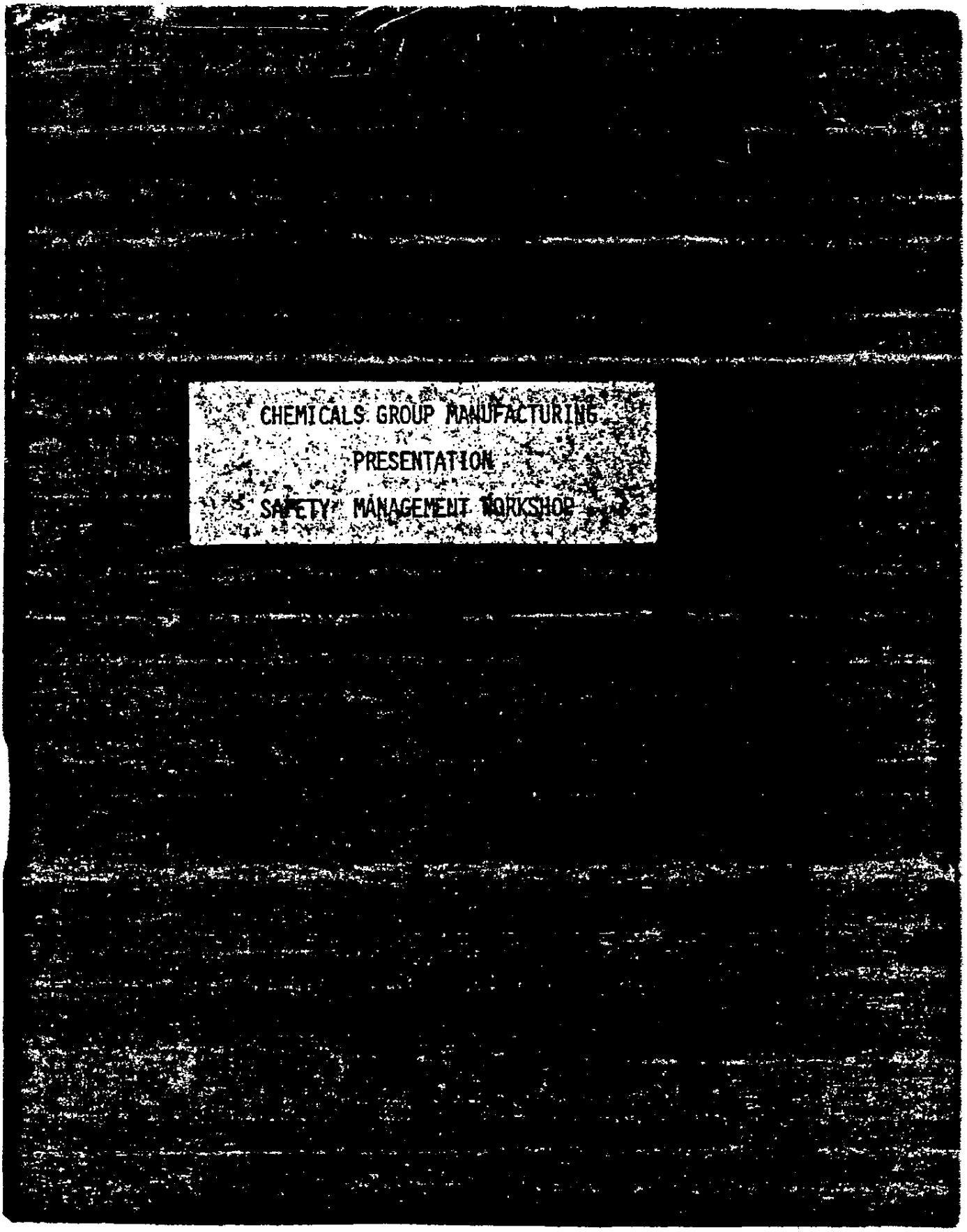
UNION CARBIDE CORPORATION
CHEMICALS AND PLASTICS
SOUTH CHARLESTON PLANT
P.O. BOX 8001
SOUTH CHARLESTON, W.VA. 25303

TABLE I

THRESHOLD ODOR LEVEL OF VINYL CHLORIDE MONOMER IN AIR

Vinyl Chloride Monomer in Air ppm	Number of Panelists that Detected VCM Odor
Blank	0
133	0
350	0
680	0
1200	2
1960	7
3800	7


CHEMICALS GROUP MANUFACTURING
PRESENTATION
SAFETY MANAGEMENT WORKSHOP

CHEMICALS GROUP MANUFACTURING

PRESENTATION

SAFETY MANAGEMENT WORKSHOP

26 May 1977

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PAULSBORO PLANT SAFETY PROGRAM

(FOR SMALL AND INTERMEDIATE PLANTS)

T. L. Carey

SAFETY AND INDUSTRIAL HYGIENE PROGRAM

FOR THE

PAULSBORO PLANT FOR 1977

10/76

SAFETY AND INDUSTRIAL HYGIENE PROGRAM
for the
PAULSBORO PLANT FOR 1977

I. INTRODUCTION

Safety management at Paulsboro will be totally reorganized in 1977. Beginning 1 October 1976 and continuing on an all out basis thereafter, the work of this reorganization will be a principle safety activity until the job is done in early 1977. This program is intended to provide details of both the program (when developed), and the steps we will take to get there.

II. GOALS AND OBJECTIVES

A. To reorganize the Safety Management Organization for 1977.

B. The ultimate goal of this plant is "TO ELIMINATE ALL CONDITIONS THAT CAN OR DO CAUSE INJURIES."

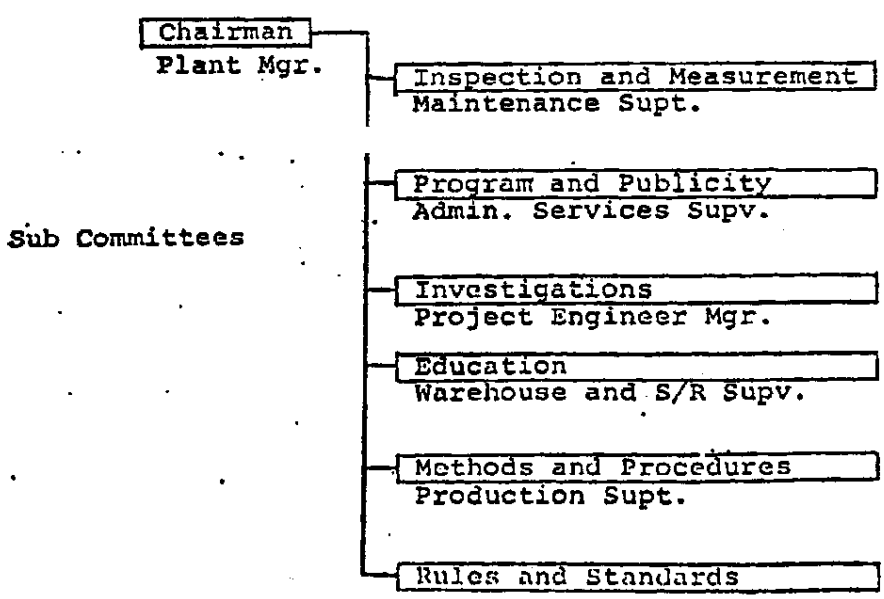
C. The 1977 goal is "NO LOST TIME INJURIES."

III. ORGANIZATION AND RESPONSIBILITIES

The Plant Manager is accountable for the safety performance of the Paulsboro Plant. He is responsible, through his supervisors and staff, to delegate and manage the on-going work associated with the task of meeting the safety goals.

The organization of the Policy and Control body charged with the management of safety at Paulsboro is as follows:

THE CENTRAL SAFETY COMMITTEE



The Central Safety Committee is a permanent plant organization consisting of the Plant Manager as Chairman and a number of sub-committees chaired by members of his staff. Each sub-committee is responsible for a part of the total safety effort. The sum total of their responsibilities defines the total on-going safety related activity on the plant. The Central Committee meets once per month against a prestated agenda to discuss status, policy, plans, and performance of the plant safety effort for that month.

Sub-Committees

Six sub-committees were formed during the week of 4 October 1976. (See organization above). Their charter meetings during the weeks of 4 and 11 October are aimed at selecting members, orienting the members to the new safety organization, setting goals and drawing up an operating plan. Each committee is charged with the task of initially returning to the next Central Safety Committee meeting with a recommended plan of action for managing their area of responsibility. They will specify -

1. What is the objective of the sub-committee?
2. What should the plant be doing on an on-going basis in their area of concern, i.e., what are the results oriented activities that need to take place?
3. Who on the plant is going to accomplish these tasks?
4. How are we going to monitor these activities each month?

Once the sub-committee has full approval of their action plan from the Central Committee, it becomes their job to implement the plan and manage it. Involvement of the broadest possible base of plant personnel is a goal.

A. Inspection and Measurement

This committee has broad responsibility in the area of: what kind of inspections should take place, who should perform them, what the frequency should be, what format the reporting should take, and how the results should be communicated. Typical kinds of inspections are:

Daily area
Monthly plantwide
Process hazard reviews
Mock OSHA inspections
Housekeeping inspections

Part of the task of this committee is inspection standards development, method development, and training.

After development of the modus operandi, the work of this committee is monitoring, reporting, and advising.

B. Program and Publicity

This committee has broad responsibility in the area of: What should our 1977 program include, what is the theme, what media will be used, how will we get the message to the people, what form of recognition should accompany good performance or poor performance, how shall we kick the program off, how will we know if our message is being communicated. Typical elements of this activity include:

An overall theme with different monthly sub-themes related to it
Hand-outs and letters to the home
Video presentations
Group meetings
Safety prizes
Billboards, posters, and other eye catching information media

This committee is also responsible for managing the plant Medical Program. Strong involvement of all of management is needed here. We must impress every employee with the fact that a lost time case is a major failure of all of our efforts. We need a Medical Program that will not permit questionable lost time cases but provides sound medical advice and treatment with immediate return of the employee to work if there is useful work he can do without aggrevating his condition or jeoparding his health. This committee will develop a program to provide closer management follow-up of all cases. In addition, the committee will examine our medical program as it exists to recommend how it can be made better; do we need a plant nurse, is equipment adequate, is training adequate, is the first aid squad effective, etc.

C. Investigations

This committee has broad responsibility in the area of post incident action: what kind of incident should we investigate formally, who should participate,

what form should the report take and to whom should it be directed, what means can be established to assure positive follow-up action. Typical investigations are:

Lost time accidents
Minor Injuries
Serious incidents

The committee is also responsible for the form and manner of all safety reports - these include:

Injury reports
Meeting reports
Monthly reports
Incident reports

The concern of this management team is "how can we best benefit from our experience?" "How are we going to be sure that incidents result in good recommendations and that good recommendations are translated into effective follow-up action?"

After development of an approved action plan, the sub-committee will report all old and new business regarding on plant incidents to the Central Safety Committee on a monthly basis.

D. Education

This committee has broad responsibility in the area of employee safety training. Their scope includes both salary and wageroll personnel. They have a dual responsibility; first, how should we be organized to provide the kinds of training needed by the various levels of plant personnel; what kind of presentation is appropriate for each, what timing and what reporting; second - what do the people need to know. Identifying the training need is critical work for this sub-committee and the method by which that need is discovered before injuries occur is of paramount importance. Much of the output of other sub-committees becomes the "raw material" for the Education Sub-Committee. They must decide "who" needs "what" from among the many sources of available training material as well as identify the areas where more data needs to be developed. Typical elements of their management job include:

Safety meetings
On and off plant formal training
On the job training
Orientation (new hire)
Testing and auditing
Training methods and training aids
"How to" training on supervisory activities such as inspections, investigations, audits.

The name of this sub-committee suggests a much broader view than just training or safety meetings. This is the case because the program is ultimately aimed at developing employee safety attitudes. The Education Sub-Committee must have a strong influence on that development.

E. Methods and Procedures

This sub-committee is the backbone of the entire safety program. They have broad responsibility in the area of how we do our jobs as that applies to safety. The job of this committee is to have determined, for all on plant activity, what safety considerations need to be in mind during the conduct of that activity. They are charged with documenting those safe methods and providing the principles. Their work will utlimately touch all employees through the generation of a "Safety How" which establishes the safety standards of performance for all activities. Typical early work for the group will include:

- continuation of safe work practice studies
- selection of a standard "how to" foremat to accompany standard procedures.
- incorporation of work of other sub-committees in a central "How."

F. Rules and Standards

This committee is responsible for managing the development of the "specifications" of safe work and safe environment. They are concerned with both human activities and environmental hazards. This sub-committee sees to it that safety rules are developed by all areas and for the plant as a whole. These rules are documented, communicated, updated, and enforced. This committee's operating plan describes how that is done.

This group is also responsible to document limits on all environmental conditions which might be hazardous to health and to maintain, communicate, and audit those limits. Such concerns include dust, toxic fumes, temperature, noise, light and chemical contact of all types.

As an adjunct to the standards and hazards work of this committee, they are responsible for identifying the type of protective equipment needed for specific operations. This activity is translated by them into rules for use and maintenance of the protective equipment in all cases cited.

External Assistance

The safety organization at Paulsboro is understood to include all of the on-plant groups or persons indicated by the organization diagram on page one. Not shown, but clearly a part of the organization, is that total group of off-plant safety professionals available on call for purposes of consultation. Heavy involvement of the Chemicals Group Safety Engineer is anticipated. The degree to which we find it necessary to seek the aid of a specialist will indicate, in future months, if a full time position is justified.

IV. IMPLEMENTATION

The Central Safety Committee has been formed. All sub-committee chairmen have been selected, and they have chosen their staff and have held their charter meetings. The work of each committee, as outlined in III A-F above will generate a specific operating plan for each before the end of calendar 1976. Some parts of the program will be put into effect as soon as they are generated. All parts of the program will be up and running by early 1977.

The Plant Manager and the Group Safety Engineer will assist the sub-committees in their early work to assure all are on the right path. Central Safety Committee meetings will be used to brief each sub-committee chairman on the progress of other sub-committees. At these monthly meetings, questions of safety policy as it affects all groups will be discussed and resolved.

As each sub-committee completes its approved operating plan, it will become a permanent part of this program. The program thus completed will provide the model for all future years' programs and may only be altered by the Central Safety Committee. Although, themes and membership may change in future years' programs, it is intended that this safety management approach will not.

A. E. Greene

AEG:db

Plant Safety Inspection
One on One Program

Goal

To reduce the potential for injury.

OBJECTIVES

1. To reaffirm the safety standards and help supervision to understand the standards they are expected to maintain. Training will be accomplished by carrying the same standards down through similar area audits.

2. To measure plant and area safety performance trends.

3. To determine what is required to reach and keep safety performance at a desired level.

PROCEDURE

To accomplish the desired objectives the following procedure will be followed:

A schedule of monthly audits, showing the week and area to be audited, will be published by the Plant Manager. (See Example 1). The time for the audit will be mutually agreed upon in advance by the Manager and staff member responsible for the area to be audited. These two persons will comprise the audit team.

The audit team will meet in the staff member's office and spend a maximum of 10-minutes reviewing the status of previous audit findings and recommendations for the area to be audited.

A 30-minute audit will be made. During the audit, the team will look for unsafe acts (U.A.) including rule violations, procedure violations, and unwritten common sense safety items. They will also look for unsafe conditions (U.C.) which are not unsafe acts.

About 10-minutes will be spent at the end of the audit to recap results and make recommendations.

The staff member will write an audit report and send copies to the supervisor of the area audited and the Inspection Committee. The report should be in the form shown in Example 2. If items involving personnel from another area are noted, they should be recorded as "Items Observed - Other Area's Personnel" at the end of the report and a copy of the report should be sent to the area supervisor and the appropriate staff member.

The Inspection Committee will tabulate audit results. The total plant performance will be charted and presented at each Central Safety Committee meeting. (See Example #3)

EXAMPLE #1

PLANT INSPECTION SCHEDULE

(See Example #4 for Areas)

STARTING DATE	AREA NO.
7/ 3	A1, A2 A9, B4
7/10	A3, A4 C
7/17	A5, A6 D, E
7/24	A7, A8 F
8/ 1	B1, B5 B2, B3

EXAMPLE #2

AREA AUDIT

Date: Feb 3 - A9, B4

By: J. M. Wrba Manager

C. R. Stevenson Staff Member

	No.
U.A.	3
U.C.	2
Total	5

Item		TYPE
1.	Operator turning process valve without proper eye protection.	U.A.
2.	Operator's lock on pump drive switch not identified.	U.A.
3.	Forks of lift truck left in raised position.	U.A.
4.	Steam leak at 30-lb. steam station, causing slipping hazard.	U.C.
5.	Broken latch at fire door #102.	U.C.

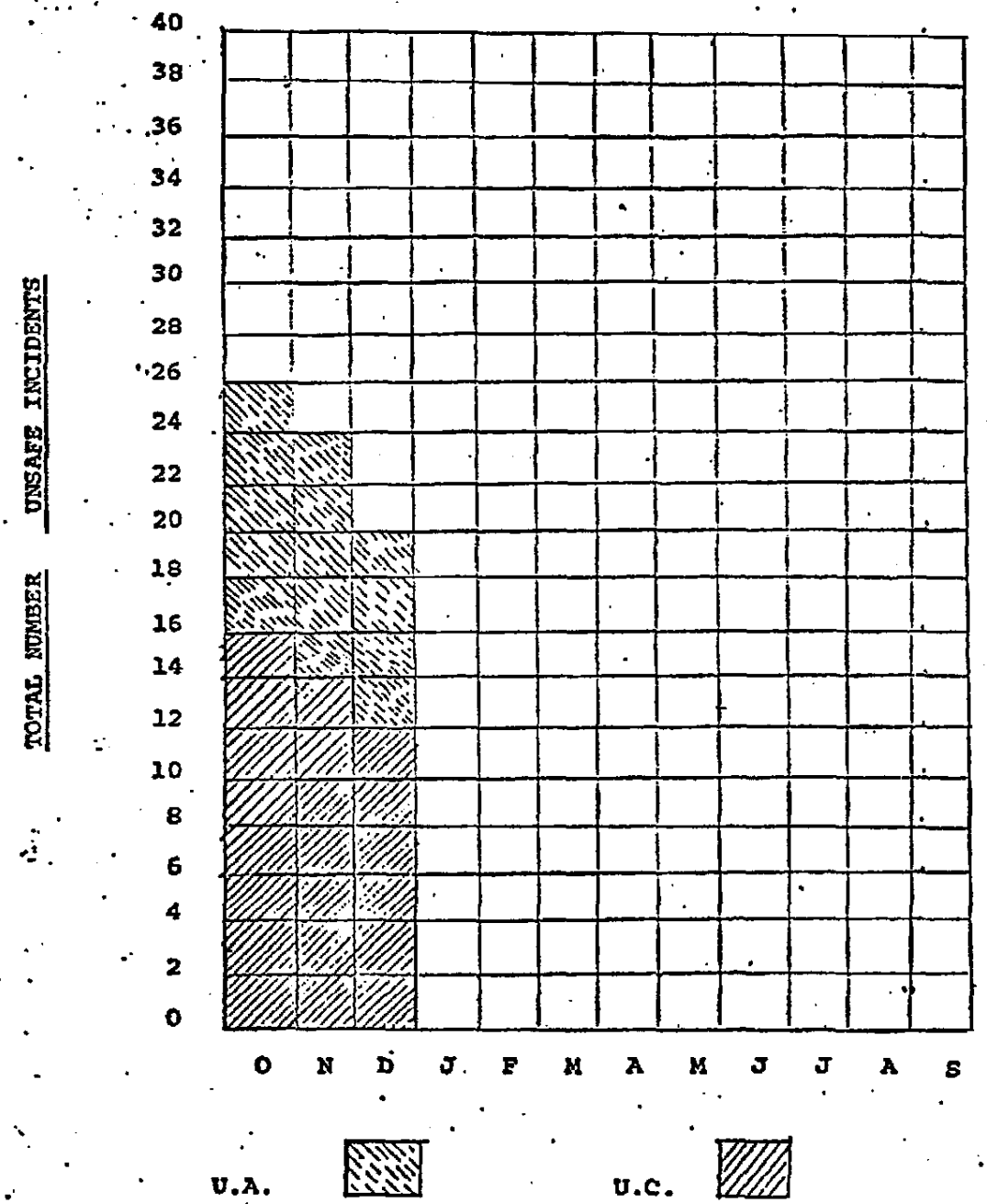
ITEMS OBSERVED - OTHER AREA'S PERSONNEL

Field Maintenance

1.	Carpenter working from 10-foot ladder which was not tied or held.	U.A.

EXAMPLE #3

PAULSBORO PLANT SAFETY AUDIT



Paulsboro, New Jersey Plant - Process Areas

A. DABCO Plants:

1. Tank farms, feed loading and unloading
2. DABCO II Distillation, Dowtherm and Air Compressor
3. DABCO III Reaction Building
4. DABCO III Dowtherm and air compressor
5. DABCO III Distillation
6. DABCO II product tank farm
7. Crystallizer (lung room)
8. Pentane distillation and recovery
9. Blends area

B. Catalyst Plants:

1. Chrome area
2. Hard Alumina Catalyst Area
3. 6" Extruder area
4. Type 3 Catalyst area
5. Automotive Catalyst area

C. Warehouse Storage

D. Maintenance Shop

E. Plant Roadways

F. Quality Control Laboratory

INTEROFFICE
MEMORANDUM

Date 6 December 1976

Subject Supervisory Inspecting Guide

A. E. Greene — Paulsboro Manufacturing
(Location, Organization, or Department)

J. J. Fannon — Paulsboro Manufacturing
(Location, Organization, or Department)

Introduction

This Supervisory Inspecting Guide is a summary of the One-on-One Inspecting Program. (See separate schedule).

The One-on-One Program is described as the Manager and Area Supervisors, but it is to be your guide when making your inspections with each level of inspections, i.e., the inspection should be set up in:

1. Production: Foremen and Chas. Stevenson
   Foremen and W. A. Lutner
   C. R. Stevenson and J. M. Wrba
   W. A. Lutner and J. M. Wrba

2. Maintenance: R. A. Borrie and J. J. Fannon
   R. E. Green and J. J. Fannon

3. Then the Manager One-on-One Program:

   A. E. Greene and J. M. Wrba
   ditto and J. J. Fannon
   " and C. W. Jenkins
   " and E. R. Burger
   " and J. Pinkbeiner

Techniques

1. Develop a questioning attitude to determine what injuries might occur if the unexpected happens and how the job might be accomplished more safely. WHAT IF

2. Be alert to injury exposure caused by overexertion from lifting, pulling, pushing and/or reaching.

3. Observe using all senses: looking, listening, smelling, and feeling.

4. Look above, below, behind, and intake. SIDE

(320)

Techniques (cont'd)

5. Stop as you enter an area and observe reactions to your presence because employees may correct unsafe practices when you enter. You must recognize these unsafe acts to prevent their recurrence.

Reminders

1. Eliminate unsafe acts by observing them, taking immediate corrective actions, and following up to prevent recurrence.

2. Maintain orderliness in your area of responsibility as a pronouncement to your employees and your supervision of your minimum acceptable standards.

3. Measure your own performance and the performance of your subordinates by observing them.

Attachments:

Check List
Paulsboro, N.J. Plant - Process Areas
Inspections (By Safety Mechanic)
Blank Forms: Paulsboro Plant Safety Audit
Area Audit

Checklist

1. Personal Protective Equipment (adequate? used properly? good condition?)

   - Eyes and face
   - Ears
   - Head
   - Arms and hands
   - Legs and feet
   - Respiratory system
   - Trunk

2. Positions of Personnel (injury causes)

   - Striking against, struck by
   - Caught between
   - Falling
   - Temperature extremes
   - Electric current
   - Inhaling, absorbing, swallowing
   - Overexertion

3. Actions of Employees

   - Adjusting protective equipment
   - Changing position
   - Rearranging job
   - Stopping job
   - Attaching grounds or locks

4. Tools and Equipment

   - Right for the job
   - Used correctly
   - In safe condition

5. Procedures and Orderliness

   - Adequate (reviewed and upgraded)
   - Established (understood)
   - Maintained

F. Nicolai

INSPECTIONS
(By Safety Mechanic)

Weekly	Requested by:	Recorded
1 - Plant Fire Prevention	I.R.I. (F.I.A.)	Yes
1. Fire Protection Valves	ditto	"
2. Sprinklers and Piping	"	"
3. Fire Pumps	"	"
4. City Water	"	"
5. Hose Houses	"	"
6. Fire Extinguishers	"	"
7. Care and Cleanliness	"	"
8. Fire Drills	"	"
9. Wiring & Electrical Equipment	"	"
10. Heating	"	"
11. Volatile & Combustible Materials	"	"
12. Smoking	"	"
13. Fire Alarm Switches	Air Products	"
Bi-Weekly		
2 - Eye Glass Cleaning Stations	Air Products	Yes
3 - Safety Showers	Air Products	"
Monthly		
4 - Hoists	Air Products	"
5 - Eye Wash Stations	Air Products	"
6 - Emergency Lights	Air Products	"
7 - Ladders	Air Products	"
8 - First-Aid Equipment	Air Products	"
Bi-Monthly		
9 - Non-Assigned Respiratory Protective Equip	Air Products	"
6-Months		
10. Fire Extinguishers	OSHA	"

10/29/76

Paulsboro, New Jersey Plant - Process Areas

A. DABCO Plants:

1. Tank farms, feed loading and unloading
2. DABCO II Distillation, Dowtherm and Air Compressor
3. DABCO III Reaction Building
4. DABCO III Dowtherm and air compressor
5. DABCO III Distillation
6. DABCO II product tank farm
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1. Chrome area
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4. Type 3 Catalyst area
5. Automotive Catalyst area

C. Warehouse Storage

D. Maintenance Shop

E. Plant Roadways

F. Quality Control Laboratory

AREA AUDIT

Date: _____

By: _____ Manager

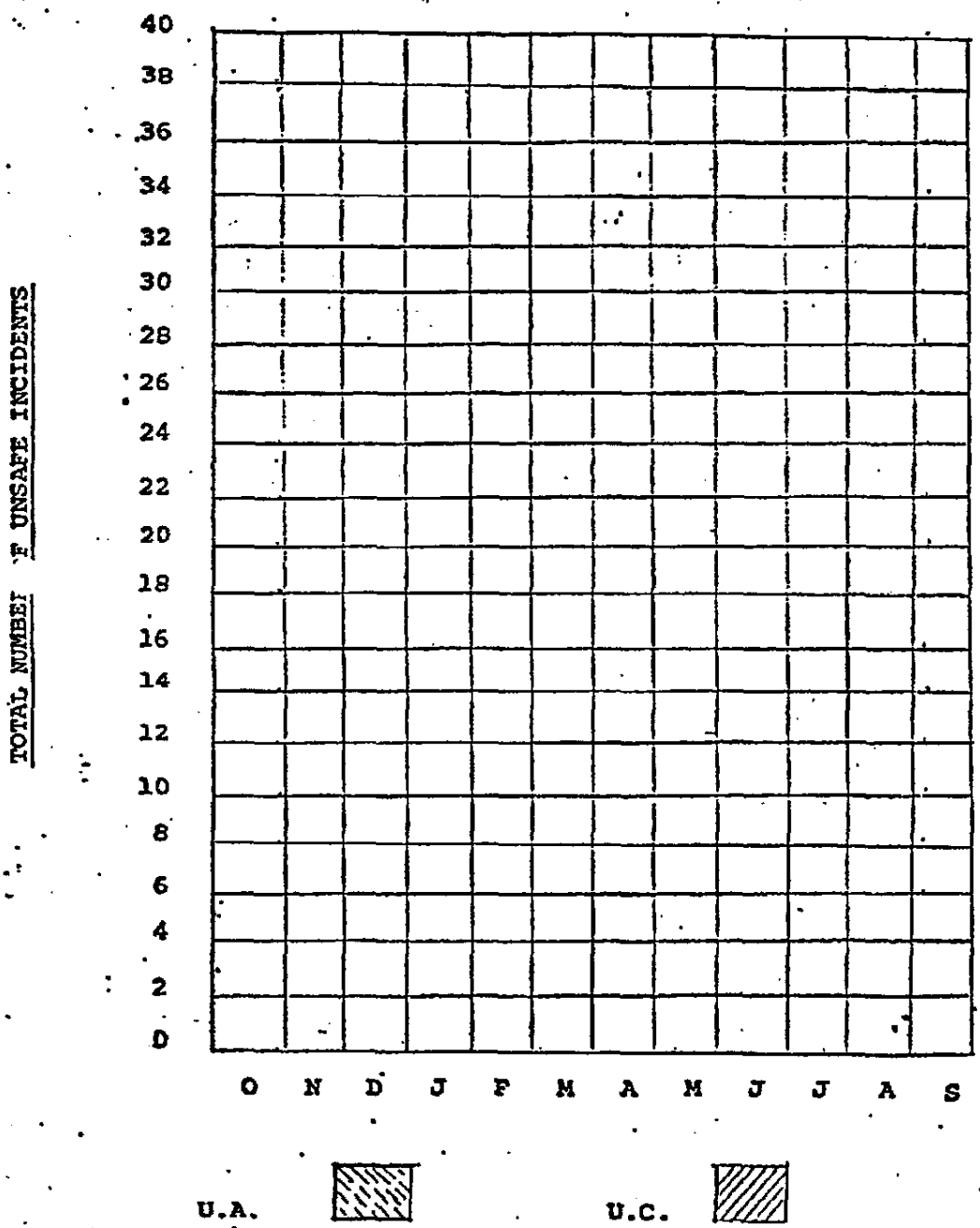
_____ Staff Member

	No.
U.A.	____
U.C.	____
Total	____

tem	Type

ITEMS OBSERVED - OTHER AREA'S PERSONNEL

PAULSBORO PLANT SAFETY AUDIT



SAFETY AND INDUSTRIAL HYGIENE PROGRAM

PAULSBORO PLANT

INVESTIGATIONS SUB-COMMITTEE

1. OBJECTIVES

To conduct investigations as fact finding processes which have the ultimate purpose of preventing further similar accidents or incidents. Through constructive recommendation and effective follow-up, the ultimate goal "To Eliminate All Conditions That Can or Do Cause Injuries", will be attained.

2. RESULTS ORIENTED ACTIVITIES

Principal results oriented activities of the Investigations Sub-Committee are as follows:

(a) Learn accident causes so that similar accidents may be prevented by mechanical improvement, better supervision, or employee training.

(b) Determine the "change" or deviation that produced an "error" that, in turn, resulted in an accident (system safety analysis).

(c) Publicize the particular hazard among employees and their supervisors and direct attention to accident prevention in general.

(d) Determine facts bearing on legal liability. Investigations for preventive purposes may disclose facts which are important in determining liability.

3. DEFINITIONS: ACCIDENT - INCIDENT

An ACCIDENT is defined as a sudden and unexpected event occurring at a definite time and place resulting in death or personal injury.

An INCIDENT is defined as a sudden and unexpected event occurring at a definite time and place which does not result in death or personal injury. This event, however, may have have resulted in death or personal injury and can be categorized as a "near miss".

Either event may result in property damage and/or legal liabilities.

- mail to Watson, Kentile

4. RESPONSIBILITY FOR INVESTIGATIONS

Depending on the nature of the accident and other conditions, the investigation may be made and reported by any of the following:

(a) Foremen

(b) Departmental Supervisors

(c) Investigation Committee

(d) Special Committee (unusual circumstances, liabilities, etc.)

Foremen or Departmental Supervisors will, in most cases, initiate investigations and report initial findings. These personnel are on the scene and therefore are in a position to know more about the events which occurred.

An immediate investigation and initial report of all "Accidents" shall be prepared by the responsible supervisor and submitted to the Plant Safety Engineer.

An "Incident" which may have caused death or serious injury is equally important from a safety standpoint. Such should be investigated by the responsible supervisor at the earliest point in time available and reported to the Plant Safety Engineer. This also applies to those "Incidents" which result in serious property damage (major loss) and/or legal liabilities. Delays may permit loss of important evidence.

Following review of the initial investigation report, the Plant Safety Engineer will decide on whether or not the case requires further investigative action. If such action is required, the Investigation Committee will be called upon to conduct a comprehensive investigation of the accident or incident. The Committee will report their findings to the Plant Safety Supervisor with recommendations for corrective action. Copies of this report will be directed to the following:

1. Chairman of Central Safety Committee
2. All Sub-Committee Chairmen
3. Supervisor responsible for initial investigation
4. Members of Investigation Committee
5. Group Safety Engineering (J. Novak & J. Gentile)

4. RESPONSIBILITY FOR INVESTIGATIONS (Cont'd.)

Under unusual circumstances, third party involvement or liabilities, etc., a Special Committee may be formed to handle case investigations. This may be headed by the Chairman of the Central Safety Committee or higher management level personnel outside the plant.

5. INVESTIGATION REPORTS AND FORMS

Accident Investigation Report Form #2020 (Rev. 6/76) attached, shall be used to document all investigations. Additional information such as descriptive data, statements of witnesses or involved personnel, sketches, etc., should accompany this form for futher clarification of the case.

Where personal injury occurs and the employee requires medical attention, such shall be noted on the Investigation Report Form #2020.

An Order for Medical Treatment and a Request Form for Medical Service shall accompany the employee when leaving the plant for medical attention. Copies of these are attached for reference only since these procedures and description of proper forms are contained in the Emergency Procedures Manual under Personal Injury.

6. FOLLOW UP

The Supervisor who conducted the initial investigation at the time of the accident or incident, shall be responsible for follow up to effect proper remedial action. It is absolutely essential that he make certain all corrective action is taken either by himself, his subordinates, or by others who have responsibilities.

Progress of remedial action taken on any recommendation from investigations shall be reported to the Plant Safety Engineer by the responsible Supervisor. Where the Investigation Committee is involved due to the severity or special circumstances, the Supervisor shall also submit copies of his progress report to said Committee Chairman.

The status of remedial action on all investigation recommendations will be reported by the responsible Sub-Committee Chairman at the monthly Central Safety Committee meeting.

6. FOLLOW UP (Cont'd.)

As an aid to further understanding investigation procedures, the attached report entitled "Productive Accident Investigation" (Attachment #1) becomes part of this documentary.

INVESTIGATION SUB-COMMITTEE

H. G. Vernon - Chairman

R. A. Borrie

W. A. Lutner

/rb

SAFETY AND INDUSTRIAL HYGIENE PROGRAM

ATTACHMENT #1

PAULSBORO PLANT

PRODUCTIVE ACCIDENT INVESTIGATION

PROCEDURES

Basic to any sound investigation program should be management's support through the creation and operation of a required Accident Investigation and Reporting Procedure which will provide for:

1. Notifying all concerned that an accident has occured
2. The proper forms to be used
3. Thorough investigation of the incident
4. Completing routing and proper review of the reports
5. Completion of the corrective measures
6. Incorporation of lessons learned in training programs, procedures and standards

(Review existing company procedures for Accident Investigations)

WHAT ACCIDENTS

All accidents should be investigated regardless of how minor may be the resultant injuries and damages. All accidents are potentially serious. Each accident is a signal that something wrong must be corrected before it can cause a very serious loss.

By investigating all accidents, we can accumulate enough significant data to make a meaningful analysis of over-all causes, trends, and problem areas not obvious from the review of isolated, or few cases.

WHEN DO WE INVESTIGATE

Immediately, if at all possible:

1. While facts are fresh in participants minds and the shock of the accident inclines them to be truthful.
2. before witnesses can have a chance to talk and influence each other.
3. While all of the physical conditions are unchanged and employees involved are still available.
4. Before memories become distorted.
5. Before excuses or second thoughts can be dreamed up.

Great care, however, should be exercised not to question an obviously upset individual who has just sustained an injury or emotional shock. Wait until he calms down or the doctor or nurse indicates he is ready to discuss the case rationally.

To be realistic, there will be occasions when more urgent and pressing management problems may demand the supervisors immediate attention for a short time --- but he should get back to the accident situation as promptly as possible and give it his full attention. He may, however, delegate the immediate investigation to an assistant - but he must take over as soon as possible.

WHO INVESTIGATES

1. The Supervisor

(a) The supervisor involved - it is his system that broke down

(b) It is his man that has been injured

(c) It is his production that will suffer

(d) He is the one management expects to eliminate the causes of loss

(e) He is the person closest to the men, materials, equipment, methods, attitudes, etc., involved

2. Other Interested Persons

(a) Maintenance man - if the cause involves faulty maintenance

(b) Engineering - if design is involved

(c) Medical - if health hazards exist

(d) Safety Director - as a back up man to help the supervisor

(e) Special "serious accident investigations" by a sub committee of plant Safety Committee or Executive Safety Committee when one exists and the case is serious.

Note: Many companies permit nurses or personnel to "fill out" accident investigation report forms following phone or personal discussions with supervisors. This practice should be discontinued since it develops superficial reports and little worthwhile corrective action.

WHERE

All investigations must be made right where the accident occured (not in the supervisors office.) At the scene will be found all of the tools, materials, machines, people and circumstances which give direct evidence of, or clues to hidden causes.

WHAT DO WE CHECK

It is important to cover every conceivable aspect of his actions at the time of the accident as well as the physical set up.

1. Physical Conditions

Machines: Guarded?
Adjusted?
Properly maintained?
Right machine for job?
Positioned correctly?

Tools: Portable equipment
Material and materials handling equipment

Enviornment: Lighting
Floor surfaces
Lay out
Smoke, Vapours, Noise

2. Methods

Exactly what the employee was doing. Check safety of practices and procedures involved. Has a job hazard analysis of job been made? Needs revision? Written job instructions provided?

3. The Man

Placement (right man for job, skill and physical capabilities)
Properly instructed
Experienced on job
Health - Fatigue
Emotional State (problems)
Job attitudes
Age, sex, length of employment
General job performance patterns

4. Other

Time, shift
Other persons involved
Unusual work conditions at time of accident

- rush job
- shorthanded, etc.

TOOLS

There are a number of auxiliary tools that can help you make a more factual investigation.

1. Report form:

The official company form that can guide the supervisor in getting (a) full information in a (b) uniform fashion

(a) Fill in all information required - do not put check marks or dashes, they do not convey any meaningful information.

(b) Explain in detail what the injured man was doing - do not forget the people who will read your report and who do not know all you do about the job being done and their ability to profit by reading your report will depend upon how detailed you are.

(c) If you know of anything that would add clarity or meaning to the report.

- was it the mans usual job
- was it a new job for him
- was it a rush job, etc.

(d) Give exact locations: very often the location is part of the accident cause. Be precise.

2. Steel tape: to measure distances and eliminate guess work

3. Special Instruments for special cases:

(a) light meter
(b) fume or gas testing equipment

4. Camera: to get and retain a picture of conditions as they were at time of accident, and to use in training sessions

5. Safety Regulations

6. Employment Records

7. Safety Equipment

8. Witnesses: The more people you talk to who saw the accident the more informative data you can get

RE-ENACTMENT

Now and then a re-enactment of the accident proves beneficial as (1) an education device, and (2) to determine more accurately causes and preventive measures.

1. Do not ask anyone to repeat an unsafe act - only let him tell about it

2. Do not attempt re-enactment until the injured man has calmed down and/or has recovered from injuries

3. Re-enact at a slow deliberate pace so that questions can be raised and answered and maintain safe distance from the danger zone.

KEEP IN MIND

In making a sound investigation there are c rtain points to keep in mind

1. Avoid appearance of "blaming someone"
   - people will not talk or give information when they feel it may hurt them, or someone else.

2. Do not ask leading questions: let the people involved tell their own story so it reflects what actually happened and not what you think happened.

3. Allow for Personal Traits - make allowance for the traits of the people involved: some people exaggerate, some understate, some always blame others - sift out the truth.

4. Be specific: Avoid use of all generalizations such as "he was careless": give the specific unsafe or unsatisfactory action.

5. Test against circumstantial evidence, do not just accept the words of your informations - check what they say against the conditions you observe.

6. Probe all possible clues - do not overlook any aspect of the accident - nothing about the accident is too unimportant to check - it might be that some little almost overlooked fact can be the clue that discloses the real cause and hence, leads to genuine preventive measures.

7. Get all sides: ask a number of witnesses for their stories so you get a well rounded picture of the incident.

FOLLOW UP The job is not done unless and until

1. Accident investigation reports have been routed through the interested persons, and

2. Proper remedial action has been carried out.

While it may be entirely likely that the supervisor may not be responsible for seeing to it that reports get to all the persons involved, it is absolutely essential that he follow up to make certain all corrective action is taken either by himself, his subordinates, or by whatever other people have responsibilities for it.

ACCIDENT REVIEW

Finally periodically the supervisor must sit down and analyze a sufficient number of accumulated accident report to determine:

1. accident repeaters who need retraining

2. problem areas or operations that need attention

3. trends in frequency or severity which indicates need for added safety stimulation

Air Products

ACCIDENT INVESTIGATION REPORT

DATE OF REPORT _____

NAME OF INJURED _____ FACILITY _____ CO. GR./DIV. _____

CLOCK NO. _____ AGE _____ DATE OF ACCIDENT _____ TIME _____

LENGTH OF SERVICE WITH COMPANY _____ ON PRESENT JOB _____

OCCUPATION _____

PERSONAL INJURY		INJURY POTENTIAL		OTHER	
DISABLING	☐	DISABLING	☐	PROPERTY DAMAGE	☐
DOCTORS CASE	☐	SERIOUS	☐	NEAR MISS	☐
FIRST AID	☐			THIRD PARTY	☐

DESCRIBE HOW ACCIDENT OCCURRED. INCLUDE STATEMENT OF INJURED PERSON AND WITNESSES _____

CAUSE OF ACCIDENT. IDENTIFY UNSAFE ACT AND/OR UNSAFE CONDITION, AND ROOT CAUSES _____

RECOMMENDATIONS TO PREVENT SIMILAR ACCIDENT

ACTION	RESPONSIBILITY	COMPLETION SCHEDULE

SUPERVISOR OF INJURED EMPLOYEE _____

INVESTIGATOR(S) (IF OTHER THAN ABOVE) _____

MANAGEMENT APPROVALS _____

SEE REVERSE FOR INSTRUCTIONS

FORM 2020 (REV. 6/76)

AP00021213

INSTRUCTIONS FOR COMPLETING THE SUPERVISOR ACCIDENT INVESTIGATION REPORT

GENERAL

THIS REPORT IS REQUIRED FOR ANY ACCIDENT THAT RESULTS IN, OR HAS THE POTENTIAL FOR A SERIOUS INJURY OR A DISABLING INJURY AS DEFINED BELOW, AND ALL ACCIDENTS THAT INVOLVE A NON-EMPLOYEE OR THE PUBLIC. ACCIDENTS THAT RESULT IN FIRST AID TREATMENT AND/OR PROPERTY DAMAGE SHALL BE EVALUATED TO DETERMINE IF THE POTENTIAL FOR A SERIOUS OR DISABLING INJURY EXISTED, AND IF SO REPORTED ACCORDINGLY.

2. ONE COPY OF THIS REPORT SHALL BE FORWARDED TO THE CORPORATE SAFETY DEPARTMENT IN TREXLERTOWN NO LATER THAN 48 HOURS AFTER AN ACCIDENT. IN THE EVENT OF AN EMPLOYEE INJURY, THIS FORM SHALL ACCOMPANY THE INSURANCE COMPANY'S FIRST REPORT OF INJURY FORM.

   IN THOSE STATES WHERE INSURANCE IS WRITTEN THROUGH A STATE FUND, THIS REPORT SHALL BE SUBMITTED TO THE CORPORATE SAFETY DEPARTMENT ALONG WITH THE STATE FUND NOTIFICATION

DEFINITIONS

1. DISABLING INJURY – ANY INJURY IN WHICH THE PERSON IS UNABLE TO PERFORM HIS OR HER REGULAR DUTIES AND IS AWAY FROM WORK OTHER THAN THE DAY OF ACCIDENT. THIS INCLUDES TEMPORARY TOTAL DISABILITY, PERMANENT PARTIAL DISABILITY AND PERMANENT TOTAL DISABILITY.

2. SERIOUS INJURY – THIS CLASSIFICATION COVERS DOCTORS CASES, LACERATIONS REQUIRING SUTURES, EYE CASES REQUIRING TREATMENT BY A PHYSICIAN, FRACTURES, TRANSFER TO DUTY OTHER THAN THE INJURED'S REGULAR WORK.

3. UNSAFE ACTS – WORKING WITHOUT SAFETY EQUIPMENT
   WORKING ON MOVING OR DANGEROUS EQUIPMENT
   UNSAFE TOOLS, EQUIPMENT, VEHICLES, MATERIALS
   UNSAFE LIFTING AND/OR CARRYING
   LIFTING TOO HEAVY A LOAD
   POOR HOUSEKEEPING
   OPERATING AT UNSAFE SPEED
   FAILURE TO WARN OR SECURE
   DISREGARD OF INSTRUCTIONS
   TAKING UNSAFE POSTURE OR POSITION
   OTHER ...

4. UNSAFE CONDITIONS – IMPROPERLY ON INADEQUATELY GUARDED EQUIPMENT
   UNGUARDED EQUIPMENT
   DEFECTIVE TOOLS OR EQUIPMENT
   UNSAFE DESIGN OR CONSTRUCTION
   HAZARDOUS ARRANGEMENT
   POOR ILLUMINATION
   IMPROPER VENTILATION
   POOR HOUSEKEEPING
   UNSAFE DRESS
   UNSAFE MECHANICAL OR PHYSICAL CONDITION OR EQUIPMENT
   OTHER ...

5. ROOT CAUSE – AN ACCIDENT, UNSAFE CONDITION, AND UNSAFE ACTIONS SHOULD BE CONSIDERED SYMPTOMS OF PROBLEMS WITH THE MANAGEMENT SYSTEM. LOOK FOR THE ORIGINAL, BASIC OR ROOT CAUSE OF THE SYMPTOMS FOR PERMANENT RESOLUTION OF THE PROBLEM OR CONDITION.

DISTRIBUTION 1 COPY TO LOCAL FACILITY FILE
1 COPY TO CORPORATE SAFETY DEPARTMENT
OTHER DISTRIBUTION AS REQUIRED BY GROUP AND DIVISIONAL PROCEDURES

ORDER FOR MEDICAL TREATMENT

DR.....

Please render necessary treatment, subject to provisions of Workmen's Compensation Act, to.....injured on.....19.....

EMPLOYER AIR PRODUCTS & CHEMICALS, INC.

Date.....19..... P. O. BOX 231 PAULSBORO, NEW JERSEY 086

DEAR DOCTOR: Please complete, fold, seal and mail this report immediately after first treatment. Prompt submission of your bill for services will be appreciated.

REPORT OF DIAGNOSIS

Date first treatment.....19.....

FOLD HERE

NATURE OF INJURY AND DIAGNOSIS.....

.....

.....

.....

.....X-Ray taken?.....

How did patient say injury occurred?.....

.....

.....

Is Injury Related to Employment? Yes ☐. No ☐. Doubtful ☐

Probable period of treatment.....
(If no further treatment is necessary indicate fee. Payment will receive prompt consideration.)

Do injuries prevent injured from working?.....If so, how long?.....
(Estimate)

Date.....19..... Signed.....
Attending Physician

Address.....

ASC 1300 RJ

DETACH HERE

NOTICE TO EMPLOYEE

After the doctor has completed this slip, return it to your employer.

Employee's Name.....

Date of Injury.....

TARGET DATE FOR RETURN TO WORK.....

Further treatment by you required? Yes ☐. No ☐. When?.....

Date.....Signed.....M.D.

REMARKS:

"Return this card with patient"
TO: Air Products & Chemicals, Inc., Box 231, Paulsboro, N. J. 08066

_____ was treated on _____
(Employee Name) (Date)

for *(DIAGNOSIS)* _____

_____

_____

and is *(Check appropriate action)*

1. Released for normal duty _____.
2. Released with restriction of _____

_____

3. To return to this office on (DATE) _____
4. To report to hospital _____ for _____
5. Other _____

_____

DATE _____ SIGNED _____

"Please refer this patient to Dr. Holdcraft/Shoemaker for follow up visits. In case of serious injury where lost time from his job may occur, contact Dr. Holdcraft/Shoemaker immediately."

PROGRAM/PUBLICITY SUB COMMITTEE

Objective

It is the objective of this committee to function as an arm of the Central Safety Committee to provide safety service, advice and assistance in implementation of programs and monitoring in the specific areas of Publicity, Program, Recognition and Medical Health.

Function

1. Publicity - To internally and externally make employees and outsiders aware of the plant safety functions, programs and results of safety at the Paulsboro Plant.
   A. Publicity in the plant for safety in general thru:
      1. Posters
      2. Banners - Electrical Transformer Fence
      3. Payroll Stuffers - "Your Safety News"
      4. Display case by employee exit. Periodic changes.
      5. Lost time accident board
      6. Dermititis education notices, special bulletin board
      7. Special situation safety notices.
      8. Warning, Caution, Danger signs as required.
      9. Monthly safety themes.
      10. Departmental safety competition

   B. Publicity in plant and to employees homes on the entire plant safety effort, to push "Awareness" and aquaint employees and families with the safety program.
      1. Letters to homes of employees and families
      2. Family safety magazine
      3. Payroll stuffers "Your Safety News"
      4. Reassignment of old plant safety committee to department safety representatives with periodic meetings and personal contact.
      5. Special notices on Central and Sub Committee activities.
      6. Monthly safety themes.
      7. Parking lot sign "Drive Safely", etc.
      8. Get CEA cooperation and formal support of program.

   C. Publicity outside the plant.
      1. More and better reports on programs etc. to Corp. and group safety.
      2. Provide articles, pictures, etc., for APCI newsletter.
      3. Articles, pictures, feature stories in local newspapers.

3/7/77

To: A. Greene
Subject: Program/Publicity Sub Committee

Function (cont.)

2. Program - To act as a screening agent for the Central Safety Committee by reviewing committee programs or special efforts to avoid duplication; improve existing programs, initiate new programs, monitor all programs and assist in their implementation.
   A. Screen all committees programs and major efforts.
      1. Require submission of all new programs and major efforts for review.
      2. Review all submitted and determine validity and usefulness; avoid duplication or similarity of programs by different committees.
      3. Make recommendations to Central Safety Committee on all programs submitted.
      4. Insure notification of all concerned parties of the inception of new programs to avoid duplication of similar efforts.

   B. Initiate new programs through the appropriate sub committees as required or desired.

   C. Review existing programs
      1. Look at each existing program or major safety effort for the purpose of recommending changes, approving continuation or recommending elimination.
      2. Make appropriate recommendations to responsible subcommittee for any changes, additions or elimination of programs.

   D. On an annual basis present a master safety program for the coming year listing all planned safety efforts including ongoing and new programs.

3. Recognition - To assure the recognition of all personnel of the safety responsibility, recognize individual and group safety accomplishments and recognize what safety areas require more effort or emphasis.
   A. To acquaint all personnel with their individual responsibility for safety and to recognize what each individual must do to make the plant a safe atmosphere in which to work.

   B. To recognize individuals, groups, departments and the plant as a whole for safety achievements.

   C. To work with Inspection/Measurement Sub Committee to determine what aspects of the Safety Program should receive special recognition to give them more emphasis.

To: A. Greene
Subject: Program/Publicity Sub Committee

Function (cont.)

4. Medical Program - To coordinate the Medical Health Program for all employees with the assistance of the corporate health unit as follows:
   A. Provide proper pre-employment physical examination of all potential employees to assure that any person hired is physically capable of performing the job for which he is hired.

   B. Provide an ongoing monitoring program on an annual basis to insure the continued health of employees and to uncover physical ailments whether work or non work connected, to use the results of the annual monitoring program to recommend changes in work environment to better protect the employees.

   C. To provide the proper facilities, procedures and medical expertise to deal with on the job injuries including occupational disease.

Implementation

The subcommittee will meet monthly and as a group or through individual assignment accomplish its objective. Detail, reference and actual write up work will be accomplished through the present Safety Director.

3/7/77

EXAMPLES OF CENTRAL SAFETY COMMITTEE'S
QUARTERLY REPORTS

Air Products

INTEROFFICE MEMORANDUM

Date 22 April 1977

Subject Quarterly Safety Performance
Paulsboro Plant - Second Quarter FY77

To J. W. Gentile — T-Town (Location, Organization, or Department)

From A. E. Greene — Paulsboro (Location, Organization, or Department)

Accomplishments:

Injuries - There were no lost time injuries, no doctor's cases, 11 first aid cases. All first aid cases are discussed at the CSC meeting. All near misses are investigated and reported for follow-up at CSC meeting.

Safety Meetings - Performance is much improved. Eighteen meetings were held vs. a standard of twenty-one. Strong effort on this item in February and March produced dramatic improvement.

Meeting quality is improved. Pre-determined monthly themes and assignments were published to promote high uniform quality. CSC now monitors number of meetings held each month. Suggestions have been broken out of safety meetings and are now handled by one safety suggestion coordinator.

Safe Work Practices - Nine were written in this quarter which is better than standard performance (six to seven per quarter).

Housekeeping - Subjective measurement of plant housekeeping indicates significant improvement has been made. Standards have been written and made part of the monthly audit program.

Hazard Recognition - This was made the topic of the month for March. The STOP program was purchased and plans made for training. Monthly audits by first line people pick up 30-40 unsafe conditions per month, indicative of their developing ability to see the unsafe.

Safety Training - We are having our prescribed number of safety meetings, and they are of higher quality. Fire drills were held for all brigade members, and skills training is included in all sessions. Many hours were spent this quarter developing a safety training film. The STOP program training can now begin because the program was obtained this quarter.

Accident Investigation - We have produced high quality investigation of both injuries and near misses. These reports have resulted in positive follow-up of all accepted recommendations.

(320)

Safety Inspection - One on One was completely installed. From Plant Manager to Foreman the program is in full swing. The audits are conducted each month; and observations are followed up, documented, and reported statistically.

Fire Brigade - Outstanding progress was made in fire brigade organization and training. Defects of the fire protection system and procedures were identified and corrected where possible. Where CE money was needed, it was obtained ($38,000) for installation of improved hardware, alarms, etc.

Accomplishments Against Stated Goals:

1. Secure the services of a full-time Safety Supervisor. Not Accomplished.
2. Implement the Group Process Hazards Review Program. Training Accomplished.
3. Reorganize, train, drill the fire bridge - secure more and/or better equipment. Accomplished.
4. Complete, publish, and instruct written safety rules for plant and each operating area. One-Half Accomplished.
5. Institute a ladder inspection/tagging program. Not Accomplished.
6. Institute a portable electrical equipment inspection/tagging program. One-Half Accomplished.
7. Assist in production of a taped safety program by Chemical Safety Group. Accomplished.
8. Institute a month by month safety meeting theme program with films, handouts, posters, etc. for each theme. Accomplished.
9. Publish a new personnel injury/death response program. Accomplished.
10. Complete revision of operating procedures in Catalyst Plant to include safety related comments in the S. P. One-Half Accomplished.
11. Start plant supervision on the STOP Program. Begun.

Program for Third Quarter

1. Complete publication of safety rules with review by all employees.
2. Complete Group Process Hazards Review training and begin implementation.
3. Write ladder inspection/tagging program.

4. Institute card inspection/tag program fully.

5. Complete catalyst plant operating procedures review with inclusion of safety related topics.

6. Continue to pursue a plant safety supervisor and a plant nurse.

7. No lost time injuries.

8. Assign Safety Manual topics with completion dates and responsibility. Complete those due in third quarter (there are five), follow up on those due in fourth quarter (there are twenty-two).

A. E. Greene

AEG:rh
cc: H. L. Watson
J. M. Wrba