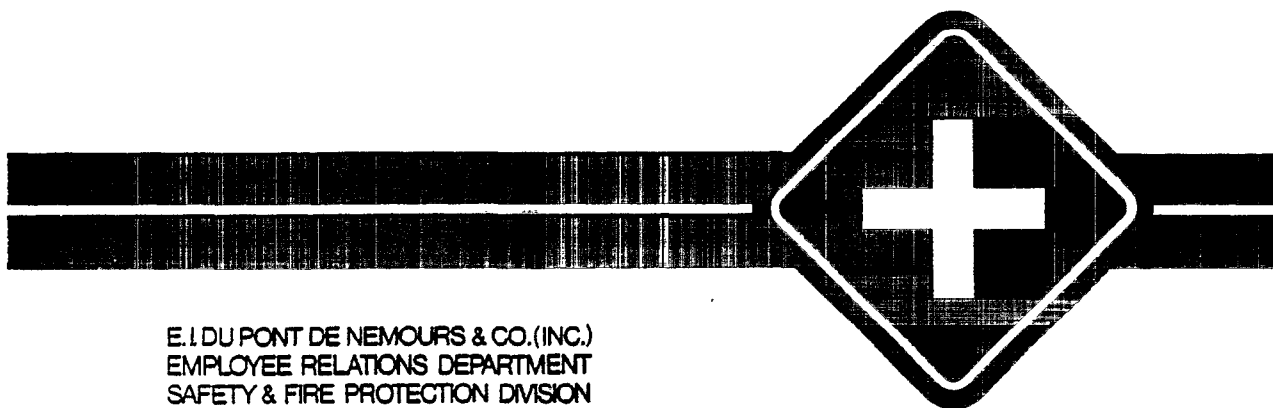


ER-8660

Safety Survey

BEAUMONT WORKS
POLYMER PRODUCTS DEPARTMENT
BEAUMONT, TEXAS

REPORT NO. 1173
DECEMBER 7, 1981



E. I. DU PONT DE NEMOURS & CO. (INC.)
EMPLOYEE RELATIONS DEPARTMENT
SAFETY & FIRE PROTECTION DIVISION
WILMINGTON, DELAWARE 19898

DUP 0502455.001

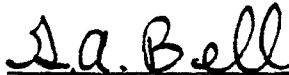
INTRODUCTION

A complete safety and fire protection survey was conducted November 2-13, 1981. This report documents the summary and analysis as presented to the assistant manager and staff at the conclusion of the survey.

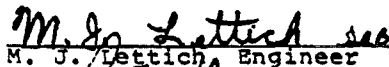
The terms for evaluation are Excellent, Good, Fair and Poor; the first three are degrees of satisfactory performance.

Within three months please respond to the recommendations in this report and to any field observations with which you disagree. If there are any questions, please contact us.

SAFETY AND FIRE PROTECTION DIVISION



G. A. Bell, Senior Engineer



M. J. Lettich, Engineer



E. E. Munson, Consultant Supervisor

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SUMMARY

The overall status of safety and fire protection is Excellent. Safety Administration, Safety in the Work Environment, and Work Practices are Excellent. Process Hazards Management and Emergency Control are Good.

Control of contractor activities on the works should be strengthened to assure that contractor employees are not unnecessarily exposed to Du Pont hazards nor unnecessarily exposing Du Pont employees and property.

To improve process hazards reviews all recommendations, background information and overall documentation should be included to make them more useful during future reviews.

Better inspection and testing of small receiver-mounted air compressors, forklift trucks and ladders is needed.

Additional fire protection equipment or other means to more efficiently utilize fire brigade manpower is recommended.

The four-part plan to increase fire water supplies is endorsed and early implementation encouraged.

Inspection and testing of fire protection equipment should be improved by providing written procedures, improved recordkeeping, improved fire pump testing, and performing full flow drain tests for sprinkler systems.

SAFETY ADMINISTRATION - Excellent

The Central Safety and Health Committee is properly organized and effectively administers safety on the plant. Subcommittees have good participation and area safety organizations and programs are good.

Monthly on-job safety meeting themes include plant-dictated topics such as reviews of fire extinguishers, pneolaters, and occupational health concerns. This leaves little time for area defined problems. Many of these topics should be covered annually by the area training program so the safety meetings can concentrate on timely area subjects. Off-job safety programs are thorough and timely.

The plant has a formal training program and there are many tests and checks as personnel advance through the progression. Training and retraining records are well documented.

The plant safety manual is current, but some deficiencies were found. For example, the compressed gas procedure does not indicate that cylinders should not be used beyond the stamped test due-date. Procedure Review Committees do not utilize current Engineering Standards, Guidelines, and other reference sources to insure the plant procedures meet all current requirements.

Area operating instructions are current and readily available. Some areas have converted their procedures to a new, simpler, more understandable format and others are planning to. This program is endorsed as it puts the information in a form which is easier to find and use under both normal and emergency conditions.

Control of contractor work practices is a continuing problem. The plant contractor safety committee has recognized this and is studying a method for improving contract administrators knowledge regarding safety requirements. A person familiar with area hazards should monitor contractor jobs to determine that contract and safety requirements are met.

PROCESS HAZARDS MANAGEMENT - Good

The Process Hazards Management Committee is properly organized to monitor process hazards programs for landlord and tenant operations. The committee audits area programs, procedures, hazards reviews, and provides training in process hazards review methods.

Review of the old pressure relief valve procedure versus the new proposed procedure showed that several deficiencies have been corrected. However, additional details on set-point tolerances and testing requirements should be included. Other equipment test standards are scheduled for review and should undergo thorough scrutiny.

Prestart-up inspections for new equipment and change-of-design procedures for alterations of major equipment are good. Small changes which can be done on a work order do not require approvals. Any change should include a hazards review and require proper authorizations.

Analysis of process hazards reviews from several areas indicate that they are generally of good quality with worthwhile recommendations, but some deficiencies were noted. In some reviews recommendations have been filtered and controversial ones eliminated, leaving only items which will be accepted. All recommendations should be included, and if rejected, the reasons

listed. This will assist the work of future review committees. Also, changing economic or operating conditions may alter the property-loss impact of a given hazard or the practicality of corrective measures in the future.

Some review recommendations are too general in nature, such as a recommendation to revise the operating instructions while not identifying any specific deficiencies. Several reviews did not identify the background documentation, such as operating instructions, process variables and P and I diagrams that were used in the review.

Recommendations are closely followed until complete and then are dropped from the follow-up list. The final disposition of all recommendations should be included as an attachment to the review report. This permanently documents all changes resulting from the review.

The power area has not developed a process hazards review schedule based on hazard classification. One review which was based more on prestart-up than process hazards looked at instrumentation, but not procedures. An area process hazards management program should be developed.

Operator performance in critical jobs is assessed by a job-cycle check procedure in some areas. The remaining areas are planning to implement this procedure and should begin with high-potential jobs where emergency response is critical.

The inspection and test program for pressure vessels, rupture discs, relief valves, interlocks and electrical grounds is good. Some information on pressure relief valve test records is missing and some pressure vessels in the Nordel® area are several months overdue for inspection. A monthly overdue inspection report is useful in identifying and correcting these problems.

Investigation and reporting of serious incidents is good as is communication of process hazards related information.

EMPLOYEE WORK PRACTICES - Excellent

During the survey, 243 employees were observed working with five unsafe acts noted. When weighted for severity, an unsafe acts index of 2.9 was determined which is in the excellent range. This reflects a strong commitment by all personnel to work safely.

Although no significant employee created unsafe conditions were observed, or any pattern established in the unsafe acts observed, most of these unsafe acts were violations of established rules. This reflects the need for continued close observation by all supervision.

SAFETY IN THE WORK ENVIRONMENT - Excellent

General housekeeping, maintenance, layout, identification, and guarding of buildings and equipment are all excellently handled reflecting strong commitment by personnel to maintain a safe workplace.

Inspection and testing of small receiver mounted air compressors and forklift trucks should be improved as mentioned in the field observations to ensure equipment safe to operate and inspection and test programs consistent with company standards.

Examples of some broken and badly weather-cracked ladders indicates additional effort is needed in both the prior to use and the formal inspection programs.

EMERGENCY CONTROL - Good

✓ A good emergency control plan has been established and effectively communicated to personnel through frequent training and drills.

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The fire brigade is well organized, equipped and trained to handle emergency situations. There is concern, however, regarding the manpower available on off-shifts should a large fire occur. With reluctance to involve outside aid, and with limited manpower available, more efficient use of the available people is necessary. Portable hose monitors, fixed hydrant monitors, and the use of one and one-half inch fire hose instead of two and one-half inch fire hose are examples of equipment which can be used to reduce manpower requirements.

Flammable liquids and gases are well controlled and employees are familiar with the hazards involved.

Emergency equipment is generally well located and maintained. The site has done excellent work evaluating safety shower requirements and capabilities versus the expected needs of each area.

Fire protection facilities are generally well located and maintained. The four-part plan to increase fire water supplies to meet demand is endorsed. Three parts of this plan are under

contract while the fourth is under design. Additional improvement is needed, however, in the inspection and testing of fire protection equipment. These include:

- o performing and documenting full-flow drain test for sprinkler systems;
- o documenting isolation valve tests;
- o testing the automatic start feature on fire pumps;
- o testing of the "B" fire pump house restricted timer circuit; and
- o improving the recordkeeping system to allow easier reference and analysis.

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{ There are no written procedures for fire protection equipment inspection and tests. Documented procedures are needed to ensure consistent and accurate tests.

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Due to the fire main construction in Nordel®, fire main friction-loss testing was not performed. This will be rescheduled later.

PREVIOUS REPORT

All recommendations from the previous survey (No. 9154, December 27, 1979) have been satisfactorily resolved.

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