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Our reference: FIR/62 15/62/2
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45792

To All Chief Fire Officers

11 August 1976

Dear Chief Officer

EXPLOSIVE ATMOSPHERES IN POST OFFICE CABLE CHAMBERS

In a letter dated 6 August 1971 (No.17/71) Chief Officers were advised of the problems associated with the possibility of explosive atmospheres being present in Post Office Cable Chambers. A copy of a Post Office Circular to Telephone Managers, detailing the precautions to be taken and the procedures to be adopted, accompanied the letter.

A more comprehensive circular replacing their previous circular has now been issued by the Post Office, a copy of which is attached. As a result of the responsibilities placed on Engineering Officers in charge of these buildings by paragraph 3(f) of the latest circular further requests for visits by the Fire Brigade may be received.

It is recommended that these requests be treated as normal visits under Section 1(i)(d) of the Fire Services Act 1947 and that the opportunity be taken to ensure that any notices and plans required by paragraph 4 of the Post Office circular are brought up-to-date.

Yours sincerely

No. 51/1976

EXPLOSIVE GAS IN POST OFFICE OPERATIONAL TELECOMMUNICATIONS BUILDINGS

Precautions and Action to be Taken

(This Instruction is MANDATORY)

CONTENTS

1 GENERAL

1.1 Gas is increasingly liable to enter telecomms underground plant and may penetrate into operational buildings; explosive concentrations of gas can build up very quickly. This is particularly dangerous in telephone exchanges especially those with cable trenches where the gas entry point is likely to be close to the switching equipment.

1.2 This instruction lists essential precautions and procedures; local management must issue any supplementary instructions considered to be necessary.

1.3 Engineering staff must be conversant with the necessary precautions, methods of detecting gas and action to take if gas is detected. This is vital to ensure the safety of staff and members of the public, also to prevent damage to buildings and plant.

1.4 Associated Instructions

A2 FO452 Sealing of Ducts and Conduits Entering Structures Containing Telecommunications Equipment.

E3 H1110 Explosive and Asphyxiating Gases in Underground Plant - Testing and Consequential Actions.

E3 H1111 Explosive and Asphyxiating Gases in Underground Plant - Procedures for Recording and Progressing Gas Leakage Reports.

E3 H1112 Gas Poisoning - Treatment of Victims.

E3 H1113 Escapes of Gas into PO Plant.

E3 H1125 Indicator Gas No.5.

H1 WO011 Precautions Against Fire.

H1 WO015 Fire Instructions.

H5 A2110 Standard Requirements - Ventilation.

2 GAS DETECTION EQUIPMENT

2.1 **Indicator, Gas, No. 5** (TI E3 H1125 refers) This is a portable instrument used for detecting explosive gas. Engineering staff must be fully conversant in the use of these detectors and know where they are kept. Detectors must be available for use in all operational buildings.

2.2 **Automatic Gas Monitoring Equipment** Equipment of this kind has gas sensors permanently connected to some form of alarm. In localities with a known high incidence of gas leakage, local management may consider it necessary to install automatic gas monitoring equipment. Pending the approval of suitable equipment, advice is obtainable from THQ.

Where proprietary equipment is fitted, local management must issue instructions for its use, testing and maintenance. These instructions must be prominently displayed in the building and all staff must be familiar with their contents.

3 RESPONSIBILITIES Responsibility for carrying into practice the precautions and procedures detailed in this Instruction rests with the Engineering Officer-in-Charge (EOC) of a building or buildings. He must, therefore,

(a) be thoroughly familiar with this instruction and those listed in Para 1.3

(b) ensure that staff normally employed in buildings under his control are familiar with and also comply with the provisions of this and any supplementary instructions

(c) make sure he always knows when visitors are in buildings under his control. In particular he must ensure that staff working in cable chambers and trenches always employ safe practices, (see TI E1 A0305)

(d) ensure there is a plan for the quick and orderly evacuation of each building under his control. In large or jointly occupied buildings, this must be done by consultation with all other occupiers of the building, whether directly under the EOC's control or not

(e) prepare and keep up to date a list of reporting points and sources of assistance (para 4.1) and a plan of the basement and/or other critical areas of each building (para 4.2)

(f) ensure the local Fire Service is familiar with the layout of the basement area and cable chamber/trenches in each building so they can,

(i) assess possible hazards due to explosion or fire,

(ii) determine how to disperse accumulated gas,

(iii) know how to open escape and ventilation hatches.

(g) determine the periodicity necessary for the routine inspection of duct seals and ensure that the recording and reporting procedures are carried out (para 4.5.5)

(h) be familiar with the use of gas detection equipment (eg Indicator Gas No. 5, automatic gas monitoring) provided for use in buildings under his control and see that it is properly maintained and tested. (See TI E3 H1125)

(i) ensure that every occasion on which gas is detected in a building is recorded in the Exchange diary and reported as in para 6.

NB Any difficulty in carrying out these responsibilities should be referred immediately to the General Manager via the Engineering Head of Division.

4 PRECAUTIONS

4.1 Reporting Points and Sources of Assistance A list shall be made of reporting points, their addresses and telephone numbers; copies must be permanently on display at strategic points in all buildings. The list shall include, with reference to the building:-

(a) The External Plant Maintenance Centre (EPMC).

(b) The Area Emergency Control (AEC).

(c) The Controlling Officer.

(d) The Engineering Officer-in-Charge (EOC).

(e) The Police.

(f) The Local Fire Brigade.

(g) The Local Gas Area Board.

(h) The Local Authority Petroleum Officer.

4.2 Basement Areas A plan shall be made of the basement area and any other significant parts of each building. It must show entrances to the cable chamber, the position of any escape or ventilation hatches and the points where cables and other underground services enter the building.

Copies must be permanently displayed at suitable points in each building, (eg in the entrance hall and at cable chamber entrances).

Further copies must be held by:-

(a) The External Plant Maintenance Centre (EPMC).

(b) The Area Emergency Control (AEC).

(c) The Local Fire Brigade.

(d) The Engineering Officer-in-Charge (EOC).

(e) The Fire Precautions Officer (FPO).

(f) Doorkeepers.

4.3 Evacuation of Buildings Notices showing the routes to be used by staff when evacuation is necessary must be prominently displayed throughout each building. The notice should also specify the agreed signal for evacuation.

The location at which staff should assemble outside the building should also be stated, so that supervisors can check their staff are safely clear of the building. The stated assembly point must not be close to the building.

4.4 Warning Notices

4.4.1 Cable Chamber Notice A double sided notice (A6385) bearing on the front the legend "TEST FOR GAS BEFORE ENTERING" and on the back "DANGER - GAS IN CABLE CHAMBER - DO NOT ENTER" must be displayed on the cable chamber door.

Details of the EPMC, EOC and AEC must be entered in the spaces on the front of the notice and signed by, or for, the Head of Maintenance Division.

A suitable housing for this notice is a "Board Notice 325 mm x 225 mm" (Department of the Environment Stores Code 01-12-072).

4.4.2 General Notice Double-sided notices (A6549) bearing on one side the legend "DANGER - GAS - NO NAKED LIGHTS" and on the other side "DANGER - GAS - DO NOT ENTER" must be displayed at suitable points in the building when gas is detected (see paras 5.2 and 5.3).

4.5 Duct Seals

4.5.1 A visual inspection of duct seals must be carried out periodically; the interval between inspections is at local discretion, but must not exceed 6 months.

4.5.2 Duct seals must also be visually checked in the following circumstances:-

(a) When cabling work is suspended for any reason (eg overnight or at weekends).

(b) Immediately after cabling work is completed.

(c) On every occasion of advice of a gas leakage in the exchange local line plant area.

4.5.3 The visual checks to be applied are:-

(a) Check that duct seal frames are securely bolted to the wall and that the edge seal appears intact.

(b) Check that all unused duct ways are sealed and that the condition of the seal appears sound.

(c) Check that all spaces in duct ways containing cables appear to be effectively sealed and that there is no evidence of the seals loosening.

(d) Check the seals at all points where other underground services enter the building.

(e) Check for any obvious defects in the structure of the cable chamber/trench and other basement areas which might permit the ingress of gas.

(f) Check, in the case of lead seals, that the drain cocks are turned off.

4.5.4 Approved methods of sealing ducts are given in TI A2 F0452.

4.5.5 Particulars of every duct seal inspection must be entered in the Exchange diary and any defects or suspected defects reported to the EPMC.

4.6 Cable Chambers Cable chamber doors must be kept locked except when authorised work is being carried out inside.

4.7 Ventilation Ventilation apertures in all parts of the building must be kept free from obstruction.

4.8 Entering Buildings and Cable Chambers/Trenches If a cable chamber, or a building having a cable trench and a known history of gas in the vicinity, has been unoccupied for some time, all staff must:-

(a) put out all naked lights and cigarettes before entering the building

(b) avoid switching on lights in any part of the building until the area is known to be free of gas

(c) partly open the door or hatch and test with an Indicator Gas No. 5 at top, centre and bottom of the opening. If no gas is detected, enter, testing at regular intervals at overhead, floor and waist heights. Test also at cable duct entries in cable chambers and trenches

(d) IF GAS IS DETECTED PROCEED AS IN SECTION 5

(e) record in the Exchange diary that tests have been made, also details of any action taken

5 ACTION WHEN GAS IS DETECTED

5.1 ANY Gas in Cable Chamber

(a) DO NOT ENTER CHAMBER

(b) Carefully close and lock the cable chamber door.

(c) Reverse notice A6385 to display "DANGER - GAS IN CABLE CHAMBER" (para 4.4.1).

(d) Report to the EPMC or AEC
(e) Inform EOC
} Para 5.4.1

(f) Check for gas in remainder of building.

5.2 Gas in Building or Cable Trench - Up to 50% Lower Explosive Limit (LEL)

When ANY gas is detected:-

(a) ventilate the Building by opening doors and windows

(b) report to the EPMC or AEC
(c) inform EOC
} Para 5.4.1

(d) continue testing for gas.

When gas above 10% LEL is detected, additional action must be taken as follows:-

(e) Extinguish ALL naked lights, including boilers, appliance pilot lights etc.

(f) Display notices A6549 - "DANGER - GAS - NO NAKED LIGHTS" (para 4.4.2).

(g) Advise all staff supervisors in building that gas has entered and that evacuation may be necessary.

(h) Ensure that a plan of the basement and cable chamber (para 4.2) is ready for Gas Board and Fire Brigade staff when they arrive.

(i) Continue testing for gas.

5.3 Gas in Building or Cable Trench - Above 50% LEL

5.3.1 Unoccupied Buildings Do not enter.

5.3.2 Occupied Buildings

(a) Give the signal for evacuation (para 4.3).

(b) Extinguish ALL naked lights.

(c) Ventilate the building by opening doors and windows.

5.3.3 All Buildings

(a) Display notices A6549 - "DANGER - GAS - DO NOT ENTER" at all entrances to the building (para 4.4.2).

(b) Report to EPMC or AEC.
(c) Inform EOC.
} Para 5.4.1

(d) Stay in the vicinity of the building to assist Gas Board and Fire Brigade staff when they arrive. Ensure that a plan of the basement and cable chamber (para 4.2) is ready for them.

5.4 Reporting Procedure

5.4.1 Whenever gas is detected in an operational building, its cable chamber or cable trench, an immediate report to this effect, together with the detector reading, must be made to the External Plant Maintenance Centre (EPMC) and the Engineering Officer-in-Charge (EOC). Outside normal working hours the report shall be made instead to the Area Emergency Control (AEC).

The EPMC or AEC will notify the appropriate authorities.

5.4.2 If the EPMC, EOC or AEC cannot be contacted, local staff must take the following direct action:-

(a) Advise the Local Fire Brigade and request their assistance, using the emergency call procedure.

(b) Notify the local Gas Area reporting point.

(c) Inform the local Police.

Telephone numbers for (b) and (c) are included in the list described in Para 4.1.

6 SUBSEQUENT REPORTING

6.1 It is important that every occasion on which gas is detected in buildings is recorded in the Exchange Diary and a report made to the Area, Region and THQ so that the overall size and severity of the gas problem is known.

6.2 After every incident the EOC must send, via his superior officer, a brief written report to the Area GMO. The GMO shall send copies of the report to the appropriate point at Regional or Directorate Headquarters and to THQ/Service Dept/Sv6.5.2.

6.3 The report should contain:-

(a) date and time of occurrence

(b) when and how gas was first detected (eg on entering the building, by Indicator Gas No. 5)

(c) point of gas entry - if known

(d) extent of ingress (eg detector reading, area of building contaminated)

(e) action taken

(f) other relevant features (eg close proximity of gas mains, nearby roadworks which may have interfered with underground plant belonging to PO or Gas Board).

Sv6.5.2 E N D