



COMMISSION OF THE
EUROPEAN COMMUNITIES

DIRECTORATE-GENERAL
SOCIAL AFFAIRS



FIFTH REPORT OF THE
STEEL INDUSTRY SAFETY AND
HEALTH COMMISSION

(1973)

Luxembourg, April 1974



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1. INTRODUCTION

1973 was marked by a high level of production in the iron and steel industry.

For the whole of the Community of Nine, production rose to 150.1 million tonnes of crude steel, an increase of 7.9% over 1972.

For the Community of Six, it was 122.9 million tonnes, or 8.6% more than in the previous year.

The increase was greatest in the Federal Republic of Germany, where it reached 13.3% more than in 1972.

This report on the activities of the Steel Industry Safety and Health Commission in 1973 includes a brief study, in Paragraph 5.4., comparing trends in production figures, and in accidents causing absence from work, over the period 1960 - 1972. This study was included at the request of the European Parliament. It shows that an increase in steel production and a high turnover in the work-force often coincide with an increase in the frequency rate of accidents causing absence from work.

Since 1967 the frequency rates of accidents causing absence from work have grown worse every year; 1972 showed a further recession which though slight, was still appreciable (97 accidents causing absence per million hours worked in 1972, as against 94 in 1971, a steady increase since 1967).

On the other hand, fatalities have dropped sharply since 1968. The absolute figure for 1972 (93) was less than half that for 1960 (198) and the frequency of these accidents fell by almost 40% over the same period (0.12 as against 0.19).

These two facts seem contradictory - it is difficult to see any progress in safety as regards fatal accidents alone, when the seriousness of the consequences of accidents is not necessarily linked with the causes of accidents, and accident prevention is primarily concerned with causes.

The Steel Industry Safety and Health Commission intends to embark on even more intensive studies of statistical data, in an attempt to gain a better understanding of these phenomena.

2. MEETINGS OF THE STEEL INDUSTRY SAFETY AND HEALTH COMMISSION

The Steel Industry Commission held its 9th and 10th meetings in 1973. At the meeting on 15 January 1973, it:

- heard statements by the rapporteurs of the Working Party on First Aid and Rescue, examined their conclusions on the whole of the Working Party's study and suggested several amendments, appointing a sub-committee to draft these. In principle it approved the conclusions reached;
- asked the Working Party to revise this study every two years to bring it up to date and add to it;
- heard a statement by Mr. GREGORY, Deputy Director of the British Steel Corporation's Accident prevention Department, on damage control experiments carried out in Great Britain;
- held a discussion aimed at defining the future programme of the Steel Industry Safety and Health Commission;
- heard reports on the past activities of the Commission and possibilities for the future presented by officials of the Directorate-General for Social Affairs;
- decided to hold a major debate on its future programme at the next meeting.

The 10th meeting was held on 10 July 1973 and at it the Steel Industry Commission:

- welcomed the new members representing Great Britain and Ireland;
- examined the European Parliament's Resolution on its 3rd report;
- adopted the draft version of its 4th report, which would be presented to the European Parliament;
- adopted the conclusions of the Working Party on Safety - Oxygen, on the study on flexible piping;

- heard its Secretary's report on its own activities since its meeting on 15 and 16 June 1972;
- Discussed its future programme and decided to ask the Secretariat to present a draft programme at the next meeting, based on suggestions submitted by members;
- examined and adopted the conclusions of the Working Party on Safety
 - Oxygen, on flexible piping for gaseous oxygen under pressure;
- were given information on the 3rd research programme on "Pollution Control in the Iron and Steel Industry" and on the production of accident statistics in the iron and steel industry, one report presented by an official from the Directorate-General for Social Affairs and the other by an official from the Statistical Office of the European Communities;
- decided to hold its 11th meeting at the beginning of 1974.

3. ACTIVITIES OF WORKING PARTIES

These will be examined in the following order:

- General Studies:

- . Working Party on the Organization of Accident Prevention;
- . Working Party on Safety - Training;
- . Working Party on First Aid and Rescue.

- Technical Studies:

- . Working Party on Safety - Tapping the Blast Furnace;
- . Working Party on Safety - Overhead Travelling Cranes;
- . Working Party on Safety - Gas lines;
- . Working Party on Safety - Oxygen lines;
- . Working Party on the Use of Explosives in the Blast Furnace.

The work done by various Working Parties in the past has been discussed in earlier reports, mainly in the 3rd report.

3.1. Working Party on the Organization of Accident Prevention

Two meetings were held in 1973, on 15 - 16 February and on 25 May.

These two meetings were devoted to drawing up a standard questionnaire for individual concerns which would give them some way of questioning themselves on their own accident prevention activities and deciding how far they were applying the ten key principles of accident prevention.

This work has now been completed and the draft questionnaire will be examined by the Steel Industry Commission at its first meeting in 1974.

As part of the study on damage control undertaken by Mr. Cavé, the Director of the Industrial Health and Safety at UIMM and a member of the Steel Industry Commission and the Working Party, a meeting was held on 12 November and contact was established between the competent bodies in French, German and British factories undertaking damage control experiments. This meeting provided an opportunity to gain a better insight into certain practical aspects, and of course the results, of this new approach to accident prevention.

3.2. Working Party on Safety -- Training

A meeting of this Working Party took place on 8 - 9 March; the problems of training safety officers, from the point of view of the principles of accident prevention, was discussed. Discussion centred especially on the influence of legal obligations, basic training, communication between the safety department and the workers

and their representatives, and defining the duties of safety officers.

3.3. Working Party on First Aid and Rescue

A Sub-Committee of this Working Party, made up of the Chairman and three experts who had been invited to report to the Steel Industry Commission on the work done by the Working Party, met on 2 February 1973.

It examined the Steel Industry Commission's suggestions and made the changes which had been requested. A memorandum of the Working Party's conclusions was published and distributed at the end of 1973.

At its meeting on 15 January 1973 the Steel Industry Commission approved the Working Party's conclusions with some amendments, and asked that these conclusions be reviewed and updated by the Working Party every two years.

With this in mind the Working Party held a meeting on 3 October 1973 in a large steelworks in the Ruhr area, where it had the opportunity to inspect and test the apparatus available in the rescue vehicles used by rescue workers, to watch rescue and first aid exercises and to discuss the information and practical experience gained there.

On 4 October the Working Party visited an exhibition on industrial medicine, health and safety held in Düsseldorf at the time of the Annual Congress on Industrial Medicine, Health and Safety.

3.4. Working Party on Safety - Tapping the Blast Furnace

This Working Party held two meetings in 1973. On 22 March it discussed the safety problems linked with chemical treatment of pig iron. It also re-examined the document entitled "Oxygen outlets and oxygen lances" drawn up by the Working Party in 1967 and agreed to bring it up to date with the help of two experts from the Working Party on Safety - Oxygen.

At a meeting on 15 - 16 November the Working Party agreed on its conclusions on:

- chemical treatment of pig iron
- tapping operations.

It also launched discussion on collective protection in the taphouse. This topic is the last point of the study the Working Party was asked to undertake, and when it has reached its final conclusions on this, it will review all its conclusions and will then have fulfilled its remit.

3.5. Working Party on Safety - Overhead Travelling Cranes

This Working Party did not meet in 1973.

3.6. Working Party on Safety - Gas Lines

This Working Party did not meet in 1973.

3.7. Working Party on Safety - Oxygen

This Working Party met twice in 1973. On 27 - 28 February and 1 March it finalised its conclusions on flexible piping for gaseous oxygen; these were submitted to the Steel Industry Commission at its meeting on 10 July and approved. The document will be distributed in 1974.

The second meeting was held on 18, 19 and 20 September. Here the Working Party began examination of safety problems at various points where oxygen is used in the iron and steel industry. This is a complex problem, as oxygen is used in a number of different ways:

- low-flow pure oxygen, used in welding and cutting
- medium-flow pure oxygen, used in scarfing
- fast-flow pure oxygen, used in conversion processes in LD steelworks and the like
- oxygen with added lime, used in LD-AC and OLP steelworks, etc.
- oxygen-enriched air injected into blast furnaces and basic Bessemer steel converters.

Study of this subject will continue in 1974.

3.8. Ad-Hoc Working Party on the Use of Explosives in the Blast Furnace

The field of study of this Working Party is particularly complex, for several reasons:

- scaffolds, the plug-like obstructions that form in blast furnaces, are relatively rare;
- to eliminate them, holes are drilled in the scaffolds and explosive charges are inserted in these. In each country the explosives used are subject to regulations because of the military implications of handling these materials, and the explosives available for industrial use are not identical in all countries;
- explosives inserted in holes bored in scaffolds heat up rapidly, which may cause them to be destroyed or lead to spontaneous explosions;
- various devices have been tested for cutting down overheating of this kind (using water or air cooling systems, or casing made of insulating material); so far none of these methods has been unanimously accepted;

- blasting techniques may vary, depending on whether electrical or ordinary detonators are used, whether a detonating fuse is used or not, and whether an exploder or a fuse is used.

The Working Party met on 9 February 1973 and continued discussion on this topic, with an exchange of experiences gained. It decided to test a special technique (inserting explosive in a water-cooled tube and using a detonating fuse and fuse ignition). These tests will be carried out in Belgium, where the type of explosive recommended by the Belgian explosives authorities may be used for industrial purposes.

4. OTHER ACTIVITIES

4.1. Film on the Principles of Accident Prevention

The 4th report gave an outline of the work which had been done in various sectors with the object of producing a film illustrating the ten principles of accident prevention. Originally the Steel Industry Commission had hoped to produce a film using sequences taken from other, existing films, but this plan had to be abandoned because it was impossible to find enough appropriate sequences.

The Commission of the European Communities had granted the necessary funds and it had been decided that a professional producer would be asked to make a completely new film.

The scenario, filming sequence and commentary were decided on with the help of an ad-hoc working party made up of representatives of employers, workers and industry.

Shooting and preparation of the sound track were completed in the last two months of 1973. The film will be ready for showing to the various parties concerned in the second quarter of 1974.

The film will be available in five languages - German, English, French, Italian and Dutch. The possibility of producing a Danish version will be considered at a later date.

4.2. Collaboration with CIS

Collaboration with CIS continued in 1973. The Directorate-General for Social Affairs has a complete set of the abstracts of studies and articles dealing with industrial medicine, health and safety published throughout the world, produced by the CIS (International Occupational Safety and Health Information Centre).

It also has microfiches of these studies and articles; this documentation, which is used as a source of information for Expert Groups and Working Parties, is kept in the Secretariat of the Steel Industry Safety and Health Commission.

4.3. Distribution of Documents

The following documents were distributed in 1973:

- 3rd Report of the Steel Industry Safety and Health Commission
- Bibliography: Transport and handling
- Use of Personal Protective Equipment
- Accident Prevention Policy of the British Steel Corporation
- Maintenance and repair work on gas lines - Insulating and Degassing lines and apparatus
- Oxygen: The Design, Construction, Location and Operation of Fittings in Oxygen Installations
- First Aid and Rescue.

At the end of 1973 the following documents were being printed or prepared for publication:

- Oxygen: - Filters
 - Measuring devices
 - Tanks
 - Lubrication of fittings
 - Degreasing pipelines

- Tapping the Blast Furnace:
 - Requirements for Taphouse Construction
 - Plugging and De-plugging Devices
 - Plugging Material
 - Preparation for Tapping
 - Pig Iron Solidification Process
- Oxygen: - Flexible Piping.

The documents are normally distributed to the following bodies, on the basis of a distribution list with some 5,000 addresses:

- European institutions (Council of Ministers, European Parliament, Court of Justice, Economic and Social Committee, ECSC Consultative Committee)
- Departments of the Commission of the European Communities
- National and regional ministries and official services for industrial inspection
- Employers' and workers' trade associations
- Iron and steel companies and concerns (to directors, works managers and heads of safety services)
- Public and private bodies concerned with accident prevention, persons requesting documents
- Scientific and technical training centres, industrial and vocational training schools.

The Steel Industry Commission receives frequent requests for documents. In 1973 it received requests for 721 documents.

4.4. Special Studies

The 4th report mentioned two studies based on or motivated by the Steel Industry Commission's work.

One of these studies was assigned by the Commission to Mr. ARRAGON, a member of the Working Party on "Safety-Oxygen", with a view to drafting a working document for government experts on pressurized oxygen gas on the basis of the data contained in relevant Steel Industry Commission documents. This study is now complete.

The second study was on the topic of damage control, the practice of recording and investigating the causes of accidents involving no physical injuries, but only damage to equipment, in the hope that this may improve accident prevention. As there are far more accidents of this type than accidents involving injury, the information to be obtained is particularly significant. The study was virtually complete at the end of 1973 and the results will be passed on to the Working Party on Accident Prevention.

In 1973 Mr. ARRAGON was asked to start another study dealing with oxygen flow rates, which are a decisive factor in the technological design and operation of oxygen distribution and utilisation systems, and can affect the degree of safety of such systems.

5. INDUSTRIAL ACCIDENTS IN THE IRON AND STEEL INDUSTRY

Every year the Steel Industry Commission Report provides information on statistics for industrial accidents throughout the Community. These have since 1960, been prepared by the Statistical Office of the European Communities, on the basis of data provided by iron and steel concerns and collated by national steel industry employers' organisations, which then forwarded them to the Statistical Office. The SOEC does not receive this collated information for the previous year until June or July at the earliest.

The Steel Industry Commission's Reports on the past year's activities are drawn up in January. Thus the periods of reference for statistics and the Report cannot coincide.

This is why the statistics discussed in this Report are for the period 1960 - 1972 and refer only to the Community of Six. Where possible, supplementary data for 1973 will be furnished at the discussion of the present Report for the Community authorities.

The next Report will comment in detail on the statistics for 1973, the first year of the Community of Nine.

5.1. Fatal Accidents in the Community Steel Industry

The following table gives the numbers of fatalities for the whole of the Community, as well as the frequency rates of these accidents (number of accidents per 1,000,000 hours worked) and the accident: production ratios (number of fatal accidents per 1,000 tonnes of crude steel):

Year	Number of fatalities	Frequency rate (1)	Accident: production ratio (2)
1960	198	0.19	2.71
1961	168	0.16	2.28
1962	192	0.20	2.62
1963	148	0.16	2.02
1964	151	0.16	1.82
1965	167	0.18	1.94
1966	115	0.13	1.35
1967	107	0.13	1.19
1968	136	0.17	1.37
1969	136	0.16	1.27
1970	133	0.16	1.22
1971	115	0.15	1.11
1972	93	0.12	0.82

(1) number of fatal accidents per million hours worked

(2) number of fatal accidents per 1,000 tonnes of crude steel

The following conclusions may be drawn from this table:

- the number of fatal accidents has dropped sharply since the early sixties. The worst figure was 198 cases in 1960, while the best was the 1972 figure of 93 cases, i.e. a steady decline since 1969.

- the frequency rate of fatalities has also dropped markedly, from 0.20 in 1962 (the worst year) to 0.12 in 1972, i.e. a steady decline since 1968.
- the number of fatal accidents per 1,000 tonnes of crude steel produced, calculated for the first time in the 4th report, also improved in 1972, the improvement being regular since 1968.

Comparing the figures for 1960 and 1972, it can be seen that at constant production levels, there are now 3.3 times fewer fatal accidents than 13 years ago.

All the same, the statistical information at our disposal indicates that there has been a definite improvement in the trend in fatal accidents, as fatalities have decreased simultaneously in number, in relation to the total number of hours worked, and in relation to production figures.

The 2nd and 3rd reports drew attention to the danger of inter-country comparisons of the various statistical results available, as these are open to false interpretation.

The Steel Industry Safety and Health Commission still believes that even comparing the frequency rates of fatal accidents is an extremely problematic exercise, and will therefore refrain from this, although tables showing the frequency rates of fatal accidents for each of the Six, together with other statistics, are given in this document.

5.2. Accidents causing Absence from Work in the Community

Table II below shows the following items for the period 1960 - 1972:

- number of accidents resulting in more than 1 day's absence from work
- frequency rate of these accidents
- ratio of accidents causing absence per 1,000 t crude steel produced
- number of accidents causing more than 3 day's absence
- frequency rate of these accidents
- percentage of accidents causing between 1 and 3 day's absence.

The following conclusions may be drawn from the table:

- The annual number of accidents resulting in at least 1 day's absence dropped sharply between 1960 and 1967, when the figure was only 65% of the 1960 figure. Since 1967 there has been a marked increase in the numbers of accidents causing at least 1 day's absence.
- The frequency rate of these accidents decreased in the period 1960 - 1967, but then increased again and in 1972 was virtually the same as in 1960.
- The development in numbers of accidents resulting in more than 3 days' absence is parallel to that of accidents causing at least 1 day's absence. It may be seen that the frequency rate of these accidents in 1972 (82) has not, however, returned to the 1960 level (86) as is the case with accidents resulting in at least 1 day's absence. The remaining difference is only slight, but is still equivalent to 5%. This can be traced to a higher proportion of 1 - 3 day accidents among total accidents causing absence in 1972.

Tables are given hereafter containing figures for each of the Member States of the Community os Six.

TABLE II

Year	No. of workers	Accidents resulting in 1 day's absence			Accidents resulting in 3 day's absence		Percentage of accidents resulting in between 1 and 3 day's absence
		Number	f.r. ⁺	acc:prod	Number	f.r. ⁺	
1960	494,264	102,686	98	1,405	89,569	86	12.2
1961	501,332	100,656	96	1,369	88,685	84	12.5
1962	469,941	88,142	92	1,207	76,422	80	13.0
1963	464,702	84,496	89	1,154	73,747	78	12.4
1964	468,836	88,395	93	1,067	76,994	81	12.9
1965	460,564	83,479	90	971	72,378	78	13.3
1966	442,123	73,687	85	865	64,000	74	12.9
1967	426,329	66,628	80	741	56,804	68	15.0
1968	418,916	66,962	82	679	57,167	70	14.6
1969	424,273	71,686	87	669	62,201	75	13.8
1970	433,507	76,943	92	705	67,382	81	12.0
1971	428,562	73,882	94	714	63,241	81	13.8
1972	421,098	74,391	97	657	62,777	82	15.5

(+) frequency rate

Quite apart from the absolute levels, the frequency rates vary greatly from country to country, but the Steel Industry Commission prefers not to comment on them since it is in some doubt as to whether the differences observed between the figures for different countries can be correctly interpreted.

Although the percentage of accidents resulting in 1 - 3 days' absence has been less than 4.5% in France for every year from 1960 to 1972, the figures for Italy and Belgium have always been higher than 20%.

This observation is only explicable in terms of factors not directly connected with the accident.

5.3. Seriousness of Accidents

As mentioned above, the Statistical Office does not have any data on the seriousness of accidents, except in the case of fatal accidents. The data it does have are related only to the length of absence from work.

The next table shows, for the period 1960 - 1972, the number of calendar days lost, the number of hours lost per 1,000 hours worked, the number of days lost per worker and the number of days lost per accident.

COMMUNITY

Year	Number of calendar days lost	Number of hours lost per 1,000 hours worked	Number of days lost per worker	Number of days lost per accident
1960	1,735,370	9.59	3.8	16.9
1961	1,747,758	9.55	3.8	17.4
1962	1,576,954	9.21	3.7	17.9
1963	1,527,193	8.98	3.7	18.1
1964	1,580,937	9.21	3.7	17.9
1965	1,492,686	8.88	3.6	17.9
1966	1,355,529	8.40	3.4	18.4
1967	1,206,785	7.76	3.1	18.1
1968	1,202,514	7.91	3.2	18.1
1969	1,323,955	8.55	3.4	18.5
1970	1,387,454	8.78	3.5	18.1
1971	1,431,769	9.15	9.7	19.4
1972	1,401,376	9.09	3.6	18.8

GERMANY

Year	No. of workers	No. of hours worked x 1,000	Fatal accidents	Accidents causing > 1 day's absence	Accidents causing > 3 days' absence	Percentage of accidents with 1 - 3 days' absence
			f.r. +	f.r. +	f.r. +	
1960	214,671	427,479	0.18	108	95	13.6
1961	214,845	426,250	0.12	102	92	9.8
1962	203,976	386,124	0.20	95	85	10.5
1963	198,184	376,060	0.16	89	79	11.2
1964	200,656	389,527	0.15	97	85	12.3
1965	196,246	376,518	0.19	98	87	11.2
1966	186,913	351,223	0.13	98	80	13.0
1967	179,935	392,045	0.14	86	72	16.2
1968	177,372	336,016	0.18	94	80	14.9
1969	179,616	346,463	0.15	100	87	13.0
1970	181,686	345,182	0.15	105	94	10.5
1971	175,187	310,063	0.15	106	92	13.2
1972	165,488	298,213	0.11	105	90	14.2

(+) f.r. = frequency rate

BELGIUM

Year	No. of workers	No. of hours worked x 1,000	Fatal accidents	Accidents causing > 1 day's absence	Accidents causing > 3 days' absence	Percentage of accidents with 1 - 3 days' absence
			f.r. ⁺	f.r. ⁺	f.r. ⁺	
1960	53,361	108,542	0.20	128	100	28.0
1961	52,878	106,915	0.19	122	95	22.1
1962	51,021	107,981	0.19	110	84	23.6
1963	50,662	107,150	0.23	107	82	23.4
1964	52,193	108,605	0.17	114	87	23.7
1965	50,459	108,767	0.18	107	80	25.2
1966	48,164	97,564	0.14	95	70	26.3
1967	47,581	94,790	0.13	90	67	25.6
1968	48,031	95,516	0.18	87	65	25.3
1969	49,043	97,668	0.17	87	66	24.1
1970	50,018	98,347	0.16	93	72	22.6
1971	50,049	94,843	0.17	96	73	24.0
1972	50,017	95,069	0.15	105	82	22.1

(+) f.r. = frequency rate

FRANCE

Year	No. of workers	No. of hours worked x 1,000	Fatal accidents	Accidents causing > 1 day's absence	Accidents causing > 3 days' absence	Percentage of accidents with 1 - 3 days' absence
			f.r. ⁺	f.r. ⁺	f.r. ⁺	
1960	148,362	343,471	0.22	74	71	4.0
1961	150,312	341,506	0.20	73	71	2.7
1962	128,977	287,720	0.20	73	70	4.3
1963	129,410	282,906	0.14	72	70	2.8
1964	130,129	284,695	0.15	71	69	2.8
1965	126,839	270,871	0.17	67	65	3.0
1966	119,944	251,737	0.12	65	63	3.1
1967	113,013	234,055	0.10	59	58	1.7
1968	107,809	219,408	0.13	57	56	1.7
1969	107,634	218,766	0.20	62	60	3.2
1970	109,274	218,742	0.17	64	62	3.1
1971	107,863	209,250	0.15	68	66	2.9
1972	105,823	199,664	0.13	70	68	2.9

(+) f.r. = frequency rate

(1)

ITALY

Year	No. of workers	No. of hours worked x 1,000	Fatal accidents	Accidents causing >1 day's absence	Accidents causing >3 days' absence	Percentage of accidents with 1 - 3 days' absence
			f.r. ⁺	f.r. ⁺	f.r. ⁺	
1960	51,177	111,132	0.15	104	78	25.0
1961	54,532	118,503	0.15	112	82	26.8
1962	57,081	118,145	0.20	110	80	27.3
1963	57,609	122,318	0.15	112	88	21.4
1964	55,665	111,331	0.10	107	84	21.5
1965	55,614	112,587	0.19	102	77	24.5
1966	55,506	108,360	0.16	95	75	21.0
1967	54,640	110,263	0.12	96	75	21.9
1968	54,611	108,322	0.18	91	69	24.2
1969	56,026	102,701	0.14	98	76	22.5
1970	59,287	108,790	0.17	117	91	22.2
1971	62,370	109,731	0.12	121	91	24.8
1972	66,518	114,022	0.12	132	95	28.0

(+) f.r. = frequency rate

GRAND DUCHY OF LUXEMBOURG

Year	No. of workers	No. of hours worked x 1,000	Fatal accidents	Accidents causing > 1 day's absence	Accidents causing > 3 days' absence	Percentage of accidents with 1 - 3 days' absence
			f.r. ⁺	f.r. ⁺	f.r. ⁺	
1960	19,705	47,619	0.05	121	115	5.0
1961	19,308	40,646	0.17	117	110	6.0
1962	19,082	39,108	0.23	107	100	7.0
1963	19,902	38,581	0.10	111	103	7.2
1964	19,403	39,279	0.46	112	102	8.9
1965	19,572	38,717	0.21	115	106	7.8
1966	19,552	38,071	0.26	108	100	8.0
1967	19,299	37,121	0.27	104	98	5.8
1968	18,968	36,347	0.22	94	88	6.4
1969	19,045	36,780	0.16	105	97	7.6
1970	19,576	36,734	0.14	102	94	7.8
1971	19,294	35,635	0.17	94	87	7.4
1972	19,041	34,501	0.09	85	74	12.9

(+) f.r. = frequency rate

NETHERLANDS

Year	No. of workers	No. of hours worked x 1,000	Fatal accidents	Accidents causing >1 day's absence	Accidents causing >3 days' absence	Percentage of accidents with 1 - 3 days' absence
			f.r. ⁺	f.r. ⁺	f.r. ⁺	
1960	—	—	—	—	—	—
1961	9,457	18,201	0.05	63	54	14.3
1962	9,804	18,597	0.32	69	57	17.4
1963	9,935	18,946	0.11	61	53	13.1
1964	10,790	20,634	0.05	70	61	12.9
1965	11,834	22,372	0.04	69	59	14.5
1966	12,044	22,404	0.04	66	57	13.6
1967	11,868	22,047	0.05	54	48	11.1
1968	12,125	22,292	0.09	55	49	10.9
1969	12,909	23,620	0.08	44	40	9.1
1970	13,666	24,427	0.12	42	38	9.5
1971	13,799	23,953	0.17	47	43	8.5
1972	14,211	24,192	0.17	45	40	9.0

(+) f.r. = frequency rate

5.4. Accidents causing absence from work related to production and the work-force

The way statistical indicators for industrial accidents in the iron and steel industry have developed is far from satisfactory. Even though there have been fewer fatal accidents and their frequency rate has dropped sharply, accidents causing at least one day's absence from work and those resulting in more than three days' absence have increased in number and frequency, especially since 1967.

Earlier reports have already emphasised the danger of taking accident statistics as a basis for assessing how effective accident prevention activities have been or how safe or unsafe a particular company or concern is.

The desire has already been expressed for other indicators - as yet undefined - to be formulated and discussed before such assessments can be made.

But the fact remains that these statistics reflect an undeniable reality and even though they do not provide a means of judging the state of accident prevention or safety, they do represent a gauge of the "accident situation" at social and economic level.

For these reasons we have attempted in the following to compare the trend in frequency rates of accidents causing at least one day's absence with fluctuations in production, on the one hand, and with variations in the number of workers, and their principal features, on the other.

The following table gives a statistical outline of these different trends. For accidents, the frequency rate is seen to:

- drop in 1960 - 1963
- rise again in 1964
- drop in 1965 - 1967
- increase progressively from 1968 - 1972.

ACCIDENTS, PRODUCTION AND THE WORK-FORCE

Year	f.r. ⁺	Crude steel production 1,000 t	Variation in % (++)	Load factor	Variation in % (++)	Number of workers at end of year	Variation in % (++)	Foreign workers	Variation in % (++)	Percentage of total workers	Intake (2)	Percentage of total workers
1960	98	73,076		95.5		482,453		(1)			81,765	16.9
1961	96	73,511	+ 0.05	91.7	÷ 3.8	483,351	+ 0.2	(1)			72,320	15.0
1962	92	73,011	- 0.07	87.5	- 4.2	479,466	- 0.8	56,050		11.7	73,522	15.3
1963	89	73,218	+ 0.03	83.3	- 4.2	469,326	- 2.1	55,399	- 1.16	11.8	67,644	14.4
1964	93	82,856	+13.2	90.0	+ 6.7	477,513	+ 1.7	65,293	+17.8	13.7	84,144	17.6
1965	90	85,991	+ 3.8	84.2	- 5.8	464,707	- 2.7	64,052	- 1.9	13.8	63,424	13.6
1966	85	85,105	- 1.0	78.6	- 5.6	439,949	- 5.3	58,486	- 8.7	13.3	52,109	11.9
1967	80	89,885	+ 5.6	80.1	+ 1.5	423,984	- 3.6	53,809	- 8.0	12.7	43,715	10.3
1968	82	98,634	+ 9.6	85.7	+ 5.6	421,658	- 0.5	56,039	+ 4.1	13.3	57,640	13.7
1969	87	107,318	+ 8.8	89.0	+ 3.3	432,122	+ 2.5	64,570	+15.2	14.9	80,155	18.6
1970	92	109,203	+ 1.8	86.2	- 2.8	437,181	+ 1.2	69,115	+ 7.0	15.8	79,894	18.3
1971	94	103,376	- 5.3	76.1	-10.1	426,639	- 2.4	67,665	- 2.1	15.9	60,421	14.2
1972	97	113,147	+ 9.5	79.5	+ 3.4	426,172	- 0.1	72,058	+ 6.5	16.9	67,084	15.7

(+) f.r. = frequency rate of accidents causing absence from work per million hours worked.

(++) Each column marked "variation in %" shows the variation of the figure in the preceding column as against the previous year.

(1) figure calculated on different basis prior to 1962, as Algerian workers in France were not classed as foreign workers.

(2) including movements from one work to another.

Let us examine the developments in production and in the work-forces in each of these periods:

- from 1960 - 1963
- frequency of accidents decreased
 - production remained stable (between 73 and 73.5 million tonnes of crude steel)
 - the load factor dropped gradually each year, from 95.5% to 83.3%
 - the total number of workers employed fell from 482,453 to 469,326
 - foreign workers formed at the most 11.8% of the total number
 - the intake of new workers dropped from 16.9% to 14.1% of the total work-force.
- in 1964
- the accident frequency grew worse
 - production increased by 13.2% (82.8 million tonnes of crude steel as against 73.2 in 1963)
 - the load factor on production facilities increased (from 83.3% to 90%)
 - the number of workers rose by 1.7%
 - the number of foreign workers grew from 55,000 to 65,000, an increase of 18%
 - the number of new workers signed on rose to 17.6% of the work-force or nearly 85,000 persons.
- from 1965 - 1967
- the frequency of accidents causing absence from work dropped, from 93 in 1964 to 80 in 1967
 - production increased by 3.8% in 1965, dropped somewhat in 1966 and then increased again, by 5.6%, in 1967
 - the load factor fell to its lowest level in 1966 (78.6%) and rose slightly in 1967 (80.1%)

- the number of workers fell gradually from 477,513 in 1964 to 423,984 in 1967
- the number of foreign workers employed fell sharply and progressively (in 1967 there were nearly 12,000 fewer foreign workers than in 1964)
- the intake of new workers decreased annually (from 17.6% in 1964 to 10.3% in 1967).

from 1968 to 1972

- there was a gradual increase in the frequency of accidents, with the rates moving from 80 in 1967 to 97 in 1972.
- there was a marked increase in crude steel production, especially in 1968 and 1969, both showing an increase of 9% over the previous year. There was a slight increase, followed by a drop in 1971 and then by a sharp increase of almost 10% in 1972
- the load factor increased in 1968 and 1969, then fell to its lowest point in 1971 (76.5%) and rose again in 1972, almost reaching the 1967 level
- the number of workers increased in 1969 - 1970, then fell by approx. 2.5%
- the number of foreign workers rose sharply from 53,089 in 1967 to 72,058 in 1972, with the greatest increase being recorded in 1969 (15.2% foreign workers more than in the previous year), and reaching 16.9% of the total work-force in 1972, the highest proportion ever
- turnover in employees was very high; the percentage of new workers in the total number was 13.7% in 1961, 18.6% in 1969, 18.3% in 1970, 14.2% in 1971 and 15.7% in 1972.

It has been observed that significant growth in production massive increases in the work-force, a rising proportion of foreign workers and accelerated turnover in employees all seem to coincide with a higher rate of accidents causing absence from work.

Conversely, the lowest accident rates coincided with periods when production was stable or increasing only slightly and the work-force, too, was stable or increasing slightly.

This confirms that factors connected with production levels and the work-force have an appreciable influence on the number of accidents resulting in absence from work.

Only in the case of 1971 do the figures not tally with this observation - the frequency rate rose from 92 to 94 while production, the load factor, the number of workers, the number of foreign workers and the percentage of new workers all fell as against the previous year. This may be due to factors other than those considered above or one might also say that the continuing deterioration was the result of the fast production growth and high intake percentages in the preceding years.

However it would be dangerous to take the results of this study as the basis of any rigid system - this would be tantamount to considering accident frequency as a constant, subject to annual correction depending on movements in production and the work-force, and concluding that the level of safety in industry is also a constant and hence not open to improvement.

Here we should remember that accidents causing at least one day's absence from work - the criterion used for assessing the accident situation - only represent a small proportion of all accidents causing physical injury. Far more numerous are accidents which, while involving injuries, do not result in absence from work. If the proportion of the latter type of accident is reduced for any reason, by factors not directly connected with the accident (i.e. social, medical or other factors), this is enough to cause an increase in the proportion of accidents resulting in absence from work. This could create an apparent increase in the number of accidents causing absence, even if the total number of accidents involving injuries had actually fallen. This phenomenon has been observed in a number of Community concerns, but we cannot say whether it is general, as not enough statistics on all accidents involving injury are available.

The Secretariat of the Steel Industry Safety and Health Commission is planning to study this matter in 1974 and 1975 in a number of Community steel concerns.

6. OBJECTIVES

Ever since it was set up the aim of the Steel Industry Safety and Health Commission has been to make the most effective contribution it can to preventing industrial accidents and disorders caused by occupational hazards, by establishing codes of good practice and issuing recommendations on plant design and construction and the organization of work; and to ensure the widest possible distribution of the results obtained in the studies it sponsors and any other scientific research results which could be of direct use in industry.

The accession of the new Member States to the ECSC should enable it to fulfil these objectives even more effectively, and it was for this reason that it decided, at its meeting in July 1973, to revise its programme of activities so that the studies undertaken would correspond to the wishes of all members, both old and new.

It also hopes that it will be possible to increase the means at its disposal so that it can meet the vast demand for information on safety and health from political, industrial and trade union circles, even better than it has done in the past.

Indeed it believes that continuing the work it has begun, and conducting new studies - made necessary by the development of new techniques and justified by the use of new materials - should be matters for priority action at social level.

The Steel Industry Commission hopes that the Commission of the European Communities will ensure the widest possible distribution of its film on the key principles of accident prevention, which have been designed to increase awareness at all levels - among workers and management and in safety committees - of the absolute need for an accident prevention policy in every concern.

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LISTE DES MEMBRES DE LA COMMISSION GENERALE
ET DE SES GROUPES DE TRAVAIL

LISTE DER MITGLIEDER DES ALLGEMEINEN AUSSCHUSSES
UND SEINER ARBEITSGRUPPEN

ELENCO DEI MEMBRI DELLA COMMISSIONE GENERALE
E DEI SUOI GRUPPI DI LAVORO

NAMEN VAN DE LEDEN VAN DE ALGEMENE COMMISSIE
EN VAN HAAR WERKGROEPEN

LIST OF THE MEMBERS OF THE GENERAL COMMISSION
AND ITS WORKING GROUPS

Commission générale de la sécurité et de la salubrité dans la sidérurgie

Allgemeiner Ausschuss für die Arbeitssicherheit und den Gesundheitsschutz in
der Eisen- und Stahlindustrie

Commissione generale per la sicurezza e la salubrità nell'industria siderurgica

Algemene Commissie voor de arbeidsveiligheid in de ijzer- en staalindustrie

General Commission on safety and health in the Iron and Steel Industry

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