PLAINTIFF'S EXHIBIT

UC-1799

MEMORANDUM

SAFETY AUDIT

BROWNSVILLE PLANT

Introduction

The second annual safety audit of the Brownsville Plant was conducted February 8-10, 1972 by J. L. DeRoo of the Group I Safety Department. The audit consisted of interviews and discussions with plant management and operating personnel and an inspection tour of various facilities and operations within the plant. In addition, the current status of the recommendations which were previously reported following the 1971 plant safety audit were reviewed with the plant safety coordinator.

In conjunction with the safety audit a meeting was held with the plant OSHA Committee to discuss and seek answers to OSHA-type questions arising from their "inhouse" inspection survey. Some of the more significant items discussed at this meeting are contained in this report.

Safety Performance

The plant's 1971 injury performance was marred by two disabling injuries; one in the month of February and one in June. Prior to the February injury, the plant employees had completed twenty consecutive months without incurring a lost time injury. The year-end disabling injury frequency rate of 5.35 and serious injury frequency rate of 8.03 were achieved by working the last six months (220,000 man-hours) of 1971 without a single serious injury. The plant's past three-year injury experience is summarized below:

Year	DIFR	SIFR
1968	0.00	0.00
1969	5.44	5.44
1970	0.00	0.00

The 1971 fire loss experience is outstanding. The property losses resulting from twelve minor fire incidents amounted to approximately $4,000.

Three Major Hazard Surveys were conducted in 1971 - Utilities Plant (Steam and Water Systems), Electrical Energy System, and Distribution Facilities. Final reports were issued for each of these surveys in 1971 and action plans were prepared by plant management.

Discussion

A. Progress Review of 1971 Safety Audit Recommendations

Many of the safety recommendations have been successfully implemented; the following are noteworthy:

1. The Safety and Procedures Committee is now meeting on a monthly scheduled basis.

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2. Monthly safety meetings are now scheduled for technical and supervisory personnel.

3. All new technical employees are given fire extinguisher and emergency first aid training.

4. Cleaning and repairing of respiratory equipment is now being done by specially trained plant personnel.

5. Warning signs have been posted in all plant areas having high noise levels.

6. A chlorine leak, emergency repair kit was purchased and plant personnel trained in its use.

Implementation of the following 1971 recommendations would help strengthen and enhance the plant safety effort:

1. Top level involvement by the plant management group in monthly unit safety inspections would be an asset to the plant safety program.

2. All operating units should display their safety rules in a prominent manner.

3. Welding operations should be properly shielded to protect shop personnel from the painful and harmful effects of ultraviolet and infrared radiation.

4. 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.

B. 1972 Safety Audit Observations and Recommendations

A summary of the observations made during the field inspection portion of the audit are discussed below:

Shop Building No. 424

1. The cleaning of small scale electric motor parts should be restricted to a well ventilated section of the shop. An industrial-type solvent cleaning rig should be used rather than the open top metal containers (pails, buckets, etc.) which were noted during the safety inspection. Signs should be posted instructing personnel to wear proper eye and hand cover protection while performing solvent cleaning operations.

2. Install OSHA-type safety guards on all fixed and portable ventilation fans. The openings in the present fan blade guard cages are too large.

3. The rated load limit of the overhead hoists in the carpenter shop and electric shop should be displayed on both the support beam and hoisting unit.

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4. Install an appropriate sign on the sprinkler system drain valve located in the welding shop toilet room.

5. Welders in the shop area should be required to use portable shields to isolate the glare from cutting and reduce the hazard of flying sparks and welding operations (particularly arc welding).

6. Provide safety guards on all floor mounted power saws and drill presses in accordance with OSHA regulations.

7. Check out the electrical power and lighting circuits supplied from the breaker panels in the carpenter shop. There is a strong possibility that some of the information on the circuit identification cards could be incorrect.

8. In order to comply with the present OSHA general standards, a "dead-man"-type safety shutoff switch should be installed on all portable hand-held tools (pneumatic or electric driven).

9. The welders washing and toilet facilities appear substandard and housekeeping needs more attention.

Building No. 425

1. Install a safety guard on the steam supplied room heater blower fan in the vehicle service garage.

Plant Utilities Area

Complete 1. The discharge from the safety valve on each of the caustic metering pumps should be piped to ground level.

Complete 2. Consider installing a safety shower and eye bath adjacent to the caustic drum dispensing area.

Completed 3. Install a locking-type handle on the sulfuric acid injection line drain valve (ball valve) to help avoid accidental opening.

S.O. written 4. Install safety guards on the drive shafts of the steam boiler blower draft fans.

Sandblasting and Dimetcoting Area

1. Housekeeping is extremely poor in this area. The washing and toilet facilities are not adequately maintained and the haphazard storage arrangement of assorted discarded materials within the building provide hundreds of hiding places for rats and snakes.

2. The food preparation area is unsanitary and the practice of storing food in the refrigerator along with bottled chemicals should be discontinued.

3. Consideration should be given to the installation of a fire alarm box in this remote area of the plant for personnel safety purposes.

4. A new safety shower and eye bath fountain should be installed to serve this area.

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C. Occupational Safety and Health (OSHA)

Summarized below are some of the more significant questions and answers which were discussed with the plant OSHA Committee:

Subpart D of Federal Regulation

1. How large can holes be around piping, etc?

The approach which Group I should adopt is outlined by Mr. C. K. Wood's April 10, 1972, letter to Mr. C. S. Hines. "It is recommended that we do not change our existing Group I grating standards relating to clearances around pipe."

2. Do we go by OSHA or Construction Standards for scaffolds?

Brownsville should follow OSHA standards when Brown and Root are engaged in routine (turn around) maintenance activities.

3. Do portable grinders need an exhaust system?

Portable grinders which are used on metals such as carbon steel, stainless, monel, and similar metals do not require a dust exhaust system while metals such as Berylium, zink, lead, etc., do.

4. The fume hood and exhaust system works well in the Black Light room but is not built according to standard. Concentration of chlorothane is well below TLV. Is it necessary to change?

Based on my visual observations it appears that the fume hood will perform satisfactorily; however, I suggest you have our industrial hygienist at Houston check its performance.

Subpart H

1. Are we out of compliance by having hydrogen cylinders in the lab?

I see no problems arising from using a few hydrogen cylinders in the lab as long as they are securely fastened to prevent toppling and that they are accessible for immediate shut down in the event of an emergency.

2. Will the oxygen plant gas cylinder storage area west of the motor control center be acceptable if the cylinders are raised off the damp floor? Is this area too congested?

The present arrangement of gas cylinders appears safe--a raised dry support surface would be needed.

3. What is standard on having acetylene cylinders adjacent to oxygen cylinders on cutting rigs?

My best advice is to continue to follow standard UCC welding practice.

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4. OSHA standard calls for labeling the operating pressure and flow capacity of all tank vent units. Should this be done?

Our position at this time requires that records containing this information be kept on file and be readily available for review by state and federal safety inspectors. We see no advantage to affixing this information to the individual vent units.

5. Piping carrying organic liquids must be painted. What condition must paint be maintained in over a period of years? Copper, etc.?

Where piping is subject to external corrosion, it should be painted in accordance with UCC painting specifications and plant practice.

6. Piping and valves on butane spheres rated at 150 psig rather that at 250 psig. Expect any problems from OSHA inspector?

Paragraph 1910.110, b, 7, i, which refers to the use of 250 psig valves in liquified natural gas (LNG) service does not apply to storage of butane in chemical plants. As long as we follow our standard valve and piping specs, we should have no problems.

7. Provisions shall be made to compensate for expansion, contraction, jarring, vibration, settling of butane spheres. Is this really necessary?

Yes, all these are necessary and all were included in the original design and installation of the spheres.

Subpart I

1. Should we paint the stripe on gas mask cannisters? Also, other safety equipment and sign warnings?

Cannisters should be supplied from the manufacturer with the appropriate color coding; therefore, no additional painting should be required. According to the Federal Regulations, identification stripes can be in the form of colored pressure-sensitive tape.

2. What can be done about special safety glasses under gas masks, etc.?

Special safety glasses should be made available for those persons who normally wear prescription glasses and are required to wear a gas mask during the performance of their permanently assigned job or are a member of the plant emergency fire or rescue squads.

3. Who should conduct training for personnel that will maintain and repair the personnel safety equipment?

Start with the vendor or manufacturer; for a minimal charge they should be able to fulfull your needs. If these arrangements cannot be made, contact Mr. H. C. McGinnis at our Institute Plant; I'm sure he will be able to help.

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4. Would the fresh-air equipment issued from the tool room be considered emergency equipment?

Not necessarily but, it should be used and maintained in the same way as respiratory equipment which is used for emergency purposes.

Subpart J

1. Will it be necessary to have hot water in all rest rooms?

Yes.

2. Will it be necessary to have a rest room in the storeroom for women?

Since there is only one girl involved and she has an opportunity to use the rest facilities in the main office building during her mail deliveries and switchboard relief activities, I see no reason to provide a women's rest room in the storeroom.

3. What about eating in control rooms?

I see nothing wrong with eating in control rooms as long as the eating area is maintained in a clean, orderly manner and is free of chemical contaminants.

Subpart L

1. Do we need pressure reducers at all hose cabinets since the pressure will go above 80 psig when the fire pumps are on?

The Federal Regulations state that pressure reducing devices are needed when the static pressure on the hose supply system exceeds 100 psig. At Brownsville the normal static pressure is approximately 70 psig; thus, pressure reducing devices will not be required.

2. Should additional fire alarm boxes be provided on each floor to obtain a maximum horizontal travel distance of 200 feet to the nearest box? Does this mean we need a box on every level?

At grade level in process areas we should comply with this 200-foot requirement, but for those above-grade levels, such as operating access levels in process equipment structures, where operating personnel are not permanently stationed, it is not necessary to comply. If a control room or operator shelter is located above grade in a process equipment structure, it should have a fire alarm box immediately available.

3. Are connections needed for fire truck on sprinkler equipment?

Fire department connections are not needed in instances where our plants have their own fire water pumping and distribution system.

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Subpart M

1. Air receiver at sand yard lies on the ground with chocks to keep it from rolling. Is this acceptable, or should it be permanently mounted on a base?

I would suggest that the air receiver be supported off the ground on heavy timbers, using wood saddle supports to prevent rolling.

JLDeRoo/map:ero
5/3/72

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UNION CARBIDE

INTERNAL CORRESPONDENCE

CHEMICALS AND PLASTICS • P. O. BOX 8361, SOUTH CHARLESTON, WEST VIRGINIA 25303

To (Name) Mr. H. B. Coons (5)
Division
Location Brownsville Plant

Date May 3, 1972
Originating Dept. Group I Safety

Copy to Mr. A. R. Anderson
Mr. J. L. Friedel ✓
Mr. R. C. Glock
Mr. R. C. Hieronymus

Subject Annual Plant Safety Audit
Brownsville Plant

Dear Henry:

The attached report contains a discussion of my observations and recommendations resulting from my February 8-10, 1972 safety audit of the Brownsville Plant. This report is in large part a confirmation of the discussions with your plant safety coordinator, Jim Friedel, and your plant OSHA Committee.

Please do not hesitate to contact me for clarification or any assistance which I may provide.

Very truly yours,

John L. DeRoo

JLDeRoo/map

Attachment

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INDUSTRIAL RELATIONS

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