

1940

REGULATIONS  
OF THE  
**Filling Factories,**  
ROYAL ARSENAL.  
(SEVENTH EDITION)

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REGULATIONS  
OF THE  
FILLING FACTORIES, ROYAL ARSENAL.

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**General Instructions and Definitions.**

I.—The Regulations which follow have been drawn up with a view to the orderly performance of work in the Filling Factories of the Royal Arsenal, and the prevention of accidents therein. They are divided into General Rules which affect all employed on explosive work, in any capacity, and Special Rules, for certain specified individuals and operations. They supplement, but in no way supersede, the Rules and Regulations of the Ordnance Factories.

The Special Rules are intended to draw attention to special features in connection with certain duties and operations. *They must never be regarded as separate and complete in themselves, nor as warranting action which is contrary to the spirit of these Regulations when read as a whole.*

The rules, whether general or special, though worded generally as applying to males, apply, except where manifestly inapplicable, to any females employed in the Filling Factories of the Royal Arsenal.

II.—Every person on joining the Filling Factories or who works habitually in the Filling Factory areas, whether on explosive work or not, will be provided with a copy of these Regulations, which will be marked in ink with his name, prior to issue to him. He will acknowledge receipt by his signature in a book kept for the purpose. He must keep his copy in good order and show it, after notice, when required. Foremen will cause those under them to produce their books once a quarter, and will report those who lose their copies or allow them to be damaged or defaced.

III.—Every person employed in the Filling Factories is to make himself thoroughly acquainted with all Rules which concern his employment. *Ignorance of them will never be accepted as an excuse for their contravention or non-observance.*

IV.—Every person is to report to his Foreman, or Overlooker, or to superior authority, any infringement of these Rules which comes to his notice. Should he fail to do so he will lay himself open to punishment exactly as though he had committed the infringement which it was his duty to report.

V.—Any infringement of any of these Rules will render the offender liable to suspension or dismissal, and in those cases in which suspension is detailed as the usual punishment for an offence, dismissal might be inflicted if it were considered desirable. The Foreman will immediately report the case for disciplinary action.

VI.—The word workman in these Rules includes every man, woman, boy, or girl below the rank of Principal Overlooker, employed in the Filling Factories.

VII.—The expression "Filling Building" means any building in which explosives of any kind in any stage of manufacture are dealt with in any way or are stored. All buildings, however, in the Filling Factory areas which are "clean," will be treated as Filling Buildings whether explosives be stored or dealt with in them or not.

The expression "Filling Factory" means an aggregate of Filling Buildings.

The expression "Filling Factory area or Enclosure" means all the land lying round the buildings of the Filling Factory and surrounded by a fence or other barrier.

The expression "clean" as applied to Buildings, Platforms, Clothing, etc., in Filling Factory areas, means that such buildings, etc., after having been pronounced by authority to be suitable, are reserved exclusively for use in work on, and in connection with explosives, the work being conducted in strict accordance with these Regulations.

The expression "dirty" may be taken generally as the converse of "clean" as defined above.

VIII.—Unless they be manifestly inapplicable these Regulations apply to the loading of barges and boats employed by the Department for the conveyance of explosives.

IX.—General Instructions Nos. III, IV and V above; General Rules Nos. 1 (*h*), 2 (first six lines), 3 (first paragraph), 4 (4th paragraph), 5 (*a*), (*d*), (*e*), (*f*), 7 (2nd and 3rd paragraphs), 18, 19 (2nd paragraph), 24, 25, 27, 28*a*, 28*c*, 29, 30

(1st, 2nd, 3rd and 5th paragraphs); Special Rules for Overlookers, Nos. 46, 47, 53 (2nd paragraph) and 55, will be read once a month to all concerned.

It must be distinctly understood that the reading of certain rules in no way excuses employees from strict adherence to the rules which are not read.

P. J. HINKS,

SUPERINTENDENT,  
ROYAL FILLING FACTORIES.

ROYAL ARSENAL.  
SEPTEMBER, 1935.



## GENERAL RULES.

1. Entrance to and exit from a Filling Factory is to be made through the Shifting-Rooms only, except in the following cases :—

Entrance to  
Filling Fac-  
tories.  
"Clean"  
Platforms.

(a) Entrance to and exit from the Fuze and Primer Branches can be made by workmen specially detailed, at the barrier near the Proof Yard or that near E.4<sup>b</sup> Store or that near E.4<sup>a</sup> Store.

(b) Entrance to and exit from the High Explosive Establishment can be made at the barrier outside No. 39 Building by visiting officials during abnormal hours and by Traffic Despatcher for Regulation of Traffic in Buildings 38, 39, 87, 90 and 121.

(c) Entrance to and exit from Proof Yard at Cap and Detonator Factory can be made by the Supervisory Staff by way of the barrier.

(d) Entrance to one factory from another factory may be made by way of the clean platforms or bridges where provided, but the platform connecting Cap and Detonator Factory and Small Arms Cartridge Factory No. 3 is only to be used by specially authorised persons.

(e) Mechanics may cross from the dirty side to the clean side and *vice versa* by way of the barrier in No. 4 Building (Mechanics' Shop) Small Arms Cartridge Factory No. 3.

(f) Entrance can be made direct into a Filling Building or on to a platform which has been declared "dirty" and has been properly fenced off. (See Special Rules for Repairs.)

(g) Supervisory Staff, also workmen of other departments engaged on work which cannot be readily approached from the "dirty" side (see Rule No. 82 of the Special Rules for carrying out repairs, page 32), may remove and put on overshoes on the "clean" side. Overshoes or goloshes must not be taken on to the "dirty" side without definite authority. Workmen passing from their work on the "dirty" side to the "clean" side must see that



their own footwear is reasonably free from dirt before putting on overshoes.

(h) Except as authorised by these rules, when "clean" shoes have been put on and entrance made into a Filling Factory, no one is to step off the "clean" platforms on any pretence whatever. Should anyone be compelled to do so, however, he must remain on the "dirty" side, and return to the Shifting Room; or, if he cannot do this without again stepping on to a "clean" platform, he must call for assistance and put on a fresh pair of overshoes.

(i) As to the method of pronouncing Filling Buildings to be "clean," see Special Rules for carrying out Repairs, etc.

Entry of  
stores into  
Filling Build-  
ings and  
Filling Factory  
areas.

2. No articles of any description whatever are, under any pretext, to be brought into a Filling Factory by being received direct into the "clean" buildings or on to the "clean" platforms from the ground in their immediate vicinity, except by the special permission of the Foreman. The only authorised places of entry for articles are the Shifting-Rooms, Receiving Stores, and the special Red Barriers at the following Factories:—

*Cap and Detonator Factory* at Buildings Nos. 5, 31, and near the Foreman's office.

*High Explosive Establishment* near Building No. 132 and Buildings Nos. 39, 86, 87, 90 and 144, and near the Foreman's office.

*Fuze and Primer Branch* near Proof Yard, Buildings Nos. 133, 166, and near Receiving Stores E.4<sup>b</sup> and E.4<sup>a</sup>.

*Cannon Cartridge Factory*.—Unloading Shelter near Building No. 8.

*Q.F.C.F.3*.—North side of Building No. 25.

No articles are ever to be introduced into Filling Factory areas except by the authorised gateways, without the special permission of the Manager.

Smoking.

3. No one is to smoke in any part of the Filling Factory Enclosures, except the Dining Hall at Cunisberg and adjacent fenced in enclosure, and the

Stokers' mess room at Y. 21 Boiler House, which places are regarded as being outside the Filling Factory area for smoking only, under certain conditions for which special authority has been given.

Smoking material (not including matches or other means of procuring a light) will be conveyed once daily to or from the Gateman's Cabin and there placed in suitable locked boxes. Keys of these boxes will be in the charge of the Gateman, Senior attendant at the Dining Hall and the Leading Stoker at Y. 21 Boiler House only, who will be responsible that the boxes are locked before leaving their charge.

The Canteen Superintendent, or his appointed deputy, may convey into the Filling Factory, smoking material (not including matches or other means of procuring a light) for the exclusive use of the Cunisberg Canteen. Such material must be made up into one parcel and must be declared on entry.

4. Electric lights, gas jets, fires, gas stoves and apparatus involving the use of flame, are permitted in certain places inside the Filling Factory enclosures. None of these which are movable are, however, ever to be used elsewhere than in these definitely authorised places except in an emergency, and then only with the approval of the Filling Factory representative present, who must be satisfied that the site selected is at least 30 ft. from any Filling Building; nor are such articles to be introduced into the Filling Factory enclosures for executing repairs, or any other purpose, without the written permission of the Shop Manager concerned.

Fires, gas  
stoves, etc.,  
matches, or  
means of  
procuring  
lights.

All such articles are to be accompanied on entry into the Filling Factory enclosures by a fire extinguisher, which is to be placed ready for use at the approved site before work is commenced.

All such articles are to be removed from the Filling Factory enclosures at the close of work on each day, unless specific permission has been received for their use in silent hours.



No matches or other means of striking or procuring a light are ever under any pretext to be taken into the Filling Factory enclosures, other than by duly authorised persons and in the manner detailed below.

(a) *Electric Gas Lighters*.—These are only permitted at the places and in charge of the persons named in the following table. They will only be used by the persons and for the purposes stated therein:—

N.B.—IF NOT PERMANENTLY ATTACHED TO SOME FIXED ARTICLE, ELECTRIC GAS LIGHTERS ARE TO BE RETURNED IMMEDIATELY AFTER THEIR USE BY THE PERSONS AUTHORISED TO THE INDIVIDUAL IN WHOSE CHARGE THEY ARE KEPT.

Place.	Number Allowed.	Person in Charge.	Persons who may use, and purpose.
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#### HIGH EXPLOSIVE ESTABLISHMENT.

Dining Hall ...	<u>1</u>	<u>Senior Attendant</u>	<u>Attendant</u> to light gas stoves and ovens.
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#### S.A.C.F. 6.

Office ...	<u>1</u>	<u>Foreman</u> ...	<u>Man</u> detailed to light gas lamps and soldering stove.
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#### GENERAL.

Gateman's cabin			
Main Gate ...	<u>1</u>	<u>Gateman</u> ...	<u>Gateman</u> to light gas jets.
Main Gate ...	<u>2</u>	<u>Gateman</u> ...	Reserve ( <i>see</i> below).
Q.F.C.F. 3 entrance and East Gate	1 in each cabin	<u>Gateman</u> ...	<u>Gateman</u> to light gas jet.
E.D. Mechanics' Shop ...	<u>2</u>	<u>Charge Hand</u> ...	<u>Man</u> to light gas jets.
Y. 21 Boiler House ...	<u>1</u>	<u>Leading Stoker</u>	<u>Stokers</u> to light gas lamps and jets.
Y. 22 Boiler House ...	<u>1</u>	<u>Leading Stoker</u>	<u>Stokers</u> to light gas lamps and jets.

A spare stock of electric gas lighters will be kept at the Main Filling Factory entrance, where a Foreman can immediately obtain a new lighter in exchange for one that is worn out.

(b) *Lanterns*.—Stokers of Boiler and Stove Houses, attached to the Filling Factories, are per-



mitted to be in possession of authorised lanterns for illuminating purposes inside their boiler and stove houses, and outside them for inspection of the motors and fans *only*, and for conveying a light to light their fires.

Stokers will obtain a light for their lanterns from the gas jet lighted by electric gas lighters, as detailed in (a) above. Should the electric lighters fail for any reason, the stokers can obtain a light from the Gate-man's cabin at the main entrance to the Filling Factories area, where a gas light will always be kept burning.

Traffic Despatchers and Shunters are allowed to be in possession of lanterns to assist them in the shunting of traffic. They will obtain a light from the Gate-man's cabin. Oil lanterns are also allowed on the locomotives and on motor vehicles, but these are not to be removed from their position and used for any other purpose.

The constables on duty will be allowed to carry electric lights of approved type in the Filling Factory area.

Workmen and others riding bicycles may obtain lights for their lamps at the Dining Hall after leaving Filling Factory areas. A light can be obtained at all times by visitors at the Gate-man's cabins and by others if the Dining Hall is closed. Workmen using the Q.F.C.F. 3 Gate and not passing the Dining Hall may obtain a light for their lamps at the Gate-man's cabin.

All bicycle lamps, with the exception of those without flame, such as electric lamps, must be put out on entering the Filling Factory areas.

Acetylene lamps are on no account to be brought into the Filling Factory area, unless such lamps are permanent fixtures on Motor Vehicles, in which case they must not contain any calcium carbide.

NOTE.—Lanterns and bicycle lamps must always be kept on the dirty side.

(c) *Portable electric lamps.*—These are kept for emergency purposes in many Filling Buildings (see General Rule 38) and are used when required for

inspection purposes. The Gate-man at the Main entrance will keep a portable electric lamp for use in case of need.

Dry batteries must not be brought into the Filling Factory Area without authority except with bicycle lamps, official electric torches or for other approved purposes. The batteries must not be removed from the lamps, torches or other apparatus whilst in the area. The lamps, torches or other apparatus must be kept on the "dirty" side.

Dry batteries may only be taken on to the "clean" side for use for approved purposes and, during transit to the point where they are to be used, are to be conveyed in boxes.

5.—(a) Any workman when inside Filling Factory enclosures found in private possession of matches or other means of procuring a light, or any obviously dangerous article, such for instance as an explosive of any sort, will be discharged; and any workman who in similar circumstances is found in possession of tobacco in any form (including snuff), pipes, cigar or cigarette holders, cigarette papers, or any articles used for the purpose of smoking, or carriage of tobacco in any form or any chemical, will for the first offence be suspended and for the second offence be liable to discharge. Any person, however, who knowingly introduces any forbidden article will be discharged.

Prohibited articles and penalties for bringing them into Filling Factory enclosures.

(b) With the exception mentioned below, no person is to take pocket knives or scissors into Filling Buildings. Knives and scissors.

Those employed in Filling Factories, and all workmen, will leave them on the dirty side of Shifting Rooms; visitors will leave them (with any other prohibited articles) at the entrance gates. Workmen carrying out repairs in Filling Factories are, however, allowed to take in knives and scissors for the execution of their work.

(c) A prominent notice of prohibited articles is at all times to be posted at the barrier of every Shifting-Room and at the entrance to Filling Factories.



(d) Workmen should carefully turn every one of their pockets inside out before arriving at their respective factories and leave them so turned inside out as far as possible; they should also shake out their handkerchiefs. Such action should render it almost impossible for a prohibited article to be overlooked, and will moreover be evidence that every endeavour has been made to obey regulations. Workmen are further recommended to have as few pockets as possible in the clothes in which they come to work, sewing up those they do not absolutely need.

(e) They are specially warned to take care that the linings of those pockets which they may retain for use have no holes in them, as they will be held responsible for any forbidden articles which may be found between the linings and fabric of their clothing.

(f) Workmen and others riding bicycles are to be most careful not to bring matches or other forbidden articles into the Filling Factory areas in the tool bags or other receptacles attached to their machines. Forbidden articles found on a bicycle would be regarded as in the "private possession" of its owner or user.

Breaches of  
Rule 5.

6. Should a workman, or other person, inadvertently bring any of the articles described in General Rule 5 into the Filling Factory enclosures, and deliver it up himself at once, and certainly before passing the responsible person selected for search, he will suffer no penalty under General Rule 5, provided he is not in the regular habit of making this most undesirable mistake. The person to whom the article is delivered will at once report the case to the Foreman, and a note will be made of the occurrence.

Intoxicants.

7. No person under the influence of liquor is to be allowed to enter the Filling Factory enclosures.

Any workman who is considered to be under the influence of liquor, when coming to work, or whilst inside the Filling Factory areas, will be at once removed and discharged.

Any workman known to indulge habitually to excess in intoxicants will be discharged.

No beer, wine or spirituous liquors are to be brought into the Filling Factory enclosures without the written permission of the Superintendent.

8. All workmen are to proceed at once from the entrance gates to the Shifting-Room of the Factory to which they belong, where anyone may be selected for the thorough searching of their clothing, head-gear, and any private bag or parcel carried by them. They will then enter the "dirty" portion of the Shifting-Rooms, where they are to take off the clothes in which they enter the Factory, with the exception of undervests, shirts, collars, neck-ties, drawers and socks. (Special conditions apply to Shellite Workers, *see* General Rule 11 (a).) Those in possession of special bags provided for money are to present them to be searched, if required, when crossing the barrier. Belts worn for health but not in substitution for braces, are permitted provided they are quite free from metal buttons or fittings. Belts, other than braid belts provided with Filling Factory clothing, are not permitted in substitution for braces.

Entry of  
Filling Fac-  
tories and  
search of  
private clothes,  
etc.

Workmen are warned that material known as flannelette is highly inflammable and are strongly advised not to wear any clothing made of this material.

Warning as to  
wearing  
flannelette  
clothing.

The wearing of collars of celluloid or similar inflammable material is forbidden.

Celluloid  
collars.

Females employed on the clean side, irrespective of the nature of their duties, must wear Filling Factory clothing. The wearing of underclothing made of artificial silk, or material known as flannelette is forbidden, underclothing being defined as any garment including hosiery, worn beneath the Filling Factory clothing.

9. No articles of iron, steel or metal are allowed on private underclothing of workmen, nor are any such articles except spectacles (which must be "curl-side," or the sides securely tied together across the back of the head, *not* "pince-nez"), money carried in the special bag provided for the

Metal articles  
forbidden.



purpose, and properly secured round the neck, and surgical appliances which are unlikely to become detached, to be carried across the Shifting-Room barriers.

All buttons on the private underclothing of workmen are to be of bone, or of metal other than iron or steel, provided that these are covered with fabric so that no metal is exposed.

#### Searching.

10.—(a) Workmen after taking off their clothes (as in General Rule 8) are to be thoroughly searched by persons deputed for this work, and, until they have been searched are not to pass across the barrier into the "clean" portion of the Shifting-Room. THE WORKMAN IS RESPONSIBLE EQUALLY WITH THE PERSON DEPUTED TO SEARCH FOR THE OBSERVANCE OF THIS RULE.

(b) Workmen, habitually employed in a Filling Factory area, but on the "dirty" side, and who wear special clothing with distinguishing marks, will be similarly searched before proceeding to work, and are similarly responsible that they do not start work without being searched.

(c) Workmen who enter a factory after the general searching has ceased will be searched by the Shifting-Room Attendant exactly as detailed above, and will be similarly responsible that they are searched before they commence work.

(d) No loose articles, other than handkerchiefs and the articles specified in General Rule 9, may be taken across the barrier by workmen, and no private bag or private parcel, etc., by anyone. Workmen wearing surgical appliances under their underclothing must acquaint their Foreman that they do so.

(e) The Overlookers and others deputed to search are to sign the searching certificate daily in the book provided for the purpose.

(f) Worktakers, Clerical Staff, workmen not employed in work on or in connection with explosives, and workmen of other departments will not remove their clothes except when searched by the Foreman,

or by the order of a senior official, but they will turn all their pockets inside out in the presence of and be searched by the Shifting-Room Attendants or Gate-men or other person deputed. They will further have their hats or caps examined.

(g) Workmen casually employed out of ordinary hours will be searched by the Gate-man. Mechanics working habitually in Mechanics' Shops in Filling Factory areas will be searched by their own Leading-hands before commencing work.

(h) In order to render the search of Worktakers, etc., and that of the private clothes of workmen referred to in General Rule 8 above, as rapid as possible, all persons subject to such a search must have all their pockets ready turned inside out when they come to the person who is to search them.

(i) Such employees will be held responsible if they enter Filling Factory areas or commence work without being searched, as laid down above.

(j) Visitors will not be searched, but will be questioned by Gate-men and Shifting-Room Attendants as to their possession of forbidden articles, and their attention will be called to the notice detailing those articles. (See General Rule 5.) \*

(k) In addition to the regular search above, "surprise" searches will be made by the order of Foremen, or Danger Building Visitors, as laid down in the Special Rules for those individuals.

11.—(a) After being searched, Filling Factory workmen who work on the "clean" side are to pass over the barrier into the "clean" portion of the Shifting-Room and are to put on the headgear, clothes (in which no pockets are allowed) and the shoes provided. Shellite workers are to remove the whole of their private underclothes and put on the underclothing provided in addition to the outer garments. Jackets, including the inside belt, and

Filling Factory clothes. How worn.

\* Individuals under instruction by the Military College of Science are bound by "Military College of Science Standing Orders," strictly to observe all Safety Regulations; and, further, have to sign a certificate to this effect before visiting Filling Factories.



overalls, are to be worn buttoned up, and the sleeves are not to be turned back, nor are the bottoms of trousers to be turned up. The sleeves of shirts, when these are allowed to be worn without jackets over them, are not to be turned up. Workmen in certain cases, authorised by the Foreman, may be permitted to turn up the sleeves of their own shirts and underclothing provided they turn them up *above their elbows*; and for specially dusty work, or whenever it may be considered desirable, elastic bands for closing the sleeves of jackets (or of shirts when worn without jackets) will be provided.

(b) Workmen must draw immediate attention to frayed sleeves or other lack of good repair in their clothing.

(c) Braces or braid belts are provided for use with the Filling Factory clothes, and no other waist strap, nor other braces are to be used. The term "waist strap" does not include a belt worn for health. (See General Rule 8.)

(d) Worktakers, Clerical Staff and workmen of other departments who are employed continuously in a Filling Factory will remove their boots on the "dirty" side of the Shifting-Room and put on Regulation Shoes on the "clean" side. In all cases the bottoms of their trousers must be turned down. Such persons may put on overshoes if their work is of short duration, or if it is necessary to carry out work on the "dirty" side which can only be approached from clean platforms. (See General Rule 1.)

(e) Filling Factory workmen habitually employed on the "dirty" side will wear special clothing distinguished by red stripes down the trousers, red bands round the upper part of the sleeves, and red badges on the cap. These clothes will be kept, and put on, on the "dirty" side of the Shifting-Room.

(f) Workmen will be held responsible for treating their Filling Factory clothes with reasonable care and regard to cleanliness.

(g) Filling Factory clothes will be washed as may be necessary, but at least once in six months.

(h) The greatest care must be taken that clothing reserved for specially dirty *explosive* work does not, by impregnation with explosive matter, become a source of danger.

(i) No alteration in, nor addition to, Filling Factory clothing (such as the addition of pockets, etc.) is ever to be made without special sanction.

12.—(a) Each workman will have a peg allotted to him in the "dirty" portion of the Shifting-Room, on which he is to hang up his private clothes, and a peg in the "clean" portion on which he is to hang up his Filling Factory clothes. Entry of  
Filling Factory  
and search of  
private clothes  
etc.

(b) All workmen who have been supplied with new Filling Factory clothes, or clean ones after they have been washed, are warned they must take steps to have them marked with their official number or other assigned mark, and carefully hang them up. Special bags are provided for the reception of the clothes when changing or leaving off work. Workmen who start work without an official number, and have their clothes marked temporarily, are responsible for having their clothes correctly marked when a number has been assigned to them. The Shifting-Room Attendant will inform them where marking is to be done.

Marking will be upon the outside of the coat, shirt or waistcoat just below the back of the collar, and upon the right outside seam of the trousers, so as to be plainly visible.

Any workmen finding that their clothes have been changed or interfered with in any way must report at once to the Shifting-Room Attendant, and are on no account to put on clothes not correctly numbered with their own number or temporary mark.

Any workman found tampering with any other workman's clothes or wearing clothes not numbered, or numbered with another workman's number or mark, or not hanging their clothes on the peg on changing, will be liable to discharge.

The cordial co-operation of workmen in the carrying out of the above orders is invited in order to prevent any of their fellow-workmen interfering with their comfort.



(c) Except in the case of Shellite workers, who take off their private underclothing on the "clean" side, private clothes are never, on any pretext, to be hung up on the "clean" side of the barrier, nor Filling Factory clean clothing on the "dirty" sides.

(d) Bags may be obtained from the Shifting-Room Attendants for the purpose of carrying money over the barriers. The bag is to be properly secured round the workman's neck and is to be kept beneath the shirt. No other articles are to be carried in the bags, and it must be distinctly understood that no responsibility whatever will be accepted for the loss of money or valuables. All bags (whether for clothes or money) are to be signed for, and applicants will be held responsible for their safe keeping. All bags must be given up to the Shifting-Room Attendant on their users being transferred from or leaving the Department.

Workmen not to enter Shifting-Rooms in working hours.

13. No Filling Factory workman is to re-enter his Shifting-Room during working hours, on any pretence whatever, unless provided with a pass signed by the Foreman.

Order in Shifting-Rooms.

14. Order and decorum are to be strictly maintained in the Shifting-Rooms. The Attendants are to report to the Foreman any workman causing a disturbance.

Overshoes and goloshes.

15. The overshoes or goloshes provided for the use of officers and others entering the Filling Factories are to be kept within the "clean" barriers in the boxes provided. They are to be put on and taken off on the "dirty" side of the barrier, on the "clean" support provided for the purpose.

All persons whose duties take them to the "clean" side of the Filling Factories are to have the bottoms of their trousers turned down. Occasional visitors whose "turn-ups" are firmly secured by stitching are exempted from this rule.

Sticks and umbrellas.

Sticks and umbrellas are not to be taken beyond the Shifting-Rooms of any of the Filling Factories except by special permission of the Superintendent.

16. Five minutes are allowed for changing clothes except in particular cases, where the time allowed is specially notified. The workmen, when they have changed, will proceed at once to their respective clocks, where they will register their attendance, and from thence to their Filling Buildings. Loitering and skylarking in proceeding to and from the Filling Buildings are strictly forbidden.

Changing and Proceeding to work.

17. On arriving at their respective Filling Buildings the workmen will be admitted by persons appointed for the purpose. Before commencing work they will assist their Overlooker in ascertaining that all doors are unlocked, unbarred and unbolted and that each door can be freely and fully opened, and that the removed bolts and bars are properly hung up. They will also assist in inspecting the machinery and plant, to see that everything is correct before commencing work.

Starting work. Examination of doors and bolts.

18. No workman, without orders, is to enter any Filling Building in which he is not employed, nor is he to leave the Building in which he is working without the permission of the Overlooker.

Workmen to keep to their own Buildings.

19. The method in which the various forms of work are to be carried out in Filling Buildings, and the tools, etc., which may be used are prescribed in the "General Safety Directions" for such work. No work is to commence in a Filling Building until the "General Safety Directions" for that work have been hung up, unless no explosive limit is allowed and there is no question of safety involved. When no longer required the Directions are to be returned to Store.

General Safety Directions, Tools, etc., allowed in Filling Buildings.

Workmen are to make themselves acquainted with "General Safety Directions" for the work they are engaged on.

No alteration in the procedure laid down is to be made without authority, and no tools, implements, or movable articles of any kind are to be introduced in any Building where filling operations are being carried out, except those provided and entered in "Use the List," which will form part of the "General Safety Directions" for the particular



work in hand. When not in use the tools, etc., are to be deposited in the appointed places. The temporary introduction of mechanic's tools for adjusting of machines will not constitute an infringement of this Rule.

Pieces of chalk, pencils, and similar articles are not to be placed behind the ear.

Operations not performed in Filling Factory area.

Certain operations (e.g., destruction of waste explosive) are not carried out in the Filling Factory area. Such operations are never to be undertaken without detailed "General Safety Directions" for them being posted.

"Limits" of Explosives and Men and "General Safety Directions."

20. The quantity and nature of explosive and/or the number and nature of filled explosive stores, and the number of men allowed to be present in a Filling Building during any particular operation and at the close of work, will be found at the head of the "General Safety Directions" for the operation in question. On no account is this quantity or number to be exceeded; and, further, every effort must be made to keep the explosives in operation covered up except when being actually handled. Workmen will assist their Overlookers in seeing that this rule is strictly obeyed.

N.B.—*The temporary presence of members of the O.F. Staff and Inspection Staff, persons attending to hygrometers, or Visitors properly conducted, and the occasional authorised performance of work in connection with experimental stores will not constitute an infringement of this Rule*

Notice Boards.

21. Boards containing the following notices are, where applicable, to be hung up in Filling Buildings and wherever possible are to be permanently fixed:—

- (a) "General Safety Directions" and name of person in charge of shop.
- (b) Process Specification or Filling Instructions.
- (c) Fire Bucket Notice.
- (d) Instructions for care and custody of Fire hand pumps and buckets.
- (e) Hygrometric Record.
- (f) Danger Building Visitors' Diary.

(g) Nearest Shop in which a portable electric lamp can be obtained and directions for using lamps and batteries.

(h) Miscellaneous notices referring to removing and replacing of belts, starting and stopping of motors and machines, maximum thermometer record, precaution against lead, mercurial and other poisoning, and any other precautions or instructions considered desirable.

Other notices when necessary are to be posted in Shifting-Rooms and Dining Rooms.

Unofficial notices are never to be put up without the permission of the Superintendent.

22. No experimental or specially dangerous work will be carried out until the conditions laid down in the Special Rules for these classes of work have been met. (See page 34.)

Experimental or specially dangerous work.

23. Certain operations in connection with explosives require "Special Precautions," and these will be found embodied in the "General Safety Directions" for the particular operations. Such precautions are invariably *additional*, and are never to be taken as excuses for relaxing the stringency of the "General Rules," which *always apply*. "Special Precautions" for "General Safety Directions" for new work will be read out to the workmen by the Foreman before commencing work on the operation in question, and by the Overlooker at least once a week afterwards, during the continuation of the operation and to all new entrants to his shop before commencing work.

"Special precautions," definition of scope of, etc.

24. Workmen employed in Filling Factories are to carry on the work entrusted to them in as gentle and careful a manner as possible. No undue haste is ever to be made, and no greater force employed than is absolutely necessary to effect the object in view. All tools and implements are to be handled carefully, and are never to be thrown down, or be allowed to fall or drop on the floor. No workman is ever to pass another on the platforms or in a building at a run. Workmen are immediately to

Gentleness and care to be observed in carrying out all operations in Filling Factories.



Skylarking or  
violence  
forbidden.

Workmen to  
call attention  
to anything  
which strikes  
them as un-  
usual or  
dangerous in  
their work.

check, either in themselves or others, any tendency towards trifling, carelessness, or undue haste.

Skylarking or rough play is strictly forbidden, and any workman guilty of using or offering violence to another will be liable to discharge.

25. Workmen are immediately to report to their Foreman or Overlooker anything which they may observe which may seem unusual or dangerous in the operations, machines, plant, tools or implements, or in the appearance of the materials with which they are working, or in the acts or conduct of their fellow workmen. (This specially applies to the employment of any extra force. See General Rule 24 above.)

Should any foreign substance be found in the contents of any package containing explosives, the package and its contents are to be put aside and an immediate report made to the Foreman. (In certain cases the method of dealing with foreign matter is laid down in "General Safety Directions.")

Direct sunlight must not be allowed to fall upon explosives. If explosives should fall into water or oil or on the floors of buildings, or into any place or receptacle where they may become contaminated with grit or any foreign substance; or if stores, either explosive in themselves, or intended to be used in conjunction with or to contain explosives, should suffer a fall or blow, in the least likely to derange or damage them, such explosives and stores are to be set aside and are not to be used for manufacture or issue without the Foreman's special sanction. This does not of course apply to explosives and other material, which must to some extent be expected to fall on to floors, etc., during manufacture, and after so falling are treated as waste, and are swept up and dealt with as laid down in the "General Safety Directions." The drying of any explosives which have fallen into water or oil is strictly forbidden.

In cases where packages provided with iron or steel fittings (including screws or nails) are permitted to be taken into buildings which contain loose explosives, all fittings to be removed should be taken

off in a part of the building where explosive is not exposed, before work is commenced on the contents of such packages, and the detached parts are to be placed apart so that they cannot come into contact with explosive materials.

26. The utmost care is to be taken that workmen are so placed when at work in a Building that they shall have free access to one at least, and, if possible, ALL of the exits from that building. Trucks or packages are never to be allowed to remain in or across exits. Care to keep free exits.

N.B.—THE CORDIAL CO-OPERATION OF WORKMEN IS INVITED TO ENSURE THE DUE OBSERVANCE OF THIS RULE.

27. Workmen are strictly forbidden to interfere with anything in the Filling Factory enclosures, either truck lines or points, buildings, and their fittings, machinery or plant, tools or implements, materials, or stores either in course of manufacture or manufactured, except in the strict fulfilment of their duties. Workmen not to interfere with articles in Filling Factories.

28.—(a) The greatest care is to be taken not to spill explosives on the tables and floors and at all times to keep the floors and interiors of Filling Buildings, and all machines, tools, implements and apparatus used for explosives as free as possible from dust, grit, explosive-dust, and all unnecessary accumulation of material, by frequent sweeping or cleaning. Particular attention must be paid that dirt and dust of any kind is not allowed to accumulate in recesses, cracks, holes or on ledges, shelves, steam pipes, etc. All receptacles for explosives, and racks, tables, etc., are to be periodically inspected to see if cracks or holes have developed in them, and to have any such, which are found, stopped or the receptacles, etc., condemned, if stopping or other repair necessary cannot be satisfactorily carried out. In hot or dry and windy weather, the floors of such buildings as are not ordered to be kept thoroughly dry, are to be kept damp. Cleanliness in working and prevention of accumulation of material.



(b) In those buildings in which the floors are covered with removable coverings (*i.e.*, not fixed as is linoleum), the period at which such coverings are to be cleaned (whether by beating or washing, etc.), will be laid down in the "General Safety Directions."

Inflammable articles, etc., not to rest on steam pipes.

(c) No wood, explosive articles or inflammable substance is ever to be allowed to rest on boilers or steam pipes, or other heating apparatus, and the closest watch will be kept, especially in Drying Houses, that this precaution is observed.

Risks from "dirty" buildings.

(d) Great care is to be taken that "clean" buildings, which do not happen to be used for work on or storage of explosives, are always treated, in the matter of keeping them free from dirt and grit, etc., precisely as if they were in use for explosives. If not so treated they may become sources of serious danger. Closed buildings on which the approved notice is posted will, however, be treated as "dirty," and will not be taken into use as "clean" buildings until the services have been reconnected, the electric installation retested and passed by the Engineering Department, and the building subsequently cleaned and passed for use.

Cotton waste, sponge cloths, turpentine, oil, etc., treatment of.

29. Cotton waste, sponge cloths, serge and silk cuttings, oil, turpentine and inflammable articles used for painting, varnishing, or other purposes, dirty stencils, and articles of a kindred character, will be kept in iron chests which are never to be less than one foot from the walls of any building in Filling Factory areas and will only be taken into the building in such quantities as are needed for immediate use. At the close of work serviceable articles of the above classes are to be replaced in the iron chests, and unserviceable ones collected, together with any waste paper from buildings where there is any possibility of contamination and placed under water for subsequent despatch to the Destroying Ground. All waste from High Explosive Establishment of the kind indicated is liable to be impregnated with picric acid, etc., and is to be treated as waste explosive. *The utmost care is to be taken that waste*

*explosives are never mixed with other waste articles.* Waste explosives will be disposed of as laid down in the various "General Safety Directions."

30. Until the Special Rules in connection with alterations, repairs, adjustments, new work, etc., in Filling Buildings (*see* page 31) have been complied with, no work of the above character, *however trivial*, is ever to be carried out by *anyone* on buildings, fittings, machinery, tools, or plant of any kind.

Repairs and adjustments of any kind in Filling Buildings. How to be carried out.

THE ATTENTION OF WORKMEN IS VERY SPECIALLY CALLED TO THE ABOVE RULE, AS IT APPLIES ALSO TO CASES OF TEMPORARY DERANGEMENT OR STOPPING OF MACHINERY, WHICH IT MAY SEEM A VERY SIMPLE MATTER TO PUT RIGHT.

A machine, press or hand-tool, etc., is not to be taken into use after its installation and/or any alteration or adjustment has been made to it, unless the correctness of its adjustment and functioning has been verified by the Overlooker or in his absence the Assistant Overlooker.

The exceptional cases, in which a workman may adjust or otherwise deal with machinery, tools, or plant, are detailed in the "General Safety Directions" for the operations in which the necessity for such action is likely to occur.

No implements, tool, machine, or part of a machine, receptacle, nor any article used in Filling Buildings is ever to be sent anywhere for repair or for any other purpose until the Foreman has seen it and certified that it is free from explosives.

31. Receptacles and packages of all kinds for explosives, whether full or empty, are on no account to be roughly handled or allowed to drop. They are to be lifted clear from place to place where possible and are never to be pushed, slid, dragged, or sharply put down. All B.L. Cartridge Cases and similar cases may be rolled on end or over rollers. Other packages may be passed over roller conveyors. Covers and lids are always to be carefully put on and taken off, or opened or closed. (*See also* Special Rules for the loading and unloading of explosives, page 37.)

Packages of explosives and their treatment.



Barrels of  
explosives.

32. Closed barrels containing explosives are always to be rolled on their bilges, each one separately, and are to be carefully put down when lifted from one level to another.

Open barrels containing explosives are never to be placed one in the other, and only one full barrel at a time is to be conveyed on a sack barrow. When being moved they may be rolled on their chimes or lifted as may be found most convenient.

The above apply to movements of barrels on "clean" platforms and in "clean" buildings. Barrels containing explosives will always be carried across "dirty" places.

Trucks contain-  
ing explosives.

33. Trucks containing explosives in any stage of manufacture or their ingredients, or finished explosive articles, when being moved from one Filling Building to another, are always to be kept closed or covered over. They are not in any way to be overloaded. They are never to be left without someone in charge, except during a thunderstorm.

Hand trucks, running on rails, are always to be pushed from behind, and kept thoroughly under control. Electric trucks are only to be driven by authorised drivers. Riding on hand trucks is strictly forbidden. One conductor may be allowed in addition to the driver on electric trucks.

Fire buckets,  
pumps, etc.

34. All fire buckets and hand fire pumps are to be kept filled with clean water and ready for use. Care must be taken that those in exposed situations are not allowed to become frozen, and, to prevent this, the buckets may be taken into any buildings in which an exceptionally dry atmosphere is not essential. During frosty weather it will be better, in those places where the buckets must be exposed to frost, to empty them before ceasing work for the day and place them upside down at their proper stations, but during working hours the buckets should be filled and the ice broken should it form. They are not to be removed from the positions assigned to them (except for protection from frost) nor used for any but fire purposes. Workmen must always consider the position of these buckets, as a single bucketful of water, used at the right moment,

may quite possibly put out an ignition capable, if not dealt with at once, of producing a serious fire or explosion. In certain buildings on which water must not be used, sand bins are provided. These are always to be kept replenished, and the shovels are on no account to be removed from the bins. (See also Special Rules as to fires on page 39.)

35. The ambulance hampers and stretchers are to be kept in good order, and are not to be shifted from their assigned positions without permission. (See Special Rules as to accidents on page 47.)

Ambulance  
hampers and  
stretchers.

36. The platforms are not to be allowed to become dirty, and in slippery weather are to be covered with clean sawdust, free from grit. No paper or any other rubbish is to be thrown about the Filling Factory enclosures.

Platforms.

37. When buildings, platforms, etc., are shut off for repairs, barriers painted red and marked "clean" on one side and "dirty" on the other, will be used to divide the "clean" from the "dirty" side. Such barriers are never to be crossed, even with a change of shoes, without special permission from the Foreman. (See General Rule 1.)

Barriers and  
warning  
notices.

In certain Factories special barriers are placed across the platforms, or notices erected at the entrances to Filling Buildings to prevent passage or entrance while certain operations are in progress. These barriers or notices are never to be passed when in the danger position.

38. Except in the case of grave emergency, no one except the Overlooker or persons specially detailed is to touch in any way the gas or electric light arrangements. Should anything go wrong with them immediate report is to be made to the Foreman. Should the electric lights fail for any reason the person authorised will at once obtain and make use of the portable electric lamp provided in certain shops to meet such an emergency, and report to the Foreman. The remainder of the workmen in the building will remain quietly in their places.

Gas and electric  
lighting.  
Portable  
electric  
lamps.

39. Except in the recognised Dining Rooms or other approved places, meals are not to be taken in

Meals not to be  
taken in Filling  
Buildings.



any of the buildings inside the Filling Factory areas without special permission of the Superintendent.

Temperature.  
Closing of  
doors, etc.

40. Doors and windows of Filling Buildings and their porches are to be closed when the difference between the wet and dry bulb thermometers does not exceed the amount laid down for the building.

Thunderstorms.  
Procedure in  
connection  
with.

41. On the approach of a thunderstorm and the sounding of the "turnout" signal, the machinery is to be stopped, all doors and windows are to be closed, and workmen are to retire to the Shifting-Rooms until they receive orders to return to work. In special cases, however, where definite approval has been given by the Superintendent, workmen are to remain and carry on work as usual. Should, however, the Foreman consider it unsafe or impracticable to suspend any particular process that may be in hand, such men only as are necessary for its continuance are to remain at their work. Such exceptional cases will usually be found laid down in the "General Safety Directions" for the operations in which they are likely to occur.

Filling  
Buildings to  
be kept locked  
when not in use.

42. With the exception of certain approved buildings, buildings not in use or left unattended, even temporarily, are to be kept locked. Approved buildings will normally include Ablution Rooms and Latrines. For other buildings special approval has to be given.

The operation of barring, bolting or locking of all exits is to be the last operation on cessation of work.

Cessation of  
work.  
Precautions to  
be taken in  
clearing  
buildings.

43. On cessation of work, and the sounding of the hooter, workmen are to proceed to the Shifting-Rooms in an orderly manner via the clock-station, when the removal of Filling Factory clothes and the putting on of private clothes is to be carried out as provided for on going to work, but in the reverse order. Lights will be put out by persons deputed for the purpose. Any workman remaining in a building at close of work without authority will render himself liable to discharge. To prevent any workman being left in the Factory after it has been closed, the Shifting-Room Attendants will see that no private clothes are left in the Shifting-Room. Should any be found an immediate report is to be

made to the Foreman, who will take steps at once to find the workman to whom they belong.

44. The electric lamps along roads in the factories are controlled from the main D.B. Gate. These are not to be lit during silent hours except to facilitate any traffic which may be necessary. The green lamps indicating the position of hydrants are included in the circuits providing the road lights, and on receipt of an alarm of fire by night, the gate-men will immediately switch on all road lights as provided in Rule 105 (e).

Lighting of  
road lamps and  
green lamps  
which indicate  
hydrants.

The platform lights may be lit at night as required, and must in any case be kept alight between any point where work is proceeding and the nearest fire alarm. The red lamp indicating the presence of the fire alarm situated at the factory office must also be lit at night when any work is proceeding.

Lighting of  
platforms and  
lamps which  
indicate fire  
alarms.

#### SPECIAL RULES FOR OVERLOOKERS.

45. An Overlooker, although working with the workmen, must never forget that he holds a responsible position, and that, being in immediate and constant touch with the workmen, he is in the best position at once to notice and check all irregularities of conduct, which though not expressly forbidden by Regulations are yet obviously objectionable. *The lives of men he supervises are largely in his keeping* and depend upon his firm determination to allow no infraction of regulations.

Responsibility.

46. He will make himself thoroughly conversant with the "General Rules," the Special Rules applying to himself, also the "General Safety Directions" and the Process Specification or Filling Instruction for the work on which he is employed, and he is generally responsible for assisting in ensuring obedience to them. He must call attention to anything in the "General Safety Directions" which he considers needs alteration.

Knowledge of  
Regulations and  
General Safety  
Directions.

47. He will at once report to his Foreman any breach of Regulations or objectionable conduct on

Reporting  
irregularities.



the part of the workmen or others. *He has no discretionary power whatever to overlook offences.*

Searching.

48. If instructed to do so he will be present ten minutes before the commencement of each "call," and will carefully search all the men allotted to him before they enter the Factory (*see* General Rule 10), and he will be held responsible that his searching is efficiently carried out.

Temporary charge.

49. In the event of his having temporarily to leave a building of which he is in charge, he is to depute the next in charge to take over his duties pending his return. Should, however, no other person over the age of 21 be employed in a building containing explosives, the Foreman, Assistant Foreman or Principal Overlooker is to be notified, who will depute a man to take temporary charge.

Commencing and ceasing work.

50. He will be held responsible that the provisions of General Rule 17 as to commencing work and General Rule 43 as to ceasing work are observed. He will (if considered necessary) depute the next in charge to control the men on the way to the Shifting-Room.

Limits, gentleness and cleanliness in work.

51. He will see that General Rules 19 and 20 as to tools and limits, General Rule 24 as to gentleness, and General Rule 28 as to cleanliness in working are strictly obeyed.

He will at once report to his Assistant Foreman or Foreman any incident which he may notice or which may be brought to his notice under Rule 25.

Adjustment of machinery, etc.

52. He is to be specially careful that only authorised adjustments of machinery, etc., are carried out by workmen, and that no repair of any kind is carried out without the permission of the Foreman (*see* General Rule 30 and Special Rules for Repairs (page 31)).

Duties in case of fire or accident.

53. In case of fire or accident he will keep his men in hand and see that all is done towards quietly carrying out the procedure laid down in the Special Rules for meeting such contingencies. (*See* pages 39 to 49.) He must specially prevent his men from rushing aimlessly about, needlessly leaving the

"clean" platforms, or crowding to the scene of the occurrence.

He must have definite ideas as to what he will do in the event of a small ignition occurring (*see* General Rule 34), and must see that the position of workmen in the building is such that they are able to escape at once in the event of an accident. Workmen must not be placed with a long table or other big obstruction between them and the doors. (*See* General Rule 26.)

54. On cessation of work he will be responsible that the following instructions have been observed before leaving his building, viz. :—

Responsibility at cessation of work.

- (a) That the work in operation and sweepings and waste have been disposed of as laid down in the "General Safety Directions."
- (b) That waste material, oil, etc., are not left in the building but dealt with in accordance with General Rule 29.
- (c) That all windows are fastened and doors bolted and locked.
- (d) That all lighting and power, also all main gas cocks outside buildings in which gas is used, are cut off. This rule does not apply to the picric acid melting chamber when melting is in progress.
- (e) That no workmen remain in the building.

55. He will be responsible that the keys of the building are deposited in the appointed place, and he will sign a certificate (on the prescribed form) daily before leaving the Factory of the due performance of his duties.

Keys: certificate.

### SPECIAL RULES FOR GATEMEN.

56. He will make himself thoroughly familiar with the Regulations of the Filling Factories, and will assist in securing obedience to them. He will record and report at the earliest moment all infractions of Regulations or unusual circumstances, and he will keep records of the names and business of all persons visiting the Filling Factories during closed time.

Familiarity with Rules.



Unauthorised persons.

Searching and questioning of visitors as to forbidden articles.

Locking of gates.

Ordinary coal-fired locomotives not allowed in Filling Factory Areas.

Conditions of entry of other vehicles.

Maintenance of order.

Bicycle lamps.

57. He will allow no unauthorised persons to enter the Filling Factory areas.

58. He will search all workmen who enter the Filling Factory area (other than those employed in Filling Buildings) in a manner similar to that laid down for the searching of Worktakers, Clerical Staff, etc., in General Rule 10 (f). He will question all other visitors, of whatever rank, as to their being in possession of articles forbidden by General Rule 5, drawing their attention to the notice of prohibited articles.

He will allow no live animal to be taken into the Filling Factory area without special permission.

59. He will lock the gates when work ceases for the day, and deposit the keys in the Gateman's Cabin at the Main Filling Factory entrance.

60. He will permit no coal-fired locomotive or vehicle to enter the Filling Factory areas and will make no exception without the special permission of the Superintendent (or as indicated in Additional Rules for Gatemen, Main Entrance, Rule 69).

He will permit an internal combustion vehicle to enter the Filling Factory area only after he has obtained an assurance from the driver that there is sufficient liquid fuel in the tank to enable him to complete his journey in the Filling Factory area.

Petrol, other than that in the tank of the vehicle, is to be removed and deposited at the gate before the vehicle is allowed to enter.

Before permitting any lorry to enter he will inquire as to the nature of the materials borne, and if there are any of an explosive or inflammable nature not for delivery to a Filling Factory, or if he has any doubt regarding the character of the load, he will ask for further instructions.

61. He will assist in maintaining order as the workmen enter or leave the Filling Factory areas.

62. He will cause all bicycle lamps to be extinguished before allowing bicycles to enter a Filling Factory area: and he will permit bicycle lamps to be lighted from the gas jets in the cabins when those riding bicycles are leaving a Filling Factory area, as laid down in General Rule 4 (b).

63. Should he have to leave his post for any purpose, the Gateman at the eastern end of Q.F. Cartridge Factory No. 3 will arrange with the nearest constable to take his duty, and the other Gatemen will obtain substitutes from the nearest Shifting-Rooms.

Substitutes during absence.

64. He will sign a certificate daily of the correct performance of his duties in the book kept for the purpose.

Certificate.

#### SPECIAL RULES FOR GATEMEN AT THE MAIN ENTRANCE AND ADDITIONAL TO THE SPECIAL RULES FOR GATEMEN.

65. He will keep the gas jet burning night and day in his cabin. An electric gas lighter to relight it, when necessary, is attached to the wall of his cabin. He will permit stokers to light their lanterns from this gas jet. (See General Rule 4 (b).) He will keep a portable electric lamp for use in case of emergency. He will have charge of two spare electric gas lighters. (See footnote, General Rule 4 (a).)

Keeping a light for stokers.

66. He is to keep the Railway Gate closed and locked except when actually being used for railway traffic purposes. He will keep the Roadway Gate open during working hours and until the workers have left the area, but will keep this gate closed and locked during silent hours, and open it during such periods only for the admission of authorised persons who may make their presence known by ringing the bell.

Opening and closing of gates.

67. He will have charge during closed periods of the keys of the key cupboards of all the Filling Factories, and the keys of "dirty" side buildings for use of the police patrol.

Custody of keys.

68. He will make himself thoroughly acquainted with the procedure detailed in the Special Rules in Case of Fire (page 39) and in the Special Rules in case of Accidents (page 47), and with his duties in connection therewith.

Knowledge of Special Rules for Fire and Accident.

69. He will permit a coal-fired engine to enter the Main Filling Factory area as far as the notice boards

Entrance of engines.



for the purpose of shunting trucks on to the siding. He will also see that the engines do not remain longer than necessary.

Visitors.

70. He will arrange for authorised visitors to register their visit in the special book provided.

Testing of fire alarm circuit.

71. He will be responsible for testing all fire alarm circuits after electrical disturbances. (See Rule 116.)

#### SPECIAL RULES FOR SHIFTING-ROOM ATTENDANTS.

Familiarity with Rules.

72. He will make himself thoroughly familiar with the General Rules of the Filling Factories and assist in securing obedience to them.

Presence in and responsibility for Shifting-Rooms.

73. He will be responsible for order being kept in the Shifting-Rooms, and for their cleanliness during ordinary working hours, and at such other times as he is instructed to be present.

He will be careful that the private clothing left in his charge is not tampered with.

Prevention of workmen entering Shifting-Rooms.

74. He will satisfy himself that any workman returning to the Shifting-Room during working hours does so with authority. (General Rule 13.)

Persons not allowed to pass barrier. Searching and questioning of visitors as to forbidden articles.

75. He will not allow any unauthorised person to pass the barrier.

76. He will search all Worktakers, Clerical Staff and workmen, as laid down in General Rule 10, and also workmen of the Factory before crossing the barrier when deputed for this duty.

He will search any workmen of the Factory employed on explosives who enter after the general searching has ceased completely, as laid down in General Rules 8 and 10 for workers on explosives who change their clothes. He will question all other persons, of whatever rank, who pass through the Shifting-Rooms as to their possession of any of the articles forbidden in Filling Factory areas by General Rule 5, drawing their attention to the notice of prohibited articles posted up in the Shifting-Room. He will not allow sticks, umbrellas or any private bag or parcel to be taken beyond the barrier, except by special permission of the Superintendent.

77. He will take every opportunity of examining the Filling Factory clothing in use, to see that no unauthorised alterations or additions have been made to it (*see* General Rule 11 (i)), that it is properly marked, and that, at the close of work, each workman has replaced his clothing on the peg provided. All breaches of the Rules should be reported immediately.

Examination of Filling Factory clothing.

78. To prevent any persons being left in the Factory when work ceases he will see that no private clothing has been left behind when the workmen have turned out. Should any clothing be left behind a report is to be made to the Foreman or other individual in charge, who will decide whether the garments left necessitate a search to make sure that no one has been left in the Factory.

Prevention of workmen being left in Factory.

79. He will sign a certificate daily of the correct performance of his duties in the book kept for the purpose.

Certificate.

#### SPECIAL RULES FOR THE CARRYING OUT OF REPAIRS AND ALTERATIONS, ETC., OF ALL KINDS IN FILLING BUILDINGS; ALSO FOR THE ERECTION OF NEW BUILDINGS, OR ADDITIONS TO EXISTING ONES.

80. In Filling Buildings other than those containing fulminate of mercury in any form, dry gun-cotton, match composition and other sensitive explosives, or buildings in which the ordinary work done is liable to lead to deposit of explosive dust, minor repairs, alterations and additions, such, for instance, as the repair of a bolt on a door, the putting up of light fitments such as shelves, and generally when the work to be done *will not cause the formation of grit nor necessitate the handling of heavy articles or the raising of ladders, steps, trestles, nor the making of any erection to raise the workmen, or work above the level of the floor*, the building which is to be dealt with need not necessarily be cleared of explosives

Minor repairs on buildings and fittings when permissible without clearing buildings.



and men or made "dirty" and shut off from the rest of the Factory by barriers, as detailed in Rule 82 below, provided the following conditions are strictly met :—

- (a) That the workman or workmen doing the work be shut off by a screen, not less than 6 ft. high, from those at work on explosives.
- (b) That no explosive is handled within 10 ft. of the workman executing the repair.
- (c) That the building is carefully cleaned out, immediately the repair, etc., is completed.
- (d) That the Foreman obtains, prior to the work being done, the concurrence of a Danger Building Inspector or Danger Building Visitor of the procedure to be adopted and records the fact of his having done so in his diary.

Minor repairs, etc., of machinery when permissible without clearing buildings.

81. In the case of minor repairs, adjustments, change of parts or the rectification of slight temporary derangement of machinery, including also the necessary taking apart of any machine, press or other article of plant, the occasions when such may be carried out by the workman will usually be found in the "General Safety Directions" for the operation in hand. If the adjustment, etc., be not so laid down the Foreman is to be informed, and he will take necessary action, using his discretion as to whether the building should be cleared or not; but it must be distinctly understood that whenever such adjustment, etc., becomes a common occurrence the situation is on no account to be met by giving a standing verbal permission, but it must be definitely met by the "General Safety Directions." (See General Rule 30.)

When buildings, etc., are to be cleared and declared "dirty." Access to such buildings.

82. In all other cases of alterations, adjustments or repairs of any sort whatsoever in Filling Buildings or platforms, the buildings, etc., affected will be completely cleared, declared "dirty" and shut off from the other "clean" parts of the Filling Factory by the special barriers provided for the purpose. It will then be approached and entered direct from the ground near it and not along "clean" platforms. Approach by "clean" platforms with

putting on and removal of overshoes must only be made by special permission of the Foreman. (See also Rule 86.)

Workmen who have approached their work on the "dirty" side through a Shifting-Room, and who require to leave the immediate vicinity of that work, must leave the Factory via the Shifting-Room at which they originally entered.

83. When a new building or platform is completed or a repair, etc., has taken place for which a building or platform has been declared "dirty," the building or platform will be thoroughly cleaned, and will not be taken into use until passed as "clean" by a Danger Building Inspector, who will sign a note in the Foreman's diary to that effect.

Buildings to be passed as "clean" before use.

In cases of emergency by the sanction of a Danger Building Inspector, a building may be passed as "clean" by a Danger Building Visitor, but a note of such special passing must be made in the Foreman's diary and initialled by the Danger Building Inspector. As the final cleaning of a "dirty" building must be made by workmen in "clean" overshoes, these overshoes must be carefully rubbed on a metal scraper mat provided for the purpose, and their soles examined before the workmen return to the "clean" platform.

84. When the Engineering Department (Buildings) in connection with their work find it necessary to erect sheds in any Filling Factory area for the storage of tools, etc., such sheds will only be erected at the places in the area which have been approved for the purpose. Such sheds will be carefully watched and occasionally searched for prohibited articles.

Sheds for tools etc., for E.D.(B), where to be placed.

85. When it is necessary to convey articles for building or other purposes, or when many persons have to cross over a platform, a portable platform with projecting sides will be placed across the main platform, or a portion of the platform will be shut off by the special barriers and declared "dirty."

Passage of articles and persons not connected with explosives across platforms.



Presence of an Overlooker when repairs are carried out in a Filling Building after Factory is closed.

86. When a Filling Building is kept open for repair or for any other non-explosive work beyond the ordinary working hours, someone connected with the Factory and not below the rank of Overlooker will always be present to see that Filling Factory Regulations are observed. Where repairs are carried out which do not render it necessary to enter a Filling Building the Department carrying out the repairs will be held responsible that Filling Factory Regulations are fully observed.

The department carrying out repairs will be responsible that all broken glass, wood, or other dangerous material is collected daily and that it is removed from the Danger Building enclosure as soon as possible.

#### SPECIAL RULES FOR EXPERIMENTAL OR SPECIALLY DANGEROUS WORK.

Definitions of experimental and specially dangerous work.

87. Experimental work may be *broadly* defined as including (a) work of any kind on principles which are new to, or differ materially from, those which are usual in the Departments; (b) trials (which includes handling and storage) of experimental articles (explosive or otherwise) or of explosives not approved officially for the service; (c) the employment of approved or well understood articles (explosive or otherwise) in a new way; or (d) the examination of experimental articles after or during trials.

Specially dangerous work may be broadly defined as including work on explosive stores, experimental or otherwise, the safe condition of which is doubtful owing to any cause. The essence of special danger rather lies in the *doubt*. When the nature of the danger is obvious the precautions to be taken will usually be equally obvious.

It must be distinctly understood that it is only possible to give broad definitions of the two classes of work mentioned above and the utmost care is needed by those in charge of such work in coming to a decision as to what parts of trials or operations

are to be classed as specially dangerous. In cases of doubt the decision of the Superintendent will be obtained. (See Rule 90 below.)

88. Specially dangerous work will always be carried out under conditions concurred in by a Danger Building Inspector, who will usually be present when it is carried out, but may exercise his discretion in the matter. He will certify in the Foreman's diary his concurrence of the arrangements made. The Foreman of the Factory in which the operations are conducted will invariably be present during such work. When it is anticipated that the latter will occupy more than one day "General Safety Directions" will be made out *before* the work commences, and the Foreman need not be present during the whole of the operations, but will arrange for frequent supervision by himself or the Assistant Foreman. The *same* individual should supervise the work from start to finish as far as possible.

Arrangements to be concurred in by a Danger Building Inspector before work is started. Foreman to be present.

89. Specially dangerous work will invariably be conducted in a building by itself, and clear of all other explosives.

Specially dangerous work not to be carried out with other work.

90. As a guiding principle, experimental and service work, or experimental and service explosives should not be mixed. Buildings will be allocated where experimental work may be performed, but the different natures of explosives will be kept separate; *e.g.*, any type of experimental fuze may be dealt with in the same building, but it would be quite incorrect to deal with experimental fuzes and experimental pyrotechnics in the same building. When an operation on experimental work is of a similar nature to one on service work, that operation may be performed in the same place as service work, provided that the risk is not appreciably increased. Service work may be performed in an experimental building at the same time as experimental work provided that the risk is not appreciably increased.

When experimental work may be conducted at the same time as service work.



"Certificate of Safety."

91. Whenever possible a "Certificate of Safety" will be obtained before commencing work with an experimental explosive. This certificate should state the sensitiveness of the explosive in comparison with some well-known service explosive, and if possible, the class of operations or machines in use with service explosives which are applicable to it.

Drying experimental explosives.

92. Whenever possible experimental explosives or stores made up with them are to be dried by themselves. If it be necessary to dry them at the same time as other explosives they must be placed in the Drying House as far as can be managed from the other explosives.

Storage of experimental explosives.

93. While a certain amount of experimental explosive may have to remain in the Filling Factory when work closes, effort must be made to reduce the amount so stored to a minimum. If the quantity which must be stored be not great it will be preferable to employ an empty workshop for this purpose rather than a magazine containing other explosives, and this will always be the case if the only magazine available is not traversed.

Reduction of number of persons present during.

94. Every effort must be made to reduce to the absolute minimum the number of persons present during the performance of specially dangerous work, and those conducting it are responsible that this is done.

As there is apt to be some idea that the act of withdrawal during specially dangerous work by an individual whose services are not needed for such work, but who might be present during the performance of ordinary work, might be regarded as showing fear, or as possibly inspiring those who remain with lack of confidence, etc., the senior individual present when the work is about to commence will ORDER ALL SUPERFLUOUS PERSONS OF WHATEVER RANK TO WITHDRAW AND WILL ALSO, UNLESS HIS OWN PRESENCE BE REQUIRED, WITHDRAW HIMSELF.

Special attention is to be paid to the first paragraph of this Rule when drawing up "General Safety

Directions" for specially dangerous work. (See Rule 88.)

### SPECIAL RULES FOR LOADING, UNLOADING AND TRANSIT OF EXPLOSIVES, PACKAGES FOR, ETC.

The transport of explosives, whether by rail or road, is generally governed by the "Royal Arsenal Railways Regulations for Explosives Traffic" and the Rules which follow are subject to these.

95. The careful handling of all packages, vehicles, etc., containing explosives, as described in General Rules 31, 32 and 33, must be strictly attended to. Care in handling of packages.

96. The utmost care will be taken that empty packages intended to contain explosive stores (including tin cylinders and similar small packages) are thoroughly clean, both externally and internally, and that filled packages of explosives and filled and empty shell are clean externally before they are passed across the barrier to the "clean" side. Examination of packages (including shell) before being passed across the barrier.

The packages, etc., will be passed as "clean" by a responsible individual, and such operations will be embodied in the "General Safety Directions" dealing with the store concerned.

A report is to be made at once if packages or shell, etc., are received in an unnecessarily dirty condition, so that the Department supplying them may be informed.

NOTE.—The examination of packages, shell, etc., for damp and for general suitability for storing explosives apart from question of safety, is dealt with in the "Process Specifications" for these operations.

97. Explosives or explosive stores, in small quantity, which have to be conveyed by hand outside the *clean platforms*, e.g., to Chemist, War Department, Chief Superintendent Research Department, Ordnance Board, R.F.F., C.I.A., or Conveyance of samples, etc.



I.N.O. proof yards, or for any duly authorised purpose, are to be carried (by a man, walking) in a suitable box, wrapping or rubber-stoppered bottle placed inside a leather bag or other approved package.

The quantity carried is to be kept as small as possible.

Conveyance of bulky stores outside the F.F.

98. Explosive stores that are too bulky to be conveniently carried by hand are to be conveyed in a hand cart and covered with a wadmilt. In the event of the stores being conveyed outside the Filling Factories a responsible person is to be selected to accompany them to their destination.

The removal of wet fulminate from railway vans is specially governed by "General Safety Directions" No. 156.

All trucks or vehicles to be used for stores containing explosives are to be swept out before loading.

Railway trucks to be made "clean" before use for explosives and precautions as to men cleaning and using them.

The interior of railway trucks used for conveying explosives must always be made "clean" before use. Such trucks will be cleaned by workmen on the "dirty" side, who will, in the case of narrow gauge trucks, endeavour, as far as may be, consistently with effective cleaning, to keep outside the truck while doing this work. A final cleaning will be given to the trucks by men in "clean" shoes. These men, and all men working in "clean" trucks, will be careful to rub their shoes on the mat provided for the purpose when returning from trucks to the platforms. (See also Rule 83.)

Examination of trucks containing explosives on receipt.

99. Trucks containing explosives are to be examined on receipt to ascertain—

- (a) If they have arrived locked in the case of covered vans.
- (b) That the packing and treatment of the stores carried have been good.
- (c) That the state of the interior of the trucks warrants their at once being regarded as "clean."

If anything unusual be observed a report is at once to be made. *It must be impressed on all con-*

*cerned that great care in dealing with trucks is essential in the interest of safety as they pass through so many hands.*

100. In dry and dusty weather the floors of trucks or vehicles and the ground in the vicinity of the places where loading and unloading are going on are to be *lightly* watered at the discretion of the Foreman, care being taken that water does not fall on the packages themselves. Watering when loading and unloading.

101. The tackles, cranes, etc., are to be periodically examined to prevent any accumulation of grit in the working parts and are to be periodically tested for strength of gear as laid down by the Engineering Department, who will carry out this examination and testing. Test of tackles and examination of for grit.

### SPECIAL RULES FOR THE EXTINGUISHING OF FIRE.

102. In order that there may be men ready at the earliest possible moment to deal with an outbreak of fire the various Sections of Filling Factories will have men trained in the use of the fire appliances as detailed below:— Men trained.

H.E.E.	...	...	...	9 men.
Burning Ground	...	...	...	1 man.
F. 78 B.	...	...	...	1 "
C. & D. and Q.F.C.F.	3	...	...	12 men.
F. & P. (including C.C.B.)	...	...	...	6 "
S.A.C.F. No. 3	...	...	...	4 "
" No. 6	...	...	...	4 "

These men will be exercised once every month by the Officer in charge of the Royal Arsenal Fire Brigade, and will receive special pay for each drill.

103. The following fire appliances exist and will be maintained in the Filling Factories:— Fire appliances to be maintained.



LIST OF FIRE APPLIANCES MAINTAINED IN FILLING  
FACTORIES.

Establishment.	Fire Buckets.	Hand Pumps.	Chamber Fire Hydrants.	Hose.
Fuze and Primer Branch.	Not less than 2 buckets are kept filled in every building, and usually more, according to the size of the building.	9	25	19 Boxes each containing 150 ft. hose. 6 Boxes each containing 100 ft. hose. — 5 Spare boxes on platform and ground. 3 containing 150 ft. hose. 1 containing 200 ft. hose. 1 containing 300 ft. hose.
Cap and Detonator Factory.		1	16	16 Boxes each containing 150 ft. hose. — 6 Spare boxes on platform and ground. 5 containing 150 ft. hose. 1 containing 300 ft. hose. — 1 Hose Reel by Electrical Distribution Hut, East end, containing 300 ft. hose.
Quick-Firing Cartridge Factory 3.		10	14	13 Boxes each containing 150 ft. hose. 1 Box containing 100 ft. hose. — 4 Spare hose boxes on ground each containing 200 ft. hose. — 1 Hose Reel by North Store "A" containing 300 ft. hose.

LIST OF FIRE APPLIANCES MAINTAINED IN FILLING  
FACTORIES—continued.

Establishment.	Fire Buckets.	Hand Pumps.	Chamber Fire Hydrants.	Hose.
High-Explosive Establishment.	Not less than 2 buckets are kept filled in every building, and usually more, according to the size of the building.	15	31	6 Boxes each containing 100 ft. hose. 23 Boxes each containing 150 ft. hose. 1 Box containing 200 ft. hose. 1 Box containing 250 ft. hose. — 9 Spare hose boxes on embankments. 1 Box containing 150 ft. hose. 7 Boxes containing 200 ft. hose. 1 Box containing 300 ft. hose. — 1 Hose Reel by Boiler House containing 300 ft. hose.
Cannon Cartridge Factory.		2	13	13 Boxes each containing 150 ft. hose. — 4 Spare hose boxes on platform. 2 each containing 250 ft. hose. 2 each containing 300 ft. hose.
Old Lyddite Factory		—	8	6 Boxes each containing 100 ft. hose. 2 Boxes each containing 150 ft. hose.



LIST OF FIRE APPLIANCES MAINTAINED IN FILLING  
FACTORIES—*continued*.

Establishment.	Fire Buckets	Hand Pumps.	Chamber Fire Hydrants.	Hose.
Old Lyddite Factory— <i>(continued)</i> .	Not less than 2 buckets are kept filled in every building, and usually more, according to the size of the building.			3 Spare hose boxes on platform and ground. 1 containing 100 ft. hose. 2 each containing 300 ft. hose.
Small Arms Cartridge Factory 3.		10	9	5 Boxes each containing 100 ft. hose. 4 Boxes each containing 150 ft. hose.  4 Spare boxes on ground and platform. 1 containing 200 ft. hose. 2 each containing 100 ft. hose. 1 containing 300 ft. hose.
Quick-Firing Cartridge Factory 4.		34	24	24 Boxes each containing 150 ft. hose.  5 Spare boxes on ground and platform each containing 300 ft. hose.  1 Hose Reel by West Gate. 1 Hose Reel by F. 96A each containing 300 ft. hose.
Small Arms Cartridge Factory 6.		6	5	5 Boxes each containing 150 ft. hose.  1 Spare box on platform containing 300 ft. hose.

In addition 2 Pyrene Fire Extinguishers are kept at the Main Entrance.

104. While the Fire Brigade Officer is responsible for the drill of the men and care of the fire appliances, the Foreman of each Factory is responsible that the men selected for training attend the monthly drills, and that the fire appliances are attended to. He will not hesitate to draw attention to anything which he considers in any way inadequate or undesirable in the arrangements for meeting an outbreak of fire. Alarms of fire will be given at intervals to test as far as may be the arrangements made under Rule 105 (a) and (c) below.

Responsibility of the Foreman.

105. In the event of an explosion or an outbreak of fire the triangle alarms throughout the Filling Factory enclosures are to be sounded as soon as possible by those nearest at hand, and all visitors to the Factory and workmen belonging to other Departments who may be employed therein, are to obey the instructions of the Filling Factory Foreman (or other person in charge) of the Factory affected. Action will be taken as follows, viz. :—

Action to be taken on an outbreak of fire.

(a) The trained men, assisted by such other workmen as may be required, will at once take action to extinguish the fire, to wet thoroughly the roofs and walls of adjacent buildings, especially those to leeward, and if there appear any serious prospect of the fire communicating itself to these adjacent buildings to wet thoroughly any explosives contained in them. If it is impossible for any reason to wet thoroughly the explosives an effort should be made to remove them, provided doing so involves no serious risk, and in no case should exposed explosives be removed into the open in the close neighbourhood of a fire. (See also Rule 106.)

(b) Messages will be despatched to the other Filling Factories to send their trained men, who will be brought over quickly, but quietly, under Assistant Foremen without removal of their magazine clothing or shoes.

Trained men from other factories.

(c) The workmen and all employed in the Filling Factories will turn out of their buildings, and will form a single line along the platforms obstructing

Workmen to avoid causing obstruction.



them as little as possible. They will take orders as to action from their Overlookers or those in charge, and WILL NOT MOVE WITHOUT ORDERS. The Overlookers are to see that windows and doors of the buildings are closed in order to prevent possible entry of sparks. Of course, men in actual danger will make their way to a place of safety without orders. This Rule is specially intended to prevent unnecessary rushing and crowding by workmen and others.

Resumption of work at Factories unaffected.

(d) As soon as the area likely to be affected by the fire has been determined the Foremen of the Factories unaffected will direct their men to resume work.

Notification of fire.

(e) The fire or accident alarm which is situated at the factory office or the fire alarm telephones controlled by the W.D. Constabulary will be rung, and information conveyed to the police who will immediately notify the Fire Brigade. The Gateman through whom such a message is transmitted will immediately switch on all road lights and will then notify the Superintendent R.F.F., calling "610 Fire Call," and if the S.A.A.F. is concerned, will ring Superintendent R.A.F. on "38 Fire Call." He will also notify the M.A. ringing "34 Fire Call." In the event of accident as well as fire, the Gateman will carry out other duties as indicated in the special rules in case of accident (page 47).

W.D. Constabulary fire alarms.

Red electric lamps are provided in proximity to the road fire alarms which are controlled by the W.D. Constabulary. These are kept burning at night.

Factory fire alarms.

Red lamps are also provided, indicating the position of the fire alarms situated at the factory offices, and these are to be kept alight during working hours at night as provided in Rule 44.

Confirmation by written message.

(f) If there be the smallest doubt as to the messages despatched, as at (e), having been received by the Police, Superintendent Royal Filling Factories and Military Assistant, the factory concerned will despatch a written message as indicated in the Special Rules in Case of Accident, Rule 110,

but the messenger is to proceed first to the Police and then Military Assistant and Superintendent Royal Filling Factory in turn.

(One messenger will suffice to carry messages both as to fire and accident should both unfortunately occur simultaneously.)

(g) In the event of a fire caused by the fuzing of electric cables, etc., the current is immediately to be cut off at the switch controlling the section affected.

Fuzing of electric cables.

Boards indicating the building controlled by each switch are erected near by.

(h) In the case of a serious fire where the internal hydrants of a Filling Factory are likely to prove insufficient and the fire has to be fought from outside the factory, the internal hydrants will be cut off so as to avoid interruption of the main supply by possible explosion within the affected area. Such action will be taken by the Engineering Department as and when necessary in co-operation with the Fire Brigade.

106. If the building which has taken fire is known to contain explosives, and if the fire is obviously gaining mastery, the action to be taken cannot be precisely laid down, as so much depends upon the position of the building, whether it is traversed or not and upon the nature of the explosive contained in it. The following may be taken as a general guide for action :—

General remarks and action to be taken with certain explosives.

If the explosive contained in the building be gunpowder, dry guncotton, cap composition, fulminate of mercury, picric acid, or similar explosives, and it is found impossible to thoroughly wet it and keep it wet, all men in the vicinity must be withdrawn to a safe distance (not less than 100 yards if possible) and placed behind or under the best cover available until the explosive has exploded. Further action will then be as already detailed in Rule 105 above but a careful search is at once to be made to see if burning matter has been projected on to neighbouring buildings or platforms, and the necessary action taken.

NOTE.—Buildings in which explosives are left during silent hours will have the nature of risk, whether fire or explosion, &c., posted on the building in a prominent position.



A fire in a building containing shell or bombs filled with high explosives or gunpowder (which cannot for any reason be removed) will need most careful handling. In the event of any of the shell or bombs being in the process of filling, every effort must be made to plug the shell or bombs in the building affected and those in any neighbouring buildings to prevent explosion by a spark. If it is impossible to remove the plugged shell or bombs in the building efforts are to be concentrated on mastering the fire. If the shell or bombs are plugged the efforts may be prolonged, but if any of them are unplugged and cannot for any reason be plugged, the men must be withdrawn to a position of safety at the first sign of the fire gaining sufficient mastery to cause sparks to fly among the shell or bombs. The cover, if possible, should not be less in the aggregate than 3 ft. of brick wall at a range of about 100 yards. All persons not needed to assist in combating the fire must be cleared away to as great a distance as possible.

In the event of explosion occurring every care should be taken not to approach the building until it is reasonably certain that no further explosions will occur.

If the explosive be wet guncotton, cordite or chlorate of potash, etc., attempts to subdue the flames and to wet the explosive may be continued longer, but if the fire gain complete mastery or there be a danger of the roof falling in on to the explosive, etc., the men must be withdrawn.

Water is on no account to be used in the event of a fire in a building containing magnesium or aluminium. Sand is provided for this purpose.

If fire is immediately put out.

107. In the case of a fire occurring but being almost immediately put out an early report is to be made by telephone to the Superintendent of the Department, so that the Superintendent of Police may be informed if considered necessary.

Cleaning of factories after.

108. When the fire has been extinguished and all risk is over the factories affected must be carefully made "clean" again. This also applies to clothing and shoes.

## SPECIAL RULES IN CASE OF ACCIDENTS INVOLVING SERIOUS INJURY TO MEN.

In order that proper assistance may be rendered at the earliest possible moment in the event of an accident involving serious injury the following instructions are to be observed :—

Arrangements for rendering first aid and for conveyance of sufferers to hospital.

109. (a)—The special fire (or accident) electric alarm bell will be rung from the establishment in which the accident has occurred and particulars conveyed to the Police, who will immediately notify the Fire Brigade. The Gateman will then notify the Senior Medical Officer "43 Accident" with the information as to number of men involved. He will then 'phone for the Royal Arsenal Motor Ambulance, telephone No. 1057, during normal working hours and alarm circuit at other times, including the dinner hour. If this ambulance is not available, Senior Medical Officer should be notified at once. The Senior Medical Officer will arrange for ambulance as may be necessary. The Gateman will then notify Supt. R.F.F. and the Supt. R.A.F. and the M.A., as laid down in the special rules in case of fire (Rule 105 (e).)

If an accident occurs during silent hours inform Senior Medical Officer through the C.P.S. line.

110. The Factory concerned will then despatch an open brief account of the accident and the number injured, the message being conveyed by bicycle, which in the case of the Main Filling Factories is kept at Main Filling Factory Gate under control of the Gateman, and in the case of Cartridge Factory No. 6 at the Men's Shifting House under the control of the attendant, direct to Senior Medical Officer, to whom the messenger will show, but not deliver up, the written message. He will also show this to the Police at the Main Gate, to Military Assistant, and finally deliver the message to Superintendent Royal Filling Factories, except where Small Arms Ammunition Factories are concerned, when he will finally deliver the message to the Superintendent Royal Ammunition Factories.

Confirmation by written message.



Instructions  
to ambulance  
drivers.

111. The ambulance drivers are to be instructed to proceed to the Royal Herbert Hospital by the shortest route, calling at the Surgery unless differently instructed by one of the Ordnance Factories Medical Officers. The Factory concerned will, if required, furnish a guide to accompany the ambulance driver.

First aid.

112. The trained men will attend to the injured and get them ready for carriage to the ambulance. They should avoid performing anything more than is required for this unless such action is absolutely necessary. Invaluable as first aid, scientifically applied, undoubtedly is, it is of the greatest importance that the injured should be sent to hospital as soon as possible.

113. A stock hamper containing the following stores is kept at Fuze and Primer Shifting Room, viz. :—

Bandages ...	...	3"	...	30	}	70
" ...	...	2"	...	20		
" ...	...	1"	...	10		
" ...	...	Triangular	...	10		
Lint, boric, in 2-oz. packets	...		...	24		
Lint, plain "	"	"	...	24		
Wool, C.A. "	"	"	...	24		
Solution Picric Acid	...	...	...	2 pints.		
Tincture Iodine	...	...	...	2 ounces.		

These Stores are RESERVE First-Aid dressings for emergencies, and are not to be used for the replenishing of Factory first-aid hampers.

Further supply  
of stretchers,  
etc.

114. If more stretchers or hospital appliances be needed than are present in the establishment further supplies must be telephoned for from the neighbouring factories, and these may be brought over without the men carrying them waiting to change their magazine clothing or shoes.

First aid men  
not to be  
selected for  
fire brigade.

115. Men with First-Aid Certificates are not to be selected for the fire brigade, as accidents and a fire are not unlikely to occur simultaneously.

116. In order to ascertain if the special fire (or Testing of accident) electric alarm bells are in proper working Alarm Circuit. order each Factory is to test both A and B circuits through the control at the Filling Factory Main Gate at 9 a.m. each morning. Any faults will be reported to 'Phone 188.

The alarm system will be similarly tested after any electrical disturbance, *e.g.*, thunderstorms.



TABLE OF TRAINED MEN AND HOSPITAL APPLIANCES.

Establishment.	Trained Men (approximate).	Ambulance Hampers.		Stretchers.	
		No.	Building where kept.	No.	Building where kept.
H.E.E.	8	3	1 in Foreman's Office. 1 in No. 86. 1 in No. 153.	8	2 in Shifting Room No. 1. 2 in No. 86. 1 in Shellite Shift- ing Room. 1 in No. 153. 2 outside No. 93. 1 outside No. 27.
C.C.B.	1	1	No. 27.	1	
Burning Ground.	1	1	Burning Ground.	1	Burning Ground.
C. & D.	3	2	1 in Foreman's Office. 1 in No. 22G.	4	Shifting Room.
Lead Azide Plant	—	1	No. 51 Old Lyd- dite.	—	—
Q.F.C.F. 3.	3	2	1 in Foreman's Office (No. 18). 1 in No. 19.	4	2 in Shifting Room. 2 in North Stores.
Fuze and Primer Branch.	6	4	1 in Section Office, Bldg. No. 1. 1 in Assist. Fore- man's Office, Bldg. No. 110. 1 in Proof House, Bldg. No. 16. 1 in High Level Area, Bldg. No. 140.	6	4 in Shifting Room, Bldg. No. 193. 1 in Assist. Fore- man's Office, Bldg. No. 110. 1 in High Level Area, Bldg. No. 140.
S.A.C.F. 6.	3	1	1 in Foreman's Office.	2	2 in Shifting Room.
S.A.C.F. 3.	2	2	1 in Foreman's Office. 1 in No. 5 Bldg.	2	2 in No. 35 Bldg.
Proof Section.	1	1	Technical Ex- aminer's Office, Bldg. E. 141.	—	—

SUMMARY OF ACTION TO BE TAKEN IN THE EVENT  
OF A SERIOUS FIRE OR ACCIDENT TAKING PLACE  
IN THE FILLING FACTORIES.

## FIRE ONLY.

(1) Ring special alarm,  
turning handle briskly.

(2) Inform Police of fire,  
with special reference to loca-  
tion and magnitude.

(3) 'Phone Supt. R.F.F.  
calling "610 Fire Call," and  
Supt. R.A.F. 'phone "38  
Fire Call" if Small Arms  
Ammunition Factories.

(4) 'Phone M.A. calling  
"34 Fire Call."

(5) If in doubt send a  
written message by man on  
bicycle to show to Police,  
Supt. R.F.F. or Supt. R.A.F.  
and M.A. in turn.

## ACCIDENT.

(1) Ring special alarm,  
turning handle briskly.

(2) Gateman to ring Senior  
Medical Officer calling "43  
Accident" with information  
as to number of men in-  
volved.

(3) 'Phone for Royal  
Arsenal Motor Ambulance  
'phone "1057" during  
normal working hours.  
Alarm circuit at other times,  
including dinner hour).

(4) Notify Senior Medical  
Officer 'phone "43" if Royal  
Arsenal Ambulance is not  
available.

(5) 'Phone Supt. R.F.F.  
calling "610 Fire Call" and  
Supt. R.A.F. 'phone "38  
Fire Call" if Small Arms  
Ammunition Factories.

(6) 'Phone M.A. calling  
"34 Fire Call."

(7) If in doubt send a  
written message by man on  
bicycle to show to Police,  
Senior Medical Officer, Supt.  
R.F.F. or Supt. R.A.F. and  
M.A. in turn.



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