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PROTECTION OF INDUSTRIAL PLANTS AND PUBLIC BUILDINGS

United States Office of Civilian Defense
Washington, D. C.

FOREWORD

This publication is issued by the Office of Civilian Defense to assist executives of public and private undertakings in the protection of personnel and physical plants under their jurisdiction. Among the undertakings to be protected are industrial plants, factories, schools, hospitals, business establishments, and public buildings.

It is expected that the general plan outlined in this publication will be adapted by plant managers or local civilian defense authorities to meet local conditions or special needs. Plans should be kept as simple as possible because experience shows that such plans work best in practice.

Success in the protection of plants and public buildings depends largely upon the thought, preparation, and training done NOW. Plans must be worked out carefully. Personnel with suitable qualifications must be selected for key positions and for the various other tasks involved. Individual training, followed by collective training, is necessary. All personnel should be organized and trained as soon as possible.

This plan provides for a squad for every possible casualty. In small establishments, squads may have more than one duty provided such duties are not inconsistent.

PROTECTION OF INDUSTRIAL PLANTS

General Considerations

EVEN though the possibility of enemy air attack upon industrial plants and public buildings in the United States may be remote, it is essential that protective organization be developed at once to guard against the disruption of normal activities and for the safety of the personnel in an emergency. The general plan outlined in the following pages is to provide for the security of every employee and for the maintenance of production at the highest possible rate.

Protective measures should recognize that the effect of a bomb is local. The damage is therefore less when operations are decentralized, dispersed, and duplicated among many small plants or buildings. So far as is economically possible, such arrangements should be made. Similarly, each plant should be prepared to protect itself, independently of outside assistance.

It is recognized, however, that arrangements for exchange of information and mutual assistance should be made between plant managers and local governmental authorities, including the local defense council or agency. Local authorities should rely upon plant services for aid if necessary.

Protective Organization

The protective organization in each industrial plant, business establishment, or public building should consist of a Plant Defense Coordinator and four heads of divisions. The divisions are fire, police, medical, and maintenance services.

In the office of the Plant Defense Coordinator, provision should be made for communication with the civil air raid warning system, control of transportation facilities, and liaison with local governmental authorities.

The Plant Defense Coordinator is responsible for developing a communication system within the plant to permit the immediate transmission of messages between the Coordinator and squads organized under the various divisions, and between squads. The report center under the Plant Defense Coordinator should have a system of reports from each squad and from each key position so that the Coordinator will know when his plant is "manned and ready." Check-off lists should be developed and be on hand. A distinctive signal, such as a gong, rapidly beaten triangle, or other percussion sound, should be arranged to indicate a gas attack.

Since telephones may become overloaded or out of order, arrangements must be made for emergency methods of communication, such as runners and cyclists.

All transportation equipment should be allotted by and under the control of the headquarters of the Plant Defense Coordinator.

The Plant Defense Coordinator should be a clear-thinking individual capable of taking charge of action in an emergency. He should be able to get things done without friction or loss of time. This Plant Defense Coordinator has full responsibility for preparing plans, organizing and equipping squads, and training personnel. During an emergency he has control of the dispatch of all squads.

The heads of divisions should be well qualified in their respective fields of work. They should also be capable of managing men and of taking charge of unusual incidents.

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Within each division, squads should be organized to render the particular service for which the division is responsible. Usually a squad will consist of 4 or 5 individuals or as many as the Plant Defense Coordinator believes is necessary. So far as possible, individual employees should be assigned to the type of protective work for which they are best suited.

The training of personnel should provide first for the training of individuals, then of squads. Thereafter, the entire organization should be trained collectively to insure the fullest degree of teamwork, cooperation, and usefulness.

In small plants, the protective organization may be even simpler than that just described. However, provision must be made for all aspects of protection.

Fire Services

The Plant Fire Chief should be the head of the fire-fighting forces. He will be responsible for the fire-fighting brigade and for the equipment, both heavy and portable, permanent and temporary. An inspection and survey should be made immediately and all precautions taken, such as the removal of old equipment and rubbish from roof spaces. Access to the roof should be provided. The adequacy and availability of water supply, both main and auxiliary, should be studied. All men assigned to the fire brigade should be taught the latest methods of fighting fires and dealing with incendiary bombs.

Fire-watcher squads should be organized, equipped, and trained. Their duties will be to watch for, locate, and handle incendiary bombs so as to prevent a small flame from becoming a conflagration. Normally, fire-watcher squads will handle incendiaries but they should be prepared to call for assistance. The Appendix lists the equipment needed by a fire-watcher squad.

Rescue squads of specialists, such as engineers, carpenters, bricklayers, welders, shorers, and electricians, should be organized, equipped, and trained to rescue people from damaged buildings. Their duties may be extended to include emergency handling of utility services. They must be able to work in silence, with hand signals. They must be trained in first aid. They must be capable of acting directly and quickly.

A competent fire organization consists of:

1. A main observation post, with such additional observation posts as may be necessary for observation of the entire area.

2. Protected fire-watcher posts, with necessary men, equipment, and independent water supply. These posts should occupy an elevated position to cover local buildings with high fire risks, or buildings vital to production.

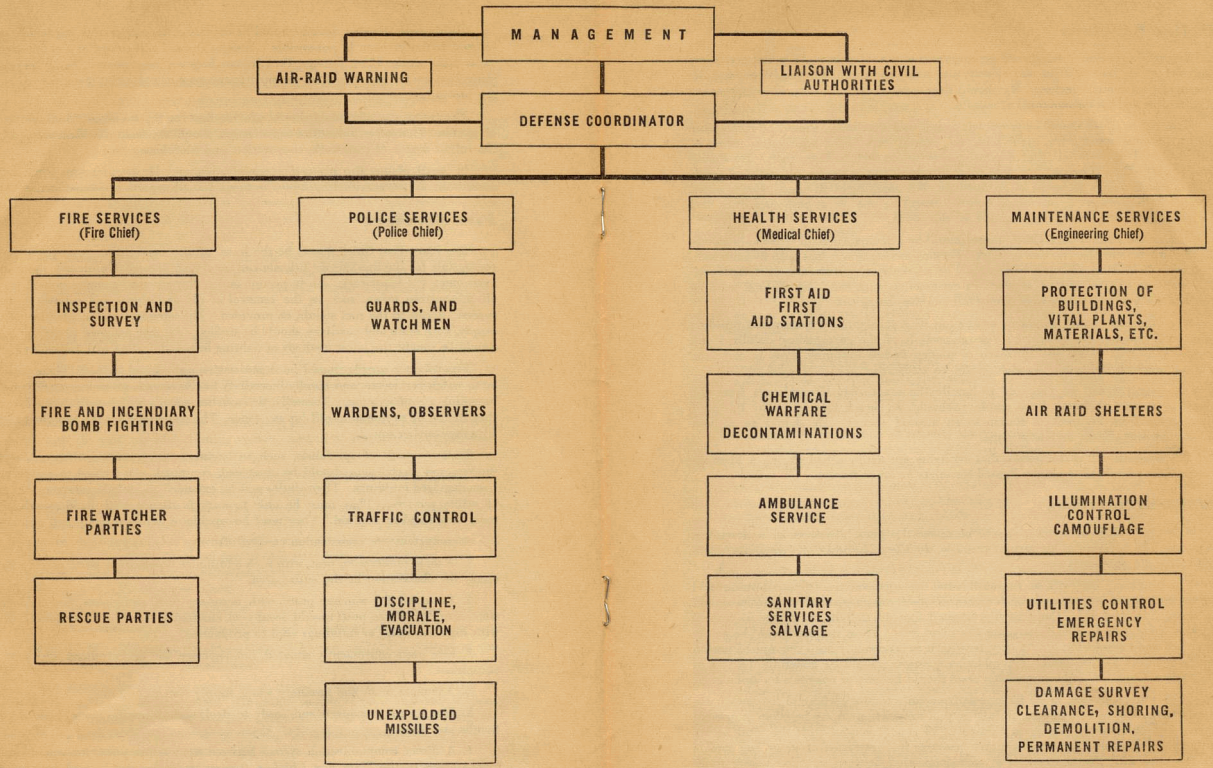
3. Fire posts conveniently situated, but dispersed and decentralized, with necessary equipment.

4. Adequate main and auxiliary water supply systems.

5. Fire squads organized and ready to deal with incendiary and high explosive bombs and fires.

6. A direct communication system between fire-watcher posts, fire squads, and the headquarters of the Plant Fire Chief so that reports of fire may be made and assistance may be sent when necessary.

ORGANIZATION CHART



Police Services

The Plant Police Chief should be in charge of the following: All police activities; the work of air raid wardens and aircraft observers; and training in gas defense and the wearing of protective devices. He should have general responsibility for maintenance of discipline and for development of morale.

The Police Chief should supervise all guards and watchmen, should be responsible for all persons entering the plant area, and should be charged with safeguarding of the plant and its material from subversive activities as well as from theft. He should control all traffic and maintain a clear route to permit the necessary automobiles, rescue trucks, etc., to reach the scene of an incident. The handling of all unexploded missiles, whether high-explosive or incendiary bombs, should be one of his responsibilities, and his men should be given special training for this work.

Under the Plant Police Chief, there should be a Senior Air Raid Warden in charge of all wardens and observers or spotters. Persons serving as wardens must be calm individuals with presence of mind who can act as advisers and guides to other employees. The wardens will be trained to work in conjunction with the local air raid warning system. They will observe where bombs fall and fires break out.

The observers should be placed on the top of a substantially constructed building in order to command as extensive a view as possible of the surrounding buildings and areas. They will report the approach of planes, bombs dropping, fires, or anything unusual of which the Senior Warden should be informed.

The wardens will be prepared to handle the evacuation of employees from the plants to air-raid shelters. Each employee should be shown how to go by the most direct route from his working station to an air-raid shelter. He should go without noise, confusion, haste, or loss of time.

The wardens will make certain that all lights are extinguished during a blackout except those permitted to remain lighted for safety or other reasons.

Medical Services

The Plant Medical Services should be under the plant physician or a practicing physician. In addition to his regular training, the Plant Medical Chief should be qualified to handle poison-gas cases.

The Medical Chief will be responsible for the organization of first-aid service and for the training of employees in such measures. So far as possible, all employees should be trained in first aid. Conveniently situated first-aid stations, in charge of trained workers, should be located throughout the plant area. These stations should be amply protected and equipped to render such treatment as is necessary until the injured person can be removed to a hospital. The ambulance service should be under the control of the Medical Chief, and only nonwalking cases should be sent to hospitals by ambulance.

The sanitary service, in all its aspects from collection of garbage to the sewage disposal system, should be watched carefully so that necessary steps can be taken to prevent disease and epidemics. The Plant Medical Chief should consult with the local health authorities regarding emergency sanitary measures for protection of water and sewage systems, especially the elimination of cross-connection between safe and unsafe water supplies and the elimination of other hazards.

In any war or defense effort, salvage of material is necessary and important. However, salvaged materials must be treated before they can be used again. The Medical Chief should be responsible for treatment of such materials and for the organization of squads to collect and handle them.

Maintenance Services

The buildings, equipment, and supplies which tend to keep the munitions of war rolling along must be protected. The maintenance services should be under the Engineering Chief, who should be a competent all-around engineer, qualified to act in a cool manner in all emergencies. He should have as his assistants the technicians who deal with plant utilities—electricity, steam, gas, water. Skilled workers, such as plumbers, pipe-fitters, machinists, welders, etc., should be detailed to key positions ready to do whatever is necessary.

The first step should be to survey the plant and make the necessary preparations for the protection of all buildings, with particular attention to the protection of all vital plants, materials, and records. If permanent improvements cannot be made, temporary devices should be improvised. Special attention should be given to the protection of plants, damage to which would seriously impede the war effort. For example, power and boiler houses and special-process plants need all the protection that can be given them. (Technical pamphlets are to be issued to give exact engineering information.)

Air-raid shelters should be prepared for protection from both gas and bombs. Consideration should be given to the safety afforded by these shelters, to entrances and exits, lighting, heating, and ventilation. Provision should be made for the serving of hot tea or coffee and light refreshments.

The control of illumination (blackout) should be studied. Means should be developed to control quickly, to any desired degree, all artificial light so that no light will be visible externally during a blackout.

Tied in with illumination control is the matter of camouflage by day. In camouflage, conspicuous objects are painted so that they will harmonize with the background and thus be concealed from view, particularly from an airplane. Any scheme of camouflage should be studied from the air by experts; otherwise, the opposite effect from that desired may be secured.

Key men should be stationed in pairs at the various utility controls, such as telephone switchboards, gas, steam, and water controls and boilers. These men must remain at their post during an air raid to be ready to handle any emergency at that post.

Because the key men must not be removed from their posts, organized repair crews must be ready to handle any emergency in a particular circuit. These emergency repair squads should be men skilled in their regular tasks who can work quickly and efficiently under adverse conditions. A list of the necessary equipment is given in the Appendix.

The latest type of high-explosive bombs has a large blast effect which causes damage to buildings within the blast area. Immediately after an air attack, a survey of the plant must be made so that any dangerous walls or foundations can be shored up or demolished, debris removed, and conditions restored to normal as rapidly as possible. Permanent repairs should be made thereafter. For immediate purposes, it is necessary that damage, shoring, and clearance squads be organized and ready to do their work.

APPENDIX: LISTS OF EQUIPMENT

FIRE WATCHER STATION (4 Men)

1 pair of leather or asbestos gauntlets for each watcher.

1 pair of dark safety-glass goggles for each watcher.

1 steel helmet for each watcher.

1 approved type mask for each watcher, for gas or smoke.

4 water buckets.

1 pump tank extinguisher.

1 fire axe.

2 bags, each filled with about 10 pounds of sand.

2 electric lanterns.

2 one-pound sealed packages of copper sulphate to be dissolved in water (1 pound of copper sulphate per bucket) for use on phosphorous.

3 blankets and large safety pins.

1 crowbar.

100 feet of ½-inch line.

3 corrugated iron sheets.

DUTIES OF SQUAD

Member No. 1: Direct and handle nozzle.

Member No. 2: Operate portable pump.

Member No. 3: Refill pump tank extinguisher.

Member No. 4: Assist and act as runner.

UTILITY CONTROL SQUAD (4 or 5 Men)

1 helmet each.

1 approved type gas mask for each man, for gas or smoke.

3 or 4 electric lanterns with spare bulb and battery for each.

1 truck with driver.

1 bound map of utility service showing layout of distribution systems, location of valves, switches, etc.

Proper tools, supplies, and other equipment for efficient execution of assigned duties.

NOTE.—All of the above should be kept available on the truck.

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