1970. No. 125 **[C]**

COAL AND OTHER MINES

Ventilation

REGULATIONS, DATED 1ST JUNE 1970, MADE BY THE MINISTRY OF COMMERCE UNDER SECTIONS 13(2) AND 120 OF THE MINES ACT (NORTHERN IRELAND) 1969.

WHEREAS in pursuance of Part I of Schedule 2 to the Mines Act (Northern Ireland) 1969(a) the Ministry of Commerce has published notice of its intention to make the following regulations and has not received any objection to the draft thereof in respect to which it is required to refer the draft regulations for inquiry and report:

NOW, THEREFORE, the Ministry of Commerce in exercise of the powers conferred on it by sections 13(2) and 120 of the Mines Act (Northern Ireland) 1969 and of all other powers enabling it in that behalf, hereby makes the following regulations:—

PART I

GENERAL

Citation

1. These regulations may be cited as the Coal and Other Mines (Ventilation) Regulations (Northern Ireland) 1970.

Application

2. These regulations shall apply to every mine of coal, stratified ironstone, shale or fireclay, and in these regulations, unless otherwise expressly provided, "mine" means such a mine.

Interpretation

3.—(1) In these regulations the following expressions have the meanings hereby respectively assigned to them, that is to say—

"the Act" means the Mines Act (Northern Ireland) 1969;

"auxiliary fan" means a fan used or intended to be used below ground wholly or mainly for ventilating a heading, drift or blind end;

"deputy" has the meaning assigned thereto in the Coal and Other Mines (Managers and Officials) Regulations (Northern Ireland) 1970(b);

"detector" has the meaning assigned thereto in regulation 14;

"electric power" does not include electricity used in a portable safety-lamp or detector, shot-firing apparatus, a scientific instrument, signalling apparatus or a telephone;

"firedamp content" has the meaning assigned thereto in regulation 6;

(a) 1969. c. 6 (N.I.). (b) S.R. & O. (N.I.) 1970, No. 128.

"main intake airway" means a length of intake airway which begins at a shaft or outlet or a length of airway the current of air in which is subsequently split and which as regards two or more working faces is an intake airway;

"main return airway" means a length of return airway which ends at a shaft or outlet or a length of airway the current of air in which has been split and which as regards two or more working faces is a return airway;

"mine" has the meaning assigned thereto in regulation 2;

"the Ministry" means the Ministry of Commerce;

"working face" does not include a place in a road or roadhead at which ripping or work of repair is in progress.

(2) Where a determination of the firedamp content made for the purposes of any of these regulations is made by means of a sample of air it shall be deemed to be made at the time and place at which the sample is taken.

(3) Without prejudice to section 151 of the Act, for the purposes of these regulations anything for the time being approved under the corresponding provision of the Mines and Quarries Act 1954(c) or regulations made thereunder shall be deemed to be approved by the Ministry, unless the Ministry, by notice published in the Belfast Gazette and otherwise brought to the notice of persons concerned in such manner as the Ministry thinks fit, directs that it shall not be so deemed.

(4) Expressions to which meanings are assigned by the Act, or by these regulations shall (unless the contrary intention appears) have the same meanings in any document issued under the provisions of these regulations.

Exemptions

4. If an inspector is satisfied that the application of any provision in Part II, V or VI of these regulations (other than a provision in relation to which an express power of exemption is contained in these regulations) is inappropriate in relation to any mine or part thereof, the Ministry may by notice served on the manager of that mine exempt it or a part thereof from the application of that provision.

PART II

PROVISIONS RELATING TO FIREDAMP CONTENT

Inflammable gas in intake airways

5.—(1) Without prejudice to the generality of section 55 of the Act the manager of every mine shall take such steps as are necessary for securing that every airway therein which as regards any working face is an intake airway and the air in which has not previously ventilated a working face shall normally be kept free from inflammable gas:

Provided that the requirements of this regulation shall not apply to any part of such an airway within three hundred feet of the first working place at that working face.

(2) For the purposes of this regulation an airway shall be deemed not to be normally kept free from inflammable gas if the average percentage by volume of inflammable gas found in six samples of air taken by an inspector in the general body of the air in that airway at intervals of not less than fourteen days exceeds one quarter.

(c) 2 & 3 El. 2. c. 70.

Determinations of firedamp content

6.—(1) Where in any part of a mine in which the use of lamps or lights, other than permitted lights, is unlawful electric power is used at or within one hundred and fifty feet of a working face, the manager shall make and secure the efficient carrying out of arrangements whereby determinations of the percentage of inflammable gas present in the general body of the air (in these regulations referred to as "the firedamp content") are made in that part in accordance with the provisions of the five next following regulations.

(2) Where in any part of a mine of coal the use of lamps or lights, other than permitted lights, is unlawful and in any part of that mine which comprises a working face shots are fired in the ordinary course of working, the manager shall make and secure the efficient carrying out of arrangements whereby determinations of the firedamp content are made in accordance with the provisions of the four next following regulations in the part of the mine in which shots are so fired.

7.—(1) Determinations of the firedamp content shall be made—

(*a*) by means of apparatus of a type approved for the purpose by the Ministry, by a competent person appointed for that purpose by the manager of the mine; or

(*b*) by means of samples of air taken by a competent person so appointed and analysed within four days of the taking thereof.

(2) In reckoning a period of four days for the purposes of this regulation no account shall be taken of any Saturday, Sunday or day of general holiday.

8.—(1) Where determinations of the firedamp content in any part of a mine which comprises a longwall face are required to be made by virtue of the use of electric power at or within one hundred and fifty feet of that face or the firing of shots in that part of the mine, those determinations shall be made at or as near as is practicable to the point in each airway serving that face thirty feet from the nearest working place at that face. If the air ventilating that longwall face has ventilated or will ventilate another longwall face determinations shall also be made at such a point in each airway serving each such other face.

(2) The Ministry may serve on the manager of the mine a notice requiring determinations to be made also at one or more additional points at any such longwall face or in any airway serving such a longwall face being points specified in the notice.

9.—(1) Where determinations of the firedamp content in any part of a mine which comprises a working face other than a longwall face are required to be made by virtue of the use of electric power at or within one hundred and fifty feet of that face or the firing of shots in that part of the mine, those determinations shall be made at suitable points fixed by the manager in respect of each air current in that part of the mine.

(2) The Ministry may, if an inspector is of opinion that any point so fixed is unsuitable, serve on the manager a notice requiring him to fix some other point in substitution therefor and may serve on the manager a notice requiring determinations to be made at some other point specified in the notice in addition to those required by the preceding paragraph.

10.—(1) Determinations of the firedamp content shall be made at every point required by or under the two last preceding regulations once in every week:

Provided that—

(*a*) if any determination at any such point shows a firedamp content exceeding 0.8 per cent by volume determinations shall be made at the corresponding point at intervals not exceeding twenty-four hours so long as the content is shown to exceed or to have exceeded that percentage and for the seven next following working days, unless the Ministry by notice served on the manager otherwise consents;

(*b*) if every determination made during a period of thirty days at any such point showed a firedamp content not exceeding 0.6 per cent by volume it shall be sufficient to make determinations at the corresponding point at intervals not exceeding thirty days for so long as the firedamp content shown thereby does not exceed that percentage.

(2) Notwithstanding anything in the last preceding paragraph whenever any alteration is made in the arrangements for ventilating a mine which affects or may affect substantially any part of the mine in which determinations of the firedamp content have to be made, a determination of the firedamp content at each point in that part shall be made as soon as any substantial effect of the alteration would be apparent.

(3) Any determination of the firedamp content shall be made, if the relevant face is machine-cut, during the latter part of the cutting shift or, if the face is not machine-cut, during the latter part of the filling shift:

Provided that if it appears to the manager or an inspector, as the case may be, that the firedamp content is normally greatest at any point at any other stage of the operations, determinations at that point may be made at that stage if the Ministry by notice served on the manager consents thereto and shall be made at that stage if the Ministry by such notice so requires.

(4) The provisions of Part XIII of the Act with respect to references upon notices served by the Ministry shall apply to a notice of requirement under the last preceding paragraph and either of the following shall be a relevant ground of objection to such a notice, namely—

(*a*) that the firedamp content at the point in question is not normally greatest at the stage referred to in the notice;

(*b*) that the greater firedamp content at that stage at that point is transitory.

(5) Where determinations of firedamp content are made once in every week or thirty days they shall as far as practicable be made on the last occasion during the week when the appropriate stage of the operations referred to in paragraph (3) occurs, not being an occasion during a shift beginning on a Saturday.

11. On every occasion on which a determination of firedamp content is required to be made at or as near as is practicable to the point in an airway serving a longwall face thirty feet from the nearest working place at that face, being an airway which as regards that face is a return airway, a determination of firedamp content shall also be made as near as is practicable to the point in that airway thirty feet from the junction thereof with any other return airway.

12.—(1) Particulars of every determination of firedamp content made in accordance with these regulations shall be recorded forthwith in a book provided for that purpose by the owner of the mine.

(2) If any determination other than one made pursuant to regulation 11 shows a firedamp content at any point exceeding one per cent by volume the manager of the mine shall forthwith give notice thereof to the Ministry unless—

(*a*) the excess was caused by temporary derangement of the ventilation at the mine which has been remedied; or

(*b*) the Ministry by notice served on the manager has otherwise directed.

Measurements of quantity of air

13.—(1) The manager of every mine shall make and secure the efficient carrying out of arrangements whereby the quantity of air passing each of the points hereinafter mentioned is measured at intervals not exceeding thirty days.

(2) The points at which such measurements are to be taken are—

(*a*) in every intake airway starting at an entrance to a shaft or outlet, a point as near as is practicable to that entrance;

(*b*) in every split by which air leaves an air current except a split at a longwall face, a point as near as is practicable to the junction;

(*c*) in any part of the mine in which determinations of firedamp content are required to be made, the points at which those determinations are made excluding any point at which determinations are made because it has been specified in a notice served on the manager by the Ministry; and

(*d*) in any part of the mine containing a working face, being a part in which determinations of firedamp content are not required to be made under these regulations, a point in each road, which as regards a working face is an intake airway and the air in which has not previously ventilated a working face, as nearly as practicable four hundred and fifty feet from the nearest part of the said working face with respect to which that road is an intake airway, unless that point would be within three hundred feet of a point at which measurements are taken under sub-paragraph (*a*) or (*b*).

(3) A measurement of the quantity of air at a point specified in sub-paragraph (*c*) of the last preceding paragraph shall be taken on an occasion when a determination of firedamp content is made thereat.

(4) Notwithstanding anything in paragraph (1) of this regulation, whenever any alteration is made in the arrangements for ventilating a mine which affects or may affect substantially the quantity of air passing any point at which measurements thereof have to be taken, a measurement of the quantity at each such point shall be taken as soon as any substantial effect of the alteration would be apparent.

(5) Particulars of every measurement taken in accordance with this regulation shall be recorded forthwith in a book provided for the purpose by the owner of the mine together with any other information incidental thereto for which provision is made in that book.

PART III

FIREDAMP DETECTORS

14.—(1) At every mine in any part of which the use of lamps or lights, other than permitted lights, is unlawful, there shall be provided appliances for detecting the presence of inflammable gas being appliances of a type

approved by the Ministry for use in mines generally or in mines of a class to which that mine belongs or in that mine (hereinafter called "detectors") in such number as will enable the provisions of these regulations to be complied with.

(2) Those detectors shall be adjusted, maintained and tested in the manner (if any) specified in the relevant approval.

15.—(1) The manager of every mine at which detectors are required to be provided shall—

(*a*) make arrangements to secure that detectors are in use at the places and in the numbers specified in, and otherwise in compliance with, the three next following regulations;

(*b*) appoint competent persons and make arrangements to secure that each detector required to be in use is in the personal charge of such a person.

(2) In any prosecution for a contravention of this regulation it shall be a defence to prove that the manager has made the necessary arrangements for the training of a sufficient number of persons and made reasonable efforts to induce appropriate persons to be trained and that the failure to comply fully was due to an insufficiency of trained persons willing to take charge of detectors at that mine.

(3) In the case of any person appointed under this regulation who may be in charge of a detector which is a flame safety-lamp, his competence to recognise actual gas caps as they appear on the lowered flame of the lamp shall be certified by such person and in such form as the Ministry may direct.

16.—(1) The places for and the number of detectors to be in use thereat, being places in a part of the mine in which the use of lamps or lights, other than permitted lights, is unlawful, are as follows—

(*a*) at each longwall face, one detector for each eight persons, and one detector for any person or persons not thus taken into account in the total number of persons wholly or mainly employed at that face during the shift;

(*b*) at each other working face (including a cross measure drift or heading in stone), one detector;

(*c*) at each place in an airway which as regards any working face is a return airway being a place at which one or more men are engaged in repair work, one detector;

(*d*) at each place at which apparatus comprising an electric motor is in operation at or within three hundred feet of a working face, one detector.

(2) Any detector required by sub-paragraph (*d*) of the last preceding paragraph shall be in addition to any detector required by any other sub-paragraph thereof.

17.—(1) If electric power is being used at a working face and the average of the last six determinations of firedamp content made in pursuance of these regulations at the point on the return side of that face at which such determinations are required to be made exceeds 0.5 per cent by volume—

(*a*) any detector required to be in use at that face by virtue of sub-paragraph (*d*) of paragraph (1) of the last preceding regulation shall be an automatic detector;

(*b*) in the case of a longwall face, at which by virtue of sub-paragraph (*a*) of that paragraph not less than eight detectors are required to be in use, one out of each complete eight of those detectors shall be an automatic detector.

(2) Nothing in the last preceding paragraph shall require the provision of more than two automatic detectors at any single-unit conveyor face nor more than four automatic detectors at any double-unit conveyor face.

(3) If broken working is being carried on immediately adjoining the waste in any part of a mine in the course of bord and pillar or a similar system of working and—

(*a*) the average of the last six determinations of firedamp content made in pursuance of these regulations on the return side of that part of the mine exceeds 0.5 per cent by volume; or

(*b*) if such determinations are not required to be made, the average of a series of at least six determinations of firedamp content made by an inspector at intervals of not less than fourteen days exceeds 0.5 per cent by volume (being where more than one such series of determinations has been made the most recent series);

then, in a case in which not less than four detectors are required to be in use in those broken workings, one out of each complete four of those detectors, and, in any other case, one of those detectors, shall be an automatic detector.

18. The manager of every mine at which detectors are required to be in use shall give directions to the persons who are to have charge of detectors (other than detectors which operate automatically) as to the minimum number of tests for inflammable gas to be made by them.

19.—(1) A person in charge of a detector which is a flame safety-lamp shall not, except with the written permission of the manager of the mine, use any other lamp as his working light.

(2) No person in charge of a detector which is a flame safety-lamp shall when testing for inflammable gas raise the lamp higher than is necessary to allow the presence of gas to be detected.

20. If any person in charge of a detector which is a flame safety-lamp detects the presence of inflammable gas therewith he shall not throw away that detector or attempt to extinguish it by blowing or jerking it but shall take it out of the gas steadily, holding it near the floor and sheltering it. If the gas fires in the detector and he cannot immediately take it out of the gas he shall smother the light.

21. Nothing done in pursuance of the preceding regulations relating to detectors shall affect any obligation imposed on any deputy to make any inspection or any obligation to test for inflammable gas in connection with shot firing.

PART IV

VENTILATING MACHINERY

22.—(1) There shall be provided and maintained in connection with every ventilating fan driven by mechanical power (other than an auxiliary fan) a water gauge and either an automatic indicator registering the number of revolutions of the fan or an automatic indicator registering the ventilation pressure.

(2) The manager of every mine shall give directions as to the speed at which any machinery driving such a fan is to be run to the person in charge of that machinery.

23.—(1) The person in charge of the machinery driving such a fan shall examine the machinery and observe the water gauge and automatic indicator at intervals not exceeding—

(*a*) in the case of a mine in any part of which the use of lamps or lights, other than permitted lights, is unlawful, a half hour or such longer time as the Ministry may approve by notice served on the manager;

(*b*) in the case of any other mine, two hours.

(2) Where an automatic indicator registering the ventilation pressure is not in use the person in charge of the machinery driving such a fan shall at the end of each period of two hours enter in a book provided for the purpose by the owner of the mine the number of revolutions of the fan and the pressure shown by the water gauge at the end of that period.

(3) The person in charge of the machinery driving such a fan shall forthwith report to the official of the mine under whose directions he works—

(*a*) any damage to or defect or derangement in or stoppage of that machinery; and

(*b*) any unusual variation in the pressure shown by the water gauge.

PART V

PREVENTION OF LEAKAGES OF AIR

Air-locks

24.—(1) In each shaft and outlet which is connected by a drift to a fan on the surface of the mine, which was so connected after the commencement of the Act, and which is ordinarily used for winding or haulage there shall be provided and maintained an efficient air-lock.

(2) The Ministry may serve on the manager of a mine a notice requiring the provision and maintenance of such an air-lock at any shaft or outlet specified in the notice being a shaft or outlet which is connected and used as aforesaid but which was not so connected after the commencement of the Act.

The provisions of Part XIII of the Act with respect to references upon notices served by the Ministry shall apply to a notice served under this paragraph and any of the following shall be a relevant ground of objection to such a notice, namely—

(*a*) that there is insufficient space for an efficient air-lock;

(*b*) that by reason of the shortness of the period during which the mine is expected to be worked the requirement is unreasonable;

(*c*) having regard to the provision made to ensure the proper ventilation of all parts of the mine, the requirement is unnecessary.

(3) If an inspector is satisfied that the requirements of this regulation are inappropriate to the circumstances of any mine, the Ministry may by notice served on the manager exempt that mine from those requirements.

(4) The provisions of this regulation shall not apply to a mine at which not more than thirty persons are employed below ground.

25.—(1) Any road not required for the working of a mine and connecting airways which as regards any working face are intake and return airways shall forthwith be so stopped off as to minimise leakage of air through it.

(2) In any mine of coal any such stopping between a main intake airway and a main return airway shall be—

(*a*) constructed of a tight packing at least fifteen feet thick of stone, dirt, sand or rubbish; or

(*b*) constructed of a tight packing at least nine feet thick of stone, dirt, sand or rubbish having the end of the packing nearest the intake airway faced with a wall not less than nine inches thick of masonry, brickwork or concrete the face of which is covered with a coating of mortar so as to prevent leakage of air.

In either case each space between the face of the stopping and the airway shall be kept clear.

Ventilation doors and sheets

26.—(1) In every road which is required for the working of a mine and which is a connection between—

(*a*) a main intake airway and a main return airway; or

(*b*) airways which as regards any working face are intake and return airways and in either of which the quantity of air passing any point is required to be measured under regulation 13;

there shall be provided and properly maintained at least two suitable doors to minimise the leakage of air, or, if in any case it is impracticable to provide such doors, other suitable means of minimising such leakage.

(2) In any other road the ventilation in which is to be restricted by means of any door or sheet for the purpose of preventing short-circuiting of an air current, there shall be provided and properly maintained at least two doors or, if that is impracticable at least one door and one sheet or two sheets.

(3) Doors and sheets provided in pursuance of this regulation shall be so spaced that whenever one door or sheet is opened at least one other door or sheet provided for restricting the passing of air can be kept shut, or, if in any case it is impracticable so to space such doors and sheets, other measures to minimise the leakage of air through them shall be taken.

(4) Doors provided in pursuance of this regulation shall be self-closing. No person shall prop or fix such a door open except where and for so long as it is necessary to allow a vehicle to pass through it. Any such door when not in use shall be taken off its hinges and placed in a position in which it will not obstruct the air current.

(5) Any person who opens any such door shall secure that it is closed as soon as possible.

PART VI

VENTILATING FANS BELOW GROUND

27.—(1) No person other than the deputy in charge of a district affected or an official of the mine authorised by the manager or a person authorised by such a deputy or official shall start, stop, remove or alter any fan installed below ground at any mine.

(2) A deputy or official shall not start or authorise any person to start such a fan on any occasion unless the deputy or official is satisfed that it is safe for the fan to be so started.

28.—(1) No auxiliary fan shall be installed at any place in a mine unless the manager is satisfied—

(*a*) that the quantity of air reaching it at all times will be sufficient to ensure that it does not re-circulate air; and

(*b*) that air circulated by it will not be contaminated by any substantial quantity of any noxious gas or dust;

and no such fan shall be worked at any time at which either of those conditions is not satisfied.

(2) No auxiliary fan shall be installed at a point within, or less than fifteen feet from the nearer side of the entrance to, the place to be ventilated by it; so however that in the case of two or more fans installed in series this requirement shall apply only to one of them.

(3) Any forcing auxiliary fan shall be installed on the intake side and any exhaust auxiliary fan on the return side of the place to be ventilated by it.

(4) There shall be installed and maintained with every auxiliary fan such an air duct for conducting air to or from the face of the place to be ventilated as ensures adequate delivery of air within fifteen feet of the face and minimises leakage.

(5) Every auxiliary fan, whether driven electrically or otherwise, shall be so connected with earth as to prevent the accumulation of an electro-static charge.

29.—(1) In respect of every auxiliary fan at a mine the manager shall fix the minimum quantity of air to be delivered or exhausted per minute at the end of the air duct.

(2) The manager shall make and secure the efficient carrying out of arrangements whereby at least once in every week a competent person appointed for that purpose by him measures the quantity of air being so delivered or exhausted and determines whether any air is being re-circulated by that fan.

(3) Particulars of the quantity fixed under paragraph (1) and of every measurement and determination made under paragraph (2) shall be recorded forthwith by the manager or the competent person, as the case may be, in a book provided for that purpose by the owner of the mine.

30.—(1) Two or more auxiliary fans shall not be installed in any section of narrow or panel workings so as to draw air from the same air current unless there is kept at the mine an accurate plan showing the general system of ventilation in that section and the quantity of air in each air current therein.

(2) Upon the preparation of such a plan the manager of the mine shall send a copy thereof to the Ministry and, if any change in the system of ventilation or any substantial variation in the quantity of air in any air current thus shown is made, the manager shall send an amended plan or otherwise give notice of the change or variation to the Ministry as soon as the effect thereof can be ascertained.

31. Without prejudice to the generality of subsection (5) of section 55 of the Act where a place is provided with an auxiliary fan, no workman shall enter or remain in that place while the fan is not operating unless the deputy in charge of the district or some other official appointed for that purpose by the manager has inspected the place and found it safe.

32.—(1) No fan (not being an auxiliary fan) shall be installed at any place below ground in a mine, unless the manager is satisfied that it is necessary or expedient to install it at that place for the proper ventilation of the mine, having taken into account a survey of the ventilation of every part of the mine which would or might be substantially affected and a report upon the appropriate type, size and location of the proposed fan, being a survey and report made by persons experienced in those matters appointed for the purpose by the owner of the mine or the manager.

(2) If any such fan is installed at any place below ground the manager shall forthwith give notice thereof to the Ministry attaching thereto particulars of the survey and a copy of the report made in relation to that installation.

PART VII

VENTILATING SHEETS AND DUCTS

Ventilating Sheets

33. In any mine in which naked lights are in use, every ventilating sheet shall be of fire-resisting material and shall be properly maintained.

34. Any person who moves any ventilating sheet shall secure that it is replaced as soon as possible.

35. Wherever sheets or ducts are used to secure the ventilation of any working place not being a working place in a shaft in the course of being sunk, it shall be the duty of the deputy or other official in charge of that part of the mine to ensure that they are so placed and maintained that an adequate amount of air reaches that place.

Sealed with the Official Seal of the Ministry of Commerce for Northern Ireland this 1st day of June 1970 in the presence of

(L.S.)

J. H. Armstrong,
Assistant Secretary.

EXPLANATORY NOTE

(This is not part of the Regulations but is intended to indicate their general purport.)

These regulations make provision with regard to ventilation below ground in mines of coal, stratified ironstone, shale and fireclay. Part II of the regulations requires the manager of every such mine to secure that certain intake airways are normally kept free of inflammable gas, and specifies certain requirements as regards the making of determinations of the percentage of inflammable gas present in the general body of the air and the measurement of the quantity of air passing certain points. Part III deals with firedamp detectors, Part IV with ventilating machinery, Part V with the prevention of leakages of air between certain airways, and Part VI with the installation and use of ventilating fans below ground.