PLAINTIFF'S EXHIBIT

UC-1736

MEMORANDUM

SAFETY AUDIT OF THE BROWNSVILLE PLANT

INTRODUCTION

A safety audit of the Brownsville Plant was conducted January 27-29, 1971, by J. L. De Roo of the Group I Safety Department and H. Ritchie of the Texas City Plant Safety Department. J. L. Friedel and T. B. Tiffany of the Brownsville plant assisted the audit team in scheduling field inspections and discussion sessions with plant personnel.

Discussions were held with plant management, industrial relations, maintenance, operating, and utilities personnel. Field inspections were conducted in the Shipping and Field Storage areas, the Barge and Tanker Docks, the Maintenance Shops, the Utilities Area, the No. 2 Reaction Area, and the north and south Recovery Areas.

The Brownsville plant has one of the most impressive safety records in Group I. Since the beginning of operations in 1961, they have had only seven disabling injuries. They have achieved accident-free performance during six of the past ten years of operation and have received numerous UCC and MCA safety awards. In 1970 Brownsville was the only Group I plant to operate the entire year without sustaining a single disabling or serious injury.

SUMMARY AND RECOMMENDATIONS

A. Organization - Administration

The safety program at the Brownsville plant receives strong direction and leadership from the plant manager's group. For example, the manager and his assistant participate in the safety indoctrination program for new employees, conduct Department Head Safety Meetings, take part in injury and other serious incident investigations, and assist in on-site safety inspections of plant facilities.

Each year, the plant safety objectives are stated in writing and copies are disseminated to all plant personnel. The audit team feels that all management levels appear to be committed to the attainment of these objectives and they are keenly aware of their safety-related responsibilities in this regard. The plant safety effort is enhanced by the active involvement of plant personnel in the activities of the Hurricane Inspection Committee, the Industrial Mutual Aid Committee, and the Safety and Procedures Committee.

Recommendations

1. Develop a more regulated meeting schedule for the Safety and Procedures Committee. Meetings on a monthly scheduled basis is the usual practice at other Group I locations.

2. Consider affixing an attractive, distinctive marking to the hard hat of each member of the Safety and Procedures Committee to promote and encourage open communication between committee members and other plant personnel.

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3. The audit team feels that safety would get an added boost if the plant managers group took part in all monthly unit safety inspections.

B. Safety Programs and Activities

An energetic safety meeting schedule is maintained and involves all levels of supervision as well as hourly personnel. The plant manager's group holds weekly safety meetings with the department heads and day shift superintendent. The department heads and shift superintendents meet monthly with their respective supervisory personnel; occasionally, meetings involve interdepartmental participation. Shift safety meetings are held at least weekly and sometimes more frequently when the need arises. Monthly safety meetings are held by the Maintenance Department.

Accident investigation procedures are good, and the proper people are involved. There appears to be adequate followup with proper emphasis on assignment of responsibilities and establishment of completion dates.

"Tag Along", Brownsville's mini-version of the Job Safety Analysis program, appears to be effective in helping eliminate job injuries.

Two additional safety activities worthy of note are "Dial 222 for Safety", a recorded telephone news and information message of general interest; and "Home Safety", a National Safety Council magazine mailed quarterly to each employee's home.

Recommendations

1. Develop a formal safety training program for all supervisory and technical personnel.

2. Maintain permanent records of all safety meetings. The topics discussed and the names of all persons in attendance should be recorded for future reference.

3. Display the current Group I Safety Policy and Practice Statement along with departmental and/or plant safety rules.

C. Safety Rules and Procedures

Work procedures pertaining to vessel entry, master tag warning system, machinery lockout, etc., are current and appear to contain all of the essential elements to safeguard plant personnel and equipment during construction, maintenance, and operations. In addition, the plant safety policies concerning the use of eye, ear, and head protection are in keeping with those practiced throughout Group I.

The plant safety effort is enhanced by requiring all contract and other nonplant personnel to comply with the above stated procedures and policies when conducting business in the plant.

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Recommendations

1. Display departmental safety rules prominently in each production unit and general plant facility.

2. Develop and implement a policy governing the safe use of fixed and portable ladders.

3. The audit team believes that the effectiveness of the hazardous incident or unsafe condition report system could be improved if the format included followup assignments and target completion dates.

D. Environmental Safety

During the physical inspection, attention was directed to occupational noise, housekeeping, safety equipment, equipment layout and adherence to safe practices. General compliance with UCC standards was noted with respect to fixed ladders, operating and maintenance platforms, handrails, aisleways, etc. Some personnel safety equipment was found unsuitable for use.

Recommendations

1. Revise the present system for cleaning and repairing respiratory equipment. We feel that the person responsible for the cleaning and repair work should be specially trained for the job. In addition, the work area should be clean, well lighted, and ventilated with clean, dust-free air. A hot and cold water supply and kitchen-type sink is also essential. Adequate space for storage of clean ready-for-use equipment and spare parts will also be needed.

2. Check all prescription safety glasses currently used by employees on the job. It appears that some glasses may be deficient; street-type frames are being used rather than approved safety type.

3. Welders in the shop area should be encouraged to use portable shields to isolate the glare from cutting and welding operations.

4. Review new federal safety standards governing use of compressed air "blow-guns". The maximum allowable discharge pressure is 30 psi.

5. Install noise warning signs in the work areas adjacent to the high pressure pumps on the west equipment pad of the No. 2 Reaction Unit.

E. Process Safety

Major Hazard Surveys have been completed for the Acetic Anhydride Unit, Reaction Facilities, Oxygen Plant, and Electrical Distribution Facilities. The final report of the Oxygen Plant survey is being prepared. Action plans have been issued for the Acetic Anhydride Unit and the Reaction Facilities. Surveys

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for the Steam Plant and Process Water Facilities and the Recovery Facilities are in progress. The survey for the Shipping Facilities, which will conclude the Major Hazard Survey Program at Brownsville, is planned for the third quarter.

Safety reviews in conjunction with plant revisions (shop order jobs involving new or changed equipment and new or changed operating procedures) are conducted by appropriate plant personnel prior to startup of the facilities.

All of the production units and the Shipping Department have written operating procedures.

Recommendations

1. Install discharge pipes on the outlets of the safety valves on the refrigerant storage tanks in the No. 2 Reaction Unit. The pipes should be directed upward and a 3/8-inch weep hole drilled at the low point of each.

2. Update the Recovery Facilities operating manual by incorporating all of the pertinent operating instructions and daily notes which have accumulated since the last updating effort.

F. Fire and Explosion Control

The fire fighting and emergency rescue functions are under the direction of the shift superintendents. The fire squad is composed of five (5) men per shift and thirteen (13) men from Maintenance. Only six (6) of the present group of 37 men served on the fire squad as little as five years ago. There are two training drills per month and two major disaster drills each year.

Two emergency vehicles are available for fire and emergency rescue operations; an ambulance (formerly the plant mail delivery truck) and a 10-year old fire truck equipped with a 750-gpm, 150-psi fire pump.

The Brownsville plant is a member of the Port of Brownsville Mutual Aid Association. A plant policy has been prepared governing the plant's participation in the activities of this mutual aid group.

An Autocall fire alarm system is installed with an emergency backup power supply. This equipment performs satisfactorily. The fire alarm box locations are shown on the plant fire map and are described on a pocket-size, ready-reference card.

Well-developed plant procedures are used to govern the frequency of the inspection, testing, and maintenance of fixed fire protection facilities such as sprinkler and water spray systems, fire pumps, elevated fire water tank, and hydrants and hose houses.

The storage of bulk flammable liquids and their shipment by tank car and tank truck is very well managed. The work procedures are well defined and the equipment is maintained in good working condition. The drum loading operation has substandard grounding.

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Recommendations

1. Discontinue the present plant practice of converting a used plant mail truck into an ambulance. The audit team suggests that the procedure should be reversed; the plant ambulance, when obsolete, should be converted into a plant mail truck.

Mr. Ritchie and Mr. Friedel discussed ways of improving the emergency equipment carried in the ambulance. We trust that every effort will be made to conform with Mr. Ritchie's recommendations.

2. A thorough review should be made of the static electrical grounding system which is provided for the drum-loading facilities. When inspected, some of the product transfer lines and the filling pipe were not properly bonded and grounded.

3. Review with Shipping personnel the safety policy governing the use of safety goggles when filling tank cars with glacial acetic acid.

G. Test and Inspection

The inspection and testing of process equipment is scheduled on a systematic basis. Each January and July all the department heads are informed by the Maintenance Department (Equipment Safety Staff Assistant) of the impending tests. The scheduled tests are usually made at the first opportunity. In the event testing is put off rather than interrupt operations, the plant managers will assist in the scheduling.

Up-to-date records are maintained by the Works Engineering Department on all equipment test dates, physical design modifications, materials of construction, maximum allowable working pressures, test pressures, etc.

All plant hose is inspected and tested on a three-month schedule. An annual inspection schedule is usually set up for new safety valves, vent units, and flame arresters. The test program for this type equipment is established by each department head and the Equipment Safety Staff Assistant.

H. Electrical Distribution System

The electrical distribution system appears reasonably well maintained and satisfactorily protected against major damage from fire, high wind, and plant vehicles. Motor control centers are clean, satisfactorily ventilated, and properly identified.

Recommendations

1. The threaded portions of the two-piece, cast aluminum, motor-starter housings in the recovery area switch rooms appear to be inadequately sealed against entry of vapors. It appears that engagement of a few more threads is needed in order to properly seal the explosion-proof housing.

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2. It appears that the motor controllers in the shop building have no lock-out feature. A lock-out arrangement should be devised as soon as possible.

I. Security

A contract guard force (Burns Detective Agency) is employed to maintain plant security. Three of the four present guards have more than three years of experience at the plant and one has over eighteen months. The guard coverage and duties are clearly described in Section V-B of the plant Safety and Procedures Manual. This section of the manual also contains the plant admittance procedures for employees and visitors and entry practices for automobiles, trucks, and railroad cars. All of the procedures appear adequate.

GENERAL OBSERVATIONS AND RECOMMENDATIONS

1. Oxygen equipment for emergency breathing purposes should be provided in the plant dispensary. A simple system consisting of preconnected oxygen cylinders, a fixed-in-place piping distribution system, and a minimum of three quick-connect type dispensing points should be considered for immediate installation.

2. The air conditioning and ventilation system in the black light inspection area appears inadequate and should be checked. The general housekeeping in this area could be improved.

3. The following safety suggestions apply to the plant utilities area:

a. The present gauges on the discharge side of the sulfuric acid feed pumps should be replaced with new gauges with the proper pressure range.

b. Consider the need for a check valve in the sulfuric acid tank outlet line to prevent the hazardous back flow of water into the tank.

c. Provide a guard around the ball valve handle at the grade level acid injection connection.

d. The present caustic facilities and procedures involve many potentially hazardous manual operations. Consideration should be given to buying caustic in bulk and dispensing it through a closed piping system.

e. A chlorine leak repair kit and suitable protective clothing and breathing equipment should be available for emergency use. All persons involved in the handling of chlorine would be trained in the effective use of this emergency equipment.

f. Consideration should be given to shielding the existing chlorine supply line from possible exposure to the 600-psi steam line

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