## ACKNOWLEDGEMENT

The success of the 9th Annual Meeting of the International Institute of Ammonia Refrigeration is due to the work of the authors whose technical papers appear in this book.

IIAR expresses its deepest appreciation to these authors for their unselfish contributions for the betterment of the industry.

Thank you.

IIAR Board of Directors



iiar International Institute of Ammonia Refrigeration

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# A FIRE CHIEF'S PERSPECTIVE OF AMMONIA

By:

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Watsonville, California

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# A FIRE CHIEFS PERSPECTIVE OF AMMONIA

In order to properly address the fire departments' emergency concerns existent in industrial refrigeration we must consider the concept of "perspective". The attitudes, viewpoints, training, and experiences of members of a fire department are different than industrial refrigeration employees. In fact, the emergency response concerns of a fire department sometimes run counter to the profit motive of industry. The best emergency response answers include a joint concern for human and product safety.

The goal of our current efforts is to narrow the gap between the fire service and refrigeration industry by joint training and proper prevention and pre-planning. We intend to address the emergency concerns prior to the real problem occurring.

We must realize that the "worst case scenario" can happen to any of us. A successful end to the "worst" occurs when preparation, cooperation, communication and training between the fire department and refrigeration plant is at it's best. The 'gap' will narrow with cooperative effort, reasonably developed preplans and on-going training.

One of the first questions to consider in developing an emergency preplan is to consider what is inside of the engine room. The thousands of pounds of ammonia, thousands of volts of electricity, hundreds of pounds (psi) of pressure (liquid and gas), many gallons of flammable and combustible liquids and treatment chemicals, are examples of factors to be considered during an emergency. Secondly, what happens when things go wrong in the engine room? A fire, spill, explosion or other emergency can evolve into dangerous and life threatening magnitude almost immediately. The conditions are further complicated when the engine room contains unwanted storage. Cutting and welding equipment, fuel, garbage, extension cords, and other safety hazards

add to or cause the emergency circumstances to be compounded.

History has shown that refrigeration emergency circumstances can be violent and destructive. The National Fire Protection Association investigated 36 ammonia related fires in cold storage facilities over a 40 year period of time. Out of the 36 fires 28 had accompanying explosions.

A recent (Sept. 19, 1984) ammonia leak occurred at the Dixie Cold Storage facility in Shreveport New Orleans that resulted in an explosion and fire that killed one firefighter and severely injured another. A number of factors led to this unfortunate circumstance. An improper understanding of the true hazards of ammonia was most evident. Improper and misguided information exchange between the refrigeration personnel and the fire department also resulted in the failure of a safe and effective plan to control the emergency concerns.

There are a number of factors that lead to fire and explosion with regards to ammonia. The common circumstances include a dense build up of ammonia vapor (16 to 25 percent mixture with air), lack of immediate ventilation (like most cold storage rooms have) and a spark or other source of ignition that would ignite the ammonia fuel. The incidents at Dixie Cold Storage as well as Borden's Ice Cream in Texas have shown that ammonia will explode and that we should not be lulled into a false sense of security regarding it's true hazards.

Once the dangers of ammonia are understood we can take appropriate steps to properly and reasonably control those hazards. We must make sure that all piping, relief valves, isolation valves, receivers, condensors, evaporators, etc. are in good repair and properly installed, labeled and color coded. Electrical controls should be properly labeled and maintained. Cut-out switches, relays and other electrical equipment should be kept clean and dry and tightened regularly (at least once per year). The engine room should be maintained

clean and clear of storage. All valves should be exercised regularly, clean of corrosion, and free of obvious leaks. The compressors mounting should provide a minimal amount of vibration; belts should be tightened to proper tension or replaced if damaged or worn. Gages should be calibrated and over pressure switches exercised and replaced at regular intervals to guaranty proper operation. The motors and other power driven equipment should run at proper safe temperatures, filters kept clean, bearings running smoothly, and the entire system balanced properly. Proper care should be given to the refrigeration room and equipment. As Ben Franklin once stated, "an ounce of prevention yields a pound of cure". Maintain the engine room clean and the equipment serviced and in good repair.

If repairs are necessary refrigeration personnel as well as responding fire service personnel should remember the basic principals of ammonia. The need to avoid trapping liquid in an unvented pipe line is very important. Improper purging of an ammonia line and isolation of flow from both sides of a valve or pipeline repair is a mandate. The need to be very cautious of dense unventilated atmospheres of ammonia is also vital.

Should a large volume of ammonia be released a containment, notification, and evacuation plan must be ready. Many problems can be avoided by pre-thinking a plan for handling the emergency concerns. A containment plan identifies the ways and means of properly neutralizing and holding ammonia residue. A properly developed plan would include the ability to neutralize ammonia with large volumes of water (to a PH of between 9 to 11) or allow-ance for containment in a safe area until the ammonia residue evacuated into the atmosphere.

If ammonia is released into the sewer, storm drain, water way or other catch basin, proper authorities must be notified. The notification plan should include the telphone number of emergency response agencies (fire, police, ambulance)

as well as local, county or State authorities to be notified. California State law requires any business that has released a hazardous material in a manner that may lead to human or environmental damage to report immediately to the local emergency response agency and State Office of Emergency Services (800-852-7550). The State will notify other agencies such as Fish and Game, or the Regional Water Control Board to respond to the scene.

An evacuation plan that addresses the safe escape process for plant employees, as well as downwind businesses should be developed. An evacuation point for employees should be indicated on a written site plan. This plan should be posted near all exits of the plant. The names, addresses and telephone numbers of all businesses, schools, churches and other such occupancies located downwind within a 4 tenths wide by 6 tenths long area should be recorded. These occupancies should receive proper telephone warning if evacuation is eminent or immediately necessary.

A training plan should be developed that indicates key training topics such as emergency first aid, notification and evacuation procedures, proper methods of donning breathing apparatus, dangers of ammonia, etc. The plan should indicate the time schedule and instructors to be utilized. When the training takes place the date and roll should be recorded. At least one year's training records should be maintained. A great deal of benefit can be attained by training employees. Education will aid in preventing and properly dealing with emergency circumstances. Also, a great deal of positive professional image can be developed which fends off product and operational liability.

We profess a need for properly labeling and color coding pipe lines and key valves. Emergency response personnel should be made aware of the location of the king valve, isolation valves and other key components. A building plan showing the layout of the engine room (specifically the king valve and electrical shut offs) and pipe line layout to all cold rooms is a valuable tool

for emergency responders. The refrigeration engineer and fire department incident commander can meet during an emergency and review this plan prior to taking action. A clear mental understanding of the emergency operations to be accomplished helps tremendously when the response team (fire and industry) enters the facility (especially when conditions are foggy or smokey). A sample emergency pre plan covering all the concerns mentioned previously has been developed for the Americold Refrigeration Plant in Watsonville. The plan has no value unless emergency response personnel and the Americold Plant employees review the information regularly. Training between the fire department and the facility employees aids tremendously in building solid relations and competent emergency response. During the time of the emergency we do not have the time to train employees to properly don breathing apparatus or figure out where a king valve is located.

We all know that hazardous materials related emergencies attract a lot of public concern. The news media has reacted to public concern by aggressively covering such emergencies, looking for the human and environmental threats and publicizing weaknesses in the system for containing such threats.

All governmental agencies (from City to Federal levels) have reacted to the public concern for proper protection from hazardous materials. Many new laws exist to regulate the storage and use of hazardous materials. More legislation can be expected in the future that will further guaranty the publics concern for health and environmental issues.

How can we attain the trust and faith of the public regarding using hazardous materials in industrial operations? By now the answer should be clear. The answer includes reasonable regulations that indicate how to properly (safely) use and handle the materials, a complete and well thought out preplan worked out between the emergency services, environmental authorities and plan employees; and on going training and communications between the industrial

employees and fire department personnel. The public faith and trust can be attained by taking positive steps forward in meeting the obligation of safely storing and handling hazardous materials and being prepared for the worst case scenario.

# BASIC PREPLAN INFORMATION

## INFO. SHEET

1. Business name
2. Address & Parcel No.
3. Construction type
4. Occupancy class
5. Description of building construction
   a) Roof
   b) Walls
   c) Floor
6. General Building use and contents
7. Exposure problems
8. Fire Protection facilities
   a) Sprinkler system
   b) Alarm system
   c) Etc.
9. Foreseeable entry problems
   a) Security system
   b) Guard dogs
   c) Etc.
10. Any special hazards
    a) Chlorine tanks
    b) Propane tanks
    c) Etc.
11. Number of people employed in building
12. Personnel to be contacted
    a) Name
    b) Phone number

## SITE PLAN

1. Simple floor plan with dimensions
2. Building dimensions
3. Location of all doors
4. Main gas & electrical shutoff
5. Knox Box location
6. Fire Protection systems
   a) F.D.C.
   b) Standpipe
   c) Sprinkler shutoff
   d) Announciator panel
   e) Etc.
7. Any special hazards
   a) Chlorine tanks
   b) Propane tanks
   c) Fuel tanks
   d) Outside haz-mat storage

## BLOCK PLAN

1. Location of hydrants
2. All access to property
   a) Type of fencing
   b) Type of gates
3. Any special hazards/ problems
   a) Chlorine tanks
   b) Propane tanks
   c) Etc.
4. Any exposure problems

## HAZ MAT PREPLAN

### HAZ MAT STORAGE

1. Keyed to inventory Statement
2. Location of haz-mat storage processing equipment
3. Location of emergency shutoff and Isolation valves

### EVACUATION PLAN

1. Map of area
2. Shade area of maximum concern for evacuation

### HAZ-MAT CONTAINMENT PLAN

1. Drainage detached
2. Catch basins or holding ponds
3. Sewer lift station
4. Storm drains
5. Prevail wind direction
6. Containment points

### EMERGENCY PLAN

1. Building evacuation point
2. Command post
3. Staging area
4. Prevailing wind
5. Location of emergency response equipment

### ROOM DIAGRAM

1. Equipment, shut off valves storage location
2. Floor plan, exits, hazard concerns

HAZARDOUS MATERIALS MANAGEMENT PLAN/INVENTORY
STATEMENT REQUIREMENTS

The information contained in this form is subject to the Trade Secret provisions of Section 25511 of the Health and Safety Code. Check the appropriate section identified below if you are concerned about the possible release of information to the public.

Priviledged Information: All details are available for Fire Department review; information can be released to the public on court order or approval of the reporting business management.

Trade Secret: Refuse to give specific details of materials used to Fire Department

(A) General business info. & emergency call-out personnel

(1) Business Name: Americold

(a) Address 750 W. Riverside Dr. Telephone 722-1330

(2) Manager: Rocky Criscola Telephone 476-0481

(3) Plant Engineer: Ray Dickman Telephone 722-1330

(4) Plan developed by: Ray Dickman Telephone 722-1330

(a) Qualifications: Chief Engineer (refrigeration) 7 years

(5) Emergency call out list in order of succession (at least three):

(a) Name Ray Dickman Telephone 722-5830

Address 361-A San Andreas Rd. Watsonville

(b) Name Sonny Basaldua Telephone 722-8461

Address 213 Alvarado Watsonville

(c) Name Rocky Criscola Telephone 476-0481

Address 3924 Cornwell Rd. Soquel, CA 95073

(d) Name Dave Klecker Telephone 722-8403

Address 151 Montabello Watsonville

(e) Name _____ Telephone _____

Address _____

# HAZARDOUS MATERIALS INVENTORY STATEMENT

## HMIS

Watsonville Fire Dept. Hazardous Materials Bureau
115 Second St. Watsonville, CA 95076

ABBREVIATIONS

| | |
|---|---|
| UN | United Nations # |
| DOT | Dept. of Transportation |
| NA | North America # |
| EPA | Environmental Protection Agency |
| MSDS | Material Safety Data Sheet |

Date 11/11/86
Company Termicold/Americold
Address 750 W. Riverside Dr.
EPA Reg. #
Responsible Name Rocky Criscola
Phone # 722-1330
Permit#

PLEASE TYPE

| Location of storage Ref. # | | Item # | Chemical name or Major constituants in a mixture | Common trade name and manufacturer | MSDS | Quantity Range |
|---|---|---|---|---|---|---|
| 1 | Roof of Eng. Rm. | 1 | EG ETHANE 1-2, DIOL | GLYCOL | 5240-7 | 10,000 gal. |
| | | 2 | SYNTHETIC POLY SALT | CEMCO 5214 | 5214 | 50/100 gal. |
| 2 | Refrig. System | 3 | ANHYDROUS (NH-3) AMMONIA | AMMONIA | 1005 | 14,000 lbs. |
| 3 | Eng. Rm. and Shop | 4 | ALKALINE DETERGENT | INDUSTRIAL CLEANERS | HDIC | 55 gal. |
| | | 5 | SOLVENT | SOLVENT 325 | CMS 210270 | 55 gal. |
| | | 6 | REFRIGERATION OIL | COMPRESSOR OIL | 01562 | 55 gal. |
| 4 | Outside area Northwest corner of property | 7 | ALIPHATIC HYDROCARBON | PROPANE | 00436 | 500 gal. tank |


USE ADDITIONAL PAGES AS NEEDED

(C) (1) Provide a MSDS for each material listed on the inventory or indicate health, fire and reactivity hazards of materials used.

(2) Give a short description of how and where the materials listed in the inventory are handled. Key the description to the inventory statement (attach an annodated plan if necessary).

| Inventory Ref. # | Item # | Description of how and where materials are handled |
|---|---|---|
| 1 | 1 | Used as an antifreeze for underfloor heat |
| 1 | 2 | Used as water treatment |
| 2 | 3 | Used as a refrigerant for cold storage |
| 3 | 4 | Floor cleaner |
| 3 | 5 | Shop supplies |
| 3 | 6 | Compressor oil |
| 4 | 7 | Fuel for propane vehicles (fork lift) |
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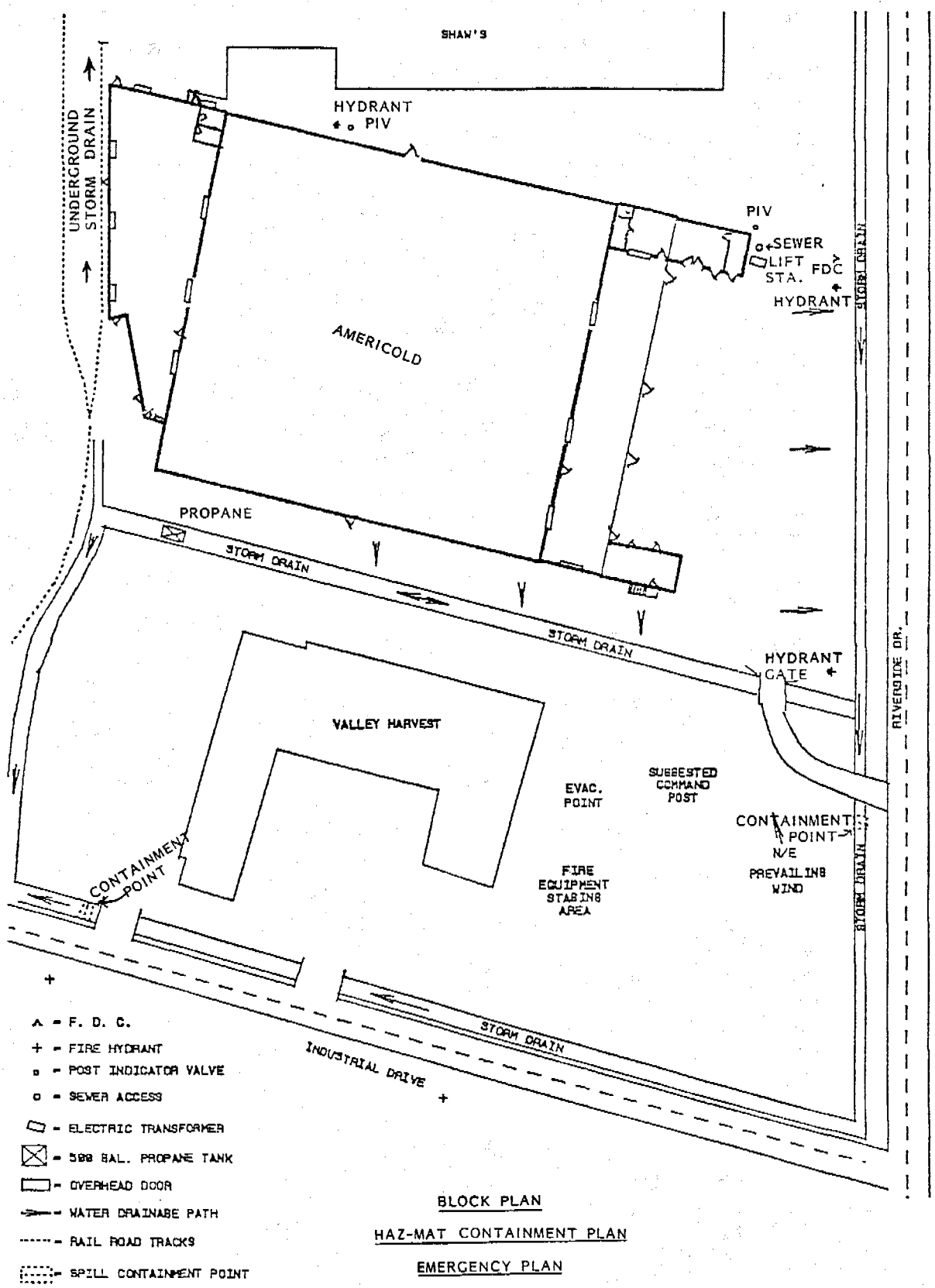
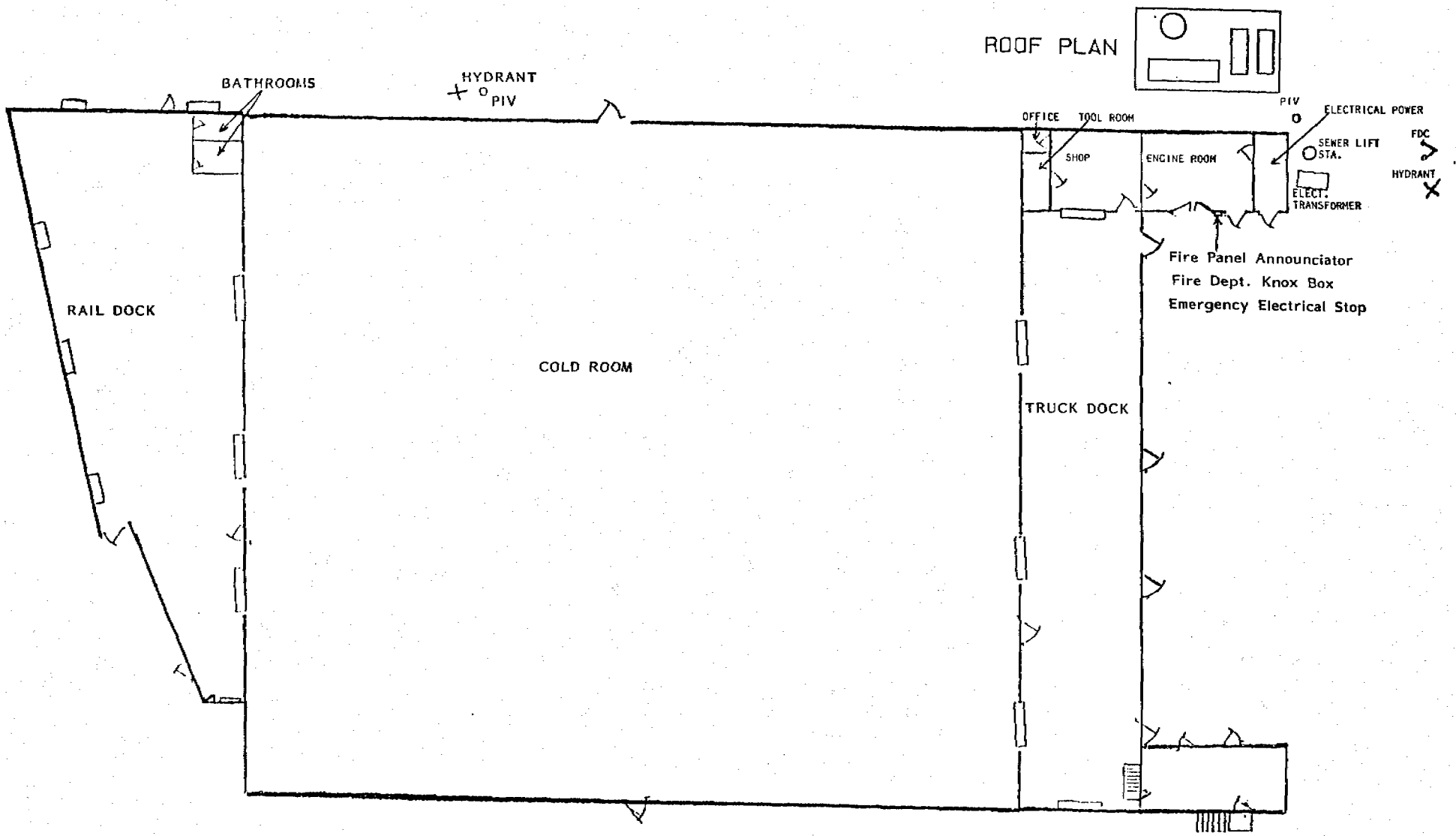
Provide additional sheets as necessary to identify the handling lif listed materials.

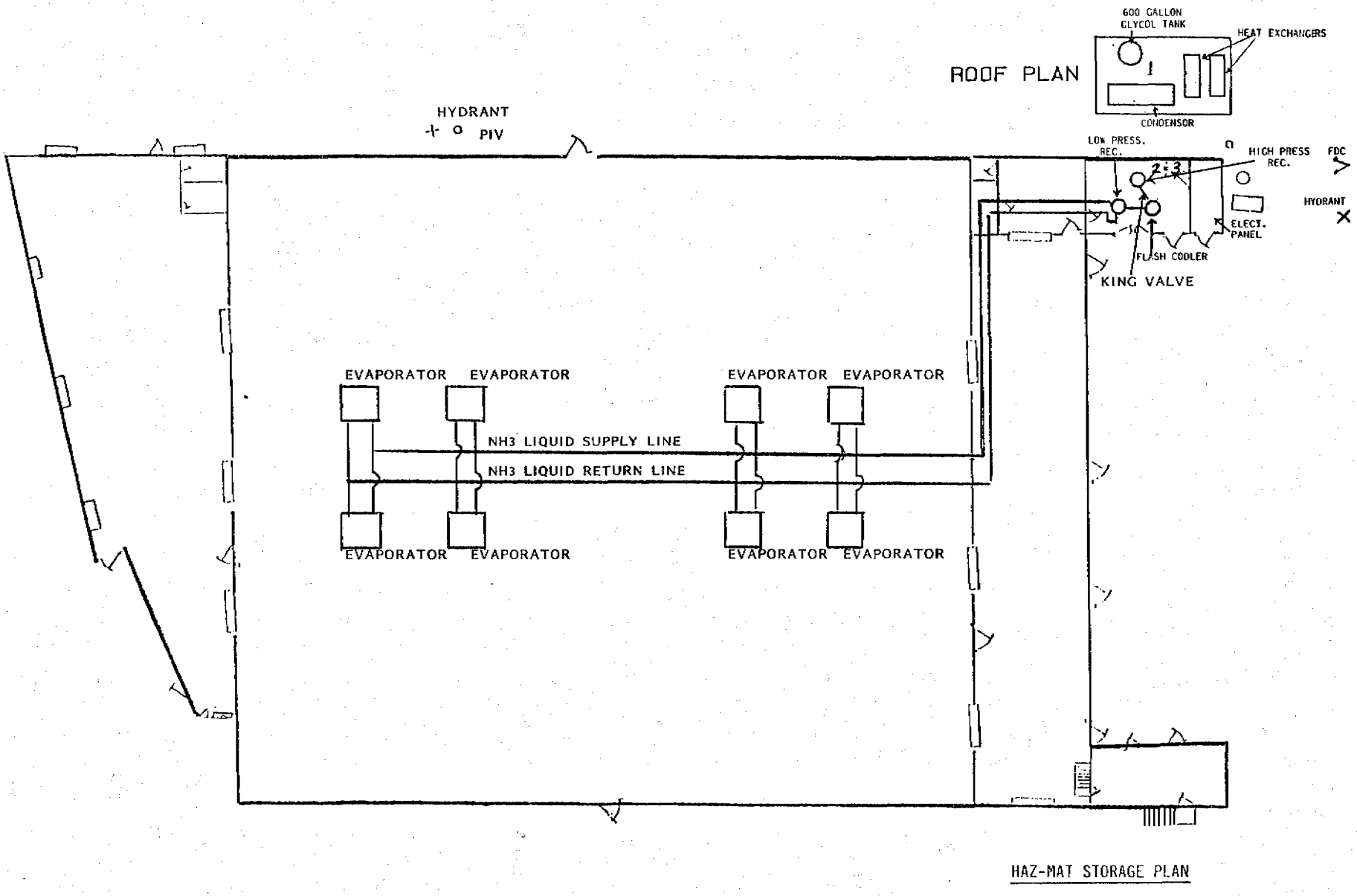


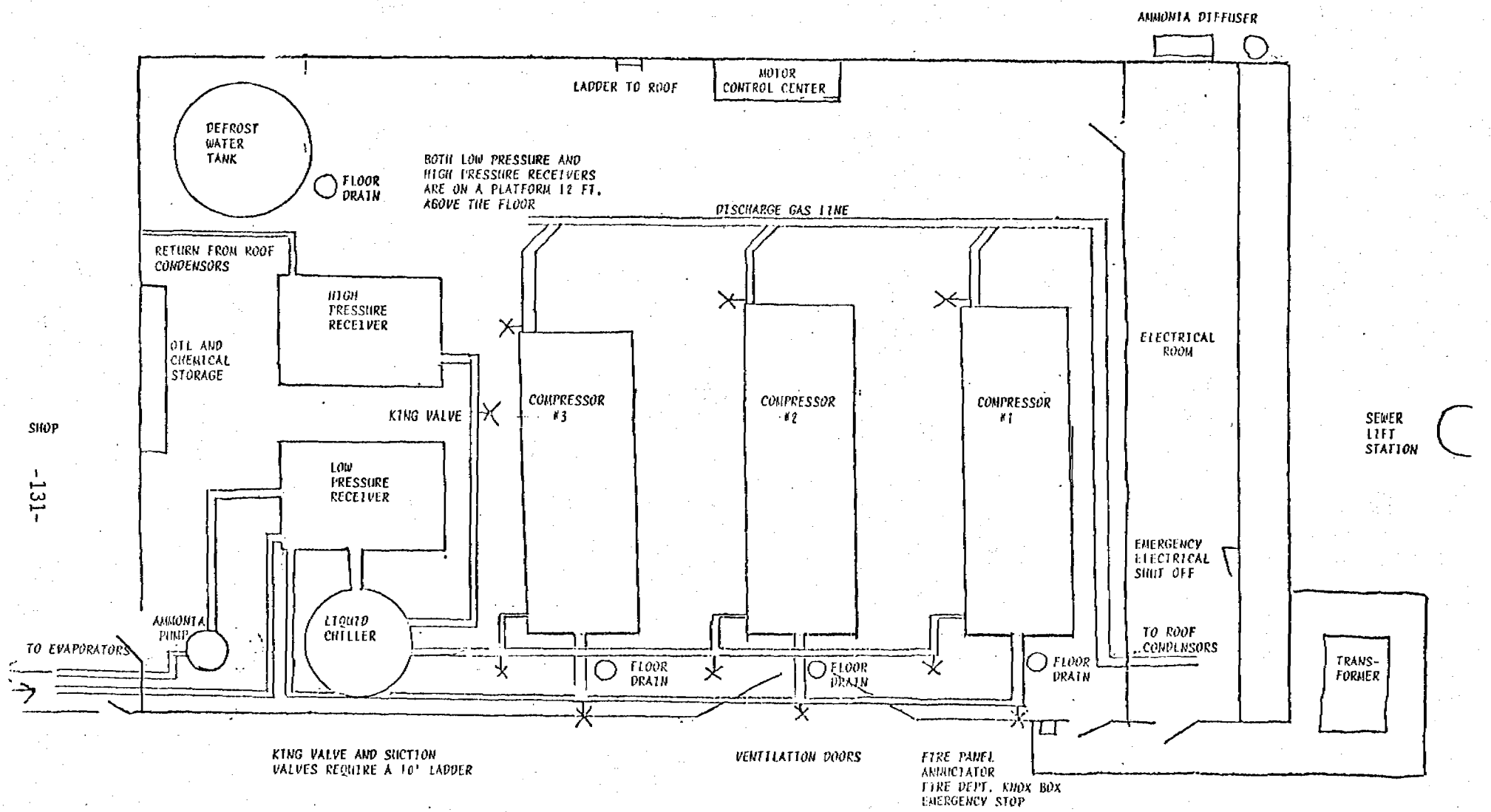

BLOCK PLAN

HAZ-MAT CONTAINMENT PLAN

EMERGENCY PLAN


ROOF PLAN
BATHROOMS
HYDRANT
PIV
OFFICE
TOOL ROOM
SHOP
ENGINE ROOM
PIV
ELECTRICAL POWER
SEWER LIFT STA.
ELECT. TRANSFORMER
FDC
HYDRANT
Fire Panel Announciator
Fire Dept. Knox Box
Emergency Electrical Stop
RAIL DOCK
COLD ROOM
TRUCK DOCK
SITE PLAN
HYDRANT


ROOF PLAN
600 GALLON GLYCOL TANK
HEAT EXCHANGERS
CONDENSOR
HYDRANT
PIV
LOW PRESS. REC.
HIGH PRESS REC.
2-3
FDC
HYDRANT
ELECT. PANEL
FLASH COOLER
KING VALVE
EVAPORATOR
EVAPORATOR
EVAPORATOR
EVAPORATOR
NH3 LIQUID SUPPLY LINE
NH3 LIQUID RETURN LINE
EVAPORATOR
EVAPORATOR
EVAPORATOR
EVAPORATOR
HAZ-MAT STORAGE PLAN
PROPANE
4
HYDRANT




AMERICOLD ENGINE ROOM

Date _____

# HAZARDOUS MATERIALS
# CONTAINMENT PLAN

Facility Americold Address 750 W. Riverside

Developed by Ray Dickman Position Chief Engineer

I. Containment Plan: Explain how the hazardous materials in your facility will be contained should a leak or other uncontrolled release occur. Indicate the type of gas, liquid or solid hazardous material that could potentially be released and significantly threaten the health and welfare of employees, emergency personnel or members of the public; then answer the following for each of the materials identified.

1. Predicted direction of release (storm drain, sewer, atmosphere, etc.)
2. Method of safe neutralization
3. Containment points and methods of checking the hazard potential
4. Clean-up procedure
5. Color code for pipelines and/or containers
6. Emergency standby equipment to aid in control and containment

I. AMMONIA:

(A) General Concerns (MSDS Attached) Leaking Gas:

1) A large gas leak in an unventilated room can easily build to explosive limits (16%-25% with air). Any source of ignition should be suspect if explosive limits are reached.

2) Ammonia vapor pressure increases significantly with higher temperatures. The vapor pressure is O psi at-28° and 250 psi at 115°F.

3) Ammonia vapor density is .6 (40% lighter than air). Ignition temperature is 1205°F.

4) Avoid entry into gas cloud; if a rescue is necessary take proper precaution with sources of ignition.

5) Begin ventilation immediately.

6) The king valve should be closed. This will stop the liquid ammonia from continuing to flow from the receiver. Further shut down should be carefully planned as to not trap liquid

ammonia in a line; shut down should be planned with refrigeration Engineers help.

7) Ammonia can be diluted with water (100 to 1 dilution rate for liquid ammonia). One cubic foot of water will absorb 1300 cubic feet of ammonia gas.

8) Hose lines should be laid early in the incident in order to cover fire threat and dilution needs.

9) Gas leaks can be directed to the atmosphere by use of fans (smoke ejectors).

(B) Ammonia Liquid Leaks in the Engine Room:

1) All concerns indicated for gas are even more of a concern for a liquid leak.

2) Liquid leaks in the Engine Room will eventually seep into the floor drain system which leads to a sewer lift station located outside the South wall of the Engine Room. The lift station has a capacity of about 600 gallons. If the lift station overfills take the lid off the top of the station and shut off the lift station pump. Allow the liquid to run into the storm drain where it can be neutralized and diked.

3) The Watsonville Sewage Treatment Plant should be notified immediately (728-6077) or notify Watsonville Emergency Communications (911).

4) The Engine Room is equipped with fans that are powered from the Engine Room or the Electrical Power Control Room (South of the Engine Room).

5) Double doors located on the West side of the Engine Room can be opened to ventilate ammonia. The doors look like big ventilators from the outside.

(C) Evaporator Leak in Cold Room:

1) Minor leaks can be isolated and repaired.

2) Defrost water from the Engine Room can be directed to the evaporators. An attempt to neutralize an evaporator ammonia leak with defrost water is a safe procedure. The return water will drain into the defrost water storage tank and then the sewer lift station and finally into the sewer system. The Watsonville Sewage Treatment Plant should be notified if this procedure is used (728-6077) or Emergency Communications Center (911). If the sewer lift station fills, or the ammonia dilution is too rich remove the top (lid) from the lift station and flood with water. Shut down the sewage lift pump. The overflow can be contained and neutralized in the storm drain.

3) There is no floor drainage in the Cold Room. Hose streams for ammonia neutralization is discouraged because runoff water is apt to freeze on the floor and on packaged goods causing more damage.

4) Generally if a cold room is left open for more than several hours damage to stored products can occur. The Fire Department will work closely with the refrigeration personnel to minimize property damage while maintaining a safe working atmosphere.

(D) Dumping the Ammonia System:

1) If the emergency requires all the ammonia from the receivers to be dumped the diffuser can be used. The diffuser can be supplied with water in three different ways:

a) Water supply from Fire Department supply to Fire Department connection for automatic fire sprinklers.

b) Direct supply from a fire hydrant via a Fire Department pumper.

c) Direct supply from a hydrant.

2) The drainage water feeding into the storm drain should be tested for PH. An ammonia PH of between 9 to 11 is acceptable to be contained in a storm drain. Careful attention to not overpressure the ammonia diffuser is important. Hydrant pressure is generally acceptable to neutralize the contents.

(E) Neuralization of Ammonia

1) 100 to 1 liquid ammonia to water

2) 1300 cubic feet to 1 cubic foot gaseous ammonia vapor to water spray.

3) Unless special circumstances exist under no circumstance neutralize ammonia with an acid.

(F) Emergency Standby Equipment

This is a list of safety equipment that will be needed at each warehouse.

2 - Self Contained Breathing Apparatus

2 - Gas Masks with 2 $NH^3$ canisters for each

2 - Pair Neoprene coated gloves

2 - Pair rubber boots

4 - Pair throw away protective pants and jackets of sack suits with shoes

2 - Full face shields

1 - 100 feet of 1/2" dia. rope

2 - 18" pipe wrenches

2 - Eye wash and drench shower nearby

II. All other hazardous materials on our inventory sheet has a MSDS sheet (attached). The instructions for handling containment are indicated on the MSDS.

III. Pipline Color Code

High presure liquid and gas lines - Orange

Low pressure liquid and gas lines - Yellow

Glycol - Green

Defrost water - Blue

Relief valve line - Purple

Oil - Black

Date_____

HAZARDOUS MATERIALS

EVACUATION PLAN

Facility Americold Address 750 W. Riverside

Developed by Ray Dickman Position Chief Engineer

II. Evacuation Plan: Review the shaded hazard area indicated on the evacuation map. List all the businesses, churches, schools, industrial plants or other such occupancies residing in the evacuation shaded area. Include their address and telephone number. Include a general guideline for community evacuation concern (distance or area of evacuation). Also, indicate the building evacuation plan that your employees are to abide by.

EMPLOYEE EMERGENCY ACTION PLAN

A) FOR: NH-3 LEAKS, FIRE, OTHER EMERGENCIES

Upon smelling ammonia, or seeing a fire do the following:

1. Notify your Supervisor. (Make sure the Fire Dept. is notified)
2. Follow directions of your Supervisor
3. Stay clear of the hazardous area
4. Provide help if necessary
5. Stay calm
6. Escape through the emergency exits that avoids contact with dense ammonia fumes
7. Move to the evacuation gathering point located in the front parking lot of Valley Harvest (corner of Riverside and Industrial Rd.)

B) EVACUATION AREA CALL LIST

R. A. Shaw - East - 728-2281

Green Giant - North - 722-4601

Naturipe - West - 722-2439

Valley Harvest - West - 722-3527

City of Watsonville MSC - 728-6074

Santa Cruz Co. Transit Authority - 688-8600

(C) Evacuation Plan

According to the Department of Transportation, Hazardous Materials Emergency Response Guide the area of evacuation from large ammonia release could extend from 4 tenths to 6 tenths of a mile. The spread would resemble a large white cloud. The area of inundation would include the area indicated on the evacuation map (attached). Evacuation through a large and dense ammonia cloud should be avoided if proper safety equipment isn't worn. All employees are to follow the emergency action plan listed in Section (A) of this Evacuation Plan. For earthquake procedures see next page.

Earthgrains

750 W. RIVERSIDE DRIVE • P.O. BOX 1635 • WATSONVILLE, CALIFORNIA 95077
PHONE (408) 722-1330

# EMERGENCY ACTION PLAN

FOR: EARTHQUAKE

Before an Earthquake:

Be Prepared with:

1. A portable radio
2. Flashlights (with extra batteries)
3. A first aid kit
4. Pipe wrenches and crescent wrenches
5. Know where your gas, electrical, and water main shut-offs are
6. Reunite with crew members by making a check list of who is present that day on your shift

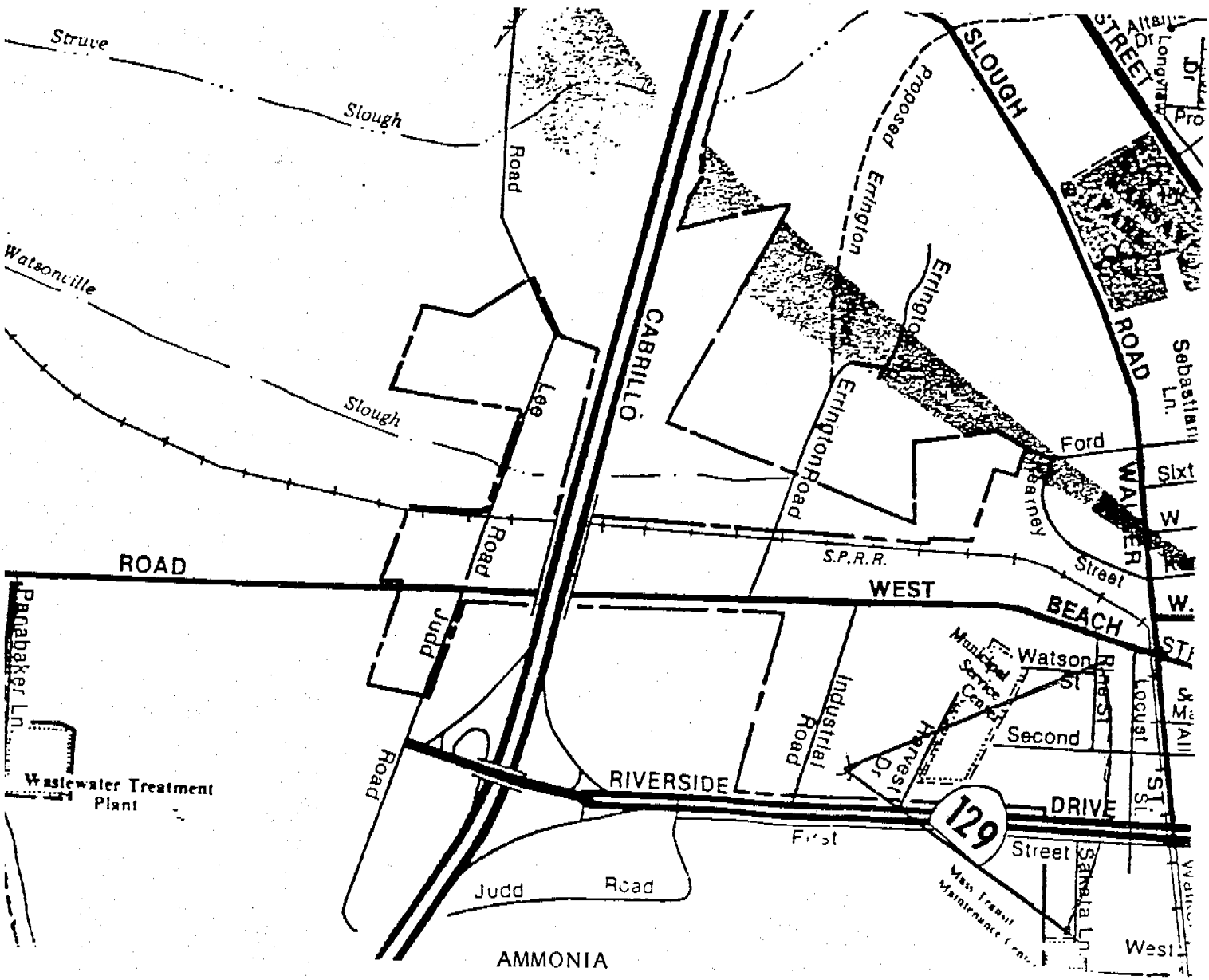
During an Earthquake:

1. If you are indoors, stay there! Get under a desk, table, or in a doorway. Stay clear of windows. Greatest hazards from falling objects may be outdoors - stay inside!!
2. If your are outside - get into the open; away from buildings and power lines.
3. If you are in the warehouse on a forklift, stop, lower the product to ground level and stay on your truck.
4. If you are on foot in the warehouse...
   A. Stay Calm
   B. Find a wall or doorway
   C. Find an exit
   D. Watch for falling product
   E. Find a column (wood post)

After an Earthquake:

The following should be done by the warehouse foreman, supervisors, and chief engineer:

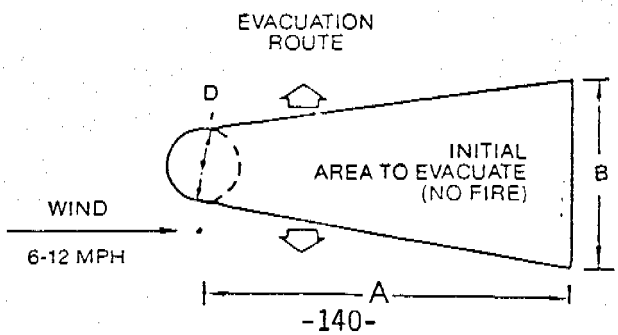
1. Stay Calm
2. Check for injuries
3. Check for safety
4. Check to see where your crew is
5. Check utility lines.
6. Shut off main gas valve
7. Shut off electrical power at the control box if there is any damage to the wiring.
8. All crew members report to the *Valley Harvest parking lot.*




AMMONIA

# TABLE OF DISTANCES TO EVACUATE

| (Based on TLV) | Observed Sq. Ft. Area of the Spill 200 | 400 | 600 | 800 |
|---|---|---|---|---|
| (A) Downwind, mi. | 0.2 | 0.3 | 0.4 | 0.4 |
| (B) Crosswind, mi. | 0.1 | 0.2 | 0.2 | 0.3 |
| (D) Circle, yd. | 40 | 60 | 80 | 90 |



Date _____

# HAZARDOUS MATERIALS
# TRAINING PLAN

Facility Americold Address 750 W. Riverside

Developed by Ray Dickman Position Chief Engineer

III. Training PLan: Indicate the training plan for the future year. Subject areas should include the following subjects: Safe handling of hazardous materials; hazards of the materials employees are exposed to; review of the entire Hazardous Materials Business Plan; first aid procedures - special emphasis on hazardous materials safety; proper use of safety equipment; proper fire safety; emergency responders notification; evacuation planning; earthquake safety. Indicate the dates and times of training and the names of those who attended.

A) Training Plan:

1) Breathing apparatus/safety equipment - 3 times per year.

Scheduled Engineering Staff

| Dates: | Actual Training Date | Instructor | Number in Attendance |
|---|---|---|---|
| 1. Feb. | | | |
| 2. June | | | |
| 3. Nov. | | | |

2) First Aid Training - 2 times per year - Ammonia - Crew 5 min. at monthly meeting.

Scheduled

| Dates: | Actual Training Date | Instructor | Number in Attendance |
|---|---|---|---|
| 1. March Training | | | |
| 2. Sept. Review | | | |

3) Hazards of ammonia and other materials stored, to include Engine Room operations and HMMP requirements - 2 times per year

Scheduled

| Dates: | Actual Training Date | Instructor | Number in Attendance |
|---|---|---|---|
| 1. April | | | |
| 2. Oct. | | | |

4) Fire Safety/Disaster Preparedness - 2 times per year

Scheduled

| Dates: | Actual Training Date | Instructor | Number in Attendance |
|---|---|---|---|
| 1. Jan. | | | |

Date _____

# HAZARDOUS MATERIALS
## EMERGENCY MEDICAL PLAN

Facility Americold Address 750 W. Riverside Dr.

Developed by Ray Dickman Position Chief Engineer

V. Emergency Medical Plan: Indicate the emergency medical treatment plan for all hazardous materials that offer a significant threat to employees, emergency personnel or the general public. The plan should indicate methods of neutralizing exposed materials, location and inventory of first aid kits, location of showers, eye wash, and other emergency treatment equipment.

(A) Emergency medical treatment can be attained by calling 911 (ambulance and Fire will respond to life threatening emergencies). Make sure you give the following information:

1) Exact location: Address and location where victim is being treated

2) Nature of injuries

3) Your name and telephone callback number

(B) First Aid Supplies

1) An eye wash and shower are located near the Engine Room (near the Truck Dock to Shop rollup door).

2) A First Aid Kit is located in the Warehouse Supervisors Office.

(C) Ammonia Burns (liquid contact)

1) IMMEDIATELY flush with large amounts of water (15 minutes or longer if necessary). The sooner the ammonia can be washed off the better! No ointments recommended for burns.

2) Ammonia soaked clothes must be removed. Be very cautious if stuck to the skin. Make sure to flow water on the material so that it can release from the skin without doing major tissue damage.

3) A physician should treat any person who has received ammonia burns or has been overcome by ammonia.

(D) Inhalation of Ammonia

1) Immediately evacuate to fresh air and take deep breaths of clean air. Delay will cause further injury (perhaps long term injury).

2) If unconscious, clear airway (tilt head back, remove false teeth or obstacles); if there is still no breathing begin mouth to mouth resuscitation (12 breaths per minute for an adult).

3) During treatment the victim should set comfortably or lie in a comfortable reclining position. The person should be kept quiet and warm (not hot). If breathing doesn't return to normal (no pain or difficulty breathing) a physician should be consulted. Lung congestion, pain in the chest, or other such uncomfortable feeling after breathing ammonia is a good sign for further investigation by a physician.

(E) Eyes

1) Immediately flush with water (15 minutes or more)

2) Remove contact lenses if worn

3) Eyelids must be held open for the water irrigation to be effective.

4) See a physician as soon as the victim can be safely moved (after washing out the eye with water).

(F) Internal

1) If a person has taken ammonia internally have them drink large quantities of water.

2) If vomiting starts make sure the victim's head is lower than his hips to prevent vomitus from entering the lungs.

3) Never give anything by mouth to an unconscious person.

(G) Other Chemicals

1) MSDS sheets are on file with the Fire Department. Medical treatment is indicated on the MSDS.

Date _____

# HAZARDOUS MATERIALS

## EMERGENCY NOTIFICATION PLAN

Facility Americold Address 175 W. Riverside

Developed by Ray Dickman Position Chief Engineer

IV. Emergency Notification Plan: Immediate verbal reporting of any release or threatened release (as long as it does not impede the immediate contro. of release or medical treatment of victims). Exception to reporting releases that do not pose significant present or potential hazard to human health, safety, property or equipment (a sample notification procedure form is attached).

(A) Notification

An emergency notification procedure (attached) is located in each room next to the exits and telephones likely to be used for emergency communications. We have 3 locations where the notification procedure is located.

Name of Facility _____ Date _____

# EMERGENCY NOTIFICATION PROCEDURE

1. Emergency phone numbers:

   (A) Fire, Medical, Police and Hazardous Materials: 911
   State OES (Office of Emergency Services) for Haz. Mat.: 800-852-7550

2. Business Line (Non Emergencies)

   (A) Fire 724-6060

   (B) Police 724-6104

   (C) A-1 Ambulance 724-3770

   (D) State OES 916-427-4341

Immediate Reporting Information

1. All Emergencies

   (A) Name of facility and address of the location of the problem.

   (B) Basic description of problem and exact location in the facility.

   (C) Your name and telephone callback number.

   (D) Hold the line for the dispatcher to gain further details unless your safety and welfare are jeopardized.

2. Hazardous Materials Reporting Criteria

   (A) By State law the following must be reported

      1. Immediate verbal reporting of any release of threatened release (as long as it doesn't impede the immediate control of release or medical treatment to victims). Exception to reporting releases that pose no significant present or potential hazard to human health, safety, property or equipment.

   Emergency telephone calls to:

      Fire - 911 or 728-6110

      State OES - 800-852-7550 or 916-427-4341

   (B) Further details in reporting Haz. Mat. emergencies

      1. Exact location of release
      2. Name of person reporting
      3. Type of hazardous materials involved
      4. Estimate of quantity involved
      5. Potential hazards presented by release

Date _____

# HAZARDOUS MATERIALS
## BASIC ROOM PLAN

Facility Americold Address 750 W. Riverside

Developed by Ray Dickman Position Chief Engineer

VI. Basic Room Plan: Provide a basic plan of action for handling hazardous materials stored and used in each room. The plan shall identify the amounts of storage (as identified on the inventory statement) and the manner in which the material is supposed to be stored and/or handled. The plan shall also include information regarding how to mitigate a spill or emergency release within the room. This plan should be posted on the wall adjacent to the entrance to the room (the Fire Inspector will aid in locating a mounting spot).

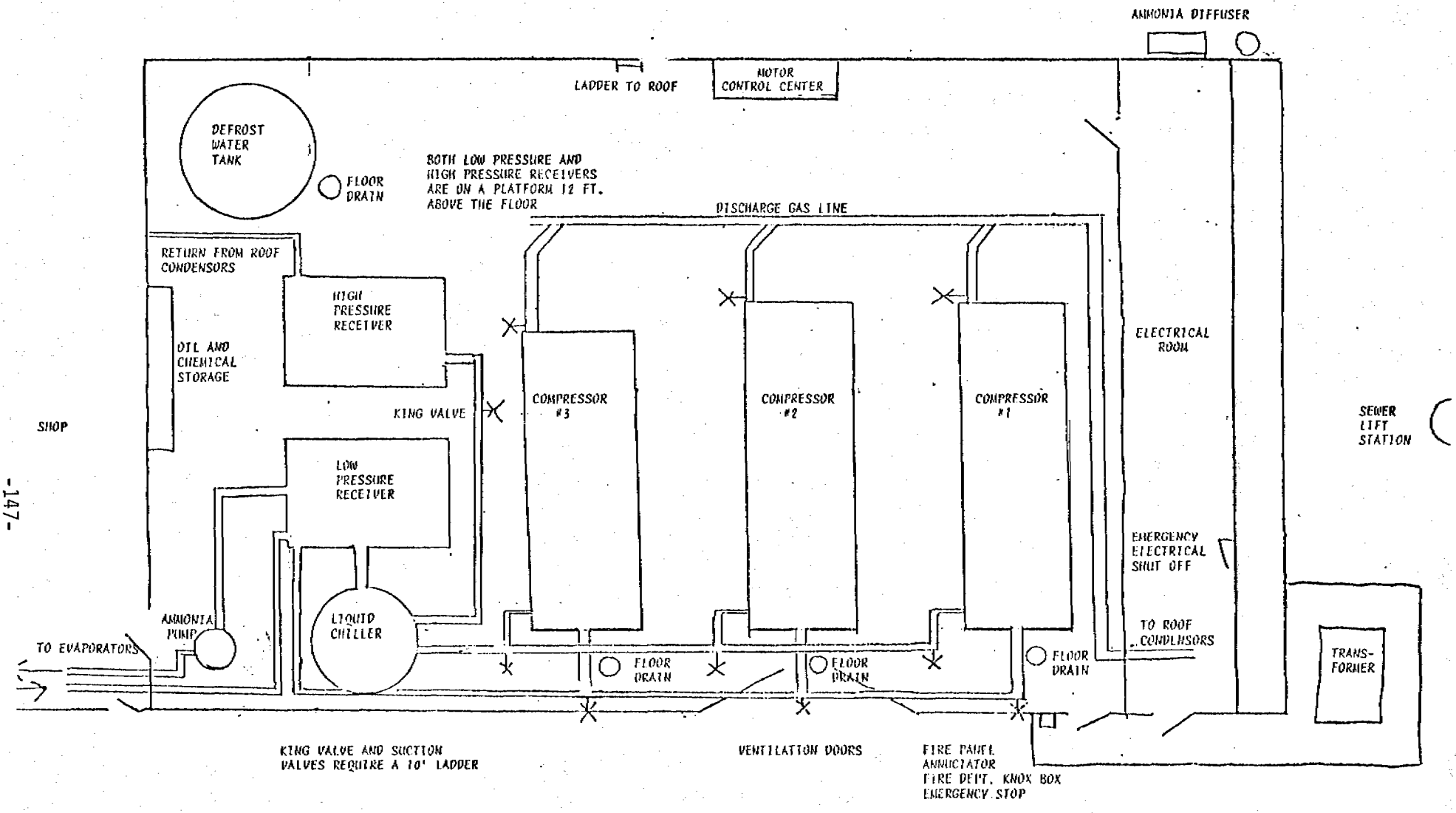
1. A room plan is attached

2. Chemicals Stored in Drums

The chemicals stored against the North wall are mildly corrosive and toxic. Check the MSDS (attached) for details on how to safely approach, contain and control these chemicals.

We have two 40 lb. bags of Absorbal stored in the tool room. This material can be used to dike and absorb spilled chemicals. The chemicals should be prevented from entering the soil or waterway (dike from storm drain, floor drain, sewer system, etc.).

3. Ammonia (See Containment Plan for details).




AMERICOLD ENGINE ROOM

# HAZARDOUS MATERIALS
## EMERGENCY INSPECTION CHECKLIST

1. Secondary containment for any materials that would pose a significant threat to neighboring property, environment, or water supply.

2. Separate incompatible materials by proper distance, dike or non-permeable barrier.

3. Signs and placards

   A) All equipment used to shut down a system containing hazardous materials shall be properly identified by signs that meet the Fire Department's approval.

   B) Rooms and areas containing hazardous materials shall be placarded according to the Fire Department. the NFPA 704 system shall be utilized for area and room hazard identification.

   C) All portable tanks shall be properly labeled with the type of product contained inside containers.

   D) All signs shall be a minimum of 12" X 18" in size. Lettering to be minimum 2" in size with 1/4" stroke.

4. Relief valves properly installed and vented at least 3 feet above the roof line.

5. Facility haz-mat area secure from unwanted entry - door locks, gates, fences, etc.

6. Housekeeping - rooms clean; equipment - clean, lubricated, free of corrosion, quiet bearings and proper mountings, running smooth.

7. Electrical wiring safe, clean, properly labeled, with emergency shut off easily assessible.

SOUTH COUNTY FIRE COUNCIL

BREATHING APPARATUS AGREEMENT

The following is a review of the fees charged and services provided by your local Fire Department should you desire to partake in the Breathing Apparatus Agreement.

I. Services

1. Fill air bottles free of charge

2. Training - (1) Semi-annual done individually by the Fire Department for each business

(2) Annual training seminar - located at a Fire Department selected position

3. Cascade Unit availability to fill empty bottles on site - unless a fire emergency occurs which requires the Cascade Unit and/or personnel manning it.

4. Field maintenance and inspection - Quarterly check of breathing apparatus (coordinated with the emergency plan update)

5. Hydrostatic test of all air bottles

6. 8 additional SCBA units with spare bottles

II. Fee - Payable to South County Fire Council

a) $150 per year - base rate for 2 units or less

b) $10 additional for all units over 2 units

NAME OF COMPANY_____ DATE_____

PHONE #_____

AGREEMENT FOR RELEASE

OF LIABILITY

Undersigned has agreed to participate in a Self Contained Breathing Apparatus (SCBA) Program with the South County Fire Council and the local Fire Department.

As a part of the agreement the undersigned has agreed to pay $150 annual fee to the South County Fire Council.

The Fire Department has agreed to perform basic inspection, training, and maintenance of the self contained breathing apparatus, fill empty SCBA air bottles free of charge, and provide additional breathing apparatus equipment and air filling support.

The Fire Department is not an official breathing apparatus repair and maintenance facility.

The Fire Department does not guaranty that a SCBA unit will not fail after leaving the immediate control of Fire Department personnel. Any efforts of the Fire Department to inspect, train, and maintain breathing apparatus does not substitute for the responsibility of the undersigned or its plant employees to regularly inspect SCBA's for safe condition and readiness, and to train employees on the proper use of SCBA units.

Undersigned voluntarily undertakes at its sole request to participate in use of the SCBA units which involve a risk of danger and potential injury to the person using such SCBA units, if such SCBA units are not properly used and maintained.

Undersigned agrees as a condition to participation by South County Fire Council and the local Fire Department that the officers, agents and employees of the City and in the Fire Department shall be free from any and all liability and claims for damages and/or suits for or by reason of any death or injury from any cause or causes whatsoever which undersigned or an employee/agent of undersigned may suffer during use of a SCBA unit.

UNDERSIGNED HAS CAREFULLY READ THIS AGREEMENT AND FULLY UNDERSTANDS ITS CONTENTS. UNDERSIGNED IS AWARE THAT THIS IS A RELEASE OF LIABILITY AND A CONTRACT BETWEEN THE CITY OF WATSONVILLE AND UNDERSIGNED, AND THAT UNDERSIGNED SIGNS IT OF ITS OWN FREE WILL.

SIGNATURE_____

PRINTED NAME_____

DATE_____

Undersigned acknowledges that I witnessed the above-name Applicant receive, read and sign this Agreement for Release of Liability and that Applicant did so without any reservation or duress.

DATED_____

SIGNATURE