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**Summary activity report
Safety and Health Commission for the Mining
and Other Extractive Industries
1985-95**

**(Approved at the plenary meeting on
14 December 1998)**

(presented by the Commission)

1. INTRODUCTION

1.1 Reporting period

This report is largely concerned with the wide range of activities involved in the completion of the internal market. Individual annual reports could not be produced in this period because of the need for rapid preparation of occupational safety and health directives and also because of a lack of staff in the secretariat. Since this work has now been completed and the situation has improved, the gap between the 1984 and 1996 annual reports may be considered to have been bridged.

The report is based on a large corpus of documentation, in particular information from the Member States and the preparatory documents for proposals to the governments and Community directives. The main activities of the Safety and Health Commission and its Working Parties or Committees are described.

The Safety and Health Commission approved the report on 25 November 1997.

1.2 The Safety and Health Commission

1.2.1 Origins, responsibilities, terms of reference

Institutionalised co-operation on safety in the extractive industries within the European Union dates back to the disastrous mine fire on 8 August 1956 at the Bois du Cazier Colliery in Marcinelle (Belgium), in which 264 miners from various European countries were killed. In view of the scale of the disaster, the High Authority of the European Coal and Steel Community immediately called a conference on safety in coal mines, which was attended by representatives of governments, employers and workers. The positive outcome led to the decisions of 6 September 1956 and 10 May 1957 on continued safety co-operation and the establishment of the Mines Safety Commission for the coal-mining industry. The terms of reference and rules of procedure of this body were approved by the Council on 9 July 1957. By the Council Decisions of 11 March 1965 and 27 June 1974, its activities were broadened to include health protection and its responsibilities extended to the whole of the extractive industries sector (OJ No L 185, 9.7.1974, p. 18). The Mines Safety Commission has since been officially known as the Safety and Health Commission for the Mining and Other Extractive Industries (abbreviated as "Safety and Health Commission" or "SHCMOEI"). Its primary task is to improve occupational safety and health in the extractive industries by reducing the risks specific to them. It follows various lines of approach, including the exchange of information and pooling of experience, proposals to the governments of the Member States and assistance to the European Commission in its efforts to promote safety and health in the industries concerned.

1.2.2 Structure, methods of work

Each Member State may send four representatives, of whom two represent the government, one the employers and one the workers. The Safety and Health Commission was thus the first European body not composed solely of government representatives. Within limits, advisors may also be appointed.

The government representatives on the Safety and Health Commission form a Restricted Committee, whose task is to maintain permanent contact among the governments of the Member States and between the governments and the Safety and Health Commission and to prepare the work of the Safety and Health Commission.

As a general rule, technical questions are dealt with by tripartite working groups. In the past, there were many such "Working Parties" but, for reasons of efficiency and because of the administrative and financial constraints, these were reduced in 1993 to five "Committees", which are chaired by

members of the Restricted Committee. It has also proved useful to have specific technical questions dealt with by small ad hoc groups of experts.

1.2.3 Secretariat

The secretariat of the Safety and Health Commission, the Restricted Committee, the specialised Committees and the ad hoc groups is provided by the European Commission, which has entrusted this task to Directorate-General V. The European Commission also funds the Safety and Health Commission's activities.

2. THE WORK OF THE SAFETY AND HEALTH COMMISSION AND ITS WORKING PARTIES / COMMITTEES

2.1 Meetings, events

The Safety and Health Commission normally met twice per year, with meetings of the Restricted Committee on the previous day.

The frequency with which Working Parties and Committees met was determined by two priority areas of activity: study of the complex safety aspects of a number of major accidents in the extractive industries (in particular explosion and fire prevention and the improvement of workforce protection and rescue arrangements) and input to the preparation of Community directives.

For these reasons, it was not generally possible for the Working Parties and Committees to meet as frequently as in the past.

Two information conferences, four symposia, a workshop and a congress were organised on topical aspects of safety and health in the extractive industries.

2.2 Discussion of particular occurrences

One of the major tasks of the Safety and Health Commission is to pool experience arising from particular events. Analysis and prompt forwarding of such information, especially to the governments of the Member States, make a substantial contribution to improving safety and health protection. The most important of such events are major accidents, of which a number occurred in the period covered by this report. There were serious accidents in coal, lignite, potash and fluorspar mining and in offshore operations.

These occurrences were discussed in depth by the Safety and Health Commission and the appropriate specialised Working Parties or Committees. The outcome of the deliberations found expression in recommendations and information reports to the governments of the Member States and in Community directives (see sections 2.3 to 2.6).

2.2.1 Hard coal mining

As in the past, underground workings in the coal-mining industry of the European Union accounted for a large proportion of accidents. Eleven major events – mainly associated with firedamp and roof falls – are discussed below. Previous knowledge and safety measures were clearly not always adequate to ensure full control of geological and operational conditions.

In the first years of the report period, the Safety and Health Commission completed its study of the accident at Eisdien Colliery (Belgium), where seven lives had been lost in a firedamp explosion on 8 March 1984 (Doc. No 3205/88). The explosion occurred when power was restored to a 140 m advanced maingate heading following repairs to electrical equipment. The auxiliary fan had been

stopped for a full two hours, allowing a substantial quantity of firedamp to accumulate in the auxiliary-ventilated part of the roadway. It emerged from the comprehensive inquiry that the cause of ignition was connected with the restoration of power. The source of ignition could not be definitely established but there were indications that it might be a contactor on a slusher. The factors underlying the explosion were probably the ventilation conditions and the state of the electrical apparatus. The accident resulted in additions to the national regulations and proposals for measures to prevent similar accidents were included in a special report (Doc. No 5147/89, section 2.3.1.4).

An accident with even more severe consequences occurred in the first year covered by this report. On 25 February 1985, a firedamp explosion occurred in a drivage with tertiary auxiliary ventilation at Simon Colliery in France and was followed by a coal dust explosion. Twenty-two miners were killed, mainly by the blast and fumes. A further 269 workers suffered various degrees of poisoning (Doc. No 4957/85, 5513/1/85, 5520/2/85). This accident was thoroughly discussed in the Safety and Health Commission and in committees of experts. The European Parliament asked the Safety and Health Commission to carry out a study with a view to improved safety measures. The results are set out in a comprehensive report accompanied by recommendations (Doc. No 5147/89, see section 2.3.1.4).

On 26 June 1985, there were two firedamp explosions about 14 hours apart in the underground workings of Schlängel & Eisen Colliery (Germany). The first explosion killed one miner and injured 24 more. The second explosion resulted in injuries to four rescue brigadesmen (Doc. No 2365/86). The explosions occurred in a former conveyor road which was being salvaged. At the time of the first explosion, salvaged workings were being stopped off. The second explosion occurred during preparations for nitrogen purging of the workings affected. It can be assumed that explosive firedamp mixtures were present, at least in the form of layers, in the extensive complex of workings, which had been stopped off on one side. It is likely that a fire had started through spontaneous combustion in this area as a result of mining interaction with an adjacent seam. The lessons to be learnt from this accident were taken into account in Doc. No 5147/89.

On 16 February 1986, two firedamp ignitions took place in rapid succession near a face in Camphausen Colliery (Germany). Seven miners were killed, three as a result of inhaling toxic explosion fumes and four as a result of mechanical and thermal injury (Doc. No 2283/86, 2286/86, 5003/89). On the day of the accident, which was a Sunday, coal was not being mined. Workmen were attempting to seal the gateside pack in the tailgate in order to reduce the ingress of oxygen to the goaf. There were signs of extensive oxidation in this area and it seems likely that the sources of ignition were also located there. Derangement of the firedamp drainage system had probably led to a rise in methane levels in the goaf. Once rescue operations had been completed, the panel was sealed off. This event, like that at Schlängel & Eisen, gave rise to extensive discussion in the Safety and Health Commission. The outcome was reflected in the proposals to the governments contained in Doc. No 5147/89.

On 22 December 1989, there was a fire at Mosquitera Colliery (Spain). Four miners were killed and three seriously injured by fire gases. The fire probably originated at a conveyor belt (Doc. No 2300/90). The Safety and Health Commission proposed measures for fire prevention and firefighting in Doc. No 5147/89.

On 27 May 1990, a coal dust explosion occurred below ground at La Serrana Colliery (Spain), resulting in three fatalities. The explosion was caused by shotfiring, with no involvement of firedamp. Discussion in the Safety and Health Commission did not lead to any additional recommendations.

On 15 April 1992, a firedamp explosion occurred at Haus Aden Colliery (Germany) in an auxiliary-ventilated disused gateroad from which the supports were being salvaged. Seven miners died, six by asphyxiation at the site of the accident and one some time later as a result of organic failure caused by severe burns. The explosion was initiated about 30 m inbye of the place where work was in

progress, in an area from which the supports had already been removed but which had not been adequately filled and in which firedamp had accumulated. Ignition was caused by hot surfaces resulting from friction. This accident will probably give rise to an addition to Doc. No 5147/89 (see section 2.7.4).

On 10 December 1992, four deaths were caused by a fall of roof on a face at Santa Bárbara Colliery (Spain) (Doc. No 5413/94). At the time of the accident, the seam thickness was about 1 m, with a dip of about 40°. The nether roof consisted of up to 5 m of shale overlain by massive sandstone beds. The floor consisted of strong shale beds. The coal was mined with a shearer and the face was supported on timber props bearing on wooden roof and floor members. The top gate was protected by two rows of wooden chocks. Two rows of wooden chocks were also placed perpendicular to the face in such a way as to divide it into three sections roughly equal in length. The roof over the goaf was blasted down in sections to fill the void. The accident took place as work was resumed after a five-day break. The fallen block of shale was about 40 m in length along the line of dip and about 15 m wide on the accessible side and was of tapering shape with a thickness of 2 m at the top end. It was bounded by slip planes but had been supported by several stone bridges. In response to this accident, the Safety and Health Commission took a fresh look at principles of strata control and support in underground workings of the extractive industries (see section 2.3.1.5).

On 19 August 1993, three miners were killed in an accident at Bilsthorpe Colliery (United Kingdom) as a result of a sudden extensive fall of roof in a supply gate, which was being developed immediately adjacent to a previous face ("skin to skin" working) and was supported by vertical rockbolts with roof straps (Doc. No 5037/94). The roadway failure resulted from very heavy weighting of the support system, caused partly by the rapid rate of advance and partly by the strata conditions. The accident led to the recommendation that the skin to skin method be discontinued until a better understanding is obtained of strata behaviour in the vicinity of old wastes.

On 31 August 1995, 14 miners died in an accident at San Nicolás Colliery (Spain). This occurred at the lowest working level of a sublevel district in a seam of 3 m average thickness dipping at 72°. In the western unit, preparatory drivage was being carried out by heading machine, while coal production had just begun in the eastern unit, where a shotfirer was working at the time of the accident. Exhaust ventilation was practised with electric fans and a branched duct layout (Doc. No 487/95, 488/95). At the end of 1995, the inquiry had not yet been completed. There are strong indications that the accident was a firedamp explosion. This accident will probably also lead to additions to documents previously produced by the Safety and Health Commission.

On 13 October 1995, eight miners were killed at Candín Colliery (Spain). The men concerned were placing and strengthening a mesh barrier used to confine stowing material on a mechanised face. Failure of the floor over a distance corresponding to two or three support sets caused about 30 carloads of stowing dirt to slip towards the face line, burying the workmen (Doc. No 496/95). Discussion of this accident in the Safety and Health Commission had not been completed by the end of the report period.

2.2.2 *Lignite mining*

On 1 June 1998, a dust explosion in the Stolzenbach underground lignite mine (Germany) killed 51 miners, of whom six died of injuries caused by the mechanical effects of the explosion and 45 of CO poisoning (Doc. No 5903/89, 6338/89). The explosion was triggered by two shots fired in succession. Firedamp was not involved. After the accident, the mine was closed. In the other underground lignite mines in Germany, the prescribed CO filter self-rescuers were replaced with oxygen escape sets.

2.2.3 Potash mining

On 19 July 1989, three miners died in the Wintershall potash mine (Germany) (Doc. No 6476/89, 2434/90, 539/93). During drivage with a roadheader, a sudden outburst of the carbon dioxide contained in the mineral caused about 2000 tonnes of salt to be projected into the roadway, engulfing the machine operator, his assistant and another miner. More stringent requirements have since been introduced for advance exploration of the strata when the mineral is worked by cutting machines. Hitherto, the normal practice has been to mine potash salts by blasting, the rounds being fired from the surface with the entire workforce withdrawn from the mine.

2.2.4 Fluorspar mining

On 19 July 1985, failure of the dams of two lagoons located one above the other at the Prestavel fluorspar mine (Italy) caused a flood surge which killed 268 persons (Doc. No 3162/86). The inquiry established that the stability of the dams was marginal and that there were no means of monitoring dam stability and the effectiveness of the filters. Even before this disaster, the Safety and Health Commission had discussed precautions against such hazards and had produced Doc. No 2484/7/80.

2.2.5 Offshore operations

On 6 July 1988, a series of explosions occurred on the Piper Alpha oil production platform in the British sector of the North Sea. Fire broke out in various places on the rig. Despite the rapid response of supply ships, one of which was equipped with firefighting equipment, it was not possible to bring the various fires under control or avoid further explosions. The first explosion was followed 20 minutes later by a second, which was much more violent and caused a large part of the platform to be engulfed in flames.

There is no evidence that instructions were given to evacuate the platform. Many of the workers appear to have remained in the accommodation. A few jumped into the water or climbed down to the water level and were rescued. Of the 226 persons on board the platform, 165 died, and two more men were killed during rescue operations.

The inquiry found that the first explosion was initiated in the gas compression module. An explosible gas mixture was apparently able to form because the production team on the shift in which the accident occurred was unaware of temporary repairs which had been carried out on a condensate injection pump – removal of a defective valve and fitting of blind flanges. Since the condition of this pump was not known, it was started when the working pump tripped and this probably caused a substantial gas leak.

The conclusions drawn from the accident led to the further development of safety regulations for offshore operations at national, European and international level. They were also taken into account in the Community Directive 92/91/EEC. The Committee on Borehole Operations produced a full report on the Piper Alpha disaster (Doc. No 302/3/95).

2.3 Proposals for the improvement of safety

During the report period, the Safety and Health Commission approved the following recommendations and information reports on the improvement of safety. These were generally prepared by the Working Parties or Committees responsible for the field in question.

2.3.1 *Underground workings*

2.3.1.1 **Electrical apparatus and systems**

The former Working Party on Electricity produced the following proposals:

- **Electrical apparatus and systems for use when the concentration of firedamp exceeds the statutory limit for electricity (Doc. No 6374/13/82)**
- **Earth fault protection in mines underground in the countries of the European Communities (Doc. No 2306/18/83)**
- **Choice of types of protection for electrical equipment for use in potentially explosive atmospheres in mines susceptible to firedamp, depending on location (Doc. No 7141/7/84).**

The purpose of the first document is to set out conditions under which electrical apparatus and systems may remain energised even if the firedamp concentration exceeds a limit value laid down in the Member States. Since this involves an increased risk of ignition, the only apparatus and systems which may remain in operation are those which are necessary for general safety, such as cap lamps and equipment for communications and signalling, ventilation monitoring, prevention of dangerous occurrences or reduction of their consequences.

The second document seeks to prevent hazards resulting from insulation faults in electrical apparatus. To ensure protection against earth faults, it is important that the metal housings of electrical apparatus be earthed in a permanently secure manner. In underground workings, and particularly in gassy mines, special measures are required to ensure good earth connections. Special protective devices must be used to detect dangerous insulation faults and reduce risks.

The purpose of the third document is to lay down uniform rules for the choice of types of protection according to the location of use, so that the same standards of safety obtain in all Member States and any barriers to trade within the Community are eliminated.

It relates to electrical apparatus covered by a certificate of conformity under Council Directive 82/130/EEC for use in potentially explosive atmospheres in mines susceptible to firedamp.

2.3.1.2 **Hydromechanical coal mining**

Doc. No 2273/7/83 on "General conclusions in respect of the explosion at the Hansa Hydromine (Germany)" sums up the Safety and Health Commission's deliberations on this accident. During trials of hydromechanical coal mining, a firedamp ignition followed by a dust explosion occurred on 22 March 1979, killing seven miners and causing slight injuries to one. The information report covers basic principles of ventilation, installation and operation of auxiliary ventilation systems and monitoring. It confirms the principle that coal should be mined on a routine basis only in through ventilation.

2.3.1.3 **Mine fires**

The former Working Party on Rescue Arrangements, Mine Fires and Underground Combustions addressed two major areas in the following information reports:

- **Preventing, combatting and stopping off of fires arising from spontaneous combustion underground (Doc. No 6482/13/82)**

- Notes on the use of inertisation for firefighting at coal mines in the European Community (Doc. No 4589/3/85).

The first of these reports describes suitable measures for the prevention, early detection and fighting of self-heating fires in underground workings and provides guidance for colliery management. Many of the aspects considered have wide application but attention is concentrated on coal mining. The report states that the risk of spontaneous combustion depends on a number of geological and operational factors.

The most effective precaution has proved to be sealing of all air leakage paths. Monitoring of the mine atmosphere is particularly important where there is a propensity to spontaneous combustion. Additional measures must be taken to supplement conventional firefighting techniques in situations where heatings are a known risk. A reduction in the flow of ventilating air through the area where the heating is located should be attempted only if expert advice is available at the colliery. Nitrogen purging is particularly to be recommended if local or zone inertisation is possible. It is very important that a sufficient number of specialists in control of spontaneous combustion fires is trained at all collieries where this risk may arise.

From the mid-1960s onwards, the use of inert gases for firefighting in mines, which is discussed in Doc. No 4589/3/85, became increasingly important in the coalmining industries of western and eastern Europe. Standard methods were developed and successfully applied. In view of the knowledge and experience acquired in practical use, it was thought desirable to produce a report with a view to future applications. This document sets out the aims and advantages of inertisation and describes the various methods of generating inert gas. The report concludes with comments on rescue service operations in inert gases. It also contains a list of major references for further reading.

During the reference period, additions were made to the "Sixth report on specifications and testing conditions relating to fire-resistant hydraulic fluids used for power transmission (hydrostatic and hydrokinetic) in mines" (Doc. No 6206/3/89 and 2508/90; 2584/90, 2640/90 and 2645/90). It also proved necessary to take environmental problems into account. There was a need to develop new fluids causing as little environmental damage as possible and to devise a test method appropriate to their properties. A new version of the report was therefore produced and published as Doc. No 4746/10/91 under the title "Requirements and tests applicable to fire-resistant hydraulic fluids used for power transmission and control (hydrostatic and hydrokinetic) - Seventh Edition". This document, too, contains recommendations to the governments of the Member States. The content of the report is shortly to be incorporated into European standards.

Shortly after it was set up, the Safety and Health Commission had produced the First Report on fire-resistant fluids. The use of such fluids can prevent the onset and propagation of mine fires and hence disasters such as that in Marcinelle (Belgium) in 1956. In producing requirements and tests for fire-resistant fluids, the Safety and Health Commission broke new ground. There was great interest in the report both in the extractive industries and other sectors, e.g. the aerospace and shipping industries.

2.3.1.4 Explosion and fire risk in auxiliary-ventilated workings

Immediately after the Simon Colliery disaster (see section 2.2.1) the Safety and Health Commission began intensive discussions. The areas which had emerged as important at the symposium on 17 September 1985 (see section 2.7.3) were further investigated. The findings of six groups of experts are contained in Doc. No 5147/89 on "Measures to reduce the explosion and fire risk in auxiliary-ventilated workings and to improve the protection of personnel in the event of explosions and fires in coal mines". This is a wide-ranging report of fundamental importance, with many proposals to the governments of the Member States. It takes account not only of the lessons to be learned from the Simon accident but also those from other occurrences involving auxiliary ventilation (Doc. No 5520/2/85). It is divided into four parts, dealing with the safety of auxiliary ventilation, limiting

the dangers of explosion, measures to improve prevention and fighting of mine fires and to improve protection of personnel in the event of explosion and fire and the role of human factors. An extensive bibliography provides pointers to further reading. The Safety and Health Commission took steps to ensure rapid dissemination of the findings, e.g. by means of the symposium on 6-7 December 1990 (see section 2.7.3). The main findings were summarised in a special document for the European Parliament (Doc. No 5148/89).

2.3.1.5 Strata control and support

The occurrence of a number of accidents in underground mines caused the Safety and Health Commission to resume work on the principles of strata control and support, taking account of the lessons learned from recent experience. The results of the work done in the period covered by this report are set out in Doc. No 486/95, consisting of parts I to III. This contains general considerations, accompanied by specific recommendations for underground mines of coal and other stratified minerals. (A supplement - Part IV - has since been produced on other mineral workings as Doc. No 1189/1/95.)

2.3.2 Borehole operations

The former Working Party on Oil, Gas and Other Materials Extracted by Borehole continued its work to align the aims and content of training programmes for oil and gas production throughout Europe. There is great interest in harmonisation since training of drilling professionals is expensive and persons working for international companies are highly mobile. The basis for the Working Party's approach was the generally framed documents No 6101/9/81 and 7061/3/84 on safety and health training in the onshore and offshore industries. The Working Party extended the principles set out in these documents with regard to well control and the use of firefighting equipment. It produced the following recommendations in these areas:

- Proposed training of drilling personnel in the petroleum extractive industries concerning well control (Doc. No 7675/8/84)
- Training for offshore workers in the use of firefighting equipment (Doc. No 7681/9/84).

The requirements for training in well control are geared to straightforward operations. Additional training may be necessary for specific operations. The minimum requirements are reflected in course programmes for assistant drillers, drillers and workover operators and for supervisors, toolpushers and workover supervisors.

Doc. No 7681/9/84 provides guidance on training in firefighting. The training programmes are geared to the requirements of various target groups. All persons present on an installation must receive appropriate general theoretical instruction and/or practical basic training in fire prevention and firefighting. Firefighting teams, the leaders of firefighting teams and fire-prevention officers must receive fuller training.

2.4 Proposals for the improvement of health protection

Community directives were the main moving force behind health protection proposals by the Safety and Health Commission to the governments of the Member States. These proposals are consistent with the aims pursued by the European Commission and were drawn up by the Working Party on Health in Mines.

2.4.1 Lead ores, lead ore concentrates

The "Proposal for the protection of workers in the extractive industries against a risk to their health which may arise from exposure to ores containing lead or lead ore concentrates" (Doc.

No 3032/7/83) seeks to provide workers in mining operations with similar protection to that afforded to workers in other industries, taking account of the special conditions obtaining in mining and ore preparation. Directive 82/605/EEC of 28 July 1982 on the protection of workers from the risks related to exposure to metallic lead and its ionic compounds at work (OJ No L 247, p. 12) does not apply to the mining of lead ores and the on-site preparation of lead ore concentrates. The Safety and Health Commission's proposal is largely based on Directive 82/605/EEC, but special provisions were necessary at certain points because of the specific conditions in the extractive industries. In particular, areas must be provided below ground in which workers can eat with minimum exposure to lead. In addition, the airborne dust sampling methods used must yield reliable results under the ventilation conditions obtaining below ground. The proposal does not apply to work areas for which it can be proved that the lead ore is in a qualitative or quantitative condition such that no blood-lead level greater than 40 µg/100 ml occurs (time-weighted average for 40 hours per week).

2.4.2 *Fibrogenic mineral dusts*

In connection with the efforts at European level to protect workers from the effects of substances harmful to health, a document No 5761/17/85 was produced under the title "Proposal to reduce the risk to health associated with the exposure to fibrogenic mineral dust in the non-coal mining (lignite mining underground excluded) and quarrying industries". The proposal applies to activities of the non-coal mining and quarrying industries in which workers are or may be exposed to fibrogenic mineral dusts. Underground lignite workings are excluded from the scope of the proposal, but not lignite quarrying. The area covered includes buildings and plant for the processing, loading and storage of the minerals in question, transport and storage of waste and maintenance of equipment and machinery. The proposal itself is largely concerned with detecting and monitoring airborne dusts and setting limit values. Exposure and risk assessments must be carried out for all activities in which fibrogenic mineral dusts may arise. The limit value for the respirable (alveolar) fraction of dusts with a free crystalline silica content of 1-5% by mass is 5 mg/m³ referred to 8 hours. Where the free crystalline silica content is higher, the limit value is to be calculated by a formula such that the limit is reduced as the quartz content increases. When the compensation method is used, long-term averages for a one-year period must be determined for the individual workers concerned. Details of the medical surveillance of dust-exposed persons are to be regulated by the individual Member States. Care must be taken to ensure that disorders resulting from fibrogenic mineral dusts are detected at an early stage. Measures to prevent or reduce dust exposure are summarised in an appendix as a code of good practice.

2.4.3 *Noise*

A statement in the Council minutes concerning Directive 86/188/EEC on the protection of workers from the risks related to exposure to noise at work (see section 2.6.1.1) required the Safety and Health Commission to review arrangements for applying the Directive in the extractive industries and associated exploratory activity and to draw up any recommendations that might be necessary. The Safety and Health Commission concluded that recommendations should be made for underground workings. It is particularly difficult to assess noise exposure below ground, mainly because men and machines move from place to place and there are fluctuations in machine running times.

The purpose of Doc. No 5025/7/89 "Code of good practice for implementing Council Directive 86/188/EEC on the protection of workers from the risks related to exposure to noise at work in underground mining" is to provide specific proposals as an aid to incorporating that Directive into underground mining practice. The code explains direct and indirect measurement methods for assessing workers' noise exposure when there is adequate reproducibility of the working conditions. A method for delimiting noise zones is also described in detail.

2.5 Preparation of draft Community directives

A major task of the Safety and Health Commission was to assist the European Commission in preparing draft directives for the improvement of occupational safety and health protection in the extractive industries.

When adopting the general Workplace Directive 89/654/EEC, the Council and the European Parliament decided that additional specific provisions were required for the extractive industries and the European Commission asked the Safety and Health Commission for assistance. As part of the Safety and Health Commission's work, three directives were also drafted on the application of new harmonised standards to electrical equipment for use in potentially explosive atmospheres in mines susceptible to firedamp.

2.5.1 *Drafting of the Directives 92/91/EEC and 92/104/EEC*

From the outset, the Safety and Health Commission sought to produce not only requirements for workplaces in the strict sense but arrangements for the extractive industries which were as comprehensive as possible. For various reasons, the provisions could not be combined in a single directive for all sectors, as had been intended. As a result of the intensive and wide consultations involving a number of Working Parties, draft proposals were drawn up for two directives. The text which subsequently became Directive 92/91/EEC of 3 November 1992 applies to onshore and offshore borehole operations (OJ No L 348, 28.11.1992, p. 9). The text later enacted as Directive 92/104/EEC of 3 December 1992 covers surface and underground mineral workings (OJ No L 404, 31.12.1992, p. 10). The proposals for directives were further aligned in form and content as they passed through the competent Council working party. The aim of combining them again proved impossible, mainly for formal reasons.

The foregoing two directives are the 11th and 12th individual directives within the meaning of Article 16(1) of Directive 89/391/EEC. They have the same structure and objectives and to a large extent the same wording. Differences arise from the specific conditions in the different sectors. The basic requirements are set out in about ten articles in each directive, which in both cases are fleshed out by a comprehensive annex, consisting of three sections with common and special minimum requirements.

2.5.2 *Adaptation of Council Directive 82/130/EEC*

During the period covered by this report, drafts were produced for the following Commission directives adapting to technical progress Council Directive 82/130/EEC on the approximation of the laws of the Member States concerning electrical equipment for use in potentially explosive atmospheres in mines susceptible to firedamp (OJ No L 59, 2.3.1982, p. 10):

- Directive 88/35/EEC of 2 December 1987 (OJ No L 20, 26.1.1988, p. 28)
- Directive 91/269/EEC of 30 April 1991 (OJ No L 134, 29.5.1991, p. 51)
- Directive 94/44/EC of 19 September 1994 (OJ No L 248, 23.9.1994, p. 22).

As a result of technical developments, it was first of all necessary to adapt the content of the harmonised technical standards and the provisions for marking also had to be brought up to date. The Restricted Committee of the Safety and Health Commission is responsible for amending the annexes to Directive 82/130/EEC in order to take account of technical progress.

2.6 Opinions on draft Community directives

The Safety and Health Commission considered many draft proposals for directives in various areas. After the first major revision of the European Treaties in 1986 (the Single European Act), there was an appreciable increase in the number of directives aimed at improved occupational safety and health protection. A fresh impetus resulted from the inclusion in the EEC Treaty of Articles 118a and 100a. The directives relating to products were primarily based on Article 100a of the EEC Treaty and were drawn up on the basis of the new approach to technical harmonisation and standardisation. This involves setting out basic requirements in the directives in the form of general goals affording a high standard of protection, which are fleshed out by harmonised standards.

2.6.1 *Improvement of safety and health protection*

2.6.1.1 Older directives

In the period up to 1986/87, the Safety and Health Commission delivered opinions on the drafts for the following directives:

- Directive 86/188/EEC of 12 May 1986 on the protection of workers from the risks related to exposure to noise at work (OJ No L 137 , 24.5.1986, p. 28)
- Directive 88/642/EEC of 16 December 1988 amending Directive 80/1107/EEC on the protection of workers from the risks related to exposure to chemical, physical and biological agents at work (OJ No L 356 , 24.12.1988, p. 74).

In the course of the official deliberations on the first of these directives, the Council and the European Commission agreed that the Safety and Health Commission should consider how it should be applied in the extractive industries and draw up any recommendations which were required. The outcome of these deliberations is set out in Doc. No 5025/7/89 (see section 2.4.3). After considering the second directive, the Safety and Health Commission produced a proposal specific to the extractive industries for reduction of the health risks arising from fibrogenic mineral dusts (Doc. No 5761/17/85, see section 2.4.2).

2.6.1.2 The Framework Directive and pertinent individual directives

Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work (OJ No L 183, 29.6.1989, p. 1) is central to the efforts to ensure high safety and health standards in the European Union. It applies in full to the extractive industries and the Safety and Health Commission therefore gave thorough consideration to the draft.

It imposes a number of basic obligations on employers and lays down both duties and rights for employees. Because of the fundamental nature of its requirements, it is referred to as the Framework Directive. The Council has since issued a considerable number of supplementary individual directives. Insofar as these are directly relevant to the extractive industries, the Safety and Health Commission expressed an opinion at the drafting stage. This applies in particular to the following:

- Directive 89/655/EEC of 30 November 1989 concerning the minimum safety and health requirements for the use of work equipment by workers at work (second individual Directive) (OJ No L 393, 30.12.1989, p. 13)
- Directive 89/656/EEC of 30 November 1989 on the minimum health and safety requirements for the use by workers of personal protective equipment at the workplace (third individual directive) (OJ No L 393, 30.12.1989, p. 18)

- Directive 90/269/EEC of 29 May 1990 on the minimum health and safety requirements for the manual handling of loads where there is a risk particularly of back injury to workers (fourth individual Directive) (OJ No L 156 , 21.6.1990, p. 9)
- Directive 90/270/EEC of 29 May 1990 on the minimum safety and health requirements for work with display screen equipment (fifth individual Directive) (OJ No L 156, 21.6.1990, p. 14
- Directive 92/58/EEC of 24 June 1992 on the minimum requirements for the provision of safety and/or health signs at work (ninth individual Directive) (OJ No L 245, 26.8.1992, p. 23).

The aims pursued by the above instruments are clear from their titles. Their scope includes the extractive industries. The second and third individual Directives supplement the product-related Directives 89/392/EEC on machinery and 89/686/EEC on personal protective equipment in order to take account of health and safety aspects. The second individual Directive was amended and expanded by Directive 95/63/EC of 5 December 1995 (OJ No L 335, 30.12.1995, p. 28).

On various occasions, the Safety and Health Commission criticised the proposal 93/C 77/12 for a Council Directive on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (OJ No C 77, 18.3.1993, p. 12). This contains provisions governing risks arising from noise, vibration, optical radiation and electromagnetic fields and waves. The Safety and Health Commission sees no reason for the Noise Directive 86/188/EEC to be updated since it has only recently been transposed into law in some Member States and there has not yet been time to acquire sufficient informative experience. Provisions for vibration are acceptable only if they are practicable. In the present state of knowledge, it seems premature to prescribe requirements for protection against optical radiation or electromagnetic fields and waves.

Proposal 95/C 332/06 for a Council Directive on minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres (OJ No C 332, 9.12.1995, p. 10) supplements the product-related Directive 94/9/EC on equipment and protective systems intended for use in potentially explosive atmospheres on the basis of Article 118a of the EC Treaty (see section 2.6.2). The Safety and Health Commission urged that the proposed Directive should not apply to extractive operations covered by Directives 92/91/EEC or 92/104/EEC, since these Directives already take account of the aims of the proposal and in some respects indeed contain more stringent provisions.

With the assistance of the Safety and Health Commission, the European Commission is considering whether a directive on the protection of workers in the manufacture, storage and use of explosives should be drawn up to supplement the product-based Explosives Directive 93/15/EEC (see section 2.6.2). The Member States are to be sounded out on their attitudes to such a proposal by means of a questionnaire, which was produced towards the end of the period covered by this report.

2.6.2 Harmonisation of product areas

The Safety and Health Commission also played a part in the "approximation of the laws of the Member States concerning the placing on the market of goods" based on Article 100a of the Treaty. It took a particular interest in the proposals for the following Directives, which in principle also apply to the extractive industries:

- Directive 87/404/EEC of 25 June 1987 on the harmonisation of the laws of the Member States relating to simple pressure vessels (OJ No L 220, 8.8.1987, p. 48)
- Directive 89/392/EEC of 14 June 1989 on the approximation of the laws of the Member States relating to machinery (OJ No L 183, 29.6.1989, p. 9)

- Directive 89/686/EEC of 21 December 1989 on the approximation of the laws of the Member States relating to personal protective equipment (OJ No L 399, 30.12.1989, p. 18)
- Directive 91/368/EEC of 20 June 1991 amending Directive 89/392/EEC on machinery (OJ No L 198, 22.7.1991, p. 16)
- Directive 93/15/EEC of 5 April 1993 on the harmonisation of the provisions relating to the placing on the market and supervision of explosives for civil uses (OJ No L 121, 15.5.1993, p. 20)
- Directive 93/44/EEC of 14 June 1993 amending Directive 89/392/EEC on the approximation of the laws of the member states relating to machinery (OJ No L 175, 19.7.1993, p. 12)
- Directive 94/9/EC of 23 March 1994 on the approximation of the laws of the Member States concerning equipment and protective systems intended for use in potentially explosive atmospheres (OJ No L 100, 19.4.1994, p. 1).

The Machinery Directive 89/392/EEC is particularly broad in scope. It is based on a general definition of the term "machinery" and includes complex installations. Manufacturers are required to certify that the machinery complies with the basic safety requirements. For certain machinery which represents a greater potential hazard, EC type testing is prescribed. In the course of the period covered by this report, the Machinery Directive was amended twice. The main effect of Directive 91/368/EEC was to introduce additional essential requirements for protection against hazards arising from the movement of machinery or the lifting of loads. The amending Directive 93/44/EEC is primarily concerned with the avoidance of hazards involved in vertical transport of persons. The Machinery Directive with its additions applies to most of the machinery used in minerals exploration, extraction and preparation. This applies not only to the usual surface and underground winning machines, transport equipment and installations and preparation plant but also to heavy opencast plant and hydraulic powered supports. The proposal that shaft winders should be included within its area of application did not attract a majority in the Council.

Directive 89/686/EEC contains essential requirements for the design and manufacture of personal protective equipment and lays down the conditions for placing it on the market and for free movement. All simple personal protective equipment is exempted from EC type testing in connection with EC quality assurance.

Explosives for civil uses were brought within the ambit of harmonisation by Directive 93/15/EEC. The definition for such substances is based on international rules for the transport of dangerous goods. Explosives within the meaning of the Directive may be placed on the market if they comply with all requirements of the Directive, are provided with a special marking and have undergone a conformity assessment. An authorisation is required for transfer.

Directive 94/9/EC applies to equipment and protective systems intended for use in potentially explosive atmospheres, and covers both electrical and mechanical explosion protection. Since the dangers, protective measures and test methods are often very similar or indeed identical in surface and underground installations, the Directive covers both fields. Equipment intended for use in underground parts of mines, and in those parts of surface installations of such mines, liable to be endangered by firedamp and/or combustible dust constitutes group I, which is subdivided into categories M 1 and M 2. The conformity assessment procedures depend on the degree of risk to which an item of equipment may give rise and/or the degree of risk against which a device is intended to protect the immediate surroundings. Directive 94/9/EC will replace Directive 82/130/EEC on electrical equipment for use in potentially explosive atmospheres in mines susceptible to firedamp not later than 1 July 2003.

The proposal for a Directive on pressure equipment (OJ No C 246, 9.9.1993, p. 1; No C 207, 27.7.1994, p. 5) had major implications for the extractive industries¹. Its scope includes pressure equipment and assemblies – several pieces of pressure equipment assembled by a manufacturer to constitute an integrated and functional whole – with a maximum allowable pressure in excess of 0.5 bar. The Safety and Health Commission therefore sought to ensure that account was taken of conditions in mineral extraction. In the course of the consultations, special rules were introduced for various items of plant used in the extractive industries.

2.6.3 Other areas

The Safety and Health Commission vigorously opposed the European Commission's intention to include the extractive industries within the scope of the revised Directive 82/501/EEC (the "Seveso Directive"), since it feared overlapping and misinterpretation as regards the safety and health of workers and felt that Community directives - in particular Directives 89/391/EEC, 92/91/EEC and 92/104/EEC - together with extensive and more comprehensive rules in the Member States provided full regulation of safety and health protection for workers in the extractive industries and hence also of protection for the surrounding areas.

The Safety and Health Commission also scrutinised a draft Directive on the approximation of the laws of the Member States relating to the measures to be taken against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery. The proposal was published as document COM/95/350 final. The Directive's scope is intended to include underground and surface workings in the extractive industries. The Safety and Health Commission sought arrangements which took account of conditions in these industries and avoided restricting the Member States' scope for enacting more stringent legislation consistent with the EC Treaty for the protection of workers during the use of such machinery and equipment.

2.7 Events

The Safety and Health Commission also endeavoured to highlight the importance of safety and health protection for the extractive industries by organising various events. Improvement of safety and health conditions at work was promoted by special campaigns. The exchange of ideas and experience and the rapid dissemination of new knowledge were encouraged by means of conferences and symposia, a workshop and a congress.

2.7.1 Safety campaigning activities

The Safety and Health Commission has long sought to promote "safety campaigns" in the Member States to foster safety and health protection and has secured funding for several of these activities from the European Commission budget virtually every year. The safety campaigns were geared to the conditions and risks encountered in specific regions and/or branches of the extractive industries. Preference was given to topics which were of current interest or were important for the area or type of operation in question, relating to both surface and underground workings and borehole operations. The Safety and Health Commission increasingly sought to involve small and medium-sized firms in these activities.

Mention should be made of a major European venture in which the Safety and Health Commission played a part. Under the aegis of the European Commission, the European Year of Safety, Hygiene and Health Protection at Work was held between 1 March 1992 and 28 February 1993. As high-risk sectors, the extractive industries were among the priority areas. The activities were organised by a

¹ The proposal has since been adopted as Directive 97/23/EC (OJ No L 181, 9.7.1997, p. 1). Consideration will shortly be given to the possibility of incorporating Directive 87/404/EEC on simple pressure vessels.

central committee in Luxembourg and national liaison committees. The importance of safety and health protection was highlighted in many different ways, e.g. by the opening ceremony in Lisbon, the final conference in Copenhagen, a film festival, various national events, information campaigns in the public domain and in industry and selected television programmes. The Safety and Health Commission proposed that the European Commission provide financial support for the making of a number of films on specific safety and health topics in the extractive industries.

2.7.2 Conferences

The Safety and Health Commission organised periodic conferences for workers in the extractive industries. One such conference was held on 30 September and 1 October 1985 in Luxembourg and another on 25–26 June 1990 in Madrid. They allowed a large number of workers to become acquainted with the mission, working methods and achievements of the Safety and Health Commission, the European Commission's safety and health goals and action and new findings of practical relevance from European research projects. They also obtained an insight into the nature and structure of the extractive industries and the current status of safety and health protection in the host country and/or a neighbouring country.

2.7.3 Symposia

In the report period, four symposia were held in Luxembourg, dealing with important and topical questions in various fields.

2.7.3.1 Safety and health in diving operations

As offshore activities have expanded, subsea work has become increasingly important. New methods and equipment have raised new safety or medical issues. In order to allow the key aspects to be discussed before a wide audience, the Safety and Health Commission, together with the European Diving Technology Committee (EDTC), held an international symposium on safety and health in diving operations on 7–8 May 1985. The papers read dealt with duties and responsibilities, documentation, plant and equipment, training, safety in diving work, diving medicine and guidelines for establishment of legislation. Since the mid-1980s, there has been a clear drop in fatal accident rates. In order to take account of further developments, especially in methods, working techniques and equipment, safety technology and medicine, a follow-up workshop was held in Luxembourg on 13–15 April 1994. Some of the topics discussed were complementary to the 1985 symposium.

2.7.3.2 Safety and health in the other-than-coal mining and quarrying industries

At the international symposium on safety and health in the mining and quarrying industries on 10–11 September 1986, the current status of safety and health work in these activities was described and ways of improving safety and health identified. The subjects covered included working methods, ways of reducing accident risks in quarries and new safety developments in the other-than-coal deep mining industries. Other papers emphasised the importance of training for safety and health and discussed worker involvement in safety and the role of the inspectorates.

2.7.3.3 Explosion and fire risks in auxiliary-ventilated workings

The symposium on explosion risks in auxiliary-ventilated workings on 17 September 1985 was a response by the Safety and Health Commission to the Simon Colliery disaster on 25 February 1985 (see section 2.2.1) and to various resolutions of the European Parliament. These had called on the Safety and Health Commission to take action within the terms of its remit to analyse the causes and to work towards improvements. At the symposium, a consensus emerged on what work should be done and how it should proceed. A fresh look was to be taken at the safety of auxiliary ventilation, limiting of the dangers of explosion, measures to improve prevention and fighting of mine fires and to improve protection of personnel and the influence of human factors. The work was to take

account of lessons learned from various other explosions in which auxiliary ventilation had played a part.

The symposium on 6–7 December 1990 on "Measures to reduce the explosion and fire risk in auxiliary-ventilated workings and to improve the protection of personnel in the event of explosions and fires in coal mines" centred on Doc. No 5147/89 (see section 2.3.1.4). This text dealt in detail with the subjects agreed upon at the symposium on 17 September 1985. The substantial report produced by the Safety and Health Commission was presented to a large number of representatives of the governments and inspectorates in the Member States, employers and employees, staff from scientific establishments and testing laboratories and academics. The discussion confirmed that the explosion and fire risk in coal mines could be reduced and workers' safety increased by new measures, methods and equipment. Papers were also presented on the outcome of the inquiry into a major fire in a London underground station and on the drivage of the Channel Tunnel. These revealed similarities between mining and other sectors.

2.7.4 Workshop

The explosion protection workshop held on 27 November 1995 in Luxembourg followed up the symposium of 6–7 December 1990. The aim was to establish whether the lessons emerging from some recent explosions made it desirable to add to Doc. No 5147/89 on the explosion and fire risk in auxiliary ventilation and workforce protection. There was detailed discussion of the explosion at San Nicolás Colliery (Spain), the explosion at Haus Aden Colliery (Germany) (see section 2.2.1) and the triggered barriers which had been developed in the course of 25 years of research. The debate revealed several areas in which there seemed to be reason to update Doc. No 5147/89. The main topics to be investigated are the firedamp hazard in blind-end workings, deep/extended cut methods, various questions in connection with ducting, problems in the use of self-rescuers, ventilation of roof cavities, possible modes of frictional ignition and active (triggered) barriers.

2.7.5 Congress

On 28–29 April 1994, a congress on "Forty years of Community work on safety and health in the extractive and steel industries" was held in Luxembourg. Some of the prominent speakers were H. McCubbin (MEP), G. Porrazzini (MEP) and M.A. García Loygorri, of the ECSC Consultative Committee.

The Safety and Health Commission played a major part in preparing and shaping this congress, although a great deal of ground was covered in addition to the SHCMOEI's functions. The first part focused on safety and health protection at work. The European approach to improving occupational safety and health in underground and surface workings and borehole operations was discussed in detail. Other papers dealt with specific questions such as explosion barriers and specifications and testing conditions for fire-resistant hydraulic fluids. The first part concluded with a report on the work of the Steel Industry Safety and Health Commission.

The second part of the congress provided a good overall picture of the ECSC research programmes and their results. Brief accounts were given of the programmes on pollution in the iron and steel industry, industrial hygiene in mines, medical research and ergonomics. General regret was expressed at the fact that they were being wound up.

2.7.6 Other information activities

Members of the Safety and Health Commission secretariat took part in many events arranged by other bodies in the Member States and non-Community countries, and reported on the work of the Safety and Health Commission and the European Commission.

There were also many visits by groups or individuals with an interest in the Safety and Health Commission's work.

Particular significance attaches to visits by representatives of government departments and employees' and employers' organisations from the new Member States, who both before and after the accession of their countries to the European Union acquainted themselves with the safety and health work of the European Commission and its associated bodies, including the Safety and Health Commission.

Members of the Safety and Health Commission and its Committees and Working Parties also disseminated information to the audiences concerned within their own countries.

2.8 Co-operation with other institutions, committees and bodies

In the reporting period, the Safety and Health Commission maintained close relations with various European and international organisations, in particular with the following bodies.

2.8.1 ECSC research committees

Under the terms of its remit, the Safety and Health Commission collaborated with the ECSC research committees in proposing various research projects to improve safety and health in mining. It also played a part in the exploitation of the research results and contributed greatly to the application of new knowledge in practice. Major concerns of the safety programmes were the prevention, detection and combating of open and deep-seated mine fires and the initiation and propagation of explosions, together with their prevention and ways of limiting their effects. New strategies were developed for mines rescue and individual aspects such as location, communications and self-rescuers were improved. Other projects addressed the prediction and prevention of rockbursts and gas outbursts and the introduction and dissemination of modern techniques for monitoring, remote control and automation. The programmes on health protection at work included, e.g. projects on fibrogenic mineral dusts, noise, vibration and diesel exhaust and their control.

2.8.2 European standardisation

The drive towards technical harmonisation within the European Community, which also encompasses the extractive industries, has made it necessary for the Safety and Health Commission to become involved in the work of the European standardisation bodies CEN and CENELEC. In product-related directives under the old approach, harmonised standards are often important elements in the instruments themselves while for new approach directives they give practical expression to the essential safety and health requirements. An example of the traditional approach to harmonisation is Directive 82/130/EEC on the approximation of the laws of the Member States concerning electrical equipment for use in potentially explosive atmospheres in mines susceptible to firedamp. The Safety and Health Commission and its secretariat monitored the standardisation work in connection with this Directive and the more recent directives listed in section 2.6.2 for conformity with their aims, departures and overlap. In several cases, the European standardisation bodies used the results of work by the Safety and Health Commission in order to produce general standards. This applies e.g. to self-rescuers, methanometers, explosimeters and test methods for fire-resistant conveyor belts. The Safety and Health Commission secretariat was also directly involved in the revision of CEN standards in the field of explosion protection and was assisted in this task by the Safety and Health Commission itself and its Working Parties. The Safety and Health Commission's requirements and tests for fire-resistant hydraulic fluids are shortly to be taken over by the CEN in harmonised standards.

2.8.3 European Diving Technology Committee

The Safety and Health Commission maintained close links with the European Diving Technology Committee. Underwater work is an area of rapid technological progress. It was therefore necessary to exchange information frequently on the implications of changes in methods and equipment for the safety and health of divers.

2.8.4 Advisory Committee on Safety, Hygiene and Health Protection at Work

Since 1994, the Safety and Health Commission and the Advisory Committee on Safety, Hygiene and Health Protection at Work have exchanged observers, government, employer and employee representatives being invited to attend the plenary meetings of the other body. This practice is intended to make the two bodies more familiar with each other's structure, goals and working methods and to reveal any overlap in their missions and activities. Experience to date indicates that while the two bodies do have various points in common, they work in different ways and do not really perform similar functions.

2.8.5 The European Agency

The European Agency for Safety and Health at Work was established by Council Regulation No 2062/94 of 18 July 1994 (OJ No L 216, 20.8.1994, p. 1). Its aim is to provide the Community bodies, the Member States and those involved in the field with the technical, scientific and economic information of use in the field of safety and health at work. The Administrative Board consists of 48 members, comprising representatives of the governments, employers, employees and the European Commission (Regulation No 1643/95 of 29 June 1995 – OJ No L 156, 7.7.1995, p. 1). The Safety and Health Commission took a close interest in the establishment of the Agency and is keen to cooperate with it. Given its competence and experience, it regards itself as the most suitable European body to assist the Agency in all matters pertaining to the safety and health of workers in the extractive industries.

2.8.6 International Labour Organisation

There are many links between the International Labour Organisation and the Safety and Health Commission and this is reflected in the routine presence of an ILO observer at plenary meetings of the Safety and Health Commission. During the report period, particular importance attached to the work of the ILO on safety and health in mines. In preparation for a discussion of this topic in Conference, the ILO sent out various documents, including a questionnaire. This was based on the Community Directive 92/104/EEC on the minimum requirements for improving the safety and health protection of workers in surface and underground mineral-extracting industries and formed the basis for the Convention subsequently adopted. It was completed not only by the Member States of the European Union but also at Community level. The Community's response was drafted by the European Commission with assistance from the Safety and Health Commission and was scrutinised and amended by the Council social affairs working party. The final version was forwarded by the Council. Convention 176 concerning Safety and Health in Mines and the accompanying Recommendation 183 were adopted by the General Conference of the International Labour Organisation on 22 June 1995. The Safety and Health Commission is closely monitoring progress towards ratifying this Convention in the Member States.

2.9 Improvements in organisation and working methods

In 1993, the Safety and Health Commission took an important decision in order to be able to work even more effectively than before within the given administrative and financial constraints. The 12 Working Parties then in existence were reduced to five Committees: Underground Workings, Surface Workings, Borehole Operations, Health Protection, Human Factors. Terms of reference were handed down to these Committees and their chairmen and deputy chairmen were chosen from among the members of the Restricted Committee, which took on the role of a steering committee.

2.10 Future work

In future years, the Safety and Health Commission intends to produce a number of proposals to the governments of the Member States. These include recommendations and reports on principles of strata control and support in deep other-than-coal mines, reduction of fire and explosion risks in deep mines and in oil and gas extraction, control of transport-related hazards in opencast mines and quarries, reduction of risks to health resulting from diesel exhaust emissions, especially in confined spaces, and workplace risk assessment (Doc. No 5245/3/94). It is also proposed to look into ways of preventing accidents and occupational illnesses by taking better account of human factors.

The Safety and Health Commission will continue to support the European Commission in its efforts to improve safety and health in the extractive industries, particularly stressing constructive dialogue on transposal of Community directives into national law and their implementation.

3. PAST ACHIEVEMENTS AND FUTURE PROSPECTS

For almost 40 years, the Safety and Health Commission has made a sustained effort to improve workers' safety and health and operational safety in the extractive industries by technical and organisational measures and, to an increasing extent, by consideration for human factors. It has many positive achievements to its credit and this is reflected e.g. in the decline of accident rates and the incidence of typical occupational diseases and in the more acceptable conditions obtaining at the workplace.

The Safety and Health Commission has repeatedly demonstrated its ability to match its work programme to current safety and health needs and to work towards practicable solutions within a reasonable time frame. It is better placed to do this than any other European forum because of its technical competence and experience of the extractive industries and its composition. A viable secretariat is essential if the work is to remain abreast of current developments. The Safety and Health Commission will also seek ways of adapting its organisation and working methods to an enlarged European Union.

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