, Thruster Pods 4 and 5, Fuel Oil Transfer Pumps, and Fuel Oil Service Pumps. 2. Push button to close all Fuel Oil Valves (Dead Ship).
ECR	<ol style="list-style-type: none"> 1. Push button to stop Forward vents, Accommodation, Thruster Pods 1, 2, and 3. 2. Push button to stop vents Midship and Drilling Area. 3. Push button to stop vents Aft, Machinery spaces, Thruster Pods 4 and 5, Fuel Oil Transfer Pumps, and Fuel Oil Service Pumps. 4. Push button to close all Fuel Oil Valves, stop Emergency Diesel, and prevent to start when stopped (Dead Ship - Black Out).

SECTION X

BURN PACK INSTRUCTIONS

WATER-JEL PRODUCTS

INSTRUCTIONS FOR USE



CAUTION:
DO NOT USE IF BLANKET IS DRY OR
DAMAGED IN ANY AREA OR IF SEAL IS
BROKEN. REFURBISHED PRODUCT
MUST NOT BE USED AS A MEDICAL
DEVICE.

FOR FIRE EXTINGUISHING:

Place blanket over small areas of fire to
smother flames. Repeat on other areas, if
necessary.



WARNING:

In the event of electrical fire, turn off power source before wrapping blanket around victim.

After expiration of Medical device date, immediately place Fire-Fighting Equipment Seal across top of Lid/Canister without obscuring Instructions/Information. The product can now be used as Fire-Fighting Equipment NOT AS A MEDICAL DEVICE.

This product may be refurbished several times, using the WATER-JEL Refurbishing Kit, as long as the carrier remains intact and uncontaminated by volatile chemicals or liquids. REFURBISHED WATER-JEL PRODUCTS CAN ONLY BE USED AS FIRE FIGHTING EQUIPMENT AND NOT AS A MEDICAL DEVICE.

EMERGENCY PREPAREDNESS:

Place canister in visible location,
and instruct all personnel as to its
whereabouts. Learn instructions. In
the event of fire, move as QUICKLY
as possible. SECONDS COUNT.



FOR PROTECTION AGAINST FLAMES AND HEAT:

(a) Hold blanket as screen between you and
flames, or wrap/drape around the entire body.



FOR EMERGENCY FIRST AID:

Remove lid. Take out carrier. If possible, knock
burning victim down. Wrap blanket around burning
victim. Mold blanket close to victim's body,
forcing out air, allowing WATER-JEL to penetrate
clothing. Leave victim wrapped in blanket. SEEK
MEDICAL ATTENTION!



(b) Spread blanket over burning debris
to allow passage over fire area. (Use
excess WATER-JEL in container to cover
exposed skin areas and shoes).



DIRECTIONS FOR USE OF WATER JEL BURN PRODUCTS**Introduction**

Water Jel Burn Products are suitable for emergency use on burns prior to medical treatment. They are conveniently packaged for quick application in any emergency situation. Water Jel Burn Products may be applied directly to the burned skin or over burnt clothing that has adhered to the burn area. Water Jel products help reduce pain; cools the skin by heat transference; prevents the progression of burns by eliminating excess heat; and helps prevent infection. Water Jel is non-toxic, non-adherent, biodegradable, and water-soluble. Water Jel's water-soluble characteristics allow quick removal in the Emergency Room.

Cautions

When applying Water Jel Burn Products the following precautions must be exercised:

1. For burns due to electricity, the power supply must be deenergized before applying the Water Jel Product. This is to protect the rescuer as well as aid in the prevention of further injury to the burn victim. Once the power supply has been cut, Water Jel Products can be applied to treat the burned areas resulting from electricity.
2. For burns due to chemicals, acids, or bases, follow the manufacturer's product information [Material Safety Data Sheet (MSDS)]. This is to avoid further damage to the burn injury due to the fact some materials are water reactive. Precautionary measures in the MSDS should first be instituted. Once this has been accomplished, Water Jel Burn Products may be applied to treat the resulting burn injury.
3. Once Water Jel Products have been applied they should be left in place until professional medical attention at a proper medical facility is available.
4. At all times, airway, breathing, and circulation must be maintained.
5. Water Jel Products can be refrigerated but they are susceptible to freezing. If frozen, and then thawed, there will be no effect on the gel's properties.

PROCEDURE FOR USE OF THE WATER JEL BURN/EXTINGUISHER, FIRE BLANKET-PLUS OR HEAT SHIELD

Wrap/ Shield

1. Hold canister in the upright position with the lid to the top.
2. In a quick snapping action break the paper seals on the plastic clips and pull the clip out and away from its catch.
3. After repeating this action on all 4 clips, remove the canister top by lifting it off the canister.
4. Pull up on the sealed plastic bag which is contained within the canister.
5. Grasp the bag on each side and in a quick ripping action tear open the bag along its sealed top or cut the bag open with scissors if available.
6. Remove the Water Jel product from the plastic bag. Avoid unnecessary handling or allowing it to touch the ground once it has been removed from its plastic bag and the canister.
7. If removal of burned clothing does not further damage the burn area or slow down the rescue attempt, the clothing should be quickly removed and the burn exposed. If burnt clothing covers the burn area, it should be left in place. The Water Jel will work its way through the burnt clothing and still provide first aid.
8. For persons who are on fire, the fire can be extinguished by wrapping them in the Water Jel product. The Water Jel should remain in place and not be removed. Seek professional medical help immediately. Extinguishment and emergency first aid are accomplished in this one-step action.
9. For persons who sustain burn injuries where the fire was not extinguished by Water Jel, the Water Jel Product shall be immediately applied to the burn injury upon arrival at the scene. Depending on the size of the Water Jel product used, and the size of the burn injury, the Water Jel product may be loosely wrapped around or just placed on the burn area.
10. Pour any remaining Water Jel from the plastic bag within the canister onto the blanket/dressing.
11. The Water Jel Product may be loosely secured by conventional bandaging methods (i.e., gauze, triangular bandages, etc.). This is to secure the Product to the wound during transportation to the Medical Facility.
12. Once applied, Water Jel Burn Products should not be removed until professional medical help at a proper medical facility is available.
13. Use of the Water Jel Product does not constitute an "end-all" to burn treatment. As in the case for all medical emergencies, professional medical help should be summoned and consulted.